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On the Last Mile: The Effects of Telecommunications Regulation and Deregulation
in the Rural Western United States and Canada

A Dissertation submitted in partial satisfaction of the requirements for degree
Doctor of Philosophy

in

Communication (Science Studies)

by

Nadine Irène Kozak

Committee in charge:

Professor Robert Horwitz, Chair
Professor Kelly Gates
Professor Hugh Mehan
Professor Michael Schudson
Professor Robert Westman

2010

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Chair

University of California, San Diego

2010

DEDICATION

For my parents,
Irène and Thomas Kozak

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PREFACE

I embarked on rural research not because I grew up in a rural area. Indeed, I have lived in cities all of my life: Calgary and Edmonton, Alberta; Ottawa, Ontario; and San Diego, California.¹ On vacations, I visited even larger cities: London, Paris, Barcelona, Philadelphia, San Francisco, Vancouver, Montreal, and Toronto. By no means could I be called a rural dweller. Despite this, I grew up on the Prairies and I was intimately familiar with their isolation, if only for brief periods. My undergraduate work was in rural Canadian history and my honor's thesis was about scientific motherhood literature and motherhood practices on the rural Canadian Prairies. My Master's thesis, "'Among the Necessities': A Social History of Communication Technology on the Canadian Prairies, 1900 to 1950," explored radios and telephones in rural Alberta, Saskatchewan, and Manitoba and I modelled it on sociologist Claude Fischer's 1992 book, *America Calling: A Social History of the Telephone to 1940*. My interest in radios stemmed from childhood memories marked by frequent electric blackouts in the city. The power company needed to install another generator to accommodate demand, but had not done so, and for a few years insufficient electricity supplies often plunged the city into darkness for hours at a time, most memorably in the winter when temperatures were well below freezing. In the dark, wrapped in blankets (as the furnace required electricity also), my mother, brother, and I sat using candles for light and listening to the battery-

¹ The populations of these cities are: Calgary, Alberta, 1,107,200 in 2006; Edmonton, Alberta, 1,050,000 in 2006; Ottawa, Ontario, 1,158,300 in 2006; and San Diego, California, 2,933,462 in 2005. Statistics Canada, "Population of Census Metropolitan Areas (2001 Census Boundaries)," URL: <http://www40.statcan.ca/l01/cst01/demo05a.htm> (accessed March 6, 2007); U.S. Census Bureau, "The 2007 Statistical Abstract, Table 25—Large Metropolitan Statistical Areas—Population: 1990 to 2005," URL: <http://www.census.gov/compendia/statab/tables/07s0025.xls> (accessed March 6, 2007).

operated radio. The voices coming from the radio held power over me and during my Master's work, I explored their importance to rural dwellers from the 1920s to the 1950s. Until my ethnographic research in 2006 and 2007, however, rural life was something that existed in my imaginary. I had read about it, studied it as it was in the past, and seen it from the windows of the car, driving on highways to get to other places—often other cities—but I had not actually lived in a rural community. Despite this, however, my research aim was to study rural people's use of and experience with cell phones, satellite television receivers, and computers and the internet. To carry out the study, the best method was to go to rural areas and talk to people about available telecommunications services and their use of them. I decided to explore rural residents' access to, and use of, communication devices in both a region in Canada and one in the U.S. I spent over six months talking to rural dwellers, living in rural communities, and as an ethnographer, enduring the same challenges that my interviewees faced. There were prairie blizzards, plains thunderstorms, and tornado warnings. There was the challenge of many miles of driving, an omnipresent part of living in rural areas of the U.S. and Canada. In the course of my field work, I drove 21,034 miles from San Diego to my field sites and within the sites for interviews. But there were also many great adventures and successes. One of the best of these was having the opportunity to meet many rural people willing to share their stories.

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My deepest thanks and gratitude go to my advisor and the chair of my dissertation committee, Robert Horwitz. He spent countless hours reading and commenting on my work, discussing rural telecommunications, encouraging me to find the forest amid the trees, and ensuring that I would be safe on the field research trips. His guidance from the start of my time at UCSD to the end has been invaluable.

I extend many thanks to my committee members, Michael Schudson, Kelly Gates, Hugh (Bud) Mehan, and Robert Westman for their comments on my work and our helpful conversations that encouraged me to think about these chapters in new ways. I am especially grateful to Professor Schudson for his detailed comments on earlier drafts. I would also like to thank Chandra Mukerji for working with me in the early stages of this project.

I would also like to acknowledge and thank all of the professors with whom I worked in the past, especially Sarah Carter, Dwayne Winseck, and Geertje Boschma, who helped me become a scholar, rather than a university student.

I express my gratitude for all of the members of the Department of Communication, both colleagues and staff. They have made my time in the program enjoyable. Gayle Aruta deserves special thanks for assisting with my myriad administrative needs and also for providing chocolate late in the afternoons. I thank the Department of Communication and the Science Studies Program for assisting with funding. I also acknowledge the Government of Canada for my Social Science and

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My deep gratitude extends to my many interviewees and research contacts in Alberta and Wyoming who graciously gave their time, arranged contacts, and answered my many questions. I greatly appreciate the warmth with which people invited me into their lives and homes and the many meals and conversations I shared with farm and ranch families out on the prairies and plains. Without the rural people I interviewed, this project would not exist. I especially thank Peggy and Terry Vockeroth for providing me with great conversation, helpful advice, and homemade meals while I was in Alberta.

My friends in the program and beyond have traveled this journey with me and I am grateful for their support, intellectual conversation, and the fun we have had. I would especially like to acknowledge Kelli Moore, Emma Johnson, Rita Patel, Brett Peterson, Fatma Ulgen, Magali Muria, Jericho Burg, Erin Malone, Antonieta Mercado, Nancy Lee, and Regina Marchi. I would also like to thank my “non-UCSD” friends who encouraged me and helped me to keep life in perspective. I thank David Odne for his love and support.

Finally, I thank my family for their encouragement and support and I acknowledge that their many sacrifices gave me opportunities. I thank my nieces, Cierra, Hailey, Sarah, and Gracie, and my nephew Sterling for always asking when my “book” would be done and when I would *finally* be called “professor.” I thank my late Grandma K for helping to fund my graduate studies. I thank my Grandma and Grandpa who have illustrated that hard work brings rewards and who reminded me of this when needed.

Finally, I thank my parents who provided unwavering stability, unending encouragement, and loving support throughout my education, which started at the community center when I was four and, twenty-eight years later, has not yet stopped.

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ABSTRACT OF THE DISSERTATION

On the Last Mile: The Effects of Telecommunications Regulation and Deregulation
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by

Nadine Irène Kozak

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Professor Robert Horwitz, Chair

This dissertation addresses the provision of advanced telecommunication services to rural residents in the post-regulatory moment by examining two case studies, one in Alberta, Canada, and the other in Wyoming in the United States. Although governments built fiber optic infrastructures in both locales and the systems were described with great optimism for a better future, the systems have not fulfilled their intended aims. Through historical research of Legislative Assembly of Alberta transcripts; town council meeting minutes and newspaper reports in Wyoming; interviews with government officials, internet service providers, representatives from a variety of organizations, and rural residents; and ethnography, this study traces the supply of and demand for high-speed internet and broadband capacity in counties in rural Alberta and Wyoming. This study provides evidence that top-down technological fixes do not provide the best solutions for the citizens and consumers they are intended to serve. Additionally, it illustrates that the move away from the regulated provision of telecommunications service with universal

service goals has adversely affected the availability and quality of services provided to rural dwellers. This study, thus, argues that comprehensive universal service aims, providing for advanced communications would benefit rural residents and that when governments consider the development of advanced telecommunications they need to provide the opportunity for sustained public debate and deliberation. Finally, the study argues for the careful consideration of the past when considering policy for the extension of broadband services and the planning and developing new information and communication systems.

CHAPTER ONE

Introduction: Utopian Visions and Rural Realities

A farmer, clad in a cowboy hat and overalls, chews on a wheat stalk. Slouching on a tractor, he types on a computer terminal with his left hand. The farmer's terminal links to other users across the country, including a doctor in Minnesota and a scientist in the northeast, and to a transmitter in the Pacific North West that communicates with an orbiting satellite. The lines connecting the farmer with the rest of the users are the same bandwidth as the other cables extending across the nation.² This is an illustration of the networked nation from the late 1970s. The illustration is of a map of the United States; the farmer is on the map, in the Wyoming, Nebraska, Kansas region. The illustration, by Joe Dieter Jr., succinctly and stereotypically illustrates the connecting of rural areas into the networked nation. In this vision, all participants have access to the necessary infrastructure to contribute and to similar technology. According to proponents, such access will decrease geographical limitations and expand economic development to the far reaches of the globe and to rural areas within the industrialized nations. A variety of academic, business, and popular literature has purveyed this view, from computer scientists Starr Roxanne Hiltz and Murray Turoff's visionary 1978 textbook *The Network Nation: Human Communication via Computer*, which contains Dieter's illustration, to Frances Cairncross' 1997 study *The Death of Distance: How the Communications Revolution is Changing Our Lives*.

² Figure 1.1 Person-to-person networks: Human communication and information exchange via computer, illustration by Joe Dieter Jr. in Starr Roxanne Hiltz and Murray Turoff, *The Network Nation: Human Communication via Computer* (Reading, MA: Addison-Wesley Publishing Company, Inc., 1978), 6.

Hiltz and Turoff presciently foresaw that while computerized communications could open unlimited possibilities for communication, education, and work, they could also serve to increase the existing gulfs between the haves and have-nots in a nation.³ The authors argued that without careful attention to “regulations, laws, policies, and the public interest,” computerized communications would enhance existing divisions between the wealthy and educated versus people who were poorer and less educated; increase the existing chasm between large, wealthy, and powerful organizations and smaller ones; help continue the decay of urban centers; open possibilities for ubiquitous censorship of information and regulation of information exchange; and destroy the press; among other problems.⁴ Despite the warnings, their book put forth utopian visions of a nation of geographically dispersed individuals connected via computer networks allowing for social and democratic participation, regardless of a person’s economic status or regional location. One important facet of the idea of the networked nation is that all people are connected and this connection is a means to overcome the significant social, educational, and regional biases and disadvantages faced by some groups.⁵

In the subsequent decades, nations and communities have embraced the vision and have moved in varying degrees toward the ideal of networked nations. The problem of widening the existing divides, however, has remained an issue, including those that span differences of age, educational attainment, income, and geographic location. The U.S. Department of Commerce’s National Telecommunications and Information Administration (NTIA) found in 1998 that income and education levels were the two

³ Hiltz and Turoff, *The Network Nation*, xxix-xxx.

⁴ Ibid, xxx.

⁵ Ibid, xxix-xxx.

most important factors explaining the gap between Americans with computers and internet access at home and those without. The study identified race and ethnicity to be other important determinants.⁶ The NTIA also found rural users less likely to use the internet and computers than other Americans in 1999.⁷ Data gathered over the ensuing years has revealed a persistent rural-urban digital divide in the United States and Canada. Rather than being fully connected, as in Dieter's illustration, rural denizens find themselves lagging behind in the digital age.⁸ In June of 2008, Statistics Canada released the *Canadian Internet Use Survey*, revealing that in 2007 more Canadians used the internet for a variety of activities than in 2005. Despite this, Statistics Canada notes digital divides persist, particularly between rural and urban areas, the latter being favored by internet service providers because of the younger, more affluent, and more educated populations in metropolitan areas.⁹ The survey found nationally 76 per cent of urban dwellers used the internet while 65 per cent of people resident in rural areas and small towns did so.¹⁰ Rural areas, thus, still lag behind. The Government of Canada's *Telecommunications Policy Review Panel's Final Report 2006* notes that broadband penetration rates are "relatively high and are being extended into rural and remote areas

⁶ National Telecommunications and Information Administration, "Falling though the Net: Defining the Digital Divide" in *The Digital Divide: Facing a Crisis or Creating a Myth?*, ed. Benjamin M. Compaine (Cambridge, MA: The MIT Press, MIT Sourcebooks, 2001), 25-26; Mark Lloyd, *Prologue to a Farce: Communication and Democracy in America* (Urbana and Chicago: University of Illinois Press, 2006), 206.

⁷ National Telecommunications and Information Administration data from Cornelia Butler Flora and Jan L. Flora with Susan Fey, *Rural Communities: Legacy and Change* (Boulder, CO: Westview Press, 2004), 218; Sharon Strover, "Rural Internet Connectivity," *Telecommunications Policy*, 25 (2001): 332.

⁸ Strover, "Rural Internet Connectivity," 332.

⁹ Statistics Canada, "Canadian Internet Use Survey," *The Daily*, Statistics Canada Survey Number 4432 (June 12, 2008). URL: <http://www.statcan.ca/Daily/English/080612/d080612b.htm> (accessed June 17, 2008).

¹⁰ Importantly, this is a rate of internet connection, not of broadband or high-speed connection. Therefore, it includes urban and rural Canadians still reliant on dial-up connections. Matthew Trevisan, "Internet Report Shows Digital Divide in Canada," *Globe and Mail* (June 12, 2008). URL: http://www.theglobeandmail.com/servlet/story/RTGAM.20080612.winternet0612/BNStory/Technology/?cid=al_gam_nletter_newsUp (accessed August 7, 2008).

as a result of private and public initiatives.” Indeed, the report found that 73 percent of residential internet subscribers used high-speed access nationally in 2004 while only 17 percent did so in 1999.¹¹ In the U.S., a Communication Workers of America (CWA) report found that 60 percent of suburban homes and 57 percent of urban homes have broadband in the U.S. Only 38 percent of rural Americans do.¹² The low connectivity rates and the special problems of rural Americans led FCC chairman Kevin Martin (2005-2009) to advocate attaching a “free broadband” condition to the 2009 advanced wireless services-3 (AWS-3) spectrum sale where the successful buyers must use a quarter of the spectrum for free broadband. Additionally, Martin favors using the universal service fund, a subsidy created to keep telephone service affordable in high cost areas, to offset broadband costs for low income people.¹³ To Martin, ensuring universal availability of broadband is crucial because of the internet’s growing role in work, entertainment, education, and medicine. CWA data illustrates that U.S. broadband is falling behind other industrialized countries. The median download speed in the U.S. is 1.9 Megabits per second (Mbps), whereas in Canada it is 7 Mbps. Japan, the country with the highest download speed, has 61 Mbps. In the U.S., internet connection speeds vary widely by state. The highest speed is Rhode Island’s median connection speed of 5.011 Mbps while the lowest is Alaska’s at 0.545 Mbps. Median connection speeds vary widely in the same region. For example, while Kansas’ median speed is 4.167 Mbps,

¹¹ Gerri Sinclair, Hank Intven, and André Tremblay, *Telecommunications Policy Review Panel: Final Report, 2006* (Ottawa: Industry Canada, 2006), 1-6.

¹² Leslie Cauley, “Martin Wants Broadband Across USA,” *USA Today* (Tuesday, August 19, 2008), URL: http://www.usatoday.com/tech/news/techpolicy/2008-08-19-fcc-martin_N.htm, (accessed September 23, 2008).

¹³ Ibid.

Wyoming's is only 1.246, and South Dakota's 0.825 Mbps.¹⁴ Slow download speeds are symbolic to some in government that the U.S. and Canada are not doing enough to encourage broadband development.

As President-Elect, Barack Obama announced plans to include the extension of broadband internet in his public works program. He argued, "It is unacceptable that the United States ranks 15th in the world in broadband adoption. Here, in the country that invented the Internet, every child should have the chance to get online."¹⁵ Academics have done much work to determine why rural use lags behind urban areas and scholars study structural and institutional conditions contributing to the gap. In the United States, the Government Accountability Office (GAO) found factors determining broadband availability include the level of urbanization, population density, and income. The higher each of these factors are, the GAO found that broadband was increasingly available.¹⁶

Considering these divides, the American rural sociologists Cornelia Butler Flora and Jan L. Flora note in their 2004 study, *Rural Communities: Legacy and Change*, that the continued unavailability of adequate internet service keeps rural areas "distanced from global business not only by miles of land and water but also by miles of phone lines, or lack thereof."¹⁷ For Flora and Flora, then, geographical divides added to technological divides serve to increase rural people's distance from the mainstream, urban society and

¹⁴ Communications Workers of America, "First-Ever State-By-State Report on Internet Connection Speed Shows U.S. Far Behind Other Industrialized Nations," Communications Workers of America website, URL: <http://www.cwa-union.org/news/page.jsp?itemID=28663094> (accessed September 23, 2008).

¹⁵ Peter Baker and John M. Broder, "Obama Vows Public Works On Vast Scale; Biggest Program Since Interstate Highways," *The New York Times* (Sunday, December 7, 2008): A1, quoted from A33.

¹⁶ JayEtta Z. Hecker, Director, Physical Infrastructure Issues, Government Accountability Office, "Broadband Deployment in Rural Areas," Columbia Institute for Tele-Information, Business Models for Rural Broadband, Columbia University, October 27, 2006.

¹⁷ Flora and Flora with Fey, *Rural Communities*, 214.

economic opportunities. The persistent divides led Flora and Flora and Canadian rural development scholar Ricardo Ramírez, among a host of other commentators, to argue that government involvement is central to telecommunication development in rural areas.¹⁸

Despite touting government intervention as a central solution to overcoming rural-urban digital divides, the current political climate of deregulation and neoliberalism in Canada and the United States challenges government spending for these telecommunication devices. This dissertation examines two infrastructural developments, the Alberta SuperNet and the Lusk, Wyoming, municipal fiber-optic grid, to explore how communities, organizations, companies, and governments seek to end the digital divide in the post-regulatory moment. The research explores both the development phase of the networks and their consumption by users. The research centers on three primary questions. First, what solutions are being developed—public, private, or a combination of the two—to overcome the rural digital divide in the post-regulatory moment? Second, do these solutions meet the needs of the citizens and consumers they are intended to serve? Finally, do these solutions serve the public good and do they help sustain a more democratic order? This research illustrates that telecommunications development in the neoliberal, post-regulatory moment faces severe challenges and leads to some service failures. In the SuperNet case, the public-private partnership privileged the imperatives of the private companies and the government's objectives while excluding citizens from the development process. Additionally, leaving telecommunication development to local governments has challenges, as a lack of

¹⁸ Flora and Flora with Fey, *Rural Communities*, 214; Ricardo Ramírez, "A Model for Rural and Remote Information and Communication Technologies: A Canadian Exploration," *Telecommunications Policy*, 25 (2001): 316.

technical knowledge at the local level complicates development and leads to developments that do not serve the communities or their constituents well. Finally, rural subscribers are in the initial stages of developing online communities of use. Many do not desire technically optimal broadband solutions because they find themselves priced out of the market. In order to explore infrastructure development in the post-regulatory moment, it is first important to consider the regulated provisioning of telecommunications historically.

The History of Telecommunications Development in the U.S. and Canada

Solutions through government involvement align well with the historical development of telecommunications and infrastructure in rural areas of Canada and the United States. Telecommunications are an infrastructure because they connect people to enable communication and commerce and play a central role in the creation of communities. Due to the importance of infrastructures in social functioning, historically governments have taken responsibility for their provision. Additionally, government involvement maintained public interest goals, “goals linked to democratically based principles of fairness and equity.”¹⁹ The political work of Benjamin Rush and James Madison, who championed the post office as the basis for an informed citizenry, helped institutionalize democratic ideals in the post office.²⁰ Through state or regulatory action, governments (provincial and federal) ensured that rural denizens had access to

¹⁹ Robert Britt Horwitz, *The Irony of Regulatory Reform: The Deregulation of American Telecommunications* (New York: Oxford University Press, 1989), 12-13, quoted from 13.

²⁰ Richard R. John, “Recasting the Information Infrastructure for the Industrial Age,” in *A Nation Transformed by Information: How Information Has Shaped the United States from Colonial Times to the Present*, ed. Alfred D. Chandler, Jr. and James W. Cortada (New York: Oxford University Press, 2000), 58-59; Richard R. John, *Spreading the News: The American Postal System from Franklin to Morse* (Cambridge, MA: Harvard University Press, 1995), 29-30.

telecommunications infrastructure throughout much of the twentieth century. The history of telecommunications in the U.S. and Canada is a tale of monopoly enterprises providing telephony in the interests of the public. For most of the twentieth century, many viewed telephone service as a natural monopoly and a public good where the value of the network increased with each additional subscriber. In the American case, the government and the public left telecommunications development to the private sector, albeit with regulation after 1934. Alexander Graham Bell developed the telephone while exploring improvements in telegraphy.²¹ From 1876 until 1894, the Bell Telephone Company controlled the telephone industry, due to its patent rights.²² To diffuse the device, the company licensed people to establish operating companies in specific areas while dictating technical standards and controlling equipment manufacturing.²³ With the expiration of Bell's patents, new telephone companies started up between 1894 and 1904 in urban areas to challenge the Bell monopoly and in rural regions where telephony remained underdeveloped.²⁴ The independents included companies that operated for profit, mutual companies with "shareholder-subscribers," and rural lines.²⁵ In 1907, at the pinnacle of the movement, independent companies operated half of U.S. telephones.²⁶ Bell's refusal to interconnect competitors into its local and long distance networks,

²¹ Brian Winston, *Media Technology and Society: A History: From the Telegraph to Internet* (London: Routledge, 1998), 34.

²² Horwitz, *The Irony of Regulatory Reform*, 97.

²³ John, "Recasting the Information Infrastructure," 91; Robert MacDougall, "Long Lines: AT&T, Long Distance Telephony, and Corporate Control," *Business and Economic History Online*, 3 (2005): 10 (URL: <http://www.thebhc.org/publications/BEHonline/2005/macdougall.pdf>, accessed April 13, 2008).

²⁴ Claude S. Fischer, *America Calling: A Social History of the Telephone to 1940* (Berkeley: University of California Press, 1992), 42-43; John, "Recasting the Information Infrastructure," 93; John Langdale, "The Growth of Long-Distance Telephony in the Bell System, 1875-1907," *Journal of Historical Geography*, 4, no. 2 (1978): 154.

²⁵ Langdale, "The Growth of Long Distance Telephony," 153; quoted from Fischer, *America Calling*, 43.

²⁶ Langdale, "The Growth of Long Distance Telephony," 152, 164; John, "Recasting the Information Infrastructure," 93-94.

however, limited the independents' competitiveness.²⁷ Eventually, Bell allowed interconnection under some circumstances, especially to companies serving areas where Bell had no desire to extend telephone service.²⁸ These independents became sublicensees rather than Bell operating companies.²⁹ By 1912, Bell again achieved control over the market; controlling 55 percent directly and 30 percent via sublicense agreements, a situation that remained remarkably constant until the 1980s.³⁰ In 1913, to fend off calls for nationalization and to settle an antitrust lawsuit, the U.S. Attorney General and Bell reached an agreement called the Kingsbury Commitment. One provision of the agreement was that Bell had to connect all independents to its network that requested interconnection.³¹ The dominant provider, the parent company AT&T and its local Bell operating companies, provided local and long distance service to Americans under the guidance of the Federal Communications Commission (FCC), formed by the Communications Act of 1934. Communication scholar Dan Schiller argues regulation was the product of citizen demand. To counter criticism of private monopoly and calls to nationalize telephony, AT&T sought regulatory oversight.³² The FCC accepted the telephone industry as it was, and used the existing corporations as the foundation for the

²⁷ Langdale, "The Growth of Long Distance Telephony," 154-155.

²⁸ Langdale, "The Growth of Long Distance Telephony," 154-155; John, "Recasting the Information Infrastructure," 95.

²⁹ John, "Recasting the Information Infrastructure," 95.

³⁰ David F. Weiman and Richard C. Levin, "Preying for Monopoly? The Case of Southern Bell Telephone Company, 1894-1912," *The Journal of Political Economy*, 102, no. 1, (February, 1994): 104 (URL: <http://www.jstor.org/stable/2138795>, accessed April 13, 2008); John, "Recasting the Information Infrastructure," 98.

³¹ John, "Recasting the Information Infrastructure," 98; Horwitz, *The Irony of Regulatory Reform*, 100-101; Fischer, *America Calling*, 47.

³² Dan Schiller, "Social Movements in Telecommunications: Rethinking the Public Service History of US Telecommunications, 1894-1919," *Telecommunications Policy*, 22, no. 4/5 (1998): 403; Horwitz, *The Irony of Regulatory Reform*, 99.

regulatory structure.³³ Accepting that telephony was a natural monopoly, the FCC protected AT&T from competition.³⁴ This protection did have some public interest provisions: AT&T was a common carrier, telephone systems had to be interconnected, and carriers had to serve everyone who asked for service.³⁵ Government and the courts regarded telephone companies as common carriers, like the telegraph and the railroad. According to communication scholar Robert B. Horwitz in *The Irony of Regulatory Reform: The Deregulation of American Telecommunications*, “common carrier law was that a carrier must allow nondiscriminatory, that is, fair and equitable, access to its service at just and reasonable prices.” In transportation law, this ensured that carriers had to interconnect with other carriers.³⁶ In telephony, however, the application of common carrier law meant both that the telephone companies had to serve all members of the public without discrimination and later companies had to interconnect their plant.³⁷ The goal was to provide universal service, which according to Horwitz means that “telephone service must be made available to and be generally affordable by everyone.”³⁸ As Horwitz outlines, as a regulated monopoly with common carrier status and public service obligations, AT&T had constraints and leeway in the provision of telephone service. The phone company had to provide access to Americans in cities, small towns, and rural areas; to anyone who requested service. To do this profitably, the FCC allowed the corporation to cross-subsidize costly markets with revenues generated from profitable

³³ Horwitz, *The Irony of Regulatory Reform*, 127.

³⁴ Ibid., 123, 126.

³⁵ Ibid., 127.

³⁶ Ibid., 13.

³⁷ Milton L. Mueller, Jr., *Universal Service: Competition, Interconnection, and Monopoly in the Making of the American Telephone System* (The MIT Press and The AEI Press, 1997), 46-47.

³⁸ Horwitz, *The Irony of Regulatory Reform*, 132.

regions and services. Indeed, the company used a host of subsidy arrangements, including value-of-service pricing and cost averaging that allowed for long distance rates to help offset the costs of local service; higher revenue states to subsidize other, lower revenue states; and urban users (where the cost of lines between homes and businesses was small due to short distances) to subsidize users in suburbs, poor users, and those in rural areas (where the larger distances between farms and ranches made provision more expensive due to more line miles required for service).³⁹ Government intervention in the U.S. took the form of a regulator overseeing the provision of service, service that the regulator and telephone company believed ought to reach everyone.

Government intervention in Canada played as important a role as in the American scenario but it was different than south of the border. In the Canadian case, telephony began to emerge under the Bell Telephone Company of Canada, chartered in 1880 by an Act of Parliament to provide telephone service to “all regions of Canada.”⁴⁰ Rather than develop service to all areas, however, the company remained in population centers where service provision would be most profitable, primarily in the provinces of Ontario and Québec.⁴¹ Bell Canada maintained ownership and control of the telephone plant in these regions. In Atlantic Canada, the company followed a strategy of indirect control where it owned shares in telephone entities operating in the provinces.⁴² In British Columbia, Bell

³⁹ Horwitz, *The Irony of Regulatory Reform*, 132, 136; Hudson N. Janisch, “Who Will Regulate Deregulation? Canada’s Battle over Telecommunications Competition,” *Pacific Telecommunications Review*, 14, no. 1 (September 1992): 23.

⁴⁰ Kevin G. Wilson, *Deregulating Telecommunications: U.S. and Canadian Telecommunications, 1840-1997* (Latham: Rowman and Littlefield, 2000), 32.

⁴¹ Ibid.

⁴² The Atlantic Provinces are Prince Edward Island, Nova Scotia, and New Brunswick. Newfoundland joined Confederation in 1949. Wilson, *Deregulating Telecommunications*, 33.

pulled out of telephone provision in the late 1880s.⁴³ Other interests developed telephone service that consolidated into the British Columbia Telephone Company in 1904.⁴⁴ In the 1920s, the owners sold it to an American company, the National Telephone and Telegraph Corporation, later called the Anglo-Canadian Telephone Company of Montreal. Anglo-Canadian became part of the American telephone giant General Telephone and Electronics Corporation (GTE). The province had the distinction of being the only one with a major telecom player owned by foreign interests.⁴⁵ In Manitoba, Saskatchewan, and Alberta, Bell developed more extensive operations than in Atlantic Canada, but it had only a short tenure in the prairie region.⁴⁶ The company focused construction and operation efforts in urban areas, neglecting rural regions where it would not recover the large expense of stringing wire.⁴⁷ Due to disagreement with Bell's building strategy and to particular local and regional conditions, each of the three Prairie Provinces—Manitoba, Saskatchewan, and Alberta—bought Bell's plant and operations between 1907 and 1909. The provincial governments established publicly owned provincial crown corporations that they controlled to better serve the public.⁴⁸ In "For the General Good: The Debate Over Private vs. Public Ownership of Telephones and the Canadian West, 1900-1912," scholar Ronald S. Love explains the prevailing opinion was that the provincial systems would best contribute to the "economic, social, and political

⁴³ Robert E. Babe, *Telecommunications in Canada* (Toronto: University of Toronto Press, 1990), 111.

⁴⁴ *Ibid.*, 112.

⁴⁵ Wilson, *Deregulating Telecommunications*, 36.

⁴⁶ Wilson, *Deregulating Telecommunications*, 34.

⁴⁷ Ronald S. Love, "For the General Good: The Debate Over Private vs. Public Ownership of Telephones and the Canadian West, 1900-1912," *The American Review of Canadian Studies*, 35 (Spring 2005): 68.

⁴⁸ Wilson, *Deregulating Telecommunications*, 34; Schiller, "Social Movements in Telecommunications," 403.

development over a vast, under populated territory on the brink of phenomenal growth.”⁴⁹

In a more direct way than oversight by the FCC in the American setting, the Prairie Provinces provisioned telephony as a public utility to serve their populations.⁵⁰ Private or publicly held monopolies provided telephone service in specific provinces. Bell was unique historically because it provided service to both Ontario and Québec.⁵¹ The provincially-based companies together formed TransCanada Telephone System (TCTS), later renamed Telecom Canada and then reorganized into Stentor. TCTS interconnected the phone companies, providing an integrated network.⁵²

Unlike the U.S. and European nations, Canada’s unique, varied telephone ownership structure also created multiple regulatory regimes. From 1906 to 1938, the Board of Railway Commissioners and from 1938 until 1976, the Canadian Transport Commission oversaw common carrier development in Canada and the Railway Act (1888; 1906) provided the national policy for telecommunications.⁵³ The Railway Act defined telegraph and telephone companies as common carriers. Rates had to be fair and reasonable and companies had to practice non-discrimination of subscribers and services.⁵⁴ The Railway Act, however, did not apply to all telephone companies, rather it governed only those that fell under federal jurisdiction by “an interpretation of the British

⁴⁹ Love, “For the General Good,” 68.

⁵⁰ Importantly, the government companies experienced wavering fortunes. By the Great Depression, Alberta Government Telephones (AGT) was unable to maintain and operate its rural lines. AGT sold the lines to small rural cooperatives. The company made the farmers establish rural cooperatives to provide local farm service, to take the burden off of the provincial purse. Tony Cashman reports that AGT used threats to persuade rural dwellers, stating that if rural people did not agree to the sale, the AGT workers would come the following day to roll up the wire. Tony Cashman, *Singing Wires: The Telephone in Alberta* (Edmonton: Alberta Government Telephone Commission, 1972), 364.

⁵¹ Janisch, “Who Will Regulate Deregulation?,” 17.

⁵² In 1992, Telecom Canada incorporated and reorganized, becoming Stentor. Janisch, “Who Will Regulate Deregulation?,” 17, 21.

⁵³ Wilson, *Deregulating Telecommunication*, 68.

⁵⁴ Wilson, *Deregulating Telecommunications*, 37-38.

North America Act (1867)” and were recognized as a “company” under the terms of the Railway Act (1906).⁵⁵ Bell Canada and the British Columbia Telephone Company fell under federal jurisdiction, but the provincially-owned telephone companies did not.⁵⁶ The provinces regulated their own telephone companies. In Manitoba, the Public Utilities Board reviewed the telephone system starting in 1912.⁵⁷ In 1915, Alberta created a Public Utilities Board to regulate AGT.⁵⁸ Unlike its neighboring telephone companies, a regulator did not encumber Saskatchewan Government Telephones except briefly between 1982 and 1987.⁵⁹ Legal scholar Hudson N. Janisch credits the industry creators of TCTS for the long duration of the “asymmetrical” regulatory arrangement because network traffic and system improvement operated smoothly, thus the federal government did not need to intervene. The peaceful cooperation of Telecom Canada members lasted into the 1980s.⁶⁰

The Deregulation of Telecommunications in the U.S. and Canada

The state of affairs in both Canada and the U.S. remained remarkably consistent until 1982 when AT&T and the U.S. Justice Department reached a settlement in the 1974 anti-trust case against AT&T for its anti-competitive behavior. The judgment split AT&T and its long distance arm from the 22 Bell operating companies that were combined into seven regional operating companies, the so-called “Baby Bells.”⁶¹ This judgment, along with changes previously introduced in long distance, opened the industry

⁵⁵ Wilson, *Deregulating Telecommunications*, 37; Babe, *Telecommunications in Canada*, 114.

⁵⁶ Wilson, *Deregulating Telecommunications*, 39; Janisch, “Who Will Regulate Deregulation?,” 18.

⁵⁷ Babe, *Telecommunications in Canada*, 105.

⁵⁸ Ibid., 110.

⁵⁹ Ibid., 108-109.

⁶⁰ Janisch, “Who Will Regulate Deregulation?,” 18-19.

⁶¹ Horwitz, *The Irony of Regulatory Reform*, 241.

to competition. Part of the impetus for this decision stemmed from the rise of new information and communication technologies, paired with AT&T's anticompetitive behaviors toward companies striving to provide data services to their customers.⁶²

The break-up of AT&T, combined with trends toward a neoliberal political climate favoring less interference from the government, led to the deregulation of telecommunications in both countries. Before looking at the transition in telecommunications, it is important to look at the rise of neoliberalism. One central feature of neoliberalism, according to political scientist Wendy Brown, is "its powerful erosion of liberal democratic institutions and practices in places like the United States," a result of viewing institutions and social actions in terms of market values rather than any others.⁶³ Politicians evaluate policies and actions only in terms of profitability and carry out decision making based on a market rationale because Government accepts the market as its "organizing and regulative principle."⁶⁴

Rather than a complete laissez-faire approach, championed by the economic liberalism of Adam Smith, political involvement and legal and policy protection are necessary to "facilitate competition, free trade, and rational economic action on the part of every member and institution of society," according to Brown.⁶⁵ Neoliberalism thus clashes with the central features of liberal democratic states, including those designed to

⁶² Ibid., 236.

⁶³ Wendy Brown, *Edgework: Critical Essays on Knowledge and Politics* (Princeton: Princeton University Press, 2005), 40, quoted from 38.

⁶⁴ Ibid., 40.

⁶⁵ Ibid., 41.

soften the harshness of capitalism and provide for citizens equally rather than only for those able to pay.⁶⁶

In *Communication and Democratic Reform in South Africa*, Horwitz notes that in domestic concerns and foreign involvement, states are using market rationales as the basis for decision making, resulting in “fiscal and monetary discipline, outward (export) economic orientation, tax reform, liberalization of product and financial markets, deregulation and privatization, and marketization of state activity.”⁶⁷ In this vein, governments have privatized national and regional infrastructure monopolies.⁶⁸ Problematically, market rationales led private investors to fund new projects that are low risk and will be profitable rather than those that are in the public interest.⁶⁹ Infrastructural development is no longer of the modern ideal where a similar system serves everyone. Rather, development “splinters” according to Stephen Graham and Simon Marvin in *Splintering Urbanism: Networked Infrastructures, Technological Mobilities and the Urban Condition*, and companies offer different services depending on citizens’ geographical location and ability to pay.⁷⁰

Telecommunications in the U.S. and Canada, as described heretofore, included regulation and government ownership to ensure that the infrastructure operated at least partially in the interests of the public it was to serve. With the trend toward neoliberalism, however, there was a basic policy reorientation. The U.S. regulatory

⁶⁶ Ibid., 46.

⁶⁷ Robert B. Horwitz, *Communication and Democratic Reform in South Africa* (New York: Cambridge University Press, 2001), 222.

⁶⁸ Stephen Graham and Simon Marvin, *Splintering Urbanism: Networked Infrastructures, Technological Mobilities and the Urban Condition* (New York: Routledge, 2001), 98.

⁶⁹ Ibid., 97.

⁷⁰ Ibid.

system of telecommunications, which allowed for a monopoly with public interest obligations, began to break down.

A hallmark of deregulation is the changed conception of universal service. Horwitz notes one of the ironies of regulatory reform is that social liberals and public interest groups favored deregulation and regulatory reform, not foreseeing that the relaxing of rules would negatively impact the traditional conception of the public interest.⁷¹ During the regulatory period, a single company, AT&T, delivered a single service to everyone who asked for it.⁷² The public, which the FCC and AT&T originally framed as subscribers, now broadened to include private business and the market.⁷³ Thus, the public interest morphed into a competitive economic environment.⁷⁴

The cornerstone of telecommunications deregulation in the United States was the Telecommunications Act of 1996 that replaced the Communications Act of 1934. Predating the Act were several FCC and court decisions between 1959 and 1977, including *In the Matter of Allocation of Microwave Frequencies in the Band Above 890*, the *MCI* decision, *Specialized Common Carrier*, *Hush-a-Phone*, and *Execunet*, that had the effect of starting the liberalization of American telecommunications in the realms of long distance and equipment provision.⁷⁵ The Act introduced competition in basic local and long distance phone services, breaking the traditional regulated phone monopoly.⁷⁶ The FCC is responsible for figuring out interconnection of the various competing

⁷¹ Horwitz, *The Irony of Regulatory Reform*, 16.

⁷² Herbert S. Dordick, "The Social Consequences of Liberalization and Corporate Control in Telecommunications," in *The New Information Infrastructure: Strategies for U.S. Policy*, ed. by William J. Drake (New York: Twentieth Century Fund Press, 1995), 158.

⁷³ Patricia Aufderheide, *Communications Policy and the Public Interest: The Telecommunications Act of 1996* (New York: The Guilford Press, 1999), 6.

⁷⁴ *Ibid.*, 61.

⁷⁵ Horwitz, *The Irony of Regulatory Reform*, 225, 227-228, 230-231, 233-235.

⁷⁶ Aufderheide, *Communications Policy and the Public Interest*, 63.

companies. The Act gave the states' public utilities commissions responsibility for administering universal service provisions and also for "pricing provisions for telecommunications service providers."⁷⁷ The Act enshrined the deregulatory trend into law. Lawmakers equated the public interest with competition and thus, regulation is primarily to foster competition. As competition succeeds, the FCC is to create less and less of a role for itself.⁷⁸ The Telecommunications Act of 1996 provided an explicit outline of universal service provisions, something the Communications Act of 1934 did not do.⁷⁹ Section 254 outlines these provisions. A Federal-State Joint Board was to set universal service requirements and the FCC would hold a proceeding to implement the recommendations, define what services needed to be universally available, and set dates for the implementation of recommendations.⁸⁰ One clause states "Universal service is an evolving level of telecommunication services that the Commission shall establish periodically under this section, taking into account advances in telecommunications and information technologies and services."⁸¹ The section outlined six principles that were to govern both the FCC and the Federal-State Joint Board: 1) quality services need to be available at equitable and affordable rates; 2) people in all regions of the U.S. should have access to "advanced telecommunications and information services"; 3) subscribers in rural, isolated and high-cost areas and those that are low-income should have access to services at comparable rates to those available in urban areas; 4) all telecommunications companies must make an equitable contribution to the universal service fund; 5) there

⁷⁷ Aufderheide, *Communications Policy and the Public Interest*, 63.

⁷⁸ Ibid., 74.

⁷⁹ Ibid., 65.

⁸⁰ Section 245. Universal Service. Telecommunications Act of 1996, Appendix A in Aufderheide, *Communications Policy and the Public Interest*, 150.

⁸¹ Ibid., 151.

should be clear and concise federal and state mechanisms to maintain and advance universal service; and 6) schools, health care facilities, and libraries “should have access to advanced telecommunications services.”⁸² The act defined universal services as necessary for health, safety, and education; ones that a “substantial majority of residential customers” chose; and those that are in the “public interest, convenience, and necessity.”⁸³ Carriers that receive universal service funding must use the money to provide, maintain, and upgrade only the facilities defined as universal services.⁸⁴ Schools and libraries received discounted rates determined by the states and the FCC. The FCC was also to “advance competitively neutral rules” to bring advanced telecommunications services to all schools, libraries, and health care facilities.⁸⁵ While communication lawyer and broadcast journalist Mark Lloyd calls the section the “one qualified success” of the Act, these provisions have not proved to be universally satisfactory. In *Rural Communities: Legacy and Change*, Flora and Flora note that the Telecommunications Act of 1996, through its focus on funding rural schools, libraries, and health care facilities, left out low-income households and high cost regions, including rural areas.⁸⁶ Additionally, they maintain that the joint board did not include digital services and toll-free internet as “supportable services,” leaving some rural places with antiquated telephone technology that meets federal universal service requirements although it provides a menu of services far below those available in urban areas, a condition that conflicts with Section 254, which calls for services that are “reasonably comparable” to

⁸² Ibid., 150-151.

⁸³ Ibid., 151.

⁸⁴ Ibid., 152.

⁸⁵ Ibid.

⁸⁶ Flora and Flora with Fey, *Rural Communities: Legacy and Change*, 216.

those in cities at similar rates.⁸⁷ Of course, this is not contradictory if the standard for universal service is set low at Plain Old Telephone Service (POTS). To bring advanced information and communication technologies (ICTs) to rural areas as a part of universal service, the FCC would have to increase the minimum services allowable under the section. Aside from Section 254 that explicitly outlined universal service, the rest of the Act, in both the realm of telecommunications and broadcasting increased competition and relaxed regulation.

Changes in the U.S. influenced deregulation in Canada largely because Canada used what was occurring in telecommunications south of the border as evidence for the legislation and policy it eventually made. A court decision and the nation's first consolidated telecommunications law moved the industry toward liberalization. A Supreme Court decision in 1989 altered the status quo of Canadian telecommunications. Originally, regulation of telecommunications in Canada was split between provincial and national jurisdictions; the federal government oversaw regulation for telephone companies including BCTel and Bell while the provinces of Alberta, Manitoba, and Saskatchewan regulated their provincially owned carriers and the Maritime provinces had provincial regulators to oversee private telephone companies.⁸⁸ In *Alberta Government Telephones v. (Canada) Canadian Radio-television and Telecommunications Commission*, decided in 1989, the Supreme Court of Canada found that the federal

⁸⁷ Section 245, Universal Service, Telecommunications Act of 1996, Appendix A in Aufderheide, *Communications Policy and the Public Interest*, 150; Miles Fidelman, "The New Universal-Service Rules: Less Than Meets the Eye," *Federal Computer Week* (June 30, 1997); Sharon Strover and Lon Berquist, "Telecommunications Infrastructure Development: The Evolving State and City Role in the United States," Unpublished paper presented to Cities in the Global Information Society: An International Perspective, University of Newcastle (1999), 10.

⁸⁸ Wilson, *Deregulating Telecommunications*, 176-178.

government held sole authority over telecommunications if Parliament altered legislation to expressly state this.⁸⁹ Unlike the U.S. Constitution that permits shared jurisdiction between the federal government and the states, in Canada, once federal jurisdiction is granted, the provinces no longer have control.⁹⁰ This ruling allowed the Canadian Radio-television and Telecommunications Commission (CRTC) and the federal government alone to regulate telecommunications and make telecom policy if Parliament so chose. The CRTC came to favor market liberalization, albeit careful liberalization tempered by Canada's unique concerns. Canadian regulators and the government were always mindful of the threats that the United States posed to economic and national sovereignty. Any liberalization decisions would have to ensure that Canadian telecommunications would remain in Canadian hands.⁹¹ Throughout the 1970s and 1980s, the federal approach used telecommunications for national cultural and sovereignty objectives. Later, however, these foci became less important as the goal of developing a strong and competitive telecommunications industry came to the forefront.⁹²

A new focus on competition led to the liberalization of parts of the Canadian telecommunication industry. The government liberalized the terminal equipment market in Canada over a period of nearly twenty years from 1967 to 1983. As in the United States, Bell engaged in anticompetitive practices, including refusing to set rules for the

⁸⁹ Decore and Stewart, "Oral Question Period: Authority for Regulating AGT," in Legislative Assembly of Alberta, Monday, August 14, 1989 in Province of Alberta, The 22nd Legislature, First Session, *Alberta Hansard* URL: <http://www.assembly.ab.ca/net/index.aspx?section=doc&p=han> (accessed November 17, 2008): 1389; Industry Canada, *Telecommunications Policy Review Panel, Final Report, 2006* (Ottawa: Industry Canada, 2006), 1-9; Wilson, *Deregulating Telecommunications*, 175; Janisch, "Who Will Regulate Deregulation?," 19.

⁹⁰ Janisch, "Who Will Regulate Deregulation?," 19.

⁹¹ Wilson, *Deregulating Telecommunications*, 181, 229, 231-233.

⁹² *Ibid.*, 183.

attachment of non-Bell equipment and discriminating against its competitors.⁹³ Data services and private line services in Canada liberalized over a number of years, beginning in 1979, as the CRTC argued that competition would force telephone companies to improve their services.⁹⁴ This CRTC decision was the impetus for *AGT v. CRTC*, mentioned previously. CNCP, a specialized long distance carrier, sought to interconnect with Alberta Government Telephone's lines. When AGT refused, CNCP asked the CRTC to force the company to interconnect. AGT took the issue to court, arguing that the CRTC did not have the authority to regulate a provincially owned and regulated carrier.⁹⁵ Although the CRTC refused to allow competition in long distance voice services in 1985, it agreed to competition in 1992, thus liberalizing the market in long distance.⁹⁶ Following these early liberalizations, Canada enacted new telecommunications legislation in 1993.

In 1993, the Canadian Parliament passed the Telecommunications Act,⁹⁷ legislation that continued the regulatory trend that the government traditionally used but also moved toward increased competition and deregulation. The Act is important, because as Janisch states, in Canada, which has a parliamentary style of government, elected representatives must make the "major policy choices." It was difficult for the CRTC to regulate the modern telecommunications industry using the outdated Railway Act.⁹⁸ The Telecommunications Act outlined policy for telecommunications

⁹³ Ibid., 187-192, 196.

⁹⁴ Wilson, *Deregulating Telecommunications*, 199, 200; Janisch, "Who Will Regulate Deregulation?," 19.

⁹⁵ Janisch, "Who Will Regulate Deregulation?," 19.

⁹⁶ Wilson, *Deregulating Telecommunications*, 201, 204, 207.

⁹⁷ Industry Canada, *Telecommunications Policy Review Panel, Final Report*, 2006, 1-9.

⁹⁸ Janisch, "Who Will Regulate Deregulation?," 19.

development by consolidating previous legislation including the Railway Act. It maintained a policy of providing “just and reasonable” rates for service in both rural and urban areas and mandated that rates and services be nondiscriminatory.⁹⁹ The Telecommunications Act of 1993 specified that carriers had to be owned and controlled by Canadians, maintaining older sovereignty objectives. According to Janisch, the CRTC had to make sure that “80% of the voting shares and memberships in the board of directors of facilities-based carriers subject to the Act are held by Canadians.”¹⁰⁰ Section 7 of the Act declared that like its broadcasting system, Canada’s telecommunications should “safeguard, enrich and strengthen the social and economic fabric of Canada and its regions.” The Act stipulated that the federal regulator would regulate the provincial crown corporations providing telecommunications services.¹⁰¹ The Act introduced competition in telecommunications and ordered the CRTC to facilitate and promote competition, rather than the monopolies that had previously been the norm. Specifically, the Act notes that there will be an “increased reliance on market forces for the provision of telecommunications services.”¹⁰² Additionally, it enshrined the principle of forbearance, allowing the CRTC to forgo regulating once telecommunications sectors were competitive.¹⁰³ Thus like the U.S. Telecommunications Act of 1996, Canada’s Telecommunications Act of 1993 promoted competition and deregulation in telecommunications.

⁹⁹ Industry Canada, *Telecommunications Policy Review Panel, Final Report, 2006*, 1-9.

¹⁰⁰ Hudson N. Janisch, “Canada: Round Two in the Battle over Competition in Telecommunications,” *Pacific Telecommunications Review*, 15, no. 2 (December 1993): 5.

¹⁰¹ Wilson, *Deregulating Telecommunications*, 228.

¹⁰² Quoted from Wilson, *Deregulating Telecommunications*, 229; Janisch, “Who Will Regulate Deregulation?,” 22.

¹⁰³ Wilson, *Deregulating Telecommunications*, 228, 231; Janisch, “Canada,” 7.

Broadband Capacity in Canada and the U.S.

The continued advancement of computer technology, the internet, and related applications has created increased demand for higher bandwidth connections. Many people in rural areas subscribe to dial-up service and some pay for satellite service. Dial-up internet connections cannot provide full access to the plethora of web content available to citizens and consumers today. Broadband providers, however, are not regulated as common carriers and they do not pay into the universal service fund, due to the separation of telecommunications and computing, a bifurcation that predates the FCC's First Computer Inquiry begun in 1966.¹⁰⁴ Unlike telecommunications, the FCC does not regulate the computer industry.¹⁰⁵ Therefore no rules exist to ensure that affordable access be available to everyone who desires the service; indeed no rules exist to ensure access be available at all. This is a result of neoliberalism and deregulation because the market is supposed to provide services based on the relationship between supply and demand. Telecom corporations, mindful of route profitability, have not built technology to places with low population densities and low economic returns. The high-speed internet options available to urban dwellers, DSL and cable, are not available in rural areas.¹⁰⁶ The Communication Workers of America link the paucity of broadband options and low speed rates in the U.S. to the fact that the U.S. is the "only industrialized nation without a national policy to promote universal, high-speed Internet access."¹⁰⁷ In

¹⁰⁴ Aufderheide, *Communications Policy and the Public Interest*, 65; Dan Schiller, *Telematics and Government* (Norwood, NJ: Ablex Publishing Corporation, 1982), 30.

¹⁰⁵ Schiller, *Telematics and Government*, 37, 39.

¹⁰⁶ Strover, "Rural Internet Connectivity," 333.

¹⁰⁷ Larry Cohen, President, Communication Workers of America quoted in Communication Workers of America, "First-Ever State-by-State Report on Internet Connection Speed Shows U.S. Far Behind Other Industrialized Nations," CWA website, URL: <http://www.cwa-union.org/news/page.jsp?itemID=28663094> (accessed September 23, 2008).

2008, FCC Chairman Kevin Martin argued that broadband is this century's copper phone line and, in a return to a more traditional conception of the public interest, argues "There's a social obligation in making sure everybody can participate in the next generation of broadband services because, increasingly that's what people want."¹⁰⁸ For Martin, the social obligation is that the FCC ensures private corporations provide nationwide broadband.

In the climate of neoliberalism and fiscal conservatism in political realms, nations left the provision of the broadband networks that would connect communities to the realm of private development. A Canadian council on the subject, in a 1995 report entitled *Connection, Community, Content: The Challenge of the Information Highway, Final Report of the Information Highway Advisory Council*, argued that the networks that would "transform our individual lives and our entire society" should be left to private corporations for development.¹⁰⁹ The reality of network development by private businesses in market economies is no surprise. Left to the devices of the marketplace, private corporations developed fiber optic networks to densely populated areas, "cream-skimming" or "cherry picking" to use the terminology of economics literature. As such, networks by-pass communities that are not densely populated or that lack the economic and educational capital to make networks profitable to their providers.¹¹⁰ The utopian vision of the farmer on his tractor communicating via computer slowly washed away and rather, digital divides ensued where telecommunications services by-passed communities

¹⁰⁸ Kevin Martin quoted in Cauley, "Martin wants Broadband Across USA."

¹⁰⁹ Information Highway Advisory Council, *Connection, Community, Content, The Challenge of the Information Highway, Final Report of the Information Highway Advisory Council* (Ottawa: Minister of Supply and Services Canada, September 1995), ix.

¹¹⁰ Graham and Marvin, *Splintering Urbanism*, 283.

of color, low economic status, or those in rural areas or Aboriginal communities relegated to reserves or reservations.¹¹¹ The very networks that are to provide citizens with increased access to new marketplaces, new educational opportunities, and expanded abilities for democratic participation, rather undemocratically ignored certain segments of the population.

Selectively serving populations is not, however, a new phenomenon. Historical examples abound where the market has not adequately provided for the communication needs of certain segments of national or regional populations. In the early years of the twentieth century in rural regions of both Canada and the United States, the Bell System failed to provide service to rural dwellers and did not adequately connect subscribers to long distance routes. Illustrating the differences between the U.S. and Canada, two distinct approaches developed to overcome the Bell System's failure to provide. In the United States, entrepreneurs and communities formed independent telephone companies and rural cooperatives to provide service.¹¹² Schiller argues that independent telephone companies were social movements, created in part to challenge the large, distant, corporately controlled AT&T.¹¹³ Additionally, the FCC made telephone companies extend service. As mentioned earlier, in Canada, Manitoba, Saskatchewan, and Alberta provincialized telephony, creating provincially-owned telephone companies that provided service to rural dwellers.¹¹⁴ Other examples are not hard to find as rural areas provided a

¹¹¹ While in the United States, these communities are called "American Indians," in Canada the terms "First Nations" or "Aboriginal" are preferred. Additionally, in Canada, the term "reserves" is used for what the U.S. calls "reservations."

¹¹² John, "Recasting the Information Infrastructure for the Information Age," 93-95; Schiller, "Social Movement in Telecommunications," 401.

¹¹³ Schiller, "Social Movement in Telecommunications," 401-402.

¹¹⁴ Love, "For the General Good," 79-87; Schiller, "Social Movement in Telecommunications," 403.

variety of services, such as electricity and even grocery stores, through cooperative systems to overcome the lack of private provision in their regions. The historical patterns of selective service provision are mirrored in more recent years, as advanced network development to provide high-speed internet capabilities to customers was largely a service developed in urban regions to the exclusion of rural areas in the U.S. and Canada. The popular press, Census documents, and the work of telecommunications scholars, notably Sharon Strover, have chronicled the rural-urban digital divide at length.¹¹⁵

The regulated common carrier era ensured that telephone service reached subscribers who desired it by obligating companies to provide connections. In contrast, the post-regulation era has not been kind to rural areas. Rather, policy and legislation around deregulation have changed understandings of universal service, allowing providers to satisfy the provisions with outdated equipment and by-passes of low revenue areas. In some U.S. communities, municipalities are building fiber-to-the-home (FTTH) infrastructure to provide advanced telecommunications to their residents. The telephone and cable companies argue that such developments are instances of government

¹¹⁵ Sharon Strover, "The First Mile," *The Information Society*, 16 (2000): 151-154; Sharon Strover, "Rural Internet Connectivity," *Telecommunications Policy*, 25 (2001): 331-347; Michael Oden and Sharon Strover, with Nobuya Inagaki, Martha Arosemena, Jeremy Gustafson, and Chris Lucas, "Links to the Future: The Role of Information and Telecommunications Technology in Appalachian Economic Development," Prepared for the Appalachian Regional Commission (June 2002); William H. Melody, "The Overlooked Opportunity: Rural and Remote Area Telecoms," *Pacific Telecommunications Review*, 15, no. 2 (December 1993): 12-13; Ken Belson, "Rural Areas Left in Slow Lane of High-Speed Data Highway," *The New York Times* (Thursday, September 28, 2006): A1; Amit R. Paley, "Broadband Crawling Its Way to Exurbs: Communities Create Long-Sought Access," *Washington Post* (Monday, May 23, 2005): B1; Ken Belson, "With a Dish, Broadband Goes Rural," *The New York Times* (Tuesday, November 14, 2006): C1; Leslie Cauley, "Martin Wants Broadband Across USA," *USA Today* (August 18, 2008); M. Sawada, Daniel Cossette, Barry Weller, Tolga Kurt, "Narrowing the Urban/Rural Broadband Digital Divide in Canada with GIS: Implications for the Canadian Terrestrial Broadband Wireless Market," (August 16, 2005): 3-5.

intervening unnecessarily on private enterprise.¹¹⁶ Other states passed laws to keep municipalities out of telecommunication service provision.¹¹⁷ According to Lloyd, four states, Missouri, Nevada, Texas, and Pennsylvania, have laws that “limit or prohibit municipally operated telecommunications services.”¹¹⁸ Municipalities have challenged these laws in an attempt to provide advanced telecommunications services to their residents. In 1999, the City of Abilene, in the *City of Abilene v. FCC*, argued that Section 253 of the Telecommunications Act of 1996 forbids states from prohibiting “any entity” from entering telecommunications service. The City argued that if Congress had meant private corporations only, the word “private” would have appeared prior to the word “entity.” The D.C. Circuit court, however, sided with the FCC denying the petition for juridical review.¹¹⁹ Municipalities brought this issue before other courts. In 2001, the United States District Court for the Western District of Virginia decided that Virginia’s law denying localities from entering telecommunications violated Section 253 of the Telecommunications Act of 1996, a decision that differed from *City of Abilene v. FCC*.¹²⁰ In May of 2002, however, the United States Court of Appeals for the Fourth Circuit rescinded the 2001 opinion and denied the appeal.¹²¹ Finally, in 2004 in *Nixon v.*

¹¹⁶ Becky Bohrer, “Rural Wyoming City Moves toward Fiber-Optic Network; Private Providers Miffed,” *USA Today* (August 13, 2006), URL: http://www.usatoday.com/tech/news/2006-08-13-powell-fiber_x.htm (accessed August 19, 2008).

¹¹⁷ Flora and Flora with Fey, *Rural Communities: Legacy and Change*, 216.

¹¹⁸ In footnote 57, page 324, Lloyd notes that seven states (Arkansas, Missouri, Nebraska, Nevada, Tennessee, Texas, and Virginia) forbid both municipalities and public power utilities from providing telecommunications. Strover and Berquist provide a similar list. Lloyd, *Prologue to a Farce*, 245; Strover and Berquist, “Telecommunications Infrastructure Development,” 6.

¹¹⁹ *City of Abilene, Texas, et al., v. Federal Communications Commission and United States of America*, 164 F.3d 49 (DC Cir. 1999), URL: <http://www.fcc.gov/ogc/documents/opinions/1999/abilene.html> (accessed November 10, 2008).

¹²⁰ *City of Bristol, Virginia v. Earley*, 145 F.Supp.2d (W.D. Va. 2001), LexisNexis Academic, Record LEXIS 6325 (accessed November 13, 2008).

¹²¹ *City of Bristol v. Virginia*; No. 01-1741, No. 01-1800, 2002 U.S. App. (4th Cir. Va., May 1, 2002), LexisNexis Academic, Record LEXIS 28155 (accessed November 13, 2008).

Missouri Municipal League, the Supreme Court decided that Section 253 of the Telecommunications Act of 1996 did not preempt state and local laws forbidding municipalities from providing telecommunication services.¹²² Thus states could prohibit cities and municipalities from entering the industry. The decision merges well with the interests of private telecommunications companies that want to eschew competition from public sources.¹²³ It does not help the public because it limits a locality's ability to provide services for residents that telecommunication companies have not offered, leaving public projects often meant to improve access for all residents languishing.

On the demand side, farmers and ranchers are still very much influenced by more traditional understandings of universal service, meaning service available to all households that request it. There is, therefore a major disconnect between the supply and demand sides. Scholars in both the U.S. and Canada declare that government intervention is required to provide adequate telecommunications service to rural areas, but the instances of government intervention explored herein illustrate that existing state involvement to build the infrastructure is simply not enough to overcome the rural-urban digital divide, rather developments require resources dedicated to education and need cost structures affordable to limited rural incomes.

Correcting the Inequities of Access: Public and Private Broadband Initiatives

In the 1990s and early 2000s, various social groups, including several levels of the state, organizations such as the National Rural Telecommunications Cooperative

¹²² *Nixon v. Missouri Municipal League* (541 U.S. 125 [2004] 299 F.3d.), URL: <http://www.fcc.gov/ogc/documents/opinions/2004/02-1238-032404.pdf> (accessed November 10, 2008).

¹²³ Bohrer, "Rural Wyoming City Moves toward Fiber-Optic Network."

(NRTC), and private companies explored opportunities for providing networks to bypassed populations allowing for the digital divide to be overcome in theory. In practice, these networks correct the inequities of access. Four potential or actual infrastructural developments illustrate how communities, organizations, companies, and governments attempt to end the digital divide in the post-regulatory moment. These include Alberta's SuperNet, Canada's developing broadband plan, a small Wyoming town's development, and WildBlue satellite broadband. These developments are interesting and informative to explore for two reasons: first, they allow for a comparison of the American and Canadian experiences and second, they provide a comparison of government and private initiatives.

The Alberta provincial government, which professed itself to be fiscally conservative, spent \$193 million Canadian and partnered with two corporations, Bell, a large telecommunications company, and Axia, a smaller local networking firm, to construct a high-speed, broadband, fiber-optic network that spanned from the cities, to the towns, to the tiny hamlets of the province, stretching from the grasslands of the U.S.-Canada border to the sparsely populated boreal forest regions in the north. Having recently privatized the telephone company, the government sought not to become involved again in telecommunications service provision. In 1990 and 1991, Alberta privatized its telephone company in the largest Canadian provincial privatization.¹²⁴ The telecommunications provider, Telus, was the product of the privatization.¹²⁵ On May 31, 1990, the Premier at the time, Don Getty, introduced the privatization plan, a measure

¹²⁴ Anthony E. Boardman, Claude Laurin, and Aidan R. Vining, "Privatization in North America," in *International Handbook on Privatization*, ed. by David Parker and David Saal (Northampton, MA: Edward Elgar, 2003), 137.

¹²⁵ William A. Schneider, "The Telus Story: From Obscurity to 'The X-Files,'" *Telephony*, 235, no. 2 (July 1998): 34; "Company History," Telus Website, URL: http://about.telus.com/investors/profile_history.html (accessed August 18, 2008).

that had been under consideration since 1988.¹²⁶ In advance of the announcement, the government spent \$500 million (CAD) to provide single line service to rural subscribers. The Opposition accused the government of undertaking the improvements to prepare the company for privatization.¹²⁷ The Provincial Treasurer noted that a shift was afoot from “economies driven by governments to economies driven by markets.”¹²⁸ The Getty government argued that privatization was necessary to help Alberta Government Telephones (AGT) compete in the rapidly changing telecommunications industry.¹²⁹ Getty argued that to compete in the new telecommunications industry, AGT needed more investment money and that this funding “should not come from taxpayers.”¹³⁰ Rather, the funds would come from the private sector.¹³¹ Additionally, the Minister of

¹²⁶ Provincial Treasurer Johnston, June 12, 1988, quoted by Bruseker, “Oral Question Period: AGT Privatization Proposal,” in Legislative Assembly of Alberta, Thursday, March 22, 1990 in Province of Alberta, The 22nd Legislature, Second Session, *Alberta Hansard*, URL: <http://www.assembly.ab.ca/net/index.aspx?section=doc&p=han> (accessed November 16, 2008): 218.

¹²⁷ McEachern, “Orders of the Day: Motions for Returns,” in Legislative Assembly of Alberta, Tuesday, March 27, 1990 in Province of Alberta, The 22nd Legislature, Second Session, *Alberta Hansard*, URL: <http://www.assembly.ab.ca/net/index.aspx?section=doc&p=han> (accessed November 16, 2008): 317; Bruseker, “Orders of the Day, Committee of Supply, Alberta Heritage Savings Trust Fund Estimates 1990-91, Technology, Research and Telecommunications. 1-Individual Line Service,” in Legislative Assembly of Alberta, Wednesday, May 16, 1990 in Province of Alberta, The 22nd Legislature, Second Session, *Alberta Hansard*, URL: <http://www.assembly.ab.ca/net/index.aspx?section=doc&p=han> (accessed November 16, 2008): 1271.

¹²⁸ Provincial Treasurer Johnston, “Oral Question Period: AGT Privatization Proposal,” in Legislative Assembly of Alberta, Thursday, March 22, 1990 in Province of Alberta, The 22nd Legislature, Second Session, *Alberta Hansard*, URL: <http://www.assembly.ab.ca/net/index.aspx?section=doc&p=han> (accessed November 16, 2008): 219.

¹²⁹ Minister of Technology, Research and Telecommunications Stewart, “Orders of the Day, Committee of Supply, Alberta Heritage Savings Trust Fund Estimates 1990-91, Technology, Research and Telecommunications. 1-Individual Line Service,” in Legislative Assembly of Alberta, Wednesday, May 16, 1990 in Province of Alberta, The 22nd Legislature, Second Session, *Alberta Hansard*, URL: <http://www.assembly.ab.ca/net/index.aspx?section=doc&p=han> (accessed November 16, 2008): 1271.

¹³⁰ Getty, “Ministerial Statements: Alberta Government Telephones,” in Legislative Assembly of Alberta, Thursday, May 31, 1990 in Province of Alberta, The 22nd Legislature, Second Session, *Alberta Hansard*, URL: <http://www.assembly.ab.ca/net/index.aspx?section=doc&p=han> (accessed November 16, 2008): 1539.

¹³¹ Stewart, “Oral Question Period: Alberta Government Telephones,” in Legislative Assembly of Alberta, Thursday, May 31, 1990 in Province of Alberta, The 22nd Legislature, Second Session, *Alberta Hansard*, URL: <http://www.assembly.ab.ca/net/index.aspx?section=doc&p=han> (accessed November 16, 2008): 1540.

Technology, Research and Telecommunications argued these were necessary changes, as the federal government had rescinded AGT's immunity from federal regulation following the Supreme Court ruling of 1989 and AGT would be subject to federal regulation under the CRTC.¹³² He did not, however, elaborate how the federal changes necessitated AGT's privatization. Manitoba and Saskatchewan maintained their provincial telephone companies despite the new regulatory regime.¹³³ Getty envisioned that "Alberta Government Telephones' future no longer lies in being a small provincial telephone company operating within the boundaries of our province" rather it would be "a major leader in the tremendous potential of this industry on a worldwide basis."¹³⁴ The original share offering was open exclusively to Albertans¹³⁵ and later the government opened it to Canadians and foreign buyers.¹³⁶ In the original public offering, the government sold 58 percent of the company for \$896 million (CAD). In 1991, the government sold the remaining 42 percent in a public offering for \$870 million (CAD).¹³⁷

The province's recent departure from telecommunications service provision along with its ideological bent left it unwilling to enter into broadband service provision. To develop broadband, the province adopted the public-private partnership (P3), a concept that is de rigueur in some neoliberal government circles. Countries including the United

¹³² Ibid.

¹³³ Wilson, *Deregulating Telecommunications*, 186.

¹³⁴ Getty, "Ministerial Statements: Alberta Government Telephones," in Legislative Assembly of Alberta, Thursday, May 31, 1990 in Province of Alberta, The 22nd Legislature, Second Session, *Alberta Hansard*, URL: <http://www.assembly.ab.ca/net/index.aspx?section=doc&p=han> (accessed November 16, 2008): 1538.

¹³⁵ Ibid.

¹³⁶ Government rules stated that 10% of the trading shares could be owned by foreign interests. Gibeault, "Government Bills and Orders, Second Reading, Bill 37, Alberta Government Telephones Reorganization Act (continued), in Legislative Assembly of Alberta, Wednesday, June 13, 1990 in Province of Alberta, The 22nd Legislature, Second Session, *Alberta Hansard*, URL: <http://www.assembly.ab.ca/net/index.aspx?section=doc&p=han> (accessed November 16, 2008): 1874.

¹³⁷ Table 7.2, Major Canadian Provincial Privatizations in Boardman, Laurin, and Vining, "Privatization in North America," 139.

Kingdom, Australia, Canada, the Netherlands, and Italy have adopted this idea.¹³⁸ The choice of a public-private partnership can be linked to the deregulatory and neoliberal trends occurring in Alberta and around the world. The partnerships allow governments to use private money to construct infrastructure permitting them to provide necessary infrastructure and services without increasing taxes or straining government budgets.¹³⁹ Additionally, proponents argue that private enterprise's expertise allows governments to get better products than they would build themselves and P3 requires companies to take on some of the risks.¹⁴⁰ At the same time, scholars Graeme A. Hodge and Carsten Greve, in "Public-Private Partnerships: An International Performance Review" observe that "private finance and increased contractual complexity" have huge implications for "governance and accountability arrangements."¹⁴¹

Alberta's Progressive Conservative government, when seeking to develop a large-scale project, had left itself with few choices but the public-private partnership. One of the hallmarks of the "Klein revolution," named after the contemporary Premier, Ralph Klein, was the privatization and attempted privatization of government provided services, including the privatization of retail alcohol sales, the privatization of motor vehicle registries, the partial privatization of health care, and the deregulation of electricity.¹⁴²

¹³⁸ Graeme A. Hodge and Carsten Greve, "Public-Private Partnerships: An International Performance Review," *Public Administration Review*, 67, no. 3 (May/June 2007): 546-547; Christopher Hume, "Are Public-Private Partnerships the Best Way to Go?; P3s: The Good, the Bad and the In-Between YES In these Tax-Loathing, Reactionary Times, They're a Necessary Evil, The Private Sector's Advantage Lies in its Expertise," *The Toronto Star* (Sunday, March 30, 2008): ID01.

¹³⁹ Hodge and Greve, "Public-Private Partnerships," 548; Hume, "Are Public-Private Partnerships the Best Way to Go?," ID01.

¹⁴⁰ Hume, "Are Public-Private Partnerships the Best Way to Go?," ID01.

¹⁴¹ Hodge and Greve, "Public-Private Partnerships," 552.

¹⁴² "Company History" from "About Telus Investors," Telus Website, URL: http://about.telus.com/investors/profile_history.html#telus (accessed October 12, 2008); Boardman, Laurin, and Vining, "Privatization in North America," 139; Editorial, "Ralph Klein's Electricity Migraine,"

Following this neoliberal trend of privatization, it was common parlance that the government had no business being in business. Arthur R. Price, the Chairman and CEO of Axia, one of the SuperNet contractors, explained and defended the public-private partnership noting the “Government isn’t in the business of being in business.”¹⁴³ This statement, however, was rather near-sighted as the provincial government of Alberta had been in the telephone business for over 80 years. Despite the ideological opposition to government involvement, some governments have found few private entrants to rural infrastructure markets. In these cases, governments must do something to either correct market failure or entice private businesses to construct infrastructures historically and traditionally provided, or facilitated, by the state.

This network development was, for the Alberta government, not only a practical solution to the digital divide but it was also an opportunity to illustrate Alberta’s preeminence in Canada, and perhaps the world, at innovation and technology development. Government officials’ celebration of the SuperNet is reminiscent of the pride that the French expressed for their nuclear program after World War II. In the *Radiance of France: Nuclear Power and National Identity after World War II*, historian of science Gabrielle Hecht notes that in the development of the French nuclear program

Toronto Star (April 14, 2004), reprinted from the *Herald-Tribune* (Grande Prairie, AB): A22; Canadian Union of Public Employees (CUPE), “Deregulation, Privatization and the Ontario Power Failure,” (September 24, 2003), URL: <http://cupe.ca/PrivatizationUtilities/ART3f719b0a8bd00#alberta> (accessed September 23, 2008); Kevin Libin, “Private Care Loses Alberta’s Support: Tories Back Medicare,” *National Post* (Canada) National Edition (Wednesday, January 10, 2007): A1; Kevin Taft and Gillian Steward, *Clear Answers: The Economics and Politics of For-Profit Medicine* (Edmonton: Duval House Publishing, 2000), 1, 67-68, 86-87; Bruseker, “Public Bills and Orders Other Than Government Bills and Orders, Second Reading, Bill 206, Auditor General Amendment Act, 1993,” in Legislative Assembly of Alberta, Wednesday, October 20, 1993 in Province of Alberta, The 23rd Legislature, First Session, *Alberta Hansard*, URL: <http://www.assembly.ab.ca/net/index.aspx?section=doc&p=han> (accessed November 16, 2008): 951.

¹⁴³ Arthur R. Price quoted in Stephen M. Cherry, “Winner: Across the Great Divide,” *IEEE Spectrum* (January 2004): 33.

there was a clear association between “technological prowess and national identity,” a link that can be seen in relation to the SuperNet and Alberta’s provincial identity.¹⁴⁴ Alberta is, after all, the sole Canadian province to have a Ministry of Innovation and Science, a fact that proved to provincial leaders that the province is more forward-thinking and progressive than its neighbors.¹⁴⁵ The ideological import of the project in Alberta’s self-conception cannot be ignored for the province was acutely aware of this potential. While state intervention at the provincial level provided a solution in Alberta, it is important to note that Alberta is not representative of other Canadian provinces that are still struggling to find solutions to the digital divide. Unlike Alberta, which is awash in oil royalty revenues and is generally more prosperous than other regions due to the riches provided from the booming forestry, mineral, and oil industries, other provinces have been unable to find the monies to develop networks on the same scale as Alberta. These provinces await the federal government’s solution, a solution which is currently on hold while the government researches the best ways to provide broadband to rural, remote, and isolated regions across the country.

Initially, the federal government was content to leave the development of advanced telecommunications to the private sector. In the mid-1990s, Canada began envisioning an information highway that would cross the vast country and link Canadians to expand their future opportunities in the new information age. In 1995, the federal government released *Connection, Community, Content: The Challenge of the Information*

¹⁴⁴ Gabrielle Hecht, *The Radiance of France: Nuclear Power and National Identity after World War II* (Cambridge, MA: The MIT Press, 1998), 2, quoted from 4.

¹⁴⁵ Dr. Lorne Taylor, Minister of Innovation and Science, “SUBJECT: #4 Minister makes Innovation a Government Priority,” URL: <http://www.innovation.alberta.com/article.php?articleid=10> (accessed August 25, 2008).

Highway, Final Report of the Information Highway Advisory Council, a document that explored the possibilities and hurdles facing the development of an information highway. The advisory council outlined Canada's major challenge as capitalizing on the nearly unbounded capacity of optical fiber and the "breakthrough" of digitization to "integrate our telephone, cable, satellite and wireless networks into an **interoperable network**, and to upgrade them to fully interactive broadband capabilities that will carry information efficiently to Canadians across the country and beyond."¹⁴⁶ The Advisory Council envisioned the infrastructure as a private concern and maintained that the federal government's role was to "establish the right regulatory framework and environment"¹⁴⁷ for private infrastructure to flourish.

Private companies, however, did not rush to build an information highway to Canada's rural, remote, and northern communities and the government deemed state intervention necessary to provide the infrastructure that the market failed to provide. In October of 2000, the Liberal federal government announced its plans to develop a high-speed broadband network to rural areas of the country. The Industry Minister at the time, John Manley, declared "the government of Canada's commitment to achieving the goal of high-speed broadband access to all communities by 2004." In 2001, the then federal Liberal Industry Minister Brian Tobin estimated the project would cost approximately \$1 to \$1.5 billion dollars (CAD).¹⁴⁸ By December of 2001, however, the current Finance Minister, Paul Martin, moved the completion date back to the end of 2005. Martin stated

¹⁴⁶ Boldface in original. Information Highway Advisory Council, *Connection, Community, Content*, 3.

¹⁴⁷ Ibid., 93.

¹⁴⁸ Quoted in Brent Jang, "Now is Not the Time for Alberta's Rural Super Internet," *The Globe and Mail* (October 22, 2001): B12.

that the government needed more time to plan to achieve their broadband vision.¹⁴⁹ Progress on the federal network has been slow and the federal government is still attempting to create plans for broadband infrastructures to Canada's rural and remote communities. In the meantime, the government has created projects to serve those in rural, remote, and northern communities, including the National Satellite Initiative launched in 2005 and the Broadband for Rural and Northern Development (BRAND) pilot program that ran from 2002 to 2007.¹⁵⁰ Successive minority governments and the current minority Conservative government of Stephen Harper have slowed the process.

While Canadians are willing to assign the task of overcoming the digital divide to the provincial and federal governments, the case of the United States, specifically Wyoming, reveals a somewhat different tale. Wyoming, like Alberta, is flush with mineral revenue. The state has been actively involved in providing high technology opportunities for education and has spent considerable amounts of money ensuring rural and small-town students are not disadvantaged by the small size of their schools. Despite this, no work has been done to extend the existing infrastructure beyond the classrooms of the state.¹⁵¹ Solutions to the digital divide problem have largely been patchwork. In one instance in the mid-1990s, a town installed fiber optic cable with the assistance of the telephone company at the time, U.S. West; a project that received coverage in national and regional media outlets, including the *Denver Post Magazine*, and a nationally-

¹⁴⁹ David Crane, "Alberta Leads Canada's Broadband Efforts," *Toronto Star* (July 25, 2002): C02.

¹⁵⁰ Danny Bradbury, "Bridging Canada's Digital Divide around the World: Can the Country Manage to Bring its Remote Populations Online?" *Financial Times* (London, England) (Wednesday, November 22, 2006): 10.

¹⁵¹ State of Wyoming Representative, Phone Conversation with the Author, August 2007.

broadcast Microsoft television commercial highlighting computing in the county.¹⁵²

Much of the early press celebrated the coming of the information age to this American Wild West of family ranches and independent spirit. The favorable coverage ended when the media later uncovered that the greatly celebrated network that supposedly connected the town to the world, did not actually connect to any networks outside of town. This discovery led some journalists and commentators to call the entire affair a hoax while for others it underlined the backwardness of rural areas.¹⁵³ It also highlighted a basic problem with rural infrastructure: building the connections is costly and few companies, including the incumbent telephone provider, are willing to take up the challenge. Eventually, after the fiber-optic grid failed to restructure the area's economy, the town council sold the infrastructure to the cable company. The buyer was the very company the creators sought to replace with the municipal network. To make matters worse, the town council recovered only a fraction of what the network cost to build.¹⁵⁴

Another newer project, this one national in scope, provides high-speed internet services to rural American families. Overcoming the limitations and expenses of terrestrial cable and DSL technology, which rarely reach rural areas due to the hindrances of cost, WildBlue offers two-way broadband internet access via satellite to rural homes

¹⁵² Dinah Zeiger, "The Rural Frontier of Cyberspace," *The Denver Post Magazine* (June 11, 1995): 10-13; Michael Milstein, "Microsoft Ads on Young Web Heads Spurs Some New Interest in Lusk," *The Billings Gazette* (Montana) (Sunday, February 14, 1999): 1D, 5D.

¹⁵³ Jon Healey, "Small-Town Net of Dreams," *Salon.com* (May 8, 1997), URL: <http://archive.salon.com/may97/21st/lusk970508.html> (accessed June 6, 2007); Eric Sorensen, "Wireless in Wyoming: Lusk, Darling of Microsoft, Isn't Quite 'Wired' Yet," *The Seattle Times (Seattle Post-Intelligencer)* (Sunday, February 14, 1999): A1, A12-A13; Associated Press, "Lusk isn't Quite Wired," *Wyoming Tribune-Eagle* (Tuesday, February 16, 1999): A1; Associated Press, "Lusk's Link to the Information Age—Wire, Oh Wire, Can It Be?" *Omaha World-Herald* (Tuesday, February 16, 1999): 9, 11.

¹⁵⁴ Mary Shields, "Town is Looking into City-Owned Cable Television," *The Lusk Herald*, 104, no. 26 (Wednesday, October 14, 1989): 1; Dana Williams, "Communicom to Purchase Town's Fiber Optics System," *The Lusk Herald*, 112, no. 21 (Wednesday, June 2, 1999): 1; Public Works Superintendent (1A-WY), Interview with the Author (June 25, 2007).

and businesses.¹⁵⁵ The service, while existent for several years, gained impetus in 2003 when Liberty Media, Intelsat, the investment firm Kleiner Perkins Caufield & Byers, and the National Rural Telecommunications Cooperative (NRTC) invested \$156 million U.S.¹⁵⁶ WildBlue launched its service aboard the U.S. capacity of Telesat's Anik F2 satellite in July 2004.¹⁵⁷ In areas including Iowa, Kentucky, Missouri, and Ohio, in 2006, there were waiting lists for service because customer demand outstripped available bandwidth, but in others, including Wyoming, providers of rural broadband technologies note that their services are underutilized.¹⁵⁸ Access to broadband service, therefore, is but one piece of the puzzle.

Much literature in communication either looks at supply or demand—access/availability or use. The solution to the rural digital divide is not only a matter of supply, it is also a matter of demand. Physical access and price are part of the problem, but it is also about a complicated nexus of factors including economics, rural culture, and also perceptions about usefulness and accessibility of technology. In *Diffusion of Innovations*, Everett M. Rogers discusses innovativeness and adopter categories that are helpful here. Innovativeness is the “degree to which an individual or other unit of adoption is relatively earlier in adopting new ideas than the other members of a system.”¹⁵⁹ Rogers defines five categories of people based on their degree of

¹⁵⁵ WildBlue, “About Us,” URL: <http://www.wildblue.com/company/index.jsp> (accessed August 18, 2008).

¹⁵⁶ Ken Belson, “With a Dish, Broadband Goes Rural,” *New York Times* (Tuesday, November 14, 2006): C10.

¹⁵⁷ WildBlue, “About Us,” URL: <http://www.wildblue.com/company/index.jsp> (accessed August 18, 2008).

¹⁵⁸ Belson, “With a Dish,” C10.

¹⁵⁹ Everett M. Rogers, *Diffusion of Innovations*, 5th ed. (New York: Free Press, 2003), 22.

innovativeness: innovators, early adopters, early majority, late majority, and laggards.¹⁶⁰ He states that people in the first category are cosmopolites that actively seek information, consume high levels of mass media, and have wide networks of relationships, including beyond their local area.¹⁶¹ They also have greater financial resources than others in the community and often are not community leaders.¹⁶² On the other side of the scale, are the late majority who wait to adopt an innovation until they must. Laggards tend to be isolated and look to the past rather than the future to make adoption decisions. Usually, they have limited resources.¹⁶³ Using these categories helps to think about, and explore, the role of rural culture in adoption decisions made around ICTs. Beyond exploring whether internet access is available, it behooves scholars to also spend time with rural people to learn not only what devices they have access to but to explore their perceptions about technology.

Historical research in Canada and the U.S. has chronicled rural dwellers as quick to adopt new communication technologies in the early twentieth century, with a slower adoption of household devices; the uptake of farm implements fell somewhere in between, partially depending on the ethnicity of the farmer.¹⁶⁴ Research illustrates farmers and their families particularly treasured devices that ensured they would “no

¹⁶⁰ Ibid., 22, 280.

¹⁶¹ Ibid., 23.

¹⁶² Ibid., 283.

¹⁶³ Ibid., 284.

¹⁶⁴ In “‘Valiant Servants,’” the Prairie Canadian historian Angela E. Davis suggests that similarly both men and women were reticent to adopt modern machinery onto the farm or into the kitchen. She argues that reports in agricultural magazines and academic articles of highly mechanized farms with primitive farm homes were not accurate. Flora and Flora note that the U.S. born population “tended to invest heavily in machinery” whereas foreign-born farmers were less likely to do so. Angela E. Davis, “‘Valiant Servants’: Women and Technology on the Canadian Prairies 1910-1940,” *Manitoba History*, no. 25 (Spring 1993): 33, 35-36; Cornelia Butler Flora and Jan L. Flora, “Structure of Agriculture and Women’s Culture in the Great Plains,” *Great Plains Quarterly*, 8 (Fall 1988): 202.

longer be cut off from the outside world,” including the radio, telephone, and automobile. It is important to note that these technologies also were helpful for farm work, allowing farm families to hear agricultural prices, order supplies, and do farm errands respectively.¹⁶⁵ American rural historian Katherine Jellison notes in “Women and Technology on the Great Plains 1910-40,” “some women were more eager to improve communication technology than to improve domestic technology. In the words of one farm woman of the era, ‘you can’t go to town in a bathtub!’”¹⁶⁶ Rural families credited devices that were not farm or household technologies with improving the quality of rural life and decreasing isolation.¹⁶⁷ Diffusion statistics support these unequal valuations. In 1940, for example, rural homes in the Great Plains states (North Dakota, South Dakota, Nebraska, and Kansas) were much more likely to have a radio than running water or electric lighting. Table 1 below illustrates this disparity.

¹⁶⁵ Davis, ““Valiant Servants,”” 33, 38; Katherine Jellison, “Women and Technology on the Great Plains, 1910-40.” *Great Plains Quarterly*, 8 (Summer 1988): 156.

¹⁶⁶ Jellison, “Women and Technology on the Great Plains,” 152.

¹⁶⁷ In 1922, one study of Manitoba Farm homes found that 86% lacked electricity. Sara Brooks Sundberg, “A Female Frontier: Manitoba Farm Women in 1922,” *Prairie Forum*, 16, no. 2 (Fall 1991): 190; Davis, ““Valiant Servants,”” 34, 39.

TABLE 1. Percentage of Farm Homes with Running Water, Outdoor Toilets, Electric Lighting, and Radios in the Northern and Central Great Plains, 1940.¹⁶⁸

	Running Water	Outdoor Toilet	Electric Lighting	Radio
Kansas	15.7	86.5	27.3	73.2
Nebraska	22.3	83.8	28.5	76.7
N. Dakota	6.0	89.8	15.5	87.2
S. Dakota	11.8	89.9	17.9	81.7
Colorado	21.3	84.7	34.6	73.5
Montana	14.7	87.2	27.8	81.1
Wyoming	16.1	84.6	31.0	75.7

In the Great Plains, North and South Dakota, the states with the lowest population densities, of 9.2 and 8.4 persons per square mile, respectively, had more radios than Kansas and Nebraska, with higher densities, of 21.9 and 17.2 persons per square mile.¹⁶⁹ Thus, more isolated rural households were more likely to have radios.

¹⁶⁸ Table adapted from Tables 1 and 2, Jellison, "Women and Technology on the Great Plains, 1910-1940," 147, 152; U.S. Department of Commerce, *Sixteenth Census of the United States: 1940, Housing, Volume II: General Characteristics*, Part 2: Alabama-Indiana (Washington, D.C.: United States Government Printing Office, 1943), 331-334; U.S. Department of Commerce, *Sixteenth Census of the United States: 1940, Housing, Volume II: General Characteristics*, Part 3: Iowa-Montana (Washington, D.C.: United States Government Printing Office, 1943), 118-123, 989-991; U.S. Department of Commerce, *Sixteenth Census of the United States: 1940, Housing, Volume II: General Characteristics*, Part 4: Nebraska-Pennsylvania (Washington, D.C.: United States Government Printing Office, 1943), 13-16, 520-523; U.S. Department of Commerce, *Sixteenth Census of the United States: 1940, Housing, Volume II: General Characteristics*, Part 5: Rhode Island-Wyoming (Washington, D.C.: United States Government Printing Office, 1943), 103-105, 955-957.

¹⁶⁹ Jellison, "Women and Technology on the Great Plains, 1910-1940," 147, 152.

TABLE 2. Percentage of Farm Homes with Running Water, Outdoor Toilets, Electric Lighting, and Radios on the Canadian Prairies, 1941.¹⁷⁰

	Running Water	Outdoor Toilet	Electric Lighting	Telephone	Radio
Canada	12.2	89.2	20.2	29.3	60.6
Ontario	14.0	87.8	37.3	50.9	66.2
Manitoba	1.6	94.9	7.3	23.9	66.8
Saskatchewan	1.1	95.1	4.9	32.6	71.8
Alberta	3.1	95.7	6.0	18.0	72.7

Rural Prairie Canadians, like their counterparts on the American Great Plains, greatly preferred communication technologies to household improvements as illustrated in Table 2 above. History illustrates that rural dwellers thought communication technologies improved their lives and freed them from the isolation of the farm or ranch. It is thus worthy of investigation to determine whether rural dwellers are enthusiastic adopters of computers and high-speed internet.

In light of the quick historical uptake of new communication technologies in rural areas, it is interesting that commentators commonly refer to a rural-urban digital divide when discussing new ICTs. To look into this claim that rural areas and rural dwellers lag behind with new ICTs, this research thickly and richly explores rural dwellers' access to and use of information and communication technologies as a whole, including the internet, cellular telephones, and satellite television in two locales—one in rural Alberta,

¹⁷⁰ Data from Table 18 – Occupied Dwellings with Specified Conveniences in Canada, Dominion Bureau of Statistics, *Eighth Census of Canada, 1941: Volume IX – Housing* (Ottawa: Edmond Cloutier, 1949), 81-83.

Canada, and the other in rural Wyoming. The research centered on three primary questions. First, what solutions are being developed—public, private, or a combination of the two—to overcome the rural digital divide in the post-regulatory moment? Second, do these solutions meet the needs of the citizens and consumers they are intended to serve? Finally, do these solutions serve the public good and do they help sustain a more democratic order? To answer these questions, interviews and ethnographic research were conducted in East Central Alberta and East Central Wyoming.

The results were something of a surprise, outside of the widespread availability and subscription to satellite television. In Alberta, where the provincial government spent \$193 million Canadian of public money on a fiber optic network to reach rural areas of the province, rural dwellers and organizations in the research area reported severe challenges to high-speed internet access and use. In rural Wyoming, the perceived lack of high-speed internet access and the very limited availability of cell phone service were matters of much comment for interviewees. Even more remarkable for respondents was the dilapidated POTS service. The phone company still used copper open wire along parts of the service routes, rather than the underground cable common in more densely settled areas. The equipment is analog and had severely limited capacity. In some areas, current subscribers filled the analog plant to capacity and it could not accommodate new telephone subscribers. For these respondents, the lack of a perceived “luxury,” high-speed internet, was not such a big deal. They were more concerned with the lack of reliable landline telephone and cell phone service. Some of these respondents had so many problems attempting to use the internet on old phone lines that they are unwilling to spend more for broadband internet service.

The digital divide cannot only be analyzed through access to new communication technology. Accessibility is but one facet of potential use; there are a host of other factors that act in concert to facilitate or hinder use of computers and the internet, not only in rural areas, but in urban ones also. These factors include local advertising of a device's availability, cost of service, potential subscribers' ability to use the technology, an understanding of the possibilities of access and use, and perceived need for the service. Use of broadband internet capacity hinges on potential subscribers' awareness that service is available to them and understanding that they themselves could use the service for a variety of ends. While SuperNet developers and WildBlue representatives note their services are "affordably priced" and remain puzzled as to why rural denizens are not queuing up to receive service, "affordable pricing" does not mean the same to everyone.¹⁷¹ Indeed, field research illustrated that many farm and ranch families evaluated the so-called "affordable prices" as astronomical, a calculation based partially on their understandings of what they would use the service for, partly on whether they felt dial-up service was good enough, and partially due to the realities of agricultural incomes. As the Liberal Hugh MacDonald argued in the Alberta Legislature, "The farmers: well, they were very excited about this [the Alberta SuperNet], but unfortunately with the price of commodities they cannot afford a computer. So the farmers are not going to have to worry about getting any dust in their laptop. It's not going to happen this year. Hopefully, it may happen next year."¹⁷² For many people, contemplating

¹⁷¹ WildBlue, "About Us," URL: <http://www.wildblue.com/company/index.jsp> (accessed August 18, 2008).

¹⁷² MacDonald, "Committee of Supply, Main Estimates, 2001-2002," in Legislative Assembly of Alberta, Tuesday, May 22, 2001 in Province of Alberta, The 25th Legislature, First Session, *Alberta Hansard*, vol. II (May 14 to November 15, 2001), 723.

broadband seems unrealistic as they use second hand computers and outdated operating systems. Rural people often do not imagine themselves to be the target audience for new communication and computing technologies, confounding the problems of the digital divide. These self-perceptions themselves can be catalogued as part of the digital divide because they illustrate that the divides go beyond the availability of access and are composed of a host of factors including education, income, knowledgeability about computers, understanding of how broadband works, and also what Rogers calls “innovativeness.” In addition to the gap in access, there appears to also be a cultural digital divide. This cultural crevasse is not one that exists solely in rural areas to be sure; the same hindrances that keep potential rural subscribers from signing up appear to be mirrored in urban working class populations. Looking at the demand side allows researchers to gauge people’s responses to what is available and what is important to them. This part of the research uncovers why, despite the availability of ICT solutions, and some promising ones at that, there is still a persistent rural-urban digital divide. Overcoming the digital divide is about more than the availability of ICTs. Education and outreach are required to ensure that rural people see themselves as potential users of technology. While rural users historically adopted communication technologies with enthusiasm, computers and the internet have not had the same levels of adoption, leading to what many call the “digital divide.” This divide is seen in several ICTs, including enhanced landline telephone services, cell phone services, and broadband access. Part of the divide can be attributed to neoliberalism and deregulation where companies have fewer incentives to close the digital divide than they did during the regulatory period must be taken into account. It is also important to note that the differences partially result

from the learning curve associated with computers; unlike radio sets, televisions, or telephones, people require more technical knowledge to operate them.

Field work illustrates that the most enthusiastic rural users of high-speed internet technologies are people who are recent imports from the cities, those who have higher education, the youth (although in most rural areas today, young adults are hard to find as there is an exodus of post-secondary educated people away from the farms and ranches), and a set of technologically savvy retired people. This suggests that this story is not only one of a rural-urban digital divide, but it also confirms that technology tends to exacerbate other societal divisions, making it seem that the technology once viewed as the harbinger of democratic participation rather entrenches itself into the existing social and economic divisions in society.

This dissertation provides an analysis of two solutions to the rural-urban digital divide, the development of the Alberta SuperNet, from 1999 until 2007 in Alberta, Canada, and the development of a municipal fiber-optic grid in Lusk, Wyoming, in the United States. The research used the political economic approach as its starting point, an approach which communication scholar Vincent Mosco argues is grounded in the idea that “*communication is a social process of exchange whose product is the mark or embodiment of a social relationship.*”¹⁷³ Studies in the political economy of communication are concerned with power, and look carefully at the production and consumption sides of the communicative process as a way to analyze whether media and communication organizations are serving the public good.¹⁷⁴ Central to the public good

¹⁷³ Vincent Mosco, *The Political Economy of Communication* (London: Sage Publications, 1996), 72.

¹⁷⁴ Patricia Mazepa, “Democracy Of, In and Through Communication: Struggles around Public Service in Canada in the First Half of the Twentieth Century,” *Emerald FullText*, 9, no. 2/3 (2007): 45.

is the idea of treating the users of communication industries as citizens and not solely consumers. Thus, the role of communication in a democracy is of central import. At the end of “Social Movement in Telecommunications,” Schiller notes the central importance of democracy when he writes,

Today the centrality of telecommunications to the character and functioning of the global political economy is trumpeted from every side. The proliferation of points at which networks intersect palpably with work, politics, education, leisure and consumption, is readily perceived. Is it not reasonable to suggest that, in the context of this much vaunted “information economy,” growing numbers of people find good reason to concern themselves with telecommunications policy?

If and when they do, they will find themselves engaging with the Progressive Era’s chief historical inheritance: how to imagine and actualize telecommunications institutions capable of sustaining a more democratic order.¹⁷⁵

A more democratic order in the realm of the internet would mean that all social groups have equitable access to high-speed internet and to advanced communication technologies. Additionally, it would also mean that people would subscribe to and use the technologies to improve their lives, be it improvements to their labor, social life, consumption decisions, or roles as citizens.

Along with an understanding, garnered from political economy, that technology ought to serve the public good, this dissertation also employs the work of the sociologist of technology, Claude S. Fischer. In a 1985 article entitled, “Studying Technology and Social Life,” Fischer argues for further research into the social consequences of technology. However, he castigates much of the previous research as using “sweeping

¹⁷⁵ Schiller, “Social Movement in Telecommunications,” 408.

generalizations” and “homogenous effects” and reminds scholars that empirical research often reveals “contradictory empirical claims” that need to be discussed in the study of technology.¹⁷⁶ Fischer argues that scholars need to consider how people choose to use a technology and choose not to use it and also to ask “how and why purposeful actors choose to adopt specific technologies and what they do with them.”¹⁷⁷

Drawing from the work of the political economists who focus on the structures that result from particular forms of ownership and the sociologists of technology that argue for empirical work into how and why people adopt particular devices, this work will look from both ends, at the social decisions that went into the creation of solutions to overcome the digital divide and at the social effects that result from these solutions. It does not accept, however, that technology is deterministic. Rather, following Fischer, it suggests that there are many possible effects and that often contradictory empirical evidence is amassed.¹⁷⁸

The research here reveals that the post-regulation environment has failed to generate sufficient investment in rural areas. This lack of investment has led to the persistence of a digital divide in rural areas. There are, however, both supply and demand side reasons for the gap and these dual reasons may help to account for the limited success of the supply side efforts in certain areas.

To explore the gaps between rural service provision, or supply, and demand, this dissertation will look in detail at two case studies. Chapter Two explores the supply side of broadband telecommunications capacity in Alberta, Canada. It centers on the Alberta

¹⁷⁶ Claude S. Fischer, “Studying Technology and Social Life,” in *High Technology, Space, and Society*, ed. Manuel Castells (Beverly Hills: Sage Publications, 1985), 286-287, 293.

¹⁷⁷ Ibid., 295.

¹⁷⁸ Ibid., 293.

SuperNet, a public-private partnership to provide fiber optic capacity to all areas of the province. This chapter looks carefully at the project, its successes, and its problems.

Chapter Three explores the demand side for internet and network services in a small locale in Alberta, inflecting on the supply side and the shortcomings therein. It also includes a discussion of the SuperNet from the perspective of rural people. The research finds that some people and organizations were quick and early adopters of SuperNet service as they saw it play a constructive role in their work. Other organizations, however, could not see enough benefit from the service to justify its expense and thus they declined, leaving SuperNet capacity sitting idle in offices. The chapter also looks at high-speed internet adoption, finding that although a touted benefit of the SuperNet, providers of high-speed internet are not ubiquitous in rural areas, leaving some people unable to procure a provider. Others, however, have adopted the service. It also looks at local solutions to bring internet service from the government network out to individual homes.

Chapter Four explores the supply side of broadband internet in rural Wyoming, looking in particular at a small town's attempt to overcome the digital divide by installing a municipal telecommunications grid. Additionally, this chapter considers the development of WildBlue and analyzes its provision via local providers.

Chapter Five explores the demand side for internet in a Wyoming county. It reveals that people who enthusiastically adopt high-speed internet are those who are well aware of its potential, due to experience with the device or a clearly conceived need. Some people were unaware that high-speed internet was available in their region. Others found the expense too much to bear in a depressed ranch economy worsened by years of

drought. The chapter also reflects on people's understandings of "luxury" versus "necessity" items revealing that in rural Wyoming, high-speed internet is not among the necessities at all. Rather, residents were much more frustrated by the lack of reliable, modern telephone service and the paucity of cell phone towers. Chapters Two, Three, Four, and Five will also discuss the relevant scholarly literature, including telecommunications history, rural sociology, and work currently being done on the rural-urban digital divide in Canada and the United States.

Chapter Six will analyze the two cases in comparison and explore literature from the fields of science, technology, society; the political economy of communication; the digital sublime; and the diffusion and use of technologies. Chapter Seven will provide a conclusion. The appendix offers specific details on the ethnographic research carried out including demographic and economic information on the regions studied and the number of interviews conducted in each field site.

CHAPTER TWO

“One of the Most Brilliant Government Innovations”: Overcoming the Digital Divide in Alberta, Canada

In 2002, *Time* magazine called the SuperNet, Alberta’s unique solution to the digital divide, “one of the most brilliant government innovations of the 20th century,” leading Minister of Economic Development Mark Norris to point out to the members of Alberta’s Legislature, “that’s another way the Alberta government continues to lead.”¹⁷⁹ The SuperNet is a broadband internet protocol (IP) fiber optic network, built by the provincial government between 2001 and 2005, in conjunction with two private partners, Bell Canada and Axia.¹⁸⁰ It is run as an open access network, which means physical access to the network is separate from services provided on it.¹⁸¹ The partners built a network of fiber optic cable spanning the province, running alongside highways and terminating in provincial buildings, schools, public libraries, and municipal offices around the province. It is over 13,000 kilometers long, 10,000 of which are fiber and

¹⁷⁹ Norris, “Committee of Supply: Main Estimates 2002-03,” in Legislative Assembly of Alberta, Tuesday, April 10, 2002 in Province of Alberta, The 25th Legislature, Second Session, *Alberta Hansard*, vol. I (February 26 to April 11, 2002), 626.

¹⁸⁰ Minister of Science and Innovation Dr. Lorne Taylor introduced the SuperNet in November of 2000, just before the next provincial election, held in March of 2001. Originally, the major partner was Bell Intrigna, a partnership between Bell Canada and MTS, the Manitoba Telecomm Services. Bell Canada owned one-third and MTS two-thirds of Bell Intrigna. In 2002, the company became Bell West, 60% owned by Bell Canada and 40% by MTS. Carol Howes, “Bell Canada, Consortium Win \$193M Network Deal: Beat Out Telus,” *National Post* (Canada), National Edition (Friday, November 3, 2000): C04; Tamara Gignac, “High-Speed Net to Link Albertans: Bell West’s Supernet: Legal Wrangle May Delay Completion,” *National Post* (Canada) National Edition (Monday, March 3, 2003): BE2; Steven M. Cherry, “Winner: Across the Great Divide,” *IEEE Spectrum* (January 2004), URL: <http://www.spectrum.ieee.org/print/3912> (accessed January 24, 2008), 30.

¹⁸¹ “What is an Open Access Network?” Open Access Networks, Axia Netmedia Corporation website, URL: http://www.axia.com/open_access_networks/what_is_an_oan.asp (accessed October 27, 2008).

3,000 are wireless connections.¹⁸² There are local SuperNet points of presence in 429 Alberta communities, including cities, towns, villages, and hamlets. Both rural and urban users can access the network for the same price, providing equivalent broadband access to rural communities used to having none or connectivity at higher prices than available in urban areas.¹⁸³ Before the SuperNet, only thirty communities in Alberta had high-speed access.¹⁸⁴ The partners built only the fiber optic network, the wires over which users run applications and provide “raw network connectivity via the Internet protocol.”¹⁸⁵ The network does not provide internet service.¹⁸⁶ Users of the network must contract with a separate entity to get access to the internet and ISPs buy connectivity from Axia.¹⁸⁷

This chapter explores the creation and development of the Alberta SuperNet. It argues that paradoxically, Alberta’s Conservative provincial government, generally under the sway of neoliberal ideology, engaged in the construction of large infrastructure. It sought to remain true to its ideological proclivities by contracting with private partners. This had the consequence of ministers seeing the network as a contract to be adhered to rather than a policy to create a communication media and communities of use. The idea that this was simply a contract led to several important implications. First, this resulted

¹⁸² Cherry, “Winner: Across the Great Divide,” 34.

¹⁸³ Doerksen, “Oral Question Period: Alberta SuperNet,” in Legislative Assembly of Alberta, Monday, March 4, 2002 in Province of Alberta, The 25th Legislature, Second Session, *Alberta Hansard*, vol. I (February 26 to April 11, 2002), 85; “Scientific and Technological Innovation,” Oral Question Period, Legislative Assembly of Alberta, Wednesday, March 15, 2000 in Province of Alberta, The 24th Legislature, Fourth Session, *Alberta Hansard*, vol. I (February 17 to March 22, 2000), 436, quoted from 437.

¹⁸⁴ Jill Mahoney, “Superfast Network to Cover Alberta; Plan for Provincewide High-Speed Internet; Aimed to Attract Technology Industry,” *The Globe and Mail* (Canada), National Edition (Friday, November 3, 2000): A3.

¹⁸⁵ Cherry, “Winner: Across the Great Divide,” 28.

¹⁸⁶ Doerksen, “Main Estimates 2004-05,” in Legislative Assembly of Alberta, Monday, April 26, 2004 in Province of Alberta, The 25th Legislature, Fourth Session, *Alberta Hansard*, vol. II (March 29 to May 13, 2004), 1047.

¹⁸⁷ *Ibid.*

in the project being conceived of, and developed from, the top level of provincial government. The process was not consultative or participatory—Members of the Legislative Assembly (MLAs) and members of the public did not have input. To view the construction and development of the network as an infrastructure contract left Alberta's citizens with a role based on consumption. Rather than being active participants in the network's conception, the province's organizations and people are the consumers of the network, its advantages, and its problems.¹⁸⁸ The lack of consultation resulted in a blind spot where the project's developers assumed Albertans would know what to do with the network, leading them to allot little money in the project's budget for education and outreach.¹⁸⁹ Second, the public-private partnership and the contract itself ensured that much of the information surrounding the project would be secret because of the private partners' business and technical priorities. The non-public character of the process and its lack of transparency meant that members of the Legislature felt they had no input into the project. Opposition, and some Progressive Conservative, members spent much time in the Legislature attempting to extract contract details from the relevant Ministers, identifying problems and working through the project's main goals and aims. Additionally, the lack of information led to a dearth of understanding about the network's technical aspects among legislators resulting in misconceptions. Finally, the treatment of the SuperNet as a contract rather than a policy meant Ministers at various times provided different goals and visions for the project. Legislators did not have a clear understanding of how to implement the grand social vision they spoke about, including ending the rural-

¹⁸⁸ Mazepa, "Democracy Of, In and Through Communication," 45.

¹⁸⁹ The government, Bell, Axia, and the SuperNet Research Alliance did not hold the first major public conference, the SuperNet Opportunities Conference, until June of 2006, several months after the network was complete.

urban digital divide, bringing economic development opportunities to rural Albertans, and realism about the costs of the project. Rather than having a clear policy to undertake specific measures to implement the visions, it was individual organizations', businesses', and citizens' responsibility to use the network to improve their communities and lives. While the economic development aspects languished, the SuperNet became a tool for more efficiently delivering rural social services. As a result, in its initial phase the SuperNet became a physical means for existing provincial departments to improve service delivery rather than radically altering rural Alberta, a much smaller version of benefiting the public good than the one Ministers originally put forth.

Privatization and Deregulation in Alberta

The Progressive Conservative government decided to fund a big infrastructure project, the SuperNet. This is something of a paradox because it went against the Progressive Conservative's political principles, especially in the neoliberal, post-regulatory environment (although deregulation was different in Canada than in the U.S.). The government, led by Premier Ralph Klein, called for decreased government involvement and putting less and less money into social programs. History illustrates that the government, over its tenure, pared back on government projects and spending. The SuperNet, thus, was an anomaly in the government's built capital projects.

Albertans have elected Progressive Conservative governments since 1971, when the Conservatives toppled the Social Credit Party that had been in office for 36 years. Klein, whose previous careers included journalist, mayor of the city of Calgary, and provincial Minister of the Environment, became leader of Alberta's Progressive

Conservative Party in 1992 when current leader, Don Getty, retired.¹⁹⁰ This immediately put him into the Premier's post; beginning the era pundits refer to as the "Klein revolution." Upon winning the election in 1993, Klein, facing problems due to failed provincial business ventures and large deficits and debt, argued that costs for social programs had skyrocketed during Getty's premiership.¹⁹¹ The new Premier sought to change this course; he claimed that the days of big spending and waste were over and fiscal conservatism became the government's philosophy. To begin, in his initial years as Premier, Klein pared back the cabinet from 27 Ministers to seventeen, thus ending "big government."¹⁹² As an additional cost-cutting measure, the government closed its

¹⁹⁰ Taft, *Shredding*, 11.

¹⁹¹ Taft, currently the Liberal Opposition leader, wrote an entire volume stating that this claim was a fabrication. Taft argues the Getty government had slashed social spending as well, but the Klein government told Albertans repeatedly that Getty's social spending was enormous leading Albertans into "politically induced amnesia and politically reconstructed history." Kevin Taft and Gillian Steward, *Clear Answers: The Economics and Politics of For-Profit Medicine* (Edmonton: Duval House Publishing, 2000), 34-39. Taft, *Shredding*, 11, 19, 25.

¹⁹² Taft, Ouellette, and Klein, "Oral Question Period, Restructuring and Government Efficiency," in Legislative Assembly of Alberta, Wednesday, March 16, 2005 in Province of Alberta, The 26th Legislature, First Session, *Alberta Hansard*, vol. I (March 1 to April 7, 2005), 244; MacDonald, "Order of the Day, Committee of Supply," in Legislative Assembly of Alberta, Wednesday, March 16, 2005 in Province of Alberta, The 26th Legislature, First Session, *Alberta Hansard*, vol. I (March 1 to April 7, 2005), 255; Elsalhy, "Main Estimates 2006-07," in Legislative Assembly of Alberta, Wednesday, April 5, 2006 in Province of Alberta, The 26th Legislature, Second Session, *Alberta Hansard*, vol. II (April 3 to May 4, 2006), 755; Martin, "Committee of Supply, Main Estimates 2005-06, Restructuring and Government Efficiency," in Legislative Assembly of Alberta, Wednesday, April 13, 2005 in Province of Alberta, The 26th Legislature, First Session, *Alberta Hansard*, vol. II (April 11 to May 3, 2005), 756; Ouellette, "Committee of Supply, Main Estimates 2006-07, Restructuring and Government Efficiency," in Legislative Assembly of Alberta, Tuesday, May 9, 2006 in Province of Alberta, The 26th Legislature, Second Session, *Alberta Hansard*, vol. III (May 8 to August 31, 2006), 1411; Chase, "Committee of Supply, Main Estimates 2006-07, Restructuring and Government Efficiency," in Legislative Assembly of Alberta, Tuesday, May 9, 2006 in Province of Alberta, The 26th Legislature, Second Session, *Alberta Hansard*, vol. III (May 8 to August 31, 2006), 1414; Martin, Blakeman, Hinman, Ouellette, "Committee of Supply, Main Estimates 2006-07, Restructuring and Government Efficiency," in Legislative Assembly of Alberta, Tuesday, May 9, 2006 in Province of Alberta, The 26th Legislature, Second Session, *Alberta Hansard*, vol. III (May 8 to August 31, 2006), 1412.

regional offices in small towns.¹⁹³ Klein's legacy of the 1990s was one of drastic cuts to social services, education, and health.¹⁹⁴

Added to its philosophy of fiscal conservatism, the government also followed neoliberal ideas and therefore favored the privatization of provincially owned enterprises and deregulation of industries in the 1990s. This process began before Klein came to power. As discussed in the previous chapter, in 1990 and 1991 the government privatized the provincially owned telephone company, Alberta Government Telephones (AGT).¹⁹⁵ The government received over \$1.7 billion (CAD) from the privatization.¹⁹⁶ In 1993 to 1994, the Klein government privatized the provision of liquor, previously a monopoly provincial enterprise named the Alberta Liquor Control Board.¹⁹⁷ Proceeds from the sale totaled \$51.2 million (CAD).¹⁹⁸ At the same time, the government deregulated the liquor industry.¹⁹⁹ Additionally, Klein deregulated the electricity industry in 1995. Public outcry resulted when electricity rates skyrocketed between June and October of 2000, leading the Premier to provide rebate checks to Albertans to help cover

¹⁹³ Carlson, "Committee of Supply, Main Estimates 2004-05, Economic Development," in Legislative Assembly of Alberta, Wednesday, March 31, 2004 in Province of Alberta, The 25th Legislature, Fourth Session, *Alberta Hansard*, vol. II (March 29 to May 13, 2004), 829; Carlson, "Oral Question Period, Rural Economy," in Legislative Assembly of Alberta, Wednesday, March 24, 2004 in Province of Alberta, The 25th Legislature, Fourth Session, *Alberta Hansard*, vol. II (March 29 to May 13, 2004), 677.

¹⁹⁴ Geertje Boschma and Nadine Kozak, "Continuity and Change, 1990-2004," in Geertje Boschma, *Faculty of Nursing on the Move: Nursing at the University of Calgary, 1969-2004* (Calgary: University of Calgary Press, 2005), 157-159.

¹⁹⁵ "Company History" from "About Telus Investors," Telus Website, URL: http://about.telus.com/investors/profile_history.html#telus (accessed October 12, 2008).

¹⁹⁶ Anthony E. Boardman, Claude Laurin and Aidan R. Vining, "Privatization in North America," in *International Handbook on Privatization*, eds. David Parker and David Saal (Cheltenham, UK: Edward Elgar, 2003), 139.

¹⁹⁷ Greg Flanagan, *Sobering Result: The Alberta Liquor Retailing Industry Ten Years after Privatization* (Canadian Centre for Policy Alternatives and Parkland Institute, June 2003), 1.

¹⁹⁸ Boardman, Laurin and Vining, "Privatization in North America," 140.

¹⁹⁹ Flanagan, *Sobering Result*, 1.

soaring energy bills, a program that cost the province over two billion dollars (CAD).²⁰⁰ Alberta joins California as an example of electric deregulation disaster in the press and scholarly studies.²⁰¹ Finally, and controversially, the Klein government partially privatized health care, allowing for “private clinics” that performed surgery on a for-profit basis. In 1994, Klein allowed for private eye clinics and in 1998 he allowed private surgery clinics. In 2005, he introduced a policy entitled the “Third Way,” a mixture of public and for-profit health care systems. Klein did not have the opportunity to enact this policy, as his grasp on the Conservative party weakened, leading him to retire in 2006.²⁰²

Imagining the SuperNet

Klein’s spending cuts, plus increased oil revenues eliminated deficits and reduced the province’s debt. Following the Premier’s landslide re-election on March 12, 2001, the Minister of Finance, Pat Nelson, outlined the success of the government’s fiscal policies. She reported that Klein’s Progressive Conservative government returned “seven

²⁰⁰ Editorial, “Ralph Klein’s Electricity Migraine,” *Toronto Star* (April 14, 2004), reprinted from the *Herald-Tribune* (Grande Prairie, AB); BC Citizens for Public Power, “10 Reasons Why Privatizing Electricity and Breaking up B.C. Hydro is a Bad Deal for British Columbians,” (September 1st, 2003), URL: <http://www.citizensforpublicpower.ca/node/232> (accessed September 23, 2008) claims that prices jumped 500% between June and October 2000, while the CUPE states that the increase was from 5 cents per Kwh to 25, Canadian Union of Public Employees (CUPE), “Deregulation, Privatization and the Ontario Power Failure,” (September 24, 2003), URL: <http://cupe.ca/PrivatizationUtilities/ART3f719b0a8bd00#alberta> (accessed September 23, 2008).

²⁰¹ Brent Jang, “Supernet Should Catch New Businesses for Alberta,” *The Globe and Mail* (Canada) (Thursday, March 29, 2001): B16; Rick Wallace, “The British Columbia Advantage: Lessons from Alberta on the De-regulation of the Electricity Industry,” (Edmonton: The Parkland Institute, University of Alberta, April 2001), <http://ualberta.ca/~parkland/research/studies/execsum/ESBCAdv.html> (accessed November 28, 2009); Maureen E. Howe and Fei Lee, “ZAP! Alberta is Jolted by Electric Deregulation,” *RBC Dominion Securities* (January 11, 2001) http://www.iasa.ca/ED_documents_various/zap0101.pdf (accessed November 28, 2009); CUPE, “Deregulation, Privatization and the Ontario Power Failure,” CUPE (September 24, 2003) <http://cupe.ca/PrivatizationUtilities/ART3f719b0a8bd00#alberta> (accessed November 28, 2009).

²⁰² Kevin Libin, “Private Care Loses Alberta’s Support: Tories Back Medicare,” *National Post* (Canada) National Edition (Wednesday, January 10, 2007): A1; Taft and Steward, *Clear Answers*, 1, 67-68, 86-87.

consecutive years of balanced budgets, our debt reduced by nearly two-thirds, and \$750 million in permanent interest savings....”²⁰³ The government’s revenues exceeded its own estimates by \$21 billion (CAD) in the eight years between 1993 and 2001.²⁰⁴ Decreased spending, balanced budgets, and enormous oil and gas revenues led the government to earmark monies for infrastructure. The SuperNet was a part of this onetime spending program.²⁰⁵ The Cabinet agreed to the project despite this fiscal conservatism, because as a former Minister involved with the project noted, “you can sell things to very conservative governments if you can provide a sense of vision.” This Minister, a self-labeled “fiscal conservative,” was the government’s champion for the project.²⁰⁶ The government’s philosophy against big government and for fiscal conservatism and neoliberalism, led them to favor undertaking the network project in conjunction with private partners.²⁰⁷

There is evidence for four possible explanations why the Progressive Conservatives decided to build the SuperNet. After all, there is an historical pattern of government intervention in infrastructure development in Alberta and a desire to be seen as visionary and technically advanced. First, the government Ministers saw themselves

²⁰³ In the March 2001 election, the Conservatives won 74 out of 83 seats in the Legislature. Pat Nelson, Minister of Finance, “Budget Address,” Legislative Assembly of Alberta, Tuesday April 24, 2001 in Province of Alberta, The 25th Legislature, First Session, *Alberta Hansard*, vol. 1 (April 9 to May 10, 2001), 128; election statistics from Klein, “Committee of Supply: Main Estimates 2002-03,” in Legislative Assembly of Alberta, Tuesday, April 9, 2002 in Province of Alberta, The 25th Legislature, Second Session, *Alberta Hansard*, vol. I (February 26 to April 11, 2002), 585.

²⁰⁴ Mason and Klein, “Oral Question Period: Provincial Fiscal Policies,” in Legislative Assembly of Alberta, Tuesday, April 9, 2002 in Province of Alberta, The 25th Legislature, Second Session, *Alberta Hansard*, vol. 1 (February 26 to April 11, 2002), 562.

²⁰⁵ Nelson, “Budget Address,” *Alberta Hansard*, 129-130; Danny Bradbury, “Bridging Canada’s Digital Divide Around the World: Can the Country Manage to Bring its Remote Populations Online?” *Financial Times* (London, England) (Wednesday, November 22, 2006): 10; Former Minister (4C-AB), Interview with the Author, January 4, 2008.

²⁰⁶ Former Minister (2C-AB), Interview with the Author, December 21, 2007.

²⁰⁷ Former Minister (4C-AB), Interview with the Author, January 4, 2008.

as adding to the tradition of successful infrastructure build outs. In rural areas, particularly in Prairie Canada, there is a long history of public provision of services, at times because private companies cannot profitably take up the work and at others for various reasons including regionalism and a disdain for big business. Officials used this history of government assistance to justify involvement in the network build in the Legislature. In 2005, Alberta's new Lieutenant Governor, Norman L. Kwong, also used this line of argument. He stated in his speech from the throne, "Back in 1905 Alberta was developing a telephone system, while 2005 will see the completion of the SuperNet."²⁰⁸ The year 2005 was significant because it was the province's centennial year. The message was clear: at the province's inception, the forward-thinking government installed telephone technology for Albertans and 100 years later, the province was still visionary, completing the development of a high-speed fiber optic network. The same year, Minister of Restructuring and Government Efficiency, Luke Ouellette, used the history of government intervention in infrastructure in the province to silence the network's critics. He argued,

...why the SuperNet? There are a million reasons why the SuperNet, but first I am going to start with when you said: leave it to private business. We better go back to starting in Alberta. I was at a meeting with all the gas people last year, and they were saying: how did you ever get Alberta so gasified? The reason that Alberta is so gasified was because of rural gas co-ops. That's the only way it would pay to go out into rural Alberta. Why is rural Alberta so electrified? The same thing. Why are there

²⁰⁸ Kwong took poetic license with the dates. The Legislature met the first time in 1906, at which time the members considered the telephone question. In that year, the government enacted legislation that allowed municipalities to develop telephone systems and that the province would pay for long distance lines where Bell had abstained from providing any. In 1907, the province started purchasing independent systems and in 1908, it bought Bell's plant. Norman L. Kwong, "Speech from the Throne, The Centennial: A Century of Achievement," in Legislative Assembly of Alberta, Wednesday, March 2, 2005 in Province of Alberta, The 26th Legislature, First Session, *Alberta Hansard*, vol. I (March 1 to April 7, 2005), 8; Babe, *Telecommunications in Canada*, 110.

telephone lines all over rural Alberta? Because Alberta Government Telephones put them in, and once the province was done all over rural Alberta, then private business could take it over and make a go of it.²⁰⁹

Ouellette argued that government intervention provided the impetus for infrastructure developments in rural Alberta. The SuperNet would follow this trend; the government would build fiber optic connections throughout the province, and private companies would provide rural internet service over the SuperNet's backbone. The government officers justified the SuperNet program as part of an historical trend of government investment in infrastructure. One of the Ministers centrally involved in the project argued that the SuperNet was a highway. The government paid for traditional highways and for the Minister, there was no question that it be publicly funded.²¹⁰ As with rural electric networks, the telephone system, and highways, the government would help bring new information and communication networks to rural Albertans. Officials argued that without government intervention, private industry would not develop infrastructure in rural Alberta, continuing the rural-urban digital divide. Taylor stated that high speed internet would eventually come to Medicine Hat and other small communities, but he did not want rural Albertans to have to wait for private providers to extend the service on their own.²¹¹

The second reason that the Government of Alberta decided to build the network was to provide new economic development opportunities for rural Albertans. Rural areas of the province experienced depopulation since the 1940s and more recently, the

²⁰⁹ Ouellette, "Committee of Supply, Main Estimates 2005-06, Restructuring and Government Efficiency," in Legislative Assembly of Alberta, Wednesday, April 13, 2005 in Province of Alberta, The 26th Legislature, First Session, *Alberta Hansard*, vol. II (April 11 to May 3, 2005), 758.

²¹⁰ Former Minister (2C-AB), Interview with the Author, December 21, 2007.

²¹¹ Stephen M. Cherry, "Winner: Across the Great Divide," *IEEE Spectrum* (January 2004): 33.

challenges brought by increasingly industrial agricultural production.²¹² Rural voters supported Klein and the Progressive Conservatives in successive elections.²¹³

Constructing infrastructure to overcome the digital divide was a way for the Conservatives to please rural voters. Additionally, Alberta's rural population went from 66.6% of the total in 1941 to 22.8% of the total in 1981.²¹⁴ One rationale for the development of the SuperNet is that the government of Alberta wanted to promote better rural telecommunications to spur rural economic development. Rural development through the SuperNet would help staunch the flow of rural Albertans to the cities and assist in providing a viable life for those left in Alberta's rural areas.

The third reason for government involvement in the network stemmed from the government's desire to be, and to be viewed by other governments as, technologically advanced. In the Legislature, the Minister of Science and Innovation Taylor stated when introducing the network build,

We have to recognize, Mr. Speaker, that the infrastructure for high-tech, knowledge-based business is in fact as important as highways; it's as important as railroads in this province. So we have just recently released an RFP that is requesting proposals to really provide a fibre-optic network from Manyberries to Fort Vermillion, from Vermillion to Edson, right across the whole province. *There's only one other jurisdiction in North America that's attempting this, and that's Massachusetts. They're doing it with copper, which is old technology.* As we work through this and have this fibre-optic network blanketing the province, it won't be any more expensive in Manyberries than it is in Calgary, postage-stamp rates. We will develop that infrastructure and make it available to all Albertans.²¹⁵

²¹² David Taras, "Alberta in 2004," in *Alberta Formed, Alberta Transformed*, ed. Michael Payne, Donald Wetherell, and Catherine Cavanaugh (Calgary: University of Calgary Press, 2006), 759.

²¹³ Ibid.

²¹⁴ Gerald Friesen, *The Canadian Prairies: A History* (Toronto: University of Toronto Press, 1987), 427.

²¹⁵ Italics added. Taylor, "Scientific and Technological Innovation," Oral Question Period, Legislative Assembly of Alberta, Wednesday, March 15, 2000 in Province of Alberta, The 24th Legislature, Fourth Session, *Alberta Hansard*, vol. I (February 17 to March 22, 2000), 436, quoted from 437.

Taylor pointed out that while Massachusetts was using “old technology,” copper wire, Alberta would be cutting edge and use the most technologically advanced approach, fiber optic cable, to build out the province-wide network. On another occasion, he announced that the development would put Alberta “in a unique place in North America. We will be the most wired province, more than any other province.”²¹⁶ Bell Canada flaunted this achievement in its promotional materials. One Bell promotional pamphlet for the SuperNet reads, “Alberta takes on the world and wins. Move over London. Step aside Sweden. Not even close, New York. Alberta’s new province-wide broadband superstructure is one of the most advanced IP networks in the world.”²¹⁷ The government prides itself on being progressive and innovative. Alberta is the only Canadian province with a Ministry of Science and Innovation.²¹⁸ Revenues generated from primary industries enable the government to fund research and innovation in science, technology, and medicine.²¹⁹ Alberta’s enormous wealth allows for spending in areas that other provinces simply cannot fund. David Fewer of the Canadian Internet Policy and Public Interest Clinic notes that Canada’s digital divides are not just between rural and urban areas, “It’s a have and have-not province issue.”²²⁰ Alberta is at the top of the “have” list.

²¹⁶ Dr. Lorne Taylor, Minister of Science, Research, and Information Technology, “Subcommittee D—Science, Research, and Information Technology,” Legislative Assembly of Alberta, Monday, March 29, 1999 in Province of Alberta, The 24th Legislature, Third Session, *Alberta Hansard*, vol. IV (November 25 to December 8, 1999, and Subcommittees of Supply), D42.

²¹⁷ “Bell Helped Bring the SuperNet to Life...Now We’re Looking Forward to Bringing it into Your Life,” Bell Canada promotional pamphlet (n.d.), provided by Bell Representative (3C-AB), Interview with the Author, December 31, 2007.

²¹⁸ Innovation Alberta, “Minister Makes Innovation a Government Priority (n.d.), URL: <http://www.innovation.alberta.com/article.php?articleid=10> (accessed October 9, 2008).

²¹⁹ Alberta puts some of its oil and gas revenues into research and scholarship funds.

²²⁰ Fewer quoted from Bradbury, “Bridging Canada’s Digital Divide,” 10.

Additionally, it excited the Ministers that the SuperNet was the envy of, and a potential model for, other provinces of Canada. The Minister of Restructuring and Government Efficiency argued,

In fact, Mr. Chairman, I would like to emphasize that we're not just building a network; we're building a future. We are indeed investing in the next Alberta, and I think we always have to keep that in mind. Last year the *Globe and Mail's Report on Business* stated, "It's time for all of Canada to jump on Alberta's big broadband bandwagon," and now we're beginning to see other provinces follow our lead. Indeed, imitation is the best form of flattery.²²¹

The provincial government's vision would be affirmed if the federal government adopted the SuperNet model nationally. The provincial Minister of Economic Development noted that some members of the federal government, such as Brian Tobin, the Minister of Industry under Prime Minister Jean Chrétien, wanted to emulate the SuperNet program on a national level. The national plan, however, did not come to fruition.²²² Minister of Economic Development Norris blamed Tobin's failure on the fact that "his leadership aspirations weren't strong enough to carry the day. However, it is a wonderful idea, and it's something the federal government should look at, because the Alberta government believes in it sincerely."²²³ The government prided itself on its technological advancement and vision.

²²¹ Ouellette, "Committee of Supply, Main Estimates 2005-06, Restructuring and Government Efficiency," in Legislative Assembly of Alberta, Wednesday, April 13, 2005 in Province of Alberta, The 26th Legislature, First Session, *Alberta Hansard*, vol. II (April 11 to May 3, 2005), 752-753.

²²² Norris, "Committee of Supply: Main Estimates 2002-03," in Legislative Assembly of Alberta, Tuesday, April 10, 2002 in Province of Alberta, The 25th Legislature, Second Session, *Alberta Hansard*, vol. I (February 26 to April 11, 2002), 636.

²²³ Ibid.

The desire on the part of politicians to create a province strong in advanced technologies can be linked to the history of regionalism in Canada. Regionalism and strong regional sentiments have played a major role in the history of Canada. In 1867, Confederation joined together several disparate areas into one Dominion: the Maritime region; Québec; Ontario; the territory in the middle that would later become Manitoba, Saskatchewan, and Alberta; British Columbia; and the northern regions that still remain territories. David Elton and Roger Gibbins argue in “Western Alienation and Political Culture” that “The existence of strong regional identities was given special recognition and enshrined in Canada’s constitution by the Fathers of Confederation through the establishment of a federal system of government.”²²⁴ The significant economic differences between the regions through time have led to strong sentiments of regionalism and also regional protest, seen in political choices such as Alberta’s election of the Social Credit Party in the 1930s. As political scientist Roger Gibbins explains in “Political Discontents in the Prairie West: Patterns of Continuity and Change,” one component of this regionalism is western alienation. He defines western alienation as “best seen as a political ideology of regional discontent ... [encompassing] a sense of political, economic, and, to a lesser extent, cultural estrangement from the Canadian heartland. [It expresses] the interlocking themes that western Canada is always outgunned in national politics and *that as a consequence* has been subjected to varying degrees of economic exploitation by central Canada.”²²⁵ The west was economically dependent

²²⁴ David Elton and Roger Gibbins, “Western Alienation and Political Culture,” in George Melnyk, ed., *A History of Protest in Western Canada* (Saskatoon: Fifth House Publishers, 1992), 262.

²²⁵ Roger Gibbins, “Political Discontents in the Prairie West: Patterns of Continuity and Change,” in R. Douglas Francis and Howard Palmer, eds., *The Prairie West: Historical Readings*, Second ed. (Edmonton:

because it has always been dependent on external markets for its agricultural products and natural resources, leading it to experience booms and busts based on external forces.²²⁶ Other discontents within Confederation are the Québécois who experience cultural estrangement. Since the 1960s, the Québécois have begun to feel nationalism toward Québec rather than the Canadian nation and have advocated separatism. Both the west and Québec have similar problems with Ontario, a province that has always viewed others as provincial. One western Canadian, Stanley Roberts, who was actively involved in bringing western issues to Canadian political arenas, noted “Just like Quebec, we want to be *maitres chez nous*—masters in our own house.”²²⁷ Despite these similarities, the west has always been hostile to Québec. Regionalism continued through the 1960s and 1970s with both the Québec and western separatist movements.²²⁸ In the 1980s to 1990s, the west reorganized its separatist movement into a conservative, right wing reform of Canadian politics and government.²²⁹ Since the *Constitution Act* of 1982, Albertans have been incensed by Canada’s “equalization program,” commonly known as transfer payments. These are monies the federal government takes from richer provinces and gives to poorer ones, to equalize the distribution of the nation’s riches. Since 1964 Alberta, because of its oil wealth, pays money into the program and other provinces, specifically Manitoba, Québec, New Brunswick, Nova Scotia, Prince Edward Island, and Newfoundland and Labrador, always receive transfer payments. The provinces of

Pica Pica Press, A Division of The University of Alberta Press, 1992), 686; also John J. Barr, “Beyond Bitterness: The New Western Radicalism,” in Melnyk, ed., *A History of Protest*,” 248.

²²⁶ Gibbins, “Political Discontents in the Prairie West,” 688-689; Barr, “Beyond Bitterness,” 251.

²²⁷ Elton and Gibbins, “Western Alienation and Political Culture,” 273.

²²⁸ Elton and Gibbins, “Western Alienation and Political Culture,” 269, 273; Barr, “Beyond Bitterness,” 254-255; George Melnyk, “Region and Reaction: The Western Right,” in Melnyk, ed., *A History of Protest*, 292.

²²⁹ Melnyk, “Region and Reaction: The Western Right,” 299-302.

Ontario and Alberta believe the program is unfair while the recipients of the payments clamor for more funding under the program.²³⁰ Alberta, due to this history of western regionalism and alienation, often seeks to “prove” itself and its vision to central Canada.

A fourth rationale for why Alberta built the SuperNet rather than any of the other Canadian provinces is simply that Alberta, due to tremendous and unprecedented oil revenues, had a massive government surplus. The province, unlike all of the others, could afford to build a fiber-optic network that spanned the province. And, in true Alberta style, because it could, it built the network.

While government officials desired a network spanning the province and knew that government had a central role to play as intervention historically brought infrastructure to rural Alberta, it was still, nevertheless, a neoliberal and fiscally conservative climate. The government did not want to fully fund the project, because it was distrustful of state enterprise, which neoliberals argue wastes money and creates big government. A former Minister involved with the project noted that the government’s philosophy encouraged partnership with private companies.²³¹ Thus, to carry out the network project, the Ministry of Science and Innovation decided on a public-private partnership (P3). Academic literature on private-public partnerships notes that proponents view the arrangements as drawing on the strengths of private industry and elected government. These agreements allow governments to balance traditional

²³⁰ Wendy Tso, “The Debate over Canada’s Equalization Program,” on the website of the Centre for Constitutional Studies, University of Alberta, URL: <http://www.law.ualberta.ca/centres/ccs/issues/thedebateovercanadasequalizationprogram.php> (accessed March 2, 2009).

²³¹ Former Minister (4C-AB), Interview with the Author, January 4, 2008.

provision by the state with new neoliberal imperatives. Governments including the United Kingdom, Australia, the Netherlands, and Hungary have adopted the P3 model.²³²

The provincial government justified building infrastructure using public-private partnerships, arguing that the agreements save taxpayers money.²³³ In the context of infrastructure and transportation, Minister of Infrastructure and Transportation Lyle Oberg explained when the government considered a P3 project, "...we owe it to taxpayers to take a very close look at each and every opportunity that is there to (a) get a good product and (b) use as little of the taxpayers' dollars as is absolutely possible."²³⁴ Partnership with private companies allowed the government to bring the fiber optic network to rural areas without having to absorb the entire cost. The P3 arrangement had a host of critics. Critics argued that the partnership would lead to waste and more generally, that P3s led to less government accountability over the spending of public money.²³⁵ Liberal Harry B. Chase noted, "P3 or not P3: that is the question. Asked by governments, their auditors, and electors throughout the world, the Alberta government claims that it can avoid the huge cost overruns, the inferior quality, and the sweet private/profit deals that come at public expense which have caused other governments to

²³² Hodge and Greve, "Public-Private Partnerships," 546-547.

²³³ Bonner, "Oral Question Period," in Legislative Assembly of Alberta, Tuesday, March 30, 2004 in Province of Alberta, The 25th Legislature, Fourth Session, *Alberta Hansard*, vol. II (March 29 to May 13, 2004), 765.

²³⁴ Oberg, "Committee of Supply," in Legislative Assembly of Alberta, Wednesday, April 27, 2005 in Province of Alberta, The 26th Legislature, First Session, *Alberta Hansard*, vol. II (April 11 to May 3, 2005), 1095.

²³⁵ Bonner, "Oral Question Period," in Legislative Assembly of Alberta, Tuesday, March 30, 2004 in Province of Alberta, The 25th Legislature, Fourth Session, *Alberta Hansard*, vol. II (March 29 to May 13, 2004), 765.

abandon this faulty financial arrangement.”²³⁶ Opposition House Leader Laurie Blakeman later commented that the problem with P3s is that the government lost control of the project and that the technology was obsolete by the time the project was complete.²³⁷ One member, the Deputy Leader of the Official Opposition Dave Taylor questioned government intervention in information technology. He argued, “there’s a disconnect between the government’s overriding philosophy that it should get out of the way of business and let business do what business does best and, in this instance, an attempt by government to do, it appears to me, something that business does best.”²³⁸ This was philosophical opposition to government involvement in networking; MLA Taylor attacked the government for what he saw as its hypocrisy.

The provincial government did not want to pay for the entire project, but at the same time, it was aware that private businesses had few incentives to build broadband networks into lightly populated but geographically expansive rural, remote, and northern communities. This situation mirrored the dilemma of early telephony. Therefore, mirroring the development of the telephone system, the province took it upon itself to pay for those areas. The contract between the government and its private partners made the government responsible for a capped amount of \$193 million (CAD), to build the

²³⁶ Chase and Oberg, “Oral Question Period, Private/Public Partnerships,” in Legislative Assembly of Alberta, Thursday, November 24, 2005 in Province of Alberta, The 26th Legislature, First Session, *Alberta Hansard*, vol. IV (November 24 to December 1, 2005), 1883.

²³⁷ Blakeman, “Main Estimates 2004-05,” in Legislative Assembly of Alberta, Monday, April 26, 2004 in Province of Alberta, The 25th Legislature, Fourth Session, *Alberta Hansard*, vol. II (March 29 to May 13, 2004), 1047.

²³⁸ Taylor, “Committee of Supply, Main Estimates 2005-06, Restructuring and Government Efficiency,” in Legislative Assembly of Alberta, Wednesday, April 13, 2005 in Province of Alberta, The 26th Legislature, First Session, *Alberta Hansard*, vol. II (April 11 to May 3, 2005), 758.

“extended” network out to the unremunerative areas.²³⁹ The network was a shared venture; the telecommunications company, Bell, owns, manages, and operates the SuperNet in the “base network,” composed of Alberta’s 27 major cities.²⁴⁰ Contractually, Bell had to spend at least 102 million dollars (CAD) on the project,²⁴¹ although the cost rose higher than this.²⁴² The government paid for, and owns, the “extended network,” which takes the fiber-optic network beyond the province’s major cities, and for all of the connections in Alberta.²⁴³ Rather than manage the extended network themselves, the government contracted the rest of the points, the 402 in the extended-area network, “to Axia to supply.”²⁴⁴ Axia’s profits were to come from the monthly service fees from the SuperNet connections around the province. Bell is working on developing applications for the SuperNet to profit from the network. Bell, however, will likely profit more from establishing itself as a competitive telecommunications provider in Alberta rather than from the SuperNet itself. The government did not want to be the service provider, either

²³⁹ The government paid for its portion of the build using money from lottery funds. Massey, “Main Estimates 2002-03, Innovation and Science,” in Legislative Assembly of Alberta, Wednesday, May 1, 2002 in Province of Alberta, The 25th Legislature, Second Session, *Alberta Hansard*, vol. II (April 15 to May 13, 2002), 1106; Doerksen to Amery, “Oral Question Period: Alberta SuperNet,” in Legislative Assembly of Alberta, Tuesday, April 16, 2002 in Province of Alberta, The 25th Legislature, Second Session, *Alberta Hansard*, vol. II (April 15 to May 13, 2002), 717.

²⁴⁰ Cherry, “Winner: Across the Great Divide,” 30.

²⁴¹ Blakeman and Doerksen, “SuperNet,” in Legislative Assembly of Alberta, Thursday, May 6, 2004, in Province of Alberta, The 25th Legislature, Fourth Session, *Alberta Hansard*, vol. II (March 29 to May 13, 2004), 1294; Ouellette, “Committee of Supply, Main Estimates 2005-06, Restructuring and Government Efficiency,” in Legislative Assembly of Alberta, Wednesday, April 13, 2005 in Province of Alberta, The 26th Legislature, First Session, *Alberta Hansard*, vol. II (April 11 to May 3, 2005), 761.

²⁴² Bell Marketing Representative (3C-AB), Interview with the Author, December 31, 2007.

²⁴³ Blakeman and Doerksen, “SuperNet,” in Legislative Assembly of Alberta, Thursday, May 6, 2004, in Province of Alberta, The 25th Legislature, Fourth Session, *Alberta Hansard*, vol. II (March 29 to May 13, 2004), 1294; Ouellette, “Committee of Supply, Main Estimates 2005-06, Restructuring and Government Efficiency,” in Legislative Assembly of Alberta, Wednesday, April 13, 2005 in Province of Alberta, The 26th Legislature, First Session, *Alberta Hansard*, vol. II (April 11 to May 3, 2005), 761.

²⁴⁴ Ouellette, “Committee of Supply, Main Estimates 2006-07, Restructuring and Government Efficiency,” in Legislative Assembly of Alberta, Tuesday, May 9, 2006 in Province of Alberta, The 26th Legislature, Second Session, *Alberta Hansard*, vol. III (May 8 to August 31, 2006), 1418.

to government departments or individual customers. The government, therefore, contracted the build, the maintenance, and management out to the private partners.

The neoliberal climate also explains the choice of the primary contractor. The government chose Bell rather than the incumbent telecommunications company, Telus. The Ministry of Science and Innovation's request for proposals generated ten responses,²⁴⁵ including tenders from Telus, the local monopoly telephone company; Shaw Communications, a company that provides cable and high-speed internet in the province; and Bell, a major player from Québec that sought to expand westward.²⁴⁶ The successful bidders were Bell Intrigna, a partnership between Bell Canada and the Manitoba Telecom Services, and Axia. The *National Post* reported that the Deputy Minister of Innovation and Science stated the Ministry chose Bell's bid over Telus' for two reasons: a lower bid and the consortium of companies it planned to involve in the project, including Cisco Systems, Microsoft, Nortel Networks, 360 Networks and four Alberta companies: WiLan Inc., Total Telecom Inc., Netricom Inc., and Axia Netmedia Inc.²⁴⁷ The Ministry wanted local business to play a role in the project. The *Globe and Mail* reported on the same day that the Ministry selected Bell's proposal over Telus' because a government review and industry consultation concluded that Bell's proposal was superior.²⁴⁸ According to a Bell representative, while other bidders proposed building the network and handing ownership

²⁴⁵ Taylor to Cao, "High-speed Internet Access," in Legislative Assembly of Alberta, Tuesday, May 2, 2000 in Province of Alberta, The 24th Legislature, Fourth Session, *Alberta Hansard*, vol. III (May 2 to May 25, 2000), 1230.

²⁴⁶ Jang, "Supernet Should Catch New Businesses for Alberta," B16; Jill Mahoney, "Superfast Network to Cover Alberta; Plan for Provincewide High-Speed Internet; Aimed to Attract Technology Industry," *Globe and Mail* November 3, 2000): A3; Network Manager, Ministry of Restructuring and Government Efficiency (1C-AB), Interview with the Author, November 9, 2006.

²⁴⁷ Carol Howes, "Bell Canada, Consortium Win \$193M Network Deal: Beat Out Telus," *National Post* (November 3, 2000): C04.

²⁴⁸ Mahoney, "Superfast Network to Cover Alberta," A3.

over to the government, the Bell-Axia proposal was unique.²⁴⁹ Later, a Minister noted that awarding the contract to Bell provided competition to Telus. He asked rhetorically, “Monopolies never work. Why would you give something to a monopoly?”²⁵⁰ Some bad feelings toward Telus also stemmed from its decision to relocate its headquarters from Alberta to British Columbia after its merger with BC Tel.²⁵¹ The government’s selection enabled Bell to gain a foothold in the west; the corporation could now count a major western telecommunications buyer, the Government of Alberta, among their customers, which gave them cachet in the sector.²⁵² Telus had to accept the defeat, noting, “Clearly we’re an organization that welcomes competition. You can’t expect to see a monopoly preserved in the West while you’re seeking to have liberalization in Central Canada.”²⁵³ Selecting Bell for the project was an interesting reversal of the conditions that existed during the development of telephony. One reason for the development of provincial telephone systems in Prairie Canada was to end the reign of eastern Canada’s Bell Telephone Company, a giant corporation that employed monopolistic practices and enjoyed Parliamentary sanction of its activities. According to historian Doug Owsram, the telephone company “represented these forces of eastern control and exploitation

²⁴⁹ Bell Marketing Representative (3C-AB), Interview with the Author, December 31, 2007; Cherry, “Winner: Across the Great Divide,” 30.

²⁵⁰ Former Minister (2C-AB), Interview with the Author, December 21, 2007. Another former Minister also expressed this view. Former Minister (4C-AB), Interview with the Author, January 4, 2008.

²⁵¹ According to the Telus website, “Alberta-based TELUS Corporation and BC-based BC TELECOM joined in a merger of equals” in February 1999. Telus, “Company History, About Telus Investors,” Telus, URL: http://about.telus.com/investors/profile_history.html#telus (accessed November 12, 2008).

²⁵² Bell Marketing Representative (3C-AB), Interview with the Author, December 31, 2007; Former Minister (2C-AB), Interview with the Author, December 21, 2007.

²⁵³ Quoted in Howes, “Bell Canada, Consortium Win \$193M Network Deal,” C04.

which westerners felt hampered their efforts to develop the region.”²⁵⁴ The government built Alberta Government Telephones as a monopoly, privatized in the early 1990s under the name Telus. The ideological shift toward neoliberalism, however, led the government to favor competition among telecom providers welcoming Bell back into the region.

For some MLAs, the decision to award the contract to Bell was questionable. On November 16, 2000, Rob Lougheed, the Progressive Conservative Member for Clover Bar-Fort Saskatchewan, asked Minister of Innovation and Science Taylor why the government awarded Bell the contract rather than giving it to Telus. Taylor responded that “this was very clearly a business decision” and the government found that “on a business case the Bell consortia was the best bid.” Taylor restated the wide number of players involved in the bid, including the four Alberta companies. Thus, he concluded, “this will benefit all Alberta business.” The Minister noted that Telus was not a loser in the project, as “Telus already has most of the optical networks underground in the province of Alberta, and certainly Bell will be working with Telus to light up those optical networks.”²⁵⁵ This proved correct as Bell purchased 3,000 kilometers of fiber optic capacity from Telus and the Minister noted with a hint of surprise, “Telus has in fact co-operated in the sale of this infrastructure....” The contract between the

²⁵⁴ Doug O'wram quoted in Ronald S. Love, “For the General Good: The Debate Over Private vs. Public Ownership of Telephones and the Canadian West, 1900-1912,” *The American Review of Canadian Studies*, 35 (Spring 2005): 80.

²⁵⁵ Exchange between Lougheed and Taylor, “High-speed Internet Access,” in Legislative Assembly of Alberta, November 16, 2000 in Province of Alberta, The 24th Legislature, Fourth Session, *Alberta Hansard*, vol. IV (November 14 to November 28, 2000), 1926.

government, Bell, and Axia “stipulated that whenever possible we would use existing infrastructure.”²⁵⁶

As additional evidence of its neoliberal philosophy the government did not include internet service in the network plans, they only built the fiber optic “pipeline” that would carry applications like the internet.²⁵⁷ Private companies would provide internet service to homes and organizations, rather than the government or its partners. The ISPs would compete with each other.²⁵⁸ The business model is one of the unique features of Bell and Axia’s winning proposal and the IEEE calls this structure an “ingenious business model.” The decision not to provide internet over the SuperNet is an explicit manifestation of the neoliberal philosophy; here the government is acting as a servant to privately provided services. Revenues for Axia, the “impartial third party access provider” that connects companies to the SuperNet²⁵⁹ and controls access to the

²⁵⁶ In addition to purchasing dark fiber from Telus, Bell bought a 340 kilometer network from a Vancouver company, 360networks, to connect with “Calgary, Airdrie, Red Deer, Lacombe, Leduc, Wetaskawin and Edmonton.” Doerksen, “Oral Question Period: Alberta SuperNet,” in Legislative Assembly of Alberta, Thursday, May 1, 2003 in Province of Alberta, The 25th Legislature, Third Session, *Alberta Hansard*, vol. II (March 25 to May 1, 2003), 1374. Information about the 360networks fiber purchase is from Tamara Gignac, “High-Speed Net to Link Albertans: Bell West’s Supernet: Legal Wrangle May Delay Completion,” *National Post’s Financial Post and FP Investing* (Monday, March 3, 2003): Special Report Financial Post: Business Edge, BE2; Doerksen, “Oral Question Period: Alberta SuperNet,” in Legislative Assembly of Alberta, Monday, March 4, 2002 in Province of Alberta, The 25th Legislature, Second Session, *Alberta Hansard*, vol. I (February 26 to April 11, 2002), 85.

²⁵⁷ Doerksen, “Oral Question Period: Alberta SuperNet,” in Legislative Assembly of Alberta, Thursday, May 1, 2003 in Province of Alberta, The 25th Legislature, Third Session, *Alberta Hansard* vol. II (March 25 to May 1, 2003), 1374; Doerksen, “Committee of Supply, Main Estimates 2004-05,” in Legislative Assembly of Alberta, Monday, April 26, 2004 in Province of Alberta, The 25th Legislature, Fourth Session, *Alberta Hansard*, vol. II (March 29 to May 13, 2004), 1047; Doerksen, “Main Estimates 2004-05,” in Legislative Assembly of Alberta, Monday, April 26, 2004 in Province of Alberta, The 25th Legislature, Fourth Session, *Alberta Hansard*, vol. II (March 29 to May 13, 2004), 1047; Doerksen, “Main Estimates 2002-03, Innovation and Science,” in Legislative Assembly of Alberta, Wednesday, May 1, 2002 in Province of Alberta, The 25th Legislature, Second Session, *Alberta Hansard*, vol. II (April 15 to May 13, 2002), 1100.

²⁵⁸ Doerksen, “Oral Question Period: Alberta SuperNet,” in Legislative Assembly of Alberta, Thursday, May 1, 2003 in Province of Alberta, The 25th Legislature, Third Session, *Alberta Hansard*, vol. II (March 25 to May 1, 2003), 1374.

²⁵⁹ Bell Marketing Representative (3C-AB), Interview with the Author, December 31, 2007.

network,²⁶⁰ increase as it adds internet service providers and traffic to the network.²⁶¹ The manager thus has an incentive to add ISPs to the network rather than limit access.²⁶² This follows a tenet of neoliberalism that competition will bring development in the telecommunications sector. The government enables this competition by mandating that Axia supply the backbone at equitable wholesale prices. Therefore, large corporations and small businesses, ISPs as well as other users, pay the same low price for bandwidth, \$50 (CAD) a month for a one megabit per second (Mb/s). The wholesale rates allow providers to offer competitive prices to customers.²⁶³

According to the government, competition between private ISPs provided advantages to a variety of Albertans, from increased consumer choice regarding ISPs to the ability to start a new business because the government removed a barrier to access, inexpensive internet backhaul. The Minister of Restructuring and Government Efficiency noted that Alberta interested a diversity of internet service providers because of the SuperNet, stating “Right now they’re getting more and more start-up companies, ma-and-pa operations. Some of the bigger companies are moving into Alberta, actually, to take advantage of the SuperNet because now they have something that they can go out and compete on and expand the size of their business.”²⁶⁴ One company from outside of Alberta did begin providing service in the province because of the available backhaul. On another occasion, Ouellette noted that Axia received more inquiries from “new start-

²⁶⁰ Cherry, “Winner: Across the Great Divide,” 30.

²⁶¹ Ibid., 31.

²⁶² Ibid.

²⁶³ Doerksen, “Oral Question Period: Alberta SuperNet,” in Legislative Assembly of Alberta, Thursday, May 1, 2003 in Province of Alberta, The 25th Legislature, Third Session, *Alberta Hansard*, vol. II (March 25 to May 1, 2003), 1374.

²⁶⁴ Ouellette, “Committee of Supply, Main Estimates 2006-07, Restructuring and Government Efficiency,” in Legislative Assembly of Alberta, Tuesday, May 9, 2006 in Province of Alberta, The 26th Legislature, Second Session, *Alberta Hansard*, vol. III (May 8 to August 31, 2006), 1418.

up companies” that he called “another Alberta advantage of another opportunity for young people that want to start a company.”²⁶⁵ Ouellette noted in 2006 there were fifty service providers operating in 135 communities.²⁶⁶ Axia’s public records note thirty providers ready in March of 2006, 41 in October of 2006, and 45 in both May and October of 2007.²⁶⁷ In September of 2008, 47 companies provided connectivity using the SuperNet.

Aware that even with SuperNet assisting companies, certain areas may not attract ISPs, the government included a provider of last resort clause in the contracts. In the event that no private internet service providers showed interest in a certain area, Ouellette reminded the Legislature that the contract provided that six months after completion of the network, Bell became the supplier of last resort, a contract that lasts until 2015.²⁶⁸ The six-month period expired in April of 2006 and Ouellette noted that “Bell is working on the supplier of last resort situation” and his department was “negotiating with them on what different types of connections they use.”²⁶⁹ According to the SuperNet website, Bell can use “whichever access technology Bell deems appropriate, such as cable,

²⁶⁵ Ouellette, “Committee of Supply, Main Estimates 2005-06, Restructuring and Government Efficiency,” in Legislative Assembly of Alberta, Wednesday, April 13, 2005 in Province of Alberta, The 26th Legislature, First Session, *Alberta Hansard*, vol. II (April 11 to May 3, 2005), 762.

²⁶⁶ Ouellette, “Committee of Supply, Main Estimates 2006-07, Restructuring and Government Efficiency,” in Legislative Assembly of Alberta, Tuesday, May 9, 2006 in Province of Alberta, The 26th Legislature, Second Session, *Alberta Hansard*, vol. III (May 8 to August 31, 2006), 1418.

²⁶⁷ The listings note that in March of 2006, 10 providers were “arranging” for service and 12 were interested; in October of 2006, 3 were arranging service and 25 interested; in May 2007, 17 providers were interested; and in October of 2007, 17 providers remained interested. In September of 2008, no companies are listed as interested in providing service. Axia, “Alberta SuperNet-Service Provider Listing,” dated March 24, 2006; October 5, 2006; May 2, 2007; and October 1, 2007.

²⁶⁸ Ouellette, “Committee of Supply, Main Estimates 2006-07, Restructuring and Government Efficiency,” in Legislative Assembly of Alberta, Tuesday, May 9, 2006 in Province of Alberta, The 26th Legislature, Second Session, *Alberta Hansard*, vol. III (May 8 to August 31, 2006), 1418; Bell Marketing Representative (3C-AB), Interview with the Author, December 31, 2007.

²⁶⁹ Ouellette, “Committee of Supply, Main Estimates 2006-07, Restructuring and Government Efficiency,” in Legislative Assembly of Alberta, Tuesday, May 9, 2006 in Province of Alberta, The 26th Legislature, Second Session, *Alberta Hansard*, vol. III (May 8 to August 31, 2006), 1418.

satellite, or wireless services.”²⁷⁰ This allows Bell to use delivery systems other than the SuperNet to provide service. Ouellette added, however, that Bell’s presence in these areas would be temporary. He stated “We don’t want to use government involvement to compete with any of these new companies that started up, with any of the private companies that are out there.” Thus, Bell would give any customers it served on a provider of last resort basis to a company that began providing service to the area. Thus, the government was “not going to allow them to compete against the private ISPs.”²⁷¹ By virtue of Bell’s role as a partner in the SuperNet project, the government banned it from competing with private local ISPs in the extended network.

Contract versus Policy

One result of the public-private partnership approach is that SuperNet development centered on the contracts between the three partners. Government Ministers involved in the conception and development of the project viewed it as a contract for providing infrastructure rather than as a policy with an array of social and economic outcomes. Although the Minister discussed the SuperNet in terms of “visions,” the Ministry viewed it firmly as an infrastructure project and as a contract rather than a development with citizen participation and a consultative process. In this realm, the citizens’ visions did not count. In a democracy, citizens ought to have had a choice in the development of a network that will play a part in the economic health of their regions and

²⁷⁰ Network Access, The Network, The Project, SuperNet, Service Alberta website, URL: <http://www.albertasupernet.ca/the+project/the+network/network+access+.htm> (accessed October 14, 2008).

²⁷¹ Ouellette, “Committee of Supply, Main Estimates 2006-07, Restructuring and Government Efficiency,” in Legislative Assembly of Alberta, Tuesday, May 9, 2006 in Province of Alberta, The 26th Legislature, Second Session, *Alberta Hansard*, vol. III (May 8 to August 31, 2006), 1418.

the social services that they receive for decades to come. A discussion of the differences between the terms policy and contract is important. A policy is a course of action adopted because it provides advantageous outcomes for the public good. In a policy document, a government states the desirable ends resulting from an action and outlines the specific means to achieve them, including the construction of infrastructure and the education of the public. In this case, the network infrastructure would be the means to specific ends including solving the rural-urban digital divide, providing infrastructure for rural economic development, and improving service delivery in rural areas. The government, however, did not view the SuperNet as a policy, rather the Ministers involved viewed it as a contract. Contracts, however, are limited in scope. They are agreements between parties outlining what is to be done, the responsibilities of each party, and the consequences of each party not meeting their responsibilities. In a business sense, they outline the specific work to be carried out and for what price. The Alberta government built the SuperNet using contracts, where each party had a role in the construction and operation of the network. Using this means, there was no discussion or debate about what the province desired, where the network would go, who would benefit, or how it would be used.

Evidence illustrates that government Ministers viewed the SuperNet as an infrastructure built under a contract rather than as a policy. One Minister involved with the project argued that the SuperNet was no different from other infrastructural projects, such as highway construction.²⁷² Another Minister involved with the project noted that the SuperNet was an “engineering project” and “it’s like a contract to build a highway

²⁷² Former Minister (2C-AB), Interview with the Author, December 21, 2007.

and we don't debate those in the Legislature either." He argued, the Legislature is "about policy" and "You wouldn't debate a contract, [you] don't have time to debate" contracts.²⁷³ The Ministers involved in construction viewed the network as something to be built. Once construction was complete their work was done.

There are several implications of envisioning the SuperNet as a contract rather than a policy. First, the provincial government did not ask Albertans what they wanted and needed to overcome the digital divide. There was no consultative public policy process and the government Ministers did not gather input from Albertans during the planning, development, or construction phases. Envisioning the endeavor as similar to a highway build as the Ministers did resulted in the development being carried out in the same way as other infrastructural projects. The network, however, as a communications medium had farther-reaching and stronger social implications than a highway build. This conception led to a lack of public consultation about the project that would directly influence the social lives of citizens for decades to come. One Minister involved with the project noted that the government did not carry out public consultation because "I just thought it was the right thing to do."²⁷⁴ During the conception phase, an Opposition member noted that this was not a "very political issue" as all parties believed it was "good and proper."²⁷⁵ Such sentiments, if widespread, likely dampened calls for a policy discussion surrounding the project. Another Minister involved with the project stated that the Ministry of Science and Innovation did "lots of work with the communities"

²⁷³ Former Minister (4C-AB), Interview with the Author, January 4, 2008.

²⁷⁴ Former Minister (2C-AB), Interview with the Author, December 21, 2007.

²⁷⁵ Howard Sapers, "Legislative Assembly, Committee of Supply Main Estimates 2000-2001," Legislative Assembly of Alberta, Tuesday, March 21, 2000 in Province of Alberta, The 24th Legislature, Fourth Session, *Alberta Hansard*, vol. I (February 17 to March 2000), 578.

during the build phase but the Ministry directed this work exclusively at letting residents “know what this was, what the concept was.” He stated that these sessions were not consultations because “At that point we weren’t seeking opinions or advice” and the partners “weren’t going to redesign the technical aspects of the project.”²⁷⁶ The Ministry of Innovation and Science did reserve some money for conversion and community involvement.²⁷⁷ The Ministry of Science and Innovation and Ministry of Restructuring and Government Efficiency held workshops over two years that a network manager called “promotion” for the SuperNet. The workshops ended by August of 2005.²⁷⁸ Additionally, in June of 2006, the government, Bell, Axia, and the SuperNet Research Alliance held the SuperNet Opportunities Conference in Calgary. That the ministries involved with the SuperNet viewed it as a project with a finite end date is best illustrated by the SuperNet website. The government updated the site during construction to show progress on the build and inform Albertans about the project. The Ministries did not update the website after 2005 when the build ended. Only in the summer of 2009 was a notice added that the government was constructing a new site. Due to their conceptions of the project as simply infrastructural and perceptions of it being “right,” the government did not consult Albertans.

Consultation and public deliberation are crucial parts of legitimate democratic government. In *Public Deliberation: Pluralism, Complexity, and Democracy*, James Bohman argues for robust and practical public deliberation to ensure that citizens have a

²⁷⁶ Former Minister (4C-AB), Interview with the Author, January 4, 2008.

²⁷⁷ Doerksen, “Innovation and Science, Main Estimates 2002-03,” in Legislative Assembly of Alberta, Wednesday, May 1, 2002 in Province of Alberta, The 25th Legislature, Second Session, *Alberta Hansard*, vol. II (April 15 to May 13, 2002), 1098.

²⁷⁸ Network Manager (1C-AB), Interview with the Author, November 9, 2006.

role in law and policy making rather than for them to simply submit to decisions imposed from above.²⁷⁹ Bohman notes that decisions made deliberatively are usually ones that citizens find more legitimate, because although there may not be unanimity, people agree to cooperate. Additionally, through deliberation, citizens and their governments can come to agreement on their shared conception of the common good and work toward it.²⁸⁰ In public deliberation, citizens come together to solve problems as they emerge, using the resources available to the government.²⁸¹ Political scientist David Taras notes that due to seeming political conformity, there is little public debate in Alberta. Additionally, Premier Klein became annoyed when Opposition members or the public questioned his decisions.²⁸² Both Bohman, more generally, and Taras, more specifically, warn of decisions made without public deliberation. Setting aside the more general lack of public debate in Alberta, there are reasons why the government may have sought to avoid deliberation on the SuperNet. Public discussion may have led to the enthusiastic acceptance of the network by the public. On the other hand, however, there was genuine uncertainty about the necessity of the project and the technology used. Had the Ministry of Innovation and Science opened the issue to public deliberation, they may have faced serious opposition and eventual derailment of their plans.

Viewing the SuperNet as a contract and the lack of public consultation created several issues. One is that the Ministers failed to generate understandings about the SuperNet, what it was, what it would do, and what it might achieve. Rather, the

²⁷⁹ James Bohman, *Public Deliberation: Pluralism, Complexity, and Democracy* (Cambridge, MA: The MIT Press, 1996), 4.

²⁸⁰ *Ibid.*, 26, 29.

²⁸¹ *Ibid.*, 53.

²⁸² Taras, "Alberta in 2004," 764.

Ministers operated from the assumptions that it was the right thing to do and that people would know what to do with it.²⁸³ Ministers involved in the network build sought to disassociate themselves from content issues, stating that they were only responsible for construction. Doerksen and Ouellette viewed their role as completely separate from use of the network. Doerksen, while noting that his Ministry worked with other government departments, stressed, “my job is to build the network, build the infrastructure,” whereas, the departments of learning and health would be “content deliverers” over the infrastructure.²⁸⁴ At one point, Ouellette reminded the Legislature that he was responsible only for the network and “to say, ‘Should we be doing the online registering for parks?’ It’s not in our purview.”²⁸⁵ Ouellette stressed that his Ministry was not responsible for content or applications. This created a bifurcation between construction and application, network and content, which prevented discussions about the network’s possibilities. This perspective pushed the responsibility for the visions onto other government departments, localities, and organizations rather than the Ministry of Innovation and Science and later the Ministry of Restructuring and Government Efficiency.

Second, the fact that Ministers saw the SuperNet as a contract between Bell, Axia, and the government had other numerous implications. First, it ensured information is not publicly available due to the private companies’ business and technical prerogatives.

²⁸³ Former Minister (2C-AB), Interview with the Author, December 21, 2007.

²⁸⁴ Doerksen, “Main Estimates 2002-03, Innovation and Science,” in Legislative Assembly of Alberta, Wednesday, May 1, 2002 in Province of Alberta, The 25th Legislature, Second Session, *Alberta Hansard*, vol. II (April 15 to May 13, 2002), 1100.

²⁸⁵ Ouellette, “Committee of Supply, Main Estimates 2006-07, Restructuring and Government Efficiency,” in Legislative Assembly of Alberta, Tuesday, May 9, 2006 in Province of Alberta, The 26th Legislature, Second Session, *Alberta Hansard*, vol. III (May 8 to August 31, 2006), 1415.

This raises an important problem with public-private partnerships because P3 contracts limit the accountability of the government to its citizens, challenging a key notion of democratic governance. One main necessity for accountability is a transparent process, where citizens can look at the details of government action themselves. With non-public contracts, however, citizens do not have this opportunity. In the SuperNet case, the technical imperatives that ensured contract details were private and confidential, merged with a government culture of restrictions on information and keeping documents private. Liberal Party leader Kevin Taft argues strongly for this perspective. In *Democracy Derailed: The Breakdown of Government Accountability—and How to Get it Back on Track*, Taft excoriates the province's Freedom of Information and Protection of Privacy (FOIP) legislation, stating

In Alberta, freedom of information legislation is a contradiction in terms. For one thing, once you start scouting around for government information, you quickly discover that it's anything but free. It's carefully locked away, and it can cost you an arm and a leg to take the tiniest peek. If you do hand over the cash, the FOIP machinery will likely keep grinding away for months before it delivers anything, and even then, there's no guarantee that the information you receive will make you a more informed citizen.²⁸⁶

Taft argues that rather than having information legislation that helps citizens hold their government accountable, Alberta's FOIP legislation hinders accessibility to documents. Taft is not a disinterested party because he is a member of the Opposition but his narratives explaining the Liberals' difficulties in gaining access outline problems with the process. If the Opposition party finds the process confounding, other Albertans likely will too. The province's FOIP laws provide exemptions for a variety of documents. The

²⁸⁶ Kevin Taft, *Democracy Derailed: The Breakdown of Government Accountability in Alberta—and How to Get it Back on Track* (Calgary: Red Deer Press, 2007), 71.

legislation excludes access to documents prepared to brief Ministers or to prepare Ministers for Legislative Assembly meetings for five years from their preparation. Additionally, records created by Members of the Legislative Assembly or Members of the Executive Council and sent to other Members of the Legislative Assembly or Executive Council are exempt from FOIP. Also, Caucus documents are not FOIPable.²⁸⁷ This has tangible effects; in Oral Question Period in the Legislature, Ministers often do not answer questions but they state that they will respond in writing; the documents created are then communication from one Member to another and under the FOIP legislation are exempt from access. To further complicate matters, in Alberta, people file requests to the FOIP officer who works in the department that created a document; the FOIP process is not separate and independent.²⁸⁸

Additionally, at times government Ministers sought to make government records inaccessible. A former government Minister involved with the SuperNet project admitted that he tried to make all documents private. He noted that during his tenure, he had documents filed as reports to the Minister so that they would be exempt from FOIP requests.²⁸⁹ He attributed this desire to keep documents away from public scrutiny to “government paranoia.” The former Minister argued that much information about the SuperNet project was publicly available, noting, “on the whole, I think it was a pretty straight forward, pretty public ... process. I think most things are available to be found

²⁸⁷ White, “Subcommittee A—Executive Council,” in Legislative Assembly of Alberta, Wednesday, March 8, 2000 in Province of Alberta, The 24th Legislature, Fourth Session, *Alberta Hansard*, vol. IV (Committee of Supply, Subcommittee A, February 29 to March 8, 2000), A35.

²⁸⁸ Taft, *Democracy Derailed*, 72.

²⁸⁹ See section 4(1)q I and ii, Freedom of Information and Protection of Privacy Act. Also section 6, 4 a and b. Province of Alberta, Freedom of Information and Protection of Privacy Act, URL: <http://foip.alberta.ca/legislation/act/index.cfm> (accessed November 29, 2009).

out.”²⁹⁰ Available information, however, is limited to press releases, information packets, and the website, all carefully crafted representations of the project. There are notable exceptions to the available information including contracts, service lists, and progress reports. Despite shuttering his documents, the former Minister questioned keeping these documents from the public and argued, “even the contract should be public, it’s taxpayers money, why wouldn’t that be public?” While he questioned keeping documents private, he admitted, “I was the same way.” The former Minister attributed the “government paranoia” to ill will toward the press, a legacy of the 2001 provincial election. He noted, “the Calgary *Herald* tends to be more unbiased” but “the [Edmonton] *Journal* is not unbiased; I mean it...is actively anticonservative. So when you have press that that’s constantly trying to embarrass you...that’s obviously biased...then you get this circle the wagon mentality.”²⁹¹ The Conservatives’ frustration with the press stemmed from 2001 election coverage, when they felt the Edmonton *Journal* opposed the incumbents. The former Minister stated that the newspaper appointed itself the “official Opposition” and criticized the existing government from its pages. On another occasion, a Conservative Cabinet member accused the *Journal* of doing an exposé and “trying to dig up dirt” on the Conservatives. He argued that when the newspaper’s investigation did not reveal any wrong doing, they spun what they had into a derogatory story nonetheless.²⁹²

Minister of Infrastructure and Transportation Oberg stated that hallmarks of a “good, good government” were to “go out and see our constituents, to communicate what

²⁹⁰ Former Minister (2C-AB), Interview with the Author, December 21, 2007.

²⁹¹ Ibid.

²⁹² Oberg, “Committee of Supply,” in Legislative Assembly of Alberta, Wednesday, April 27, 2005 in Province of Alberta, The 26th Legislature, First Session, *Alberta Hansard*, vol. II (April 11 to May 3, 2005), 1094.

we're doing, to tell people what we're doing,...."²⁹³ Telling people, however, is not the same as allowing them to read documents on their own. Despite this claim that informed citizens lead to good government, the "circle the wagon mentality" has led the Progressive Conservatives to place information in categories exempt under FOIP, leaving the Opposition, the press, and citizens without access to data. The negative press from a perceived left-leaning newspaper underlay the government's attempt to create documents that fit categories not for public purview. This culture of secrecy severely limits access to the decision-making process underlying the SuperNet project. Researchers, the Opposition parties, the press, and the public must request documents using FOIP legislation. Since SuperNet documents are not publicly available, public knowledge about the SuperNet is limited to government press reports, the public website, and newspaper articles presenting the three partners' point of view. Interviews with government Ministers and Ministry personnel are also available for researchers.

As a result of private imperatives, the submissions received in response to the government's request for proposals; the winning network design; the contracts between Bell, Axia, and the government; and even the list of SuperNet connections within towns and villages are not publicly available to Opposition members, ruling party members, researchers, or the public in Alberta.²⁹⁴ The Opposition asked for and was not able to

²⁹³ Ibid.

²⁹⁴ One Member of the Legislative Assembly from the Progressive Conservative party attempted to get the list of ISP network connections for me. The MLA's researcher, however, was unable to obtain the requested information. He wrote in an email message: "It seems this information is not obtainable. We can only get the list of government SuperNet connections from Service Alberta. Axia is the 'go-between' for the government and the ISPs. Unfortunately, there are competition issues between ISPs so they're not willing to part with who the connections are actually with. Government obviously knows, but it's not information that they'll offer up to the public or to MLAs. Sorry Nadine, this information is protected by FOIP. Have you tried a FOIP request??? I can't do this for you, but can get you information on how to do up a FOIP request if you need. However, you are not guaranteed to get the information through a FOIP

receive these. When speaking about the contracts in the Legislature, Ministers relied on generalizations so as not to reveal the confidential details of the contracts. In some instances, they referred to confidentiality as a reason for not answering all questions posed. Doerksen noted, responding to a question, “On the contracts between Bell West and Axia, I’m going to be careful here because some of this is likely subject to confidentiality.” Later, in the same reply, he stated, “Those are some general comments around the contracts. Again, for more specific answers, if we can provide them, that aren’t in violation of the confidential nature between private business, we’ll see how we can address those.”²⁹⁵ Adhering to confidentiality clauses thus took priority over informing Albertans about what the government and its private partners did.

The Legislative transcripts record Opposition requests for non-public information about the SuperNet contracts and project. Blakeman requested additional SuperNet information in 2002 stating, “I’d be really interested in seeing a more full-blown report on the Supernet because I’m getting increasingly suspicious. The whole project is beginning to look very large and very white and probably with a large trunk and a small tail, and it might even be particularly fond of peanuts. I am deeply suspicious about this

request either!!! Let me know either way! Sorry we couldn’t be of more assistance!” Legislative Assistant, Email Correspondence with the Author, March 1, 2007.

²⁹⁵ Doerksen, “Main Estimates 2004-05,” in Legislative Assembly of Alberta, Monday, April 26, 2004 in Province of Alberta, The 25th Legislature, Fourth Session, *Alberta Hansard*, vol. II (March 29 to May 13, 2004), 1047.

one.”²⁹⁶ Blakeman inquired about the SuperNet and details related to the contracts, funding, and costs repeatedly during the construction phase.²⁹⁷

The difficulties the Opposition faced accessing basic information about the project raised their suspicions. MLAs found information about the SuperNet was not easily attainable and what was available was partial and unsatisfactory. This led them to ask questions about all facets of the project. The SuperNet contracts were not public information. In 2004, Blakeman asked for access to the SuperNet contract, asking, “What’s in that contract? Is that contract from Bell available? Can I get that from somewhere? Is it on your website or something? Can you let me know that?”²⁹⁸ The contracts were not available and this left legislators in the dark about central provisions of the agreement, including issues of monitoring, oversight, and enforcement of the contracts, contractors, and contract terms.²⁹⁹ MLA Rob Lougheed asked whether the Ministry of Science and Innovation would post the “requests for proposal.” The Minister responded that while they would post the government’s request, the bids would not as

²⁹⁶ Blakeman, “Committee of Supply: Main Estimates 2002-03,” in Legislative Assembly of Alberta, Tuesday, April 9, 2002 in Province of Alberta, The 25th Legislature, Second Session, *Alberta Hansard*, vol. I (February 26 to April 11, 2002), 584.

²⁹⁷ Blakeman, “Committee of Supply, Main Estimates 2005-06, Restructuring and Government Efficiency,” in Legislative Assembly of Alberta, Wednesday, April 13, 2005 in Province of Alberta, The 26th Legislature, First Session, *Alberta Hansard*, vol. II (April 11 to May 3, 2005), 754.

²⁹⁸ Blakeman, “Committee of Supply, Main Estimates 2004-05,” in Legislative Assembly of Alberta, Monday, April 26, 2004 in Province of Alberta, The 25th Legislature, Fourth Session, *Alberta Hansard*, vol. II (March 29 to May 13, 2004), 1046.

²⁹⁹ Blakeman and Doerksen, “Oral Question Period, Alberta SuperNet,” Wednesday, May 12, 2004 in Province of Alberta, The 25th Legislature, Fourth Session, *Alberta Hansard*, vol. II (March 29 to May 13, 2004), 1394-1395, Doerksen quoted from 1395; Massey and Doerksen, “Oral Question Period,” in Legislative Assembly of Alberta, Wednesday, March 20, 2004, in Province of Alberta, The 25th Legislature, Fourth Session, *Alberta Hansard*, vol. II (March 29 to May 13, 2004), 422; Blakeman, “Committee of Supply, Main Estimates 2004-05,” in Legislative Assembly of Alberta, Monday, April 26, 2004 in Province of Alberta, The 25th Legislature, Fourth Session, *Alberta Hansard*, vol. II (March 29 to May 13, 2004), 1046; Blakeman and Doerksen, “SuperNet,” in Legislative Assembly of Alberta, Thursday, May 6, 2004, in Province of Alberta, The 25th Legislature, Fourth Session, *Alberta Hansard*, vol. II (March 29 to May 13, 2004), 1294; Blakeman, “Committee of Supply, Main Estimates 2005-06, Restructuring and Government Efficiency,” in Legislative Assembly of Alberta, Wednesday, April 13, 2005 in Province of Alberta, The 26th Legislature, First Session, *Alberta Hansard*, vol. II (April 11 to May 3, 2005), 754.

“Both of these companies, Telus and Bell, provided private, proprietary information” and thus the Ministry could not make the bids public.³⁰⁰ Additionally, information about government spending related to the project was difficult to procure. In November of 2005, Liberal Bill Bonko submitted a written question on Jack Flaherty’s behalf, which the Legislature carried as Question 35. Flaherty’s question was “What is the total value of all spending by the Ministry of Education related to the completion and/or operational status of the Alberta SuperNet over each of the fiscal years 2000-01 through 2004-05 inclusive?”³⁰¹ Minister of Education Zwozdesky brought the answer to Question 35 on November 28, 2005, which, he stated, “pertains to costs regarding Alberta’s incredible SuperNet project,....” The tabling, however, was not recorded in the *Hansard*.³⁰² To gain additional information about the SuperNet project and its transfer from the Ministry of Innovation and Science to Restructuring and Government Efficiency, Liberal Mo Elsalhy filed a “Motion for Return” on May 2, 2005, which the Minister of Restructuring and Government Efficiency accepted. Elsalhy asked for “a return showing a copy of all documents pertaining to the government’s decision to transfer responsibility for the Alberta SuperNet project from the Ministry of Innovation and Science to the Ministry of Restructuring and Government Efficiency.” In his comments, Elsalhy noted that quietly, and following the 2004 election, the Cabinet created a new ministry and moved SuperNet into its portfolio. He wanted to know “information on the rationale behind the decision

³⁰⁰ Exchange between Lougheed and Taylor, “High-speed Internet Access,” in Legislative Assembly of Alberta, November 16, 2000 in Province of Alberta, The 24th Legislature, Fourth Session, *Alberta Hansard*, vol. IV (November 14 to November 28, 2000), 1926.

³⁰¹ “Written Questions, SuperNet,” in Legislative Assembly of Alberta, Monday, November 21, 2005 in Province of Alberta, The 26th Legislature, First Session, *Alberta Hansard*, vol. III (May 4 to November 23, 2005), 1746.

³⁰² Zwozdesky, “Tabling Returns and Reports,” in Legislative Assembly of Alberta, Monday, November 28, 2005 in Province of Alberta, The 26th Legislature, First Session, *Alberta Hansard*, vol. IV (November 24 to December 1, 2005), 1919.

and why it was deemed to be appropriate and timely.”³⁰³ The MLAs submitted written requests for basic information about the costs, the contract provisions, and administrative location of the project. The decision to move the SuperNet from the Ministry of Science and Innovation to the newly-created Ministry of Government Restructuring and Efficiency was something of a puzzle. One of the frustrations with the relocation of the SuperNet between ministries was that “it’s difficult to compare the numbers over the past year even, not the past five years.”³⁰⁴ This problem added to the lack of information about the project among legislators.

The Opposition Liberals submitted FOIP requests about the SuperNet project. Elsalhy acquired a list giving the locations of the 4,200 SuperNet connections in Alberta. He asked the Minister why this list had decreased to 4,200 from a list of 6,304 locations originally identified as “potential targets for connectivity.” Elsalhy located the latter number in an agreement FOIPed by the Opposition Liberals.³⁰⁵

Opposition members criticized what they viewed as high costs for connection to the SuperNet and they argued that the government had trapped government departments and citizens into pouring money into Axia’s coffers for years to come. Opposition members repeatedly asked about the money that government departments including Health and Wellness, Learning, and Community Development paid to Axia for monthly

³⁰³ Elsalhy and Ouellette, “Motions for Return, Alberta SuperNet Project,” in Legislative Assembly of Alberta, Monday, May 2, 2005 in Province of Alberta, The 26th Legislature, First Session, *Alberta Hansard*, vol. II (April 11 to May 3, 2005), 1160.

³⁰⁴ Eggen, “Committee of Supply, Main Estimates 2005-06, Innovation and Science,” in Legislative Assembly of Alberta, Monday, May 9, 2005 in Province of Alberta, The 26th Legislature, First Session, *Alberta Hansard*, vol. III (May 4 to November 23, 2005), 1373.

³⁰⁵ Opposition member Elsalhy notes that the minister shared the list of 4,200 connection locations with him and that it is “public information” and is “shared with everybody who asks for it.” Despite this claim, a representative from the Ministry of Restructuring and Government Efficiency would not allow me access to this list.

service fees.³⁰⁶ Blakeman repeatedly attempted to get the Minister of Innovation and Science to tell her the “total cost paid out by the government from all departments in this fiscal year on the cost of the SuperNet including the assistance which is being offered to various municipalities, libraries, educational institutions....” She asked about the reasoning behind having “hooked them [libraries, schools, and health facilities] into 10 years’ worth of service connection fees...” and committing them to upgrading costly equipment to use the network.³⁰⁷ Blakeman questioned the Minister of Community Development Zwozdesky about the continued service fees that the department paid Axia on behalf of Alberta’s public libraries. This was part of a larger criticism about the decision to construct the SuperNet as a public-private partnership because the direction of Blakeman’s questions indicate that she felt too much public money was going to the enrichment of the third party provider, Axia. For instance, she queried, “what is the ministry also lining up to pay or budgeting to pay for the monthly service cost, the provision of service that goes to Axia? In this case that’s the third party that’s providing it.”³⁰⁸

The Minister of Community Development argued the charges were not costs but an investment. Other Ministers argued that the service fees were akin to paying a monthly bill for telephone connection. Doerksen stated, “Just like you have at home, the telephone company brings your telephone service to the door. You still have to pay

³⁰⁶ Blakeman and Boutillier, “Oral Question Period, SuperNet Service Costs,” in Legislative Assembly of Alberta, Tuesday, March 30, 2004 in Province of Alberta, The 25th Legislature, Fourth Session, *Alberta Hansard*, vol. II (March 29 to May 13, 2004), 765.

³⁰⁷ Blakeman, “Committee of Supply, Main Estimates 2004-05,” in Legislative Assembly of Alberta, Monday, April 26, 2004 in Province of Alberta, The 25th Legislature, Fourth Session, *Alberta Hansard*, vol. II (March 29 to May 13, 2004), 1046.

³⁰⁸ Blakeman, “Committee of Supply, Main Estimates 2004-05, Community Development,” in Legislative Assembly of Alberta, Tuesday, March 30, 2004 in Province of Alberta, The 25th Legislature, Fourth Session, *Alberta Hansard*, vol. II (March 29 to May 13, 2004), 789.

money to access that network, and that's not uncommon." When Blakeman asked about internet service, he added that the \$4,000 connection fee just paid for digging in the cable and providing a connection. "The monthly charge to have access or access to the data like you would pay for your telephone line or high-speed Internet service at your home is the monthly charge that is the responsibility in this case of the municipalities."³⁰⁹

Blakeman again asked on March 3, 2004, about the total cost of the SuperNet to Albertans:

The \$193 million that the government gave Bell to build the SuperNet will be a drop in the bucket compared to the fees over the next 10 years that taxpayers are going to pay Axia, the network service provider. My questions are to the Minister of Innovation and Science. Given that the yearly cost of each connection is \$3,000 and at least six ministries are paying for its services, what will the SuperNet cost taxpayers over the next 10 years?

Doerksen evaded the question, first commenting on the SuperNet's applications around the province, comparing SuperNet's bandwidth to a fire hose compared to the capacity of regular high-speed internet which was simply a garden hose. Second, he noted that he "didn't know where the \$3,000 comes from" because different prices attached to different levels of service, from 256 Kilobits, 2 Megabits, 5 Megabits, 20 Megabits, and 100 Megabits per second in the future. Each service level had a different price.³¹⁰ Although Doerksen said he was unsure where the \$3,000 figure came from, Blakeman and other

³⁰⁹ Blakeman, Klein, and Doerksen, "Oral Question Period: SuperNet," in Legislative Assembly of Alberta, Wednesday, March 24, 2004 in Province of Alberta, The 25th Legislature, Second Session, *Alberta Hansard*, vol. I (February 17 to March 25, 2004), 673.

³¹⁰ Blakeman and Doerksen, "Oral Question Period, SuperNet Service Costs," in Legislative Assembly of Alberta, Tuesday, March 30, 2004 in Province of Alberta, The 25th Legislature, Fourth Session, *Alberta Hansard*, vol. II (March 29 to May 13, 2004), 764.

members of the Opposition used the amount several times.³¹¹ Axia's "GLHLM Pricing Guide" for 2006 describes the capped rates for different service levels available to government, libraries, health, learning, and municipalities. The document explains that basic services with "Committed Access Rates" are available for 256 Kilobits and 2, 5, and 20 Megabits per second based on the original SuperNet design. The basic service fees per month are \$242.50 for 256 Kbps, \$400.00 for 2 Mbps, \$503.50 for 5 Mbps, and \$697.00 for 20 Mbps.³¹² When Blakeman stated that each connection cost \$3,000, she was likely using the lowest committed access rate, which at \$242.50 per month meant \$2,910 per annum. If all SuperNet connection points across the province, numbering approximately 4,200 subscribed to 256 Kbps service, the service fees to Axia each year would be \$12.222 million (CAD) annually, or \$122.220 million (CAD) over ten years. If each point subscribed to the largest bandwidth, Axia would make \$351.288 million (CAD) over ten years.

To gather information about the SuperNet, Opposition MLAs received information from the private companies involved in the development of the SuperNet, requested information repeatedly in the Legislature, and submitted requests for information about the project under the Freedom of Information and Protection of Privacy Act. The process was not transparent and this lack of transparency led to two dynamics. First, the members of the Legislature saw the SuperNet as a policy, rather than a contract, into which they had no input. The MLAs, especially those in the Opposition,

³¹¹ Massey, "Oral Question Period: SuperNet," in Legislative Assembly of Alberta, Wednesday, March 17, 2004 in Province of Alberta, The 25th Legislature, Second Session, *Alberta Hansard*, vol. I (February 17 to March 25, 2004), 540-41.

³¹² Axia Netmedia Corporation, GLHLM Pricing Guide Vs2h.doc (January 31, 2006), 5. Provided by Town Office Representative (15B-AB), Interview with the Author, December 13, 2006.

wanted to discuss the project and contribute to the development and reach of the network.

As mentioned above, MLAs asked time and again for details related to the project.

Largely, they had to pry information out of the Ministers.

One question, raised repeatedly in the Legislature by the Opposition, inquired why the government refused to invoke the contract penalties for the construction delays. The contract had a \$100 million (CAD) completion bond clause.³¹³ The lack of transparency led to the partial and haphazard seepage of information during Legislative sessions. To the Opposition's various requests, Ouellette never gave a satisfactory answer. On one occasion, he replied that construction had been "moving along very, very well lately."³¹⁴ On another, he said the department was working with the partners to complete the network rather than use the contract late fees.³¹⁵ Finally, he noted that he used the performance bond to hold Bell's "feet to the fire" but this remained a threat.³¹⁶ Since Legislators could not read about the project in great depth on their own, they asked many questions about it in the Legislature, at times frustrating the Premier and the

³¹³ Elsalhy and Ouellette, "Oral Question Period, SuperNet," in Legislative Assembly of Alberta, Monday, March 21, 2005 in Province of Alberta, The 26th Legislature, First Session, *Alberta Hansard*, vol. I (March 1 to April 7, 2005), 320; Blakeman and Doerksen, "Oral Question Period, Alberta SuperNet," Wednesday, May 12, 2004 in Province of Alberta, The 25th Legislature, Fourth Session, *Alberta Hansard*, vol. II (March 29 to May 13, 2004), 1394-1395; Hinman, "Committee of Supply, Main Estimates 2006-07, Restructuring and Government Efficiency," in Legislative Assembly of Alberta, Tuesday, May 9, 2006 in Province of Alberta, The 26th Legislature, Second Session, *Alberta Hansard*, vol. III (May 8 to August 31, 2006), 1416; Elsalhy and Ouellette, "Oral Question Period, SuperNet," in Legislative Assembly of Alberta, Tuesday, March 8, 2005 in Province of Alberta, The 26th Legislature, First Session, *Alberta Hansard* vol. I (March 1 to April 7, 2005), 88; Blakeman, "Committee of Supply, Main Estimates 2005-06, Restructuring and Government Efficiency," in Legislative Assembly of Alberta, Wednesday, April 13, 2005 in Province of Alberta, The 26th Legislature, First Session, *Alberta Hansard*, vol. II (April 11 to May 3, 2005), 754.

³¹⁴ Elsalhy, Ouellette, "Oral Question Period, SuperNet," in Legislative Assembly of Alberta, Monday, March 21, 2005 in Province of Alberta, The 26th Legislature, First Session, *Alberta Hansard*, vol. I (March 1 to April 7, 2005), 320.

³¹⁵ Ouellette, "Committee of Supply, Main Estimates 2005-06, Restructuring and Government Efficiency," in Legislative Assembly of Alberta, Wednesday, April 13, 2005 in Province of Alberta, The 26th Legislature, First Session, *Alberta Hansard*, vol. II (April 11 to May 3, 2005), 755.

³¹⁶ Ouellette, "Oral Question Period, Benefits of SuperNet for Rural Alberta," in Legislative Assembly of Alberta, Tuesday, April 19, 2005 in Province of Alberta, The 26th Legislature, First Session, *Alberta Hansard*, vol. II (April 11 to May 3, 2005), 854.

Ministers, who responded with statements, including “this has come up a few times in questions...”³¹⁷ At one point, Premier Klein made an insulting response to Liberal Blakeman when she asked why the government had not told Albertans that the \$193 million spent on the project did not include monthly connection fees for libraries and public offices. She asked why “will the libraries and municipal buildings ... still have to pay more to get connected?” The Premier responded, “More than what? More is very subjective. More than what? More of less or less of more or more of more?”³¹⁸ This was a nonsensical response that did not answer the question posed. Responding to a question about costs his department paid Axia, the Minister of Community Development evaded the question, reminding the Legislature, “the question...is about infrastructure, but more importantly, the cost is not a cost. You know what? It is an investment in rural Alberta and urban development...”³¹⁹ On other occasions, Opposition members raised a host of questions in speeches in the Legislature, but Ministers did not answer all of these questions. At times, Ministers provided a generic, positive response about the project and answered some of the questions. At others, they provided only a canned response about how wonderful the project was. The refusal to answer questions and the stock response about the benefits of the project, made the Opposition’s questioning sound unreasonable.

Legislators’ lack of involvement and the absence of a prolonged policy conversation resulted in the identification of problems and issues only once the network

³¹⁷ Doerksen, “Main Estimates 2004-05,” in Legislative Assembly of Alberta, Monday, April 26, 2004 in Province of Alberta, The 25th Legislature, Fourth Session, *Alberta Hansard*, vol. II (March 29 to May 13, 2004), 1047.

³¹⁸ Blakeman, Klein, and Doerksen, “Oral Question Period: SuperNet,” in Legislative Assembly of Alberta, Wednesday, March 24, 2004 in Province of Alberta, The 25th Legislature, Second Session, *Alberta Hansard*, vol. I (February 17 to March 25, 2004), 673.

³¹⁹ Blakeman and Boutillier, “Oral Question Period, SuperNet Service Costs,” in Legislative Assembly of Alberta, Tuesday, March 30, 2004 in Province of Alberta, The 25th Legislature, Fourth Session, *Alberta Hansard*, vol. II (March 29 to May 13, 2004), 765.

construction was in progress. One issue was how the original contract excluded municipalities. Legislators additionally aired concerns from their constituents about problems surrounding connection and monthly network fees and equipment costs. They were uncertain how individuals and organizations in their constituencies would afford connection to the network.

Costs to rural organizations for equipment and service fees became a central focus of the SuperNet project in the Legislature. To connect to the SuperNet and the internet, an organization had to pay three costs: first, the initial connection cost of \$4,000 (CAD) to “turn on” the service and connect to the network;³²⁰ second, a monthly service fee to access the network; and third, a monthly fee to an internet service provider to have access to the internet. The government paid for routers to be placed in all schools, libraries, public health facilities, and later municipalities. As construction progressed, provincial departments put money in their budgets to pay connection and service fees. Discussion in the Legislature revealed that individual libraries, schools, and municipal offices could not afford connection fees or purchasing the equipment to make full use of the SuperNet. To overcome the inability of local organizations to pay the associated costs, government departments increased funding to pay for these. On one occasion, Blakeman raised the issue of service fees and equipment costs in the Legislature, points that she inquired about often. In this instance, she noted, “the last time I talked about this, Axia sent out some guys in suits from the communications department to talk to me. If they’re reading

³²⁰ Doerksen, “Oral Question Period: SuperNet,” in Legislative Assembly of Alberta, Wednesday, March 24, 2004 in Province of Alberta, The 25th Legislature, Second Session, *Alberta Hansard*, vol. I (February 17 to March 25, 2004), 673; Massey, “Oral Question Period: SuperNet,” in Legislative Assembly of Alberta, Wednesday, March 17, 2004 in Province of Alberta, The 25th Legislature, Second Session, *Alberta Hansard*, vol. I (February 17 to March 25, 2004), 540-41.

this, they can save themselves the trip this time, because they didn't, obviously, reassure me enough. ... So the guys in suits can save their time. I'll hear from the minister."³²¹

The absence of a policy process in the Legislature also led to a lack of understanding among legislators about basic technical information. Misunderstandings abound in the Legislature about the project and how it worked. The lack of transparency led to misunderstandings and political trouble that the government could have avoided had they released basic information about the project. Laurie Blakeman, the Liberal's Chief Opposition Whip, was very interested in the network project and arose in the Legislature to comment on it and question it many times. Blakeman held an early misunderstanding about the project. She incorrectly thought that the province was only bringing the fiber optic cable to the *outside* of buildings and libraries and schools would have to pay for the fiber connection inside their structures. It is important to note that Blakeman held this misconception from April of 2001 until April of 2002, a full year before the issue was satisfactorily answered. In the end, the answer did not come from the government itself. In April of 2001, Blakeman noted that the "technology is only run to the outside of the buildings."³²² She continued, "Once again I just think: nice idea, great stuff. Why did you stop at the outside of the building? So what is the technical support that is being given to these municipalities to effectively use this technology? Is there nothing in addition that's going to be given? Are municipalities going to be able to apply for additional funds to get this Supernet actually workable rather than sort of a set

³²¹ Blakeman, "Main Estimates 2004-05," in Legislative Assembly of Alberta, Monday, April 26, 2004 in Province of Alberta, The 25th Legislature, Fourth Session, *Alberta Hansard*, vol. II (March 29 to May 13, 2004), 1047.

³²² Blakeman, "Consideration of Her Honour the Lieutenant Governor's Speech," in Legislative Assembly of Alberta, Tuesday, April 24, 2001 in Province of Alberta, The 25th Legislature, First Session, *Alberta Hansard*, vol. I (April 9 to May 10, 2001), 255.

of wires dangling on the outside of the building?”³²³ A year later, Blakeman asked about this again noting,

There are a couple of points around this. For starters, something that I pointed out right from the beginning is that the province’s commitment was to run the SuperNet to the outside wall of the municipal building, libraries, schools, et cetera, throughout Alberta. This has always been a problem, because with the corresponding cuts to the municipalities, to the school boards, to the libraries, to the RHAs, none of these groups had the ability, had the extra cash to be able to take the wiring from the outside of their walls, drill through the walls, up the stairs, down the corridor, and to the computer. Then you have to start looking at the additional cost of the computer that’s going to be of the technology to match the Supernet, and then you’re going to have to have the software programs that go with it. So even at this point, if the Supernet’s little wires were tickling the outside walls of a library somewhere in Irma, the library doesn’t have the money to be able to make this work. So, how effective is that?³²⁴

Blakeman reported in late April of 2002, that while she had raised questions in the Legislature several times, the Minister did not address her questions. She, however, finally had the occasion to speak with “the people that are putting the Supernet together” and they answered her long-standing question. She learned that the SuperNet connection did, in fact, come into buildings and connect to a router. Blakeman did not have her questions answered in the Legislature. Rather, she went directly to people involved with the project.³²⁵ This harkens back to the Ministers’ unwillingness to share information about the project.

³²³ Ibid.

³²⁴ Blakeman, “Committee of Supply: Main Estimates 2002-03,” in Legislative Assembly of Alberta, Tuesday, April 9, 2002 in Province of Alberta, The 25th Legislature, Second Session, *Alberta Hansard*, vol. I (February 26 to April 11, 2002), 584.

³²⁵ Blakeman, “Committee of Supply: Main Estimates 2002-2003,” in Legislative Assembly of Alberta, Tuesday, April 9, 2002 in Province of Alberta, The 25th Legislature, Second Session, *Alberta Hansard*, vol. II (April 15 to May 13, 2002), 1036.

MLAs and Albertans held other misconceptions about the project. One longstanding one was that the SuperNet was the internet and the network would bring internet service to rural areas. The Ministers, particularly Doerksen and Ouellette, explained that they were simply building the wires, but this misunderstanding remained. In 2001, MLA Dave Broda made this error, noting, “With the SuperNet, the high-speed Internet, that’s going to be coming throughout the province...”³²⁶ In less direct forms, other members assumed that the SuperNet and the internet were synonymous. On May 1, 2003, before he became directly responsible for the project, Ouellette, a Conservative member of the Legislature questioned the SuperNet. He asked Doerksen, “I’ve had some people calling, asking if we were building a white elephant because of the cost of our connection. What is the comparison of the cost to connect to the Alberta SuperNet versus high-speed connection through Telus or Shaw?”³²⁷ The question asks whether it would cost more to connect to the internet through the SuperNet than it did for high-speed internet service through Telus or Shaw, a cable company. The question missed the important point that individual households would not be directly connected to the SuperNet, but they would access high-speed internet through a provider using the SuperNet and second, that Telus and Shaw did not provide high-speed internet service to many rural Alberta areas at the time. Ouellette’s question equated the SuperNet with the internet, something that irked Minister Doerksen. Doerksen responded to this question, with some frustration:

³²⁶ Broda, “Oral Question Period: Home Schooling,” in Legislative Assembly of Alberta, Thursday, May 17, 2001 in Province of Alberta, The 25th Legislature, First Session, *Alberta Hansard*, vol. II (May 17 to November 15, 2001), 661.

³²⁷ Ouellette, “Oral Question Period: Alberta SuperNet,” in Legislative Assembly of Alberta, Thursday, May 1, 2003 in Province of Alberta, The 25th Legislature, Third Session, *Alberta Hansard*, vol. II (March 25 to May 1, 2003), 1374.

As the member full well knows, as does the Member for Wainwright, who is involved in the rural economic development committee, the rural electrification was important in the advent of private telephones, and they would not wish to see that disappear. Furthermore, the important point here is that the Alberta SuperNet provides the infrastructure, the main pipeline for the services to be delivered, and any Internet service provider or operator can purchase access to the infrastructure at wholesale prices. The wholesale prices are exactly the same wholesale prices that can be purchased anywhere in the province. From there they can then distribute it out to all of the other people that want to participate at rates that will be competitive.³²⁸

Interestingly, Ouellette later became the Minister of Restructuring and Government Efficiency and in this position he was directly responsible for the completion of the SuperNet. Even the Premier made a misstatement about the project. Responding to Blakeman, he argued that the Minister would discuss the project in depth and “respond to the allegations, I believe unfounded in many cases, with respect to the value and worth of the Internet project.”³²⁹ Here, the Premier misnamed the project; the SuperNet was not an internet project at all but only the network wires. Other instances of this misconception occurred. In one instance, a frustrated Minister Ouellette blustered, “As much as we’ve talked about SuperNet here and everything else, I still mustn’t be explaining it just right or something. Really, the SuperNet is just a highway. All it is is an infrastructure. It’s a highway that information travels over, but you still need an Internet

³²⁸ Doerksen, “Oral Question Period: Alberta SuperNet,” in Legislative Assembly of Alberta, Thursday, May 1, 2003 in Province of Alberta, The 25th Legislature, Third Session, *Alberta Hansard*, vol. II (March 25 to May 1, 2003), 1374.

³²⁹ A Minister of Innovation and Science noted that he was frustrated with the misconception that the SuperNet was the Internet. Here, the Premier makes the very mistake so frustrating to the minister. Klein, “Committee of Supply: Main Estimates 2002-03,” in Legislative Assembly of Alberta, Tuesday, April 9, 2002 in Province of Alberta, The 25th Legislature, Second Session, *Alberta Hansard*, vol. I (February 26 to April 11, 2002), 584.

service provider.”³³⁰ Doerksen responded to one question by stating that he did not know what to say because “This provides us a lot more than just the Internet, Mr. Speaker. This is part of the confusion. ... You can do videoconferencing that is much more than simple access to the Internet. This brings us into the 21st century in a major way.”³³¹

Even at the end of development, legislators were unclear about what the SuperNet was and what it could do compared with other technology. In 2005, one legislator, Alana DeLong, lauded the SuperNet for a health care symposium webcast she saw when she could not attend the event. She had only praise for the webcast, stating that it was “...just like having a front-row seat.” She stated that such a webcast required “high-speed Internet, one of the capabilities of the SuperNet” and then asked the Restructuring and Government Efficiency Minister for an update on the network’s progress.³³² Ouellette did not answer DeLong’s question, rather he sought to correct what he saw as the continual, and likely damaging, misunderstanding of the project, noting that webcasts did not need the SuperNet,

Mr. Speaker, I’d like to make one point very clear right off the bat. The Alberta SuperNet is much more than an application or a service. It’s a giant highway over which you can run any number of applications. The Internet is just one service. The health symposium was delivered via webcast, which is simply broadcasting over the Internet. Depending on the event you’re holding, webcasting is a good option. The quality of a webcast depends on the quality and speed of your Internet connection.

³³⁰ Ouellette, “Committee of Supply, Main Estimates 2006-07, Restructuring and Government Efficiency,” in Legislative Assembly of Alberta, Tuesday, May 9, 2006 in Province of Alberta, The 26th Legislature, Second Session, *Alberta Hansard*, vol. III (May 8 to August 31, 2006), 1415.

³³¹ Blakeman, Klein, and Doerksen, “Oral Question Period: SuperNet,” in Legislative Assembly of Alberta, Wednesday, March 24, 2004 in Province of Alberta, The 25th Legislature, Second Session, *Alberta Hansard* vol. I (February 17 to March 25, 2004), 673.

³³² DeLong, “Oral Question Period, Health Symposium Webcast,” in Legislative Assembly of Alberta, Monday, May 9, 2005 in Province of Alberta, The 26th Legislature, First Session, *Alberta Hansard*, vol. III (May 4 to November 23, 2005), 1336.

SuperNet can have many participant sites interacting with each other. For example, you could have experts in different SuperNet sites interacting with one another in a virtual panel session. We have meetings in our department using SuperNet video conferencing with people in Calgary on a regular basis. You could hook up a Smart board and have multimedia presentations live. You could invite rural Albertans to their local school or library, where they can participate, ask questions, and add their own perspective. This is all video conferencing, and you could easily add webcasting over the Internet so Albertans in rural SuperNet communities could view the session from home or work over a high-speed Internet connections. [sic] SuperNet thinks big, Mr. Speaker.³³³

Additionally, there were misunderstandings about the capacity of the network, whether it was state of the art; if fiber optic cable was the best, most advanced and most cost effective solution to the problem of connecting Albertans to a broadband network. In rural areas, other potential technical solutions to providing broadband do exist, including a developing wired option of broadband via power lines and the wireless choices of satellite and fixed line of sight wireless. In their 2005 paper, Sawada, Cossette, Wellar, and Kurt note that satellite and wireless are “viable alternatives to wireline.”³³⁴ Satellite is an attractive option because it can serve vast areas once deployed. It is an unfavorable solution for two reasons, however, it does not work in bad weather, such as rain or snow, and it has signal delay.³³⁵ In addition, it is expensive to deploy. In the U.S, WildBlue was deployed in 2004 to serve rural communities. In 2005, the Canadian Space Agency and federal government spent \$155 million (CAD) to

³³³ Ouellette, “Oral Question Period, Health Symposium Webcast,” in Legislative Assembly of Alberta, Monday, May 9, 2005 in Province of Alberta, The 26th Legislature, First Session, *Alberta Hansard*, vol. III (May 4 to November 23, 2005), 1337.

³³⁴ M. Sawada, Daniel Cossette, Barry Weller, Tolga Kurt, “Narrowing the Urban/Rural Broadband Digital Divide in Canada with GIS: Implications for the Canadian Terrestrial Broadband Wireless Market,” (August 16, 2005): 5.

³³⁵ Sawada, Cossette, Wellar, Kurt, “Narrowing the Urban/Rural Broadband Digital Divide,” 6; Questions and Answers, About WildBlue, WildBlue web site, URL: <http://www.wildblue.com/aboutWildblue/qaa.jsp#5> (accessed October 20, 2008).

create the National Satellite Initiative to help provide broadband access to rural and remote communities via Telesat Canada's Anik F2 ka satellite. NetKaster and XPLOARNET are the two service providers Telesat Canada chose to offer service.³³⁶ One challenge to the National Satellite Initiative is that there is capacity to reach only 300,000 Canadians, leaving 2.5 million unserved.³³⁷ Additionally, Industry Canada ran a pilot program from 2002 to 2007, the Broadband for Rural and Northern Development Program (BRAND) that brought broadband to 900 northern communities.³³⁸ Another option is broadband wireless using either licensed or unlicensed frequency spectra.³³⁹ This option is less expensive to deploy, as less cable is dug in, but towers for transmission can still be cost prohibitive. Additionally, dwellers without line of sight, including those in valleys, hilly areas, or surrounded by trees, often do not receive the signals. Fiber optics is technically an optimum solution. Sawada et al write that, "Fiber optics, a major part of the Internet backbone, can transport massive amounts of data over long distances without interference or signal degradation. However, the fabrication and installation of optical fiber is very expensive, which makes this technology inappropriate for dwellings in rural areas."³⁴⁰ Despite the expense, Alberta chose fiber optic cable for the network. A Bell representative noted that from a telecommunications perspective,

³³⁶ Sawada, Cossette, Wellar, Kurt, "Narrowing the Urban/Rural Broadband Digital Divide," 6.

³³⁷ Bradbury, "Bridging Canada's Digital Divide," 10.

³³⁸ Ibid.

³³⁹ Sawada, Cossette, Wellar, Kurt, "Narrowing the Urban/Rural Broadband Digital Divide," 6.

³⁴⁰ Sawada, Cossette, Wellar, Kurt, "Narrowing the Urban/Rural Broadband Digital Divide," 6; Doerksen, "Main Estimates 2004-05," in Legislative Assembly of Alberta, Monday, April 26, 2004 in Province of Alberta, The 25th Legislature, Fourth Session, *Alberta Hansard*, vol. II (March 29 to May 13, 2004), 1047.

fiber optics is best because of its “huge capacity” and “quality of service” compared to wireless.³⁴¹

Legislators raised questions about the different viable technologies and whether fiber optics was the best solution. Wayne C. N. Cao, a PC from Calgary-Fort noted, “From my technical knowledge I learned that the low-orbit satellite system is more cost effective than the fibre optics connection in rural areas of Alberta,...”³⁴² Liberal Debbie Carlson, one of the project’s foremost early critics, called the network a “boondoggle.” While she stated, “I think the concept was a great idea,” her concern centered on conversations raised by early users, “they’re not using it, because it isn’t the fastest or the best technology.” Rather, she accused that the network in progress was “already obsolete” and she speculated that during the government’s summer hiatus, the powerful Public Affairs Bureau would work on a communiqué to explain, “how you could waste so many dollars on something that’s obsolete and that in fact people aren’t using to any great effect in their regions.”³⁴³ Carlson’s greatest misunderstanding here was that the technology was inadequate and other options replaced it. Two weeks after her initial statement, Carlson issued something of a retraction of her previous statements noting that information about the SuperNet was not readily available. She stated, “Sometimes we then are dealing with information that isn’t complete so therefore can lead us to conclusions that may or may not be accurate. That has happened in this department in

³⁴¹ Bell Marketing Representative (3C-AB), Interview with the Author, December 31, 2007.

³⁴² Cao, “High-speed Internet Access,” in Legislative Assembly of Alberta, Tuesday, May 2, 2000 in Province of Alberta, The 24th Legislature, Fourth Session, *Alberta Hansard*, vol. III (May 2 to May 25, 2000), 1230.

³⁴³ Carlson, “Committee of Supply, Main Estimates 2002-03,” in Legislative Assembly of Alberta, Tuesday, April 9, 2002 in Province of Alberta, The 25th Legislature, Second Session, *Alberta Hansard*, vol. I (February 26 to April 11, 2002), 581.

fact with the Supernet.” She noted that she met with SuperNet people and stated it was an “eye-opener” and reversed her position on the project, stating now that “the concept is an excellent concept, and the technology looks like it’s going to work.” She blamed her misunderstandings on the Minister stating that perhaps there was a “lack of depth of understanding or an inability to fully discuss or debate what’s happening there.” In brief, she blamed the Ministry and the paucity of information she had to evaluate the project.³⁴⁴

Legislators queried whether the fiber optic technology would be the most advanced once construction was complete.³⁴⁵ A week later, and perhaps buoyed by Carlson’s doubts, Moe Amery, PC from Calgary-East asked whether the SuperNet was using “technology that’s already out of date.” Minister Doerksen responded that the network is “an optical state-of-the-art network” which was scalable and therefore able to accommodate demands for increased broadband into the future. Additionally, revenues generated from the network’s operation were to be used to maintain and upgrade the network during the ten-year contract period.³⁴⁶

This genuine uncertainty about the technology used also ensued over the line-of-sight wireless portions of the network and wireless technology became a point of contention. The SuperNet used wireless at certain extremities to connect to the base

³⁴⁴ Carlson, “Main Estimates 2002-03, Innovation and Science,” in Legislative Assembly of Alberta, Wednesday, May 1, 2002 in Province of Alberta, The 25th Legislature, Second Session, *Alberta Hansard*, vol. II (April 15 to May 13, 2002), 1101.

³⁴⁵ Taft, “Committee of Supply, Main Estimates,” in Legislative Assembly of Alberta, Tuesday, May 22, 2001 in Province of Alberta, The 25th Legislature, First Session, *Alberta Hansard*, vol. II (May 14 to November 15, 2001), “big picture” from 722 and long quotation from 721; Blakeman, “Main Estimates 2004-05,” in Legislative Assembly of Alberta, Monday, April 26, 2004 in Province of Alberta, The 25th Legislature, Fourth Session, *Alberta Hansard*, vol. II (March 29 to May 13, 2004), 1047.

³⁴⁶ Amery to Doerksen and Doerksen to Amery, “Oral Question Period: Alberta SuperNet,” in Legislative Assembly of Alberta, Tuesday, April 16, 2002 in Province of Alberta, The 25th Legislature, Second Session, *Alberta Hansard*, vol. II (April 15 to May 13, 2002), 717.

network,³⁴⁷ largely these connections are in places where digging in fiber optic cable would have required considerable additional expense due to geographical challenges or where doing so could harm ecologically sensitive areas. In March of 2004, at the end of an acrimonious exchange about the SuperNet, Blakeman asked Doerksen whether wireless technology would replace the SuperNet.³⁴⁸

In 2006, wireless technology again appeared in Legislative debates, this time cloaked in security concerns. Elsalhy, the stand-in critic for Restructuring and Government Efficiency noted, “We know that the SuperNet is a very useful program and a very useful development.” But he had concerns.³⁴⁹ Elsalhy asked about the 37 of the 429 SuperNet locations connected using wireless technology. He noted, “That’s not the fibre-optic connection that was basically agreed upon or that people were under the impression they were getting.” He asked whether the government’s contract allowed for the use of wireless technology and if the wireless segments provided “suboptimal service.” Elsalhy noted that it was common knowledge that wireless was less secure and reliable than “an actual physical fibre-optic link” and he asked why, if the government did not use wireless in its offices, “why are certain communities being asked to rely on a wireless link that is not reliable in performance and that might be susceptible to breaches and penetration?”³⁵⁰ The Minister responded that the contracts did allow for wireless

³⁴⁷ Blakeman, Doerksen, and Boutillier, “Oral Question Period: SuperNet,” in Legislative Assembly of Alberta, Monday, March 22, 2004 in Province of Alberta, The 25th Legislature, Second Session, *Alberta Hansard*, vol. I (February 17 to March 25, 2004), 595-596.

³⁴⁸ Blakeman, Doerksen, and Boutillier, “Oral Question Period: SuperNet,” in Legislative Assembly of Alberta, Monday, March 22, 2004 in Province of Alberta, The 25th Legislature, Second Session, *Alberta Hansard*, vol. I (February 17 to March 25, 2004), 595-596.

³⁴⁹ Elsalhy, “Committee of Supply, Main Estimates 2006-07, Restructuring and Government Efficiency,” in Legislative Assembly of Alberta, Tuesday, May 9, 2006 in Province of Alberta, The 26th Legislature, Second Session, *Alberta Hansard*, vol. III (May 8 to August 31, 2006), 1407.

³⁵⁰ Ibid.

connections where it was impracticable to draw fiber and he stated, “I’ve got to beg to differ with you on the security of wireless.” He argued, “...with today’s technology they tell me that they can secure wireless as good as they can secure whether a hacker can come into your computer that’s going down the SuperNet or not.”³⁵¹ The concerns raised by legislators about whether fiber optic cable was the best technology to use ensued from the lack of technical understanding. This lack of understanding resulted from the absence of a concerted discussion in the Legislature about the technologically possible solutions, a basic understanding of the benefits and problems of each potential technology, and a debate that would have provided legislators a voice about which solution to adopt.

Various Visions

Another result of the lack of a policy process were differences in vision between those who developed the idea and oversaw the construction of the SuperNet and others who had differing opinions about what the government ought to do in regards to new technology. Had the government opened the issue to public deliberation, Albertans could have discussed and decided about how far the network should extend. Building the SuperNet with a contract, however, circumvented public debate on this matter and the public reached no consensus on who should be connected. During construction, the Opposition and the public began to develop their own visions for the project and, as a result, question the government’s decisions.

³⁵¹ Ouellette, “Committee of Supply, Main Estimates 2006-07, Restructuring and Government Efficiency,” in Legislative Assembly of Alberta, Tuesday, May 9, 2006 in Province of Alberta, The 26th Legislature, Second Session, *Alberta Hansard*, vol. III (May 8 to August 31, 2006), 1409.

One difference in vision was the issue of who ought to be connected by the government's actions. It is important to remember here that those involved in the initial conception of the project saw it centrally as an economic development tool. The Cabinet Ministers involved with the project maintained that the government only committed to bring the wires to towns, leaving private companies responsible for providing service to rural homes. The Ministers viewed themselves as providing connections to the community. Announcing the SuperNet project, Taylor discussed a "community kiosk,"

As part of this infrastructure, Mr. Speaker, I'm recommending a community kiosk in all of these communities so that if people don't have access to a computer at home, they'll be able to walk up to this community kiosk and access this high-speed Internet.³⁵²

This announcement was important because it linked the SuperNet and high-speed internet together. Later, as mentioned earlier, Ministers were at pains to explain that the SuperNet was not the internet. Ministers argued that bringing fiber to communities was the only thing they had ever said they would do and stated that schools and libraries were critically important places for community and web access.³⁵³ Responding to a question about SuperNet access for home schooled children, Oberg stated "*we are not going to get into the business of paying line charges for every house to be hooked up to the*

³⁵² "Scientific and Technological Innovation," Oral Question Period, Legislative Assembly of Alberta, Wednesday, March 15, 2000 in Province of Alberta, The 24th Legislature, Fourth Session, *Alberta Hansard*, vol. I (February 17 to March 22, 2000), 436, quoted from 437.

³⁵³ Doerksen, "Committee of Supply, Main Estimates 2003-04, Innovation and Science," in Legislative Assembly of Alberta, Wednesday, April 9, 2003 in Province of Alberta, The 25th Legislature, Third Session, *Alberta Hansard*, vol. II (March 25 to May 1, 2003), 914; Emphasis mine. Broda to Oberg and Oberg to Broda, "Oral Question Period: Home Schooling," in Legislative Assembly of Alberta, Thursday, May 17, 2001 in Province of Alberta, The 25th Legislature, First Session, *Alberta Hansard*, vol. II (May 17 to November 15, 2001), 661.

Supernet.”³⁵⁴ In the same vein, Ouellette argued, “We never, ever as a government had in our policy to actually do that last mile.”³⁵⁵ Rather, they thought private ISPs would serve individual residents and people would pay for their own connection as they did with the telephone system. The discussions over the “last mile” opened up rifts over competing visions for the SuperNet. While the Ministries involved clearly thought that government had done its part in bringing high-speed network capacity to rural areas and argued that the government never planned to bring network connections to Albertans’ doorsteps, instead leaving this up to private internet providers, the Opposition members thought that the network as planned was incomplete—it benefited small towns but rural residents still faced the digital divide. Members of the Opposition parties seemed to favor the fiber-to-the-home (FTTH) model and often argued that the government ought to do more to bring the resource out to rural people. This argument suggested that the SuperNet created another digital divide: those in towns were benefiting from the network and those outside did not. Paul Hinman, the only Alberta Alliance member in the Legislature, argued,

The SuperNet—and I’m hoping that you can change this for the communities where they’re still struggling—has been very much handled like it has with many of the water co-ops in the province. They’ve said, “Okay, we’re going to put this co-op in,” yet they put a list in there on who is going to get it. I’m speaking about the municipal buildings, the library, the hospital, and those areas. There isn’t even a thought, it seems like, on how that hub is going to be hooked up to help all Albertans.

³⁵⁴ Emphasis mine. Broda to Oberg and Oberg to Broda, “Oral Question Period: Home Schooling,” in Legislative Assembly of Alberta, Thursday, May 17, 2001 in Province of Alberta, The 25th Legislature, First Session, *Alberta Hansard*, vol. II (May 17 to November 15, 2001), 661.

³⁵⁵ Ouellette, “Committee of Supply, Main Estimates 2006-07, Restructuring and Government Efficiency,” in Legislative Assembly of Alberta, Tuesday, May 9, 2006 in Province of Alberta, The 26th Legislature, Second Session, *Alberta Hansard*, vol. III (May 8 to August 31, 2006), 1418.

I very much agree with the minister that the SuperNet is a super highway, and it's a great thing that all Albertans should have access to. You talked about that first mile/last mile, and I agree with you, but it seems like we built the highway, and we've gone out of our way to do it only to find out that there's a river there and we don't have a bridge to get across to the people on the other side. What was efficient about that? We need to figure out that last mile, and there should be more thought into that.³⁵⁶

Ouellette's response to this was to call the Alliance member a leftist and note that he did not understand SuperNet. On the Alberta political spectrum, the Alberta Alliance is to the right of the ruling Progressive Conservatives, which makes his argument that it is the government's task to do something about the last mile interesting.³⁵⁷

On another occasion, Hinman argued that the problem is that "...we're still missing a high percentage of rural Alberta. Though they get it to a town, that does not get it to the people living outside the town, whether that's students living on a farm, small acreages, other areas."³⁵⁸ The problem of rural internet and the digital divide even with the SuperNet, touched him personally. He told the Legislature that at his residence, less than ten kilometers from both Raymond and Magrath he could not get high-speed internet because "...we're too far from the hub." He argues, "We're missing a huge number, but percentagewise I'm sure this government says, 'Oh, don't worry about it. We've got the majority. That's close enough.' But it's very disheartening."³⁵⁹ Hinman's statements reveal that while the government prided itself on providing access in towns, rural

³⁵⁶ Ouellette, "Committee of Supply, Main Estimates 2006-07, Restructuring and Government Efficiency," in Legislative Assembly of Alberta, Tuesday, May 9, 2006 in Province of Alberta, The 26th Legislature, Second Session, *Alberta Hansard*, vol. III (May 8 to August 31, 2006), 1416.

³⁵⁷ *Ibid.*, 1417.

³⁵⁸ Hinman, "Committee of Supply, Main Estimates 2005-06, Restructuring and Government Efficiency," in Legislative Assembly of Alberta, Wednesday, April 13, 2005 in Province of Alberta, The 26th Legislature, First Session, *Alberta Hansard*, vol. II (April 11 to May 3, 2005), 762.

³⁵⁹ *Ibid.*

Albertans envisioned the internet would come to their homes also. Ouellette responded to Hinman,

I'll tell you that whatever Internet they hooked up to, when the SuperNet is up and running, they will never be able to get as wide a band of network for the money that they're going to be able to get rural Alberta for. [sic] They can purchase a full megabyte in rural Alberta for \$50 per month, which is cheaper than you can buy it for in the city. If you would have listened at all to the beginning of the speech or if you would have ever looked up what the Internet is about, never ever in any of the contract or in the \$193 million that the government is paying Bell were there any last mile connections. The total thing was to hook up approximately 4,200 schools, hospitals, libraries, and government buildings. The rest of it is done with Internet service providers to create a competitive field out there.³⁶⁰

Taft asked about the social goals of the project and what they were. Posing the question of “if” it was to mirror rural electrification and rural telephony it showed that the Opposition was unclear about the goals of the project. Taft asked,

If on the other hand it's meant as a sign of commitment to bringing most Albertans onto the Internet in the same way that there were the rural electrification programs in the '50s and the programs of Alberta Government Telephones decades ago to bring telephones to all Albertans, if it has a social component to it, I'd like to know that. What steps will the department take to ensure that all Albertans will have access to the benefits of the Supernet? Could it be in fact that it will undercut local businesses if a bookstore owner in a small town, say Lac La Biche, suddenly is facing a lot of competition from the big Internet suppliers? Is that really something we want to have? If these things are thought through, are we sure they are going to be as beneficial as the promoters of them want us to believe? I'm also interested, once this system is in place, in what the costs will be to maintain it. Has the department done any in-depth studies on the administrative and maintenance cost associated with the Supernet? So there are a lot of questions around the Supernet. I know my

³⁶⁰ Ouellette, “Committee of Supply, Main Estimates 2005-06, Restructuring and Government Efficiency,” in Legislative Assembly of Alberta, Wednesday, April 13, 2005 in Province of Alberta, The 26th Legislature, First Session, *Alberta Hansard*, vol. II (April 11 to May 3, 2005), 762.

colleagues have raised those from time to time, and they will be raised again.³⁶¹

In addition to the first dynamic, that MLAs believed the government should have held policy discussions about the network, there was also a second dynamic that resulted from viewing the SuperNet as infrastructure built by a contract rather than a policy. This second dynamic was that there was little sense of how to implement the vision among the legislators and among the public, a topic covered in Chapter Three.

Proponents of the SuperNet argued it would end the digital divide and rescue rural Alberta from the decline into which it had slid. Rural Albertans' internet options were limited to dial-up connections or expensive satellite service. Rural areas struggled to maintain services and quality of life amid a myriad of problems, especially depopulation. The government's response to the paucity of high-speed internet access in rural communities addressed two challenges: first, the inability of private companies to extend service on their own due to the lack of a profitable business case and second, a response to the possible complete decline of rural Alberta. Government research uncovered threats to the sustainability of rural Alberta's communities due to the loss of population, especially the young and professionally trained individuals; loss of services; and limited employment opportunities.³⁶² A 2002 report, "Towards a Comprehensive Rural Development Strategy for Alberta," noted, "Recent research shows that the viability of

³⁶¹ Taft, "Committee of Supply, Main Estimates," in Legislative Assembly of Alberta, Tuesday, May 22, 2001 in Province of Alberta, The 25th Legislature, First Session, *Alberta Hansard*, vol. II (May 14 to November 15, 2001), "big picture" from 722 and long quotation from 721.

³⁶² Doug Griffiths and Luke Ouellette, "Rural Alberta: Land of Opportunity, MLA Steering Committee Report on Rural Development," (March 2004), URL: http://www.rural.gov.ab.ca/ralo_report.pdf (accessed January 11, 2008) I, 4-6.

over 75 percent of rural Alberta's small communities is in question.”³⁶³ Towns in rural Alberta were disappearing and the government sought ways to respond, to help rural Albertans with education, health care, and economic development to bring renewed vitality to rural areas.³⁶⁴ The government had shuttered local provincial offices, schools were closing, jobs were not readily available; these challenges were threatening the viability of rural communities. Closing provincial offices, Carlson charged, furthered the problems in rural areas leading to “lost infrastructure, jobs, and new dollars into their communities” as a result of the decision.³⁶⁵ Provincial legislators saw network technology as a solution to enduring rural problems, including a lack of professionals and money. Provincial buildings in small towns sit empty as the government removed their services and employees. Rather than bring professionals to the towns or rural dwellers to the cities, new network applications would link the two in situ. The Minister of Innovation and Science saw renewed rural communities resulting from the network project.

The lack of a policy discussion also led different Ministers who were responsible for the project to assign different visions and goals to it. People who worked on the project in its earliest stages linked the network primarily to economic development. A Minister involved with the conception of the project noted, “It was designed for rural Alberta and it was designed first of all as an economic development tool.”³⁶⁶ In

³⁶³ Alberta Agriculture, Food and Rural Development, “Towards a Comprehensive Rural Development Strategy for Alberta,” (2002) quoted in Griffiths and Ouellette, “Rural Alberta: Land of Opportunity.”

³⁶⁴ Former Minister (2C-AB), Interview with the Author, December 21, 2007.

³⁶⁵ Carlson, “Oral Question Period, Rural Economy,” in Legislative Assembly of Alberta, Wednesday, March 24, 2004 in Province of Alberta, The 25th Legislature, Fourth Session, *Alberta Hansard*, vol. II (March 29 to May 13, 2004), 677.

³⁶⁶ Former Minister (2C-AB), Interview with the Author, December 21, 2007.

November of 2000, when the province announced the SuperNet, Minister of Innovation and Science Taylor, who was responsible for the project, noted, “It represents the Alberta advantage of the 21st century.... This will be revolutionary for Alberta’s economy.”³⁶⁷

The Minister also noted that the province hoped to create a fiber optic link with Silicon Valley and move high technology jobs to the province.³⁶⁸ Over time, Ministers still spoke of the network’s role in renewing Alberta’s economy and providing opportunities for all Albertans in the knowledge economy.³⁶⁹ Despite this, however, the focus turned to social service delivery, where rural and small-town residents generally were relegated to the role of recipients. These are not unrelated or mutually exclusive options, but the long debates around social service costs in the Legislature eclipsed discussion of the problems related to the economic development goal. This left an early champion of the project to derisively call it a “big government social network” because the “vision isn’t out there.”³⁷⁰

By the completion of the SuperNet in 2005, representatives from Restructuring and Government Efficiency publicly noted several reasons for the network’s creation: providing more bandwidth for the government, enabling electronic service delivery, facilitating the economic growth of rural areas, and creating a “level playing field with urban communities” for those in rural areas.³⁷¹ On this list, the Minister prioritized

³⁶⁷ Mahoney, “Superfast Network to Cover Alberta.”

³⁶⁸ Ibid.

³⁶⁹ Elsalhy and Doerksen, “Oral Question Period, SuperNet,” in Legislative Assembly of Alberta, Monday, March 21, 2005 in Province of Alberta, The 26th Legislature, First Session, *Alberta Hansard*, vol. I (March 1 to April 7, 2005), 461; Doerksen, “Oral Question Period: Alberta SuperNet,” in Legislative Assembly of Alberta, Thursday, May 1, 2003 in Province of Alberta, The 25th Legislature, Third Session, *Alberta Hansard*, vol. II (March 25 to May 1, 2003), 1374.

³⁷⁰ Former Minister (2C-AB), Interview with the Author, December 21, 2007.

³⁷¹ Dennis Mudryk at the SuperNet Opportunities Conference in Calgary, Alberta, Canada, June 21, 2006.

government and social services above economic development. At the SuperNet Opportunities Conference, the Minister of Restructuring and Government Efficiency told a version of the origin story. As he related the story, bringing a high speed, high capacity network to the province's schools, libraries, and health care centers was an addition to the original plan of fulfilling the government's communication needs. High-speed internet for rural dwellers was a tertiary concern of the department, but it was primary for economic development.

Champions of the project provided little specific detail about how the SuperNet and broadband access would bring economic development opportunities to rural areas. The champions were, however, very clear that the network had an array of important benefits to service delivery. Concrete mentions of what the new economic opportunities would and could look like were few and far between. Early, before the dotcom crash, there was the proposal that jobs could come from Silicon Valley to take advantage of the SuperNet and Alberta's lower cost of living. Over time, Ministers suggested starting up an ISP and telework opportunities as ways to enhance economic opportunities in rural areas.³⁷² Also, a network manager at Restructuring and Government Efficiency raised the possibility of locating call centers in rural Alberta.³⁷³ By 2006, however, the Minister of Economic Development suggested using Albertans as subjects for clinical drug trials via the SuperNet.³⁷⁴ These uninspired suggestions for new opportunities led

³⁷² Lord, "Members' Statements, Telework," in Legislative Assembly of Alberta, Thursday, March 25, 2004 in Province of Alberta, The 25th Legislature, Fourth Session, *Alberta Hansard*, vol. I (February 17 to March 25, 2004), 709.

³⁷³ Network Manager, (1C-AB), Interview with the Author, November 9, 2006.

³⁷⁴ Dunford, "Oral Question Period," in Legislative Assembly of Alberta, Tuesday, March 14, 2006 in Province of Alberta, The 26th Legislature, Second Session, *Alberta Hansard*, vol. I (February 22 to March 23, 2006), 401.

Taft to ask, “I’d be curious to know beyond simple buzzwords how exactly the Supernet will make Albertans more competitive in the world marketplace. What’s the direct tie between that \$50 million expenditure and the goal of making Alberta more competitive? I’m not sure that it holds up if you become critical on the buzzwords.”³⁷⁵

Critics picked up on the noticeable lack of concrete objectives. Progressive Conservative legislators believed that the SuperNet project illustrated the government’s forward thinking vision, the Liberal Opposition members argued that the government’s economic development programs showed short-sightedness and a lack of vision.³⁷⁶

Norris, the Minister of Economic Development, disagreed. He noted that the government had a plan, called “Get Ready Alberta” that discussed the need for higher education, skill level maintenance for Alberta employees, and ensuring that the necessary technology was available.³⁷⁷ Carlson criticized these as “starting points” rather than as goals to achieve.³⁷⁸ The Minister of Economic Development noted in reply that the SuperNet itself is a 5, 10 and 15-year program as it is “an absolutely dynamic economic development tool. This brings world-class information to any neighbourhood in Alberta.”³⁷⁹

³⁷⁵ Taft, “Committee of Supply, Main Estimates,” in Legislative Assembly of Alberta, Tuesday, May 22, 2001 in Province of Alberta, The 25th Legislature, First Session, *Alberta Hansard*, vol. II (May 14 to November 15, 2001), “big picture” from 722 and long quotation from 721.

³⁷⁶ Carlson, “Committee of Supply: Main Estimates 2002-03,” in Legislative Assembly of Alberta, Wednesday, April 10, 2002 in Province of Alberta, The 25th Legislature, Second Session, *Alberta Hansard*, vol. I (February 26 to April 11, 2002), 625.

³⁷⁷ Norris, “Committee of Supply: Main Estimates 2002-03,” in Legislative Assembly of Alberta, Tuesday, April 10, 2002 in Province of Alberta, The 25th Legislature, Second Session, *Alberta Hansard*, vol. I (February 26 to April 11, 2002), 626.

³⁷⁸ Carlson, “Committee of Supply: Main Estimates 2002-03,” in Legislative Assembly of Alberta, Tuesday, April 10, 2002 in Province of Alberta, The 25th Legislature, Second Session, *Alberta Hansard*, vol. I (February 26 to April 11, 2002), 635-636.

³⁷⁹ Norris, “Committee of Supply: Main Estimates 2002-03,” in Legislative Assembly of Alberta, Tuesday, April 10, 2002 in Province of Alberta, The 25th Legislature, Second Session, *Alberta Hansard*, vol. I (February 26 to April 11, 2002), 635-636.

While the government prided the SuperNet originator with a “great, great vision,”³⁸⁰ there were important ramifications of having grand visions and little concrete, practical information. The absence of conversations with potential users and the government’s lack of realism about the budgets of small organizations and the constraints that SuperNet connections would place on these budgets left the government unaware that many organizations would not be able to profit from the SuperNet.

Some legislators argued that while the government was visionary by developing the network, those who failed to use it or support it were lacking in vision. This was a damaging belief because rather than allow the government to provide a corrective to the problem, it simply downloaded the issue onto small organizations. This conception forecloses on a host of issues and problems, such as barriers to use, as will be discussed in the next chapter. Once SuperNet service was available, take-up of SuperNet connections failed to meet government expectations. The Legislature heard of organizations and entities reluctant to pay for a SuperNet connection, because they were unable to see the benefits to their organization. Ouellette chalked this up to a lack of understanding on the part of the organizations,

When you talk about libraries that say to you – and I have municipalities telling me the same thing, You’ve got to remember that their train of thought hasn’t been geared yet to what the capabilities of that SuperNet connection are. They don’t know yet what applications they want to run on it, but they could run all kinds of applications on that SuperNet access that they can’t run on their ShawCable or whatever they’re getting their old high-speed Internet on. Maybe all they’ve got now is high-speed Internet. Maybe they think that’s all they need and maybe it is, but if they did a little broader thinking and thought of different applications they

³⁸⁰ Ouellette, “Committee of Supply, Main Estimates 2006-07, Restructuring and Government Efficiency,” in Legislative Assembly of Alberta, Tuesday, May 9, 2006 in Province of Alberta, The 26th Legislature, Second Session, *Alberta Hansard*, vol. III (May 8 to August 31, 2006), 1418.

could use, they could build that small-town library into a lot bigger business for them to make their library actually survive. That's where they make up the difference in cost, going from \$1,000 to \$1,800. So a lot of it is that *they just don't realize yet, because they haven't been educated*, the application capabilities that they have by using the SuperNet connection rather than using the other connection.³⁸¹

For Ouellette, an organization's unwillingness to connect to the SuperNet came from their inability to envision what it could do for them. It was an organization's failure that they were not as visionary as the government had been. He chalked it up to a lack of education on the potential users' part, but interestingly, Ouellette did not mention who was responsible for educating small organizations about the usefulness of a SuperNet connection. A network manager from the government stated that companies that do not realize the economic potential of SuperNet to their businesses and people who laugh at the project "are not visionaries."³⁸²

For one former Minister, the central flaw of the SuperNet project is that its budget did not provide funds for educating the public about the network's possibilities. A Minister involved with the project noted, "I assumed it would be obvious to people what to do. [The Ministry of Science and Innovation] didn't have money in the budget to educate rural Albertans about what it could do." This was, he stated, his "biggest mistake." He argues that the Ministry conceived of the network primarily as an economic development tool but it had largely become a "big government social network" because the "vision isn't out there." He said that the network is "not being used as an

³⁸¹ Emphasis mine. Ibid., 1410.

³⁸² Network Manager, Restructuring and Government Efficiency (1C-AB), Interview with the Author, November 9, 2006.

economic development tool.”³⁸³ He reflected that had the budget included more monies for public relations and education of rural citizens, people may have used the SuperNet for economic development.

From Innovation to Efficiency

One issue that potentially impacted the SuperNet was the cabinet changes that the project went through. Originally, Lorne Taylor, the Minister of Innovation and Science, conceived of the idea. Then, Taylor changed cabinet positions to Minister of the Environment and the Premier replaced him with Victor Doerksen. Doerksen oversaw the contract process and the build. In 2004, however, the Premier removed the partially completed SuperNet from the portfolio of Science and Innovation and gave it to the newly created Ministry of Restructuring and Government Efficiency.³⁸⁴ This move was an important one for the project as the two ministries’ mandates were substantially different. The move marks the moment when the SuperNet largely became engulfed in existing government bureaucracy and also illustrates the government’s confusion over the grand vision for the network. This Ministry was new, constructed from other pieces of government and its focus was on efficiency and not innovation. The move and the new Ministry bewildered the Progressive Conservatives and Opposition members alike. The new Ministry’s mandate was to increase efficiency in the government, thus saving money. Critics, however, questioned the new Ministry’s existence and charged that by creating a new department, the government was spending money unnecessarily, a great

³⁸³ Former Minister, Ministry of Science and Innovation, (2C-AB), Interview with the Author, December 21, 2007.

³⁸⁴ “SuperNet,” in Legislative Assembly of Alberta, Tuesday, March 8, 2005 in Province of Alberta, The 26th Legislature, First Session, *Alberta Hansard*, vol. I (March 1 to April 7, 2005), 88.

change from the lean government of the initial Klein years when the Premier decreased the cabinet size in an attempt to end big government.³⁸⁵ The logic of putting the SuperNet into Restructuring and Government Efficiency centered on the network's role as "the king of electronic efficiencies."³⁸⁶ If the government employed the network to its fullest, the SuperNet could electronically provide a multiplicity of services to Albertans. Since the government saw the SuperNet as an infrastructure that could increase the efficiency of a host of government departments, the network was put into a Ministry designed to restructure government and introduce efficiency across government departments.

By 2007, the administration of the SuperNet again changed departments. The government moved the completed network from the Ministry of Restructuring and Government Efficiency to the new Ministry of Service Alberta, a department that provides services both to Albertans and the government and also oversees human

³⁸⁵ Taft, Ouellette, and Klein, "Oral Question Period, Restructuring and Government Efficiency," in Legislative Assembly of Alberta, Wednesday, March 16, 2005 in Province of Alberta, The 26th Legislature, First Session, *Alberta Hansard*, vol. I (March 1 to April 7, 2005), 244; MacDonald, "Order of the Day, Committee of Supply," in Legislative Assembly of Alberta, Wednesday, March 16, 2005 in Province of Alberta, The 26th Legislature, First Session, *Alberta Hansard*, vol. I (March 1 to April 7, 2005), 255; Elsalhy, "Main Estimates 2006-07," in Legislative Assembly of Alberta, Wednesday, April 5, 2006 in Province of Alberta, The 26th Legislature, Second Session, *Alberta Hansard*, vol. II (April 3 to May 4, 2006), 755; Martin, "Committee of Supply, Main Estimates 2005-06, Restructuring and Government Efficiency," in Legislative Assembly of Alberta, Wednesday, April 13, 2005 in Province of Alberta, The 26th Legislature, First Session, *Alberta Hansard*, vol. II (April 11 to May 3, 2005), 756; Ouellette, "Committee of Supply, Main Estimates 2006-07, Restructuring and Government Efficiency," in Legislative Assembly of Alberta, Tuesday, May 9, 2006 in Province of Alberta, The 26th Legislature, Second Session, *Alberta Hansard*, vol. III (May 8 to August 31, 2006), 1411; Chase, "Committee of Supply, Main Estimates 2006-07, Restructuring and Government Efficiency," in Legislative Assembly of Alberta, Tuesday, May 9, 2006 in Province of Alberta, The 26th Legislature, Second Session, *Alberta Hansard*, vol. III (May 8 to August 31, 2006), 1414; Martin, Blakeman, Hinman, Ouellette, "Committee of Supply, Main Estimates 2006-07, Restructuring and Government Efficiency," in Legislative Assembly of Alberta, Tuesday, May 9, 2006 in Province of Alberta, The 26th Legislature, Second Session, *Alberta Hansard*, vol. III (May 8 to August 31, 2006), 1412.

³⁸⁶ Chase, "Committee of Supply, Main Estimates 2006-07, Restructuring and Government Efficiency," in Legislative Assembly of Alberta, Tuesday, May 9, 2006 in Province of Alberta, The 26th Legislature, Second Session, *Alberta Hansard*, vol. III (May 8 to August 31, 2006), 1415.

resource management. Within Service Alberta's structure, the SuperNet is housed under providing services to government.³⁸⁷ This location on the website illustrates that the project, post construction, has settled primarily into a service role in providing service to a variety of government departments.

The SuperNet portfolio's movement from a Ministry whose mandate was to develop science and innovation opportunities to ministries focused on the provision of services is perhaps indicative of the government's changing vision for the project. In Innovation and Science, the project had the possibility of helping Albertans find new and innovative ways to interact with the knowledge economy (if one believes the hype) but in Restructuring and Government Efficiency and Service Alberta, the mandates of the project seem to turn into the efficient (expanded and less costly) delivery of services using the network for Albertans and government departments. The ministerial shuffling of SuperNet, therefore, is indicative of a changing vision rather than simply a bureaucratic transition.

This chapter focused on the political processes surrounding the SuperNet development, from the perspective of the project's initiators and government representatives. This provides a case study of how a government decided to end the digital divide in the post-regulatory moment. The government decided to undertake the construction of a fiber optic network in conjunction with two private partners. The government contracted out the project and treated it as an infrastructure build. Government ministers did not consult the public. As construction began, Opposition

³⁸⁷ Snelgrove, "Committee of Supply, Main Estimates 2007-08," in Legislative Assembly of Alberta, Tuesday, May 29, 2007 in Province of Alberta, The 26th Legislature, Third Session, *Alberta Hansard*, 1363-1364.

MLAs, aware that this was a communications network rather than a pipeline, raised questions about the lack of public deliberation and about the decisions the government made. Additionally, the lack of public deliberation and a policy process led to little sense of how to implement the vision among the legislators and among the public. In theory, the government acted to help extend high-speed telecommunication services to rural dwellers. The next chapter explores whether the SuperNet solution met the needs of the citizens and the way it was intended to serve. To do this, the chapter examines the reception of the SuperNet in three rural counties in Alberta from the perspective of small communities, small organizations, local internet service providers, and rural people. The focus switches from the machinations of the government and bases the study in the local.

CHAPTER THREE

“It’s Here But it Isn’t Really Available to Everybody”³⁸⁸: Connecting to the High Speed Network and High Speed Internet in Rural Alberta

The county’s literacy coordinator walked down the hallway to her former office at the back of the Learning Center. Affixed to the wall was a sticker that read, “Space reserved for Alberta SuperNet.”³⁸⁹ The sticker was attached in 2003 without the literacy coordinator’s knowledge, although it was affixed in her office. Beside the sticker is the SuperNet Edge Device, a router that transports traffic between computers and a centralized point of presence that government contractors later installed. Workers placed it over her desk, at a height where she would “smack [her] head on it” when she got up.³⁹⁰ Over a period of two years, workers came sporadically to install equipment, dig holes, and inspect the work. It was, according to the coordinator, “the classic government work...teams and teams and teams and teams of people coming through to get this infrastructure in place.” The installation was complete in 2005 and the coordinator notes, “it hummed away and annoyed me.”³⁹¹ The coordinator moved offices and the router hummed for months in the back office while the center had no information about what to do with it; leaving the center unable to connect to the SuperNet. Rather than using the new service, the coordinator noted they kept their high-speed internet service provider.

³⁸⁸ Village Administrator (8B-AB), Village 5, Central County, Interview with the Author, November 30, 2006.

³⁸⁹ Literacy Coordinator, Central County Community Adult Learning Office (1B-AB), Town 2, Central County, Interview with the Author, October 25, 2006.

³⁹⁰ Administrative Coordinator, Central County Community Adult Learning Office (2B-AB), Town 2, Central County, Interview with the Author, October 31, 2006.

³⁹¹ Literacy Coordinator, Central County Community Adult Learning Office (1B-AB), Town 2, Central County, Interview with the Author, October 25, 2006.

As a non-accredited learning facility, the center was ineligible for original government subsidies to help with the costs of connecting to the network. The center could not afford to activate the SuperNet and the Learning Center's board decided not to connect.³⁹² The hum eventually became too much to bear and the learning center's office administrator notes "we unplugged it. We made an executive decision that we weren't at that point using it...well, we didn't think we'd even be able to afford to go on it."³⁹³ With this, even the hum was silenced. The administrator plugged the router in again because a representative from Axia called to ask why they could not communicate remotely with the edge device. The administrator noted, "So I got the phone call going, 'ok, it should be working, we're not sure why it isn't. Can you go check'...and that's when I remembered that we unplugged it." She continued, "we plugged it in and everything's fine. And he encouraged me to make sure that it didn't get unplugged again."³⁹⁴ Eventually, with new subsidies in place, the board voted to connect to the network. The administrator researched ISPs, finding that many did not serve the region or did not have small service packages, and many proposals arrived in "computer geek language that made no sense."³⁹⁵ In late 2006, the center signed a contract with a small ISP, whose proposal the administrator said "came in English," and had their building wired for SuperNet by a local computer service person.³⁹⁶ Although the learning center is now connected to the network, the center is "using it as a glorified internet connection" because they are "still trying to raise funds" for video conferencing equipment. The

³⁹² Administrative Coordinator, Central County Community Adult Learning Office (2B-AB), Town 2, Central County, Interview with the Author, October 31, 2006.

³⁹³ Ibid.

³⁹⁴ Ibid.

³⁹⁵ Ibid.

³⁹⁶ Ibid.

learning center staff remains hopeful that once they jump over all of the hurdles, they can use videoconferencing over the SuperNet to provide academic upgrading, university courses, and trades apprenticeships online.³⁹⁷ Until they have the equipment, the literacy coordinator stated, the SuperNet “doesn’t make any difference” to the center.³⁹⁸ For now, the router is plugged in, installation is complete, and they are getting faster internet service than they had from their previous provider, but because they cannot afford the video conferencing equipment, the SuperNet router is again nearly silent except for its incessant hum.

The above anecdote forces the question of why people and organizations use the SuperNet far less than the government and its private partners anticipated? It also leads to the query of why the SuperNet elicits so much annoyance from a variety of different constituencies? While the SuperNet network project is insightful and in theory it will benefit rural people substantially, serious challenges in implementation have kept rural Albertans from reaping the network’s benefits. The anecdote above illustrates well the three main challenges that organizations faced in connecting to the SuperNet: the lack of communication from the SuperNet partners, the costs that are beyond the reach of small organizations’ budgets, and the difficulty finding a service provider to serve them.

In 2000, communication scholar Sharon Strover argued that telecommunications policy makers have not adequately looked at connectivity from the subscribers’ points of view. She notes that the “vendor bias” in telecommunications policy best illustrates this point. Telecommunications policy makers use the phrase “the last mile” to describe

³⁹⁷ Career Consultant and Board Member, Central County Community Adult Learning Office (3B-AB), Town 2, Central County, Interview with the Author, November 1, 2006.

³⁹⁸ Literacy Coordinator, Central County Community Adult Learning Office (1B-AB), Town 2, Central County, Interview with the Author, October 25, 2006.

connections to subscribers' homes rather than her preferred label, the first mile, which highlights the subscribers' experiences. Strover notes that policy makers failed to "appreciate first mile issues" as they prepared the 1996 Telecommunications Act and that policy makers need to consider these issues.³⁹⁹ She argues "first mile issues" are,

how connectivity looks, feels, and behaves from the subscriber's perspective. For the subscribers, connectivity is not just merely a stretch of wire but an important connection that takes us out to a broader world. It encapsulates the network interface devices, the software, and the training. How much the entire package costs, what it is capable of, how we can use it, and what control we have over its component parts raise some critical issues. I suggest that the first mile is actually more than a set of connectors and cables. It is the sum total of the capabilities that extend users into the networked nation.⁴⁰⁰

Extending users into the networked nation was precisely what the SuperNet partners sought to do, but whether the partners considered the subscribers' perspective is another matter. The Minister of Restructuring and Government Efficiency, Luke Ouellette, adopted the language of the "first mile" noting in 2006 that while high-speed internet in homes was "usually called the last mile," he preferred to call it the first mile because of the "opportunities" it brought.⁴⁰¹ Focusing solely on opportunities provided misses rural people's point of view and suggests that notwithstanding "first mile" rhetoric, the partners' focus was on the supply side, because without the corresponding and required

³⁹⁹ More recent discussion, such as those surrounding President Obama's 2009 broadband stimulus package are also largely devoid of subscribers' perspectives. For example, the CITI and Georgetown Center for Business and Public Policy conference, "Implementing the Broadband Stimulus: Maximizing Benefits and Monitoring Performance," an event held on February 19, 2009, in Washington, D.C., fell into this category. Academics, policy makers, organizations, corporations, and the press gathered to discuss and analyze the package, but little came from the subscribers' points of view.

⁴⁰⁰ Sharon Strover, "The First Mile," *The Information Society* 16 (2000): 151.

⁴⁰¹ Luke Ouellette, "Introductions," Remarks to Open the SuperNet Opportunities Conference, Calgary, Alberta, Canada, June 21, 2006.

knowledge and skills people cannot take up and create opportunities. This chapter explores first mile issues in regard to the SuperNet.

The previous chapter explored the genesis and development of the Alberta SuperNet project and the services it brings to schools, libraries, health care facilities, municipal offices, and provincial offices. Also, it looked at the developers' hope that the SuperNet, by allowing all internet service providers to buy bandwidth for standard prices, would make high-speed internet service universally accessible to Albertans, thus ending the rural-urban digital divide.

To fully explore the demand side of the SuperNet, this chapter must take into account the two facets of the SuperNet: first, adoption of, and interconnection to, the SuperNet intranetwork among organizations, including municipal offices, health care centers, schools, libraries, and other organizations and second, the individual adoption of high-speed internet among rural dwellers. It is necessary also to consider a third facet; the individual and local solutions to the lack of internet service providers. In *Diffusion of Innovations*, Everett M. Rogers makes a distinction that aligns well with SuperNet adoption by organizations and high-speed internet take up by individuals. Rogers and the diffusion of innovations tradition explore the processes by which new practices and objects are adopted into the everyday life of a social group or a society. His work found that innovations are adopted incrementally, by different people in the group at different times, based on characteristics of the adopters. He notes that there are two types of

innovation decisions, where an entire system either adopts or rejects an innovation or an individual member of a system adopts or refuses an innovation.⁴⁰²

The first instance, Rogers' concept of the adoption of an innovation by an entire system, helps to explain several parts of the SuperNet project. It explains the decision to implement the SuperNet project in general, clarified by Rogers' idea of "authority innovation decisions." Second, Rogers' "*collective* innovation decisions" helpfully clarifies the take up of the network among small organizations.⁴⁰³ According to Rogers, "*Authority innovation-decisions* are choices to adopt or reject an innovation that are made by a relatively few individuals in a system who possess power, status, or technical expertise. An individual member of the system has little or no influence in the authority innovation-decision; he or she simply implements the decision once it is made by an authority."⁴⁰⁴ The decision to construct and implement the SuperNet project initially was an authority innovation decision made by Alberta's Ministry of Innovation and Science. The government was also responsible for the identification of the "stakeholder groups" that would receive SuperNet service, referred to by the acronym "GLHLM" that stood for Government, Library, Health, Learning, and Municipalities. Provincial departments, specifically education, health, and community development then made authority innovation decisions that all schools, health centers, and libraries would use the network because the government paid for the installation and monthly service fees.⁴⁰⁵ For

⁴⁰² Everett M. Rogers, *Diffusion of Innovations*, Fifth ed. (New York: Free Press, 2003), 28.

⁴⁰³ Ibid.

⁴⁰⁴ Ibid., 28-29.

⁴⁰⁵ In 2004, the Minister of Learning stated that the department planned to fund the SuperNet for "the next 20 to 30 years" as a way to assist in rural education. Oberg, "Oral Question Period: Rural Education" in Legislative Assembly of Alberta, Wednesday, March 24, 2004 in Province of Alberta, The 25th Legislature, Fourth Session, *Alberta Hansard*, vol. II (March 29 to May 13, 2004), 764.

organizations less tightly connected to the government, including municipalities and other organizations that could sign up to use the SuperNet, Rogers' "collective innovation decisions" apply. These are decisions where the members of a system reach consensus to adopt an innovation, in this case the SuperNet. In these instances, organizations and their staff decided whether to use the SuperNet. In some cases, organizations embraced the new innovation and built additional infrastructure to maximize both affordability and use. Some municipal entities chose to take the technology given to them and build upon it so that it would better serve their constituents' needs. In other instances, organizations felt they did not receive adequate provincial funding to connect, and the decision to adopt the SuperNet was not easily made. In these cases, the SuperNet edge devices sit unused in municipal offices because the entities chose not to use the SuperNet connection that the government installed. In Rogers' other set of innovation decisions, the "optional innovation decisions," individuals "independent of other members of the system" decide to accept or reject an innovation, possibly with influence from communication with others or the norms of the community.⁴⁰⁶ The optional innovation decision idea can be used to explore the case of individual adoption of high-speed internet by farmers and their families.

Rural Organizations and the SuperNet

This section explores three major challenges organizations faced connecting to the SuperNet and/or high-speed internet in rural Alberta: first, what small organizations perceived as a lack of communication from the government and the SuperNet partners

⁴⁰⁶ Rogers, *Diffusion of Innovations*, 28.

about the network and its benefits; second, a pricing structure that is “cost prohibitive” to small organizations; and third, some internet service providers’ lack of interest or lack of financing to serve small communities. This section uses fieldwork findings to explore these three challenges in detail. The anecdote at the start of this chapter thickly and richly illustrates one organization’s challenges and frustrations of connecting to the SuperNet.

While this chapter explores challenges that organizations encounter when connecting to the network and rural individuals face when looking for a high-speed internet provider in their area, it is important to note that the SuperNet is a unique project with many possibilities for rural areas. Before the SuperNet became available, high-speed internet was not available in all regions of the province.⁴⁰⁷ Only 30 cities and towns had high-speed internet access, just below seven per cent of the 429 settlements in the province. Some organizations and many individual homes, discussed in the following section, relied on dial-up internet directly before the SuperNet came.⁴⁰⁸ Dial-up speeds in the county, regardless of the modem used, were often only five to 20 Kbps.⁴⁰⁹

⁴⁰⁷ Jill Mahoney, “Superfast Network to Cover Alberta; Plan for Provincewide High-Speed Internet; Aimed to Attract Technology Industry,” *The Globe and Mail* (Canada), National Edition (Friday, November 3, 2000): A3; “Alberta SuperNet Packs Power,” Alberta SuperNet, “Harnessing the SuperNet Advantage,” Advertising Supplement (n.d.): 3; “Province Launches High-Speed Internet Project,” *CBC News* (Thursday, November 2, 2000), URL: <http://www.cbc.ca/news/story/2000/11/02/hisped001102.html> (accessed December 14, 2006); Paul Marck, “Galahad Gets Up to Speed, Alberta SuperNet Gives Even the Tiniest Villages a 21st Century Pipeline to a World of Information,” *The Edmonton Journal* (Friday, March 17, 2006).

⁴⁰⁸ These included Librarian (5B-AB), Town 4, Central County, Interview with the Author, November 22, 2006; Representative, Town Office (12B-AB), Town 3, Central County, Interview with the Author, December 8, 2006; Village Administrator (8B-AB), Village 5, Central County, Interview with the Author, November 30, 2006.

⁴⁰⁹ General Manager, Automotive Dealership (1E-AB), Town 4, Central County Interview with the Author, November 15, 2006; Rural Dweller (6D-AB), South County, Interview with the Author, November 21, 2006.

As communication scholars Sharon Strover, Gary Chapman, and Jody Waters note “technological optimism” characterizes computer and internet movements. This is “the belief that computer/Internet access and expertise can provide transformative powers to the individual.”⁴¹⁰ In the case of the SuperNet, the partners envisioned changing people’s lives as services improved and economic development opportunities arose. A director in the Ministry of Restructuring and Government Efficiency illustrated this optimism when he noted that access to high-speed internet across the province “starts to break down the digital divide” and it “stimulates the economic development of rural areas.”⁴¹¹ The network’s website lauds these opportunities. A posting quotes the Chairman of the economic development alliance for the region under study. He notes, “SuperNet will help put rural Alberta on an equal footing with the larger urban centers. SuperNet could mean the long-term survival of areas like east central Alberta. [Our alliance’s] goal is to be an active player in achieving this initiative.”⁴¹² From this perspective, there are a host of possibilities for the region, including attracting new businesses and providing increased educational opportunities for residents because according to Minister Doerksen, “connected communities are all the same size.”⁴¹³ At the same time, organizations need to be connected before reaping the benefits. It is true that many are; nearly all of the county’s schools, seven of the eight libraries, and all of

⁴¹⁰ Sharon Strover, Gary Chapman, Jody Waters, “Beyond Community Networking and CTCs: Access, Development, and Public Policy,” *Telecommunications Policy*, 28 (2004): 466.

⁴¹¹ Executive Director, Network Services, Ministry of Restructuring and Government Efficiency, Government of Alberta (1C-AB), Interview with the Author, November 9, 2006.

⁴¹² Wendall Warman, Chairman, BRAED Alliance (Battle River Alberta Economic Alliance), quoted on the News Archive page of the Alberta SuperNet website, URL: <http://www.albertasupernet.ca/the+project/news/default1.htm> (accessed May 24, 2007).

⁴¹³ Doerksen, “Oral Question Period: Telework,” in Legislative Assembly of Alberta, Monday, April 19, 2004, in Province of Alberta, The 25th Legislature, Fourth Session, *Alberta Hansard*, vol. II (March 29 to May 13, 2004): 861.

the public medical facilities have operational SuperNet connections.⁴¹⁴ These organizations note that they are very satisfied with their service. At the same time, there are organizations that remain unconnected including one library, all ten of the town and village offices, and the county office. Additionally are the organizations that had significant difficulties connecting up, including the county's learning center. Other organizations, such as a county family and community services office, did not even consider signing up due to the prohibitive cost and because the SuperNet representatives had no literature to leave with the director. She stated representatives dropped by and asked if the center was interested in connecting, but they had nothing to leave with her about the network.⁴¹⁵

Major Challenge One: Lack of Communication

The first challenge is what small organizations perceived as the government's lack of communication about the network and its benefits. Most of the organizational interviewees noted they initially learned of the SuperNet through their place of employment (six) or through the media (five).⁴¹⁶ Four people recalled hearing of it

⁴¹⁴ Only four schools remain unconnected to the SuperNet; all of these are Hutterite schools. The Hutterites decided not to get SuperNet connections at their schools. Although the network interested some colonies and they wanted the fiber optic cable dug in but not connected, the colonies' religious leader decided against it. The Hutterite colonies did succumb to some modern technology, however. The financial manager of a local colony transferred my phone call to the minister's house. The reclusive Hutterites, therefore, adopted telephone technology. Director of Technology, Regional School Division (20B-AB), Interview with the Author, December 15, 2006.

⁴¹⁵ Director, Central County Family and Community Services Office, Personal Communication with the Author, November 14, 2006.

⁴¹⁶ Interviewees that learned about the SuperNet through work: Administrative Coordinator, Community Adult Learning Office (2B-AB), Town 2, Central County, October 31, 2006; Librarian (4B-AB), Town 3, Central County, Interview with the Author, November 7, 2006; Librarian (5B-AB), Town 4, Central County, Interview with the Author, November 22, 2006; Librarian (13B-AB), Village 6, Central County, Interview with the Author, December 8, 2006; Chief Administrative Officer (18B-AB), Town 2,

through word of mouth or around town.⁴¹⁷ Finally, four recalled originally hearing about the SuperNet from the government directly or from government information.⁴¹⁸

Interviewees faulted the government and the SuperNet partners with not giving them enough information about the project and where it would connect, what it was capable of, how much their organizations would have to pay for access, and what the equipment installed on their premises would do.

At the SuperNet Opportunities Conference in 2006, a representative from a southern Alberta county remarked that all the government said was the SuperNet is coming; they did not say how, or for how much money. He compared it to building a highway, but not telling people where the road goes.⁴¹⁹ The literacy coordinator noted that the government's "biggest mistake" was not selling people on the idea.⁴²⁰ The learning center's administrative coordinator noted, "it was so poorly presented that

Central County, Interview with the Author, December 14, 2006; Principal, School (19B-AB), Village 3, Central County, Interview with the Author, December 14, 2006. Interviewees that learned about the SuperNet through the media: Librarian (6B-AB), Village 3, Central County, Interview with the Author, November 23, 2006; Chief Administrative Officer (10B-AB), Village 3, Central County, Interview with the Author, December 1, 2006; Representative, Town Office (12B-AB), Town 3, Central County, Interview with the Author, December 8, 2006; Administrator (17B-AB), Village 4, Central County, Interview with the Author, December 14, 2006; Principal, School (19B-AB), Village 3, Central County, Interview with the Author, December 14, 2006.

⁴¹⁷ Career Consultant and Board Member, Central County Community Adult Learning Office (3B-AB), Town 2, Central County, November 1, 2006; Literacy Coordinator, Central County Community Adult Learning Office (1B-AB), Town 2, Central County, October 25, 2006; Village Administrator (8B-AB), Village 5, Central County, Interview with the Author, November 30, 2006; Chief Administrative Officer (15B-AB), Town 1, Northern County, Interview with the Author, December 13, 2006.

⁴¹⁸ Health Region Representative (11B-AB), Interview with the Author, December 6, 2006; Director of Technology, Regional School Division (20B-AB), Interview with the Author, December 15, 2006; Representative, Town Office (12B-AB), Town 3, Central County, Interview with the Author, December 8, 2006; Administrative Assistant (16B-AB), Town 1, Central County, Interview with the Author, December 13, 2006.

⁴¹⁹ Forty Mile County Representative, Question and Answer Period, "Public Consultation," Panel Session 3, Day 2, SuperNet Opportunities Conference, Calgary, Alberta, Canada (Wednesday, June 21, 2006); Administrative Coordinator, Community Adult Learning Office (2B-AB), Town 2, Central County, October 31, 2006 echoed this sentiment also.

⁴²⁰ Literacy Coordinator, Central County Community Adult Learning Office (1B-AB), Town 2, Central County, Interview with the Author, October 25, 2006.

nobody really understood what it would do for them....”⁴²¹ A librarian from a small town mirrored this issue when she stated that small communities were left wondering, “The SuperNet, it’s here, [but] what do we do with it?” She criticized the partners for only providing the infrastructure and not the services, like internet, noting they “didn’t really think about the end user.”⁴²² Organizations did not receive information that would allow them to understand what opportunities it could bring; some interviewees lamented the lack of practical applications, steps to take, and advice on how to proceed.⁴²³ Small organizations received the basic equipment from the government, but they did not also receive a sound understanding of how to use the network and what possibilities it could offer. One argued that the government’s information about the network was an “afterthought.”⁴²⁴ A representative of the Ministry of Restructuring and Government Efficiency, the government body responsible for the SuperNet project, confirmed that initial communication was absent. She noted that the Ministry did not begin to focus on educating people about the network’s benefits until the partners finished construction.⁴²⁵ Some organizations had equipment installed more than a year before completion of the network. Eight months after the government announced the network was complete in fall of 2005, it held the first public conference on SuperNet opportunities. It frustrated people to have the equipment, but not know how to use it.

⁴²¹ Administrative Coordinator, Central County Community Adult Learning Office (2B-AB), Town 2, Central County, Interview with the Author, October 31, 2006.

⁴²² Librarian (6B-AB), Village 3, Central County, Interview with the Author, November 23, 2006.

⁴²³ Administrative Coordinator, Central County Community Adult Learning Office (2B-AB), Town 2, Central County, Interview with the Author, October 31, 2006; Literacy Coordinator, Central County Community Adult Learning Office (1B-AB), Town 2, Central County, Interview with the Author, October 25, 2006.

⁴²⁴ Administrative Coordinator, Central County Community Adult Learning Office (2B-AB), Town 2, Central County, Interview with the Author, October 31, 2006.

⁴²⁵ Executive Director, Network Services, Ministry of Restructuring and Government Efficiency, Government of Alberta (1C-AB), Interview with the Author, November 9, 2006.

A minority of interviewees argued that rural residents and organizations should accept at least some of the responsibility for not learning about the network. One interviewee, a learning center board member and a representative at the SuperNet Opportunities Conference, noted that many communities in her county and in other rural areas did not send representatives to the conference, even though the government paid for the registration fees. She expressed frustration that the SuperNet did not interest every town and county and argued that more excitement about the network in her community could have resulted from greater representation at the conference. She admitted, however, that the lack of interest in the conference partly stemmed from the fact that “one of the things that maybe the government hasn’t done very well at is sell the program...they haven’t sold it widely enough.”⁴²⁶

The partners’ lack of communication left organizations with an incomplete understanding of the network and what it would do. One town administrator admitted that when she learned about the SuperNet, she thought it sounded like a “science fiction thing,” a comment that illustrates the partners did not adequately inform and educate people, some of whom were neither knowledgeable about current computing and information technology nor about what the province was building.⁴²⁷ A learning center administrative coordinator and rural resident from the southern county noted that the “SuperNet is cyberspace.”⁴²⁸ The former administrator’s admission shows that she was

⁴²⁶ Career Consultant and Board Member, Central County Community Adult Learning Office (3B-AB), Town 2, Central County, Interview with the Author, November 1, 2006. 35 minutes.

⁴²⁷ Village Administrator (8B-AB), Village 5, Central County, Interview with the Author, November 30, 2006; Literacy Coordinator, Central County Community Adult Learning Office (1B-AB), Town 2, Central County, Interview with the Author, October 25, 2006.

⁴²⁸ Learning Center Administrative Coordinator and Rural Farm Resident (14D-AB), Telephone Conversation with the Author, November 17, 2006.

unfamiliar with networking and its potential and this raises important points. Since some community members did not have a clear understanding of the concepts of fiber optics and networking, the visible aspects of the project and the negative perceptions some people received from these became important, for they were representative of the project itself.

In *Public Opinion*, first published in 1922, Walter Lippmann outlined that pseudo-environments exist between people and their environments.⁴²⁹ The pseudo-environment is a “representation of the environment which is in lesser or greater degree made by man himself [sic].”⁴³⁰ It is selective, and must be, because,

the real environment is altogether too big, too complex, and too fleeting for direct acquaintance. We are not equipped to deal with so much subtlety, so much variety, so many permutations and combinations. And although we have to act in that environment, we have to reconstruct it on a simpler model before we can manage with it. To traverse the world men must have maps of the world.⁴³¹

For Lippmann, people’s inability to adequately deal with the complexity that surrounded them meant that they needed experts who knew about the subjects in question and could make better-informed choices than the average person. In certain cases, however, people are expected to deal with complex topics on their own, such as the SuperNet. Here, people use their pseudo-environments to think, feel, and act in the world. For the administrator quoted above, science fiction provided her with a frame to understand the SuperNet. Science fiction is an interesting choice of a metaphor because science fiction

⁴²⁹ Walter Lippmann, *Public Opinion* (New York: Simon and Schuster, 1922), 15.

⁴³⁰ Ibid.

⁴³¹ Ibid., 16.

is not reality, but rather it is in the realm of the imagined, fantasy, and the future. Science fiction is not something that occurs in the here and now, as was the case with the SuperNet, but it was something that occurred in the future and required people to stretch their imaginations to believe in it. Additionally, science fiction tends to employ scientific and technological concepts that are too distant to comprehend. From this starting place, the administrator began to understand the SuperNet.

The entire SuperNet project, with its 429 communities, over 4,200 connected facilities,⁴³² 13,000 kilometers of wireless and fiber optic cable, and intangible concepts of networking were too complex for many. People, thus, made simpler mental maps using what they could witness of the SuperNet: the construction crews and the equipment placed in communities. For many rural organizations and some residents, the technology installed in their communities and the work crews that carried out the installations, represented the SuperNet and people based their early evaluations of the SuperNet on these representations. These initial impressions proved long-lasting and difficult to change. Importantly, the network was largely invisible to residents and networks are difficult concepts to envision. Many of the organization interviewees' early perceptions of the SuperNet project stemmed from the experience they had with the installation of SuperNet equipment. Many recalled this experience as wasteful as several different work crews came to offices over a period of months. One set of workers affixed stickers to locations where others later installed equipment. Several interviewees commented on

⁴³² Government of Alberta Press Release, "Alberta SuperNet Now Operational throughout the Province: Province Marks Key Completion Milestone During the Centennial Year," (September 30, 2005), URL: <http://www.gov.ab.ca/acn/200509/18828F93E02E6-F2D6-4F55-99D3CC5C2E0424EF.html> (accessed January 13, 2009); "Alberta SuperNet Packs Power," Alberta SuperNet, "Harnessing the SuperNet Advantage," Advertising Supplement (n.d.): 3.

this process. The literacy coordinator described it as “classic government work”⁴³³ and a mayor called it a “government make work project.”⁴³⁴ The learning center’s administrative coordinator stated there were “a dozen trips, a dozen technicians” and inspectors at the learning center.⁴³⁵ A town administrator stated, “so many people came” there was a “different crew for each ‘doodie’ [sic]” installed.⁴³⁶ One mayor argued the installation was “like the coming of the Roman legions” where twelve different workers came to work on the equipment.⁴³⁷ Additionally, several organizations reported a gap between when the partners installed SuperNet equipment to when they knew what it would do, as described in the anecdote above.⁴³⁸ Some interviewees noted that there was a lot of politicking or politics involved with the project.⁴³⁹ Interviewees’ early perceptions of the project were that it was infused with politics and that it was wasteful. They found the process frustrating and they did not yet have service. Community members’ other early experiences of the SuperNet, whether they realized it or not, came from their experience with the SuperNet equipment installed in their communities.

The partners installed two kinds of equipment in communities. Each town and village has a point of presence (POP). In larger towns this is the SuperNet shed, located

⁴³³ Literacy Coordinator, Central County Community Adult Learning Office (1B-AB), Town 2, Central County, Interview with the Author, October 25, 2006.

⁴³⁴ Mayor (9B-AB), Village 3, Central County, Interview with the Author, December 1, 2006.

⁴³⁵ Administrative Coordinator, Central County Community Adult Learning Office (2B-AB), Town 2, Central County, Interview with the Author, October 31, 2006.

⁴³⁶ Village Administrator (8B-AB), Village 5, Central County, Interview with the Author, November 30, 2006.

⁴³⁷ Mayor (9B-AB), Village 3, Central County, Interview with the Author, December 1, 2006.

⁴³⁸ Librarian (6B-AB), Village 3, Central County, Interview with the Author, November 23, 2006; Librarian (13B-AB), Village 6, Central County, Interview with the Author, December 8, 2006.

⁴³⁹ Network Administrator, Regional Library (7B-AB), Interview with the Author, November 27, 2006; Mayor (9B-AB), Village 3, Central County, Interview with the Author, December 1, 2006.

outdoors on town property. The sheds are three by four meter shacks.⁴⁴⁰ They are locked taupe metal buildings encircled by chain link fence with padlocks and barbed wire.⁴⁴¹ Alternately, in smaller towns and villages, are the locked beige metal cabinets located in town offices with tubes labeled fiber optic cable coming out. The organizations' employees do not have access to the cabinets.⁴⁴² Both the sheds and the cabinets feature the SuperNet logo. The other pieces of equipment installed in communities are the "SuperNet edge devices" (SED), Cisco Catalyst 3550 Series switches, placed in schools, libraries, and health care facilities. The switches are wide, flat metal boxes lined with numerous Ethernet ports. The devices feature a label on the front reading "Property of Axia SuperNet Ltd." Cisco explains that "The Cisco Catalyst® 3550 Series Intelligent Ethernet Switch is a line of stackable, multilayer switches that provide high availability, quality of service (QoS), and security to enhance network operations. With a range of Fast Ethernet and Gigabit Ethernet configurations, the Cisco Catalyst 3550 Series is a powerful option for enterprise and metro access applications."⁴⁴³ According to the SuperNet website, the **SED (SuperNet Edge Device)** is "An intelligent device placed on the customer premise by the SuperNet service provider. This is the last physical device that is part of the SuperNet network and defines the end of the service provider's responsibility (demarcation). In most cases, the SED will be a Cisco 3550 switch/router,

⁴⁴⁰ Steven M. Cherry, "Across the Great Divide: Alberta SuperNet is a Model for the Broadband Future—Everywhere," *IEEE Spectrum* (North America), 41, issue 1 (January 2004): 33.

⁴⁴¹ Although in one case the partners altered the appearance of the shack to be more "aesthetically pleasing" to the structure's neighbors. Workers covered the shed in pine shingles. Chief Administrative Officer (15B-AB), Town 1, Northern County, Interview with the Author, December 13, 2006.

⁴⁴² Village Administrator (8B-AB), Village 5, Central County, Personal Communication with the Author, November 28, 2006.

⁴⁴³ "Cisco Catalyst® 3550 Series Switches," Products and Technologies, Cisco website, URL: <http://www.cisco.com/warp/public/cc/pd/si/casi/ca3550/index.shtml> (accessed January 13, 2009).

which will be supplied, monitored and maintained by SuperNet.”⁴⁴⁴ These devices and the closed sheds/cabinets represented the SuperNet for rural Albertans and it is from these artifacts that Albertans began to make meaning of the network. Some interviewees remarked that they did not have access to the devices although their buildings housed them. The regional library’s network administrator explained that he could not access some of the devices, including the “fiber termination” which he said is a “locked box” that he “can’t get into.”⁴⁴⁵ A librarian continued this trajectory, noting “we’ve had those boxes about 1½ years before we got SuperNet. We’re not allowed to touch it.”⁴⁴⁶ The visual representations of the SuperNet—the SEDs and the cabinets/sheds—helped people to make meaning, and from these, the SuperNet appeared unintelligible and inaccessible, a symbol of high technology. On the one hand, the boxes represented the mysteries of science fiction for some of the organization employees. On the other, workers, technological experts, and the SuperNet partners, identified the boxes as the typical products of bureaucratic work.

Organization employees were largely unaware of what the devices were and what they did, illustrated by the terms people used to describe them. Organization employees most commonly called SuperNet devices “boxes.” The term was used to describe both edge devices⁴⁴⁷ and town points of presence.⁴⁴⁸ Some evidenced partial understanding of

⁴⁴⁴ “SED (SuperNet Edge Device),” Glossary P-W, Alberta SuperNet Website, URL: <http://www.albertasupernet.ca/general/glossaryp-w.htm> (accessed January 13, 2009).

⁴⁴⁵ Network Administrator, Regional Library (7B-AB), Interview with the Author, November 27, 2006.

⁴⁴⁶ Librarian (13B-AB), Village 6, Central County, Interview with the Author, December 8, 2006.

⁴⁴⁷ Librarian (13B-AB), Village 6, Central County, Interview with the Author, December 8, 2006; Southern County Learning Center Administrative Coordinator, Telephone Conversation with the Author, November 17, 2006; Network Administrator, Regional Library (7B-AB), Interview with the Author, November 27, 2006; Administrative Coordinator, Community Adult Learning Office (2B-AB), Town 2, Central County, October 31, 2006.

what the structures did. Two town administrators discussed the POPs in their offices, noting, the “big cabinet” is “supposed to be the center of works,” or the “POP” but she also called other components “doodies.”⁴⁴⁹ The second noted that the cabinet was the POP.⁴⁵⁰ A mayor noted that the “fenced building” behind the hardware store was the “hub connection” and a town administrator stated that it was the “control shack.”⁴⁵¹ Other interviewees did know that the Cisco Catalyst 3550 device was a router.⁴⁵² Interestingly, those interviewees who had the most problems getting SuperNet service knew the correct terms for SuperNet technology, likely because they had done more research into and communication about the SuperNet.⁴⁵³ Finally, some interviewees were uncertain about SuperNet devices, stating, “I believe we’re wired in at the back” and “we’ve got something outside.”⁴⁵⁴ Interviewees held a rudimentary understanding of the devices and the network they represented; the SuperNet was not a network that they readily understood and associated with. The regional library’s network administrator created documents explaining the SuperNet and internet to send to libraries in the region.

⁴⁴⁸ Administrator (17B-AB), Village 4, Central County, Interview with the Author, December 14, 2006.

⁴⁴⁹ Village Administrator (8B-AB), Village 5, Central County, Interview with the Author, November 30, 2006.

⁴⁵⁰ Administrator (17B-AB), Village 4, Central County, Interview with the Author, December 14, 2006.

⁴⁵¹ Mayor (9B-AB), Village 3, Central County, Interview with the Author, December 1, 2006; Chief Administrative Officer (15B-AB), Town 1, North County, Interview with the Author, December 13, 2006.

⁴⁵² Chief Administrative Officer (18B-AB), Town 2, Central County, Interview with the Author, December 14, 2006; Librarian (4B-AB), Town 3, Central County, Interview with the Author, November 7, 2006.

⁴⁵³ Librarian (4B-AB), Town 3, Central County, Interview with the Author, November 7, 2006; Administrative Coordinator, Community Adult Learning Office (2B-AB), Town 2, Central County, October 31, 2006.

⁴⁵⁴ First quotation from Representative, Town Office (12B-AB), Town 3, Central County, Interview with the Author, December 8, 2006; second quotation from Village Administrator, Village 2, Central County, Telephone Conversation with the Author, December 7, 2006.

Interviewees sought similar explanatory communication from the partners but did not receive it.

As a result of the lack of communication, people were unclear about what to expect from the SuperNet. One town administrator, who had a very negative overall view of the project, faulted the partners with a “lack of communication.” She said there was “misunderstanding” because “people thought it’d come to them” but that was not the case.⁴⁵⁵ A community member noted that he did not understand why the SuperNet did not go to everyone because it was in the ditch near the road running in front of buildings.⁴⁵⁶ A resident of a small village noted that he asked himself if the “fiber optic cable runs right in front of my house, why can’t I get it?”⁴⁵⁷ Service providers remarked that people wanted to know how to use the SuperNet to get on the internet.⁴⁵⁸ These comments illustrate a lack of understanding about the differences between copper cable, used in telephony, which can be readily spliced and fiber optic cable, which is much more delicate and not easily divided. The bundles in the highway are composed of 48 fibers and therefore are difficult to cleave and splice.⁴⁵⁹ For those who did not understand the difference, the SuperNet appeared *selective and discriminatory*. Using their settled understanding of copper wires and basic telephone service, some community members observed that rather than being served by the wires that ran past their offices

⁴⁵⁵ Representative, Town Office (12B-AB), Town 3, Central County, Interview with the Author, December 8, 2006.

⁴⁵⁶ Manager, Seed Cleaning Plant (4E-AB), Village 3, Central County, Interview with the Author, January 5, 2007.

⁴⁵⁷ Society Member, Village Cable Society (3F-AB), Village 4, Central County, Interview with the Author, December 7, 2006.

⁴⁵⁸ President and CEO, Internet Service Provider, Calgary (7F-AB), Interview with the Author, January 15, 2007; President and Systems Engineer, Computer Sales and Services, Partner of Large Atlantic Canada ISP (5F-AB), Interview with the Author, January 4, 2007.

⁴⁵⁹ President and CEO, Internet Service Provider, Calgary (7F-AB), Interview with the Author, January 15, 2007.

and homes, they were bypassed, which made no sense since taxpayers funded the network. Some people working in the information technology field questioned why the SuperNet does not connect to the copper wire of the telephone system. One argued that having “no interconnection between the fiber and copper” was a huge failing of the network.⁴⁶⁰ The internet service provider noted that “fiber has its place; it’s a fantastic conduit from town to town.” But, he argued it is a “terrible conduit from house to house” because the connections cost thousands of dollars.⁴⁶¹ If there was a connection between the two, and the telephone company upgraded the copper in small towns from its current poor condition, subscribers could get asymmetric digital subscriber line (ADSL), which provides high-speed internet access from common twisted pair telephone lines.⁴⁶² Urban residents take ADSL availability for granted. The provider noted that there “should have been copper distribution within the towns,” a “fiber optic network with copper delivery within towns.” The way that it was done, he argued, rendered delivery costs “through the roof” and he concluded that “without copper” the network is “cutting out a host of people who’d use it.”⁴⁶³

In addition to being unclear about whom the network was supposed to serve, some people were uncertain about the difference between SuperNet and internet service. One village administrator argued that knowledge about the network was lacking and that Albertans do not know that it exists and they do not know the “difference between high-

⁴⁶⁰ Ibid.

⁴⁶¹ Ibid.

⁴⁶² President and CEO, Internet Service Provider, Calgary (7F-AB), Interview with the Author, January 15, 2007; Owner, Internet Installer for South County (2F-AB), Town 1, South County. Asymmetric Digital Subscriber Line (ADSL), WebPro Forums, Online Education, International Engineering Consortium website, URL: <http://www.iec.org/online/tutorials/adsl/index.asp> (accessed January 19, 2008).

⁴⁶³ President and CEO, Internet Service Provider, Calgary (7F-AB), Interview with the Author, January 15, 2007.

speed internet, [a satellite internet service provider], and SuperNet.”⁴⁶⁴ A county councilor noted that the county would have to pay \$4,000 to be “hooked up” to the SuperNet and that they chose service from a private ISP instead because it “is cheaper.”

⁴⁶⁵ This illustrates that he did not know of the difference between the two. Another village administrator was uncertain, stating, “we don’t have SuperNet” and then he followed up with uncertainty, “is that the same as high-speed?”⁴⁶⁶ Others shared this confusion.

A town’s Chief Administrative Officer was critical of the preparation communities received for the SuperNet. She said that people “have no idea what the capacity of the SuperNet is” and that “even municipalities don’t know what the full utilization was.” They thought that the SuperNet was a provider. She said everyone “got little tidbits” but not the “full meal deal.”⁴⁶⁷ Another town’s Chief Administrative Officer noted that they had a SuperNet “drop” in the office, but they used high-speed internet instead. He noted in late 2006, “no one’s ever come out to show us how it [SuperNet] can be used.”⁴⁶⁸ He concluded that the SuperNet was “not being used to its full potential” and that people in rural Alberta “need to be provided with tools” to do so. He argued an online presentation or community meetings about the SuperNet would advance use of the network.⁴⁶⁹ This

⁴⁶⁴ Chief Administrative Officer (21B-AB), Town 4, Central County, Interview with the Author, December 18, 2006.

⁴⁶⁵ County Councilor (5A-AB), Central County, Interview with the Author, November 17, 2006; also Director, Central County Family and Community Services Office, Personal Communication with the Author, November 14, 2006 made this same calculation.

⁴⁶⁶ Village Administrator, Village 6, Central County, Telephone Conversation with the Author, December 5, 2006.

⁴⁶⁷ Chief Administrative Officer (18B-AB), Town 2, Central County, Interview with the Author, December 14, 2006.

⁴⁶⁸ Chief Administrative Officer (21B-AB), Town 4, Central County, Interview with the Author, December 18, 2006.

⁴⁶⁹ Ibid.

led him to opine that the SuperNet has the “potential for greatness” but what happened is that the partners were “building a great big highway that no one uses.”⁴⁷⁰ The government’s decision to build the pipeline but to leave the applications to organizations and communities clearly did not assist Albertans in using the network.

As with any new technology, people need to learn to use it and more importantly, need to determine what the innovation can do for them; how it can improve their lives, their work, and their communication. A project director and mayor in southern Alberta who is helping develop a virtual learning and business center in his community argues that one thing his project is doing is to “develop a culture of use” because while the SuperNet is a “visionary investment,” the take up has been “disappointing” to the government and its partners. The project centers around creating spaces where community members can use the SuperNet for education and training, business video conferencing, telehealth, business incubation and counseling, all of which will help create a “culture of use, exactly as with TV, telephone, fax.”⁴⁷¹ He stated that “access doesn’t solve the digital divide” and that the SuperNet is “not yet the same as electrification, telephony.”⁴⁷² SuperNet will only become like other commonly accepted innovations once Albertans weave it into the fabric of their daily lives. The region’s Member of Legislative Assembly (MLA) noted that “hooking people up” is “only a first step” and “teaching people to meaningfully use it is the next step.”⁴⁷³ Developing a culture of use, however, is something that requires an awareness that the SuperNet existed. Many Albertans do not know about the project. The government’s Executive Director of

⁴⁷⁰ Ibid.

⁴⁷¹ Mayor and Project Director (22B-AB), Interview with the Author, January 3, 2008.

⁴⁷² Ibid.

⁴⁷³ Member of Legislative Assembly (1G-AB), Interview with the Author, November 17, 2006.

Network Services argued that people “shouldn’t know” about the SuperNet. From his perspective, service providers using the SuperNet should market their service and perhaps mention the network, but it was not imperative that Albertans know about the SuperNet.⁴⁷⁴ In contrast, the rural Member of the Legislative Assembly lamented that “average, ordinary people aren’t aware of the full potential” of the SuperNet.⁴⁷⁵ The literacy coordinator strongly felt that it was the government’s job to teach people about the network. She stated “It is not my job to publicize the SuperNet ... I don’t have a billion dollars to ... I don’t have money to spend on developing ways of using it.” She argued that people “gotta have some awareness, understanding” for the network to be useful to them.⁴⁷⁶ Developing a culture of use around the SuperNet that approximates electrification and telephony is a long way away.

In contrast to interviewees from small organizations, who argued that they had not heard enough from the SuperNet partners and the internet service providers, a representative from the regional health office noted that “Axia, the company that manages it, visits us and says ‘what can we do to help you?’ They want our business. ... They said health is important; it matters. And when they listen to our concerns, it raises my opinions.”⁴⁷⁷ The project director and mayor stated that there had been a “concerted effort” by the province to inform as they held “information sessions across the province.”⁴⁷⁸ Some others, like the director of technology for the school division, the

⁴⁷⁴ Executive Director, Network Services, Ministry of Restructuring and Government Efficiency, Government of Alberta (1C-AB), Interview with the Author, November 9, 2006.

⁴⁷⁵ Member of Legislative Assembly (1G-AB), Interview with the Author, November 17, 2006.

⁴⁷⁶ Literacy Coordinator, Central County Community Adult Learning Office (1B-AB), Town 2, Central County, October 25, 2006.

⁴⁷⁷ Health Region Representative (11B-AB), Interview with the Author, December 6, 2006.

⁴⁷⁸ Mayor and Project Director (22B-AB), Interview with the Author, January 3, 2008.

network administrator for the regional library, and the health region's technology representative noted that they had been to information sessions about the SuperNet, but other people outside of these "stakeholder" groups either were unaware of such sessions or were not invited.

The absence of communication that organizations perceived as helpful from the SuperNet partners was a major criticism of the network. Organization employees found information lacking and were left with a murky understanding of the network and its potential. Organizations that did gain an understanding of the SuperNet and decided to use it were then faced with the costs associated with bringing the network to their organizations.

Major Challenge Two: Pricing Structure

The second major concern is a pricing structure that is "cost prohibitive" to small organizations. The Government of Alberta envisioned the SuperNet as a way to end the digital divide between rural and urban areas in the province.⁴⁷⁹ The network was to give rural communities affordable access to high-speed internet. Axia's chairman and chief executive officer stated, "SuperNet allows all organizations, companies and also individuals to benefit from high-quality, high-capacity, cost-effective connectivity wherever they live or work in Alberta."⁴⁸⁰ A project representative stated that SuperNet pricing was "amazing" for internet service providers and such low prices were a result of

⁴⁷⁹ Doerkson responding to Strang, "Oral Question Period: Alberta SuperNet in Legislative Assembly of Alberta," Monday, March 4, 2002 in Province of Alberta, The 25th Legislature, Second Session, *Alberta Hansard*, vol. 1 (February 26 to April 11, 2002), 85.

⁴⁸⁰ Price quoted in "Alberta SuperNet Packs Power," in "Harnessing the SuperNet Advantage" advertising supplement (n.d.), 3 provided by Bell Marketing Representative (3C-AB), Interview with the Author, December 31, 2007.

it being a government network.⁴⁸¹ The low prices are to filter down to residents and organizations, who can receive \$40 to \$50 per month high-speed internet service.⁴⁸² Despite this, small organizations are finding the costs associated with service out of their reach.⁴⁸³ There are three sub-concerns organizations have associated with cost: first, the monthly basic service fees; second, the costs associated with relocating the router, if necessary; and third, the cost of purchasing equipment to benefit from, and fully utilize, SuperNet service.

A major cost limitation is the basic monthly service fee. The SuperNet website states that the operation and maintenance of the network will be “self-sustaining” through revenues generated by SuperNet customers, including government offices, schools, health facilities, libraries, municipal government offices, internet service providers, and application service providers.⁴⁸⁴ Indeed, if every SuperNet connection activated service at 256 Kbps, the lowest service level, the revenues per month to the SuperNet would be \$1,018,500 (CAD). If all connections activated at 5 Mbps, the gross revenue would be \$2,114,700 (CAD).⁴⁸⁵ To generate revenue and provide service at fixed rates, the government created “capped rates” for various service levels for the provincial government, learning institutions, health care facilities, libraries, and municipalities. Importantly, these rates are the same across the province, reversing the trend of lower

⁴⁸¹ Question and Answer Period, “Plenary Session: What is the Alberta SuperNet?” Day 2, SuperNet Opportunities Conference, Calgary, Alberta, Canada, June 21, 2006.

⁴⁸² “Rural Alberta Gets High-Speed Connection: Province to Spend \$193 Million on Internet System,” *The Ottawa Citizen* (November 3, 2000): D11.

⁴⁸³ Senior Financial Officer (2A-AB), Central County, Interview with the Author, October 24, 2006.

⁴⁸⁴ “The Network, The Project,” Alberta SuperNet website, URL: <http://www.albertasupernet.ca/The+Project/the+network/default.htm>, (accessed April 3, 2006).

⁴⁸⁵ Pricing document from Axia NetMedia Corporation, “GLHLM Pricing Guide,” (2006): 5, document provided by Chief Administrative Officer (15B-AB), Town 1, Northern County, Interview with the Author, December 13, 2006; President and CEO, Internet Service Provider, Calgary (7F-AB), Interview with the Author, January 15, 2007.

fees in the cities and higher ones in rural areas.⁴⁸⁶ The capped rates replicate the tariff structure of the old monopoly telephone era.

The learning center required a service level of five megabytes per second of committed bandwidth. For this level of service, the capped monthly rate is \$503.50, which the learning center pays in addition to the ISP's monthly service fees for the internet connection in the amount of \$34.95.⁴⁸⁷ Commenting on the service costs, the literacy coordinator noted with some bitterness that there is the "\$500 monthly fee which was not exactly in our budget."⁴⁸⁸ After learning that the budgets of small organizations could not accommodate the monthly "Basic Service Fee,"⁴⁸⁹ the government again stepped in. The provincial departments of education and libraries provide subsidies for the monthly connection fees to Axia, the network manager.⁴⁹⁰ For other organizations outside of these realms, the province created a program to reimburse certain organizations for the fees. The organizations pay the bill and then the government

⁴⁸⁶ David Mitchell, "Broadband at the Margins: Challenges to SuperNet Deployment in Rural and Remote Albertan Communities," Unpublished paper (n.d.): 5; Dr. Taylor, the Minister of Innovation and Science, calls them "postage stamp rates," Taylor, "Oral Question Period: High-Speed Internet Access," in Legislative Assembly of Alberta, Tuesday, May 2, 2000, in Province of Alberta, The 24th Legislature, Fourth Session, *Alberta Hansard*, vol. III (May 2 to May 25, 2000): 1231.

⁴⁸⁷ No information is publicly available that explains how the government and Axia arrived at the monthly tariffs. Literacy Coordinator, Central County Community Adult Learning Office (1B-AB), Town 2, Central County, Interview with the Author, October 25, 2006; Administrative Coordinator, Community Adult Learning Office (2B-AB), Town 2, Central County, Interview with the Author, October 31, 2006.

⁴⁸⁸ Literacy Coordinator, Central County Community Adult Learning Office (1B-AB), Town 2, Central County, Interview with the Author, October 25, 2006.

⁴⁸⁹ Axia NetMedia Corporation, "GLHLM Pricing Guide," (2006): 5, document provided by Chief Administrative Officer (15B-AB), Town 1, Northern County, Interview with the Author, December 13, 2006.

⁴⁹⁰ Zwozdesky to Webber, "Oral Question Period: SuperNet Hook Up Costs," Legislative Assembly of Alberta, Wednesday, April 13, 2005 in Province of Alberta, The 26th Legislature, First Session, *Alberta Hansard*, vol. II (April 11 to May 3, 2005): 740; Zwozdesky, "Orders of the Day: Committee of Supply, Main Estimates 2005-06, Education," Legislative Assembly of Alberta, Wednesday, May 4, 2005 in Province of Alberta, The 26th Legislature, First Session, *Alberta Hansard*, vol. III (May 4 to November 23, 2005): 1274; Blakeman, "Committee of Supply, Main Estimates 2004-05, Community Development," Legislative Assembly of Alberta, Tuesday, March 30, 2004 in Province of Alberta, The 25th Legislature, Fourth Session, *Alberta Hansard*, vol. II (March 29 to May 13, 2004): 789.

reimburses them twice a year. The learning center's administrative coordinator and one of its board members, however, note that they may not have enough cash to float the fees until reimbursement. Additionally, they worry that the government could cut the program at any time, leaving them to pay the entire bill, and there is "absolutely no money" in their small budget to pay the service fee.⁴⁹¹ The learning center board member notes that this process has "scared a lot of people off" because they fear that the SuperNet will cost them a lot of money.⁴⁹²

Some organizations, notably town offices, are not eligible for the rebate program or for other provincial government programs to fund the connection.⁴⁹³ Town offices, unlike libraries and schools, collect their own taxation and raise their own money and are thus not eligible for provincial funding.⁴⁹⁴ In the county under study, none of the town offices are connected to the network because they found the unsubsidized connection costs and monthly fees to be beyond what their budgets could accommodate and they could not justify the expense to their constituents.⁴⁹⁵ The central county's senior financial officer noted that SuperNet is "financially not feasible" for counties and town offices.⁴⁹⁶ Rather than connect to the SuperNet, some town offices upgraded to the newly introduced high-speed internet available in their communities. Towns found that high-

⁴⁹¹ Administrative Coordinator, Community Adult Learning Office (2B-AB), Town 2, Central County, Interview with the Author, October 31, 2006; Career Consultant and Board Member, Central County Community Adult Learning Office (3B-AB), Town 2, Central County, Interview with the Author, November 1, 2006.

⁴⁹² Career Consultant and Board Member, Central County Community Adult Learning Office (3B-AB), Town 2, Central County, Interview with the Author, November 1, 2006.

⁴⁹³ Representative, Town Office (12B-AB), Town 3, Central County, Interview with the Author, December 8, 2006.

⁴⁹⁴ Network Administrator, Regional Library (7B-AB), Interview with the Author, November 27, 2006.

⁴⁹⁵ Chief Administrative Officer (18B-AB), Town 2, Central County, Interview with the Author, December 14, 2006; Representative, Town Office (12B-AB), Town 3, Central County, Interview with the Author, December 8, 2006.

⁴⁹⁶ Senior Financial Officer (2A-AB), Central County, Interview with the Author, October 24, 2006.

speed internet from an ISP could be obtained at a significant cost saving over dial-up internet.⁴⁹⁷ Thus, the SuperNet partners' promise of affordable high-speed internet in rural communities came to fruition. The dedicated phone line necessary for dial-up from Telus cost \$60 per month plus dial-up fees of \$13 or \$14 and high-speed using line of sight wireless was \$34.95 per month for a 500 Kbps download speed and 250 Kbps upload speed connection.⁴⁹⁸ Some of the towns in the region went from dial-up directly to high-speed after the SuperNet arrived.⁴⁹⁹ This was the case for some of the libraries as well that went from dedicated phone lines for dial-up to SuperNet and high-speed internet only once the partners activated the SuperNet.⁵⁰⁰ Many towns in the county and beyond identified cost as the reason they were not using the SuperNet. One town's chief administrative officer noted that the SuperNet was "not something we would use" and

⁴⁹⁷ Village Administrator (8B-AB), Village 5, Central County, Interview with the Author, November 30, 2006.

⁴⁹⁸ Village Administrator (8B-AB), Village 5, Central County, Interview with the Author, November 30, 2006; Internet Services Price List for Villages 3 and 5, provided by Village Administrator (8B-AB).

⁴⁹⁹ In the county, three towns and villages signed up for high-speed internet service only after the SuperNet arrived (Village 4, Village 5, Town 4). Two towns received high-speed internet through a private cable provider (Village 3, Town 3); one town had DSL through the phone company (Town 2); and four towns and villages remained on dial-up service (Village 1, Village 2, Village 6, Town 1). Administrator (17B-AB), Village 4, Central County, Interview with the Author, December 14, 2006; Village Administrator (8B-AB), Village 5, Central County, Interview with the Author, November 30, 2006; Chief Administrative Officer (21B-AB), Town 4, Central County, Interview with the Author, December 18, 2006; Chief Administrative Officer (10B-AB), Village 3, Central County, Interview with the Author, December 1, 2006; Representative, Town Office (12B-AB), Town 3, Central County, Interview with the Author, December 8, 2006; Chief Administrative Officer (18B-AB), Town 2, Central County, Interview with the Author, December 14, 2006; Village Administrator, Village 1, Central County, Telephone Conversation with the Author, December 7, 2006; Village Administrator, Village 2, Central County, Telephone Conversation with the Author, December 7, 2006; Village Administrator, Village 6, Central County, Telephone Conversation with the Author, December 5, 2006; Administrative Assistant (16B-AB), Town 1, Central County, Interview with the Author, December 13, 2006.

⁵⁰⁰ Libraries that went from dial-up to high-speed as the SuperNet arrived were those in Town 3, Town 4, Village 3, and Village 6. Librarian (4B-AB), Town 3, Central County, Interview with the Author, November 7, 2006; Librarian (5B-AB), Town 4, Central County, Interview with the Author, November 22, 2006; Librarian (6B-AB), Village 3, Central County, Interview with the Author, November 23, 2006; Librarian (13B-AB), Village 6, Central County, Interview with the Author, December 8, 2006.

they would have to see a “cost benefit analysis” before getting service.⁵⁰¹ Another town’s administrative assistant noted that they did not connect to the SuperNet because of the “costs associated with it.” The office was “waiting to see if the provincial government would provide funding.”⁵⁰² This office was still using dial-up internet service and the assistant reported paying \$113.96 per month for service, significantly higher than the cost of a high-speed internet connection.⁵⁰³ Town officials considered connecting to the network but many concluded that the SuperNet would not be useful to them in their work. One town manager said she would think about it “if it was something we need.”⁵⁰⁴ But, the mayor of the same town noted they based their decision on the “value for services provided.”⁵⁰⁵ In this way, unless there is great value added from belonging to the network, for small organizations, it may be easier and less costly to only get high-speed internet service because they are not faced with either floating or paying the monthly network fee. One representative at the SuperNet Opportunities Conference from a town in northern Alberta said her town office could not afford the \$250 per month service fee for 256 Kilobytes per second of committed bandwidth. The town was keeping their current high-speed cable provider.⁵⁰⁶ Of course, high-speed ISPs do not match the speed and bandwidth provided by SuperNet, but most organizations view themselves as low users and are satisfied with high-speed internet. In some cases, dial-up

⁵⁰¹ Chief Administrative Officer (15B-AB), Town 1, North County, Interview with the Author, December 13, 2006.

⁵⁰² Administrative Assistant (16B-AB), Town 1, Central County, Interview with the Author, December 13, 2006.

⁵⁰³ Ibid.

⁵⁰⁴ Chief Administrative Officer (10B-AB), Village 3, Central County, Interview with the Author, December 1, 2006.

⁵⁰⁵ Mayor (9B-AB), Village 3, Central County, Interview with the Author, December 1, 2006.

⁵⁰⁶ Town of Sexsmith Representative, Question and Answer Period, “Public Consultation” Panel, Session 3, Day 2, SuperNet Opportunities Conference, Calgary, Alberta, Canada, Wednesday, June 21, 2006.

service satisfied some organizations. Four towns and villages in the county remained on dial-up, not even signing up for recently available high-speed internet. One village administrator noted, “we’re on dial-up” and “we don’t really require” high-speed internet service.⁵⁰⁷ Another village administrator said getting high-speed internet was “on my list of to dos” but she admitted that it was “not high up” on the queue. She viewed the office as a low user and noted she had a solution that did not require an enhanced service, remarking every six months, “someone sends me a big honkin’ email” that she cannot download. In response, she said “I call and say ‘send me a paper copy’ and they do.”⁵⁰⁸ She felt she could operate without high-speed internet. For the dial-up users, if high-speed internet was not a priority, a SuperNet connection was not necessary.

Other organizations with a community focus, including the county’s family and community services office and a privately owned employment center were not eligible for government programs to fund the network. They did not use the SuperNet, although conceivably, both could expand services to clients and more effectively use work time with video conferencing. SuperNet advertising hailed videoconferencing noting that the service allows people and organizations to save money and time.⁵⁰⁹ The former office held a monthly meeting comprised of the region’s social service workers, many of whom traveled from other towns and counties to attend. Although the group treated the meetings partially as a social occasion, having video conferencing equipment and service available could allow the group to meet regardless of the weather.

⁵⁰⁷ Village Administrator, Village 2, Central County, Telephone Conversation with the Author, December 7, 2006.

⁵⁰⁸ Ibid.

⁵⁰⁹ “Save Your Money (and Time),” Alberta SuperNet, “Harnessing the SuperNet Advantage,” Advertising Supplement (n.d.): 15.

Despite the hindrances of cost for some organizations, others found the process much more affordable. Organizations with regional boards that worked to ensure all member organizations were connected found that the SuperNet was reasonably priced. This was the case of the libraries. One librarian recalled being concerned because the cost estimates “really scared people.” She said they were originally told the cost would be \$250 to \$500 a month. The provincial department overseeing libraries, Alberta Community Development, stepped in and pays for the monthly SuperNet fees entirely. Additionally, the libraries chose a “shared ISP approach.” The regional library authority reached an agreement with an ISP to create a shared approach for internet service where the regional library board buys bandwidth at bulk prices, further reducing costs to individual libraries.⁵¹⁰ The approach uses an ISP that uses “a Virtual Private Network” (VPN) to deliver internet over the SuperNet.⁵¹¹ The member libraries share bandwidth in this approach for one bulk monthly rate. The regional library determines what proportion of the ISP fees each library pays based on service populations; libraries pay \$0.0054 per person before taxes.⁵¹² Despite their initial fears, small libraries in small centers reported that fees were manageable. One library reported paying an internet fee that was “less than \$7” leading her to argue that “It’s been really good.”⁵¹³ Another librarian noted that their monthly internet service cost is just over \$6.⁵¹⁴ A third librarian stated theirs was “dirt cheap” at \$3 per month.⁵¹⁵ These prices are cheaper for libraries than a dedicated

⁵¹⁰ Network Administrator, Regional Library (7B-AB), Interview with the Author, November 27, 2006.

⁵¹¹ Printed documents (“SuperNet Information Sessions, August 30 and September 1, 2005”) provided by Network Administrator, Regional Library (7B-AB), Interview with the Author, November 27, 2006.

⁵¹² Network Administrator, Regional Library (7B-AB), Interview with the Author, November 27, 2006.

⁵¹³ Librarian (5B-AB), Town 4, Central County, Interview with the Author, November 22, 2006.

⁵¹⁴ Librarian (6B-AB), Village 3, Central County, Interview with the Author, November 23, 2006.

⁵¹⁵ Librarian (13B-AB), Village 6, Central County, Interview with the Author, December 8, 2006.

phone line to provide dialup access, at a cost of approximately \$60 per month or their own ISP without the shared approach.⁵¹⁶ Despite these successes, the libraries' main concern is whether Community Development will continue funding the SuperNet in its budgets.⁵¹⁷

Similar to libraries, schools are one of the SuperNet "stakeholders" and all stakeholders had the SuperNet installed in their locations for free. Additionally Alberta Education, the provincial education department, paid for monthly SuperNet service for the province's schools, freeing the local divisions from adding SuperNet service fees into their budgets. Schools got the \$503.50 5 Mbps Committed Access Rate service provided each month.⁵¹⁸ For stakeholders, SuperNet service has cost individual organizations relatively little.

A second cost associated limitation is moving SuperNet connections, a problem likely to become worse over time. The partners installed the SuperNet edge device and dug in fiber optic cable free of charge the first time in government offices, schools, libraries, and health care centers, but after the initial installation, there are fees associated with moving the equipment. While moves are costly because excavation needs to occur along with the laying of additional and expensive fiber optic cable, small organizations find themselves unable to allocate money to move the routers. In one instance, a library, aware it was moving from its former location asked the partners that the SuperNet

⁵¹⁶ Network Administrator, Regional Library (7B-AB), Interview with the Author, November 27, 2006.

⁵¹⁷ Ibid.

⁵¹⁸ "10-5" service was service of 10 Megabytes of network capacity. Director of Technology, Regional School Division (20B-AB), Interview with the Author, December 15, 2006; Oberg, "Order of the Day: Committee of Supply, Lottery Fund Estimates, 2001-02," in Legislative Assembly of Alberta, Monday, May 14, 2001 in Province of Alberta, The 25th Legislature, First Session, *Alberta Hansard*, vol. II (May 14 to November 15, 2001), 547.

installation be delayed.⁵¹⁹ The partners carried out the installation despite the librarian's wishes. Shortly thereafter, the library moved, but the SuperNet connection did not. The library's new building already had a SuperNet edge device in place in a school and to connect, cable needed to be run from one part of the building to another. Axia, the network manager, estimated that connecting the library in its new location would cost \$3,692.00.⁵²⁰ The regional library's network administrator labeled this estimate "astronomical" and argued that the refusal to move connections "comes down to politics."⁵²¹ He stated that Axia requires each service (library, school, on so on) to have a separate physical connection, a SuperNet edge device. Axia earns money from monthly service fees charged on the physical connections. He argued that having a library and a small school sharing an edge device would decrease their monthly earnings and felt that this was the main reason for not connecting the library. The network administrator stated he "can't understand why it costs \$4,000" when all that is technically required is an Ethernet cable and he argued Axia is quoting "\$4,000 for what a \$100 run of cable could do."⁵²² The librarian explained that because the SuperNet edge device is Axia's property, the library "can't run fibre optic on [our] own." She called the quotation to move the router a "government inflated estimate."⁵²³ The library is not currently using the SuperNet as they could not afford to connect in their new location; rather they have a

⁵¹⁹ Librarian (4B-AB), Town 3, Central County, Interview with the Author, November 7, 2006.

⁵²⁰ "GLHLM New Service Location Request Form: Customer Office Estimate," June 21, 2005, provided by Librarian (4B-AB), Town 3, Central County, Interview with the Author, November 7, 2006.

⁵²¹ Network Administrator, Regional Library (7B-AB), Interview with the Author, November 27, 2006.

⁵²² Network Administrator, Regional Library (7B-AB), Interview with the Author, November 27, 2006.

⁵²³ Librarian (4B-AB), Town 3, Central County, Interview with the Author, November 7, 2006.

high-speed wireless connection.⁵²⁴ The librarian concluded “It’s [SuperNet] worthless to us” and said “I was pretty upset over the whole thing.”⁵²⁵

The regional library’s network administrator noted that Axia quoted high prices for other moves and relocations as well. In one case, laying fiber to reach a new library located in a residential area was to cost \$45,000 to \$48,000.⁵²⁶ When unveiling the SuperNet, the Minister of Restructuring and Government Efficiency stated that “The network will now be continuously evolving, just like roads or any other infrastructure—for example, adding a new school once it is built. While we’re pleased to have met this final milestone, it’s the future possibilities of Alberta SuperNet that are truly exciting.”⁵²⁷ The regional library’s network administrator has a different perspective; he suspects that in the long term SuperNet connections will decrease in number. He argues that the costs of moving connections are “unrealistic” and since the government paid for the initial connections only, moving is the responsibility of the organizations concerned. If a library grows and moves to a larger location, and there is no funding to move the connection the library will remain unconnected. A town administrator noted that the town’s library was moving from the town office to a new multipurpose arena building and that the move is going to be “expensive.”⁵²⁸ The network administrator expects that

⁵²⁴ Literacy Coordinator, Central County Community Adult Learning Office (1B-AB), Town 2, Central County, Interview with the Author, October 25, 2006; Librarian (4B-AB), Town 3, Central County, Interview with the Author, November 7, 2006.

⁵²⁵ Librarian (4B-AB), Town 3, Central County, Interview with the Author, November 7, 2006.

⁵²⁶ Network Administrator, Regional Library (7B-AB), Interview with the Author, November 27, 2006.

⁵²⁷ Alberta Government, “Alberta SuperNet Now Operational throughout the Province; Province Marks Key Completion Milestone during Centennial Year,” News Release (September 30, 2005).

⁵²⁸ Chief Administrative Officer (15B-AB), Town 1, North County, Interview with the Author, December 13, 2006; Administrative Coordinator, Community Adult Learning Office (2B-AB), Town 2, Central County, Interview with the Author, October 31, 2006.

“it won’t be long, and a number of libraries are not connected.”⁵²⁹ For small organizations with limited budgets moving connections is simply not feasible. A representative from the Ministry of Restructuring and Government Efficiency was not sympathetic to this problem. He noted that “our customers” are realizing that in the “old world” of “copper twisted paired connections,” getting “another connection was never an issue.” The customers and Ministries, however, are learning that to move fiber optic cable is “costly.” He stated, “It’s an education process that is happening.”⁵³⁰ Unfortunately, the representative did not offer any solution to this issue, suggesting that the prediction of the library’s network administrator could come true.

Another “cost prohibitive” aspect is the price of video conferencing equipment. Luke Ouellette, the former Minister of Restructuring and Government Efficiency, noted at the SuperNet Opportunities Conference that videoconferencing was an “important application” of the network. For many Albertans, videoconferencing is the one visible benefit of the SuperNet. Having videoconferencing equipment available means that people could conduct business meetings or take classes without driving for hours at times in inclement weather to a larger town. Many of the organizational interviewees agreed that videoconferencing was a central benefit of the SuperNet.⁵³¹ Videoconferencing

⁵²⁹ Network Administrator, Regional Library (7B-AB), Interview with the Author, November 27, 2006.

⁵³⁰ Executive Director, Network Services, Ministry of Restructuring and Government Efficiency, Government of Alberta (1C-AB), Interview with the Author, November 9, 2006.

⁵³¹ Literacy Coordinator, Central County Community Adult Learning Office (1B-AB), Town 2, Central County, Interview with the Author, October 25, 2006; Administrative Coordinator, Central County Community Adult Learning Office (2B-AB), Town 2, Central County, Interview with the Author, October 31, 2006; Career Consultant and Board Member, Central County Community Adult Learning Office (3B-AB), Town 2, Central County, Interview with the Author, November 1, 2006; Librarian (6B-AB), Village 3, Central County, Interview with the Author, November 23, 2006; Chief Administrative Officer (10B-AB), Village 3, Central County, Interview with the Author, December 1, 2006; Health Region Representative (11B-AB), Interview with the Author, December 6, 2006; Principal, School (19B-AB), Village 3, Central County, Interview with the Author, December 14, 2006; Director of Technology,

remains difficult with other ISPs because downloading bandwidth is superior to that of uploading. The developers designed the SuperNet to change this. The learning center wants to provide long distance education for upgrading to obtain a high school diploma, apprenticeships and other career training and a SuperNet connection would enable them to use video conferencing to fulfill this end. Videoconferencing equipment, however, is expensive and as the literacy coordinator notes, “of course, the problem is we have no budget to buy any video conferencing equipment.”⁵³² Instead, the learning center board created a county training foundation to apply for provincial rural development monies. If their applications are successful, the training foundation would use the grant money to buy video equipment.⁵³³ An inability to afford equipment leaves organizations using the SuperNet at less than optimum levels. One town’s chief administrative officer remarked that the office did not have the SuperNet, but this was a moot point because “we don’t even have the equipment to use it.”⁵³⁴ In a comment made in the Legislature during a blistering criticism of the SuperNet project, the Opposition House Leader Laurie Blakeman noted “...my concern is that we commit our nonprofit public agencies to a significant outlay of money and they are never able to keep up with the requirements in cash and in the technology and equipment and software....”⁵³⁵ The government,

Regional School Division (20B-AB), Interview with the Author, December 15, 2006; Mayor and Project Director (22B-AB), Interview with the Author, January 3, 2008; Executive Director, Learning Center (23B-AB), Interview with the Author, January 4, 2008.

⁵³² Literacy Coordinator, Central County Community Adult Learning Office (1B-AB), Town 2, Central County, Interview with the Author, October 25, 2006.

⁵³³ Administrative Coordinator, Community Adult Learning Office (2B-AB), Town 2, Central County, Interview with the Author, October 31, 2006.

⁵³⁴ Chief Administrative Officer (21B-AB), Town 4, Central County, Interview with the Author, December 18, 2006.

⁵³⁵ Laurie Blakeman, “Committee of Supply, Main Estimates 2004-05, Innovation and Science,” Legislative Assembly of Alberta, Monday, April 26, 2004 in Province of Alberta, The 25th Legislature, Fourth Session, *Alberta Hansard*, vol. II (March 29 to May 13, 2004): 1047. The Opposition raised this

however, did not plan to provide additional support for equipment. The Minister argued that equipment purchases had always been the domain of organizations.⁵³⁶ Without the necessary equipment and without knowledge of potential applications, SuperNet connections in smaller organizations remain unused.

A service provider noted that the province got a “Cadillac service but nobody wanted it.” He continued, Axia says it “can do VOIP, e-health, video conferencing. It can do all that but the service is too expensive.”⁵³⁷ Rural organizations with limited budgets that could benefit from VOIP and videoconferencing cannot afford SuperNet service.

Major Challenge Three: Internet Service Provision

The third major challenge small organizations face in rural Alberta is finding an ISP to serve them. This is not as severe of a problem as it was before the SuperNet, when there were only a handful of high-speed providers in rural Alberta. But, wireless internet service, the preferred technology for internet service providers using the SuperNet, is not

concern on other occasions as well Blakeman, “Oral Question Period: SuperNet,” Legislative Assembly of Alberta, Thursday, May 6, 2006 in Province of Alberta, The 25th Legislature, Fourth Session, *Alberta Hansard*, vol. II (March 29 to May 13, 2004): 1294; Carlson, “Committee of Supply, Supplementary Estimates 2000-2001, General Revenue Fund, No. 2,” Legislative Assembly of Alberta, Wednesday April 25, 2001 in Province of Alberta, The 25th Legislature, First Session, *Alberta Hansard*, vol. I (April 9 to May 10, 2001): 179.

⁵³⁶ Doerksen, “SuperNet,” in Legislative Assembly of Alberta, Thursday, May 6, 2004, in Province of Alberta, The 25th Legislature, Fourth Session, *Alberta Hansard*, vol. II (March 29 to May 13, 2004): 1294.

⁵³⁷ Interestingly, this is one of the issues critics raise around President Obama’s broadband requirements in the 2009 Stimulus bill. Critics note, according to David M. Herszenhorn, that “Meeting minimum speed requirements set forth in the House version could force overly costly investments by essentially providing Cadillac service where an economy car would be just as useful.” President and CEO, Internet Service Provider, Calgary (7F-AB), Interview with the Author, January 15, 2007; David M. Herszenhorn, “Internet Money in Fiscal Plan: Wise or Waste?,” *The New York Times* (Tuesday, February 3, 2009): A1.

available everywhere.⁵³⁸ In June of 2006, a representative of the Ministry of Restructuring and Government Efficiency told SuperNet Opportunities Conference attendees that there were 35 internet service providers up and running in 145 communities.⁵³⁹ This meant that 284 communities remained without an ISP nearly a year after the partners declared the SuperNet complete. An undated SuperNet advertising supplement announces there are 74 service providers with contracts to provide high-speed internet in “more than 180 communities.”⁵⁴⁰ The Executive Director of Network Services from the government estimated that 182 communities had ISPs in November of 2006. He suspected it will take about three years for all communities to have an ISP. The executive director stated he is not surprised large providers shun small communities, noting that “private sector companies” are “much more happy serving urban, semi-urban” areas than rural areas.⁵⁴¹ Small organizations perceive the dearth of internet provision as a lack of interest on the part of the ISPs; they argue the ISPs do not want to serve small communities. ISPs serving the region or those interested in serving the region however, note that securing financing to expand service to rural regions is difficult.⁵⁴² One reason the government chose the model it did for its high-speed network was to encourage a

⁵³⁸ Wireless is the preferred technology for service provision because providers do not have to trench in cable or pay for space on satellites. In contrast to traditional ISPs, internet service providers using the SuperNet use a Virtual Private Network to provide service. “SuperNet Information Sessions (August 30 and September 1, 2005)” Document provided by Network Administrator, Regional Library (7B-AB), Interview with the Author, November 27, 2006.

⁵³⁹ Dennis Mudryk, Government of Alberta, “Plenary Session: What is the Alberta SuperNet?,” June 21, 2006, Day 2, SuperNet Opportunities Conference, Calgary, Alberta, Canada.

⁵⁴⁰ “Alberta SuperNet Packs Power,” Alberta SuperNet, “Harnessing the SuperNet Advantage,” Advertising Supplement (n.d.): 3.

⁵⁴¹ Executive Director, Network Services, Ministry of Restructuring and Government Efficiency (1C-AB), Interview with the Author, November 9, 2006.

⁵⁴² Internet Service Provider (1F-AB), Interview with the Author, November 22, 2006; President and CEO, Internet Service Provider, Calgary (7F-AB), Interview with the Author, January 15, 2007.

more competitive environment in telecommunications than Telus provided.⁵⁴³ The SuperNet plan provides more providers in the ISP market and it also introduces a large competitor to Telus into the province. This is why the SuperNet manager, Axia, is not the sole ISP.⁵⁴⁴ In theory, small companies can compete with large ones because they all pay the same price for bandwidth. The partners envisioned competing ISPs in small Alberta communities.⁵⁴⁵ This rationale seems to have been successful as small internet service providers have cropped up to provide service in some regions, although as the school division's director of technology director noted, the government's "promises of ISPs" in every community has "probably not been fulfilled to the extent promised."⁵⁴⁶ One project director, mayor, and SuperNet champion noted that high-speed internet was "working well in communities where private ISPs" set up shop but "others [were] left by the wayside." For rural areas, the school division's director of technology stated that "getting those ISPs in towns, villages, and hamlets" was a major challenge but "that's coming along."⁵⁴⁷ An ISP noted that while the government is taking care of the public sector (schools, hospitals, libraries and government offices), residents and small businesses were "left out in the cold."⁵⁴⁸ To solve this problem, the mayor and project developer from Southern Alberta noted that the government had been "visionary" and set up the provider of last resort clause.⁵⁴⁹ The contracts name Bell as the provider of last

⁵⁴³ Mitchell, "Broadband at the Margins," 4.

⁵⁴⁴ President and CEO, Internet Service Provider, Calgary (7F-AB), Interview with the Author, January 15, 2007.

⁵⁴⁵ Ibid.

⁵⁴⁶ Director of Technology, Regional School Division (20B-AB), Interview with the Author, December 15, 2006.

⁵⁴⁷ Ibid.

⁵⁴⁸ President and CEO, Internet Service Provider, Calgary (7F-AB), Interview with the Author, January 15, 2007.

⁵⁴⁹ Mayor and Project Director (22B-AB), Interview with the Author, January 3, 2008.

resort, a service that the company has been slow to develop.⁵⁵⁰ Additionally, Bell's provider of last resort service is using satellite rather than the SuperNet to provide high-speed internet.⁵⁵¹ Communities do not have ISP competition within a region as the government envisioned. Fees imposed by Axia are part of this absence of competition.⁵⁵² Axia charges ISPs to install equipment in the POP shed. One ISP proprietor noted that the first ISP in a community can set up in a POP for free, but Axia charges the next ISPs \$1,500 each. He noted, "if we're seeing a small customer base, that extra \$1,500 says we're not gonna go there." Due to this, he scaled back his plans to extend service to eight or nine additional communities and now concentrates on "leveraging on our existing POPs" to keep costs down."⁵⁵³ Another computer sales and service person confirmed this, stating that providers "can't get bandwidth out of SuperNet buildings" and "just recently Axia added an extra cost" of "\$1,500 to send a guy out from Calgary to hook up." He noted that this "just added to costs"⁵⁵⁴ and decreased ISP interest and ability in serving communities.

In addition to the costs of installing in the POP sheds, another big issue for rural areas is finding towers on which to install equipment.⁵⁵⁵ In some cases service extends

⁵⁵⁰ Bell does not appear to have faced any punitive actions for its sloth in developing the provider of last resort service. Very little information about this is publicly available. Bell Marketing Representative (3C-AB), Interview with the Author, December 31, 2007; Internet Service Provider (7F-AB), Interview with the Author, January 15, 2007.

⁵⁵¹ Internet Service Provider (7F-AB), Interview with the Author, January 15, 2007; Retail Computer Sales and Service (4F-AB), Interview with the Author, December 15, 2006.

⁵⁵² Internet Service Provider (7F-AB), Interview with the Author, January 15, 2007; Retail Computer Sales and Service (4F-AB), Interview with the Author, December 15, 2006.

⁵⁵³ Quoted from Internet Service Provider (7F-AB), Interview with the Author, January 15, 2007; Chief Administrative Officer, Northern County Office (6A-AB), Interview with the Author, December 5, 2006; General Manager, Municipal Corporation, Northern County (4A-AB), Interview with the Author, October 30, 2006.

⁵⁵⁴ Retail Computer Sales and Service (4F-AB), Interview with the Author, December 15, 2006.

⁵⁵⁵ Retail Computer Sales and Service (4F-AB), Interview with the Author, December 15, 2006; Manager, Seed Cleaning Plant (4E-AB), Village 3, Central County, Interview with the Author, January 5,

where companies can find suitable “towers” or existing infrastructure. It is less expensive for companies to lease existing infrastructure than to build their own towers, as the structures cost \$10,000 to \$12,000 (CAD) each with the costs of labor and steel.⁵⁵⁶ Thus, in the county, three different companies have installed wireless transmitters on grain elevators, seed cleaning plants, and high structures in farmers’ fields, including one farmer’s grain drying facility.⁵⁵⁷ The ISPs’ services do not overlap and anyone who falls beyond the range of these line-of-sight wireless transmitters must resort to expensive satellite service for high-speed internet. There is pressure from the community for those with tall infrastructure, like grain elevators, seed cleaning plants, and grain silos, to agree to host the equipment.⁵⁵⁸ Those that do receive free internet service for the use of the towers.⁵⁵⁹ In areas where no tall structures exist, service often does not extend. An internet service provider serving small rural communities noted that “\$10,000 for an antenna mast is not in our budget.”⁵⁶⁰ A society member providing internet to his village noted that other providers will “go everywhere they have minimal cost” and they “don’t put up towers.”⁵⁶¹ Unlike in the U.S., companies refuse to let others have access to their structures. The MLA for the region noted that if the telephone company allowed others

2007; Networking and Computer Repair Specialist (6F-AB), Interview with the Author, January 5, 2007; President and Systems Engineer, Computer Sales and Service (5F-AB), Southern County, Interview with the Author, January 4, 2007.

⁵⁵⁶ Manager, Seed Cleaning Plant (3E-AB), Village 5, Central County, Interview with the Author, January 3, 2007.

⁵⁵⁷ Manager, Seed Cleaning Plant (3E-AB), Village 5, Central County, Interview with the Author, January 3, 2007; Manager, Seed Cleaning Plant (4E-AB), Village 3, Central County, Interview with the Author, January 5, 2007; Economic Development Officer, Southern County Economic Partnership Society (1A-AB), Interview with the Author, October 23, 2006.

⁵⁵⁸ Manager, Seed Cleaning Plant (4E-AB), Village 3, Central County, Interview with the Author, January 5, 2007; Farmer (16D-AB), South West of Village 3, Central County, Interview with the Author, December 19, 2006.

⁵⁵⁹ Internet Service Provider (7F-AB), Interview with the Author, January 15, 2007.

⁵⁶⁰ Ibid.

⁵⁶¹ Member, Village 4 Cable Society (3F-AB), Central County, Interview with the Author, December 7, 2006.

to use its towers, it would “enhance service to rural Albertans” and would be in the “public good.” The phone company, however, “refuse[s] to let other companies on.”⁵⁶² Sharing towers would be an economical way to extend service.

The wireless providers in the region did not pay spectrum licensing fees as they used unlicensed spectrum. Many of the wireless internet service providers in the region are using unlicensed frequencies.⁵⁶³ One small private internet service provider mentioned the cost of licensing a spectrum to be prohibitive.⁵⁶⁴ Despite this, however, problems of signal interference cropped up necessitating cooperation between them or when this failed, the smaller ISPs had to adjust the frequencies all of their transmitters.⁵⁶⁵ In some cases, small organizations found the ISPs to be lacking in customer service. When researching ISPs, the learning center staff and some businesses found that some companies did not respond at all.⁵⁶⁶ Additionally, some ISPs only had large packages for major users, they had not created service packages for smaller clients, and thus their prices were too high for small organizations. Out of all the ISPs, the literacy coordinator found “the big companies were useless...their service was probably the worst.”⁵⁶⁷ A resident of a small village noted a large service provider told him that high-speed internet

⁵⁶² Member of Legislative Assembly (1G-AB), Interview with the Author, November 17, 2006.

⁵⁶³ Internet Service Provider (1F-AB), Interview with the Author, November 22, 2006; Economic Development Officer, Southern County Economic Partnership Society (1A-AB), Telephone Conversation with the Author, November 28, 2006; General Manager, Municipal Corporation, Northern County (4A-AB), Interview with the Author, October 30, 2006.

⁵⁶⁴ Economic Development Officer, Southern County Economic Partnership Society (1A-AB), Telephone Conversation with the Author, November 28, 2006.

⁵⁶⁵ Internet Service Provider (1F-AB), Interview with the Author, November 22, 2006; General Manager, Municipal Corporation, Northern County (4A-AB), Interview with the Author, October 30, 2006.

⁵⁶⁶ Literacy Coordinator, Central County Community Adult Learning Office (1B-AB), Town 2, Central County, Interview with the Author, October 25, 2006; Networking and Computer Repair Specialist (6F-AB), Interview with the Author, January 5, 2007.

⁵⁶⁷ Literacy Coordinator, Central County Community Adult Learning Office (1B-AB), Town 2, Central County, Interview with the Author, October 25, 2006.

would not arrive in the village “in my lifetime.”⁵⁶⁸ The manager of a seed cleaning plant noted, “big companies don’t see profit” in rural areas and so they do not extend service. Despite this, he thought the “more companies that want to do it, the better.”⁵⁶⁹ The literacy coordinator fumed: “...this is supposed to be something that gets out into the rural areas, which by definition is gonna be small towns and small organizations and you talk to the service providers, they don’t want to deal with small towns, small organizations,... it’s not worth their trouble. And, like, isn’t that who it’s supposed to be for?”⁵⁷⁰ The learning center’s administrative coordinator also commented on this issue, summing up that if “you are a small organization, you’re irrelevant” to the big providers.⁵⁷¹ This issue is exacerbated by the lack of competition in rural areas, where there is “one choice” in many cases.⁵⁷² The Chief Administrative Officer of a town noted that the town chose its high-speed internet provider because it was “the only one available.” He reflected, this “is itself another issue. That’s how desperate rural Alberta

⁵⁶⁸ Member, Village 4 Cable Society (3F-AB), Central County, Interview with the Author, December 7, 2006.

⁵⁶⁹ Manager, Seed Cleaning Plant (3E-AB), Village 5, Central County, Interview with the Author, January 3, 2007; Networking and Computer Repair Specialist (6F-AB), Interview with the Author, January 5, 2007 echoed this sentiment.

⁵⁷⁰ Literacy Coordinator, Central County Community Adult Learning Office (1B-AB), Town 2, Central County, Interview with the Author, October 25, 2006.

⁵⁷¹ Administrative Coordinator, Central County Community Adult Learning Office (2B-AB), Town 2, Central County, Interview with the Author, October 31, 2006; Networking and Computer Repair Specialist (6F-AB), Interview with the Author, January 5, 2007.

⁵⁷² Literacy Coordinator, Central County Community Adult Learning Office (1B-AB), Town 2, Central County, Interview with the Author, October 25, 2006; Chief Administrative Officer (10B-AB), Village 3, Central County, Interview with the Author, December 1, 2006; Chief Administrative Officer (15B-AB), Town 1, Northern County, Interview with the Author, December 13, 2006; Chief Administrative Officer (21B-AB), Town 4, Central County, Interview with the Author, December 18, 2006; Senior Serviceman, Electric Company (2E-AB), Village 3, Central County, Interview with the Author, December 21, 2006.

is...desperate ... willing to pay high price” for the service.⁵⁷³ Some residents endured poor service rather than have no service.⁵⁷⁴

Some small service providers would like to extend their service, but they are unable to secure the financing to buy and install the necessary equipment because the populations, and hence the potential returns, are too small. As Strover notes in “Rural Internet Connectivity,” the high costs of bringing service to relatively few subscribers and the difficulties achieving economies of scale, keeps the ISPs from developing a profitable business plan and securing funding.⁵⁷⁵ In the words of one ISP, they “can’t get financing to grow.”⁵⁷⁶ One small ISP owner noted he installed equipment until he “ran out of money.” He has equipment installed on fifteen towers and provides high-speed internet to about 800 customers. In the central county, his line of sight equipment stretches 41 kilometers (25.48 miles).⁵⁷⁷ Another ISP noted that financial companies want to see a “proven track record” of service before they will give financing and that “small companies in small towns can’t show a proven track record.” This makes expanding service difficult.⁵⁷⁸ Ultimately, business decisions come into play and even with the SuperNet bringing service to the communities, some ISPs find that their cost-benefit analyses do not encourage them to set up service in all areas. Some providers

⁵⁷³ Chief Administrative Officer (21B-AB), Town 4, Central County, Interview with the Author, December 18, 2006.

⁵⁷⁴ Networking and Computer Repair Specialist (6F-AB), Interview with the Author, January 5, 2007; Retail Computer Sales and Service (4F-AB), Interview with the Author, December 15, 2006.

⁵⁷⁵ Sharon Strover, “Rural Internet Connectivity,” *Telecommunications Policy*, vol. 25 (2001): 344.

⁵⁷⁶ Internet Service Provider (7F-AB), Interview with the Author, January 15, 2007.

⁵⁷⁷ His equipment stretched from two eastern counties into the central county. The 800 customers are spread among the three counties. Internet Service Provider (1F-AB), Interview with the Author, November 22, 2006.

⁵⁷⁸ Internet Service Provider (7F-AB), Interview with the Author, January 15, 2007.

admitted serving only areas with the most farmers.⁵⁷⁹ As will be explored in the next section, the lack of private ISPs frustrated some individuals and county officials so much that they decided to set up ISPs of their own or they took it upon themselves to attract ISPs to their areas.

In contrast to the smaller ISPs, one provider, who installs for a large company from Atlantic Canada that supplies both wireless internet and satellite, noted that there is a gold rush atmosphere in rural areas now, where ISPs are attempting to be the first provider into a region. He argued that “it’s a race” to get into an area and provide service.⁵⁸⁰ Being the first provider is important because once subscribers pay for equipment and its installation, they have little incentive to switch providers.⁵⁸¹ Especially lucrative for this company are the larger communities and the areas that have towers ready for installation. The installer noted that the national company was deploying in Alberta because of the SuperNet; it cost them less to gain subscribers because of the fiber optic network.⁵⁸² Additionally, the company deployed line of sight wireless in places where tall structures were available. Several other ISPs noted that this large company is not playing fair; one computer sales and service person stated that the company is “a little evil.”⁵⁸³ A county representative argued that the company was putting up towers in town and only providing service to those “who can reach it” rather than to all rural residents.⁵⁸⁴

⁵⁷⁹ Internet Installer (2F-AB), Southern County, Interview with the Author, November 23, 2006.

⁵⁸⁰ President and Systems Engineer, Computer Sales and Service (5F-AB), Southern County, Interview with the Author, January 4, 2007.

⁵⁸¹ Internet Service Provider (7F-AB), Interview with the Author, January 15, 2007.

⁵⁸² President and Systems Engineer, Computer Sales and Service (5F-AB), Southern County, Interview with the Author, January 4, 2007.

⁵⁸³ Quoted from Retail Computer Sales and Service (4F-AB), Interview with the Author, December 15, 2006; Internet Service Provider (1F-AB), Interview with the Author, November 22, 2006.

⁵⁸⁴ Economic Development Officer, Southern County Economic Partnership Society (1A), Telephone Conversation with the Author, November 28, 2006.

The computer sales and service provider stated that the large company was “picking the plums” and providing service only to those places where installing was “easy.”⁵⁸⁵ On the other hand, the cable society member stated that the nation-wide provider was a “well-heeled operation”⁵⁸⁶ and could pay money for equipment installation regardless of the cost. Alberta-based ISPs, computer sales and service people often discussed both Bell and the nation-wide ISP in terms of regionalism. Regionalism, a strong factor in the history of Canada, was also at play in internet service provision in rural Alberta. A computer service person and a small ISP noted that the large provider, based in Atlantic Canada, was “sweeping across with wireless.”⁵⁸⁷ Something irksome to small providers was that the large company used the railway rights of way.⁵⁸⁸ A networking and computer repair specialist noted that it is “upsetting to some people” that a company from Atlantic Canada penetrated the service provision market in Alberta. He notes that people ask, “Why aren’t the Alberta companies doing well?”⁵⁸⁹ A computer sales and service provider noted that neither the larger ISP nor Bell are Alberta companies and that Albertans “need to shoo them out.”⁵⁹⁰ One provider noted that before the large provider came to the region, providers “all knew each other” and “worked to stay out of each other’s way” but this changed with the new entrant.⁵⁹¹

Although the SuperNet project could provide important access to services currently unavailable in rural Alberta, on the ground, the government’s lack of

⁵⁸⁵ Retail Computer Sales and Service (4F-AB), Interview with the Author, December 15, 2006.

⁵⁸⁶ Member, Village 4 Cable Society (3F-AB), Central County, Interview with the Author, December 7, 2006.

⁵⁸⁷ Internet Service Provider (1F-AB), Interview with the Author, November 22, 2006.

⁵⁸⁸ Member, Village 4 Cable Society (3F-AB), Central County, Interview with the Author, December 7, 2006.

⁵⁸⁹ Networking and Computer Repair Specialist (6F-AB), Interview with the Author, January 5, 2007.

⁵⁹⁰ Retail Computer Sales and Service (4F-AB), Interview with the Author, December 15, 2006.

⁵⁹¹ Internet Service Provider (1F-AB), Interview with the Author, November 22, 2006.

communication left people with a murky understanding of the network; town offices and community social services found the SuperNet unaffordable without substantial government subsidies; and people were frustrated that the big ISPs viewed them as “not worth their time.”⁵⁹² The rural Albertans who were aware of the network’s possibilities worry that the equipment would sit in back offices gathering dust. For some, seeing the SuperNet edge devices installed in their buildings but not connecting to anything made the project appear to be a waste of money and promise. One town administrator stated, the “box sucks up \$540 a month in electricity and warms my office, but no one connects to it.”⁵⁹³ The learning center’s administrative coordinator noted that despite the advantages to access, “the hurdles and the confusion and the things you have to jump through to get there, you know, can easily be enough to say it’s not worth it.”⁵⁹⁴ While the interviewees support the idea of breaking down the geographical and numerical disadvantages that have plagued service provision in rural areas, many are starting to question the implementation of the project. The literacy coordinator called the implementation phase “seriously flawed” and a waste of a lot of public money.⁵⁹⁵

Local Solutions to the Paucity of Internet Service Providers

The pace at which internet service providers came to rural Alberta frustrated some individuals and organizations. They endured poor internet service for years. With the

⁵⁹² Administrative Coordinator, Central County Community Adult Learning Office (2B-AB), Town 2, Central County, Interview with the Author, October 31, 2006.

⁵⁹³ Village Administrator (8B-AB), Village 5, Central County, Interview with the Author, November 30, 2006.

⁵⁹⁴ Administrative Coordinator, Central County Community Adult Learning Office (2B-AB), Town 2, Central County, Interview with the Author, October 31, 2006.

⁵⁹⁵ Literacy Coordinator, Central County Community Adult Learning Office (1B-AB), Town 2, Central County, Interview with the Author, October 25, 2006.

SuperNet, better, faster service was within reach, but until ISPs came to serve their homes and businesses, the status quo of slow dialup or expensive satellite remained. Some individuals, companies, and municipalities decided not to wait until ISPs moved into the region and instead they took action to ensure that ISPs using the SuperNet would start serving customers in their locales. This section explores the actions that these people took and the results of the plans.

As Canadian rural development scholar Ricardo Ramírez states in “A Model for Rural and Remote Information and Communication Technologies,” governmental support and partnerships are required to establish telecommunications infrastructure when a viable business case is not possible.⁵⁹⁶ In the case of high-speed broadband, Alberta’s provincial government recognized this and developed the fiber optic network, but they argued that once they had installed the SuperNet and the network was active, regional competition for subscribers would occur between a variety of internet service providers that would pay uniform rates to buy bandwidth from the SuperNet and provide high-speed internet service to rural residents and businesses.⁵⁹⁷ This design can be traced to the government’s unwillingness to again provide telecommunication services as only a decade earlier it privatized its telephone service. In some areas, the envisioned competition between providers has occurred. In others, fieldwork shows that despite

⁵⁹⁶ Ricardo Ramírez, “A Model for Rural and Remote Information and Communication Technologies: A Canadian Exploration,” *Telecommunications Policy*, vol. 25 (2001): 316.

⁵⁹⁷ “Alberta SuperNet Quick Facts,” SuperNet website, Service Alberta, Government Alberta, URL: <http://www.albertasupernet.ca/The+Project/supernet+quick+facts/default.htm> (accessed March 1, 2009); Axia NetMedia Corporation, “Service Provider Enabler: Information Package,” (n.d.) available from “How Do I Become a Service Provider on the Alberta SuperNet,” The Alberta SuperNet, Open Access Networks, Axia NetMedia Corporation website, URL: http://axia.com/open_access_networks/isp.asp (accessed January 19, 2009); “Alberta SuperNet Packs Power,” in “Harnessing the SuperNet Advantage” advertising supplement (n.d.), 3 provided by Bell Marketing Representative (3C-AB), Interview with the Author, December 31, 2007.

considerable initial interest by private companies in serving rural areas, competition did not occur and some places remained without high-speed internet service. As explored in the previous section, small businesses cannot get financing to expand their services and many large companies still did not appear to be too interested in providing service, with the exception of the large company from Atlantic Canada. The fallback clause naming Bell the “provider of last resort” was not used as quickly as residents wished.⁵⁹⁸ In some cases, rural community members and villagers became tired of waiting for a private service provider and sought solutions of their own. To overcome the lack of provision, residents and local government officials developed regional and micro-level solutions to connection problems. The government’s SuperNet infrastructure enables these solutions.

This section explores the variety of individual, village, and municipal responses to the lack of private high-speed service provision, including municipal initiatives, societies, and other unique local solutions. It argues that local provision of internet access is another example in a long history of rural communities seeing no option but to provide required or desired services themselves; a situation that is akin to the establishment of rural telephony.

The four cases are modern versions of provision problems that have plagued rural communities for decades. Simply put, private companies do not rush to serve rural areas because the low population densities promise low economic returns. It is important to note that the unwillingness of some ISPs to provide service to rural areas and small towns reveals a similar set of problems to the extension of telephone service. In the early twentieth century, the telephone company, Bell, did not want to run telephone wires

⁵⁹⁸ Retail Computer Sales and Service (4F-AB), Interview with the Author, December 15, 2006.

through rural Alberta and the other Prairie Provinces as they felt the infrastructure costs were too much for the limited number of subscribers they would gain. Frustrated with this situation, the provincial government bought Bell's lines and established Alberta Government Telephones in 1908. Finding the financial burden of rural lines too much to bear, the provincial phone company sold them to local cooperatives during the Great Depression and residents had to maintain the lines and run the switchboard to have service. In the 1970s, the local coops merged into Alberta Government Telephones again and in the late 1990s, the province privatized the phone company and Telus now provides service.⁵⁹⁹

Historically, rural and village residents had to provide their own telecommunication services. Some members of rural communities believe that this is still the case. According to the region's Member of the Legislative Assembly, the "large companies were not terribly interested" in serving rural Albertans and "that's why it's the government's job to deal with infrastructure."⁶⁰⁰ The government, however, only dealt with infrastructure to the province's towns and villages; it does not provide service to the subscriber's door. This raises the question: what happens when the government provides the infrastructure to the towns and villages and internet service providers are either uninterested or unable to provide service to community members and rural residents? Additionally, what happens when the SuperNet's provider of last resort does not begin providing service?

⁵⁹⁹ Tony Cashman, *Singing Wires: The Telephone in Alberta* (Edmonton: Alberta Government Telephone Commission, 1972), 364; Mitchell, "Broadband at the Margins," 4; Nadine I. Kozak, "'Among the Necessities': A Social History of Communication Technology on the Canadian Prairies, 1900 to 1950," Unpublished M.A. Thesis in Communication (Carleton University, Ottawa, ON, 2000), 83-92.

⁶⁰⁰ Member of Legislative Assembly (1G-AB), Interview with the Author, November 17, 2006.

In the area under study, some municipalities and community members pursued their own solutions and brought internet service provision to their areas. All of these solutions are what critical political economist Dan Schiller calls “home rule,” locally chosen solutions to remedy the abuses of large providers, in this case, “cherry picking” where ISPs simply ignore smaller communities in favor of larger, more profitable areas.⁶⁰¹ Four places using three methods to overcome the lack of private service providers in the counties will illustrate measures individuals and localities have taken to serve their populations.

The first method is building the necessary infrastructure, wireless equipment towers, to entice private companies to provide service. A small town in the northwestern part of the central county with a population of 743 in the 2001 Census did not have a high-speed internet service provider but local businesses needed access to broadband internet for their work. There were no providers coming to town “in the short-term future.”⁶⁰² One business owner, a car dealer, knew that “finding an ISP is the challenge.”⁶⁰³ He looked into the issues for over a year understanding that it was worthwhile to invest time and money into looking for a solution. He eventually realized that gaining the “expertise to set up a wireless network is not something that I could do” but he discovered that the problem was that ISPs did not want to spend money on a tower for line of sight wireless transmitters. Indeed, he talked to between six and eight companies and discovered that no one was “interested to put out money to build a tower.”

⁶⁰¹ Dan Schiller, “Social Movement in Telecommunications: Rethinking the Public Service History of US Telecommunications, 1894-1919,” *Telecommunications Policy*, 22, no. 4/5 (1998): 402.

⁶⁰² General Manager, Automotive Dealership (1E-AB), Town 4, Central County, Interview with the Author, November 15, 2006.

⁶⁰³ Ibid.

To overcome this problem, the car dealer paid for the tower, assuming that there was truth to the saying, “if you build it, they will come.”⁶⁰⁴ In this case there was. The car dealer installed the tower in October of 2005 and after this, a few ISPs contacted him, including the large ISP owned in Atlantic Canada. This corporation, the one the car dealer selected, was interested in providing service to the region once the tower was present as the ISP would then have lower set up costs. The car dealer leased the tower to the ISP for ten years and he expects to get back slightly more than he spent, thus he will receive a small profit in addition to providing a “service to the community.” By late 2006, the car dealer notes “at least 75” homes in the town and its surroundings had signed up.⁶⁰⁵ This solution is limited, however, as those more than 25 kilometers beyond the town’s boundaries cannot access the service.⁶⁰⁶

In another example, the senior serviceman of the power company that operated and maintained the power lines noted that of 37 service points in the region, his was the only one that remained on dial-up in August of 2006. He contacted four service providers about getting high-speed internet and eventually contracted with the ISP working with the municipal initiative in the southern county, because “basically they’re the only one” that would come to his location south of a town. Originally, the ISP said that they would not

⁶⁰⁴ This phrase, tossed around by technology advocates, is originally from W. P. Kinsella’s novel, *Shoeless Joe*. The main character of the novel hears the voice of a baseball park announcer, telling him “If you build it, he will come.” Meaning, if the protagonist builds a baseball diamond, Shoeless Joe will come to play on it. The phrase moved more solidly into the American cultural imagination with the release of “Field of Dreams,” a 1989 film starring Kevin Costner. The phrase became the movie’s tag line. W. P. Kinsella, *Shoeless Joe* (New York: Houghton Mifflin, 1982, 1999), 3, 4.

⁶⁰⁵ General Manager, Automotive Dealership (1E-AB), Town 4, Central County, Interview with the Author, November 15, 2006 and “Utilities,” Services, Residents, Town of Hardisty website, URL: <http://www.hardisty.ca/residents/services.utilities.htm> (accessed September 16, 2006).

⁶⁰⁶ Librarian (5B-AB), Town 4, Central County, Interview with the Author, November 22, 2006; General Manager, Automotive Dealership (1E-AB), Town 4, Central County, Interview with the Author, November 15, 2006.

come to his location without finding fifteen customers first. The power company ended up paying for the “whole install” of an \$11,000 transmitter that reached the ISPs’ nearest tower in a farmer’s field. In return, the power company office receives three years of free internet service.⁶⁰⁷ The car dealer and power company’s experience illustrates that it is the expense of the necessary equipment that delayed the provision of internet service to rural areas.

The second solutions are county-wide municipal initiatives, solutions chosen by two counties in the region, the northern county and the southern county. These provide county-level government intervention to overcome provision issues. Two county governments in the region chose to extend the SuperNet connection that the government installed. The county representatives in the northern and southern counties decided to implement solutions that would make high-speed internet available to all residents without waiting for private companies to move into the regions on their own.

The southern county decided in 2002 that they wanted to provide modestly priced internet service to the people of the county. The county’s economic development officer argued that although the SuperNet offers a reasonably priced backhaul to the internet, the large telecommunications companies were not willing to provide service to the small county. The decision to work in concert with a private ISP to bring line of sight wireless service to residents occurred after the county office conducted a survey. The official noted residents identified high-speed internet availability as “high priority.” The economic development officer reported that only “approx[imately] 12% [of] the households” completed the original survey, but, “This gave us enough to build the

⁶⁰⁷ Senior Serviceman, Electric Company (2E-AB), Village 3, Central County, Interview with the Author, December 21, 2006.

business case; we now have approx. 15-20% of the households and businesses signed on.”⁶⁰⁸ For the economic development officer, the availability of high-speed internet gave residents “one less reason to leave” the county. The county’s population peaked in 1947 and has experienced a decline ever since.⁶⁰⁹ To provide high-speed internet, the county’s economic development society partnered with a private internet service provision company based in Calgary reaching an agreement for 25 years. The county built and owns the towers and provided the transmitting equipment and the internet service provider manages the system and deals with the customers.⁶¹⁰ This is a sweet deal for the ISP because building the towers and buying the transmitting equipment are the most expensive parts of the operation. The wireless network has six towers in the county and two transmitters in the central county because it “wasn’t cost prohibitive” to install them as the radio equipment is installed on a seed cleaning plant in one village and in a farmer’s field in the other. The partnership provides service to both rural and urban areas of the county. The county’s economic development officer argued “the only way rural residents get service is if they step up to the plate and make sure it’s put in place.” He stressed that theirs is a local, community-driven initiative. He stated that while ISPs want quick returns, the county, which is responsible for building the wireless towers, can “afford to be patient” and has amortized the cost over ten years. To the development officer, providing high-speed internet is “no different than any other infrastructure

⁶⁰⁸ Economic Development Officer, Southern County Economic Partnership Society (1A-AB), Fax Communication to the Author, January 11, 2007.

⁶⁰⁹ Economic Development Officer, Southern County Economic Partnership Society (1A-AB), Interview with the Author, October 23, 2006.

⁶¹⁰ Ibid.

investment.”⁶¹¹ The basic radio, which the majority of people require, costs \$300. Those further than ten kilometers from a tower require a more powerful and more costly radio. After this, the price of basic residential internet is \$34.95 per month for high-speed internet, one of the lowest in the region. The ISP will not guarantee download or upload speeds, but they advertise residential speeds of up to “35x faster” than dial up.⁶¹² In 2006, the municipal-private partnership had 200 customers. The official reported that a customer satisfaction survey found “one or two less than satisfied” but in general the “overwhelming majority” was “tickled pink and extremely grateful.”⁶¹³ The economic development officer recalled that the January 2006 survey found that people evaluated the reliability and speed of the network with focus on a five point scale where five was “completely satisfied,” and assessed their experience with the private ISP slightly lower in the range of three and four.⁶¹⁴

Not everyone was thrilled with this partnership, however. Critics argue the county lost out because it shouldered much of the financial burden. The region’s MLA noted that while he gives the municipal way “a lot of credit,” he’s “not very happy” with the situation in the southern county because the “county gave taxpayer money” to the ISP in what is a “bottomless pit.”⁶¹⁵ Unlike the Government of Alberta, which capped the amount it was responsible for in the fiber optic network project, the southern county did

⁶¹¹ Ibid.

⁶¹² Economic Development Officer, Southern County Economic Partnership Society (1A-AB), Interview with the Author, October 23, 2006; Internet Services Price List for the Southern County, provided by Economic Development Officer, Southern County Economic Partnership Society (1A-AB).

⁶¹³ Economic Development Officer, Southern County Economic Partnership Society (1A-AB), Interview with the Author, October 23, 2006.

⁶¹⁴ Economic Development Officer, Southern County Economic Partnership Society (1A-AB), Fax Communication to the Author, January 11, 2007.

⁶¹⁵ The MLA and others expressed concern with the demands that the private ISP placed on the county for technology. Member of Legislative Assembly (1G-AB), Interview with the Author, November 17, 2006.

not do this and the MLA worried that the county's taxpayers were going to pay for cost overruns and excess to the private provider. He also suggested that the county had a "bone to pick with private sector business, especially local ones,"⁶¹⁶ and contracted with an ISP from Calgary rather than one in the region.

By April of 2008, the northern county had hired a new economic development officer, whose reports to the county council suggest the broadband partnership was not working well. In his first report, the new economic development officer noted, "We are presently continuing to upgrade our equipment for the internet system to ensure that service levels are more reliable. As well we are having discussions with [the internet service provider] to ensure that our customers' expectations are met."⁶¹⁷ Over the next months, upgrades occurred to improve service and the economic partnership society planned to construct a new tower to extend service further.⁶¹⁸ Additionally, the new economic development officer noted that residents ought to contact him if they were having problems getting issues resolved with the service provider.⁶¹⁹ This example suggests that counties, desirous of providing internet service to all residents, do not always have the required expertise to bring infrastructure to residents that do not abuse public funds.

The northern county also decided to bring broadband to its residents, by expanding the mandate of the municipal corporation that largely dealt with county energy

⁶¹⁶ Member of Legislative Assembly (1G-AB), Interview with the Author, November 17, 2006.

⁶¹⁷ "Economic Development Report," Southern County Bulletin No. 489 (April 2008), 2.

⁶¹⁸ "Economic Development Report," Southern County Bulletin No. 490 (May/June 2008), 2-3; "Economic Development Report," Southern County Bulletin No. 493 (November/December 2008), 2; "Economic Development Report," Southern County Bulletin No. 494 (January 2009), 3.

⁶¹⁹ "Economic Development Report," Southern County Bulletin No. 494 (January 2009), 3.

projects, to include the provision of broadband.⁶²⁰ This is a joint venture between a municipally-controlled corporation established by the county and a private company to provide internet service to rural and urban residents.⁶²¹ The county's chief administrative officer stated that the county "knew Telus wasn't going to provide service to rural areas."⁶²² The venture is for profit and is a tax-supported initiative. The northern county dedicated up to \$800,000 to provide internet access to the ratepayers, particularly those in rural areas. The general manager of the municipal corporation noted that the big companies tended to "cherry pick" and serve the "urban communities" and not other ones. The chief administrative officer argued, "we want to make sure everyone has access."⁶²³ The general manager of the municipal corporation argued that some of the private providers were "predatorial" and noted that the "big players position themselves to block our efforts" but he said, "we won't stop trying" and "we'll outlast the buggers."⁶²⁴ The rate payers own the municipal corporation through the county council and eventually, the municipal corporation will amalgamate with the private company and the ratepayers will own the corporation. This means that the profits from internet service are kept in the county rather than exported to a private company's coffers.⁶²⁵ There are two key differences between the two municipal ventures: first, the northern county capped the money available for the project and second, in end, the municipality will own

⁶²⁰ General Manager, Municipal Corporation, Northern County (4A-AB), Interview with the Author, October 30, 2006.

⁶²¹ Chief Administrative Officer, Northern County Office (6A-AB), Interview with the Author, December 5, 2006.

⁶²² Ibid.

⁶²³ Ibid.

⁶²⁴ First quotation from General Manager, Municipal Corporation, Northern County (4A-AB), Interview with the Author, October 30, 2006; later quotations from General Manager, Municipal Corporation, Northern County (4A-AB), Telephone Conversation with the Author, November 8, 2006.

⁶²⁵ General Manager, Municipal Corporation, Northern County (4A-AB), Interview with the Author, October 30, 2006.

the equipment and the service. The county's chief administrative officer notes that local ownership was important to the council.⁶²⁶ They see themselves as providing a "municipal service" to their rate payers, like municipally provided power and sewer service.⁶²⁷ The municipal corporation's general manager notes the county's underlying rationale was that "we wanted [to] make sure everyone has access" to high-speed internet. Despite this, the county stated in a frequently asked questions document in 2005 that they also were installing based on population density, "Initial placement of towers will be in areas where service will be available to the most people. More sparsely populated areas will be serviced at a later time."⁶²⁸ People and businesses allowed the municipal corporation to put the communication equipment on seed cleaning plants, fertilizer plants, and grain elevators in exchange for free internet, which allowed the municipal corporation to save \$10,000 per tower that they did not construct.⁶²⁹ The project uses WiMax, which the chief administrative officer admitted she is "not fully aware of the technology" but the "people who know say it's a good thing."⁶³⁰ This partnership started offering limited service in July of 2006 and had over twenty subscribers in late 2006, or less than one percent of the county's population, with over 100 more pre-qualified for service out of a population of 3,500 dwellings and

⁶²⁶ Chief Administrative Officer, Northern County Office (6A-AB), Interview with the Author, December 5, 2006.

⁶²⁷ Ibid.

⁶²⁸ "[Northern] County's Broadband Initiative," document, Northern County Website (accessed November 16, 2006).

⁶²⁹ General Manager, Municipal Corporation, Northern County (4A-AB), Interview with the Author, October 30, 2006.

⁶³⁰ Chief Administrative Officer, Northern County Office (6A-AB), Interview with the Author, December 5, 2006.

businesses.⁶³¹ By September of 2008, the service expanded to 365 customers, or over ten percent. Additionally, they expanded the service, adding three new towers.⁶³²

The central county had “no plans” to establish a municipal solution, according to the county’s senior financial officer. Instead, she stated they preferred to leave provision entirely to private enterprise, arguing, “if there’s private [providers], it’s their field.”⁶³³ A county councilor agreed noting “there’s private people providing services” and the county did not want to “give advantage to one company.”⁶³⁴ The financial officer did note, however, “If we were to do something, chances are it would be for our rural people. Towns and villages, they already have options.” She noted that the two providers she was aware of provided line of sight service “within a certain distance” and noted, “To me, it makes no sense [a company] will provide high-speed in town and not seven miles down the road.”⁶³⁵ These officials did not view high-speed internet as the same as county services including ambulance service and fire protection.⁶³⁶ She insisted “it hasn’t come to that” and that high-speed internet is “not the same as roads.” Residents in the central county were deeply critical of their county officials for not adopting similar measures as those in the northern and southern counties.⁶³⁷ They blamed this lack of action on the

⁶³¹ Chief Administrative Officer, Northern County Office (6A-AB), Interview with the Author, December 5, 2006; General Manager, Municipal Corporation, Northern County (4A-AB), Interview with the Author, October 30, 2006; “High Speed Internet,” document, Northern County Website (accessed November 16, 2006).

⁶³² “Highlights of [Northern] County Regular Council Meeting” document (September 17, 2008), Northern County Website (accessed February 27, 2009).

⁶³³ Senior Financial Officer, Central County (2A-AB), Interview with the Author, October 24, 2006.

⁶³⁴ County Councilor, Central County (5A-AB), Interview with the Author, November 17, 2006.

⁶³⁵ Senior Financial Officer, Central County (2A-AB), Interview with the Author, October 24, 2006.

⁶³⁶ Ibid.

⁶³⁷ Literacy Coordinator, Central County Community Adult Learning Office (1B-AB), Town 2, Central County, Interview with the Author, October 25, 2006; Career Consultant and Board Member, Central County Community Adult Learning Office (3B-AB), Town 2, Central County, Interview with the Author, November 1, 2006; Rural Farm Resident (15D-AB), Central County, Interview with the Author, December 20, 2006.

county's desire not to do the necessary work.⁶³⁸ Critics argued that high-speed internet was becoming a "basic service" and stated that the county's argument that it did not want to interfere with private business was an "excuse."⁶³⁹ One town's chief administrative officer in the central county noted, "there's a concern through the whole county that the wires are in the ground and can't be used because it costs too much."⁶⁴⁰

The third solution delivers high-speed internet to a small village through a community cable system. The community formed the cable society in 1991 to provide cable service to village residents. A society member, on realizing that the SuperNet's fiber optic cable ran in front of his home, wondered why he could not get high-speed internet. Providers did not show any interest in extending the service to a village of 161 people. The society member then began researching and learned that the SuperNet point of presence in the village office could be connected to the coaxial cable from the television system using a media converter and an internet service provider. The society borrowed \$8,000 from the village to fund the venture.⁶⁴¹ The society's members agreed to this plan and the former president of the society resigned because he felt high-speed internet service would not be profitable and did not want "cable to subsidize the internet." The society now offers high-speed cable internet to homes and businesses for \$40 a month and the society member noted that "now we have more revenue than cable."⁶⁴² His goals, however, were not altruistic. He noted "I want to ensure that there's a facility

⁶³⁸ Career Consultant and Board Member, Central County Community Adult Learning Office (3B-AB), Town 2, Central County, Interview with the Author, November 1, 2006.

⁶³⁹ Ibid.

⁶⁴⁰ Chief Administrative Officer (18B-AB), Town 2, Central County, Interview with the Author, December 14, 2006.

⁶⁴¹ Marck, "Galahad Gets Up to Speed."

⁶⁴² Member, Village 4 Cable Society (3F-AB), Central County, Interview with the Author, December 7, 2006.

available so I can have internet.” This was not, according to the plan’s initiator, a desire to see everyone connected for the public good, but simply an idea formulated to “give me internet,” to ensure that he, a recent transplant from a large city, had *his* internet service.⁶⁴³ Currently, twenty-eight community members connect to the internet, which is seventeen percent of the village’s population. Distribution occurs through the cable system, which limits the scope of the approach to homes in the village. The society decided not to invest in wireless equipment to serve the surrounding rural regions. The village’s administrator stated that the community’s high-speed internet venture is an “important part of the fabric of the community” and that it illustrated the “can do” spirit of the village.⁶⁴⁴

The local solutions required to span the gap between the SuperNet’s point of presence and homes and businesses raise the question of whether the provincial government had done enough to bring high-speed internet to rural Alberta. Some strongly believe it did not.

A county councilor from the central county noted that the provincial government “should have provided the towers/masts.”⁶⁴⁵ One computer sales and service person in the region argued that the government needed to again take responsibility and extend the SuperNet beyond the towns and villages of the province. He argued that even with the SuperNet, ISPs still “face the issue that it’s uneconomic” to provide service to rural Alberta. He proposed a solution to the government which he called a “‘made in Alberta’

⁶⁴³ Member, Village 4 Cable Society (3F-AB), Central County, Interview with the Author, December 7, 2006.

⁶⁴⁴ Administrator (17B-AB), Village 4, Central County, Interview with the Author, December 14, 2006.

⁶⁴⁵ County Councilor, Central County (5A-AB), Interview with the Author, November 17, 2006.

equipment solution” for the SuperNet that was “relatively low cost” and that would provide a “wholesale solution.” He argued that there should be a tower at each SuperNet site and that shared transmitters be installed on the towers. The proposal would “turn Alberta into a large hotspot” and people would be “totally connected to [their] own account.” The government would own the towers. Providers would not install their own equipment, but rather share the costs of the equipment on the tower. To curb costs, he argued “one of the absolute critical factors is not building anything where there’s something already available.” This would allow them to “spend not a penny more than necessary.” The retailer expects that the plan would cost the province \$20 to \$25 million to cover the entire area. He claims that a working group from the Ministry of Restructuring and Government Efficiency “totally embraced” his idea but that the dissolution of the Ministry put the plan’s future in jeopardy.⁶⁴⁶ An Edmonton-based consultant, Allan Bly, wrote on his blog, “Alberta Rural Broadband,” “The GOA built a network that does not support rural broadband. The GOA should be actively looking at ways of funding the last mile.”⁶⁴⁷

There are two interesting and important things to note regarding these local solutions. The first is their small scale. They are solutions that are local in nature and envisioned for one small area, such as a county or a town. This allows communities to choose a plan that best suits their needs. On the other hand, working cooperatively to bring in an ISP with other communities could lead to more cost-efficient solutions. The commonality between the local solutions is that the availability of infrastructure,

⁶⁴⁶ Retail Computer Sales and Service (4F-AB), Interview with the Author, December 15, 2006.

⁶⁴⁷ Allan Bly, “Last/First Mile 2008 Problems,” Posted to blog Monday, December 22, 2008, “Alberta Rural Broadband: An Open Discussion on Alberta Rural Broadband” Blog, URL: <http://albertaruralbroadband.blogspot.com/> (accessed February 27, 2009).

particularly towers for mounting radio equipment, matters a lot. Rural residents' access to affordable wireless high-speed internet depends on whether someone offers a grain elevator or a tower on which to install equipment because this brings service to others and saves money from stretched and small local budgets, either private enterprise or regional government. It matters if someone pays for a tower. It matters if a county decides to put in internet or if a hamlet decides to do so. The SuperNet does enable these solutions and it is important that it does because it gives rural communities potential. Without the provincial government's intervention, actual implementation of the local solutions would not be possible. At the same time, the cheap backhaul provided by the SuperNet is not enough, in some cases, to bring high-speed internet to rural areas and this is a problem that the government must address.

These cases illustrate provision problems that have plagued rural communities for decades. Simply put, private companies do not rush to serve rural areas because the low population densities promise low economic returns. The companies are more willing or able to provide service when the community provides the local infrastructure, in these cases, the towers or the wires, providing a public subsidy for the private companies. The Alberta SuperNet case challenges the idea that government intervention solves the problem, for on the first mile where the government network ends, in some areas, the provision problems start again. Some interested parties, including rural community members and computer sales people, believe the provincial government will need, in end, to step in and construct the towers so that private companies will install wireless transmitters in rural areas. Four communities in the area under study, however, have shown that community resourcefulness can provide solutions to bridge the gap between

the SuperNet point of presence at the town center and the homes and rural communities that lie beyond thus opening another chapter in a long tale of helping themselves.

Rural Dwellers and High-Speed Internet

The second facet of the demand side is rural dwellers and their subscription to high-speed internet service. The SuperNet, as discussed previously, provided bandwidth to ISPs so they could provide internet service to town residents and rural dwellers. To explore this topic, it is important to first look at what communication technologies rural people have access to, what the barriers to getting high-speed internet include, whether or not rural dwellers view the internet as a necessity for rural Albertans, and whether they think it will “level the playing field” between rural and urban areas as the provincial government claimed.

In *Diffusion of Innovations*, Rogers discusses individual adoption decisions. He calls decisions to adopt innovations by individuals “optional innovation decisions.” He states these are “choices to adopt or reject an innovation that are made by an individual independent of the decisions of the other members of the system. Even in this case, the individual’s decision may be influenced by the norms of the system and by communication through interpersonal networks.”⁶⁴⁸ In this case, it is the individual, not the social system that makes the adoption decision.

The farm families interviewed made numerous optional innovation decisions over time. This section will consider rural residents’ general media use, which allows for a comparison to their use and understandings of high-speed internet. Of the 18 families

⁶⁴⁸ Rogers, *Diffusion of Innovations*, 28.

interviewed, everyone had a television set, the majority subscribed to satellite (twelve) and cable (one) to receive a greater menu of programming options.⁶⁴⁹ Two people lagged on this, making clear choices not to bring expanded choices into their homes. One family owned a TV set to watch videos but they did not have an antenna because they felt there is “too much violence” on TV.⁶⁵⁰ The husband noted, “As a longtime farmer I was too busy to waste time at watching T.V.”⁶⁵¹ One couple had only a broadcast antenna. The farmer said he was not a “big TV watcher” and was satisfied with the three channels he got via the antenna.⁶⁵² Most rural interviewees viewed satellite subscription, however, as a necessity. Without satellite, people noted that they did not get many or any channels and the reception quality was poor.⁶⁵³ A couple of people derogatorily called broadcast reception “peasant vision,” “farmer TV,” and “caveman.”⁶⁵⁴ Respondents widely adopted cell phones; only two did not have the device. Two kept analog “bag phones” in their vehicles since made obsolete by the transition to digital technology, rather than adopting newer phones.⁶⁵⁵ One farm wife noted that she and her husband kept their bag

⁶⁴⁹ The farmer that had cable television lived in a village.

⁶⁵⁰ Rural Farm Family (2D-AB), Central County Interview with the Author, November 28, 2006.

⁶⁵¹ Media Use Diary for Rural Farm Family (2D-Husband-AB), Central County, Postmarked December 11, 2006.

⁶⁵² Rural Farm Resident (5D-AB), Central County, Interview with the Author, November 17, 2006.

⁶⁵³ Rural Farm Resident (4D-AB), Central County, Interview with the Author, November 16, 2006; Rural Farm Resident (6D-AB), Southern County, Interview with the Author, November 21, 2006; Rural Farm Resident (7D-AB), Southern County, Interview with the Author, November 29, 2006; Rural Farm Resident (9D-AB), Central County, Interview with the Author, December 2, 2006; Rural Farm Resident (10D-AB), Central County, Interview with the Author, December 6, 2006; Rural Farm Resident (15D-AB), Central County, Interview with the Author, December 20, 2006; Rural, Non-Farm Resident (22D-AB), Central County, Interview with the Author, January 5, 2007.

⁶⁵⁴ Rural Farm Resident (17D-AB), Central County, Interview with the Author, December 20, 2006; Rural Farm Resident (14D-AB), Southern County, Interview with the Author, December 18, 2006; Rural Farm Resident and Networking and Computer Repair Specialist (6F-AB), Interview with the Author, January 5, 2007.

⁶⁵⁵ “Bag phones” were early analog cellular telephones installed in a vehicle. Many rural residents kept their bag phones and analog cell service because analog signals travel farther than their digital counterparts, which are better suited for urban regions. In the fall of 2008, Telus shut off its analog cell phone service across Canada and switched to an exclusively digital network. This switch led to uproar in some parts of

phone because it was “more reliable than little phones.”⁶⁵⁶ Thirteen respondents had internet at home, four did not. Of those connected five had line of sight wireless installed, one had cable internet, and the last had a satellite connection.

Rural residents were quick to outline their frustrations with and the failures of the technologies and providers they had access to. Most of the interviewees felt that high-speed internet was essential to them and their disappointments with devices and providers stemmed from this perception. Cattle industry and Government of Canada forms were migrating online and people found they needed high-speed internet to access them. A provider that received the wrath of several rural interviewees was the incumbent telephone company. One village administrator noted people “learned to be very frustrated with Telus.” She stated that Telus is the only “provider for landlines, so services are limited.”⁶⁵⁷ Despite this, communication scholar William H. Melody argued in 1993, “many rural and remote area users want and need much more than a minimal standard telephone service.”⁶⁵⁸ But in the rural areas, residents relied on older copper lines. One farm woman reported that she could not use a fax machine at home over the telephone wires because the “lines are so old.”⁶⁵⁹ A rural resident noted that unlike in the cities, rural residents could not bundle services, making their cumulative bills higher than

Telus’ service area, particularly mountain areas of British Columbia where digital service is not available. Some of those affected also do not have landline service and Telus’ switch to an all-digital network forced people to subscribe to costly satellite phone service. James Keller, “Telus Beings [sic] Shutting Down Analog Cell Service,” *The Toronto Star* (September 15, 2008), URL: <http://www.thestar.com/Business/article/499732> (accessed March 1, 2009); for information about analog cellular networks: Ira Brodsky, *The History of Wireless: How Creative Minds Produced Technology for the Masses* (St. Louis, MO: Telescope Books, 2008), 178, 183, 193-194.

⁶⁵⁶ Rural Farm Resident (12D-AB), Central County, Interview with the Author, December 8, 2006.

⁶⁵⁷ Village Administrator (17B-AB), Central County, Interview with the Author, December 14, 2006.

⁶⁵⁸ William H. Melody, “The Overlooked Opportunity: Rural and Remote Area Telecoms,” *Pacific Telecommunications Review*, 15, no. 2 (December 1993): 18.

⁶⁵⁹ Rural Farm Resident (6D-AB), Southern County, Interview with the Author, November 27, 2006; also, Rural Farm Resident (15D-AB), Central County, Interview with the Author, December 20, 2006.

those in urban areas.⁶⁶⁰ The village administrator stated, “people can wait years for landline service.”⁶⁶¹ Confirming this statement, one customer commented that they waited two years for a landline to their new home.⁶⁶² Others reported this delay also.⁶⁶³ Plus, running new landline service was cost prohibitive. The village administrator stated that a new line to rural homes cost \$1,000 and an extra line cost \$100.⁶⁶⁴ Rural customers had Telus horror stories. The telephone company quoted one rural farm resident \$18,000 for a second line to her home; she paid \$600 of this. Others reported very slow dialup speeds, regardless of their modem speed, including 21.6, 45.5 and 26.6 with a 56.6 Kbps modem.⁶⁶⁵ One unlucky rural resident who lived at the end of the telephone line had a dialup speed of 9.6 Kbps.⁶⁶⁶ The farmer who got 45.5 Kbps on his modem noted that the phone company put in a new line and he gained eighteen Kbps due to it.⁶⁶⁷ In general, people argued that the telephone company had not done enough for rural residents.

In addition to comments about the telephone company, rural residents also lamented the status of high-speed internet service provision in their region. These complaints centered on unavailability and cost. The cable society member noted that he

⁶⁶⁰ Rural Farm Resident (5D-AB), Central County, Interview with the Author, November 17, 2006; Rural Farm Resident (12D-AB), Central County, Interview with the Author, December 8, 2006.

⁶⁶¹ Village Administrator (17B-AB), Central County, Interview with the Author, December 14, 2006.

⁶⁶² Rural Farm Resident (6D-AB), Southern County, Interview with the Author, November 27, 2006.

⁶⁶³ Rural Farm Resident (9D-AB), Central County, Interview with the Author, December 2, 2006; Rural Farm Resident (16D-AB), Central County, Interview with the Author, December 19, 2006.

⁶⁶⁴ Administrator (17B-AB), Village 4, Central County, Interview with the Author, December 14, 2006; Rural Farm Resident (9D-AB), Central County, Interview with the Author, December 2, 2006.

⁶⁶⁵ Rural Farm Family (2D-AB), Central County, Interview with the Author, November 28, 2006.

⁶⁶⁶ Rural Farm Resident (7D-AB), Southern County, Interview with the Author, November 29, 2006; Rural Farm Resident (16D-AB), Central County, Interview with the Author, December 19, 2006; Rural Farm Resident and Networking and Computer Repair Specialist (6F-AB), Interview with the Author, January 5, 2007.

⁶⁶⁷ Rural Farm Resident (6D-AB), Southern County, Interview with the Author, November 27, 2006.

⁶⁶⁸ Rural Farm Resident (16D-AB), Central County, Interview with the Author, December 19, 2006.

felt “A sense of aggression on part of rural people to get connected.”⁶⁶⁹ Despite people’s desire for affordable high-speed internet access, some found it was not to be. These problems led many to remain on dial-up internet service despite its slow speeds. For some, obtaining high-speed internet became a priority. After inspectors found three cases of bovine spongiform encephalopathy (BSE) in Canadian cattle, one case in each 2003, 2004, and 2005,⁶⁷⁰ the age verification of cattle and tracking the herd of origin became increasingly important for producers. More farmers sought to register their cattle with the Canadian Cattle Identification Agency’s (CCIA) national cattle identification program. Farmers submit information online and therefore submission requires computer access, although the CCIA’s webpage notes, “If you do not have a computer, you can assign a third-party to submit on your behalf.”⁶⁷¹ Interviewees found that the registration process required not only a computer, but a high-speed internet connection as well.⁶⁷² Farmers found that the files were large and graphics rich; those with dial-up at home found the forms problematic to download.⁶⁷³ One farm woman stated that they cannot do CCIA tagging on dialup. So, high-speed was a necessity for “registering our calves.”

⁶⁶⁹ Member, Village 4 Cable Society (3F-AB), Central County, Interview with the Author, December 7, 2006.

⁶⁷⁰ Patrick Brethour, Katherine Harding, with Jeff Sallot and Dawn Walton, “Longer U.S. Ban Feared after New Mad-Cow Case; BSE is Discovered in Alberta Animal Born Months after Feed Rules Went into Effect,” *The Globe and Mail* (Canada) (Wednesday, January 12, 2005): A1. URL: http://www.lexisnexis.com/us/lnacademic/results/docview/docview.do?docLinkInd=true&risb=21_T5641534616&format=GNBFI&sort=RELEVANCE&startDocNo=1&resultsUrlKey=29_T5641534624&cisb=22_T5641534623&treeMax=true&treeWidth=0&csi=303830&docNo=13 (accessed January 28, 2009).

⁶⁷¹ Canadian Cattle Identification Agency, “Age Verification Frequently Asked Questions,” Canadian Cattle Identification Website, URL: http://www.canadaid.com/age_verification/age_ver.html (accessed January 28, 2009).

⁶⁷² Rural Farm Family (2D-AB), Central County, Interview with the Author, November 28, 2006; Farm Wife (6D-AB), Southern County, Interview with the Author, November 21, 2006; Rural Farm Resident (16D-AB), Central County, Interview with the Author, December 19, 2006.

⁶⁷³ Rural Farm Resident (16D-AB), Central County, Interview with the Author, December 19, 2006; Rural Farm Resident (6D-AB), Southern County, Interview with the Author, November 21, 2006; Manager, Seed Cleaning Plant (3E-AB), Village 5, Central County, Interview with the Author, January 3, 2007.

She noted that they “do it for a neighbor as well” who did not have high-speed internet at his home.⁶⁷⁴ Access to high-speed became necessary for cattle producers in the region and beyond. One farmer found that the cattle registration site times out for security but he could not complete the forms within the allotted time on his dial-up connection.⁶⁷⁵ Some rural dwellers went to the public access computers at the library to access government forms.⁶⁷⁶

As mentioned earlier, a civil servant involved with the government’s network services noted that most Albertans did not need to know about the SuperNet.⁶⁷⁷ Many did not know what the network was or what it did. The most noticeable benefit of the SuperNet to rural Albertans, even though many may be unaware of the SuperNet itself, is the availability of high-speed internet access in their area where none was available before.⁶⁷⁸ For some folks, however, the SuperNet was something that provided high-speed internet access to town, and perhaps made it available to some of their neighbors, but it did not bring high-speed internet to them. The cable society’s service does not leave town; the wireless high-speed internet installed on towers in towns and rural areas do not stretch more than 25 kilometers beyond the transmitter.⁶⁷⁹ One rural respondent from the southern county that established a municipal partnership to provide high-speed internet to all residents, noted that she was two kilometers too far to receive line-of-sight wireless service and therefore had to subscribe to more expensive satellite service to

⁶⁷⁴ Rural Farm Resident (6D-AB), Southern County, Interview with the Author, November 21, 2006.

⁶⁷⁵ Rural Farm Resident (16D-AB), Central County, Interview with the Author, December 19, 2006.

⁶⁷⁶ Librarian (5B-AB), Town 4, Interview with the Author, November 22, 2006

⁶⁷⁷ Executive Director, Network Services, Ministry of Restructuring and Government Efficiency (1C-AB), Interview with the Author, November 9, 2006.

⁶⁷⁸ Mayor and Project Director (22B-AB), Interview with the Author, January 3, 2008.

⁶⁷⁹ Administrator (17B-AB), Village 4, Central County, Interview with the Author, December 14, 2006.

receive higher speed internet service.⁶⁸⁰ Her internet bill is now \$58 per month, whereas on the wireless high-speed service, it would have been \$34.95. Another resident of the southern county also fell “just outside the range” to receive the service.⁶⁸¹ Thus, even the municipal initiative, designed to serve everyone, was not doing so. One farmer of pure-bred Hereford cattle, wheat, barley, oats, canola, and peas could not access high-speed wireless internet although he was not located far from the transmitter. He was particularly frustrated by this because neighbors less than five kilometers (2.98 miles) away could receive service.⁶⁸²

One rural, non-farm resident, who is a mining engineer, said the lack of high-speed internet service in his area left him “looking at trying to form a co-op” to provide high-speed internet and he started to “figure out what kind of hardware” to use. He envisioned some sort of relay system where residents would “form an association,” “put up equipment,” “contract with SuperNet” and people would “get it from each other.”⁶⁸³ This resident got high-speed service from the southern county’s municipal venture approximately at the start of November of 2006 and his plans for a co-op languished.

While some could not access high-speed wireless service at all, others balked at the cost of the service. Rural residents were especially critical of the cost of high-speed internet in their regions. Many agricultural producers have limited monthly income, often from a wife’s job or from their own second job. Farm income comes in only a few times a year and this possibly reduces people’s willingness to spend money for high-

⁶⁸⁰ Rural Farm Resident (6D-AB), Southern County, Interview with the Author, November 27, 2006.

⁶⁸¹ Rural Farm Resident (20D-AB), Southern County, Interview with the Author, January 4, 2007.

⁶⁸² Rural Farm Resident (16D-AB), Central County, Interview with the Author, December 19, 2006.

⁶⁸³ Rural Non-Farm Resident (18D-AB), Central County, Interview with the Author, December 19, 2006.

speed internet service.⁶⁸⁴ One village administrator, who is also a farm wife, looked into getting high-speed wireless internet at her farm. She noted that 6½ miles from town, she needed a 34 foot high tower on which to mount the radio for line of sight wireless. She noted that the purchase price of extra long-range radios, needed by some in rural areas were “a little bit prohibitive” at \$669.95. Additionally, she stated, “I don’t have internet at home because I will not use dial-up. I don’t want a 34 foot tower in my yard and can’t afford it.”⁶⁸⁵ One interviewee noted that “[a satellite internet provider] was not an affordable way” for rural people to get internet service.⁶⁸⁶ The MLA argued that the Government selected the SuperNet solution, “to be honest because they’re pregnant and innovative and saw opportunity.” But “I don’t think they fully realize how ahead of time” they are. He noted “Albertans are ready to capture the opportunities the SuperNet provides,” that “some people are starting to get the possibilities” and that “average, ordinary people aren’t aware of the full potential.”⁶⁸⁷ The literacy coordinator remarked about county residents “a lot of them are not really technically knowledgeable and don’t have that much interest.” She also added that people had “limited budgets.”⁶⁸⁸

The majority of rural residents interviewed (twelve) thought that the internet was indeed a necessity. People largely agreed that the internet improved rural Albertan’s ability to communicate, to gain information, and do research.⁶⁸⁹ According to one rural

⁶⁸⁴ Rural Farm Resident (4D-AB), Central County, Interview with the Author, November 16, 2006.

⁶⁸⁵ Village Administrator (8B-AB), Village Five, Central County, Interview with the Author, November 30, 2006.

⁶⁸⁶ Librarian (4B-AB), Town 3, Central County, Interview with the Author, November 7, 2006.

⁶⁸⁷ Member of Legislative Assembly (1G-AB), Interview with the Author, November 17, 2006.

⁶⁸⁸ Literacy Coordinator, Central County Community Adult Learning Office (1B-AB), Town 2, Central County, Interview with the Author, October 25, 2006.

⁶⁸⁹ Rural Farm Resident (1D-AB), Interview with the Author, November 13, 2006; Rural Farm Resident (6D-AB), Southern County, Interview with the Author, November 27, 2006; Rural Farm Resident (10D/3B-AB), Central County, Interview with the Author, December 6, 2006; Rural Farm Resident

resident, without the internet, people “don’t have access to a lot of things.” If people do not have access to the internet, people “lose access to education, teaching, shopping, [and] information” and people “need to be able to get information somehow.”⁶⁹⁰ A 59-year old farmer echoed this perspective, noting that the internet is probably more important in rural areas than in urban ones because “we’re further from a lot of things.” He equated high-speed internet to the coming of private line telephony.⁶⁹¹ A teenager stated that the internet is “like [the] TV and telephone nowadays” and may replace them because it “makes communication more efficient.”⁶⁹² An architect telecommuting from her husband’s farm stated that as an “urban person who moved to rural area; it makes it manageable to live here.” She continued, “I don’t think I would have moved here without it” because she can do her work “out here in the middle of nowhere.”⁶⁹³ Only three of the interviewees said that the internet, either dial-up or high-speed, is not a necessity. One farm woman and social worker, who labeled herself a “reluctant user” of computers and the internet at work noted, “No. I can’t imagine there’s anything on there that you need to know.” She further noted that she is concerned about the “quality of information” because “anybody and their dog can put it on.”⁶⁹⁴ Two other interviewees agreed that it was not necessary, although both of them used the internet either at work or

(12D/8B-AB), Central County, Interview with the Author, December 8, 2006; Rural Farm Resident (15D-AB), Central County, Interview with the Author, December 20, 2007; Rural Farm Resident (20D-AB), Southern County, Interview with the Author, January 4, 2007.

⁶⁹⁰ Rural Farm Resident (4D-AB), Central County, Interview with the Author, November 16, 2006.

⁶⁹¹ Rural Farm Resident (5D-AB), Central County, Interview with the Author, November 17, 2006.

⁶⁹² Rural Farm Resident (7D-AB), Southern County, Interview with the Author, November 29, 2006.

⁶⁹³ Rural Farm Resident (14D-AB), Southern County, Interview with the Author, December 18, 2006.

⁶⁹⁴ Wife of the Rural Farm Family (2D-AB), Central County, Interview with the Author, November 28, 2006.

at the library.⁶⁹⁵ One 26-year old town resident stated, “No, I don’t think it’s a necessity. People have managed without it for many years.” The majority of the interviewees, however, saw the internet as a necessity for rural dwellers and some thought that it would become as ubiquitous to farm life as the television and telephone before it.

Despite reporting that internet was a necessity, some people remained on dial-up at home or did not have internet access at all. Four of the interviewees who thought internet access was important in rural areas remained on dialup and three interviewees who thought it is necessary did not have home internet service. The remaining seven had high-speed service. All but one of the residents who remained on dial-up or who did not have internet service at all were very interested in getting high-speed internet connections. The rural residents provided several reasons for not having high-speed internet service yet. The most commonly cited answer was that although they wanted wireless high-speed service, they could not get it at their homes. These rural residents found that natural and geographical barriers, including trees and coulees, kept them from receiving the signal.⁶⁹⁶ One farmer stated he so eagerly wanted high-speed internet that he paid \$50 for the ISP’s installer to come to his home to begin the installation. The installer did not have clear line of sight, however, and the farmer could not receive service.⁶⁹⁷ Three rural residents noted that high-speed internet providers recently became

⁶⁹⁵ Rural Farm Resident (17D-AB), Central County, Interview with the Author, December 20, 2006; Rural, Non-Farm Resident (22D-AB), Central County, Interview with the Author, January 5, 2007.

⁶⁹⁶ Rural Resident (1D-AB), Central County, Interview with the Author, November 13, 2006; Rural Farm Resident (7D-AB), Southern County, Interview with the Author, November 29, 2006; Rural Farm Resident (12D-AB), Central County, Interview with the Author, December 8, 2006.

⁶⁹⁷ Rural Farm Resident (16D-AB), Central County, Interview with the Author, December 19, 2006.

available in their areas and that they were thinking about getting the service.⁶⁹⁸ One farmer, however, had heard so many bad things about the high-speed ISP that would serve him that he was reluctant to sign up with them.⁶⁹⁹

Some of the rural people were also very low users of the internet, making the expense of a high-speed connection something that may place it in the category of a luxury. Four of the respondents did not use the internet or email for personal use at all during a one week period.⁷⁰⁰ Four other rural residents recorded low use of internet and email during a one week period. They each used the internet and email for between 50 minutes to 2½ hours a week.⁷⁰¹ The outlier in this sample was a farmer who spent three to four hours per day online.⁷⁰² One rural woman who used the internet for less than two hours a week at home, noted that “I spend so much time at work on the computer that I don’t spend a lot at home.”⁷⁰³ Additionally, these respondents spent little time on their cell phones, reporting few calls per week.⁷⁰⁴ Although they were low users of the internet, they all reported significant use of the radio and many read newspapers, books,

⁶⁹⁸ Rural Farm Resident (9D-AB), Central County, Interview with the Author, December 2, 2006; Rural Farm Resident (17D-AB), Central County, Interview with the Author, December 20, 2006; Rural Farm Resident (5D-AB), Central County, Interview with the Author, November 17, 2006.

⁶⁹⁹ Rural Farm Resident (5D-AB), Central County, Interview with the Author, November 17, 2006.

⁷⁰⁰ Media Use Diary for Rural Farm Resident (5D-AB), Central County, Postmarked December 1, 2006; Media Use Diary for Rural Farm Family (2D-Husband-AB), Central County, Postmarked December 11, 2006; Media Use Diary for Rural Farm Family (2D-Wife-AB), Central County, Postmarked December 18, 2006; Media Use Diary for Rural, Non-Farm Resident (22D-AB), Central County, Postmarked January 8, 2007.

⁷⁰¹ Media Use Diary for Rural Farm Resident (1D-AB), Central County, n.d.; Media Use Diary for Rural Farm Resident (10D-AB), Central County, Postmarked December 18, 2006; Media Use Diary for Rural Farm Resident (12D-AB), Central County, Postmarked April 13, 2007; 17d.

⁷⁰² Media Use Diary for Rural Farm Resident (13D-AB), Central County, Postmarked January 17, 2007.

⁷⁰³ Media Use Diary for Rural Farm Resident (1D-AB), Central County, n.d.

⁷⁰⁴ One farmer (5D) had seven calls and two farm women (10D) and (17D) had one and two calls respectively. A high user of the cell phones (13D) spent five to ten minutes a day on the device. Media Use Diary for Rural Farm Resident (5D-AB), Central County, Postmarked December 1, 2006; Media Use Diary for Rural Farm Resident (10D-AB), Central County, Postmarked December 18, 2006; Media Use Diary for Rural Farm Resident (17D-AB), Central County, Postmarked March 30, 2007; Media Use Diary for Rural Farm Resident (13D-AB), Central County, Postmarked January 17, 2007.

and magazines.⁷⁰⁵ Additionally, everyone except the husband and wife without television reception watched television during the week.⁷⁰⁶

Interestingly, those lagging in the adoption of one device also lagged in the adoption of others. One family did not receive television signals, they used an old bag phone in the car for “emergencies” bought by a relative, did not want single-line telephone service (although they had to adopt it) because they felt the party-line was adequate and the rates for individual line service are much higher. A friend gave this family a computer and they had dial-up internet service only since 2005 because a teacher said their children needed it for school.⁷⁰⁷ The father summed up his family’s relationship to the internet in this way,

As of last year I am semiretired. About half of my workload has been given to others. I thought I might have more free time to spend on the Internet but it hasn’t happened yet. Furthermore we’re on dial up and it’s too slow. My main hobby is restoring old machines mainly motorcycles and the internet is a good place to get technical info. and parts [sic].

I also see the phone as a waste of time. (mostly) We got internet because our two girls insisted that it is necessary for high school. In fact most of

⁷⁰⁵ Media Use Diary for Rural Farm Resident (12D-AB), Central County, Postmarked April 13, 2007; Media Use Diary for Rural Farm Resident (13D-AB), Central County, Postmarked January 17, 2007; Media Use Diary for Rural Farm Family (2D-Wife-AB), Central County, Postmarked December 18, 2006; Media Use Diary for Rural Farm Resident (17D-AB), Central County, Postmarked March 30, 2007; Media Use Diary for Rural Farm Family (2D-Husband-AB), Central County, Postmarked December 11, 2006; Media Use Diary for Rural Farm Resident (5D-AB), Central County, Postmarked December 1, 2006; Media Use Diary for Rural Farm Resident (1D-AB), Central County, n.d.

⁷⁰⁶ Media Use Diary for Rural Farm Resident (1D-AB), Central County, n.d.; Media Use Diary for Rural Farm Resident (5D-AB), Central County, Postmarked December 1, 2006; Media Use Diary for Rural Farm Resident (10D-AB), Central County, Postmarked December 18, 2006; Media Use Diary for Rural, Non-Farm Resident (22D-AB), Central County, Postmarked January 8, 2007; Media Use Diary for Rural Farm Resident (13D-AB), Central County, Postmarked January 17, 2007; Media Use Diary for Rural Farm Resident (12D-AB), Central County, Postmarked April 13, 2007; Media Use Diary for Rural Farm Resident (17D-AB), Central County, Postmarked March 30, 2007.

⁷⁰⁷ Rural Farm Family (2D-AB), Central County, Interview with the Author, November 28, 2006.

their use of internet (95%) is for chatting with freinds [sic]. However, the word processor is invaluable.⁷⁰⁸

One farmer who did not have internet service also only had a broadcast television antenna.⁷⁰⁹ A rural, non-farm family lacked communication devices for financial reasons due to the husband being out of work. They cancelled their dial-up internet service because their computer broke and decided to end the wife's cell phone subscription as well because she stated, "I didn't use mine that much" and "if you have one at home [landline service] you don't really need a cell phone."⁷¹⁰ Another farm wife, currently without internet access at home, stated that she used to have dial-up, but they were "dried out and had no crop" in 2002 and cancelled dial-up service. Now, she does not want to get internet service "until I can get high-speed." She uses the internet at her work place, the village office.⁷¹¹ These examples illustrate three fulcrums by which people make decisions. In the first case, the family made a conscious choice to be "rural rural" and to produce most of what they needed from the farm.⁷¹² They wanted their daughter to practice piano rather than watch television, in other words, be a producer of culture rather than a consumer. In Rogers' classification system, they are laggards, looking toward the past.⁷¹³ The farm wife noted, "I'm not sure when we would find time to watch it

⁷⁰⁸ Media Use Diary for Rural Farm Family (2D-Husband-AB), Central County, Postmarked December 11, 2006.

⁷⁰⁹ Rural Farm Resident (5D-AB), Central County, Interview with the Author, November 17, 2006.

⁷¹⁰ Rural, Non-Farm Resident (22D-AB), Central County, Interview with the Author, January 5, 2007.

⁷¹¹ Rural Farm Resident (12D-AB), Central County, Interview with the Author, December 8, 2006.

⁷¹² Rural Farm Family (2D-AB), Central County, Interview with the Author, November 28, 2006.

⁷¹³ Mainwaring, Chang, and Anderson, in their article, "Infrastructures and Their Discontents: Implications for Ubicomp," discuss people that fully opt out of technology. They argue that these people are not laggards. The family in the above case meets Rogers' description of laggards better than Mainwaring, Chang, and Anderson's subjects that opt out. Rogers, *Diffusion of Innovations*, 284; Scott D. Mainwaring and Michele F. Chang, and Ken Anderson, "Infrastructures and Their Discontents: Implications for Ubicomp," Unpublished paper.

[television]. We are very busy on the farm and spend a lot of time reading and the children read and practice music.”⁷¹⁴ On another occasion, she celebrated the community dinners they had at the church, where neighbors came together rather than relying on television and other media consumption activities.⁷¹⁵ In the second case, the farmer was an early adopter of the cell phone because it was necessary for his business, but he made different decisions, based on use and necessity, about the internet. He noted that he had been “bucking it for business” that he felt it was “inconvenient” and he “didn’t need it” but now he argued he was “thinking of getting it” because “[I] almost have to.”⁷¹⁶ The final example shows that economic situation still plays an enormous role rural people’s decisions to adopt or cancel service, as it did in the early to mid-twentieth century.⁷¹⁷ This family kept satellite television service but cancelled internet and cell phone subscriptions due to calculations of necessity and usefulness.⁷¹⁸

Despite their criticisms, and some people’s reluctance to acquire high-speed internet, the vast majority of interviewees thought that access to the SuperNet and high-speed internet would level the playing field as the government believed. Some, however, argued that this was not without conditions, such as improved access. One rural woman noted that the playing field would be more level “If they get it working for the rural people.” But they “gotta get us wired.” Despite this, she admitted that unlike the government, the phone company would not have brought them to “where we are now” in

⁷¹⁴ Media Use Diary for Rural Farm Family (2D-Wife-AB), Central County, Postmarked December 18, 2006.

⁷¹⁵ Rural Farm Resident (2D-AB), Personal Communication with the Author, November 30, 2006.

⁷¹⁶ Rural Farm Resident (5D-AB), Central County, Interview with the Author, November 17, 2006.

⁷¹⁷ During the Great Depression, farmers in both the U.S. and Canada cancelled telephone service, but most kept their radios. Claude S. Fischer, *America Calling: A Social History of the Telephone to 1940* (Berkeley: University of California Press, 1992), 50, 53; Kozak, ““Among the Necessities,” 94, 112, 189-191.

⁷¹⁸ Rural, Non-Farm Resident (22D-AB), Central County, Interview with the Author, January 5, 2007.

terms of internet technology.⁷¹⁹ A farmer noted, “only in some respects; some things we’ll never have out here. SuperNet isn’t going to bring some of the amenities larger centers have. When you move to rural area, you sign up for some advantages and some disadvantages.”⁷²⁰

Access, however, is only part of the puzzle. For the SuperNet to help overcome the digital divide, it is “not only about access it’s about usage.” The project developer and mayor noted that a “culture of use” needed to develop around the SuperNet.⁷²¹

Evaluations of the SuperNet

On the demand side, many people weighed in with opinions and comments about the SuperNet. These comments, in general, tended to be much less positive than the evaluations made by the SuperNet partners and government representatives discussed in Chapter Two. One farm resident bitterly noted, “the SuperNet is a non-entity. People don’t talk about it. It’s a piece of technology out there that has no value.”⁷²² Everyone—representatives from the schools, health facilities, libraries, town offices, internet service providers, computer sales and service companies, and rural denizens—had something to say about the SuperNet and the coming of high-speed internet to rural Alberta. These comments are instructive because they explain the shattered visions people held that the network did not fulfill and the frustrations of being left out of an important project.

Organizations connected to the SuperNet reported positive experiences with the network. Those that were not connected or that had difficulty connecting were, not

⁷¹⁹ Rural Farm Resident (6D-AB), Southern County, Interview with the Author, November 27, 2006.

⁷²⁰ Rural Farm Resident (15D-AB), Central County, Interview with the Author, December 20, 2007.

⁷²¹ Mayor and Project Director (22B-AB), Interview with the Author, January 3, 2008.

⁷²² Rural Farm Resident (14D-AB), Southern County, Interview with the Author, December 18, 2006.

surprisingly, less positive and in some cases, very negative, about the network and its success. Interviewees at the region's libraries found having high-speed internet access greatly increased traffic and book circulation because people who did not have high-speed at home came to the library.⁷²³ Interviewees from schools agreed they had good service before but that the SuperNet provided greater bandwidth.⁷²⁴ Many organizations and individuals were much more negative about the SuperNet. These negative comments stemmed from a complex array of experiences, including unfulfilled visions, negative experiences, and a continued digital divide. Some organizations negatively evaluated the SuperNet project because they could not afford to connect to it. Town officials noted they could not afford SuperNet connections in their offices. One town administrator noted, the SuperNet partners "didn't look at our budget" when considering connection fees.⁷²⁵ The officials argued that a SuperNet connection in the town office was an unjustifiable expense when the ratepayers did not have high-speed internet at home.⁷²⁶ One of the town officials noted that the SuperNet is a "booster to get you on the fast lane of the highway. Maybe I'll just stay in the slow lane and pay a fraction of the cost."⁷²⁷ Other organizations and individuals opted to or were forced to (due to a lack of options) remain in the "slow lane" as well.

⁷²³ Librarian (13B-AB), Village 6, Central County, Interview with the Author, December 8, 2006; Network Administrator, Regional Library (7B-AB), Interview with the Author, November 27, 2006.

⁷²⁴ Director of Technology, Regional School Division (20B-AB), Interview with the Author, December 15, 2006; Principal, School (19B-AB), Village 3, Central County, Interview with the Author, December 14, 2006.

⁷²⁵ Town Administrator, Town 1, Central County, Conversation with the Author, December 13, 2006.

⁷²⁶ Town Administrator, Town 1, Central County, Conversation with the Author, December 13, 2006; Chief Administrative Officer (18B-AB), Town 2, Central County, Interview with the Author, December 14, 2006.

⁷²⁷ Chief Administrative Officer (18B-AB), Town 2, Central County, Interview with the Author, December 14, 2006.

Some people who heard government communication about the network rendered a negative evaluation from the communication. They thought the partners' advertising of the network was misleading and overly optimistic. They felt let down by the reality of the project. The northern county's chief administrative officer noted that she was "not really clear on SuperNet" but recalled a government announcement that it would be "free to schools, municipalities, and libraries. In the end, it wasn't." She concluded, "We didn't feel it was living up to the big hoopla."⁷²⁸ The northern county's general manager of its municipal corporation said that the government "vastly oversold" an "empty pipeline" where people did not expect that they would need "some free enterprise type to make that final connection."⁷²⁹ He said the "Government of Alberta didn't make it clear that all they were doing was preparing it for other people, companies."⁷³⁰

Some rural Albertans felt that the SuperNet was limited to some groups and it excluded many others.⁷³¹ One village administrator summed up, "it's here but it isn't really available to everybody."⁷³² A thorny issue was that the SuperNet did not provide service directly to rural Albertans.⁷³³ The manager of a seed cleaning plant lamented, "It

⁷²⁸ Chief Administrative Officer, Northern County Office (6A-AB), Interview with the Author, December 5, 2006.

⁷²⁹ General Manager, Municipal Corporation, Northern County (4A-AB), Telephone Conversation with the Author, November 8, 2006.

⁷³⁰ Ibid.

⁷³¹ Village Administrator (8B-AB), Village 5, Central County, Interview with the Author, November 30, 2006; Administrator (17B-AB), Village 4, Central County, Interview with the Author, December 14, 2006; Rural Farm Resident (20D-AB), Southern County, Interview with the Author, January 4, 2007.

⁷³² Village Administrator (8B-AB), Village 5, Central County, Interview with the Author, November 30, 2006.

⁷³³ Chief Administrative Officer, Northern County Office (6A-AB), Interview with the Author, December 5, 2006; Rural Resident (13D-AB), Central County, Interview with the Author, December 15, 2006; Rural Farm Resident (20D-AB), Southern County, Interview with the Author, January 4, 2007; Rural Non-Farm Resident (18D-AB), Central County, Interview with the Author, December 19, 2006; Rural Resident (6D-AB), Southern County, Interview with the Author, November 21, 2006; Manager, Seed Cleaning Plant (4E-AB), Village 3, Central County, Interview with the Author, January 4, 2007.

brings nothing to acreages and farms or any business not located in small towns.”⁷³⁴

Several people admitted they thought the SuperNet had done nothing for rural Alberta.⁷³⁵

Rural residents viewed the network as selective and argued that it did not benefit rural people because it terminated in towns. Some people made an even stronger criticism of the government for not doing enough to bring the network out to the rural residents of the province. A 66-year-old farmer noted, “it’s too bad they didn’t follow up on the SuperNet” and argued that “one of the crimes of government in the country” was that the partners “drop in here, [and] left [it] for everyone to figure out.”⁷³⁶ Two neighbors concluded that despite the construction of the SuperNet, the government was not particularly interested in helping farmers because high-speed internet access was not available to everyone in the region. One noted, “ultimately I don’t get the impression anyone cares.” The other chimed in and stated, “they don’t care about what’s going on out here.”⁷³⁷ For these residents it was a cruel joke that the government brought fiber optic cable to small towns and villages but they still could not access it for high-speed internet service.

The government’s strategy of not informing rural people about the SuperNet and the opportunities it would bring to their communities appears to have backfired. Some rural residents did learn about the SuperNet, because towns, local newspapers, and

⁷³⁴ Manager, Seed Cleaning Plant (4E-AB), Village 3, Central County, Interview with the Author, January 4, 2007.

⁷³⁵ Manager, Seed Cleaning Plant (4E-AB), Village 3, Central County, Interview with the Author, January 4, 2007; Representative, Town Office (12B-AB), Town 3, Central County, Interview with the Author, December 8, 2006; Administrator (17B-AB), Village 4, Central County, Interview with the Author, December 14, 2006; Internet Service Provider (1F-AB), Interview with the Author, November 22, 2006; Administrative Assistant (16B-AB), Town 1, Central County, Interview with the Author, December 13, 2006.

⁷³⁶ Rural Farm Resident (15D-AB), Central County, Interview with the Author, December 20, 2007.

⁷³⁷ Rural Farm Resident (16D-AB), Central County, Interview with the Author, December 19, 2006; Rural Non-Farm Resident (18D-AB), Central County, Interview with the Author, December 19, 2006.

organizations announced its arrival. People, therefore, did hear of the network and they also learned about the network's failings from others. In this way, they knew of the network's failures but not what the network would bring because the government failed to communicate the benefits to Albertans. As a result, some rural people negatively evaluated the SuperNet in their communities and others did not know it existed; hence they could not possibly use the network. Those who did understand the goals of the network often criticized the government's ambitions. They argued that the government's ambitions and hence the network, were larger than what Albertans actually needed. Nearly all of the internet service providers interviewed voiced this criticism, arguing that towns and villages received more equipment than necessary. One internet service provider noted that the SuperNet is a "very expensive system" and that the partners went "completely overboard in some places" because few providers are connecting at the ends.⁷³⁸ Others concurred that the government ran too much fiber and placed too much equipment in rural communities.⁷³⁹ A computer retailer noted that getting the "Cadillac of stuff" is "not always the best."⁷⁴⁰ Nearly all of the industry interviewees noted that the SuperNet was excessively expensive.⁷⁴¹

While people who worked in technology thought the network was larger than it needed to be, many rural Albertans argued that the SuperNet was a waste of money by the provincial government. People tended to be critical of the government's spending on

⁷³⁸ Internet Service Provider (1F-AB), Interview with the Author, November 22, 2006.

⁷³⁹ Owner, Internet Installer for South County (2F-AB), Town 1, South County, Interview with the Author, November 23, 2006; Retail Computer Sales and Service (4F-AB), Interview with the Author, December 15, 2006.

⁷⁴⁰ Retail Computer Sales and Service (4F-AB), Interview with the Author, December 15, 2006.

⁷⁴¹ President and Systems Engineer, Computer Sales and Service (5F-AB), Southern County, Interview with the Author, January 4, 2007; Retail Computer Sales and Service (4F-AB), Interview with the Author, December 15, 2006; Internet Service Provider (7F-AB), Interview with the Author, January 15, 2007.

what they thought was a waste of money.⁷⁴² A farmer continued this criticism, noting, “I don’t know the whole thing, it sounds like some contractors got pretty rich” and the contractors “filled their pockets and they’re gone. I don’t feel the government held them accountable. It’s not cost effective.”⁷⁴³ Residents thought the government had carelessly and wastefully spent tax dollars.

Others extended this criticism, charging that the government’s, and hence taxpayers’, money is going to enrich a private corporation, Axia. The owner of a retail computer store noted that the SuperNet is a subsidy system: the government pays for connections in schools, health care centers, and libraries and the money goes to Axia in what he says is “in the end a direct subsidy to Axia.”⁷⁴⁴ An ISP noted that since organizations were not connecting at the rate the partners had anticipated, he thought that the “government will have to step in and pay operational shortfalls.”⁷⁴⁵ Therefore, more provincial money would be transferred to the coffers of one private company. Residents of the region, both those knowledgeable about fiber optic networks and those who were not, think that the government overbuilt its network and spent too much money on the project. This left them with a profoundly negative evaluation of the SuperNet.

⁷⁴² Quoted from Representative, Town Office (12B-AB), Town 3, Central County, Interview with the Author, December 8, 2006; also Rural Resident (1D-AB), Central County, Interview with the Author, November 13, 2006; Chief Administrative Officer (18B-AB), Town 2, Central County, Interview with the Author, December 14, 2006.

⁷⁴³ Rural Resident (13D-AB), Central County, Interview with the Author, December 15, 2006.

⁷⁴⁴ Bly, on his blog “Alberta Rural Broadband,” argues “Axia’s business model is to compete with TELUS and Bell in the Enterprise connectivity market and clearly does not have a mandate to support rural broadband. By giving Axia an exclusive contract to manage the SuperNet the GOA effectively used tax money to fund the creation of a competitor to TELUS and BELL.” Retail Computer Sales and Service (4F-AB), Interview with the Author, December 15, 2006; Bly, “Last/First Mile 2008 Problems,” Posted to blog Monday, December 22, 2008, “Alberta Rural Broadband: An Open Discussion on Alberta Rural Broadband” Blog, URL: <http://albertaruralbroadband.blogspot.com/> (accessed February 27, 2009).

⁷⁴⁵ Internet Service Provider (7F-AB), Interview with the Author, January 15, 2007.

Conclusion

The SuperNet brings a lot of benefits to small rural schools, libraries, and health care centers, the “stakeholders” that the provincial government has committed continued support to for connection fees and equipment. Other organizations, those that are not “stakeholders,” are simply priced out of access.

In the Alberta case, the government built infrastructure and the little local initiatives and small ISPs provide service to rural residents. For the government, this overcame the digital divide extant in the province, but it still maintained the neoliberal imperatives of privatization. The SuperNet infrastructure itself enables local solutions by being an open access network. The successful solutions were local; they were close enough to home that people voted on them or heard about them. The extremely small scale of these solutions, however, makes them patchwork. Some places, which are not centers of micro innovation, await larger companies to fill in the gaps. In other places, where residents or local government conceived of tiny solutions, the solution, due to local finance or the desire to serve only the local area, serves only a small number of subscribers. This works to the detriment of rural residents, because they often fall beyond the reach of the micro solution in question, leading again to a situation where there are digital divides, this time local, where rural areas fall beyond the available service.

Many rural residents have still not fully adopted new information and communication technologies into their daily lives. Additionally, and importantly, the government’s claim that the SuperNet would help rural residents get high-speed internet by providing affordable backhaul to ISPs simply has not worked as the government said

it would. The SuperNet, therefore, has not solved the access issues that rural Albertans face. People remain without ISPs, without ISP competition, without the “Provider of Last Resort,” and at times reliant on small local projects to provide access. This begins to question the Government of Alberta’s neoliberal belief that private business would take care of rural residents; something that rural residents have long known to be false.

The SuperNet project, hailed by its developers as the most expansive fiber optic development in North America, thus has not delivered all that it promised and likely will not become the model its developers wished it to be. This leads to the question of whether the rural residents of other regions without significant state investment in information and communication technologies are faring any better. A closer look at a county in rural Wyoming answers this question.

CHAPTER FOUR

“If You Build it, They Will Come”: High-Speed Internet in East-Central Wyoming

In 1998, a Microsoft television advertisement transported Americans to a small, traditional ranching community. The spot announced, “This is Lusk, Wyoming. Cows outnumber people here 100 to 1. The thing that isn’t apparent about Lusk is it’s wired, Lusk has strung fiber optic cable for the future of high-speed internet.”⁷⁴⁶ Lusk did, indeed, have cable strung throughout the community, but the story, not surprisingly, is much more complex than the Microsoft advertisements reveal.

This chapter explores and analyzes the social, political, and economic reasons for the development of the town’s municipal fiber optic grid and also the major factors contributing to its failure. A complex environment of insufficient demand, the lack of political will, confusion over how to best use the grid, and not enough funding led to the project’s demise. While the town officials believed the saying “if you build it, they will come” was a truism, residents learned that this was not always the case. Additionally, the chapter examines current high-speed internet provision options for town residents and businesses and for ranchers in rural areas of the county, concluding that the county’s rural residents lack an affordable option for high-speed internet access. As the Microsoft commercial announced the town was wired; the local government installed fiber optic

⁷⁴⁶ “This is Lusk,” Microsoft Television Commercial (1998), VHS cassette at the Niobrara County Library.

cable for the main system and coaxial cable “feeders” that ran through the alleys past all businesses and residences.⁷⁴⁷ The town’s goal for the system was to “provide broad ban [sic] technology to every home in town.”⁷⁴⁸ The town conceived of the grid in 1989, started planning and designing in 1990, and began construction in October of 1993.⁷⁴⁹ Installation continued for two years, largely because workers cannot install fiber optic cable in cold weather.⁷⁵⁰ In end, the grid was 17 miles long,⁷⁵¹ miniature compared to the awesome scale of the Alberta SuperNet, but a huge achievement nevertheless for a town with a population of approximately 1,500.

Funding for the project came from the state and the town’s coffers. The State Economic Energy Conservation Program gave a \$295,000 grant to the town and the Wyoming Municipal Power Association (WMPA) in mid-1992. This money was from petroleum companies that paid the U.S. Department of Energy for violations.⁷⁵² The

⁷⁴⁷ “Fiber Optic Provides State-of-the-Art Telecommunication,” *The Lusk Herald*, 110, no. 25 (Wednesday, October 6, 1993): 25.

⁷⁴⁸ “Lusk in the Forefront of Technology,” in “History Abounds in Niobrara County,” insert to *The Lusk Herald*, 110, no. 16 (Wednesday, April 17, 1996): 7.

⁷⁴⁹ “Minutes of Town Council Meeting, Town of Lusk, October 11, 1989,” in *The Lusk Herald*, 104, no. 28 (Wednesday, October 18, 1989): 20; “Telecommunications Ordinance will be Brought to Town Council,” *The Lusk Herald*, 104, vol. 28, (Wednesday, October 18, 1989): 1; Mary Shields, “Ordinance, Resolution Approved by Council,” *The Lusk Herald*, 104, no. 31 (Wednesday, November 8, 1989): 1; “Minutes of Town Council Meeting, Town of Lusk, February 6, 1990,” *The Lusk Herald*, 104, no. 45 (Wednesday, February 14, 1990): 27; “Minutes of Town Council Meeting, Town of Lusk, October 5, 1993,” *The Lusk Herald*, 110, no. 26 (Wednesday, October 13, 1993): 26.

⁷⁵⁰ “Cold weather” for the purposes of fiber optic cable is temperatures below 40 degrees Fahrenheit. Jeanne Peterson, “Council Swears in Lohr to Town Council,” *The Lusk Herald*, 108, no. 50 (Wednesday, December 14, 1994): 1; Former Superintendent of Municipal Public Works (1A-WY), Interview with the Author, June 25, 2007.

⁷⁵¹ “Minutes of Town Council Meeting, Town of Lusk, March 12, 1990,” *The Lusk Herald*, 104, no. 50 (Wednesday, March 21, 1990): 12; Paul Hoversten, “Cyberspace Snares Entire Town in a Net of Business Opportunity, On-Line Link is New Frontier for Tiny Wyoming Community,” *USA Today* (Tuesday, October 31, 1995): 10A; Eric Sorensen, “Wireless in Wyoming,” *The Seattle Times Sunday, Seattle Post-Intelligencer* (Sunday, February 14, 1999): A13.

⁷⁵² Mary A. Shields, “Telecommunications, New Dentist Discussed at Tuesday’s Meeting,” *The Lusk Herald*, 107, no. 13 (Wednesday, July 8, 1992): 5; “Fiber Optic Provides State-of-the-Art Telecommunication,” *The Lusk Herald*, 110, no. 25 (Wednesday, October 6, 1993): 25; Dinah Zeiger, “The Rural Frontier of Cyberspace,” *The Denver Post Magazine* (June 11, 1995): 12.

town, over the duration of the project, spent \$300,000 of its own money according to town officials.⁷⁵³ To save on costs, the town's staff carried out the installations;⁷⁵⁴ thus construction supplies were the majority of the project's costs. The telephone company built the middle mile connection. It bore the bulk of the cost, \$2.4 million, to connect the town to the fiber-optic backbone over 40 miles away.⁷⁵⁵ The community envisioned a range of uses for the project that would bring in partners to work with the town. The variety of uses and partners stemmed from pragmatic considerations as much as from the vast capacity of fiber optics. In rural areas, partnerships are central to getting things done; a multiplicity of partners are needed to pool money and resources to realize visions and build infrastructure. Additionally, using one infrastructure for a multiplicity of purposes is also important in rural areas. Also, over time, the town recognized the potential of convergence in the digital era; they learned the fiber optic system had vast capacity and multiple applications.

The goals and priorities of the project shifted during different times to accompany the town's needs. At times, Mayor Donald Whiteaker highlighted the project as a load control project to help the town manage and conserve electric consumption. The town needed this aspect to draw on grant money from the state through the Wyoming Municipal Power Association (WMPA). At other moments, the town billed the project as an alternative to the private cable television provider, when local satisfaction with the

⁷⁵³ Mayor Mark Lohr, elected in 1998, however, disagreed with this. He said that the town spent about \$200,000 on the project. Jon Healey, "Small-Town Net of Dreams," *Salon.com* (May 1997): 4; Sorensen, "Wireless in Wyoming," A12; for the mayor's comments see Dee Johnson, "Lohr Ready to Assume Mayoral Post," *The Lusk Herald*, 112, no. 20 (Wednesday, May 20, 1998): 32.

⁷⁵⁴ "Lusk in the Forefront of Technology," 7; Zeiger, "The Rural Frontier of Cyberspace," 12; Former Superintendent of Municipal Public Works (1A-WY), Interview with the Author, June 25, 2007.

⁷⁵⁵ The *Denver Post* article states that the telephone company spent \$2.1 million in the region. Healey, "Small-Town Net of Dreams," 4; Zeiger, "The Rural Frontier of Cyberspace," 12.

company fell. Early in 1992, Whiteaker asked the council to allow him to apply for a “CATV license” and to learn how much building a cable system would cost.⁷⁵⁶ Yet at other times, for the purpose of economic development, the project was largely a telecommunication system, capable of handling high call and data volumes to entice businesses to develop in, and relocate to, town.

In addition to the flexibility required in rural areas, the town envisioned possible new uses as they discovered them. In 1989, the mayor envisioned many possible uses for the system, including cable television service, “radio service, load control service [for the electrical grid], security, [and] meter reading.”⁷⁵⁷ These are largely municipal services. In 1993, the local newspaper pointed out that the project would support electric load control, “traditional telephone, cable television, business and personal communication applications.”⁷⁵⁸ While Whiteaker previously associated the grid largely with improved delivery of municipal services, by 1993, the town realized the system could provide a much broader menu of services.

The superintendent of municipal public works at the time noted that the town had a broad spectrum of goals for the project. On one end, they sought to make the town have the “largest warehousing capabilities in the country.”⁷⁵⁹ On the other, the project would foster community. The superintendent stated, “we even talked ... wouldn’t it be

⁷⁵⁶ “Minutes of Town Council Meeting, Town of Lusk, January 7, 1992,” *The Lusk Herald*, 106, no. 41 (Wednesday, January 15, 1992): 21.

⁷⁵⁷ “Ordinance No. 25-704, An Ordinance Creating the Town of Lusk Municipal Telecommunications Cable Systems (MTCS) Providing a Separate Department within the Town of Lusk, for the Governing Body of the Town of Lusk to Oversee the MTCS; Awarding a Franchise to the MTCS; Providing for Financing the MTCS; and Creating a Cable Citizens Advisory Committee,” in *The Lusk Herald*, 104, no. 34 (Wednesday, November 29, 1989): 29.

⁷⁵⁸ “Fiber Optic Provides State-of-the-Art Telecommunication,” *The Lusk Herald*, 110, no. 25 (Wednesday, October 6, 1993): 25.

⁷⁵⁹ Former Superintendent of Municipal Public Works (1A-WY), Interview with the Author, June 25, 2007.

neat to broadcast [high school] football, basketball games, [and] town council meetings. He said, “that was all planned to happen.”⁷⁶⁰

One central facet of the project was the load control portion done in partnership between the town and the Wyoming Municipal Power Association (WMPA). This was a pilot project for “distributed control of customer level loads” for the eight towns that were WMPA members. The mayor served on the WMPA’s board, which likely helped his town get selected for the pilot project.⁷⁶¹ The system sought to lessen electric peaks by shifting some operations to low demand times. Home owners, businesses, and the town could save energy costs by consuming energy in off-peak times. Operationally, the WMPA was responsible for the installation, operation and control of the load control part of the system, whereas the town was responsible for the broadband pipeline.⁷⁶²

To increase flexibility and expand the number of services the system could support, the council amended the original ordinance. The original ordinance called for a system using only coaxial cable, however, in November of 1990, the town passed an amendment to the ordinance, noting that coax was “too narrow ins cope [sic].” The amendment allowed the system to use “coax, copper, fiber optic,” any combination of these three, or any other medium that might suit the project’s aims.⁷⁶³ This was an important moment because transitioning from coaxial cable to other technologies marks the town’s shift from smaller aims to larger ones.

⁷⁶⁰ Ibid.

⁷⁶¹ Zeiger, “The Rural Frontier of Cyberspace,” 11.

⁷⁶² “Fiber Optic Provides State-of-the-Art Telecommunication,” *The Lusk Herald*, 110, no. 25 (Wednesday, October 6, 1993): quoted from 1, 25.

⁷⁶³ “Ordinance No. 25-704 An Ordinance Amending and Supplementing the Recital Portion Only of Existing Ordinance 25-704, and Providing that All Other Provisions of Existing Ordinance 25-704 Remain Intact and of Full Force and Effect,” *The Lusk Herald*, 105, no. 32 (Wednesday, November 14, 1990): 25.

Lusk gained notoriety as it was one of the first communities in the U.S. to have fiber optics installed.⁷⁶⁴ The contrast of a tiny town at the forefront of telecommunication development excited the national media. Journalists reveled in the juxtaposition of a one-stop light ranching town and advanced fiber optics and brought the town to the nation's attention. National media outlets as diverse as *Forbes* (1992), CBS television (1995), the *Denver Post Magazine* (1995), *USA Today* (1995), *Yahoo! Internet Life* (1998 and 1999), *Time* magazine (1999), and Microsoft (1998) reported on the town's vision and success at installing the grid, something that the vast majority of other communities had not achieved on their own.⁷⁶⁵ These positive representations of the town's fiber-optic and coaxial cable network shared the theme of technological optimism. Articles noted the small size of the town, with a population of approximately 1,500, and few missed the chance to add that it was located in "the least populated county in the least populous state" in the U.S.⁷⁶⁶ *Forbes'* 1992 article, "The Virtual Workplace," highlighted the town as an example of the "hinterlands" using new telecommunication advances to entice and

⁷⁶⁴ Jeanne Peterson, "Communicating is Faster Through Fiber optics," *The Lusk Herald*, 110, no. 31 (Wednesday, July 31, 1996): 27.

⁷⁶⁵ David C. Churbuck and Jeffrey S. Young, "The Virtual Workplace," *Forbes*, 150, no. 12 (November 23, 1992): 184-190; Hoversten, "Cyberspace Snares Entire Town," 10A; Michael Freidson, "Doin' the Towns," *Yahoo! Internet Life*, 5, no. 3 (March 1999).

⁷⁶⁶ It must be pointed out, however, that the town also mentioned this in a visitors' guide. An article about the county's history in the local newspaper noted "residents are proud to live in the least populated county in the least populated state of the union." National articles mentioning the town's population: Churbuck and Young, "The Virtual Workplace"; Hoversten, "Cyberspace Snares Entire Town," 10A; articles mentioning the fact that the county is the least populated in Wyoming and the state is the least populous in the nation: quoted from Hoversten, "Cyberspace Snares Entire Town," 10A; also, Churbuck and Young, "The Virtual Workplace"; Freidson, "Doin' the Towns," 109; U.S. Census Bureau, "Table 2: Cumulative Estimates of Population Change for the United States, Regions, States and Puerto Rico and Region and State Rankings: April 1, 2000 to July 1, 2007 (NST-EST2007-01)"; published December 27, 2007; URL: <http://www.census.gov/popest/states/NST-pop-chg.html> (accessed March 11, 2009); local news articles mentioning the population of the county: "Niobrara County Steeped in State's Rich Past," in "History Abounds in Niobrara County (Visitors' Guide)" insert to *The Lusk Herald*, 110, no. 16 (Wednesday, April 17, 1996): 5.

enable businesses to locate farther and farther from the central cities.⁷⁶⁷ Some of the articles connected the town and its communication infrastructure to the past. One called the network a “new frontier,”⁷⁶⁸ a second noted that the town was the “rural frontier of cyberspace,”⁷⁶⁹ and yet another equated the communication link to the railroad in the nineteenth century.⁷⁷⁰ The articles and the Microsoft commercials delighted in representing the town as the “old West.” The *Denver Post* argued that it was the “old frontier values of self-help, thriftiness and neighborliness that made it possible.”⁷⁷¹ This illustrates Herbert Gans’ point that the media tend to idealize rural life; it suited the American imagination to see rugged rural people enter the digital age.⁷⁷² This made Lusk’s telecommunications development a good story.

The local press basked in the limelight; noting with glee each time journalists came to town or the town received positive coverage in a national or regional media outlet.⁷⁷³ In the optimism amid the town and technology at the time, journalists and the

⁷⁶⁷ Churbuck and Young, “The Virtual Workplace.”

⁷⁶⁸ Hoversten, “Cyberspace Snares Entire Town,” 10A.

⁷⁶⁹ Zeiger, “The Rural Frontier of Cyberspace,” 11.

⁷⁷⁰ Churbuck and Young, “The Virtual Workplace.”

⁷⁷¹ Zeiger, “The Rural Frontier of Cyberspace,” 11.

⁷⁷² One of Gans’ values in the news is “small town pastoralism.” Gans argues that the news media gives particular attention to small towns and agricultural areas, portraying them largely as they existed in the past. Herbert J. Gans, *Deciding What’s News: A Study of CBS Evening News, NBC Nightly News, Newsweek, and Time, 25th Anniversary Edition* (Evanston, IL: Northwestern University Press, 2004), 48-49.

⁷⁷³ “Who is that Guy? And What’s He Doin’ to My Boot?” *The Lusk Herald*, 109, no. 33 (Wednesday, August 16, 1995): 1; Jeanne Peterson, “CBS Lights Up Lusk,” *The Lusk Herald*, 109, no. 39 (Wednesday, September 27, 1995): 32; Jeanne Peterson, “‘CBS This Morning’ Promotes Lusk,” *The Lusk Herald*, 109, no. 40 (Wednesday, October 4, 1995): 1; “USA Today Features Lusk Opportunities,” *The Lusk Herald*, 109, no. 46 (Wednesday, November 15, 1995): 26; Jeanne Peterson, “Yahoo! Magazine Brings National Attention to Lusk,” *The Lusk Herald*, 111, no. 8 (February 25, 1998): 32; “Microsoft Filming Commercial in County,” *The Lusk Herald*, 111, no. 31 (Wednesday, August 5, 1998): 32; Dee Johnson, “Microsoft Commercial Filming Wraps for Niobrara County,” *The Lusk Herald*, 111, no. 34 (Wednesday, August 26, 1998): 28; Holly Richards, “Microsoft Commercial Set to Air,” *The Lusk Herald*, 111, no. 39 (Wednesday, September 30, 1998): 1; Holly Richards, “Lusk Commercial Makes Hit Throughout Country,” *The Lusk Herald*, 112, no. 4 (Wednesday, January 27, 1999): 1; “Lusk’s Day in the Light,” *The Lusk Herald*, 112, no. 6 (Wednesday, February 10, 1999): 1.

Microsoft commercials glossed over the fact that the network did not connect to the outside world. The town's grid did not actually connect to the telephone switching office; thus the municipal system could not communicate beyond town borders. The Microsoft commercials, for example, noted that the town had wired itself "for the future of high-speed internet."⁷⁷⁴ It said nothing about the town's present.

More critical coverage of the media darling began in 1997 and continued until 2001 when journalists began to look more carefully at the system the town established. Media outlets that covered the story in a more negative way included *Salon.com* (1997), the *Seattle Times* (1999), the *Billings Gazette* (1999), the *Omaha World-Herald* (1999), the *Wyoming Tribune-Eagle* (1999), and the *Casper Star-Tribune* (2001). Most of these articles revealed the fiber optic cable stopped behind, but did not connect to, the telephone switching station.⁷⁷⁵ Some questioned celebrating a project that had not come to full fruition. Others briefly explored reasons for the delay.

Although the town had the wire in place, their economic and community aspirations surrounding telecommunication technology failed. The town did not reach the end goal of providing broadband to every house. The town installed cable near all the homes and businesses in town, but the technology reached only fifty homes for testing purposes.⁷⁷⁶ Most of the cable ended in the alleys; the town still had to "make the drop

⁷⁷⁴ "This is Lusk," Microsoft television commercial (1998), VHS cassette at the Niobrara County Library.

⁷⁷⁵ Healey, "Small-Town Net of Dreams," 1; Sorensen, "Wireless in Wyoming," A1; "Lusk's Link to the Information Age—Wire, Oh Wire, Can It Be?" *Omaha* (Nebraska) *World-Herald*, (Tuesday, February 16, 1999): 9; "Lusk Isn't Quite Wired," *Wyoming Tribune-Eagle* (Tuesday, February 16, 1999): A1. Both the *Omaha World-Herald* and the *Wyoming Tribune-Eagle* used a story with a Seattle (AP) byline.

⁷⁷⁶ At the time, there were between 700 and 800 residences in town. Healey, "Small-Town Net of Dreams," 4.

off to the house” in each case.⁷⁷⁷ In the end, only two organizations connected to the fiber optic cable: the schools and the public electric stations.⁷⁷⁸ The school district asked for, and received from, the town council two strands of the community’s fiber for the schools’ use. The town council unanimously approved the request.⁷⁷⁹ The two schools used the fiber for a high-speed connection between them.⁷⁸⁰

The promise of the network-to-be ended, ironically, in the sale of the much-heralded grid to the incumbent cable company. This was ironic, because the town meant for the grid originally to replace this provider. The sale ended a chapter of possibility for the town.

Incentives for Construction of the Grid

There is evidence for six reasons why the town constructed the grid: first, the town’s innovative mayor; second, unhappiness with the town’s incumbent private cable provider; third, the desire for economic development in the area; fourth, the neglect of rural America by private infrastructure providers; fifth, the agreement of the telephone company to build the middle mile fiber optic cable; and finally, the much larger wave of technological optimism pervasive in the United States at the time. This section explores these reasons in detail, using local newspaper articles, national and regional media

⁷⁷⁷ Whiteaker, the innovative former mayor (1982-1996), maintained that the town could do this cheaply, for \$10 per home. Former Superintendent of Municipal Public Works (1A-WY), Interview with the Author, June 25, 2007; Healey, “Small-Town Net of Dreams,” 4.

⁷⁷⁸ Healey, “Small-Town Net of Dreams,” 1.

⁷⁷⁹ “Minutes of Town Council Meeting, Town of Lusk, June 2, 1994,” *The Lusk Herald*, 111, no. 23 (Wednesday, June 8, 1994): 17; Superintendent of Municipal Public Works (1A-WY), Interview with the Author, June 25, 2007.

⁷⁸⁰ Healey, “Small-Town Net of Dreams,” 4.

coverage, town council meeting minutes from 1989 until 1999, and interview data collected during fieldwork.

The Visionary Mayor

Solving problems at the municipal level was one of Mayor Whiteaker's calling cards. *Time* Magazine called him "cajoling and far-sighted."⁷⁸¹ When cable rates jumped, as discussed below, Whiteaker looked into providing cable television service and he applied to the FCC to be able to regulate rates for basic cable services in the community. The council unanimously passed this resolution.⁷⁸² In 1994, when natural gas rates increased, the town unanimously passed an ordinance that created a municipal natural gas department, to complement the municipal electric system.⁷⁸³ A council member saw this as a positive trait of the mayor's and she stated, "We have such an aggressive mayor, and he seems to be one jump ahead of the others."⁷⁸⁴ The town's superintendent of municipal public works at the time also noted that the mayor's characteristics were central to the fiber optic project. The superintendent said that Whiteaker was "very aggressive" and "very well known," qualities that undoubtedly helped him further his plans. Additionally, the superintendent noted there was "always a

⁷⁸¹ Chris O'Malley, "The Digital Divide: Small Towns that Lack High-Speed Internet Access Find it Harder to Attract New Jobs," *Time* (March 22, 1999): 87.

⁷⁸² "Minutes of Town Council Meeting, Town of Lusk, August 31, 1993," *The Lusk Herald*, 109, no. 22 (Wednesday, September 8, 1993): 26.

⁷⁸³ "Minutes of Town Council Meeting, Town of Lusk, February 1, 1994," *The Lusk Herald*, 111, no. 6 (Wednesday, February 9, 1994): 21; "Minutes of Town Council Meeting, Town of Lusk, March 1, 1994," *The Lusk Herald*, 111, no. 10 (Wednesday, March 9, 1994): 22; "Minutes of Town Council Meeting, Town of Lusk, April 5, 1994," *The Lusk Herald*, 111, no. 15 (Wednesday, April 13, 1994): 20.

⁷⁸⁴ Council Member Pat Eikenberry quoted in "Lusk Looks at Alternative Utility Sources," *The Lusk Herald*, 111, no. 6 (Wednesday, February 9, 1994): 1; also, "Minutes of Town Council Meeting, Town of Lusk, February 1, 1994," *The Lusk Herald*, 111, no. 6 (Wednesday, February 9, 1994): 21.

dream he had and [he] made everyone of ‘em come true.”⁷⁸⁵ Other town employees and state officials felt the same way about the mayor. The town’s attorney told the *Denver Post*, “He’s phenomenal. This guy shoots off ideas like sparks.”⁷⁸⁶ Larry Stolz, the chief information technology officer for the state said, “He’s always been one to want to be ahead of the game as far as telecommunications.”⁷⁸⁷ Whiteaker himself noted he was armed with “buzz words” in the 1990s.⁷⁸⁸ The mayor’s aggressiveness, vision, and connections, added to his belief that problems could be overcome at the municipal level, were important ingredients in the furthering of the telecommunication project.

These characteristics certainly must have helped Whiteaker conceive of, and rally support for, the project. His persuasiveness and aggressiveness led him to drive 250 miles to the telephone company’s headquarters to discuss fiber optics.⁷⁸⁹ Additionally, his position on the board of the Wyoming Municipal Power Association likely helped him get the association to choose his town for the pilot load control project.⁷⁹⁰

Whiteaker’s ideas had such an impact in the state capitol that the Governor, Mike Sullivan, appointed him to the State Telecommunications Advisory Council for a one-year term (July 1, 1991 to July 1, 1992). The council had one spot for someone from municipal government.⁷⁹¹ The Governor reappointed the mayor to the council post in

⁷⁸⁵ Former Superintendent of Municipal Public Works (1A-WY), Interview with the Author, June 25, 2007.

⁷⁸⁶ Zeiger, “The Rural Frontier of Cyberspace,” 11.

⁷⁸⁷ Healey, “Small-Town Net of Dreams,” 2.

⁷⁸⁸ Sorensen, “Wireless in Wyoming,” A12.

⁷⁸⁹ Zeiger, “The Rural Frontier of Cyberspace,” 12.

⁷⁹⁰ Ibid., 11.

⁷⁹¹ “Whiteaker Appointed to Advisory Council,” *The Lusk Herald*, 106, no. 18 (Wednesday, August 14, 1991): 3.

July 1992 for a term that ran until July 1, 1994⁷⁹² and reappointed him again to serve from July 19, 1994 until June 30, 1998.⁷⁹³

The mayor's vision was only one of the factors behind the town's decision to build the grid, ranging from local factors, the history of rural infrastructure provision, and much larger nation-wide technological optimism. The innovative mayor pointed to two factors that provided the impetus for the project: the town's unhappiness with the cable provider and his desire to further economic development in the town. In 1992, Whiteaker stressed that he generated the project because "I was frustrated with rising cable costs and concerned about the depressed state of the local economy. This was the impetus for the venture."⁷⁹⁴ The system, thus, had two main origins: to improve services for residents, a smaller goal, and to further economic development, a much grander vision.

Unhappiness with the Incumbent Cable Provider

Frequent mention of the grid in the town council minutes and local press begins as an exploration into a community cable television system in 1989, because residents were not happy with the incumbent cable provider.⁷⁹⁵ Whiteaker helped to organize and attended a seminar on telecommunications in a nearby town and shortly thereafter brought an ordinance to the town council to permit the town to "establish a municipal

⁷⁹² "Whiteaker Reappointed to Post on State's Advisory Council," *The Lusk Herald*, 107, no. 14 (Wednesday, July 15, 1992): 1.

⁷⁹³ Photo caption, *The Lusk Herald*, 111, no. 30 (Wednesday, July 27, 1994): 3.

⁷⁹⁴ Mayor quoted in Catherine DeCastro, "Telecommunications Project Continues: Mayor Still Pushing Fiber Optic Technology," *The Lusk Herald*, 106, no. 42 (Wednesday, January 29, 1992): 3.

⁷⁹⁵ Mary Shields, "Town is Looking into City-Owned Cable Television," *The Lusk Herald* 104, no. 26 (Wednesday, October 4, 1989): 1; Zeiger, "The Rural Frontier of Cyberspace," 11.

telecommunications cable system.”⁷⁹⁶ The first, second, and third readings of the ordinance passed unanimously in the town council.⁷⁹⁷

Immediately following the third passage of the ordinance, the town council distributed a survey among residents to query their satisfaction with cable service. The aim, according to Whiteaker, was to document the plethora of complaints that council had heard about the cable service and, if residents voiced enough displeasure with the current cable system, the council “will proceed with looking into developing an alternative service.”⁷⁹⁸ According to town council meeting minutes, the town required the written documentation “in order to stay out of lawsuits.”⁷⁹⁹ In addition to citizen complaints, the incumbent provider informed the mayor by mail that they were raising cable rates by 17 to 18 percent.⁸⁰⁰ The mayor developed a survey to ask residents about cable subscription and satisfaction. The council received 203 responses to their cable survey; 70.9% (144) of respondents were cable subscribers and agreed that they would switch their service to a “local company.” An additional ten respondents that did not

⁷⁹⁶ “Minutes of Town Council Meeting, Town of Lusk, October 11, 1989,” in *The Lusk Herald*, 104, no. 28 (Wednesday, October 18, 1989): 20; “Telecommunications Ordinance will be Brought to Town Council,” *The Lusk Herald* 104, no. 28, (Wednesday, October 18, 1989): 1; Mary Shields, “Ordinance, Resolution Approved by Council,” *The Lusk Herald* 104, no. 31 (Wednesday, November 8, 1989): 1.

⁷⁹⁷ One council member, however, was absent from the meeting at which the ordinance was read a second time. “Minutes of Town Council Meeting, Town of Lusk, November 7, 1989,” in *The Lusk Herald*, 104, no. 33 (Wednesday, November 22, 1989): 28-29; “Minutes of Town Council Meeting, Town of Lusk, November 29, 1989,” in *The Lusk Herald*, 104, no. 35 (Wednesday, November 29, 1989): 29-30; “Minutes of Town Council Meeting, Town of Lusk, December 5, 1989,” in *The Lusk Herald*, 104, no. 36 (Wednesday, December 5, 1989): 32; “Ordinance No. 25-704, An Ordinance Creating the Town of Lusk Municipal Telecommunications Cable Systems (MTCS) Providing a Separate Department within the Town of Lusk, for the Governing Body of the Town of Lusk to Oversee the MTCS; Awarding a Franchise to the MTCS; Providing for Financing the MTCS; and Creating a Cable Citizens Advisory Committee,” in *The Lusk Herald*, 104, no. 34 (Wednesday, November 29, 1989): 29.

⁷⁹⁸ “Cable Survey being Issued,” *The Lusk Herald*, 104, no. 36 (Wednesday, December 13, 1989): 1, quoted from 27.

⁷⁹⁹ “Minutes of Town Council Meeting, Town of Lusk, December 5, 1989,” *The Lusk Herald*, 104, no. 36 (Wednesday, December 13, 1989): 32.

⁸⁰⁰ Cable rates increased again on January 1, 1991, with basic service increasing from \$19.95 to \$20.95 per month. “Cable Rates to Increase Soon,” *The Lusk Herald*, 105, no. 38 (Wednesday, December 26, 1990): 1.

subscribe to cable said they would subscribe to a local cable provider and 21 respondents who had cable reported they would switch their service to a local company but they expressed reservations about the pricing and number of channels such a company could offer. Just below three percent of the respondents (six) revealed they did not subscribe, and could not, due to financial reasons. From this, Whiteaker concluded that over 85 percent of respondents “were not satisfied with the present commercial cable television provider.”⁸⁰¹ The minutes do not reveal how many surveys they mailed out (the number of dwellings in town) or how many households subscribed to cable. Later, the mayor reported a 38 percent response rate, which means there were 534 homes in town at the time.⁸⁰² Approximately 449 homes had cable service according to a 1990 news article.⁸⁰³ Additionally, the council minutes do not include the survey questions. The mayor could have written the survey to elicit responses from the disgruntled but few others. The results of the survey were decisive enough that the council decided to further investigate the possibilities for a local cable company.⁸⁰⁴ Commenting on the survey results, Whiteaker noted, “I feel that the strength of the mandate given to us by the survey forces us to study development of such a system.”⁸⁰⁵ He later argued that cost should exclude

⁸⁰¹ “Lusk Plans are Featured,” Conservation and Renewable Energy Bulletin article reprinted in *The Lusk Herald*, 105, no. 22 (Wednesday, September 5, 1990): 1.

⁸⁰² Ibid.

⁸⁰³ The cable company reported in May of 1990 that it had 449 subscribers in town. “Platte River Cable Company Checks Cable System in 221 Lusk Homes,” *The Lusk Herald*, 105, no. 9 (Wednesday, May 23, 1990): 1.

⁸⁰⁴ “Minutes of Town Council Meeting, Town of Lusk, January 2, 1990,” in *The Lusk Herald*, 104, no. 41 (Wednesday, January 17, 1990): 16.

⁸⁰⁵ Quoted in “Lusk Plans are Featured,” 1.

no residents from cable subscription. This statement suggests that a town-owned cable system would have been affordable for all who wished to subscribe.⁸⁰⁶

Residents' unhappiness with the incumbent cable provider led Whiteaker to strive to provide affordable and reliable services to his constituents. He also, however, thought that the grid could bring economic development to the town.

Economic Development

The town, founded in 1886, experienced a boom in the 1920s when oil swelled its population to 10,000. Over time, the populace dwindled, and the exodus increased in the 1980s when the prices for land and oil fell. At the end of the decade, only 1,504 people resided in town.⁸⁰⁷ According to the local press, the local economy "hit bottom" in 1984. In addition to the depressed local economy, the town watched successive generations of youth flee to urban areas for college and employment opportunities. This concern was not unique to the community; it was common to rural centers across the country.⁸⁰⁸ A lack of career opportunities kept young adults from returning to the county. Thus, the population of the region increased in age and the overall population declined. Providing more employment opportunities in the region, the town's community plan argued in 1994, would bring young adults back after college.⁸⁰⁹

⁸⁰⁶ The experience of Glasgow, Kentucky, was provision at substantially lower rates than the private provider. Healey, "Small-Town Net of Dreams," 6.

⁸⁰⁷ Zeiger, "The Rural Frontier of Cyberspace," 11.

⁸⁰⁸ Falk and Lobao discuss the rural crisis in general. William W. Falk and Linda M. Lobao. "Who Benefits from Economic Restructuring?: Lessons from the Past, Challenges for the Future," in *Challenges for Rural America in the Twenty-First Century*, ed. David L. Brown and Louis E. Swanson (University Park, PA: The Pennsylvania State University Press, 2003), 158-159.

⁸⁰⁹ In 2001, a particularly critical article of the town and the fiber optic system by Brandon Loomis argued that when asked, "where do you want to go today?," the question posed in the Microsoft advertisements, townspeople's real answer is "anywhere else with good-paying jobs." "Lusk's Community

The 1980s witnessed an agricultural crisis, caused by reduced demand and prices for farm products and low prices for farmland. Acting in concert, low farm incomes and low land prices made it difficult for farmers to pay down their mortgages and debt.⁸¹⁰ The crisis led rural areas to attempt economic restructuring in the 1990s. Popularly, the press labeled this the arrival of the “new” economy, one based on high technology and telecommunications. Lusk attempted to position itself at the center of this new economy. At the same time, the federal government decreased its role in community development, pushing economic development activities onto states and local governments.⁸¹¹

The start of Lusk’s economic revival, however, came from an industry outside of the new economy. The town successfully attracted the state’s women’s prison, bringing state money and jobs into the region. This increased the number of service jobs in the town. Rural sociologists William W. Falk and Linda M. Lobao note that industries like animal confinement or processing plants and prisons stigmatize communities and can discourage other development efforts.⁸¹²

According to the local newspaper, in the mid-1980s, the mayor realized that while the town had basic infrastructure; it lacked “modern telecommunications.”⁸¹³

Additionally, John Naisbitt’s 1982 bestseller *Megatrends: Ten New Directions*

Transforming Our Lives influenced the mayor.⁸¹⁴ Naisbitt’s book outlined ten major

Plan Continues,” *The Lusk Herald*, 111, no. 15 (Wednesday, April 13, 1994): 14, 24; Brandon Loomis, “Where Do You Want to Go Today?,” *Casper Star-Tribune* (Saturday, March 17, 2001): B1.

⁸¹⁰ Falk and Lobao, “Who Benefits from Economic Restructuring?,” 158.

⁸¹¹ *Ibid.*, 160.

⁸¹² *Ibid.*, 165.

⁸¹³ “Lusk Bets on Fiber Optics to Lure Development,” *The Lusk Herald*, 111, no. 9 (Wednesday, March 2, 1994): 1.

⁸¹⁴ Another book, David Osborne and Ted Gabler’s *Reinventing Government* (1992), read by people in local government around the U.S. argued that rather than being a provider, regulator, and enforcer, local governments should be facilitators, networkers, and enablers. The Lusk project shows adoption of these

shifts, or megatrends, that would dramatically alter American society. Daniel Bell in his 1973 book, *The Coming of Post-Industrial Society: A Venture in Social Forecasting*, originally outlined the first of these trends, the transition from an industrial to an information society.⁸¹⁵ Naisbitt maintained that Americans were currently in the information society and they needed to understand it.⁸¹⁶ An additional trend that would have been of interest to the town was Naisbitt's megatrend of "Centralization → Decentralization" that saw businesses locating new facilities in the open spaces of small towns and rural areas across the country rather than in the developed urban areas.⁸¹⁷ In the reality of the information society, advanced telecommunications were key. Places without it would be left behind. The mayor, who read Naisbitt's book, likely read, "The combined technologies of the telephone, computer, and television have merged into an integrated information and communication system that transmits data and permits instantaneous interactions between persons and computers" and that in the future, the "emerging communications network [will] carry the new products of the information society."⁸¹⁸

The local press noted that the mayor's dream was to "encourage high-tech, non-polluting economic growth..."⁸¹⁹ Two businesses located in town during this time, a company fabricating control panels for electronic gates and a publishing and advertising

newer roles. Sorensen, "Wireless in Wyoming," A12; "Lusk's Link to the Information Age—Wire, Oh Wire, Can It Be?," 9; Mildred Warner, "Competition, Cooperation, and Local Governance," in *Challenges for Rural America in the Twenty-First Century*, ed. David L. Brown and Louis E. Swanson (University Park, PA: The Pennsylvania State University Press, 2003), 253.

⁸¹⁵ John Naisbitt, *Megatrends: Ten New Directions Transforming Our Lives* (New York: Warner Books, 1982), 13.

⁸¹⁶ Ibid.

⁸¹⁷ Ibid., 127.

⁸¹⁸ Ibid., 23-24.

⁸¹⁹ "Fiber Optic Provides State-of-the-Art Telecommunication," *The Lusk Herald*, 110, no. 25 (Wednesday, October 6, 1993): 25.

company.⁸²⁰ The town, however, lacked modern telecommunications capability that hindered the businesses in town and would discourage others from locating in the area. Antiquated telephone technology served the region. In 1992, founders of the electronic gate business learned upon arriving in the town that they could not yet direct dial telephone calls to Europe.⁸²¹ Additionally, they found the telephone switching office's older equipment made faxes tough to send.⁸²² The publishing firm required better telecommunications so that they could send art, graphics, and publications to clients around the nation. The owner pointed to a trend occurring at the time, locating businesses away from urban centers, telling the *Denver Post Magazine*, "...we can do the same publishing and creative work here in Lusk that they can do in a city, and we can keep the costs down."⁸²³ Like the owner of the local publishing firm, the national press, including *Forbes* and *USA Today*, pointed to an emerging future where businesses leave cities and migrate to towns and rural areas. The executive managing editor of *Wired* magazine, John Battelle, noted that the "informationally wealthy" were going to look "for places to live that are clean and beautiful."⁸²⁴ In 1992, *Forbes* called fiber optics the third wave of business outmigration from cities, following those due to electronic power and railroads and then the Interstate highway system.⁸²⁵ When businesses were searching for areas in which to locate, the availability of advanced telecommunications would be critical.

⁸²⁰ Zeiger, "The Rural Frontier of Cyberspace," 11, 14.

⁸²¹ Mary A. Shields, "New Business is Open, Running," *The Lusk Herald*, 107, no. 16 (Wednesday, July 29, 1992): 3; Zeiger, "The Rural Frontier of Cyberspace," 12.

⁸²² Zeiger, "The Rural Frontier of Cyberspace," 14.

⁸²³ Ibid., 13.

⁸²⁴ Hoversten, "Cyberspace Snares Entire Town," 10A.

⁸²⁵ Churbuck and Young, "The Virtual Workplace," 184-190.

Mayor Whiteaker maintained on several occasions that a telecommunications system would bring economic development to the town.⁸²⁶ The mayor and town quoted the 1989 Kevin Costner film *Field of Dreams*, “***If you build it, they will come!***” and according to the mayor, “***If you don’t—they won’t.***”⁸²⁷ They argued, like the boosters of the past, that if the town built telecommunications, businesses would arrive. Officials sought to make the town have the “largest warehousing capabilities in the country,” according to the superintendent of municipal public works at the time.⁸²⁸ *Salon.com* reported that several town officials originally “envisioned catalog companies, reservation systems, corporate branches” locating in town and using the town’s telecom system.⁸²⁹ Whiteaker thought that “catalog ordering or clearinghouse telemarketing may be easy markets to tap with the sophisticated telecommunications system in place,” according to the *Denver Post*. An added bonus, according to the new Governor, Jim Geringer, was that “Companies who want to try out interactive technology could easily try it for a low cost here.”⁸³⁰ The mayor realized that the town needed improved telecommunication capacity to attract businesses to the region, especially those that fulfilled his desire for

⁸²⁶ Bill Hanson, “Mayoral Profile: Whiteaker: ‘I can Provide the Leadership,’” *The Lusk Herald*, 106, no. 51 (Wednesday, April 1, 1992): 1.

⁸²⁷ Boldface and italics in original. In addition to the mayor, the U.S. West representative Bill Thomas also used the phrase “build it and they will come” to discuss the town’s fiber optic grid project. “Lusk in the Forefront of Technology,” in “History Abounds in Niobrara County,” insert to *The Lusk Herald*, 110, no. 16 (Wednesday, April 17, 1996): 8; the mayor repeated this statement in Zeiger, “The Rural Frontier of Cyberspace,” 14; Thomas quoted in “Lusk Bets on Fiber Optics to Lure Development,” *The Lusk Herald*, 111, no. 9 (Wednesday, March 2, 1994): 1.

⁸²⁸ Former Superintendent of Municipal Public Works (1A-WY), Interview with the Author, June 25, 2007.

⁸²⁹ Healey, “Small-Town Net of Dreams,” 4.

⁸³⁰ Additionally, Geringer spoke positively about the system’s adaptability for educational and medical applications, arguing, “To preserve our quality of life, we must preserve our small towns.” This suggests that small towns play a central role in the fabric of American life, a myth shared by many. Governor Jim Geringer quoted in Jeanne Peterson, “Geringer Speaks Out on Tourism, Technology, Education, the BLM,” *The Lusk Herald*, 110, no. 7 (Wednesday, February 14, 1996): 5.

non-polluting development; however, small towns in rural America are not the places where telecommunications firms traditionally invest money.

Neglect of Rural America by Private Providers

Knowing that small communities are not the foci of corporate investment, the mayor decided to build the grid for the town's survival in the twenty-first century. Like other rural areas in the U.S., private infrastructure providers neglected the region. The town felt that to get things done, they needed to do it themselves. The provision of municipal services had a colorful history in Lusk. In the 1920s, the local madam paid for the town's water and sewer systems, replacing outhouses.⁸³¹ Additionally, the town owned the electric network and this would make it easy to string telecommunications wires on the poles as the town did not have to pay for access.⁸³² The two private telecommunication providers, U.S. West and Platte River Cable, that served Lusk had turned their gaze from the town, leading officials to seek their own solutions to telecommunication needs. As discussed earlier, the incumbent private cable provider dissatisfied some town residents with their poor customer service and the telephone company used aged equipment to serve the town. The town appears to have viewed this as neglect.

To upgrade equipment in the region, the town had to present the telephone company with a special initiative. The cable company required the specter of

⁸³¹ Healey, "Small-Town Net of Dreams," 2; "The Lusty Lady From Lusk," *The Lusk Herald* (no date) article posted to "Dell (Fisher) Burke (July 5, 1888–November 4, 1980)," Niobrara County Library website, URL: <http://www.niobraraountylibrary.org/obituaries/?id=903> (accessed January 18, 2009).

⁸³² Zeiger, "The Rural Frontier of Cyberspace," 12.

competition from the town to work on customer satisfaction. It was loath to have redundant cables, surpassed by the possible municipal venture. This lends credence to the economic concept of “contestable” markets developed by economist William Baumol. A “contestable” market is one where the threat of competition pushes the incumbent monopoly company to respond in positive ways, providing lower prices and better service.⁸³³ After the town made movements toward developing a competitive cable service, Platte River Cable greatly increased the attention it paid to customers in the town. These cases illustrate that without pressure, private companies do not pay much attention to rural areas and small towns.

With the town’s musings into municipal cable service, the incumbent cable company strengthened its presence in the community through a variety of means. This diverged from earlier practices, such as the letter sent to advise the town of rate increases.⁸³⁴ Platte River Cable unleashed a public relations campaign to improve its image and residents’ happiness with their service. One part of the PR strategy included positive coverage in the local press: introducing readers to employees working in the area, placing advertisements, and having favorable stories run.⁸³⁵ Indeed, it appears that

⁸³³ Alan Griffiths and Stephen Ison, *Business Economics* (Oxford: Heinemann Educational Publishers, 2001), 83.

⁸³⁴ “Cable Survey being Issued,” *The Lusk Herald*, 104, no. 36 (Wednesday, December 13, 1989): 27.

⁸³⁵ A full page in the newspaper employing all three of these strategies occurred on April 25, 1990 and another followed on April 30, 1992. *The Lusk Herald*, 105, no. 3 (Wednesday, April 25, 1990): 5; *The Lusk Herald*, 107, no. 4 (Wednesday, April 30, 1992): 6b; an advertisement ran introducing the community to the customer service representative in Lusk, “Meet Heidi Phipps,” Platte River Cable advertisement, *The Lusk Herald*, 105, no. 10 (Wednesday, June 13, 1990): 11; also “Minutes of Town Council Meeting, June 5, 1990,” *The Lusk Herald*, 105, no. 11 (Wednesday, June 20, 1990): 22; “Platte River Cable Named Linda Mallory as its Customer Relations Representative,” *The Lusk Herald*, 105, no. 39 (Wednesday, January 9, 1991): 1A.

the newspaper ran the cable company's press releases as news stories.⁸³⁶ Advertisements included drawings of happy families watching great entertainment from the cable company.⁸³⁷ One advertisement reminded people that their company had "Something For Everyone" and that it was "Your Cable Company."⁸³⁸ In addition to using the local press, the provider improved its service and increased its presence in the community. Service improvements included upgrades of the plant in the area⁸³⁹ and improvements to the "800 telephone number in Fort Collins" so that people could reach the cable company.⁸⁴⁰ To increase their presence in town, the incumbent sent representatives to attend town council,⁸⁴¹ reopened its office in town to "better serve the needs of the community,"⁸⁴² launched a free information channel for the town,⁸⁴³ and made a door-to-door check of cable service in town subscribers' homes.⁸⁴⁴ The cable company's residential check made the front page of the local press, pointing to the sentiment some

⁸³⁶ One story about a cable service upgrade included the text, "The new wire will insure current and future interactive capabilities. The interruption of signals to *our* subscribers will be isolated and held to a minimum." Italics added. Additionally, the story concluded with the statement, "As always, Platte River Cable will provide Lusk with the best that cable television has to offer." Other stories, similar in tone, ran in the paper. "Cable TV Firm to Change 'Feeder' Wire to Homes," *The Lusk Herald*, 108, no. 4 (Wednesday, May 5, 1993): 3.

⁸³⁷ "Thank You for Your Patience," Platte River Cable advertisement, *The Lusk Herald*, 105, no. 5 (Wednesday, May 9, 1990): 20; "Thank You for Your Patience," Platte River Cable advertisement, *The Lusk Herald*, 105, no. 7 (Wednesday, May 23, 1990): 20; "We are proud to be a part of such a wonderful state. *Happy 100th Wyoming*," Platte River Cable advertisement, *The Lusk Herald*, 105, no. 13 (Wednesday, July 4, 1990): 3A; "When you're looking for the best in cable television viewing, look to us. We have all the channels you need for great entertainment," Platte River Cable advertisement, *The Lusk Herald*, 105, no. 39 (Wednesday, January 9, 1991): 1A.

⁸³⁸ "Cable TV: The Best in Home Entertainment for You and Your Family," Platte River Cable advertisement, *The Lusk Herald*, 105, no. 3 (Wednesday, April 25, 1990): 5.

⁸³⁹ "Platte River Cable Schedules Customer Services Upgrades," *The Lusk Herald*, 108, no. 2 (Wednesday, April 21, 1993): 1; "Cable TV Firm to Change 'Feeder' Wire to Homes," *The Lusk Herald*, 108, no. 4 (Wednesday, May 5, 1993): 3.

⁸⁴⁰ Ben Hernandez quoted in "Minutes of the Town Council Meeting, Town of Lusk, May 1, 1990," in *The Lusk Herald*, 105, no. 6 (Wednesday, May 16, 1990): 16.

⁸⁴¹ "City Council Conducts Meeting," *The Lusk Herald*, 105, no. 4 (Wednesday, May 2, 1990): 17.

⁸⁴² "Town Council Conducts Meeting with Full Agenda Tuesday Night," *The Lusk Herald*, 105, no. 9 (Wednesday, June 6, 1990): 14.

⁸⁴³ "Platte River Cable Checks Cable System in 221 Lusk Homes," *The Lusk Herald*, 105, no. 7 (Wednesday, May 23, 1990): 1.

⁸⁴⁴ Ibid.

residents had for the cable provider. The paper stated, “If you thought you were seeing things when you spied Platte River Cable trucks cruising throughout Lusk last weekend, you weren’t.”⁸⁴⁵ This sardonically suggests that the cable company had previously neglected the town. With these tactics, the incumbent attempted to improve customer satisfaction in the town as it hoped to retain its cable franchise monopoly. In addition to its public relations and goodwill strategies in town, according to Whiteaker, the incumbent cable company also threatened to “fight” a municipal venture.⁸⁴⁶ An additional cable provider in town would substantially decrease revenue for the company. While it was unlikely that another private provider would serve the town, the threat of competition from the municipality was clearly a great concern to the incumbent.

In 1993, Platte River Cable’s franchise expired. The franchise renewal agreement between the town and the incumbent was for fifteen years. Two town residents attended council and expressed concern with the length of the agreement. One noted, “I don’t want to see us get locked into a franchise we can’t live with” and the other argued that fifteen years was a long time, too long in light of the technological advances that were occurring. He feared that cable would become obsolete. The mayor, however, brushed these concerns aside, stating that if various companies developed different delivery options for television choices, these could offer competition to the cable franchisee and, “That [competition] could keep prices down.”⁸⁴⁷

The town and the cable company eventually signed an agreement for fifteen years. Importantly, however, the franchise agreement was non-exclusive. The town

⁸⁴⁵ Ibid.

⁸⁴⁶ “Lusk Plans are Featured,” 1.

⁸⁴⁷ Mary A. Shields, “Council Approves Home Business Permits, Hears Cable Discussion,” *The Lusk Herald*, 107, no. 26 (Wednesday, October 7, 1992): 1, 20, mayor quoted from 20.

would grant a franchise to any qualified applicant. In addition, “This franchise shall in no way limit the Town ... from authorizing construction of its own or other cable communication systems.”⁸⁴⁸ The incumbent’s goodwill gestures, increased visibility, and service improvements did not keep the town from pondering municipal provision.

The town, however, did not seek to build its own telephone system. For this it relied on U.S. West, one of the large Baby Bells. But, U.S. West’s equipment was old. The telephone switching office still used a cross-bar switch. Cross-bar switches were electromechanical, that is, analog switching technology. They used “magnets and metal bars (crossbars) to close connections.”⁸⁴⁹ Telephone companies used them predominantly from 1950 to 1980, when companies replaced them with electronic switches.⁸⁵⁰

U.S. West defended the aged equipment serving the region by explaining the difficulties involved in providing service to Wyoming at a Public Service Commission (PSC) meeting in 1993. The Director of Regulatory Affairs, Alfrieda Gonzales, argued, “Wyoming’s telephone rates are among the lowest in the country.” At the same time, the costs to bring service to the state’s subscribers were among the highest. She stated it cost the company roughly \$3,100 per customer to deliver service in Wyoming, the highest per

⁸⁴⁸ “Ordinance No. 4-101, An Ordinance of the Town of Lusk Granting a Conditional Franchise to James Cable Partners, L.P., its Successors and Assigns, to Build, Construct, Operate and Maintain a Cable Television Service and Ancillary Communications Services Along, Across, and Upon the Public Streets, Ways, Alleys, Easements and Places as the Same May Now or Hereafter Exist within Said Municipality,” *The Lusk Herald*, 110, no. 24 (Wednesday, September 29, 1993): 25.

⁸⁴⁹ “Definition of: Crossbar Switch,” Encyclopedia, PCMag.com, URL: http://www.pcmag.com/encyclopedia_term/0,2542,t=crossbar+switch&i=40505,00.asp# (accessed April 12, 2009).

⁸⁵⁰ “The Crossbar Switch—From Concept to Success,” The Switches, Products, Home, The History of Ericsson website, URL: <http://www.ericssonhistory.com/templates/Ericsson/Article.aspx?id=2095&ArticleID=1379&CatID=362&epslanguage=EN> (accessed April 12, 2009).

capita cost in the nation; the reasons for this high cost were the large expanse of the state and the low density of its population. While the company was upgrading equipment in Wyoming, it also spent money “expanding and maintaining the current network.”

Gonzales noted, “Our serving territory in Wyoming is so large and vast that it impacts our ability to channel money to projects that could improve the quality of service, upgrade central offices and meet customers’ rising expectations for new products and services.”⁸⁵¹ Due to the high cost of serving Wyoming’s residents, and the return the company desired, U.S. West used and repaired old equipment rather than replacing it with modern plant.⁸⁵² Whiteaker realized that the phone company, with these economic challenges, would not wire the town for advanced telecommunications on its own.

A Partner to Build the Middle Mile

The development of the town’s telecommunication project hinged on finding a way to connect the town to the incumbent telephone company’s fiber, which was over 40 miles away. This was such a central component of the project that the town did not buy or install equipment until the phone company completed the middle mile.

In April of 1990, Whiteaker announced that he had met with representatives from the incumbent telephone company, and was looking into a public-private partnership on a telecommunication system. A network build under the partnership would not include

⁸⁵¹ U.S. West Communications Director of Regulatory Affairs Alfrieda Gonzales quoted in “U.S. West Outlines Strategy, Service: Investment of \$1.4 Million Could Raise Rates,” *The Lusk Herald*, 108, no. 8 (Wednesday, June 2, 1993): 24.

⁸⁵² This was the case in the county’s rural areas, although the telephone company eventually upgraded the central office switch and placed fiber to the town, it did not modernize the lines from the town to the county’s rural areas. This situation still held true in 2007 when the phone company served rural homes with open wire.

cable television (because the telephone company could not be a cable provider under the FCC's cross ownership rules in force at the time). The mayor was "enthused" and "confident" about working with the phone company according to the local press. Further, Whiteaker reported the telephone provider as stating "we're going to go with it until there's a fatal flaw."⁸⁵³

In 1991, U.S. West agreed to a partnership with the town. To continue with the telecommunication project, the town needed a connection to the telephone company's fiber optic trunk line, 40 miles away. The phone company, according to the town's attorney, "...has neglected rural America and felt it was time to do something with rural America. ... That and the fact that Whiteaker went for it (telecommunications coming to Lusk) and wanted a joint venture (influenced their choice of an experiment site)."⁸⁵⁴ U.S. West agreed to bring fiber to the town, thus enabling the town to access a high-speed connection to the rest of the world.

The telephone company, for its part, admitted they had to address the "need to upgrade and modernize the network in Wyoming." The company's Vice President noted, "We believe it is our responsibility to support the state in its pursuit of economic development. A high quality, state-of-the-art telecommunications network is a key element of Wyoming's economic infrastructure."⁸⁵⁵ The company asked for rate

⁸⁵³ Mayor quoting the telephone company quoted from "Council Exploring Partnership with US West," *The Lusk Herald*, 104, no. 52 (Wednesday, April 4, 1990): 1; also Zeiger, "The Rural Frontier of Cyberspace," 12.

⁸⁵⁴ Parentheses in original article; matter in brackets added by the author. "Lusk May be Rural America Telecommunications Experiment Site," *The Lusk Herald*, 106, no. 23 (Wednesday, September 11, 1991): 1.

⁸⁵⁵ U.S. West Communications Vice President Stan Bader quoted in "US West Seeking Rate Increase in State," *The Lusk Herald*, 105, no. 46 (Wednesday, February 20, 1991): 2.

increases to help with these actions, which the Wyoming Public Service Commission agreed to in 1991.⁸⁵⁶

U.S. West announced in October of 1992 that it was going to modernize the town's aged telecommunications equipment. The letter announcing the modernization stated,

U.S. West is committed to replacing the existing cross bar switch in Lusk with a new digital switch in the fourth quarter of 1993. This new switch will give our customers in town and the associated rural serving area access to a wide variety of new products and sophisticated services.

Also, a new fiber interoffice facility will be placed between Orin Junction and Lusk. It will also become operational during the fourth quarter of 1993.

The new facilities will position the Town ... to retain and/or attract businesses which have the need for complete digital connectivity to the world.⁸⁵⁷

Enhanced services and equipment, however, came at a price. The state's Public Service Commission held hearings to enquire into the enhanced telephone services that residents wanted in early 1993 and what they considered to be "basic" service. The PSC reminded customers, however, that improvements to telecommunication services might require "SUBSTANTIAL INCREASES" in rates.⁸⁵⁸ At the public hearing in town, U.S. West noted they planned to spend \$1.4 million in the area, upgrading their system, including a digital central office in town and "high-speed digital facilities" between the existing fiber

⁸⁵⁶ "Phone Rates Rising this Month," *The Lusk Herald*, 105, no. 52 (Wednesday, April 3, 1991): 1.

⁸⁵⁷ Mary A. Shields, "Telecommunications will be Reality in Lusk in Fall 1993," *The Lusk Herald*, 107, no. 27 (Wednesday, October 14, 1992): 1.

⁸⁵⁸ "Notice of Public Service Commission Inquiry into Telecommunications Service Needs and Capabilities in Wyoming, General Order Docket No. 67," *The Lusk Herald*, 107, no. 38 (Wednesday, December 31, 1992): 18; "Notice and Order Setting Public Informational Hearing at Lusk, Wyoming (Issued April 8, 1993)," *The Lusk Herald*, 108, no. 2 (Wednesday, April 21, 1993): 20.

optic link and the town.⁸⁵⁹ Shortly after the installation of the new central office equipment, the telephone company asked the Public Service Commission for a thirty-six percent rate hike to increase earnings based on past investments.⁸⁶⁰

The telephone company installed the digital equipment in October of 1993, making call forwarding, call waiting, and direct international dialing available to town residents. The incumbent's spokesman did not miss the opportunity to point out that subscribers in Lusk "now have access to many of the same products and services that customers in Denver, Phoenix and even New York have."⁸⁶¹ The official also noted that the new digital telephone office would be a part of the town's economic development because "Where your office is actually located becomes less and less important in the Information Age. This lets a business decide on where to locate based on factors like the quality of education, lack of crime—the overall quality of life. Factors that make Wyoming, and Lusk, such an attractive selling point."⁸⁶² To the phone company official, distance mattered less than it did in the past.

The telephone company installed 24-strand fiber optic cable from their existing 12-strand fiber, 40 miles west, to the town. The estimated cost of this upgrade was \$2.1 million. Lusk was a special case; the company did not plan to run fiber to any other communities in the state.⁸⁶³ The company's spokesperson reflected on the partnership, "I

⁸⁵⁹ "U.S. West Outlines Strategy, Service: Investment of \$1.4 Million Could Raise Rates," *The Lusk Herald*, 108, no. 8 (Wednesday, June 2, 1993): 1.

⁸⁶⁰ Additionally, they requested permission to sell 28 small exchanges. Zoe Kalber, "US West Asks for 36% Rate Increase," *The Lusk Herald*, 111, no. 3 (Wednesday, January 19, 1994): 1.

⁸⁶¹ U.S. West spokesperson Steve Hammack quoted in "US West Puts Lusk in Information Age," *The Lusk Herald*, 110, no. 27 (Wednesday, October 20, 1993): quoted on 1, information also from 28.

⁸⁶² *Ibid.*, 1. This article, in addition to giving the details about the open house, replicates what was said in the article "US West Puts Lusk in Information Age" which ran on October 20, 1993.

⁸⁶³ "Lusk Bets on Fiber Optics to Lure Development," *The Lusk Herald*, 111, no. 9 (Wednesday, March 2, 1994): 1.

don't know of any other place where US West has sat down and worked so closely with a community to cover all of their needs, where the community is investing in the infrastructure also. I think that's pretty unique."⁸⁶⁴ For U.S. West, thus, the town's decision to build a municipal grid was central to the installation of modern and advanced equipment. U.S. West received good PR for extending the fiber; the company also stood to gain financially if Lusk's visions came true.

Technological Optimism

The final reason for the construction of the grid was the larger climate of technological optimism that was pervasive in the United States at the time. This was the belief that technology would solve social problems that Americans faced. In this case, Lusk could rely on technology to repair the issues of economic downturn, rural depopulation, and dissatisfaction with the private providers of telecommunication services.

One factor influencing Mayor Whiteaker was seeing what some towns already had done with telecommunication technology. The town of Glasgow, Kentucky, inspired the mayor with its coaxial cable network constructed in 1988.⁸⁶⁵ Additionally, as mentioned earlier, John Naisbitt's bestseller *Megatrends* influenced the mayor.⁸⁶⁶

Generally there was a climate of optimism about a technological future and the press, both local and national, embraced this positive approach. In the heady days of technological optimism, not brought to a halt until the bursting of the tech bubble in

⁸⁶⁴ U.S. West spokesperson Bill Thomas quoted in "Lusk Bets on Fiber Optics to Lure Development," *The Lusk Herald*, 111, no. 9 (Wednesday, March 2, 1994): 1.

⁸⁶⁵ Healey, "Small-Town Net of Dreams," 3.

⁸⁶⁶ "Lusk's Link to the Information Age—Wire, Oh Wire, Can It Be?" 9.

2000, newspapers printed optimistic stories about technology and its effects, rarely offering dissenting or cautious voices to temper the unbridled optimism of the time.

Whiteaker held a strong belief of technological optimism. He noted after a meeting of the telephone company, the town, consultants, and a local economic development official, the “technologies being discussed are so far advanced, so state-of-the art (of what is presently used), that we most likely have to push our time-table back from fall 1992 to fall 1993 (for implementation in the town).”⁸⁶⁷ Enthusiastically, the mayor felt that the state-of-the-art system would make Lusk the model for rural America.

The local press largely mirrored Whiteaker’s aspirations and visions, rarely offering the suggestion that his plans may not work as he envisioned. When construction on the first part of the project began, the paper heralded the installation of the carrier wire as the “first physical evidence” of the mayor’s, town councils’ and staff’s efforts to put the town “in the mainstream of the electronic heartland.”⁸⁶⁸ Whiteaker insisted improved telecommunications would assist the town in a multiplicity of ways. He argued in the *Conservation and Renewable Energy Bulletin*, “We in rural America need to get involved in the information age to reap the benefits of all that modern technology makes available to us.”⁸⁶⁹ One of these benefits, he argued, was that technological progress would spur economic development of the area. In one newspaper article, Whiteaker is paraphrased as stating,

⁸⁶⁷ Although the newspaper noted in the same article, “No decisions have or will be made in the near future,” the mayor, by speaking about implementation dates, appeared to believe that the network was a done deal. Mayor quoted in “Telecommunications Meeting Held,” *The Lusk Herald*, 105, no. 25 (Wednesday, September 26, 1990): mayor quoted on 20, footnote quotation from 1.

⁸⁶⁸ “Minutes of Town Council Meeting, Town of Lusk, November 2, 1993,” *The Lusk Herald*, 110, no. 30 (Wednesday, November 11, 1993): 25.

⁸⁶⁹ Quoted in “Lusk Plans are Featured,” 1.

What is needed to connect Lusk with the outside world via fiber optics is a trunk line from Orin Junction. After the trunk line is built, [the mayor] said the next challenge for the area will be to show large companies that it has the housing and warehousing those companies need to locate here. Once that is accomplished, the economic growth of the area should follow naturally.⁸⁷⁰

The mayor's use of the word "naturally" is important. By having adequate facilities and telecommunication, the mayor believed that the town needed to do little else to encourage companies to relocate. This was, the town would later realize, a great simplification of what needed to occur to spur economic development in a rural area.

The local press acted as a booster to the mayor's plans, printing optimistic articles, encouraging people to get involved, and explaining the benefits of fiber optics to readers. For example, the local press expressed technological optimism in an article entitled, "Telecommunications Project Continues: Mayor Still Pushing Fiber Optic Technology." The journalist, Catherine DeCastro, wrote, "Envision a new electronic heartland. Consider a 'Golden Triangle' free trade linkup of North America, Europe and Japan."⁸⁷¹ These comments opened the front-page article, whereas later in the report, on page three, she wrote, "Ideally, the technology would bring down the barriers of isolation, jolt the rural economy and provide increased opportunity for residents."⁸⁷² The journalist realized that these goals would occur "ideally," they were not givens, but she did not state these reservations on the front page of the article. Scholars of the news media argue that few people read beyond the jump of a story thus, in this case, readers

⁸⁷⁰ "Lusk May be Rural America Telecommunications Experiment Site," *The Lusk Herald*, 106, no. 23 (Wednesday, September 11, 1991): 1.

⁸⁷¹ Catherine DeCastro, "Telecommunications Project Continues: Mayor Still Pushing Fiber Optic Technology," *The Lusk Herald*, 106, no. 42 (Wednesday, January 29, 1992): 1.

⁸⁷² *Ibid.*, 3.

may have read the optimistic parts of the article, but missed the more reserved, cautious statements. In another article in the local press, the writer notes that Whiteaker's dream of high-technology development for the town "is now rapidly becoming a reality with the physical start-up of phase one of the ... telecommunication project."⁸⁷³ These optimistic articles hid or ignored that the technology was only one part of the process of developing a networked community.

Further evidence of technological optimism within the community was a notice in the local newspaper printed by the press itself urging residents to attend an information session called "Telecommunications and You" on July 27, 1995. The newspaper stated, "We, at the Lusk Herald, urge the public to attend this historic meeting, as Lusk steps into the future of telecommunications."⁸⁷⁴ Additionally, the paper ran an article called "Communicating is Faster Through Fiber optics" in a section called "Welcome to the Electronics Age" in 1996. The article, by a local journalist, called fiber optics "fascinating" and relied on extremely positive statements from local people excited about the grid to illustrate the story.⁸⁷⁵ The press put great stock in the telecommunication system's role in the town.

The technology advocates with their optimistic prognostications of networked communities and nations were not the only groups advocating that communities develop advanced telecommunications. Academic theorists of the information age, including Manuel Castells and Richard Florida, cite the necessity for communities to have

⁸⁷³ "Fiber Optic Provides State-of-the-Art Telecommunication," *The Lusk Herald*, 110, no. 25 (Wednesday, October 6, 1993): 25.

⁸⁷⁴ "Notice to the Citizens of Niobrara County," *The Lusk Herald*, 109, no. 30 (Wednesday, July 26, 1995): 28.

⁸⁷⁵ Jeanne Peterson, "Communicating is Faster Through Fiber optics," *The Lusk Herald*, 110, no. 31 (Wednesday, July 31, 1996): 27.

advanced telecommunications capacity. Castells, for example, cautions that the geographic areas that are not linked into the telecommunications network will, in the end, drop out of the economy.⁸⁷⁶ Florida argues that areas that spend the money to attract creative people transform their regions into vibrant and wealthy areas because he sees culture and economic growth as related.⁸⁷⁷ The work of both of these academics, therefore, encourages regions to develop advanced telecommunications to ensure the survival of their communities in the future.

Due to the innovative mayor, displeasure with the cable provider, the need for economic development, the neglect of rural areas by private telecommunication providers, the acquisition of a partner to build the middle mile, and the pervasive sentiments of technological optimism, the town decided to build the telecommunication system. They built the fiber connection and ran coaxial cable down all of the alleys past all homes and businesses, but they never connected the buildings to the system. Although the director of the chamber of commerce wrote once construction was complete, “The future is up to us—we have the opportunity to make Lusk a small but innovative town of the future—let’s get busy and get to work all of us,” the town’s work led largely to naught.⁸⁷⁸ In the end, only the schools used the equipment for a high-speed connection between their buildings. The public power stations also connected to the system. The fiber optic grid, however, never provided the residential services that Mayor Whiteaker envisioned nor did it attract any businesses to come to town.

⁸⁷⁶ Manuel Castells, *The Rise of the Network Society*, Volume 1 of *The Information Age: Technology, Economy, Society and Culture* (Malden, MA: Blackwell Publishers, 1996, 2000).

⁸⁷⁷ Richard Florida, *Cities and the Creative Class* (New York: Routledge, 2005), 5.

⁸⁷⁸ Carol Denny, “Notes from the Niobrara Chamber,” *The Lusk Herald*, 109, no. 34 (Wednesday, August 23, 1995): 28.

Interestingly, the cable grid system with fiber optic delivery built by Lusk, Wyoming, is the same type of system as discussed in the previous chapter, installed by the cable society in Alberta's central county village. Both systems were coaxial cable installed on power poles attached to a fiber trunk. Unlike Lusk, in Alberta, the village did provide cable and high-speed internet to residents. In Lusk, Wyoming, unlike in Alberta's central county village, people pinned their hopes on the system economically revitalizing the town, something that did not occur.

Due to the high expectations the town had for its system, the fact that other communities did this and succeeded, and that the town did build the grid infrastructure, it is imperative to consider why the town failed in turning the community residents into active online users and why they failed at attracting a vibrant and networked business sector.

Reasons for the Failure of the Town's Grid System

There is evidence for five major reasons why the town's grid system failed. The five reasons are: first, the town had no money to connect residences to the grid or provide the municipal services it wanted to once construction was complete; second, the election of a new mayor; third, despite multiple surveys, meetings, studies, and outside assistance, the town was unable to figure out how to use the system; and finally, although the innovative mayor wanted to attract large businesses to town, no large company came to the area. Additionally, other residents did not believe that attracting a major company was the correct path to follow.

No Money Available to Provide Municipal Services

The failure to provide the planned municipal services hinged on finances. The superintendent for municipal public works noted that the town could not complete the project as they wanted because the town ran out of funding to link up all of the buildings to the grid or to provide services such as cable television. Simply, Lusk had no money to continue construction and bring services to households.⁸⁷⁹

Changes in Municipal Government

A large part of the grid's failure can be explained by changes in municipal government. Mayor Whiteaker's optimistic plans did not come to be and therefore residents voted him out of office. The town's new mayors did not invest as much into the grid—both financially and in terms of labor—as Whiteaker had.

In May of 1996, the town unseated Whiteaker who had served since 1982 and chose a new person to lead the town.⁸⁸⁰ There is little in the press to explain the long-standing mayor's defeat but his failure to bring his technological visions to immediate fruition was likely a part of his loss. In a *USA Today* article in 1995, Whiteaker claimed to have the town's support for the fiber optic project. He stated, "I had complete cooperation not only from my council but also from about 100% of the public."⁸⁸¹

Perhaps this was not, or was no longer, true. Perhaps voters felt that Whiteaker had six and a half years to bring the project to fruition and had failed. A council member, Mark

⁸⁷⁹ Former Superintendent of Municipal Public Works (1A-WY), Interview with the Author, June 25, 2007.

⁸⁸⁰ "Lusk Voters Elect Mayor, Council," *The Lusk Herald*, 110, no. 19 (Wednesday, May 8, 1996): 1.

⁸⁸¹ Mayor quoted in Hoversten, "Cyberspace Snares Entire Town," 10A.

Lohr, who later served as mayor (elected in 1998) suggested that the telecommunication project was controversial and many townspeople had questioned its necessity: "...this was a controversial project. I think a lot of people questioned why this ever happened and whether there was any reason to do this."⁸⁸² The mayoral switch played a significant role for the fiber optic project because its main champion and tireless defender was no longer at the helm. The project did not particularly interest the new mayor, Don Wilson (1996 to 1998). He had spent his career drilling oil.⁸⁸³ Upon winning the election, the mayor-elect listed "town finances" and the "water system" as his highest priorities and concerns;⁸⁸⁴ Wilson shoved the fiber optic system from the pinnacle of the list. The school superintendent dimly evaluated this mayor in 1999, stating, "He had no clue."⁸⁸⁵ The mayor confirmed this, telling *Yahoo! Internet Life* about his experience with the internet, "I haven't been on it myself."⁸⁸⁶ The telecommunication system, according to Mayor Wilson, was the "baby" of his predecessor.⁸⁸⁷ More damningly, he established an us-them binary with the town he led, distancing himself from residents and the project. Wilson told *Salon.com* in 1997, "They got themselves into a position that nobody likes to get into, of not getting [the network] completed and not having it down to the place they advertised they were going to be with it." He continued, "It kind of devastated this little town. Broke their back, really."⁸⁸⁸ Rather than completing the network as his innovative

⁸⁸² Sorensen, "Wireless in Wyoming," A13.

⁸⁸³ Sorensen, "Wireless in Wyoming," A13; Ben Greenman, Box in "Small-Town Connections," "America's 100 Most Wired Cities and Towns," *Yahoo! Internet Life*, 4, no. 3 (March 1998): 81.

⁸⁸⁴ "It's the Water...New Mayor to Look at Water, Other Utilities after June Swearing In," *The Lusk Herald*, 110, no. 20 (Wednesday, May 15, 1996): 1.

⁸⁸⁵ Sorensen, "Wireless in Wyoming," A13.

⁸⁸⁶ Greenman, Box in "Small-Town Connections," 81.

⁸⁸⁷ Ibid.

⁸⁸⁸ Healey, "Small-Town Net of Dreams," 5.

predecessor had planned, Wilson, as is explored in the next section, sought to generate revenue from the unfinished system.

Removing the project's initiator, its champion, from his position meant that the person most invested in its success was no longer in charge. For the town's superintendent of municipal public works, the leadership change was central to the project's failure. He argued that the mayors after Whiteaker "didn't do anything with the fiber" because "nobody had the expertise to know what to do with it" and "nobody picked the ball up after [the mayor] left."⁸⁸⁹ Whiteaker argued ruefully in 1997 that the main problem is "nobody has the dream. Nobody has the desire. They don't have the dream."⁸⁹⁰ Even if the town's residents shared the innovative mayor's dream, they struggled at figuring out how to make the grid work for them.

No "Intelligent Application" of the System to Town Life

Despite having the system installed in town and having a fiber optic connection to the telephone company's fiber line, the town did not provide any municipal or telecommunication services to the residents. Additionally, the town did not install cable to each household and business in Lusk as planned.

A town resident, and the county's community development coordinator, noted that the town faltered on the "intelligent application" of the system.⁸⁹¹ She argued that the town had the vision, but they did not manage to intelligently apply their visions to the

⁸⁸⁹ Former Superintendent of Municipal Public Works (1A-WY), Interview with the Author, June 25, 2007.

⁸⁹⁰ Healey, "Small-Town Net of Dreams," 4.

⁸⁹¹ The community development coordinator adopted the phrase "intelligently applied" from John Battelle, the managing editor of *Wired* magazine. Sorensen, "Wireless in Wyoming," A12.

available technology. *Salon.com* noted that while the town did successfully build the grid, having the technology was not the same as having an “active online community.”⁸⁹²

The failure of finding intelligent applications, however, was not for a lack of trying. The town organized and held a multiplicity of meetings, sent out a number of surveys to consult residents about what they wanted, and had different groups work on the problem of determining how the town could get the most benefit from the system. Importantly, only the first of these happened under Mayor Whiteaker. The rest occurred under his two successors. Despite this plethora of efforts, the town did not develop an online community.

In mid-1995, during construction of the grid, the town held an informational session for residents. The newspaper stated that the program was “For those who have said, ‘Now that Lusk has all the state of the art telecommunications capabilities, so what?’” The paper further promised that the session would present “definite answers” to that question and it was “not just informational as it is designed to actually get Lusk moving on the information superhighway. If the town is waiting at the entrance ramp, it should be ready to merge onto the highway at the morning’s end.”⁸⁹³ The paper set high expectations for a half-day meeting.

The meeting featured two presenters from a Nebraska community who discussed setting up an electronic bulletin board. The newspaper reported that one presenter who worked in community networking said that “networks are more about people than

⁸⁹² Greenman, Box in “Small-Town Connections,” 81.

⁸⁹³ “Telecommunications and You,” *The Lusk Herald*, 109, no. 29 (Wednesday, July 19, 1995): 36.

technology,” a sentiment held by MIT’s Nicholas Negroponte.⁸⁹⁴ The purpose of a bulletin board, according to the presenters, was to provide people with information for the community, thus networking community members. The article noted that the first question posed by an audience member concerned what kind of personal computer residents needed to access the system. The paper editorialized that “Since a rural community includes a wide variety of computer vintages,” someone would raise the question. Nearly 30 of the attendees (27) wanted to subscribe to the bulletin board and all but four of those interested already had computers at home.⁸⁹⁵ There is no further mention of a town bulletin board in the records.

Mayor Wilson believed that the best way to use the fiber optic system was as a means of bringing money into the town. Although former Mayor Whiteaker believed that the town itself should provide services over the fiber, Wilson was less interested in providing services and more interested in generating revenue from the system. Wilson wanted outside service providers to use the equipment and pay the town for access.⁸⁹⁶ The town council found three organizations, two cable companies and an internet service provider, interested in using the town’s grid. The town council decided to invite all interested parties individually to council meetings to discuss how they would use the fiber optics.⁸⁹⁷ According to a town councilor, the council’s concern was learning what

⁸⁹⁴ Steve Buttress of the Community Networking Institute quoted in Jeanne Peterson, “FreeNet Opens Information Superhighway Door,” *The Lusk Herald*, 109, no. 31 (Wednesday, August 2, 1995): 1.

⁸⁹⁵ Peterson, “FreeNet Opens Information Superhighway Door,” 24.

⁸⁹⁶ The question of generating revenue from the fiber optic system was also raised in the town council on December 3, 1996. “Minutes of Town Council Meeting, Town of Lusk, October 8, 1996,” *The Lusk Herald*, 110, no. 46 (Wednesday, November 13, 1996): 30; “Minutes of Town Council Meeting, Town of Lusk, December 3, 1996,” *The Lusk Herald*, 110, no. 2 (Wednesday, January 8, 1996 [sic—it was 1997]): 22.

⁸⁹⁷ “Minutes of Town Council Meeting, Town of Lusk, October 8, 1996,” *The Lusk Herald*, 110, no. 46 (Wednesday, November 13, 1996): 30; “Minutes of Town Council Meeting, Town of Lusk, December

the service providers could do with the system to “make it profitable for the city.”⁸⁹⁸ The council minutes do not detail the proposals provided by the first two interested parties. The third company to present did so in January of 1997. Rather than sending a representative to attend council, the company provided information to council member Anderson, who spoke on their behalf. The meeting minutes contained information about this submission, unlike the previous two. This was a cable company, and it appears that the town hoped that the company would provide competition to the current provider. The cable company’s presentation, however, stated that they were “unable to compete” with the incumbent Platte River Cable. Additionally, council member Anderson learned, the incumbent cable provider wanted to use the town for a pilot project of high-speed internet, which the council’s minutes note, “would allow people to hook up computers and speed up Internet service.” The incumbent wanted to speak to the council about the system. Oddly, the council did not invite Platte River Cable in the first round of talks. Anderson recommended, “the Town should go with” the current cable provider rather than the other interested parties.⁸⁹⁹ At the time, the incumbent was planning to upgrade their existing cable system and the town’s fiber optic system would allow them to do this at less expense.⁹⁰⁰ Ironically, this is the private cable company the former mayor sought to replace with the telecommunication system. Council member Lohr asked how much it would cost for the town to become a service provider itself. Anderson, according to the

3, 1996,” *The Lusk Herald*, 110, no. 2 (Wednesday, January 8, 1996 [sic—it was 1997]): 22; “Minutes of Town Council Meeting, Town of Lusk, November 5, 1996,” *The Lusk Herald*, 110, no. 49 (Wednesday, December 4, 1996): 34.

⁸⁹⁸ Jeanne Peterson, “Lusk Council Investigates Fiberoptics [sic],” *The Lusk Herald*, 110, no. 49 (Wednesday, December 4, 1996): 36.

⁸⁹⁹ “Minutes of Town Council Meeting, Town of Lusk, January 7, 1997,” *The Lusk Herald*, 110 [sic, it is 111], no. 4 (Wednesday, January 22, 1997): 29.

⁹⁰⁰ “Minutes of Town Council Meeting, Town of Lusk, April 1, 1997,” *The Lusk Herald*, 110, no. 17 (Wednesday, April 23, 1997): 24.

minutes, responded that he had asked the interested cable company, who responded that the town does not have the staff to do it and that it “would be costly.” Hence, the provider “discouraged the Town as a cable provider.”⁹⁰¹ The town consulted someone else for another opinion about the possibility of the town being an internet and/or cable provider. This person believed that the town had the resources to be a provider.⁹⁰² The minutes provide no information about who this individual was or why the council believed him to be the source of an expert opinion.

The council’s next step was to have the fiber optic system appraised to determine its worth. The town’s attorney scoured the grant and found that there was no restriction to prohibit the town from selling the system. Rather than outright sale, however, the expert suggested that the town should consider the “lease of strands or a certain capacity rather than selling” the system to a company.⁹⁰³

The possibilities of cable provision or leasing fiber optic strands appealed to the town council. In June of 1997, Wilson and the council appointed a committee, called the Telecommunications Task Force, to determine what the town had, what possibilities were available to the town, and how much it would cost to implement the possibilities. The task force was to report back to the mayor and town council who would decide what steps to take. Council struck the task force, according to the local press, because townspeople were concerned about the system.⁹⁰⁴ Wilson took a lackadaisical approach to the task

⁹⁰¹ “Minutes of Town Council Meeting, Town of Lusk, January 7, 1997,” *The Lusk Herald*, 110 [sic, it is 111], no. 4 (Wednesday, January 22, 1997): 29.

⁹⁰² “Minutes of Town Council Meeting,” Town of Lusk, March 4, 1997,” *The Lusk Herald*, 110 [sic, it is 111], no. 13 (Wednesday, March 4, 1997): 33.

⁹⁰³ Ibid.

⁹⁰⁴ Jeanne Peterson, “Task Force Established to Focus on Telecommunications,” *The Lusk Herald*, 110, no. 26 (Wednesday, June 25, 1997): 36.

force, however, telling *Yahoo! Internet Life* in 1998, “I haven’t heard anything from them lately. They’re out there searching and trying to find out what we can do.”⁹⁰⁵ He seemed unconcerned at the committee’s silence. At approximately the same time, the North East Wyoming Economic Development Coalition (NEW EDC) applied for a “telecommunications study grant in order to develop a use for the fiber optics...,” according to the county commissioner’s proceedings.⁹⁰⁶ The study, however, had a larger purpose than this. In an optimistic article, entitled “Study Propels Development,” the local press explored the work that the two groups, the NEW EDC and the town’s Telecommunications Task Force, would carry out. The NEW Economic Development Coalition had \$20,000 for the study of the five counties in the region. The majority of the funding (\$15,000) came from an Economic Development Association grant and area businesses and organizations donated the remainder. The NEW EDC conducted a county survey called the Telecommunications Survey to determine “both the infrastructure of local telecommunications and evaluating what equipment is needed to maximize local telecommunications potential.” The goal for both teams was to determine what kinds of businesses local telecommunication capacity was best able to support. The study encouraged the liaison who worked with the two groups because it offered a way for people to work together and because it was what she called a “grassroots approach.”⁹⁰⁷

⁹⁰⁵ Greenman, Box in “Small-Town Connections,” 81.

⁹⁰⁶ “Commissioners’ Proceedings, Niobrara County, Wyoming, Tuesday, June 3, 1997,” *The Lusk Herald*, 110, no. 28 (Wednesday, July 9, 1997): 31.

⁹⁰⁷ Jeanne Peterson, “Study Propels Development,” *The Lusk Herald*, 110, no. 37 (Wednesday, September 10, 1997): 28.

The NEW EDC held an informational meeting in the town to consider “What to [sic] we have? What do we need? How are we going to get there?”⁹⁰⁸ One part of the meeting was finding volunteers to carry out a county survey. Perhaps illustrating the community’s fatigue with the fiber optics issue, disillusionment with the idea that development would stem from the fiber optics system, or simply a desire not to volunteer, only nine people attended the meeting.⁹⁰⁹ By November of 1997, the local press announced that the NEW EDC had received the county surveys back and had compiled and analyzed the data.⁹¹⁰ In the county, fifteen businesses and organizations responded about their telecommunication use and future needs.⁹¹¹ Wilson and the town councilors received the NEW EDC’s telecommunication report in early June of 1998.⁹¹²

By the beginning of 1998, the town council had made no decisions about what to do with the fiber optic system. The council again solicited input from residents. Mayor Wilson noted, “We want to know what the townspeople want to do and how they think we should pay for it.” He argued that more construction needed to be done on the town’s system to make it operational. He also argued, “We’ve got the money tied up in it. Now what do we do to get it going? We’ve got to see what’s available and what ... citizens

⁹⁰⁸ “Fiber Optics to be Discussed in the Town Council Chambers,” *The Lusk Herald*, 110, no. 37 (Wednesday, September 10, 1997): 11.

⁹⁰⁹ Jeanne Peterson, “McMann to Direct Telecomm Study,” *The Lusk Herald*, 110, no. 39 (Wednesday, September 24, 1997): 28.

⁹¹⁰ “Telecom Meeting Set for Lusk,” *The Lusk Herald*, 110, no. 45 (Wednesday, November 5, 1997): 7.

⁹¹¹ Dee Johnson, “Fiber Optic Questions Raised Here,” *The Lusk Herald*, 111, no. 2 (Wednesday, January 14, 1998): 1.

⁹¹² “Minutes of Town Council Meeting, Town of Lusk, June 2, 1998,” *The Lusk Herald*, 112, no. 25 (Wednesday, June 24, 1998): 37.

think.”⁹¹³ The news article suggested interested residents should tell the town council their opinions on the matter.

In February of 1998, town residents again attended a meeting about telecommunications. This time, seventy residents attended. Presenters included state representatives and people from the scientific, engineering, and technology applications firm, Science Application International Corporation (SAIC). The local press noted that residents “got a tantalizing glimpse of a potential ... county future....” The governor, Jim Geringer, recommended the town for the SAIC project. According to the local press, “SAIC is an employee owned corporation developing centers of excellence for rural America: smart highways, corridors, distance learning—in fact, a gamut of information potentialities.” The company had a handful of rural sites in Wyoming and North Dakota, and was developing them as “tech centers” testing a variety of facets of life: earning a living, family commerce, “citizenship through community serv [sic],” wellness, distance education, and recreation.⁹¹⁴ The purpose of Centers of Excellence in Rural America (CERA), according to its website, is to “test the hypothesis that creating a network of small rural towns deploying affordable, high speed telecommunications services will result in increased job creation and/or income in those towns while improving access to education, healthcare, and governmental services.”⁹¹⁵ This was an effort to correct decades of bypass and under service by telecommunications infrastructure. The community was to appoint a champion, develop goals for the project, and create a plan to

⁹¹³ Mayor quoted in Johnson, “Fiber Optic Questions Raised Here,” 1, 20.

⁹¹⁴ Jeanne Peterson, “Residents Listen to Telecommunication Experts,” *The Lusk Herald*, 111, no. 7 (Wednesday, February 18, 1998): 1.

⁹¹⁵ Western Governors’ Association, “Centers of Excellence in Rural America,” Western Governors’ Association Website, URL: <http://www.westgov.org/wga/initiatives/cera.htm> (accessed March 30, 2009).

implement these goals. The town was in a good position to participate in the project because it already had the infrastructure to develop its own “center of excellence.” The other Wyoming town involved in the project, the SAIC representative noted, hired a community champion in the “investment field.” He raved, “If [the other Wyoming town] had your infrastructure and you had their team—what a combo.”⁹¹⁶ This statement hints at the problem with champions and leaders in the Wyoming community under consideration here; they were not able to get the project off the ground although they, unlike many other communities, had the infrastructure in place to do so.

In March of 1998, the town hired a “champion” whose role was to be the “liaison between the Town ... and the companies or people interested in developing the ... fiber system.” The town councilors decided to seek grant money to pay the champion, but agreed to pay what other sources did not cover.⁹¹⁷ If Whiteaker had still been in office, hiring someone to fulfill this role likely would not have been necessary. Eventually, the town received money from the economic development board to compensate the champion, but then they also decided to apply for state grants to cover the cost, reversing their earlier commitment to pay the difference.⁹¹⁸

In the spring of 1998, the telecommunications committee conducted a survey, named the “Home Town Survey,” to ascertain what the town could “use in a telecommunications system.” The survey asked how people used the internet, whether

⁹¹⁶ The rural Wyoming town that hired the investor as a community champion is currently developing a fiber-to-the-home network to all homes and businesses. Jeanne Peterson, “Residents Listen to Telecommunication Experts,” 1, SAIC representative quoted from 28; Becky Bohrer, “Rural Wyo. City Eyes Fiber Optic Network,” *Yahoo! News* (2006).

⁹¹⁷ “Minutes of Town Council Meeting, Town of Lusk, February 17, 1998,” *The Lusk Herald*, 111, no. 10 (Wednesday, March 11, 1998): 25.

⁹¹⁸ “Minutes of Town Council Meeting, Town of Lusk, April 28, 1998,” *The Lusk Herald*, 111, no. 18 (Wednesday, May 6, 1998): 24.

people would attend virtual meetings, and whether they were interested in forming internet businesses. According to the local press, the “survey will help the Centers for Excellence in Rural America (C.E.R.A.) determine the possibilities for a high speed fiber optics telecommunications system,” the unused wires the town had already installed. Once the committee gathered responses and tabulated the data, the telecommunications committee hoped to receive grant money to begin work on the system.⁹¹⁹ By early September of 1998, however, the champion reported that the fiber project was “on hold until the funding comes through.”⁹²⁰ The report provided no explanation of the source of the funding. This suggests, however, that Mayor Wilson and the town council were not willing to invest more of Lusk’s resources into the system.

One of the central issues of the mayoral and council election of 1998 was the fiber optic system. In the candidate profiles published by the local press, four of the five candidates discussed the fiber optic system; only the incumbent mayor, Wilson, did not. The three people running for councilor positions discussed the fiber optic system. One of the council candidates gave the project lip service, noting that “She is excited about the possibilities of fiber optics....” The other two had more developed positions, one stating “He is enthusiastic to work with the C.E.R.A. project and believes the potential of the fiber optics installed here depends on that success.” The other stated, “He believes Lusk is at a pivotal point. ‘With the fiber optics currently installed in the town and the benefits available from the state and federal governments, we could bring the town into the twentieth century and make it appealing for some additional small businesses to move

⁹¹⁹ Shea Ward, “Telecommunications Committee Prepares Survey,” *The Lusk Herald*, 111, no. 16 (Wednesday, April 22, 1998): 3.

⁹²⁰ “Minutes of Town Council Meeting, Town of Lusk, September 1, 1998,” *The Lusk Herald*, 111, no. 38 (Wednesday, September 23, 1998): 25.

into the community and help boost the economy.”⁹²¹ The purveyor of the latter statement lost the election. The challenger for the mayor’s post, Mark Lohr, believed that finance was the largest issue facing the town because it required funding for a variety of projects, including the telecommunication system.⁹²² In an article outlining the challenger’s entrance to the mayoral race, Lohr noted that the meeting with SAIC “pleased” him and stated, “It’s an interesting time in our community. We appear to be on the verge of reaping some economic benefit from our telecommunications system.”⁹²³

Lusk elected the challenger, Lohr, as the new mayor in May of 1998. He listed the fiber optic system as an item of top concern. He said the “preliminary work” was nearing completion and that soon the town would know which direction the project was likely to take. Mayor Lohr stated that at the end of his two-year term, “I’d also like to think that we have real answers to what the telecommunications project has done for us and people are able to see what has been done. ... I hope some of the potential will be realized.”⁹²⁴

The community had a two-day CERA meeting where they charted community needs and discussed potential solutions to these needs. According to Mayor Lohr, the goal of the meeting was for the community “to learn how to utilize the telecommunications system we have here in Lusk.” He continued, “We need to help the community use the technology we have available. This will also assist us in attracting

⁹²¹ “Candidate Profiles,” *The Lusk Herald*, 111, no. 17 (Wednesday, April 29, 1998): 24.

⁹²² Ibid.

⁹²³ Candidate quoted in Jeanne Peterson, “Lohr Enters Mayor’s Race,” *The Lusk Herald*, 111, no. 7 (Wednesday, February 18, 1998): 1.

⁹²⁴ Dee Johnson, “Lohr Ready to Assume Mayoral Post,” *The Lusk Herald*, 112, no. 20 (Wednesday, May 20, 1998): 32.

businesses.”⁹²⁵ Later in the month, Lusk finally got a webpage, listing area businesses and community events, among other information of interest to residents and potential visitors alike.⁹²⁶ Thus, it took more than three years for the town to realize the bulletin board concept introduced in 1995. The lag was long enough that they developed a webpage rather than a bulletin board.

The co-owner of the printing business in town worked closely on the CERA project. His business stood to benefit substantially from the connection of the fiber optic grid. The main goals for the group working with CERA were to determine how much it would cost to finally connect Lusk’s grid to the telephone switching office and to create a business plan that would help the town attract new businesses and keep the ones already located in town. The group wanted to “bring in three, four, maybe five businesses, and maybe turn the town into its own cable-television provider.”⁹²⁷ These were goals that closely mirrored those of former Mayor Whiteaker.

The CERA recommendations did not meet the town’s expectations. The town’s meeting minutes note that Mayor Lohr had written a letter “explaining his feelings on the meetings,” but the minutes did not include the contents of the correspondence. The minutes then stated, “a Fiber System Inspection needs to be performed. [The mayor] was told that the cost would be approximately \$1,000.00 and take about one day.” This suggests that Lohr considered an outright sale of the system. A council member was not happy at this news, arguing that the town was “closing a door that we should not.” She

⁹²⁵ Holly Richards, “CERA Meeting Set to Help Lusk Residents Become Technology Bound,” *The Lusk Herald*, 111, no. 44 (Wednesday, November 4, 1998): 28.

⁹²⁶ Holly Richards, “Lusk Webpage Ready for Business,” *The Lusk Herald*, 111, no. 43 (Wednesday, November 25, 1998): 1, 32.

⁹²⁷ Sorensen, “Wireless in Wyoming,” A13.

felt that the town should remain positive about the possibilities of the fiber optic system.⁹²⁸

By early 1999, in a last minute attempt, the town council again considered offering cable television. One council member opined that the town thought they could reduce the price of cable to \$5 per month per household. He said the town would survey residents to determine which channels were most desirable because the town would provide “fewer channels” than the incumbent Platte River Cable because “we have to pay for all of the channels.” This likely was not a popular suggestion as in the 1989 survey, 21 (10% of survey respondents) residents expressed concern over a limited number of channels from a municipal cable system. Additionally, generating consensus on which channels to offer likely would have proved a difficult task. The council member argued that people should subscribe because “it would be important for people to want to spend their money here in town.” The general manager of the incumbent, although careful to remark that he was in favor of competition, cautioned the town because “Many towns across the country have tried this and failed.” These municipal initiatives failed because the projects were not successful as the towns did not earn back their investment costs. Additionally, the general manager plugged his own company, reminding readers that they were planning upgrades to the system, more channels, and high-speed internet access in the town.⁹²⁹ Contestability spurred these changes; that is, the threat of competition from a municipally-run cable TV service prodded the incumbent company to offer improved services in Lusk.

⁹²⁸ Mayor and Council Member quoted in “Minutes of Town Council Meeting, Town of Lusk, December 1, 1998,” *The Lusk Herald*, 111, no. 47 (Wednesday, December 23, 1998): 34.

⁹²⁹ Holly Richards, “Town of Lusk Considers Offering Cable Television,” *The Lusk Herald*, 112, no. 6 (Wednesday, February 10, 1999): 32.

Around this time, when the town was having the value of the system assessed and the Microsoft commercial had aired nationally, bringing new attention to Lusk, *Yahoo! Internet Life* included the town in its 1999 edition of the “50 Most Wired Cities...and Towns.” The journalist, Michael Freidson, observed that the town does not know what to do with its system. Mayor Lohr admitted to *Yahoo! Internet Life*, “I cannot tell you glowing things about additional pickup and usage. But we’re certainly going forward.”⁹³⁰ At the time, however, town records reveal that the town was doing little to finally use the system.

The dormant Technology Task Force established in 1997 but inactive, started working in earnest in March of 1999. The committee was to work with CERA, but the coordinator of the town’s team noted, “That project is kind of ‘on hold’ now.” Instead, the task force wanted to help businesses and individuals pursue economic development opportunities. Rather than enticing a large firm to locate in town, the task force focused on smaller goals, including attempting to facilitate high-speed internet access for interested individuals.⁹³¹ The committee wanted to help a “local provider” start up. Additionally, and “down the road,” according to the coordinator, the town wanted to provide telephone and cable television services. Finally, the committee surveyed the town’s high school alumni to determine if they would return to the county if there were business opportunities for them.⁹³²

This detailed account of the surveys distributed, meetings held, committees struck, and assistance sought, illustrates that Lusk was never able to stop planning and

⁹³⁰ Freidson, “Doin’ The Towns,” “50 Most Wired Cities and Towns,” 109.

⁹³¹ Dana Williams, “Committee Gears Up for Economic Development,” *The Lusk Herald*, 112, no. 11 (Wednesday, March 17, 1999): 1.

⁹³² *Ibid.*, 32.

dreaming and start making concrete applications of the fiber optic system. Rather, they spun their wheels in the development stage.

A Resistance to Attracting Big Businesses to Town

A final factor contributing to the failure of Lusk's fiber optic grid was the town's resistance to attracting big businesses into the community. While in theory, the town had positioned itself to benefit from the movement of businesses from more densely populated communities to other smaller areas. In practice, Lusk, despite having abundant land and the telecommunication system, failed to attract new businesses.⁹³³ As time progressed, residents expressed antagonism toward the idea of a large firm moving in. Unfortunately, however, only a sizeable company would likely be willing and able to bear the cost of finally connecting the town's fiber optic grid to the telephone company's switching station.

Some residents maintained that attracting businesses to town was the best approach. A retired teacher was well aware of the possibilities of the town's fiber system, but he realized that the delays were costing the town. He noted in 1997, "If we could ever get fibre [sic] optics finished, we'd really be there. People can come here and run a business off the Internet."⁹³⁴

In the excitement created by the Microsoft commercials, some in the town still optimistically believed that businesses would relocate to the area. In January of 1999, the

⁹³³ Churbuck and Young, "The Virtual Workplace," 184-190; Healey, "Small-Town Net of Dreams," 5.

⁹³⁴ Retired teacher quoted in Cary Berry, "Surfing the Net, Internet Revives Retired Teacher's Interest in Computer Technology," in "The People of Niobrara County," insert in *The Lusk Herald*, 110, no. 16 (Wednesday, April 16, 1997): 2.

local press wrote a feature exploring the impact of the Microsoft advertisements on the community. The article noted, “commercials for Microsoft computers [sic] highlighting Lusk have moved this small community into the nationwide spotlight.” Town offices received many phone calls and emails and visits to the town’s webpage spiked after a commercial aired.⁹³⁵ Despite the attention, no businesses moved to town. The Chamber of Commerce director, however, remained optimistic. She noted that “Moving a business is a big deal” and “Some people are still in the planning stages.” The local press was more tempered, noting that Microsoft scheduled the commercials to run longer, thus, “there is still a possibility of enticing more people to the area.”⁹³⁶ Despite this subtle and not-so-subtle optimism, no new businesses moved to the town.

There are no data available listing companies that considered moving to Lusk, if there were any. So, specific reasons influencing companies are unavailable. The lack of one sizeable firm or a number of smaller companies moving in, meant that there was little incentive to connect the fiber optic grid to the telephone switching station. Rural sociologists Lief Jensen, Diane K. McLaughlin, and Tim Stack argue that communities “that lack human, social, and financial resources” are unable to compete with other communities to attract good jobs and outside investment.⁹³⁷ Other factors, such as community infrastructure, education levels, and distance to major metropolitan areas may have kept businesses and investors away.⁹³⁸

⁹³⁵ Holly Richards, “Lusk Commercial Makes Hit Throughout Country,” *The Lusk Herald*, 112, no. 4 (Wednesday, January 27, 1999): 1.

⁹³⁶ Ibid.

⁹³⁷ Lief Jensen, Diane K. McLaughlin, and Tim Stack, “Rural Poverty: The Persisting Challenge,” in *Challenges for Rural American in the Twenty-First Century*, ed. David L. Brown and Louis E. Swanson (University Park, PA: The Pennsylvania State University Press, 2003), 128.

⁹³⁸ Additionally, the same ICTs that could decenter industry and jobs and bring them into rural areas in the U.S. also allows them to be moved abroad to other countries.

The idea of a big business or many companies coming to town was unfavorable to other town residents. Mayor Wilson (1996-1998) was one who was reluctant to bring businesses to town. He believed the town did not have enough to offer incoming businesses. He told an interested motel reservation firm that the town's telecommunication network "was not yet ready for that kind of use." Former Mayor Whiteaker argued that the system was indeed ready.⁹³⁹ Whiteaker embodied a vision of modernization. He built a municipal telecommunications plant to foster rural development. He saw an advanced telecommunications system as the key to attracting new, substantial businesses to town. In the early stages, he had a lot of allies who wholeheartedly believed in his plan, especially the local press. The Telecommunications Task Force, unlike the innovative former mayor, had no desire to entice a major company to come to town. The committee coordinator argued, "We don't have the infrastructure to handle that."⁹⁴⁰ In contrast to earlier desires to bring a warehousing company to town, by 2001, the past President of the Chamber of Commerce noted, "People don't want a big factory or something."⁹⁴¹ Rather, they were interested in having sufficient jobs for themselves and their children, but not changing the natural landscape and fauna or the feel of the town.⁹⁴² Wenlin Liu, an economist in Wyoming's Division of Economic Analysis, stated frankly, "People here don't want more people moving in."⁹⁴³

⁹³⁹ Healey, "Small-Town Net of Dreams," 5.

⁹⁴⁰ Williams, "Committee Gears Up for Economic Development," 1.

⁹⁴¹ Loomis, "Where Do You Want to Go Today?," B1.

⁹⁴² Ibid.

⁹⁴³ Residents often expressed resistance to outsiders coming into the state. During my fieldwork in Wyoming, people often expressed displeasure at people coming from Colorado, California, and other states and changing the area. One woman, who took me on a tour of her ranch land, drove up to a couple building a studio on a recently purchased parcel of land. The woman actively attempted to discourage the couple, from Georgia, from building and living on their land. She told them that as a land division, rather than a subdivision, services did not need to be provided to their lots. The journalist for *Salon.com* stated this as

The former director of the Chamber of Commerce compared people's responses to the fiber optic project with another infrastructure, the women's prison, built in the community in the 1980s. The state representative called his town a "fading community" and he argued that the prison is "probably what's keeping the town here for a large degree."⁹⁴⁴ The former Chamber of Commerce director credited the prison with "provid[ing] many jobs for the community."⁹⁴⁵ Despite the prison's importance to the town's well-being, the former director recalled that "people were very skeptical" about the infrastructure's arrival. In comparing the prison and the fiber optic system, she stated that in the town, there are "unspoken guidelines about acceptable growth" and that if the fiber optic project had been activated, a "plant would not have been acceptable" to townspeople. She argued the town only desired quiet development and noted that there are "no outward signs" of the prison in the town. The director felt that the townspeople's "fear of the unknown" was a factor that hindered some of the fiber optic grid's progress.⁹⁴⁶ The residents who did not want to entice businesses to town embodied a traditional perspective. They wanted the town to remain as it was; without new people and new businesses changing its character.

well as did Brandon Loomis of the *Salt Lake Tribune* in his article in the *Casper Star-Tribune*. Healey, "Small-Town Net of Dreams," 3; Liu quoted in Loomis, "Where Do You Want to Go Today?," B2.

⁹⁴⁴ State Representative (1E-WY), Interview with the Author, July 6, 2007.

⁹⁴⁵ Ranch Woman, Business Owner, and Former Chamber of Commerce Director (9B-WY), Interview with the Author, July 10, 2007.

⁹⁴⁶ Ibid.

Sale of the Telecommunication System

By May of 1999, despite the Technology Committee's plans to help establish a local high-speed internet provider, the town council again began discussing the future of the fiber optic system. The council asked Mayor Lohr to determine the incumbent cable company's "level of interest" in leasing or buying outright the fiber optic system.⁹⁴⁷ The result was that the owner and a corporate partner of the incumbent cable company flew into town and met with officials. By early June of 1999, the cable provider's spokesman noted that the company was going to purchase the town's fiber optic system. The system would help the company rebuild the town's cable plant. The local headline, on page one, read that the "[Incumbent Cable Company] to purchase town's fiber optics system."⁹⁴⁸ In this article there was, from the local journalist's and the cable company's perspective, no doubt about the surety of the deal. Buried in the paper, on page 40, was a different side of the story. This article, "Council Mulls Offer from [Incumbent Cable Company]," written by the same journalist, conveyed a different point of view. It noted that the town council discussed the sale at considerable length at its meeting and finally decided to "move forward" in fine tuning the details of selling the fiber optics system owned by the town." Mayor Lohr stated that he was not against selling the system at this time, whereas he was against it "Three years ago." He told the incumbent cable provider that by law, the town had to put the fiber system up for bids before they could sell it. Lohr did, however, believe the incumbent would be the only bidder. The incumbent company

⁹⁴⁷ Dana Williams, "Fiber Optics, Sewage Matters Occupy Town Council," *The Lusk Herald*, 112, no. 17 (Wednesday, May 5, 1999): 1; "Minutes of Town Council Meeting, Town of Lusk, May 4, 1999," *The Lusk Herald*, 112, no. 21 (Wednesday, June 2, 1999): 37.

⁹⁴⁸ Dana Williams, "Communicom to Purchase Town's Fiber Optics System," *The Lusk Herald*, 112, no. 21 (Wednesday, June 2, 1999): 1.

discussed providing high-speed internet service, but would not put it in writing; the town council wanted this included in the deal between the two parties. Additionally, the cable provider would reserve four of the 24 fibers for the town's use and the school district would keep its fibers. The cable company offered \$225,000 for the system; a fraction of the \$595,000 it cost to build. Despite this meeting, Mayor Lohr argued, "This doesn't mean we've committed to sell the system."⁹⁴⁹ In the vote on whether the town should sell the system, one member abstained. This was the same council member whom felt that a sale would close doors for the town.⁹⁵⁰

In the July 1999 town council meeting, the councilors again discussed the possible sale of the fiber optic system. The town attorney clarified that the cable company "fully intend[ed]" to install high-speed internet, but would not "contractually obligate themselves if it's not economically feasible."⁹⁵¹

Another matter discussed at this meeting was the final Centers for Excellence in Rural America (CERA) report. Mayor Lohr recommended that the town ask the state to pay only \$5,000 of SAIC's \$24,000 bill. The mayor opined that the report was "as close to being worthless as it could be." Specifically, it was a "generic report which is no longer applicable and doesn't say anything unique" about the town.⁹⁵² The council's disillusionment with the CERA report and the spoken agreement of the incumbent provider seemed to push the town council in favor of an outright sale.

⁹⁴⁹ Dana Williams, "Council Mulls Offer from Communicom," *The Lusk Herald*, 112, no. 21 (Wednesday, June 2, 1999): 40.

⁹⁵⁰ "Town Council Minutes, Town of Lusk, June 1, 1999," *The Lusk Herald*, 112, no. 26 (Wednesday, July 7, 1999): 29.

⁹⁵¹ Town attorney quoted in Dana Williams, "Town Clerk/Treasurer Resigns," *The Lusk Herald*, 112, no. 26 (Wednesday July 7, 1999): 32.

⁹⁵² Mayor quoted in *Ibid.*

Eventually, the town sold the fiber optic system to the incumbent cable company, which does provide high-speed internet to Lusk. Ironically, this was the incumbent provider Whiteaker had hoped to replace.

The major problems in this case were the town's inability to determine how to "intelligently apply" the system to its needs and the lack of a large enough company, or enough companies, to stimulate demand for the grid. The publishing company, whose owners worked with CERA to attract business and finally connect to the fiber optic grid, ended up shuttering their business in town and moving to Colorado in September of 1999 to access high-speed internet and overnight shipping services.⁹⁵³

High-Speed Internet in Eastern Wyoming

The sale of the system ended Lusk's municipal foray into telecommunication provision, leaving the area for private providers to serve. In the town, high-speed internet became available through the telephone company and the cable provider, introducing competition for the service. The cable company, after purchasing Lusk's fiber in 1999, repurposed the wires, and began offering high-speed internet to the town by 2000 or 2001.⁹⁵⁴

The provision of high-speed internet in rural areas of the county in recent times is more limited than that available to town residents. In the county under consideration, rural residents had few provision options: line-of-sight wireless for people who lived

⁹⁵³ Loomis, "Where Do You Want to Go Today?," B21.

⁹⁵⁴ General Manager, Incumbent Cable Company (3F-WY), Interview with the Author, June 21, 2007.

close to town and satellite for everyone else. This section employs interview data, secondary research, and press reports to look at current broadband supply.

Internet connection in rural Wyoming began as it did in other places; subscribers subscribed to an internet service provider and connected using their telephone lines. In rural Wyoming, however, dial-up internet access was far from reliable as rural routes used older, analog telephone plant. In some areas in the county under consideration, open-wire pairs (a pair of copper wires on poles) served rural residents in 2007. As is discussed in the next chapter, customers found dial-up service on the aged telephone equipment unsatisfactory, a common complaint in rural areas.

Due to the condition of existing telephone lines, and the fact that some rural residents did not have landline telephone service,⁹⁵⁵ some people yearned for alternative internet provision. In the county under consideration, in 2007, residents had two technological choices for high-speed internet: line-of-sight wireless or satellite service.

The first option, line-of-sight wireless, is still being developed in the area. One provider, a rancher, who provides service to areas of Nebraska and Wyoming, serves the southern part of the county. Subscribers clustered near the county's towns, not surprisingly, receive the best line-of-sight service. The provider's website notes that "Trees, hills or anything that impedes clear 'line-of-site' to our access point means it is possible to be within the coverage area but not be able to receive a signal."⁹⁵⁶ The

⁹⁵⁵ In some areas of the county, rural residents could not get landline service because there were no more numbers available on the telephone plant, a technological limitation. In other cases, residents found the prices the telephone company charged for bringing out a new line cost prohibitive and they did not subscribe. Computer Service and Repair Business Owner (4F-WY), Interview with the Author, June 22, 2007.

⁹⁵⁶ Top 5 FAQs, Support, Vistabeam website, URL: <http://www.vistabeam.com/support.html> (accessed May 1, 2009).

Wyoming county of this study is hilly and many people are unable to reach the signal due to the topography of the region and the number of towers.⁹⁵⁷ Additionally, the provider only serves the southern, more densely populated part of the county.⁹⁵⁸ The northern regions do not have line-of-sight wireless service. The county, with approximately 955 rural residents spread over 2,613 square miles, makes serving those in the northern reaches of the county uneconomical.⁹⁵⁹ The electric distribution cooperative for the county notes that it has “one [electric] meter per mile of line,” illustrating the sparseness of rural residents in the region.⁹⁶⁰

The other provision option available to rural people in the region is satellite internet. For many residents, satellite is their only viable option, although it is costly with equipment and installation fees of approximately \$299 and a monthly price in the \$50 to \$60 range.⁹⁶¹ Additionally, satellite internet has latency problems, which is the delay caused by signals being sent and received from the satellite, 24,000 miles above the earth.⁹⁶² There are three satellite internet providers serving the region, WildBlue, HughesNet, and Starband.⁹⁶³ WildBlue became available in mid-2005.⁹⁶⁴

⁹⁵⁷ Computer Service and Repair Business Owner (4F-WY), Interview with the Author, June 22, 2007.

⁹⁵⁸ Vistabeam High Speed Internet Coverage Maps, Coverage, Vistabeam website, URL: <http://www.vistabeam.com/coverage.html> (accessed May 1, 2009).

⁹⁵⁹ County Facts, Niobrara County, Wyoming, Wyoming.com website, URL: <http://www.wyoming.com/~lusk/niobrara2.htm> (accessed May 1, 2009).

⁹⁶⁰ General Manager, Electrical Distribution Cooperative (1F-WY), Interview with the Author, May 7, 2007.

⁹⁶¹ Computer Service and Repair Business Owner (4F-WY), Interview with the Author, June 22, 2007; WildBlue mail advertisement, provided by Rural Resident (8D-WY); Ken Belson, “With a Dish, Broadband Goes Rural,” *The New York Times* (Tuesday, November 14, 2006): C1.

⁹⁶² Belson, “With a Dish, Broadband Goes Rural,” C1.

⁹⁶³ Computer Service and Repair Business Owner (4F-WY), Interview with the Author, June 22, 2007; Networking and Computer Repair Business Owner (7F-WY), Interview with the Author, July 18, 2007; Belson, “With a Dish, Broadband Goes Rural,” C1.

⁹⁶⁴ “Colorado Governor Declares ‘Rural Broadband Week,’” “WildBlue Launches Commercial Broadband Satellite Business,” (June 3, 2005) NRTC Update RSS, NRTC website, URL: http://www.nrtc.coop/us/main/nrtc_update_rss/June05/NRSS060305.html%20 (accessed May 5, 2007).

WildBlue was not a standard commercial venture. Founded in 1995, the company sought to bring “affordable broadband” to rural homes and businesses.⁹⁶⁵ The company attracted investors including Kleiner Perkins Caufield & Byers, EchoStar, Liberty Media, Gemstar-TV Guide, Telesat, TRW, Intelsat, and the National Rural Telecommunications Cooperative (NRTC).⁹⁶⁶ The last investor is of primary importance here. The NRTC was interested in assisting rural telecommunication cooperatives provide high-speed internet. The NRTC is an umbrella association representing over 1400 rural telephone and electric cooperatives in the United States. Its mission is to “help rural electric and telephone utilities strengthen their businesses with solutions uniquely suited to the needs of rural consumers.”⁹⁶⁷ To further this end, the NRTC has a “master distribution agreement” with WildBlue, allowing members to distribute satellite internet service.⁹⁶⁸ NRTC member cooperatives were the only distributors of the satellite service in the early months of WildBlue commercial service, giving them a head start on private distributors.⁹⁶⁹

The county in this study does not have a local provider of WildBlue satellite internet service. The local electric distribution cooperative in the Wyoming county explored becoming a distributor of WildBlue satellite internet. The general manager stated that the initial price for becoming a distributor, which he quoted as \$77,000, was “a

⁹⁶⁵ Ibid.

⁹⁶⁶ About WildBlue, National Rural Telecommunications Cooperative website, URL: http://www.nrtc.coop/sub.wildblue/about_wb.htm (accessed May 5, 2007).

⁹⁶⁷ NRTC, “About NRTC,” NRTC, <http://www.nrtc.coop/pub/us/about/> (accessed November 28, 2009).

⁹⁶⁸ Michael Hopkins, “Rural’s Long Road to Success: Remote Areas Tap Technology to Develop Broadband, Video,” *The Bridge*, 7, no. 32 (August 5, 2008): 3. I thank Andrea Cumpston of the NRTC for pointing me toward this source.

⁹⁶⁹ “Colorado Governor Declares ‘Rural Broadband Week,’” “WildBlue Launches Commercial Broadband Satellite Business,” (June 3, 2005) NRTC Update RSS, NRTC website, URL: http://www.nrtc.coop/us/main/nrtc_update_rss/June05/NRSS060305.html%20 (accessed May 5, 2007).

lot of money for a small coop.”⁹⁷⁰ The cooperative could not get the funding to become a distributor. Instead, other distributors serve the region from other Wyoming counties and across the Nebraska state line. One of these is a subsidiary of a telephone cooperative in Nebraska. Problematically, the cooperative provider focuses on the development of wireless line-of-sight in Nebraska, promoting the satellite service only to “cover areas we can’t reach” with line-of-sight technology.⁹⁷¹ Not promoting WildBlue, especially to customers in Wyoming, leaves people unaware of the provision option. One reason for the provider’s focus on the line-of-sight services rather than WildBlue is that the cooperatives provide WildBlue using capped rates for broadband service, making it more affordable for rural residents.⁹⁷² The capped rates decrease the profit the distributor makes from supplying the service. This raises a problem with WildBlue’s approach to distribution; simply put, if customers do not know that a service is available, they cannot subscribe.

As is explained above, the county has experienced very uneven development of telecommunication infrastructure. For a few years, it appeared that the county would experience a new wave of economic development and prosperity, brought by the fiber optic grid installed in Lusk. The town’s fiber optic grid promised to provide service to advanced telecommunications that the regulated monopoly telephone provider did not have to extend. When this promise went unfulfilled, telecommunication provision fell into a pattern common in rural areas in Canada and the United States: towns, even small

⁹⁷⁰ General Manager, Electrical Distribution Cooperative (1F-WY), Interview with the Author, May 7, 2007.

⁹⁷¹ High-Speed Internet Provider, Subsidiary of Nebraska Telephone Cooperative (6F-WY), Interview with the Author, July 11, 2007.

⁹⁷² Ibid.

towns, may have competing cable and telephone providers offering internet service, but options are significantly more limited once leaving the town's borders. In this eastern Wyoming county, provision options are not only limited, people may be—without knowing it and albeit for different reasons—at the edge of another new trend in telecommunications. As discussed above, and as explored in greater depth in the next chapter, the dilapidated condition of the POT service in the region has led some to forgo landline telephone service, communicating via satellite internet at their homes.

CHAPTER FIVE

It “is Expensive in My Estimation”⁹⁷³: Connecting to High-Speed Internet in Rural Wyoming

Chapter Three considered Sharon Strover’s work on the “first mile.” Strover argued that scholars must consider the “first mile” as being the “sum total of capabilities that extend users into the networked nation.”⁹⁷⁴ Capabilities include access to advanced telecommunication services, the cost of these services, the knowledge of users to successfully use the internet, and access to up-to-date hardware that allows them to connect up, including computers and handheld devices. To consider the “sum total of capabilities,” this chapter will not only consider high-speed internet but other tools of communication as well, including plain old telephone service (POTs), cell phone service, and to a lesser extent, television service, radio, and newspaper delivery. Also, we must consider the skills that enable people to make effective use of the network. Finally, we need to examine the economics that enable or hinder connection to the network. The previous chapter illustrated Lusk’s failed attempt to revive its ailing economy. Had this bid been successful, the county likely would have had improved telecommunications services. The fiber optic grid project, however, failed to bring the town into the information society. At the same time as Lusk developed its grid, the Telecommunications Act of 1996 passed, deregulating telecommunications. The case study provided below illustrates that in the post-regulatory moment, incumbent telecommunications providers have abandoned rural areas for more profitable regions.

⁹⁷³ Ranchers (39D-WY) speaking about the cost of satellite internet. Ranchers (39D-WY), Interview with the Author, July 18, 2007.

⁹⁷⁴ Sharon Strover, “The First Mile,” *The Information Society* 16 (2000): 151.

The incumbent telephone provider did not serve the county's rural residents well and other telecommunications options were out of reach to many due to their cost. The decision of the FCC's federal-state joint board to not include advanced telecommunications services as "supportable services," had major implications for Niobrara County. Residents were stuck with basic telephone service in 2007, which violates Section 254 of the Telecommunications Act of 1996. Section 254 calls for services that are "reasonably comparable" to those in cities at similar rates.⁹⁷⁵ The FCC's failure to increase the level of the allowable minimum services stranded rural residents with outdated, unreliable service. This chapter explores how the broader political context of deregulation played out in a small rural county in Wyoming.

According to National Telecommunications and Information Administration (NTIA) data on internet access, 59.93% of rural Wyoming households have access to the internet at home, either via dialup or broadband as of 2007. Wyoming is not among the states with the lowest internet penetration in the country; it ranks higher than twenty-two other states.⁹⁷⁶ Over thirteen percent of rural Wyoming households used a dialup connection and over 46% used a broadband connection at home to access the internet in

⁹⁷⁵ Section 245, Universal Service, Telecommunications Act of 1996, Appendix A in Patricia Aufderheide, *Communications Policy and the Public Interest: The Telecommunications Act of 1996* (New York: The Guilford Press, 1999), 150; Miles Fidelman, "The New Universal-Service Rules: Less Than Meets the Eye," *Federal Computer Week* (June 30, 1997); Sharon Strover and Lon Berquist, "Telecommunications Infrastructure Development: The Evolving State and City Role in the United States," Paper presented to Cities in the Global Information Society: An International Perspective (University of Newcastle, Newcastle upon Tyne, November 22-24, 1999), 10.

⁹⁷⁶ The states with lower in home use of internet were: Alabama, Arkansas, Georgia, Idaho, Kansas, Kentucky, Louisiana, Mississippi, Missouri, Montana, Nebraska, New Mexico, North Carolina, North Dakota, Ohio, Oklahoma, South Carolina, South Dakota, Tennessee, Texas, Virginia, and West Virginia.

2007. More than 23 percent did not use the internet either within the household or elsewhere.⁹⁷⁷

Niobrara County, which residents point out is the least populated county in the least populated state in the country, faced unique challenges due to its tiny size and isolation.⁹⁷⁸ The county does not have its own state representative, which violates the terms of the state's original Constitution (1890) that guarantees each county is its own senatorial and representative district.⁹⁷⁹ A new state statute enacted in 1981 called for 64 seats in the state legislature, forcing representatives to rethink voting districts. One proposal for redistricting would have conglomerated the smallest county, Niobrara, with one of its neighbors to create a district. The county fought the redistricting and won in the state court. The League of Women Voters and residents of the state's seven largest counties took the case to the Supreme Court, arguing that having a representative in Niobrara violated the 14th Amendment. The Supreme Court in *Brown v. Thomson*, 462 U.S. 835 (1983) sided with the State and the tiny county, agreeing that it could have its own representative.⁹⁸⁰ The county's victory was brief, however, as in the 1990s, the state redistricted the county again. The range between the populations of the larger counties and the smaller ones no longer fell into that acceptable to the Supreme Court decision and

⁹⁷⁷ "Households Using the Internet in and outside the Home, by Selected Characteristics: Total, Urban, Rural, Principal City, 2007" from "Networked Nation: Broadband in America 2007" report, National Telecommunications and Information Administration (NTIA), United States Department of Commerce (January 2008), URL: http://www.ntia.doc.gov/reports/2008/Table_HouseholdInternet2007.pdf (accessed June 21, 2009).

⁹⁷⁸ Library Director, County Library (4B-WY), Interview with the Author, May 10, 2007.

⁹⁷⁹ "Brown v. Thompson," Law Library, American Law and Legal Information, Great American Court Cases, vol. 15, URL: <http://law.jrank.org/pages/13415/Brown-v-Thomson.html> (accessed May 24, 2009).

⁹⁸⁰ U.S. Supreme Court, *Brown v. Thomson*, 462 U.S. 835 (1983), Brown v. Thomson, No. 82-65, Argued March 21, 1983, Decided June 22, 1983, 462 U.S. 835, URL: <http://supreme.justia.com/us/462/835/case.html> (accessed May 24, 2009).

as such, the Legislature had to redistrict.⁹⁸¹ Currently, the state representative that serves the entirety of Niobrara County also serves part of Converse County to the east, the northern twenty miles of Goshen County to the south, and part of Weston County, which includes the town of Newcastle and contains two-thirds of the district's population although it is one third of the landmass.⁹⁸² The fear for residents of the small county, according to Charlie Scott, a Republican state Senator for Natrona County at the time, was "In the district system or combined counties, Niobrara County will be in a distinct minority. It will have virtually no chance of being represented by one of its own."⁹⁸³ This fear, however, proved untrue as the representative for the district lived and worked in Niobrara County during fieldwork.

On the small scale, providing adequate services to residents posed another challenge for the tiny rural county. The school superintendent noted, "if you're gonna live in rural America, you gotta take care of yourself."⁹⁸⁴ He made this comment about rural electric districts, but it applies to many things in the county, from the rural volunteer fire brigades to the unique solutions that the community found to provide services. A teacher, formerly involved in community learning, stated that "community effort" was central to providing services, meaning there "has to be a commitment of a lot of people to make it happen" in the tiny region. For example, she organized gymnastics and swimming lessons for children. In urban areas, these activities would occur in a dedicated recreational facility, but the county does not have one. Community learning,

⁹⁸¹ Mary A. Shields, "Results are in, Niobrara Loses," *The Lusk Herald*, 106, no. 28 (Wednesday, October 16, 1991): 1, 3; Mary A. Shields, "County's Representation Up to Legislature, Court," *The Lusk Herald*, 106, no. 29 (Wednesday, October 23, 1991): 1, 28.

⁹⁸² State Representative (1E-WY), Interview with the Author, July 6, 2007.

⁹⁸³ Shields, "Results are In," 3.

⁹⁸⁴ School Superintendent (1B-WY), Interview with the Author, May 7, 2007.

thus, holds gymnastics classes on the elementary school stage and swimming lessons and water aerobics at a local motel that has the only indoor pool in the county. The teacher said that the region met the needs of community education in ways that were “truly rural, I’m talkin’ frontier.”⁹⁸⁵

The county was firmly Republican. The county’s state representative, a Democrat, noted that the residents had given him a chance, a fact that may have resulted from residents’ desire to be represented by someone from their own county. In the 2008 Presidential election, 1,017 people in the county voted for Republican John McCain and 244 voted for Democrat Barack Obama.⁹⁸⁶ Additionally, many residents railed against what they viewed as the liberal media and universities. One rancher noted, the “media is very biased” and another stated that the vast majority of the political contributions made by news people went to “liberals.”⁹⁸⁷ Additionally, several respondents commented about the liberal universities and how professors forced students to read one-sided, liberal information. Some cited the Ward Churchill case at the University of Colorado at Boulder.

The community remained traditional. Established families, those descended from the original homesteaders, had deep ties to the community. “Newcomers” to the county, those who relocated seven years ago or less, mostly befriended each other rather than the established families, who appeared to be outside their friendship circles.

⁹⁸⁵ Family and Consumer Science Teacher and Town Resident (29D-WY), Interview with the Author, June 25, 2007.

⁹⁸⁶ Niobrara County Precinct-by-Precinct Official Summary, Wyoming General Election - November 4, 2008, Elections, 2008 Election Results, Wyoming Secretary of State website, URL: <http://sos.wy.state.wy.us/Elections/08Results/General/NI-Pbp.pdf> (accessed June 19, 2009).

⁹⁸⁷ Computer Service and Repair Business Owner (4F-WY), Interview with the Author, June 22, 2007.

Many ranchers' lifestyle was intricately tied to family and land. One cattle rancher and wheat farmer stated ranching was "as much lifestyle as your occupation."⁹⁸⁸ Many of the ranches had passed from father to son⁹⁸⁹ and several other men reported they were born into ranching in the area.⁹⁹⁰ One couple stated their ranch had been in the husband's family for four generations,⁹⁹¹ a 39-year-old man said the ranch had been in his family for 95 years,⁹⁹² and two brothers traced their family's arrival in the county to 1886.⁹⁹³ The ranchers' goals were simple and idealistic, well-illustrated by the 39-year old rancher who stated he was "just trying to raise a family and feed the nation."⁹⁹⁴ Others placed high value on leading a simple life away from the mass-mediated American culture.⁹⁹⁵ The rural people in the county noted that they chose to be rural.

The residents of the county, however, found that raising a family and pursuing their ranching lifestyle was difficult due to significant challenges. The county under consideration endured a long drought, lasting seven or eight years.⁹⁹⁶ Creeks in the area were simply dry beds, water wells were running dry as the water table receded, and

⁹⁸⁸ Farmers and Ranchers (36D-WY), Interview with the Author, July 10, 2007.

⁹⁸⁹ Ranchers (1D-WY), Interview with the Author, May 11, 2007; Ranchers and Store Owners (7D-WY), Interview with the Author, June 15, 2007; Ranch Woman (8D-WY), Interview with the Author, May 18, 2007; Ranchers (20D-WY), Interview with the Author, June 12, 2007; Rancher (30D-WY), Interview with the Author, June 27, 2007; Ranch Woman, (31D-WY), Interview with the Author, June 28, 2007.

⁹⁹⁰ Rancher (6D-WY), Interview with the Author, May 16, 2007; Rancher (13D-WY), Interview with the Author, May 22, 2007; Ranch Woman (37D-WY), Interview with the Author, July 12, 2007; Farmers and Ranchers (36D-WY), Interview with the Author, July 10, 2007; Ranchers (39D-WY), Interview with the Author, July 18, 2007.

⁹⁹¹ Ranchers and Store Owners (7D-WY), Interview with the Author, June 15, 2007.

⁹⁹² Ranchers (1D-WY), Interview with the Author, May 11, 2007.

⁹⁹³ Ranch Woman (37D-WY), Interview with the Author, July 12, 2007; Rancher (6D-WY), Interview with the Author, May 16, 2007.

⁹⁹⁴ Ranchers (1D-WY), Interview with the Author, May 11, 2007.

⁹⁹⁵ Ranch Wife and Medical Transcriptionist (16D-WY), Interview with the Author, June 6, 2007; Artist and Ranch Woman (2D-WY), Interview with the Author, May 12, 2007.

⁹⁹⁶ Ranch Woman (8D-WY), Interview with the Author, May 18, 2007; Ranch Woman and Extension Educator (10D-WY), Interview with the Author, May 21, 2007; Ranchers (14D-WY), Interview with the Author, May 23, 2007; Ranch Woman (28D-WY), Media Diary, Postmarked July 30, 2007; Economic Development Officer (5B-WY), Interview with the Author, May 16, 2007.

pasture lands were not producing sufficient green feed for the livestock. The drought impacted ranchers' way of life as people sold cattle,⁹⁹⁷ went to work for other ranchers,⁹⁹⁸ and took other jobs.⁹⁹⁹ Additionally, the drought impacted rural income. Several people reported negative net incomes.¹⁰⁰⁰ A few ranchers refused to disclose their net incomes.¹⁰⁰¹ Many others professed they were unaware of their ranch incomes.¹⁰⁰² One female rancher did not disclose her net income noting that it "depends on the market" and that ranchers are "happy if [they] break even." It is difficult, she continued, because "everything as what you grow or raise is on someone else's whim."¹⁰⁰³ Some ranchers had side businesses or jobs and in many other cases, ranch wives worked and these wages undoubtedly supplemented ranch incomes.¹⁰⁰⁴ In some instances, they may have been the

⁹⁹⁷ Ranch Woman (8D-WY), Interview with the Author, May 18, 2007; Ranch Woman and Extension Educator (10D-WY), Interview with the Author, May 21, 2007; Economic Development Officer (5B-WY), Interview with the Author, May 16, 2007.

⁹⁹⁸ Ranch Woman (8D-WY), Interview with the Author, May 18, 2007.

⁹⁹⁹ Ranch Woman and Extension Educator (10D-WY), Interview with the Author, May 21, 2007.

¹⁰⁰⁰ Ranchers (1D-WY), Interview with the Author, May 11, 2007; Rancher (6D-WY), Interview with the Author, May 16, 2007; Ranchers (14D-WY), Interview with the Author, May 23, 2007; Ranch Woman (28D-WY), Interview with the Author, June 25, 2007.

¹⁰⁰¹ Ranch Woman and Business Owner (12D-WY), Interview with the Author, May 21, 2007; Rural Non-Ranch Resident and Day Care Provider (25D-WY), Interview with the Author, June 20, 2007; Ranch woman (37D-WY), Interview with the Author, July 12, 2007.

¹⁰⁰² Ranch Woman and Office Manager (9D-WY), Interview with the Author, May 21, 2007; Ranch Woman and Special Education Teacher (11D-WY), Interview with the Author, July 5, 2007; Ranchers (20D-WY), Interview with the Author, June 12, 2007, Ranch Woman (33D-WY), Interview with the Author, July 5, 2007; Rancher, Farmer, Business Proprietor (22D-WY), Interview with the Author, June 18, 2007; Ranchers and Store Owners (7D-WY), Interview with the Author, June 15, 2007.

¹⁰⁰³ Ranch Woman (32D-WY), Interview with the Author, July 5, 2007.

¹⁰⁰⁴ One couple ran a liquor store (7D-WY) and another couple had paper shredding and cattle hauling businesses (12D-WY). Some ranch women worked in town, one as the University of Wyoming's extension educator (10D-WY), another as an office manager (9D-WY), a third as the head bank teller (35D-WY), and yet another as a special education and substitute teacher (11D-WY). The extension educator's husband worked for the veterinarian in addition to his ranching work. For one ranch couple, the wife tended the cattle and horses while her husband did well water work (31D-WY). Other men worked as hired hands on ranches (8D-WY and 16D-WY). In the case of one hired ranch hand, his wife did medical transcription work and ran a car wash to contribute to their income (16D-WY). Ranchers and Store Owners (7D-WY), Interview with the Author, June 15, 2007; Ranch Woman (8D-WY), Interview with the Author, May 18, 2007; Ranch Woman and Office Manager (9D-WY), Interview with the Author, May 21, 2007; Ranch Woman and Extension Educator (10D-WY), Interview with the Author, May 21, 2007; Ranch Woman and Special Education Teacher (11D-WY), Interview with the Author, July 5, 2007; Ranch Woman and

majority of the household income. Despite the challenges and hardships, however, most rural residents remained in the county. One justified enduring challenges by stating, “agriculture is a way of life.”¹⁰⁰⁵ Unemployment in the region was low¹⁰⁰⁶ but people’s incomes were lower than regional averages. The 2000 Census found that the median household income in 1999 was \$29,701 in Niobrara County, \$39,603 in Converse County immediately to the west, and \$41,994 nationally.¹⁰⁰⁷ Three other counties in the region had closer median household incomes, but Niobrara County still trailed them by over \$2,000. The county’s community college outreach coordinator noted that her office kept class fees low because “we’re such a depressed community, [a] poor community.”¹⁰⁰⁸ One rural business owner, who sewed clothing and sold plants and gifts, observed, “if ranchers don’t have a good year, [they] don’t have money to spend and they don’t.”¹⁰⁰⁹ This comment illustrates ranchers’ frugality, a prudence that fieldwork and interviews found carries over into their acquisition of communication technology.

Rural Organizations and High-Speed Internet

This section explores rural organizations in the Wyoming county, all located in Lusk, the central town, and their access to and use of high-speed internet.

Business Owner (12D-WY), Interview with the Author, May 21, 2007; Ranch Wife and Medical Transcriptionist (16D-WY), Interview with the Author, June 6, 2007; Rancher and Town Dweller (35D-WY), Interview with the Author, July 9, 2007; Ranch Woman, (31D-WY), Interview with the Author, June 28, 2007.

¹⁰⁰⁵ Rancher (30D-WY), Interview with the Author, June 27, 2007.

¹⁰⁰⁶ Executive Director, Chamber of Commerce (2B-WY), Interview with the Author, May 8, 2007.

¹⁰⁰⁷ The two counties to the south, Goshen and Platte, had median household incomes of \$32,228 and \$33,866 respectively. Weston, the county to the north, had a median household income of \$32,348. Niobrara County, Wyoming, Fact Sheet, American Fact Finder and Converse County, Wyoming, Fact Sheet, American Fact Finder, US Census Bureau Website, URL: <http://factfinder.census.gov> (accessed May 2, 2007).

¹⁰⁰⁸ Community College Outreach Coordinator (3B-WY), Interview with the Author, May 10, 2007.

¹⁰⁰⁹ Retail Store Owner, Clothing Manufacturer (4D-WY), Interview with the Author, May 14, 2007.

Telecommunications policy in the United States includes accommodations for particular organizations. The Telecommunications Act of 1996 included a clause in Section 254, Universal Service, that states: “Access to Advanced Telecommunications Services for Schools, Health Care, and Libraries—Elementary and secondary schools and classrooms, health care providers, and libraries should have access to advanced telecommunications services....”¹⁰¹⁰ These rules appear to have had varied impacts for rural areas. While schools, libraries, and health care providers can access discounted rates to ensure they have advanced telecommunication services, commentators argue that the clause does not help residents and other organizations access the same. Communication scholars Sharon Strover and Lon Berquist remark in “Telecommunications Infrastructure Development: The Evolving State and City Role in the United States,” that “...the Telecommunications Act of 1996, while maintaining universal service goals and promoting discounts to schools and libraries, does little to promote access to *advanced* telecommunications services for residences, nor does it adequately make provisions for regions in which normal market forces of supply and demand translate into a paucity of services or service choices.”¹⁰¹¹ Niobrara County, with its few residents and vast expanse of territory, is one of these areas where there is a lack of services and service choices. Miles Fidelman, the president of the Center for Civic Networking, argues that the universal service rules, created by a federal-state board and the FCC to fulfill the goals of the Telecommunications Act, were narrow. The established rules define supportable services as,

¹⁰¹⁰ “Appendix A: Telecommunications Act of 1996,” in Aufderheide, *Communications Policy and the Public Interest*, 151.

¹⁰¹¹ Strover and Berquist, “Telecommunications Infrastructure Development,” 10.

voice-grade access to the public switched network, with the ability to place and receive calls; Dual Tone Multifrequency (DTMF) signaling or its functional equivalent; single-party service; access to emergency services, including in some instances, access to 911 and enhanced 911 services; access to operator services; access to interexchange services; access to directory assistance; and toll-limitation services for qualifying low-income consumers.¹⁰¹²

Fidelman argues that the rules do not help Americans to get advanced

telecommunications services, because the supportable services are set so low.

Additionally, the special rules applicable to schools, libraries, and public hospitals keep individuals and organizations from receiving improved service. Schools, libraries, and public hospitals have access to discounted rates for telecommunication services, internet access, and indoor wiring, hubs and routers. Since their communication needs are met, Fidelman argues that schools, libraries, and public hospitals have little incentive to join community-wide efforts to gain improved telecommunication services. A town hall representative confirmed this general observation: having the main users satisfied with discounted rates can weaken a community effort to negotiate improved rates and services.¹⁰¹³

Local Government

The town and county offices used high-speed internet to carry out their administrative tasks. Yet, representatives from both offices expressed little interest in the service. The town office, once at the forefront of a new vision for a wired future, now had only a tenuous connection to the new information society. The town clerk stated that

¹⁰¹² FCC rules quoted in Fidelman, "The New Universal-Service Rules: Less than Meets the Eye."

¹⁰¹³ Ibid.

the office connected to high-speed internet through the incumbent cable provider. She used the internet for state documents and accounting, but remarked “I don’t use it [the internet] as much as other people; I’d rather talk to someone on the phone.”¹⁰¹⁴

The Chairman of the County Commissioners recalled that the county got broadband in about 2004. He stated that the county office subscribed because their “hand was forced” by the American Civil Liberties Union, which had intervened in order to facilitate high-speed internet access for county prisoners. The county had to provide “internet capability for our county prisoners ... so they could have internet access to the law library”¹⁰¹⁵ to work on their cases. The staff at the county office and the attached courthouse used the high-speed internet in their daily work.

Rural Health Care

Rural health care is potentially one of the main beneficiaries of improved ICTs in a town. Lusk’s hospital provides an interesting portrait both of the potential benefits and challenges of telemedicine. The hospital itself had a rocky history; it was established in the 1970s, but closed from 2000 to 2005, according to its administrator and CEO due to “financial reasons.”¹⁰¹⁶ It joined the one-tenth of the U.S.’ rural hospitals closed in the two decades from 1980 to the late 1990s.¹⁰¹⁷ It re-opened in 2005 with four acute and

¹⁰¹⁴ Town Hall Representative (7B-WY), Interview with the Author, June 14, 2007.

¹⁰¹⁵ Chairman of the County Commissioners (10B-WY), Interview with the Author, July 12, 2007.

¹⁰¹⁶ Administrator and Chief Executive Officer, Rural Health Clinic and Hospital (8B-WY), Interview with the Author, July 3, 2007.

¹⁰¹⁷ Lois Wright Morton, “Rural Health Policy,” in *Challenges for Rural American in the Twenty-First Century*, ed. David L. Brown and Louis E. Swanson (University Park: The Pennsylvania State University Press, 2003), 293.

twenty long-term care beds. It is a public, not for profit entity and therefore qualifies for discounts under Section 254 of the Telecommunications Act of 1996.

The small hospital's staff envisioned multiple roles for broadband communication related to telemedicine, but several factors constrained them: finances, technical difficulties, discord over reimbursement, and patient skepticism.

In mid-2007, the hospital relied on DSL from the incumbent phone company. It was awaiting the installation of a T-1 line.¹⁰¹⁸ Telemedicine was one way for the tiny hospital to provide more services to patients. Hospital staff transmitted all radiology imaging and CT scans to Casper for analysis.¹⁰¹⁹ Technology allowed doctors to make faster diagnoses, especially important in emergency services.¹⁰²⁰ The hospital had the ability to do digital imaging with new equipment bought in May of 2005. The hospital's IT person noted that while they had the equipment to do telemedicine, the hospital could not afford the \$3,200 monthly fee the phone company charged for "video capability." Video applications require a high bandwidth to provide real-time capabilities. Additionally, the IT person stated that the hospital did not have enough bandwidth and could use another DSL line, but did not have the funds to add another line.¹⁰²¹

As a way to provide additional services to patients, the hospital's staff explored providing mental health and dermatology consults via telecommunications. They had the equipment, but had problems getting the network working. The network included six or

¹⁰¹⁸ Administrator and Chief Executive Officer, Rural Health Clinic and Hospital (8B-WY), Interview with the Author, July 3, 2007.

¹⁰¹⁹ Ibid.

¹⁰²⁰ Ibid.

¹⁰²¹ Computer Service and Repair Business Owner (4F-WY), Interview with the Author, June 22, 2007.

seven hospitals in the area and the Cheyenne Regional Medical Center.¹⁰²² The hospital obtained funding for the equipment from grants. The administrator and CEO noted that in addition to networking problems, the insurances—both public and private—did not want to reimburse the hospital for the costs of telemedicine.¹⁰²³

The hospital, in 2007, was in the process of applying for universal service funding from the U.S. Department of Agriculture to help subsidize its communication costs. The hospital’s administrator and CEO noted that the funding would allow the hospital to have the “same technological advantages ... as you do in larger cities.”¹⁰²⁴ He argued, however, that the federal government and other sources were spending a lot of money and that there were a lot of “individual places and groups” using new ICTs but that there “needs to be more coordination of resources.”¹⁰²⁵ He thought that joint programs between users, such as the university and the education outreach, would be beneficial. Also, he thought that most of the ICT use was being geared toward training and education whereas he wanted to develop applications and needed more help in getting them going.¹⁰²⁶ He thought that the applications he needed for the hospital “involve[d] a broader spectrum of people, disciplines” than just education and training.¹⁰²⁷

Finally, the hospital found resistance from patients. The CEO stated, “you have to provide a pretty high level of education that the results you get are useful and pertinent” because patients “question the results” and ask whether a diagnosis by “long

¹⁰²² Administrator and Chief Executive Officer, Rural Health Clinic and Hospital (8B-WY), Interview with the Author, July 3, 2007.

¹⁰²³ Ibid.

¹⁰²⁴ Ibid.

¹⁰²⁵ Ibid.

¹⁰²⁶ Ibid.

¹⁰²⁷ Ibid.

distance [is] as good a service as face-to-face.”¹⁰²⁸ He found that some people did not accept the technology and questioned the validity of results that came through it.¹⁰²⁹ He thought that some of this resistance was “a rural thing” because “we’re generally at the latter end...technology is slower to come to rural areas than it is to urban areas.”¹⁰³⁰

The hospital could see real benefits in patient care using telemedicine and other technologies. At the same time, they had several obstacles to overcome including insufficient funding for broadband, refusal of insurance companies to pay for distance services, problems getting networked applications running, and the skepticism of patients.

Library

The county library is a Carnegie Library; the Carnegie Corporation agreed to fund it in 1914 and it opened five years later.¹⁰³¹ In addition to being built with funds from Carnegie, more recent philanthropy aided the library to move into the information age. The Gates Foundation provided the library with two computers and between Gates and the county, the library bought two more with matching funds. The library director noted that updating their hardware is the largest challenge they face.

The library provides public internet and wireless access to citizens of the county. There was a steady stream of traffic at the public computers as people used them to access the internet and check email accounts. The library links up through the town’s

¹⁰²⁸ Ibid.

¹⁰²⁹ Ibid.

¹⁰³⁰ Ibid.

¹⁰³¹ Muriel Dalgarno, “Library Archives,” dated April 1, 1952 in “History of the Niobrara County Library, part 1,” Niobrara County Library, URL: <http://www.niobraraountylibrary.org/history/index.php?id=6> (accessed May 24, 2009).

incumbent cable provider. The library director was pleased with the online services provided to patrons, but she also stressed that a disadvantage of the internet is that “I don’t know that the internet is real good at discerning truth. [Users] don’t always know what’s truth,” thus the internet is a “double-edged sword.”¹⁰³² This concern about people’s capacity to question the validity of information acquired through the internet was one expressed repeatedly in the county.

Community Learning

The community learning office, which shared a building with the school superintendent’s office, had access to the school district’s broadband internet. Community learning received funding from the school district and community college, including video conferencing facilities and computers for distance learning students. This allowed the office to provide compressed video, synchronous chat, and online courses for students.¹⁰³³ The Dean of Instruction—Outreach and Lifelong Learning at the affiliated community college said that the state worked on the “Wyoming Equality Network” (WEN), one feature of which was that small high schools shared ICTs with community colleges to ensure that the college could provide services to small communities.¹⁰³⁴ She also noted that Lusk was ahead of other regions because “most communities” do not have compressed video sites. The town, however, had one in the school district office and another at the school.¹⁰³⁵ The college offered four complete

¹⁰³² Library Director, County Library (4B-WY), Interview with the Author, May 10, 2007.

¹⁰³³ Community College Outreach Coordinator (3B-WY), Interview with the Author, May 10, 2007.

¹⁰³⁴ Dean of Instruction—Outreach and Lifelong Learning, Community College (6B-WY), Interview with the Author, June 13, 2007.

¹⁰³⁵ Ibid.

degrees via distance learning, including two degrees in interdisciplinary studies (an Associate of Arts and Associate in Science), a business administration degree, and a criminal justice degree.¹⁰³⁶

Schools

The school district had advanced information and communication technologies and services. In town, where the district's elementary, middle, and high schools are located, the schools had a T-1 line that they got in 1997.¹⁰³⁷ Additionally, teachers and staff at the two school buildings in town use the fiber optic strands acquired during the town's telecommunication development for communication between them. The rural school connected to the internet via satellite. The school district uses the state's private internet access providers because service this way is "cheaper," according to the school superintendent. The district pays monthly fees based on the number of students, which is 362.¹⁰³⁸

The school district had its major telecommunication goals met. It had a T-1 line and the school superintendent noted that "in the district, we're awfully close to 1 to 1 computer service," meaning the school almost had a ratio of one computer per student.¹⁰³⁹ The history of school funding in Wyoming explains how a tiny county can have such incredible access to technology. School funding in Wyoming has been a

¹⁰³⁶ Ibid.

¹⁰³⁷ A T-1 line is a copper or fiber-optic cable from the phone company capable of carrying data at 1.544 Megabits per second. School Superintendent (1B-WY), Interview with the Author, May 7, 2007; "How Does a T1 Line Work?" HowStuffWorks.com (May 3, 2000), URL: <http://computer.howstuffworks.com/question372.htm> (accessed June 21, 2009).

¹⁰³⁸ School Superintendent (1B-WY), Interview with the Author, May 7, 2007.

¹⁰³⁹ Ibid.

highly contentious issue since the 1970s. Several court cases were fought that set large districts against smaller ones. While it is beyond the scope of this work to explore the complex history of debate and litigation around school funding in Wyoming, suffice it to say that under the regulations used by the legislature a system developed where the state underfunded large schools and small schools received arguably more than what they needed to provide a quality education. This occurred because the system the state employed accepted that small schools required additional funding because they could not achieve economies of scale. The court found that the state did not base the formulas it used for providing additional funding on actual costs and thus the formulas were unconstitutional.¹⁰⁴⁰ According to the county's state representative, Wyoming's funding of small schools explains "why the school has more computer technology than elsewhere."¹⁰⁴¹ He continued, revealing that the school was better funded than either the town or county governments.¹⁰⁴² The largesse allowed the district to invest heavily in technology. One teacher in the area noted the district is "incredibly technology oriented."¹⁰⁴³ The superintendent's greatest concern was the lack of redundant service in

¹⁰⁴⁰ Campbell County School District, State of Wyoming; Et Al., Appellants (Plaintiffs), vs. State of Wyoming; Diana J. Ohman, State Superintendent of Public Instruction; et al., Appellees (Defendants), Decided November 8, 1995, Supreme Court of Wyoming, 907 P.2d 123, URL: [http://www.schoolfunding.info/states/wy/Campbell\(I\).pdf](http://www.schoolfunding.info/states/wy/Campbell(I).pdf) (accessed May 22, 2009): 1, 8, 9-10, 15, 17; State of Wyoming, Et Al., Appellants (Defendants), v. Campbell County School District, Et Al., No. 00-120 Appellees (Plaintiffs), Decided February 23, 2001, Supreme Court of Wyoming, 2001 WY 19, URL: <http://www.schoolfunding.info/states/wy/Campbell2001.pdf> (accessed May 22, 2009): 10, 35-39; "Litigation: Wyoming," Access Quality Education, National Access Network website, URL: http://www.schoolfunding.info/states/wy/lit_wy.php3 (accessed May 22, 2009).

¹⁰⁴¹ State Representative (1E-WY), Interview with the Author, July 6, 2007.

¹⁰⁴² Ibid.

¹⁰⁴³ Family and Consumer Science Teacher and Town Resident (29D-WY), Interview with the Author, June 25, 2007.

small school districts. For him, schools have “one line in and out” and “if it gets cut, you’re outta luck.”¹⁰⁴⁴

The superintendent listed numerous ways in which high-speed internet helped teachers provide education to students and the community. He believed half of the district’s teachers used the internet to enrich learning opportunities.¹⁰⁴⁵ The high school’s computer and business teacher noted, “every lesson can be supplemented with information accessed on the internet.” This gave her access to new materials that she did not have before and these materials “enhance” what she provided to students.¹⁰⁴⁶ All of the educators interviewed believed broadband helped them provide better learning experiences to students and allowed students to access more resources. Despite this, teachers and administrators found shortcomings and detriments to learning opportunities provided via the internet. A teacher noted that she could “take” students to art galleries and museums that they could not physically visit, but she concluded, “it’s still not the same.”¹⁰⁴⁷ The superintendent stated the school had offered a Russian class at seven in the morning via video conferencing, but “interest died out because of the time and not having face-to-face” learning.¹⁰⁴⁸ An even greater detriment mentioned by all of the educators interviewed was that the internet negatively influenced children’s learning and research skills. The teacher of family and consumer science expressed concern that having broadband access and the focus on getting work done more quickly sacrificed what students actually learned, causing them to only scratch the surface of a subject

¹⁰⁴⁴ School Superintendent (1B-WY), Interview with the Author, May 7, 2007.

¹⁰⁴⁵ Ibid.

¹⁰⁴⁶ Business and Computer Teacher and Town Resident (34D-WY), Interview with the Author, July 9, 2007.

¹⁰⁴⁷ Ibid.

¹⁰⁴⁸ School Superintendent (1B-WY), Interview with the Author, May 7, 2007.

rather than doing higher level thinking.¹⁰⁴⁹ The business and computer teacher concurred, stating that rather than use their library skills, students used the internet to the exclusion of all other sources of information.¹⁰⁵⁰ A special education teacher noted that there were problems as well. She felt children were “getting lazy and missing a major part of being able to look up information.”¹⁰⁵¹ This lack of critical thinking and analysis skills worried the educators. In addition to the lack of research skills, the business and computer teacher also shared another concern: “there’s a tendency [for students] to believe anything that’s written; if it’s written on the internet, it must be true.”¹⁰⁵² Other people in the community also expressed the fear that people do not question the quality of information obtained on the internet.¹⁰⁵³

Another issue was students’ access to the internet at home. The superintendent estimated that 65% of the students in the district “had access” to the internet outside of school, but he admitted the figure could include the library.¹⁰⁵⁴ The high school’s teacher of family and consumer science noted that while she estimated 90% of students had access to the internet at home, from comments that she had heard, rural students

¹⁰⁴⁹ She referred to an article the Casper *Star-Tribune* that expressed the same concern. On a similar note, in academic communities, debate rages on students’ use of Wikipedia in research papers, a practice which leads them not to develop competent research skills or access materials furthering a variety of positions and perspectives on an issue. Lori Aratani, “Teens can Multi-Task, but What Are Costs?,” Casper *Star-Tribune* (Monday, March 5, 2007), URL: <http://www.trib.com/articles/2007/03/05/features/science/5db7fd3a22fea7bf8725729200776841.txt> (accessed May 22, 2009); Family and Consumer Science Teacher and Town Resident (29D-WY), Interview with the Author, June 25, 2007.

¹⁰⁵⁰ Business and Computer Teacher and Town Resident (34D-WY), Interview with the Author, July 9, 2007.

¹⁰⁵¹ Ranch Woman and Special Education Teacher (11D-WY), Interview with the Author, July 5, 2007.

¹⁰⁵² Business and Computer Teacher and Town Resident (34D-WY), Interview with the Author, July 9, 2007.

¹⁰⁵³ Web Design, Computer Repair, Consulting, Networking Business Owner (7F-WY), Interview with the Author, July 18, 2007; Computer Service and Repair Business Owner (4F-WY), Interview with the Author, June 22, 2007.

¹⁰⁵⁴ School Superintendent (1B-WY), Interview with the Author, May 7, 2007.

complained about the internet being so slow the further they were from town, signaling that some students were still on dialup service.¹⁰⁵⁵ The business and computer teacher had her business math students conduct a survey. They found that 90% of the children enrolled at the elementary school had a computer at home, compared with only 50% of the high schoolers. She could not recall internet subscription numbers.¹⁰⁵⁶ To compensate for students who did not have internet access at home, the schools remained open after school for students to use computers as well as two evenings per week.¹⁰⁵⁷

The organizations considered here all had access to high-speed internet and used it in their work. The hospital, in the process of applying for universal service funding, would be able to purchase additional needed bandwidth for telemedicine. The school district and community learning office had advanced technologies that allowed them to provide enhanced services and learning opportunities to students. What remained issues were students' access to the internet at home and people's willingness to accept technology into their learning and health care. These issues will be examined in the following section.

Rural Residents and Businesses and High-Speed Internet

The next facet of the study explores the region's ranchers and their access to and use of high-speed internet service. It is crucial to listen to the needs of users and potential

¹⁰⁵⁵ Family and Consumer Science Teacher and Town Resident (29D-WY), Interview with the Author, June 25, 2007.

¹⁰⁵⁶ Business and Computer Teacher and Town Resident (34D-WY), Interview with the Author, July 9, 2007.

¹⁰⁵⁷ Family and Consumer Science Teacher and Town Resident (29D-WY), Interview with the Author, June 25, 2007; Business and Computer Teacher and Town Resident (34D-WY), Interview with the Author, July 9, 2007.

users for this will increase use and therefore bring us closer to the goal of a networked nation. Before exploring high-speed internet, however, it is important to analyze ranchers' general media use in order to compare and contrast it to their use and perception of high-speed internet.

Satellite Television Service

Like the farmers in rural Alberta, nearly all of the rural interviewees in the Wyoming county received satellite television service (26 of 31 interviewees). The number of people receiving television service points to its role in the community. One rancher remarked, "TV is very important to us."¹⁰⁵⁸ Another stated that television decreases isolation.¹⁰⁵⁹ One household used a broadcast antenna and four chose not to receive television signals at all, because they preferred to use their time in other ways, such as reading. Without satellite television, many people reported not receiving television service.

Several people in the area subscribed to satellite television because television reception with an antenna was limited to a few channels and was often of poor quality. People reported a lack of choice using a broadcast antenna, often only receiving one or two channels, if any.¹⁰⁶⁰ One rancher noted that without satellite, it is "hard to get TV" because of poor reception. Even with "booster power" on the antenna, people received

¹⁰⁵⁸ Rancher (30D-WY), Interview with the Author, June 27, 2007.

¹⁰⁵⁹ Ranch Woman (32D-WY), Interview with the Author, July 5, 2007.

¹⁰⁶⁰ Rancher (13D-WY), Interview with the Author, May 22, 2007; Rancher (30D-WY), Interview with the Author, June 27, 2007; Ranch woman (33D-WY), Interview with the Author, July 5, 2007; Rural Non-Ranch Resident and Energy Healer (3D-WY), Interview with the Author, May 17, 2007; Ranch Woman (38D-WY), Interview with the Author, July 13, 2007; Ranchers and Store Owners (7D-WY), Interview with the Author, June 15, 2007; Farmers and Ranchers (36D-WY), Interview with the Author, July 10, 2007; Ranchers (1D-WY), Interview with the Author, May 11, 2007.

only one or two channels.¹⁰⁶¹ One rancher argued that he did not receive public broadcasting, either radio or television, at his home without paying a subscription for satellite television. He underlined that a “public service” was unavailable to him.¹⁰⁶² This raises an important question, as public broadcasting is, in theory, to be accessible to all Americans, has the United States failed in its commitment to provide information to all Americans for the continuance of the democracy? Additionally, ranchers found that antenna reception had static and that it was poor in the summer.¹⁰⁶³ Some people, by virtue of the topography of their regions, did not receive broadcast signals at home.¹⁰⁶⁴ On the positive side, with an antenna, some ranchers received local stations, including Casper and Rapid City, South Dakota.¹⁰⁶⁵

Some ranchers recalled using a broadcast antenna to receive television signals until the television tower in Alliance, Nebraska, “blew down” in 2002;¹⁰⁶⁶ at which time they subscribed to satellite service.¹⁰⁶⁷ Although many people noted that the tower “blew down,” it actually fell during construction to strengthen the tower for the installation of

¹⁰⁶¹ Rural Non-Ranch Resident and Energy Healer (3D-WY), Interview with the Author, May 17, 2007; Ranch Woman (38D-WY), Interview with the Author, July 13, 2007.

¹⁰⁶² Computer Service and Repair Business Owner (4F-WY), Interview with the Author, June 22, 2007.

¹⁰⁶³ Rural Non-Ranch Resident and Telecommuter (21D-WY), Interview with the Author, June 14, 2007; Rancher (30D-WY), Interview with the Author, June 27, 2007; Ranch Woman (33D-WY), Interview with the Author, July 5, 2007; Ranch Woman (38D-WY), Interview with the Author, July 13, 2007.

¹⁰⁶⁴ Ranch Woman and Business Owner (12D-WY), Interview with the Author, May 21, 2007; Natural Rancher (5D-WY), Interview with the Author, May 15, 2007.

¹⁰⁶⁵ Ranch Woman (38D-WY), Interview with the Author, July 13, 2007.

¹⁰⁶⁶ Ranch Woman (8D-WY), Interview with the Author, May 18, 2007; Ranchers (39D-WY), Interview with the Author, July 18, 2007; Ranchers (20D-WY), Interview with the Author, June 12, 2007.

¹⁰⁶⁷ Ranchers and Store Owners (7D-WY), Interview with the Author, June 15, 2007; Ranch Woman (8D-WY), Interview with the Author, May 18, 2007.

digital equipment.¹⁰⁶⁸ The loss of this tower further constrained what ranchers could watch using only a broadcast antenna.

Others subscribed to satellite because the wind knocked down their own antennas and they decided not to replace them.¹⁰⁶⁹ One ranch woman noted “we wouldn’t have that [satellite television service] if” they could get reception.¹⁰⁷⁰ Only one rancher received all television reception via an antenna. The antenna received channels from Deadwood and Rapid City, South Dakota, and she concluded, “We get enough junk on those two channels”; she did not want to receive more.¹⁰⁷¹ Between the expense and her husband’s claim that “he could get addicted to TV,” the couple decided satellite reception was not worth it. Most of the ranchers, however, welcomed the variety of programming that satellite television brought. Several subscribed to additional interest-based packages or had service beyond the basic tier. People watched and listened to several hours of programming a week, a number which they readily admitted leapt in the winter months when snow made travel difficult and they had less outdoor work to do.

Cellular Phone Service

Cellular telephone providers offered limited coverage to the region. One rancher opined, “This country out here sucks for cell service.”¹⁰⁷² Respondents noted that they

¹⁰⁶⁸ Ranch Woman (8D-WY), Interview with the Author, May 18, 2007; Ranchers (39D-WY), Interview with the Author, July 18, 2007; “Tower Collapse Claims Two,” Broadcast Engineering.com (September 30, 2002), URL: http://broadcastengineering.com/news/broadcasting_tower_collapse_claims/index.html (accessed June 6, 2009); Paul Hammel, “Two Die in TV Tower’s Collapse; The 1,964-Foot Structure Near Alliance was the State’s Tallest, its Owner Says,” *Omaha World Herald* (Nebraska) (Wednesday, September 25, 2002): 1A.

¹⁰⁶⁹ Farmers and Ranchers (36D-WY), Interview with the Author, July 10, 2007.

¹⁰⁷⁰ Ranch Woman (8D-WY), Interview with the Author, May 18, 2007.

¹⁰⁷¹ Ranch Woman, (31D-WY), Interview with the Author, June 28, 2007.

¹⁰⁷² Ranch Woman (23D-WY), Interview with the Author, June 19, 2007.

received a signal close to town, located in the southern part of the county, but once they passed the bluffs to the north, they lost the signal unless they were on a hilltop. The hilly topography of the county made it difficult to get a signal and cell providers likely found no economic incentive to add more towers in the sparsely populated region. This left large swathes of ranchland without cell service. One woman reported that in an emergency, she could “climb the windmill or go to a hill” to use her cell phone.¹⁰⁷³ Others relied on two-way radios for communication with family and workers. The spotty cell phone coverage was poised to deteriorate even further due to new FCC rules. Several people noted that the FCC was phasing out analog cell phone service, an issue that received coverage in the press.¹⁰⁷⁴ Rural residents found that analog phones worked much better as they had longer ranges than did the digital replacements. This led one rancher to opine, “a lot of decisions aren’t made to serve rural people.”¹⁰⁷⁵ The Chairman of the County Commissioners agreed, stating that in the transition from analog to digital cell phones, they “don’t think about a population of 1,000.”¹⁰⁷⁶ This sentiment, that corporations and the government had turned away from rural regions, was prevalent and helped people to explain the state of telecommunications in the region, including as analyzed below, the poor condition of the wire line telephone system.

¹⁰⁷³ Ranch Woman and Office Manager (9D-WY), Interview with the Author, May 21, 2007.

¹⁰⁷⁴ “Fight to Keep Analog Cell Phones,” *MSNBC.com*, URL: <http://www.msnbc.msn.com/id/8709730> (accessed August 1, 2007).

¹⁰⁷⁵ Ranch Woman (28D-WY), Interview with the Author, June 25, 2007.

¹⁰⁷⁶ Chairman of the County Commissioners (10B-WY), Interview with the Author, July 12, 2007.

Telephone Lines

Nearly all of the interviewees mentioned the dilapidated condition of the telephone lines. The telephone lines in the county in 2007, the year of field research, included sections going to ranch homes that were open wire, two copper wires strung on telephone poles above ground, separated by glass insulators.¹⁰⁷⁷ The aged equipment was unreliable. One rancher noted that the “phone guy” had told him that the phone system used repeaters and when repairing the equipment was not possible, the company “cannibalize[d] from urban areas” getting old, used parts from other areas rather than new equipment.¹⁰⁷⁸ Another rancher noted the lines were so old suppliers “don’t make the parts anymore.”¹⁰⁷⁹ Using second hand parts likely increased the phone system’s lack of reliability. The Chairman of the County Commissioners said there was “a lot of hanging wire still” in the county, and that “buried lines are a much more reliable system.”¹⁰⁸⁰ Ranchers had a multiplicity of complaints about their telephone service. One rancher noted the “phone system is fallin’ into a heap.”¹⁰⁸¹ Most interviewees remarked that the phone lines were old or “antiquated.”¹⁰⁸² Many ranchers had sections of phone wire that

¹⁰⁷⁷ “Open Wire Lead,” Outside Plant Equipment, The Museum of Communications, Telephone History Group, URL: <http://www.museumofcommunications.org/outside.html> (accessed June 20, 2009).

¹⁰⁷⁸ Rancher (13D-WY), Interview with the Author, May 22, 2007.

¹⁰⁷⁹ Ranch Woman and Business Owner (12D-WY), Interview with the Author, May 21, 2007.

¹⁰⁸⁰ Chairman of the County Commissioners (10B-WY), Interview with the Author, July 12, 2007.

¹⁰⁸¹ Rancher (30D-WY), Interview with the Author, June 27, 2007.

¹⁰⁸² Ranch Woman and Special Education Teacher (11D-WY), Interview with the Author, July 5, 2007; Rural Non-Ranch Resident and Telecommuter (21D-WY), Interview with the Author, June 14, 2007; Rancher (13D-WY), Interview with the Author, May 22, 2007; Ranch Woman (8D-WY), Interview with the Author, May 18, 2007; Ranch Woman and Business Owner (12D-WY), Interview with the Author, May 21, 2007; Ranch Wife and Medical Transcriptionist (16D-WY), Interview with the Author, June 6, 2007; Ranch Woman (28D-WY), Interview with the Author, June 25, 2007; Ranch Woman, (31D-WY), Interview with the Author, June 28, 2007; Ranch Woman (33D-WY), Interview with the Author, July 5, 2007; Rural Non-Ranch Resident and Telecommuter (21D-WY), Interview with the Author, June 14, 2007; ranchers who said the phone system was “antiquated”: Ranch Wife and Medical Transcriptionist (16D-WY), Interview with the Author, June 6, 2007; Ranch Woman (28D-WY), Interview with the Author, June 25, 2007.

was above ground open wire.¹⁰⁸³ Some had requested that the telephone company bury the lines, but recalled that it refused.¹⁰⁸⁴

The age of the telephone system provided subscribers with unreliable telephone service. People noted service frequent service outages.¹⁰⁸⁵ One woman wrote at the end of July,

Since the 4th of July my phone has been out more than it has worked. The local repair man has been here every day this week. If not for my phone then for one of the neighbors phones. [sic] July is known for thunder showers and with thunder comes lightning hence this antiquated phone line is fried somewhere daily.¹⁰⁸⁶

Some residents reported service outages a couple of times per month,¹⁰⁸⁷ others had problems between four and eight times per year.¹⁰⁸⁸ One rancher said their service only went out “two times a year” but stated, “we’re lucky” because they had buried phone

¹⁰⁸³ Ranch Woman and Special Education Teacher (11D-WY), Interview with the Author, July 5, 2007; Farmers and Ranchers (36D-WY), Interview with the Author, July 10, 2007; Ranch Woman (32D-WY), Interview with the Author, July 5, 2007; Ranchers (39D-WY), Interview with the Author, July 18, 2007; Ranch Woman (28D-WY), Interview with the Author, June 25, 2007.

¹⁰⁸⁴ Ranch Woman and Special Education Teacher (11D-WY), Interview with the Author, July 5, 2007.

¹⁰⁸⁵ One rancher’s (23D) phone service went out during our interview. Ranch Woman (23D-WY), Interview with the Author, June 19, 2007; Ranch Woman and Business Owner (12D-WY), Interview with the Author, May 21, 2007; Rancher (13D-WY), Interview with the Author, May 22, 2007; Ranch Woman (23D-WY), Interview with the Author, June 19, 2007; Rancher (30D-WY), Interview with the Author, June 27, 2007; Ranch Woman, (31D-WY), Interview with the Author, June 28, 2007; Ranchers (39D-WY), Interview with the Author, July 18, 2007; Ranch Woman and Special Education Teacher (11D-WY), Interview with the Author, July 5, 2007; Ranch Woman (33D-WY), Interview with the Author, July 5, 2007; Rancher and Town Dweller (35D-WY), Interview with the Author, July 9, 2007; Ranch Woman (38D-WY), Interview with the Author, July 13, 2007; Ranchers (39D-WY), Interview with the Author, July 18, 2007; Ranch Woman (28D-WY), Media Diary, Postmarked July 30, 2007.

¹⁰⁸⁶ Ranch Woman (28D-WY), Media Diary, Postmarked July 30, 2007.

¹⁰⁸⁷ Rancher (30D-WY), Interview with the Author, June 27, 2007; Ranch Woman (33D-WY), Interview with the Author, July 5, 2007.

¹⁰⁸⁸ Ranch Woman (23D-WY), Interview with the Author, June 19, 2007; Ranch Woman, (31D-WY), Interview with the Author, June 28, 2007; Rancher and Town Dweller (35D-WY), Interview with the Author, July 9, 2007; Farmers and Ranchers (36D-WY), Interview with the Author, July 10, 2007; Ranch Woman (38D-WY), Interview with the Author, July 13, 2007.

wire.¹⁰⁸⁹ The weather influenced the open wire sections. People had problems during the winter¹⁰⁹⁰ and the summer.¹⁰⁹¹ Others noted that rain, snow, wind, and lightning knocked out phone service.¹⁰⁹² The rancher quoted above stated her “phone goes out every time we have a thunderstorm. We’re up a mountain, [and the open wire created] a two-mile long lightening rod.”¹⁰⁹³ Additionally, problems with the electricity to the phone system also caused service outages and power surges that could damage telephones.¹⁰⁹⁴ The ranchers noted that the telephone company’s repair people generally fixed problems within a day or two,¹⁰⁹⁵ but others recalled longer service interruptions of a week or more.¹⁰⁹⁶ One woman said that once her phone “was out forever” or approximately six days.¹⁰⁹⁷ At times, service was not out, but the quality was poor, including static and noise.¹⁰⁹⁸ One rancher whose phone service was often out found it particularly irritating

¹⁰⁸⁹ Ranch Woman (37D-WY), Interview with the Author, July 12, 2007.

¹⁰⁹⁰ Ranch Woman (31D-WY), Interview with the Author, June 28, 2007.

¹⁰⁹¹ Ranch Woman (28D-WY), Media Diary, Postmarked July 30, 2007; Farmers and Ranchers (36D-WY), Interview with the Author, July 10, 2007; Ranch Woman (38D-WY), Interview with the Author, July 13, 2007.

¹⁰⁹² Farmers and Ranchers (36D-WY), Interview with the Author, July 10, 2007; General Manager, Incumbent Cable Provider (3F-WY), Interview with the Author, June 21, 2007; Computer Service and Repair Business Owner (4F-WY), Interview with the Author, June 22, 2007; Ranch Woman (28D-WY), Interview with the Author, June 25, 2007; Chairman of the County Commissioners (10B-WY), Interview with the Author, July 12, 2007; Ranch Woman (8D-WY), Interview with the Author, May 18, 2007; Ranch Woman (31D-WY), Interview with the Author, June 28, 2007; Ranch Woman (32D-WY), Interview with the Author, July 5, 2007; Rancher and Town Dweller (35D-WY), Interview with the Author, July 9, 2007; Farmers and Ranchers (36D-WY), Interview with the Author, July 10, 2007; Ranch Woman (33D-WY), Interview with the Author, July 5, 2007.

¹⁰⁹³ Ranch Woman (28D-WY), Interview with the Author, June 25, 2007.

¹⁰⁹⁴ Ranch Woman (38D-WY), Interview with the Author, July 13, 2007; Ranch Woman (33D-WY), Interview with the Author, July 5, 2007; Ranch Woman (28D-WY), Interview with the Author, June 25, 2007.

¹⁰⁹⁵ Rancher (13D-WY), Interview with the Author, May 22, 2007; Farmers and Ranchers (36D-WY), Interview with the Author, July 10, 2007; Ranch Woman (33D-WY), Interview with the Author, July 5, 2007.

¹⁰⁹⁶ Ranch Woman (23D-WY), Interview with the Author, June 19, 2007; Rancher and Town Dweller (35D-WY), Interview with the Author, July 9, 2007; Rancher (30D-WY), Interview with the Author, June 27, 2007.

¹⁰⁹⁷ Ranch Woman (23D-WY), Interview with the Author, June 19, 2007.

¹⁰⁹⁸ Ranch Woman (32D-WY), Interview with the Author, July 5, 2007; Ranch Woman (31D-WY), Interview with the Author, June 28, 2007.

that she had to call the telephone company and request rebates for the times when her service was not functional; she wrote, “Even after multiple days out-of-service we must call and ask for credit due to time lost. They do not automatically make it right.”¹⁰⁹⁹ For her, the automatic correction of the phone bill would have increased her satisfaction with the phone company, although not for the telephone service it provided.

Frequent service outages were not the only problems rural residents faced as the phone system in the county had several other limitations, including no enhanced services, an inability to get new lines because many parts of the system were at maximum capacity, and what people viewed as exorbitant fees for new lines. First, the old phone lines did not support enhanced services common to urban dwellers. People stated that they could not get caller id¹¹⁰⁰ and could not send faxes.¹¹⁰¹ The FCC’s rules made to fulfill the goals of the 1996 Telecommunications Act set low universal service standards at plain old telephone service.¹¹⁰² The rules did not require telephone companies to provide enhanced services and they did not.

Second, the old phone system did not have the capacity to accommodate new subscribers. People found when they moved homes that telephone service proved difficult to get. One woman recalled that it took two months to get a phone to her trailer home.¹¹⁰³ Additionally, in some areas of the county, all of the phone channels were in

¹⁰⁹⁹ Ranch Woman (30D-WY), Media Diary, Postmarked July 6, 2007.

¹¹⁰⁰ Ranch Woman and Special Education Teacher (11D-WY), Interview with the Author, July 5, 2007; Office Equipment and Computer Maintenance and Repair (4F-WY), Interview with the Author, June 22, 2007; Chairman of the County Commissioners (10B-WY), Interview with the Author, July 12, 2007; Ranch Woman, (31D-WY), Interview with the Author, June 28, 2007; Ranchers and Store Owners (7D-WY), Interview with the Author, June 15, 2007.

¹¹⁰¹ Ranch Woman (30D-WY), Media Diary, Postmarked July 6, 2007.

¹¹⁰² FCC rules quoted from Fidelman, “The New Universal-Service Rules.”

¹¹⁰³ Most of the people far from the towns lived either in the original frame ranch homes or in mobile homes, because the cost of bringing out a construction crew was prohibitive. Some people (2D-WY) built

use. Interviewees reported that they could not get additional numbers or new telephone lines because there was no more room on the equipment.¹¹⁰⁴ This limitation of the phone system prohibited people from getting a second line for dial-up internet.¹¹⁰⁵ One ranch couple reported that they were on a two-party line until mid-2007 when a subscriber on the route died, enabling them to have access to the deceased person's number and finally upgrade to individual line service.¹¹⁰⁶ Interviewees noted that there were a few people who remained on party lines.¹¹⁰⁷ If a number was available, new service was prohibitively expensive.¹¹⁰⁸ Some people eschewed telephone service because the telephone company quoted astronomical figures for the installation of telephone lines onto new ranches. One artist and rancher stated that she and her husband built a house in the area but did not install telephone or electric service because they "didn't want to pay to have a landline [and] power." She recalled that either the electric association or the phone company wanted "\$10,000 a mile" to hook them up.¹¹⁰⁹ The phone company

their own homes, others had a new mobile home hauled in (32D-WY, 14D-WY, 16D-WY). Other people lived in older mobile homes (8D-WY), in frame houses (20D-WY, 7D-WY), and in one case, in a frame house with an old school trailer attached as an extension (28D-WY). Artist and Ranch Woman (2D-WY), Interview with the Author, May 12, 2007; Ranch Woman (32D-WY), Interview with the Author, July 5, 2007; Ranchers (14D-WY), Interview with the Author, May 23, 2007; Ranch Wife and Medical Transcriptionist (16D-WY), Interview with the Author, June 6, 2007; Ranch Woman (8D-WY), Interview with the Author, May 18, 2007; Ranchers (20D-WY), Interview with the Author, June 12, 2007; Ranchers and Store Owners (7D-WY), Interview with the Author, June 15, 2007; Ranch Woman (28D-WY), Interview with the Author, June 25, 2007.

¹¹⁰⁴ Chairman of the County Commissioners (10B-WY), Interview with the Author, July 12, 2007; Ranch Woman (8D-WY), Interview with the Author, May 18, 2007; Rancher (30D-WY), Interview with the Author, June 27, 2007.

¹¹⁰⁵ Ranch Woman and Special Education Teacher (11D-WY), Interview with the Author, July 5, 2007; Ranch Woman and Business Owner (12D-WY), Interview with the Author, May 21, 2007; Rancher (30D-WY), Interview with the Author, June 27, 2007.

¹¹⁰⁶ Ranchers (39D-WY), Interview with the Author, July 18, 2007.

¹¹⁰⁷ Web Design, Computer Repair, Consulting, Networking Business Owner (7F-WY), Interview with the Author, July 18, 2007.

¹¹⁰⁸ Ranch Woman (19D-WY), Interview with the Author, June 12, 2007; Rural Non-Ranch Resident and Day Care Provider (25D-WY), Interview with the Author, June 20, 2007; Ranchers (39D-WY), Interview with the Author, July 18, 2007.

¹¹⁰⁹ Artist and Ranch Woman (2D-WY), Interview with the Author, May 12, 2007.

asked another ranch couple to pay for two miles of line to their new home; they chose not to install a landline.¹¹¹⁰ These people relied on the spotty cellular telephone service to connect them to others. One final example was the woman who bought cable for a buried line to her home to replace the open wire. The phone company estimated the couple would have to pay \$20,000 for the company to trench the line.¹¹¹¹ Unwilling to pay the requested fee, the rancher said she and her husband would trench it themselves when they had the time.

People reported that the phone company did not want to perform large repairs. One rancher noted that to provide service to a second dwelling on her ranch, the phone company laid a “temporary line” between the houses that they never buried into the ground because of the expense of trenching.¹¹¹² The temporary line ran across the ranches’ access road. Others said that the phone company only begrudgingly replaced downed poles.¹¹¹³ Large repairs undoubtedly required the phone company to bring heavy machinery from other, larger centers.

Despite the poor service ranchers felt they received from the telephone company, they argued that the company charged them dearly for a telephone line. Some interviewees felt the telephone company was overcharging them for shoddy basic phone service that often did not work. Telephone service to the rural areas of the county cost more than service in the county’s seat. A ranch and business woman with homes in town

¹¹¹⁰ Several interviewees mentioned this same ranching couple, including Farmers and Ranchers (36D-WY), Interview with the Author, July 10, 2007; Chairman of the County Commissioners (10B-WY), Interview with the Author, July 12, 2007; Ranchers (39D-WY), Interview with the Author, July 18, 2007.

¹¹¹¹ Ranch Woman (32D-WY), Interview with the Author, July 5, 2007.

¹¹¹² Ranch Woman (28D-WY), Interview with the Author, June 25, 2007.

¹¹¹³ Ranchers (39D-WY), Interview with the Author, July 18, 2007; Ranch Woman and Special Education Teacher (11D-WY), Interview with the Author, July 5, 2007.

and on the ranch paid only \$17.50 for phone service in town but remarked that phone service cost “significantly more out here” on her ranch.¹¹¹⁴ Subscribers noted that they paid a “distance charge” of \$46.25 for service to their ranches. The national and Wyoming universal service fund credits that people received on their telephone bills relieved part of this fee; the federal and state universal service credits totaled \$37.02 monthly.¹¹¹⁵ After the credits, rural residents paid \$9 of the distance fee. The ranchers received universal service funding because they were in a “high cost” area. The distance charge irked some subscribers who felt they were unfairly charged. One argued, “it’s [distance fee] a real irritation because just cuz we’re out. I think we’re being penalized because we’re out”¹¹¹⁶ and another stated “I think it’s completely discriminatory; I’m being charged for where I choose to live.”¹¹¹⁷ On the other side, some people felt the distance charges were a fair price to pay because they selected to live far from others. One 37-year old ranch woman argued that she was “okay with [the distance charge] because I chose to live here.”¹¹¹⁸

Ranchers felt that they ought to receive reliable phone service because that is what they paid the company to do.¹¹¹⁹ As discussed in the previous chapter, the town’s fiber optic grid project led the telephone company to upgrade the central switching office

¹¹¹⁴ Farmers and Ranchers (36D-WY), Interview with the Author, July 10, 2007.

¹¹¹⁵ Rancher, Farmer, Business Proprietor (22D-WY), Interview with the Author, June 18, 2007; Ranch Woman (28D-WY), Interview with the Author, June 25, 2007; Ranch Woman (32D-WY), Interview with the Author, July 5, 2007; Farmers and Ranchers (36D-WY), Interview with the Author, July 10, 2007; Ranchers (39D-WY), Interview with the Author, July 18, 2007; Ranch Woman (33D-WY), Interview with the Author, July 5, 2007.

¹¹¹⁶ Ranch Woman and Special Education Teacher (11D-WY), Interview with the Author, July 5, 2007.

¹¹¹⁷ Farmers and Ranchers (36D-WY), Interview with the Author, July 10, 2007.

¹¹¹⁸ Ranch Woman (33D-WY), Interview with the Author, July 5, 2007.

¹¹¹⁹ Ranch Woman and Business Owner (12D-WY), Interview with the Author, May 21, 2007; Ranch Woman (33D-WY), Interview with the Author, July 5, 2007; Rancher and Town Dweller (35D-WY), Interview with the Author, July 9, 2007.

in town. Despite this, they did not—by their own admission—upgrade the lines into the county. One woman fumed, “if you pay them, they should” provide service.¹¹²⁰ The ranchers were acutely aware of the political economy of telephone companies. They knew that there were too few people in the county to make it “cost effective” for the incumbent to replace the telephone lines or make major repairs,¹¹²¹ because the telephone company, according to the Chairman of the County Commissioners, would not meet their “expectation of return on investment.”¹¹²² Others also noted that maintaining the lines was not one of the phone company’s priorities.¹¹²³ Another rancher concluded that it was “pure economics for these companies” and continued that in rural America there “isn’t the economic value and I don’t see any way around it.”¹¹²⁴ Some argued that the phone company was not interested in serving them, a feeling they supported by the fact that the incumbent had tried to “unload” them a few years earlier.¹¹²⁵ The Chairman of the County Commissioners concluded that the phone company “doesn’t want to put money into [the] exchange.” He stated it “bothers me...at one point, [the phone company] was tryin’ to unload the system to a small company. We’d have been better off” if the company had been successful.¹¹²⁶ Ranchers found that their phone service only got worse after the Telecommunications Act of 1996. One rancher called the FCC to

¹¹²⁰ Ranch Woman (33D-WY), Interview with the Author, July 5, 2007.

¹¹²¹ Quoted from Ranch Woman (28D-WY), Interview with the Author, June 25, 2007; also Ranch Woman (33D-WY), Interview with the Author, July 5, 2007; Ranch Woman and Business Owner (12D-WY), Interview with the Author, May 21, 2007; Ranch Woman (33D-WY), Interview with the Author, July 5, 2007; Rancher (13D-WY), Interview with the Author, May 22, 2007.

¹¹²² Chairman of the County Commissioners (10B-WY), Interview with the Author, July 12, 2007.

¹¹²³ Web Design, Computer Repair, Consulting, Networking Business Owner (7F-WY), Interview with the Author, July 18, 2007.

¹¹²⁴ Farmers and Ranchers (36D-WY), Interview with the Author, July 10, 2007.

¹¹²⁵ Chairman of the County Commissioners (10B-WY), Interview with the Author, July 12, 2007; State Representative (1E-WY), Interview with the Author, July 6, 2007.

¹¹²⁶ Chairman of the County Commissioners (10B-WY), Interview with the Author, July 12, 2007.

complain because she thought her service declined after deregulation.¹¹²⁷ A rancher and office equipment repair person also noted that “government deregulation of utilities” means that “no one takes care of the customers.”¹¹²⁸ Another rancher mirrored this sentiment, writing, “...it has been our experience that when problems arise it is impossible to contact anyone that can truly resolve our issues.”¹¹²⁹ Yet another ranch woman stated that “we are still fighting the same problems” as people did in 1907 to get phone lines in the region and that “landline phones are going to be a thing of the past before we get decent landline phones.”¹¹³⁰ Cruel irony marked the refusal of the telephone company to upgrade their service to the region. The same rancher reflected on the incumbent telephone company and the legal troubles of its CEO:

I don't know if you have kept up with news....Joe Nachio (sp) head CEO of Qwest was found guilty of insider trading and syphoning [sic] of[f] funds for his own use. He got 6 yrs in jail and fine of 15 million. With 15 million they (Qwest) could put in all new system for this area. On that note just his petty cash could put in a lot of new phone line & hook ups.¹¹³¹

This rancher felt that the incumbent telephone company could afford to replace the telephone lines in the area, but that they had chosen not to. She believed that the people at the incumbent prioritized corporate largesse over competent service.

The phone company's performance left ranchers searching for alternatives. In urban areas, landlines are becoming less necessary as people replace them with wireless

¹¹²⁷ Ranch Woman and Business Owner (12D-WY), Interview with the Author, May 21, 2007.

¹¹²⁸ Computer Service and Repair Business Owner (4F-WY), Interview with the Author, June 22, 2007.

¹¹²⁹ Ranch Woman (30D-WY), Media Diary, Postmarked July 6, 2007.

¹¹³⁰ Ranch Woman (28D-WY), Interview with the Author, June 25, 2007.

¹¹³¹ Underlining and parentheses in original. Ranch Woman (28D-WY), Media Diary, Postmarked July 30, 2007.

devices and internet phones. Importantly, in countries with poorly developed wire line telephone systems, such as India and some countries in Africa, cellular telephony is filling the gap.¹¹³² As discussed above, however, residents in Niobrara County had only spotty telephone service and could not reliably use it to replace landline service because signals did not reach most people's homes. This leads to the question, if countries like Kenya can provide relatively inexpensive and comprehensive cell phone coverage, why can it not happen in Wyoming? Several people exhibited no loyalty to the incumbent telephone company. They noted that they would dispense of their landline service if they had adequate cell phone service.¹¹³³ One rancher noted, "If we could use cell service here at home we would rid ourselves of Qwest."¹¹³⁴ Some felt the cell phone would be a cheaper option¹¹³⁵ and one woman, who ran her ranch because her husband was injured in a tractor accident, felt the portability of the cell phone was an additional advantage; she would carry it with her whereas the landline was tied to the house.¹¹³⁶

The appalling condition of the phone lines did not simply pose an inconvenience to ranchers. One ranch woman who lived over 50 miles from town stated that with the unreliability of landlines and cell phones, "when you're this far out, if you have an

¹¹³² Terra Lawson-Remer, "For Small Entrepreneurs in Developing Countries, Mobile Phones Can Be Path Out of Poverty," *The Huffington Post* (Posted April 22, 2009), URL: http://www.huffingtonpost.com/terra-lawsonremer/for-small-entrepreneurs-i_b_190204.html (accessed June 22, 2009).

¹¹³³ Ranch Woman and Special Education Teacher (11D-WY), Interview with the Author, July 5, 2007; Ranchers and Store Owners (7D-WY), Interview with the Author, June 15, 2007; Rancher (13D-WY), Interview with the Author, May 22, 2007; Ranch woman (28D-WY), Interview with the Author, June 25, 2007; Ranch Woman (32D-WY), Interview with the Author, July 5, 2007; Ranch Woman (33D-WY), Interview with the Author, July 5, 2007; Rancher (30D-WY), Interview with the Author, June 27, 2007.

¹¹³⁴ Ranch Woman (30D-WY), Media Diary, Postmarked July 6, 2007.

¹¹³⁵ Ranch Woman (28D-WY), Interview with the Author, June 25, 2007; Ranch Woman (33D-WY), Interview with the Author, July 5, 2007.

¹¹³⁶ Ranch Woman (28D-WY), Interview with the Author, June 25, 2007.

emergency, if you don't have service, you're SOL [sic]."¹¹³⁷ In addition to emergencies, phone service was also an issue of economics. As one rancher noted, his phone line was down a couple of times each month. He stated in frustration, "This phone in my house is my business phone—I can't get that through to them [the phone company]."¹¹³⁸ The problem of unreliable phone lines affected ranch business and made people fearful that when they most needed the phone, in a life-threatening emergency, it would not work. The deplorable condition of phone service made alternative communication devices, such as the internet, more important, but these were costly (satellite), limited (line-of-sight wireless internet and cellular telephony) and many people were unaware of the most affordable satellite option.

Internet

A network support consultant in the area described people's internet options simply: "expensive or dial-up."¹¹³⁹ Ranchers stated that the poor condition of the phone lines hindered them from using dial-up internet. One rancher summed up dial-up internet with one word: "atrocious."¹¹⁴⁰ A plethora of problems with dialup included slow download speeds;¹¹⁴¹ frequent disconnection;¹¹⁴² and problems connecting initially.¹¹⁴³

¹¹³⁷ Ranch Woman (33D-WY), Interview with the Author, July 5, 2007.

¹¹³⁸ Rancher (30D-WY), Interview with the Author, June 27, 2007.

¹¹³⁹ Network Support Company Owner (5F-WY), Interview with the Author, July 9, 2007.

¹¹⁴⁰ Farmers and Ranchers (36D-WY), Interview with the Author, July 10, 2007.

¹¹⁴¹ Ranch Woman (23D-WY), Interview with the Author, June 19, 2007; Ranch Woman, Business Owner, and Former Chamber of Commerce Director (9B-WY), Interview with the Author, July 10, 2007; Rural Non-Ranch Resident and Telecommuter (21D-WY), Interview with the Author, June 14, 2007; Ranchers (39D-WY), Interview with the Author, July 18, 2007.

¹¹⁴² Ranch Woman (32D-WY), Interview with the Author, July 5, 2007; Ranch Woman and Business Owner (12D-WY), Interview with the Author, May 21, 2007.

One rancher noted it took several minutes “before you ever got hitched up” to the internet.¹¹⁴⁴ The Chairman of the County Commissioners, a rural resident, said that with dial-up, he was “successful one out of ten times.”¹¹⁴⁵ This led one ranch woman and co-owner of a floral shop to conclude dialup is “not even worth it.”¹¹⁴⁶

Rural residents had a few higher speed internet options, depending on where they lived. Those close to town could receive line-of-sight wireless. Since this is a terrestrial technology, it is less costly than satellite options. This service costs approximately \$30 per month, with discounts for paying six months in advance. People on the line-of-sight wireless service remarked they paid between \$15 and \$24.95 a month for service and they recalled prices of \$150 to \$200 for installation and equipment.¹¹⁴⁷ The company, VistaBeam, promises upload speeds of approximately 128 Mbps and download speeds of 384 for \$29.95 a month.¹¹⁴⁸ This service was comparatively inexpensive. The remainder of the rural residents were left with the option of extremely slow dial-up or costly satellite service.¹¹⁴⁹

¹¹⁴³ Ranch Woman and Business Owner (12D-WY), Interview with the Author, May 21, 2007; Ranchers (39D-WY), Interview with the Author, July 18, 2007; Chairman of the County Commissioners (10B-WY), Interview with the Author, July 12, 2007.

¹¹⁴⁴ Ranchers (39D-WY), Interview with the Author, July 18, 2007.

¹¹⁴⁵ Chairman of the County Commissioners (10B-WY), Interview with the Author, July 12, 2007.

¹¹⁴⁶ Ranch Woman, Business Owner, and Former Chamber of Commerce Director (9B-WY), Interview with the Author, July 10, 2007.

¹¹⁴⁷ 20D reported an installation price of \$200; 21D recalled an installation price of \$149; 36D stated paying \$149.75 for six months of service and \$199 for the installation. Rural Non-Ranch Resident and Energy Healer (3D-WY), Interview with the Author, May 17, 2007; Farmers and Ranchers (36D-WY), Interview with the Author, July 10, 2007; Ranchers (20D-WY), Interview with the Author, June 12, 2007; Rural Non-Ranch Resident and Telecommuter (21D-WY), Interview with the Author, June 14, 2007.

¹¹⁴⁸ VistaBeam Internet Plans, VistaBeam website, URL: <http://www.vistabeam.com/plans.php> (accessed June 22, 2009).

¹¹⁴⁹ The co-owner of a network support and web development and hosting company in a neighboring county noted that many of her customers got speeds of 19 Kilobytes per second on dial-up, even on 56 Kilobyte per second modems. Network Support Company Owner (5F-WY), Interview with the Author, July 9, 2007.

The earliest satellite provision available in the region was very expensive.

WildBlue, a satellite option available later, was less expensive but there were problems with it: a lack of advertising and as a result, rural residents lacked knowledge about the provider and the services it offered.

The price for WildBlue satellite internet was approximately \$200 for equipment and \$50 per month thereafter for service fees.¹¹⁵⁰ One rancher stated that although she got a “deal” on equipment and installation, at \$200, “it’s pretty pricey.”¹¹⁵¹ An internet provider who offered high-speed internet including WildBlue noted that WildBlue is “pretty expensive” but justified this because satellites are “expensive to get in the air.”¹¹⁵² The installation of WildBlue was significantly cheaper than other satellite providers. Early adopters of satellite internet paid much higher costs than those who subscribed to satellite internet later as prices for equipment dropped markedly over time. The other options for satellite service were more costly than WildBlue. Depending on their time of adoption (earlier adopters paid more for equipment and installation), subscribers to Hughes and Starband paid between \$600 and \$1,200 for equipment and installation. Additionally, they reported paying between \$50 and \$100 per month for service.¹¹⁵³

¹¹⁵⁰ 14D recalled paying \$200 plus discount for installation and equipment; 23D remembered they paid for the dish and the install was free. Also they paid \$54.95 a month for service which included \$4.95 for “protection”; 30D reported paying a \$199 equipment and installation fee and \$49.99 a month for service; 33D recalled the price was \$200 for the equipment. The install was free with the equipment and she paid \$49.99 a month for service. 37D recalled paying \$200 for equipment and installation. She remembered that they got a “deal” but she said, “it’s pretty pricey.” She reported paying \$130 a month for service. Rancher (30D-WY), Interview with the Author, June 27, 2007; Ranch Woman (33D-WY), Interview with the Author, July 5, 2007; Ranchers (14D-WY), Interview with the Author, May 23, 2007; Ranch Woman (37D-WY), Interview with the Author, July 12, 2007; Ranch Woman (23D-WY), Interview with the Author, June 19, 2007.

¹¹⁵¹ Ranch Woman (37D-WY), Interview with the Author, July 12, 2007.

¹¹⁵² General Manager, WildBlue Distributor, Subsidiary of an Independent Local Exchange Carrier (ILEC) (6F-WY), Interview with the Author, Nebraska, July 11, 2007.

¹¹⁵³ 5D received internet through Hughes. He recalled that the install free if they signed a three-year contract. Also he paid about \$100 a month for service. 7D used Starband for satellite internet. They recalled

Several interviewees identified “access” and affordability as major problems for rural community members desiring higher speed internet service.¹¹⁵⁴ Since satellite service was available throughout the county and from three different, competitive private providers, the challenge appears to be about a lack of knowledge that access was available and the cost of service.

WildBlue was the least expensive provider available to everyone who resided in the county. Despite this, only five people out of the 31 interviewed used the service. Six people used either DSL (one) or line-of-sight wireless (five) because they lived closer to town. This section looks at WildBlue and people’s impressions of it. Out of thirty-eight interviewees, sixteen people said they did not know what WildBlue was. People who did know about the provider knew little about it. They learned about it from friends (six), advertisements (nine), the internet (one), at an association meeting (three), and through computer people (two). This list shows that discussion with friends, neighbors, and others was the primary way that residents learned about WildBlue. Despite this, few people knew much about WildBlue. One asked, it is a “satellite provider, ain’t it?” and then he stated “evidently they haven’t done a good job of promoting it” because he did

paying \$800 for the dish and installation and \$69.99 a month for service. 12D stated that she subscribed to Hughes and recalled that “we got ripped off” because they paid \$1200 and argued they received “all used equipment” from the company. She noted that they paid \$75 a month for service. 13D subscribed to Hughes in 2005. He recalled paying \$600 for the installation and the dish and between \$63 and 65 a month for service. 16D used Starband for internet and paid \$600 for the installation and equipment and \$49 per month. 32D subscribed to Starband and recalled paying \$250 for the installation and \$69 a month for service. Natural Rancher (5D-WY), Interview with the Author, May 15, 2007; Ranchers and Store Owners (7D-WY), Interview with the Author, June 15, 2007; Ranch Woman and Business Owner (12D-WY), Interview with the Author, May 21, 2007; Rancher (13D-WY), Interview with the Author, May 22, 2007; Ranch Wife and Medical Transcriptionist (16D-WY), Interview with the Author, June 6, 2007; Ranch Woman (32D-WY), Interview with the Author, July 5, 2007.

¹¹⁵⁴ Executive Director, Chamber of Commerce (2B-WY), Interview with the Author, May 8, 2007; Network Support Company Owner (5F), Interview with the Author, July 9, 2007; Community College Outreach Coordinator (3B-WY), Interview with the Author, May 10, 2007; School Superintendent (1B-WY), Interview with the Author, May 7, 2007; Chairman of the County Commissioners (10B-WY), Interview with the Author, July 12, 2007.

not know it was available in his area.¹¹⁵⁵ Six people knew it was an internet provider but most people knew little beyond that. One interviewee, who had line-of-sight wireless noted that WildBlue required a “southern view of the southern sky” but “view of the southern sky” is the tag line from Hughes commercials, a competing satellite firm.¹¹⁵⁶

The ranchers’ main hindrance to getting high-speed internet access was its cost. A chorus of voices identified the major challenge to internet subscription in the county as cost.¹¹⁵⁷ Basically, ranchers interested in higher speed internet service did a cost-benefit analysis. Some found that they would receive benefits that justified the costs and others felt that the benefits they would reap from having higher speed internet service did not justify the costs. One ranch family provides an interesting example of the cost benefit analysis. They were operating their ranch at a net loss. The family used a dial-up connection, costing \$19.95 a month. The husband noted, “I hear \$50 a month [for high-speed internet] is cheap.” Additionally, he continued, the “thing that scared me” away from getting WildBlue satellite was that the discounted equipment price was \$199. His wife stated, “anything we use it [the internet] for doesn’t give us any economic advantage” and the rancher added, “\$20 is high for what we use it for.” Since they saw the internet as not contributing financially to the ranch or the family, increased spending on the service seemed unreasonable. The family decided to remain on dial-up because the husband argued that high-speed internet cost a lot of money and people “don’t know

¹¹⁵⁵ Ranchers (1D-WY), Interview with the Author, May 11, 2007.

¹¹⁵⁶ Rural Non-Ranch Resident and Energy Healer (3D-WY), Interview with the Author, May 17, 2007.

¹¹⁵⁷ Computer Service and Repair Business Owner (4F-WY), Interview with the Author, June 22, 2007; Ranch Woman, Business Owner, and Former Chamber of Commerce Director (9B-WY), Interview with the Author, July 10, 2007; Family and Consumer Science Teacher and Town Resident (29D-WY), Interview with the Author, June 25, 2007; Business and Computer Teacher and Town Resident (34D-WY), Interview with the Author, July 9, 2007.

the value of a dollar anymore. One hundred dollars to me is still a good chunk of money.”¹¹⁵⁸ This family, along with others, thought that WildBlue’s prices, which the company believed were “affordable,” were too expensive for them.¹¹⁵⁹ Several ranchers concurred, stating that cost was their foremost consideration in making internet choices.¹¹⁶⁰ Some of these people had ready access to the internet at work and therefore did not want to pay for it at home.¹¹⁶¹ A computer repair person and rancher noted that satellite internet was a “big expense” because of the monthly service fees and the initial equipment cost. He stated that for the “vast majority” of his customers, himself included, the internet “is not that important.”¹¹⁶² Ranchers felt that the costs of phone service and satellite television service were expensive and they did not also want to pay for satellite internet, which one rancher noted is “expensive in my estimation.”¹¹⁶³ The rancher admitted to being “kinda limited in funding” which explained his reluctance to sign up

¹¹⁵⁸ Ranchers (1D-WY), Interview with the Author, May 11, 2007.

¹¹⁵⁹ Under the heading “AFFORDABLE,” WildBlue states, “With packages as low as \$49.95 per month, WildBlue is very affordable.” “About WildBlue High-Speed Internet via Satellite,” WildBlue website, URL: <http://www.wildblue.com/aboutWildblue/index.jsp> (accessed June 23, 2009).

¹¹⁶⁰ Ranch Woman and Extension Educator (10D-WY), Interview with the Author, May 21, 2007; Ranch Woman and Special Education Teacher (11D-WY), Interview with the Author, July 5, 2007; Rancher and Truck Driver (24D-WY), Interview with the Author, June 20, 2007; Ranchers (39D-WY), Interview with the Author, July 18, 2007; Computer Service and Repair Business Owner (4F-WY), Interview with the Author, June 22, 2007; Ranch Woman, Business Owner, and Former Chamber of Commerce Director (9B-WY), Interview with the Author, July 10, 2007; Chairman of the County Commissioners (10B-WY), Interview with the Author, July 12, 2007 all said this about other people and teachers 34D and 29D mentioned cost as a hindrance to rural students getting internet access. Family and Consumer Science Teacher and Town Resident (29D-WY), Interview with the Author, June 25, 2007; Business and Computer Teacher and Town Resident (34D-WY), Interview with the Author, July 9, 2007.

¹¹⁶¹ Chairman of the County Commissioners (10B-WY), Interview with the Author, July 12, 2007; Ranch Woman and Office Manager (9D-WY), Interview with the Author, May 21, 2007; Ranch Woman and Special Education Teacher (11D-WY), Interview with the Author, July 5, 2007; Ranch Woman, Business Owner, and Former Chamber of Commerce Director (9B-WY), Interview with the Author, July 10, 2007.

¹¹⁶² Computer Service and Repair Business Owner (4F-WY), Interview with the Author, June 22, 2007.

¹¹⁶³ Quoted from Ranchers (39D-WY), Interview with the Author, July 18, 2007; also Rancher and Truck Driver (24D-WY), Interview with the Author, June 20, 2007; Ranch Woman (8D-WY), Interview with the Author, May 18, 2007.

for satellite internet that he saw as expensive.¹¹⁶⁴ Another rancher did not have a computer due to the “cost of computers.” She noted she and her husband did not buy one because they “haven’t seen a real need for it” and “\$800 is a lot of money.”¹¹⁶⁵ People living too far from town to access line-of-sight wireless and unwilling or unable to pay for satellite internet often chose to eschew internet service at home.

Others highlighted the fact that they chose their high-speed provider precisely because it cost less than others.¹¹⁶⁶ One woman who telecommuted to work and school noted she chose the line-of-sight provider because it was “less expensive than some other options.”¹¹⁶⁷ One rancher had satellite internet because her children wanted it, but she noted it “took quite a while before we went ahead and spent the money” for satellite internet because “it was just so pricey.”¹¹⁶⁸ Another rancher in the far north of the county found her WildBlue satellite not only faster than dialup but also less expensive because she paid her monthly service fees plus long distance charges for access on dial-up.¹¹⁶⁹

People who did not have internet access at home but who lived far from town had friends and family look up data, bid on e-Bay items, and do other online tasks on their behalf.¹¹⁷⁰ One woman stated a “friend that lives down the road, she has gotten on the internet for me. I was actually lookin’ for a wheat grinder on e-Bay.” Although the

¹¹⁶⁴ Ranchers (39D-WY), Interview with the Author, July 18, 2007.

¹¹⁶⁵ Ranch Woman (8D-WY), Interview with the Author, May 18, 2007.

¹¹⁶⁶ Rural Non-Ranch Resident and Telecommuter (21D-WY), Interview with the Author, June 14, 2007; Ranch Woman (23D-WY), Interview with the Author, June 19, 2007; Rancher (30D-WY), Interview with the Author, June 27, 2007. 9D was looking into Wild Blue because it was “cheaper” than other providers. Ranch Woman and Office Manager (9D-WY), Interview with the Author, May 21, 2007.

¹¹⁶⁷ Rural Non-Ranch Resident and Telecommuter (21D-WY), Interview with the Author, June 14, 2007.

¹¹⁶⁸ Ranch Woman (37D-WY), Interview with the Author, July 12, 2007.

¹¹⁶⁹ Ranchers (14D-WY), Interview with the Author, May 23, 2007.

¹¹⁷⁰ Ranch Woman (8D-WY), Media Diary, Postmarked June 11, 2007; Ranch Woman (28D-WY), Media Diary, Postmarked July 30, 2007; Ranch Woman (30D-WY), Media Diary, Postmarked July 6, 2007; also Rancher and Ranch Wife (31D-WY), Interview with the Author, June 20, 2007; Ranch Woman (28D-WY), Interview with the Author, June 25, 2007.

device ended up costing her more than she had hoped to pay, she wanted a wheat grinder because “food is so expensive.” She now buys wheat through the bulk food store and grinds it herself.¹¹⁷¹

Ranchers were divided on whether the internet was a necessity for rural Americans. Few would clearly state that it was a necessity or it was not. Ten interviewees responded that the internet was a necessity. Those who were certain that internet was a necessity were largely those who had high-speed access at home and used it frequently.¹¹⁷² One ranch woman said it is necessary because of the distance between her home and the town.¹¹⁷³ A 72-year-old rancher insightfully stated that the internet is a necessity for him, but “if you never had it, it isn’t really important.”¹¹⁷⁴ Many noted that it fell somewhere in between a necessity and a luxury. The ranchers, being practical people, stated that internet was not a necessity like food, water, and electricity. One argued that the internet was not “critical.”¹¹⁷⁵ Several people who said it was not a necessity maintained that it was “a huge benefit,”¹¹⁷⁶ “a helpful tool,”¹¹⁷⁷ and “an

¹¹⁷¹ Economics was clearly an issue for this couple. The wife estimated their net income to be \$35,000 to \$45,000 a year. In addition to grinding her own wheat to save money on food, she wrote that “we NEVER Go to the Movies—too expensive & not in town that late to go to a show.” Additionally, she and her husband did not have satellite television, partially due to expense and partially because her husband said “he could get addicted to TV.” Discussion about having her neighbor use the internet for her and about satellite television from Rancher and Ranch Wife (31D-WY), Interview with the Author, June 20, 2007; discussion of the movies from Rancher and Ranch Wife (31D-WY), Media Diary, Postmarked October 2, 2007.

¹¹⁷² Rural Non-Ranch Resident and Energy Healer (3D-WY), Interview with the Author, May 17, 2007; Ranch Woman and Special Education Teacher (11D-WY), Interview with the Author, July 5, 2007; Ranch Woman and Business Owner (12D-WY), Interview with the Author, May 21, 2007; Ranch Wife and Medical Transcriptionist (16D-WY), Interview with the Author, June 6, 2007; Ranch Woman (19D-WY), Interview with the Author, June 12, 2007; Ranchers (20D-WY), Interview with the Author, June 12, 2007; Ranch Woman (23D-WY), Interview with the Author, June 19, 2007; Ranch Woman (37D-WY), Interview with the Author, July 12, 2007; Ranch Woman (38D-WY), Interview with the Author, July 13, 2007.

¹¹⁷³ Ranch Woman and Business Owner (12D-WY), Interview with the Author, May 21, 2007.

¹¹⁷⁴ Ranchers (20D-WY), Interview with the Author, June 12, 2007.

¹¹⁷⁵ Farmers and Ranchers (36D-WY), Interview with the Author, July 10, 2007.

¹¹⁷⁶ Rural Non-Ranch Resident and Telecommuter (21D-WY), Interview with the Author, June 14, 2007.

improvement”¹¹⁷⁸ even though it was a “luxury.”¹¹⁷⁹ Others felt it was becoming necessary.¹¹⁸⁰ Five people stated they did not think it was necessary at all.¹¹⁸¹

Some interviewees felt the internet provided more benefit to the region than it did to urban areas because in the words of the Chairman of the County Commissioners, “everybody’s so isolated.”¹¹⁸² The school superintendent argued that high-speed internet was essential because “the more isolated you are, the more you need it.”¹¹⁸³ The teacher of household and consumer science thought that since the town was isolated and did not “have the services of big metropolitan areas” the internet was a helpful step in leveling the playing field between rural and urban areas.¹¹⁸⁴ Others noted that the internet brought a different culture and mindset to the area, which they believed was positive. A small business woman who lived in town remarked that “because we are so remote and we’re so global” access to the internet is a necessity. She continued, “I think the mentality in Wyoming is cattle and oil. That has to change....”¹¹⁸⁵ A town resident and retailer believed the internet was necessary and important because “otherwise, time would stop

¹¹⁷⁷ Ranch Woman (28D-WY), Interview with the Author, June 25, 2007.

¹¹⁷⁸ Rancher and Ranch Wife (31D-WY), Interview with the Author, June 20, 2007.

¹¹⁷⁹ Rancher (13D-WY), Interview with the Author, May 22, 2007; Rancher (30D-WY), Interview with the Author, June 27, 2007.

¹¹⁸⁰ Ranch Woman and Office Manager (9D-WY), Interview with the Author, May 21, 2007; Rancher, Farmer, Business Proprietor (22D-WY), Interview with the Author, June 18, 2007; Rancher and Town Dweller (35D-WY), Interview with the Author, July 9, 2007; Rancher (6D-WY), Interview with the Author, May 16, 2007.

¹¹⁸¹ Ranchers (1D-WY), Interview with the Author, May 11, 2007; Artist and Ranch Woman (2D-WY), Interview with the Author, May 12, 2007; Ranchers and Store Owners (7D-WY), Interview with the Author, June 15, 2007; Rural Business Owner (17D-WY), Interview with the Author, June 8, 2007; Rancher and Truck Driver (24D-WY), Interview with the Author, June 20, 2007; Resident and Day Care Provider (25D-WY), Interview with the Author, June 20, 2007.

¹¹⁸² Chairman of the County Commissioners (10B-WY), Interview with the Author, July 12, 2007.

¹¹⁸³ School Superintendent (1B-WY), Interview with the Author, May 7, 2007.

¹¹⁸⁴ Family and Consumer Science Teacher and Town Resident (29D-WY), Interview with the Author, June 25, 2007.

¹¹⁸⁵ Creator of Christmas Items and Town Dweller (18D-WY), Interview with the Author, June 11, 2007; Medical Transcriptionist and Town Dweller (15D-WY), Interview with the Author, June 5, 2007 expressed similar sentiments.

here.”¹¹⁸⁶ Interestingly, the above comments are all, with the exception of the Chairman of the County Commissioners, from town residents.

One method helpful to exploring people’s views about high-speed internet is to compare access and subscription to high-speed internet with access and subscription to another similarly priced communication and media service, here satellite television service. Based on interviewees’ reports, respondents paid, on average roughly the same amounts for internet and satellite television per month. The mean service fee paid by those who had internet at home was \$50.42 per month and the mean cost of satellite television at home was \$52.52 per month. The range of internet prices varied from \$12.95 to \$130 a month, and the median price for internet was \$49.95. If only prices for higher-speed internet options are used, the mean was \$54.67, the range was \$14.95 to \$130, and the median fell between \$49.95 and 49.99. The range of reported satellite television subscription fees varied from a low of \$19 and a high of \$89 and the median price paid was \$50 per month. Thus, the costs for internet and satellite were nearly the same. The importance of the cost-benefit analysis must be highlighted because the same people who paid \$50 a month for satellite television service balked at paying a similar amount for high-speed internet service. For these folks, satellite television passed the cost benefit analysis as they got a variety of entertainment via their television service, whereas they viewed the internet as less necessary because they felt that it was a bill they could do without, although the services were similarly priced.

People found the internet useful for a wide variety of applications including local news and weather and cattle prices. Additionally because the community was small and

¹¹⁸⁶ Retail Store Owner, Clothing Manufacturer (4D-WY), Interview with the Author, May 14, 2007.

relatively isolated, people found online shopping particularly useful. One woman, seeking to explain the wide variety of products available online, noted she could buy “corsets from England” if she chose.¹¹⁸⁷ Another great opportunity was the internet’s capacity to connect communities of interest. One web designer and computer repair person argued the benefit of the internet is that it “connects people with disparate hobbies, interests.”¹¹⁸⁸ A natural rancher agreed. Surrounded by conventional producers, he stated the internet “certainly helps us” because “it would be harder for us to do what we do [raising natural beef]” because “living where we live, we just don’t get the information” as they are the only natural beef producers in the area.¹¹⁸⁹

The internet opened up possibilities to cure a long-standing problem in the region, the lack of local news due to the region’s designated metropolitan area (DMA) for television and the inability to get rural delivery of the newspapers. One factor leading to the lack of local news was that the region was in the Denver DMA for television. A cable provider in the region noted that the county fell in the Denver DMA or designated market area because from the 1960s, the microwave system went from Denver to the county.¹¹⁹⁰ Several people mentioned their frustration with Denver being their “local” stations rather than receiving local stations in Casper, Wyoming, or Rapid City, South Dakota, both of which were much closer to Niobrara County.¹¹⁹¹ For one woman, this

¹¹⁸⁷ Rancher, Farmer, Business Proprietor (22D-WY), Interview with the Author, June 18, 2007.

¹¹⁸⁸ Web Design, Computer Repair, Consulting, Networking Business Owner (7F-WY), Interview with the Author, July 18, 2007.

¹¹⁸⁹ Natural Rancher (5D-WY), Interview with the Author, May 15, 2007.

¹¹⁹⁰ General Manager, Incumbent Cable Provider (3F-WY), Interview with the Author, June 21, 2007.

¹¹⁹¹ Ranch Woman and Business Owner (12D-WY), Interview with the Author, May 21, 2007; Rancher (13D-WY), Interview with the Author, May 22, 2007; Ranchers (14D-WY), Interview with the Author, May 23, 2007; Ranchers (20D-WY), Interview with the Author, June 12, 2007; Rural Non-Ranch Resident and Telecommuter (21D-WY), Interview with the Author, June 14, 2007; Ranch Woman (23D-WY), Interview with the Author, June 19, 2007; Rancher (30D-WY), Interview with the Author, June 27,

was a “pet peeve.” She believed that the satellite providers “should allow me to say what local station” she received and argued she would “switch to Rapid City in a heartbeat because they have our news.”¹¹⁹² The problem with receiving Denver as their “local” station is that Denver is 258 miles away. People felt that they did not have local television at all.¹¹⁹³

The result of not having any truly local television reception was that the rural residents received no local news or weather.¹¹⁹⁴ People had multiple choices to overcome this lack of local information. One family used a TV antenna in addition to their satellite reception to get local weather forecasts.¹¹⁹⁵ Another option was to subscribe to a special package from the satellite television provider. This required an additional dish and an extra monthly fee.¹¹⁹⁶ No one mentioned using this option. There were also radio stations available and some people used radio from neighboring counties for news¹¹⁹⁷ but people had trouble with radio reception,¹¹⁹⁸ had no reception,¹¹⁹⁹ or they got few stations making this a less than satisfactory option.¹²⁰⁰ People could also procure local news

2007; Ranch Woman (32D-WY), Interview with the Author, July 5, 2007; Ranch Woman (33D-WY), Interview with the Author, July 5, 2007; Ranch Woman (37D-WY), Interview with the Author, July 12, 2007.

¹¹⁹² Ranch Woman and Business Owner (12D-WY), Interview with the Author, May 21, 2007.

¹¹⁹³ Ranch Woman (30D-WY), Media Diary, Postmarked July 6, 2007; Ranch Woman and Business Owner (12D-WY), Media Diary, Post Marked July 9, 2007; Ranch Woman and Business Owner (12D-WY), Interview with the Author, May 21, 2007; Ranch Woman (33D-WY), Interview with the Author, July 5, 2007; Ranch Woman (37D-WY), Interview with the Author, July 12, 2007.

¹¹⁹⁴ Ranch Woman and Business Owner (12D-WY), Interview with the Author, May 21, 2007; Rural Non-Ranch Resident and Telecommuter (21D-WY), Interview with the Author, June 14, 2007; Ranch Woman (23D-WY), Interview with the Author, June 19, 2007; Ranch Woman (33D-WY), Interview with the Author, July 5, 2007.

¹¹⁹⁵ Ranchers (1D-WY), Interview with the Author, May 11, 2007.

¹¹⁹⁶ Ranch Woman (32D-WY), Interview with the Author, July 5, 2007.

¹¹⁹⁷ Rancher (30D-WY), Interview with the Author, June 27, 2007; Ranch Woman (37D-WY), Interview with the Author, July 12, 2007.

¹¹⁹⁸ Rancher (30D-WY), Interview with the Author, June 27, 2007.

¹¹⁹⁹ Ranch Woman and Business Owner (12D-WY), Interview with the Author, May 21, 2007.

¹²⁰⁰ Ranch Woman (37D-WY), Interview with the Author, July 12, 2007.

through the newspapers, but the region did not have newspaper delivery, thus papers came through the mail and people received old news.¹²⁰¹ Most people with access to the internet relied on it for information and news. People checked the local news and weather with their internet connections.¹²⁰² One woman noted if she “heard things, like a death” she went to the “Casper *Star*’s website and look[ed] up the information.”¹²⁰³ Another ranch woman reported looking at four or five newspapers online to stay informed.¹²⁰⁴ A rancher noted that the internet’s “main value” is information and news and that “I don’t use it much for entertainment.”¹²⁰⁵

Rural Women and High-Speed Internet

In this county, the promise of the internet and the death of distance were particularly noticeable for women. A representative from the neighboring county’s new development organization argued that the internet was “changing a lot of lives.” She noted that broadband internet was especially giving rural women new opportunities because ranchers’ wives could be at home, running a business, a feat that was much more difficult without access to high-speed internet.¹²⁰⁶ The community college’s Dean of

¹²⁰¹ Ranchers (20D-WY), Media Diary, Post Marked June 25, 2007; Ranch Woman (30D-WY), Media Diary, Postmarked July 6, 2007; Web Design, Computer Repair, Consulting, Networking Business Owner (7F-WY), Interview with the Author, July 18, 2007; Rancher (30D-WY), Interview with the Author, June 27, 2007.

¹²⁰² Ranch Woman and Business Owner (12D-WY), Interview with the Author, May 21, 2007; Rancher (13D-WY), Interview with the Author, May 22, 2007; Rural Non-Ranch Resident and Telecommuter (21D-WY), Interview with the Author, June 14, 2007; Ranch Woman (23D-WY), Interview with the Author, June 19, 2007; Rancher (30D-WY), Interview with the Author, June 27, 2007; Ranchers (20D-WY), Interview with the Author, June 12, 2007; Ranch Woman (33D-WY), Interview with the Author, July 5, 2007; Ranchers (14D-WY), Interview with the Author, May 23, 2007.

¹²⁰³ Rural Non-Ranch Resident and Telecommuter (21D-WY), Interview with the Author, June 14, 2007.

¹²⁰⁴ Ranch Woman and Business Owner (12D-WY), Interview with the Author, May 21, 2007.

¹²⁰⁵ Rancher (13D-WY), Interview with the Author, May 22, 2007.

¹²⁰⁶ Economic Development Officer (5B-WY), Interview with the Author, May 16, 2007.

Instruction—Outreach and Lifelong Learning stated that broadband and outreach classes allowed a lot of women to complete their college degrees.¹²⁰⁷ A handful of women in the county telecommuted to their jobs, doing data work for companies located far from their homes. It was the women in Niobrara County, not the men who largely ranched, that appeared to benefit the most from high-speed internet and telecommuting opportunities.

Women in the area did three types of work using the internet. First was running their own businesses and using the internet to market their products. This was the case for women involved in handicraft production. Some women in the region took their knowledge of handicrafts, often associated with a traditional way of living, and used the internet to order supplies, market products using websites, and get ideas.¹²⁰⁸ One woman noted that the internet brought a “merging of traditional craftwork with new technology.”¹²⁰⁹ For her embroidery business, another ranch woman used the internet to look up designs.¹²¹⁰ A woman in town who sold quilts and crafts recently added her business to a state website promoting “strictly Wyoming products.” She had been on the site for two months and had received four emails, which she thought was “pretty good” for her business. To her, the value of the internet was making connections in other states, including Texas and Michigan, connections she said that she would not have made without the device.¹²¹¹ Another woman, the retailer of handmade clothes, found it useful because she created a website and sells online. The internet gave her an opportunity to

¹²⁰⁷ Community College Outreach Coordinator (3B-WY), Interview with the Author, May 10, 2007.

¹²⁰⁸ Ranch Woman and Embroiderer (1D-WY), Interview with the Author, May 11, 2007; Creator of Christmas Items and Town Dweller (18D-WY), Interview with the Author, June 11, 2007.

¹²⁰⁹ Creator of Christmas Items and Town Dweller (18D-WY), Interview with the Author, June 11, 2007.

¹²¹⁰ Ranch Woman and Embroiderer (1D-WY), Interview with the Author, May 11, 2007; Ranch Woman and Embroiderer (1D-WY), Media Diary, Post Marked October 2007.

¹²¹¹ Quilt Maker, Restaurateur, Fire Works Seller, Town Resident (27D-WY), Interview with the Author, June 27, 2007.

“broaden my customer base” and she remarked that the internet had “added a 13th month to sales” at her business. Internet orders for custom clothing came from across the United States, including “cowboy shirts to people in the Bronx, riding skirts to Minnesota, Texas, California; square dance outfits to Georgia.” She noted the internet orders were “primarily just the U.S.” but it was “amazing to me that people are so dissatisfied with the clothes out there” that they order them from a maker in Wyoming.¹²¹² In addition to online sales, she said she used the internet to research sources and suppliers.

Additionally, it was becoming financially smart for her to order online as “some of my companies are encouraging orders over the internet” and are providing a “monetary incentive” to make the switch.¹²¹³ A woman who made elaborate and intricate handmade Santa Clauses and other Christmas items noted, “doing business online is real easy for women.” Even more importantly, it was “a passive way for being real aggressive,” meaning women could quietly do something that would greatly improve their lives.¹²¹⁴

Others who did not have internet access could see its value to handicrafts businesses. One ranch woman and artist noted that while she did not have a computer or access to the internet at home, she could see the value in them. She said she was “getting a card business going” and that the “internet would be helpful” with it. She continued that “for cards and artwork, it’d be interesting to play around” on the computer.¹²¹⁵

The ranch wife and businesswoman who benefited most from information and communication technologies in the county was the maker of a beeswax hand cream.

¹²¹² Retail Store Owner, Clothing Manufacturer (4D-WY), Interview with the Author, May 14, 2007.

¹²¹³ Ibid.

¹²¹⁴ Creator of Christmas Items and Town Dweller (18D-WY), Interview with the Author, June 11, 2007.

¹²¹⁵ Rancher and Ranch Wife (31D-WY), Interview with the Author, June 20, 2007.

Microsoft featured her and her product in one of their commercials highlighting the county in 1999. Even though the fiber optic project came to naught, the town thought it was valuable anyway because it boosted the profile of the region. The woman remarked that the advertisement, which was for Microsoft products, “kinda made my business” and that “sales grew 212%” the quarter after the commercial aired. This enabled her to employ five ranch wives and she called this a “Cinderella story.”¹²¹⁶ She now resides in Colorado and uses the internet for multiple facets of her business, although around the time of the Microsoft commercial, she was just putting up a website.¹²¹⁷ For this woman, it was not technology that furthered her business so much as it was the hype about technology that ended up increasing the exposure her business received and therefore increasing sales.

Although many women found benefit in the internet for their own businesses, the device’s value for ranching and farming needs to be remembered. Some producers, especially those with purebred animals, used the internet to sell cattle.¹²¹⁸ Another family, in addition to cattle ranching, grew winter wheat. In 1999, they started selling natural stone ground whole wheat bread, muffin, and pancake mixes to provide customers with healthy natural products and also to “educat[e] America about agriculture.”¹²¹⁹ This was a family business, they ground the wheat on their ranch and their daughters sewed decorative pouches for gift packages. The family started a website to advertise their whole wheat mixes and they found that “sales have increased” as a result and the

¹²¹⁶ Hand Cream Business Owner (40D-WY), Interview with the Author, Colorado, July 22, 2007.

¹²¹⁷ Ibid.

¹²¹⁸ 36D mentioned they knew Angus producers using the internet to sell cattle. Farmers and Ranchers (36D-WY), Interview with the Author, July 10, 2007.

¹²¹⁹ Farmers and Ranchers (36D-WY), Interview with the Author, July 10, 2007.

exposure had taken their products from coast to coast.¹²²⁰ Family businesses and ranches, thus, were also benefiting from the internet.

Second, a handful of women in the region were telecommuters. Paid work for women off the farm increased relative to both farm men and the past during the farm crisis of the 1980s.¹²²¹ Households required additional income and the relative expansion of the service sectors, opened up jobs for women.¹²²² Rural sociologists working in the U.S. question the death of distance or “deconcentration explanation” as they find that rural commuting “primarily occurs from nonmetropolitan to metropolitan areas.”¹²²³

For the ranch women in the county, however, commuting to a city is unrealistic. The nearest metro is over an hour away. Some women commute to, and work in, Lusk. The vast majority of jobs in Lusk, however, are service positions. Some women with university educations are underemployed in the region because jobs appropriate to their skill levels are not available.¹²²⁴

There are limited employment opportunities for women in rural areas. Rural sociologists Leann M. Tigges and Glenn V. Fuguitt argue that commuting should appeal to rural women more than men because “nonmetropolitan jobs provide lower returns to women’s human capital (McLaughlin and Perman 1991), are more gender segregated (Cotter et al. 1996), are less likely to provide adequate hours or wages (Jensen et al.

¹²²⁰ Ibid.

¹²²¹ William W. Falk and Linda M. Lobao, “Who Benefits from Economic Restructuring?” in *Challenges for Rural American in the Twenty-First Century*, ed. David L. Brown and Louis E. Swanson (University Park: The Pennsylvania State University Press, 2003), 160.

¹²²² Ibid., 159.

¹²²³ Leann M. Tigges and Glenn V. Fuguitt, “Commuting: A Good Job Nearby?” in *Challenges for Rural American in the Twenty-First Century*, ed. David L. Brown and Louis E. Swanson (University Park: The Pennsylvania State University Press, 2003), 169.

¹²²⁴ Ibid., 171.

1999), and often fail to provide health benefits (Peters and MacDonald 1994).”¹²²⁵

Despite the inequalities, however, nonmetropolitan women work closer to their residences than men do.¹²²⁶ For women, traditional commuting was not an option as nearby towns offered low-paying service jobs and cities lay beyond commuting distance.

Studies in rural sociology show that men and women residing in rural counties earn more from commuting out of their home counties.¹²²⁷ Traversing space to seek employment, however, is not always feasible. This gestures to the “spatial entrapment” thesis, which argues that wives and mothers, due to their domestic responsibilities, are more limited or “contained” in their job searches.¹²²⁸ Telecommuting allowed women to traverse space without leaving home and it allowed them to find jobs that were better matched to their skills than the jobs in town.

A few took online medical transcription courses and got jobs as medical transcriptionists for hospitals outside of their immediate regions or in other states. Another woman in the county collected and did “value and use reports” for a multinational consumer products company.¹²²⁹ The University of Wyoming’s Extension Educator listed at least four women in the area who did medical transcribing. She noted that “Ladies do medical transcribing via the internet” and that the internet has created “other jobs too.” She remarked, “a lot of people are moving to rural areas” because “they can do their job here as well as in L.A. or New York.”¹²³⁰ Here the extension educator

¹²²⁵ Ibid., 172.

¹²²⁶ Ibid., 172.

¹²²⁷ Ibid., 172.

¹²²⁸ Ibid., 174.

¹²²⁹ Rural Non-Ranch Resident and Telecommuter (21D-WY), Interview with the Author, June 14, 2007.

¹²³⁰ Ranch Woman and Extension Educator (10D-WY), Interview with the Author, May 21, 2007.

employed the death of distance trope; that access to telecommunications allowed people to work from anywhere. For the county under consideration, however, this was more an ideal than reality. The telecommuters were all women who lived in the area before taking up their jobs.

The women who chose this path found their new careers offered them economic rewards and greater challenges than jobs available to them in town. A medical transcriptionist that worked from her home in town noted that the internet was giving rural people the opportunity to work from home and to “make more money than they’ve ever made before.”¹²³¹ A ranch wife and medical transcriptionist stated that “most ranchers...their wives are working in town” but in town people “really can’t make a wage that justifies your travel expenses” and she added “as a woman.” The jobs available for women in the tiny town tended to be in retail and service. With what ranchers viewed as the high costs of gas in 2007 and the many miles rural residents had to drive into town, some women were unwilling to take the poorly paid service jobs available. One woman who wanted to take the online medical transcription course said she would get \$8 an hour working in town, whereas medical transcription paid \$12 an hour, and if a transcriptionist got good, “[she is] paid more than that.”¹²³² Telecommuting was a financially appealing option.

Additionally, online careers offered women more challenging work than many of the jobs available in town. For one woman, medical transcription was a way to challenge herself while also being on the ranch, where her husband wanted to be. She valued her job because she was “able to stay home with my kids.” The woman noted that she often

¹²³¹ Medical Transcriptionist and Town Dweller (15D-WY), Interview with the Author, June 5, 2007.

¹²³² Ranch Woman (8D-WY), Interview with the Author, May 18, 2007.

began work at four in the morning and her work station was tucked into the kitchen of her trailer home. While this was a traditional approach to work, because she was tied to her home and children, there was an aspect of the job that was for her improvement and self-esteem. She revealed that she wanted a job where she felt “mentally challenged.” She said she “wanted to do something so I could feel smarter.” Thus, she took the online course for medical transcription, a course nine months in duration for five hours a day.¹²³³

Other women were aware of the possibilities of telecommuting even if they did not engage in it. A 37-year-old “self-employed rancher” stated “I know people who have gotten jobs with internet” including “medical transcription” and people “had to have high-speed internet to do that.”¹²³⁴ A woman who did not have access to the internet at home could see the benefits it brought other women in the region. A ranch woman without a computer or access to the internet noted that there were women doing medical transcription, what she called a “tracking business,” and a woman in a neighboring town was doing “bookkeeping for Amazon” online and she stated, “...I’m looking at having the high-speed so I can have a job here.”¹²³⁵ Although women in the region viewed telecommuting opportunities highly, the community college’s Dean of Instruction—Outreach and Lifelong Learning noted that there was a “risk” with women in the transcription business because it can slot them into an “employment level that was piece work” and where employees are treated poorly.¹²³⁶

¹²³³ Ranch Wife and Medical Transcriptionist (16D-WY), Interview with the Author, June 6, 2007.

¹²³⁴ Ranch Woman (33D-WY), Interview with the Author, July 5, 2007.

¹²³⁵ Ranch Woman (8D-WY), Interview with the Author, May 18, 2007.

¹²³⁶ Dean of Instruction—Outreach and Lifelong Learning, Community College (6B-WY), Interview with the Author, June 13, 2007.

Third, the internet provided women with the opportunity to continue their educations, without driving long distances. The community college's education outreach coordinator stated that all of the county's residents were benefiting from improved distance learning, but she singled out "working mothers, single mothers" as those who especially benefited.¹²³⁷ One local teacher noted that "adult education, [the] opportunity to work on associate degrees is phenomenal" for the tiny town. She personally benefited from online education as she remarked, "I would have never done my Master's degree if I couldn't do it distance...I need to work."¹²³⁸ The telecommuter who compiled value and use reports also was completing her Bachelor's degree in business administration online through the University of Wyoming.¹²³⁹ Again, a woman who did not have the internet at home could see the possibilities. This woman, whose husband refused to have a computer or internet access in his home, could see the opportunities provided by the internet to rural Americans. Once her husband left the room, she argued, "it [high-speed internet] is wonderful, remarkable."¹²⁴⁰ On the top of her list was education, she asked rhetorically, "how many people who've gotten their teaching degrees?" lived in the county. A teacher in the county said that the national teaching certification program had moved online and that students could pursue teaching certification from the small town.¹²⁴¹ Another woman who did not have internet access at home and who lived 46 miles from town noted that she knows "some people that have been taking courses

¹²³⁷ Community College Outreach Coordinator, Community Education Office (3B-WY), Interview with the Author, May 10, 2007.

¹²³⁸ Family and Consumer Science Teacher and Town Resident (29D-WY), Interview with the Author, June 25, 2007.

¹²³⁹ Rural Non-Ranch Resident and Telecommuter (21D-WY), Interview with the Author, June 14, 2007.

¹²⁴⁰ Ranch Woman (24D-WY), Interview with the Author, June 20, 2007.

¹²⁴¹ Family and Consumer Science Teacher and Town Resident (29D-WY), Interview with the Author, June 25, 2007.

online” and she followed this with “That’d be something I’d be interested in.” She had a Bachelor of Science degree in elementary education.¹²⁴² Another rancher thought that online education would help level the playing field between rural and urban areas. She commented, “I think it already does that...there are a lot of people that are gettin’ their degrees online, like gettin’ it through the mail,” but it is “better now” because students “can actually sit in on the class.” And, she concluded, they “got that opportunity because of the internet. I think it’s really gonna help education-wise, in all ways.”¹²⁴³

Men and women in the region were interested in improving their lives using the internet. One high-speed internet provider remarked that there was “a lot of interest in online work, jobs, training” but that the people in the region were “less qualified” for online jobs than many people from urban areas. He argued that many people in rural areas lack the “skill sets” to take highly paid jobs in marketing, computer programming, and intellectual knowledge management.¹²⁴⁴ As such, he remarked, they were resorting to other kinds of businesses, like the “woman in Kansas” that “sells tumbleweed.”¹²⁴⁵ He was being derisive but for many women, their craft skills and, in the case of the tumbleweed saleswoman, ingenuity were helping them to pay their expenses.

¹²⁴² Ranch Woman (31D-WY), Interview with the Author, June 28, 2007.

¹²⁴³ Ranch Woman (23D-WY), Interview with the Author, June 19, 2007.

¹²⁴⁴ General Manager, Wild Blue Distributor, Subsidiary of an Independent Local Exchange Carrier (ILEC) (6F-WY), Interview with the Author, Nebraska, July 11, 2007.

¹²⁴⁵ General Manager, Wild Blue Distributor, Subsidiary of an Independent Local Exchange Carrier (ILEC) (6F-WY), Interview with the Author, Nebraska, July 11, 2007; Robert Deitz, “Windfall Profits,” *Business Week* (January 31, 2000), URL: <http://www.businessweek.com/smallbiz/0003/ep3666038.htm> (accessed May 13, 2009).

Updating Hardware

Another facet to consider is ranchers' attitudes toward upgrading hardware and communications equipment. To make effective use of communication networks, people must invest in hardware. Some people strongly resisted upgrading their devices. Several people stated that one of the things that discouraged them from adopting newer communication technology was the constant necessity to upgrade. A local web designer and computer repair person noted with derision that the same ranchers who frequently replaced their vehicles wanted to keep their computer for ten years.¹²⁴⁶ For him, this showed the difference between how ranchers treat "inside versus outside stuff" where they are "so thrifty" with inside things, but are willing to spend money on outside equipment.¹²⁴⁷

Rural sociologists Cornelia Butler Flora and Jan L. Flora explain that such a division is important to success as farmers and ranchers have "large capital investment and capital risk."¹²⁴⁸ Although rural residents like North Americans in general have increased their consumption of prepared foods, clothing, and other items during the twentieth century, this consumption lags behind urban residents, partially due to a rural-urban income disparity and partly due to attitudes about consumption.¹²⁴⁹ As Flora and Flora noted in 1988, farm families use "capital for land and farm improvements instead of home consumption," a trend women's historians identified earlier in the twentieth

¹²⁴⁶ Web Design, Computer Repair, Consulting, Networking Business Owner (7F-WY), Interview with the Author, July 18, 2007.

¹²⁴⁷ Ibid.

¹²⁴⁸ Cornelia Butler Flora and Jan L. Flora, "Structure of Agriculture and Women's Culture in the Great Plains," *Great Plains Quarterly*, 8 (Fall 1988): 198.

¹²⁴⁹ Cornelia Butler Flora and Jan L. Flora with Susan Fey, *Rural Communities: Legacy and Change*, 2nd ed. (Boulder, CO: Westview Press, 2004), 271, 272.

century.¹²⁵⁰ Anticonsumption norms led ranchers to be frustrated by technological obsolescence and cheaply made consumer goods.

Ranchers noted frustration with what one called “planned obsolescence.”¹²⁵¹ Jonathan Sterne recounts that marketers and sociologists have separated such obsolescence into two types, stylistic and technological. Stylistic is when companies introduce new, more fashionable styles of an object to stimulate consumers to replace outdated versions and keep markets open. Ethnographic research revealed that stylistic obsolescence swayed few rural residents to replace items simply because they were stylistically obsolete. Technological obsolescence, Sterne observes, works in concert with the notion of “progress” and he argues the international computing industry has adopted the reasoning of technological obsolescence, ensuring that they continually develop newer, more powerful hardware and software packages driving people to replace items. Additionally, Sterne notes some companies change hardware and software to ensure older machines are rendered obsolete.¹²⁵² While some consumers eagerly await hardware and software upgrades and the chance to buy a new computer system, the rural people, used to using what they had and repairing it when broken, thought that the inability to repair broken electronics and the necessity to continually upgrade hardware and software was wasteful and wrong.¹²⁵³ One woman argued, “it’s a conspiracy...it’s like a car, you have to upgrade them all the time.”¹²⁵⁴ Some replaced items only when

¹²⁵⁰ Flora and Flora, “Structure of Agriculture and Women’s Culture,” 198.

¹²⁵¹ Rancher (6D-WY), Interview with the Author, May 16, 2007.

¹²⁵² Jonathan Sterne, “Out with the Trash: On the Future of New Media,” in *Residual Media*, ed. Charles Acland (Minneapolis: University of Minnesota Press, 2007), 20-22.

¹²⁵³ Ranch Woman (28D-WY), Interview with the Author, June 25, 2007; Rancher (6D-WY), Interview with the Author, May 16, 2007; Ranch Woman (28D-WY), Interview with the Author, June 25, 2007; Ranch Woman and Business Owner (12D-WY), Interview with the Author, May 21, 2007.

¹²⁵⁴ Ranch Woman and Business Owner (12D-WY), Interview with the Author, May 21, 2007.

the ones they had broke and repair was not possible.¹²⁵⁵ Another decided not to adopt devices at all because he knew they would soon be outdated. He stated that the media is a “giant propaganda machine...they’re working for the corporate conglomerates” and they have a “financial incentive for us to do certain things, think certain things, spend our money in certain ways.” Additionally, he stated that he was a “hold out” on technology and he had “never regretted” it because he had “saved a lot of money” by not following technologies and trends. He concluded, “planned obsolescence is not entirely ethical.”¹²⁵⁶ Some of the people in this community saw frequent upgrading as a waste of precious financial resources. People made do with older communication technology, not seeing a need to upgrade. Several people in 2007 still had analog cell phones. In this case, people chose not to upgrade because analog phones had lower bandwidths and worked better in rural areas because the signals had a longer range.¹²⁵⁷ Many had some type of analog phone,¹²⁵⁸ including a few who still had bag phones in their vehicles.¹²⁵⁹ Bag phones were powerful, rugged, and transportable cell phones, often left in vehicles due to their size. They had three watts of power; whereas the handheld cell phones of today are of significantly lower power. One rancher remarked that he used “Noah’s cell

¹²⁵⁵ Ranch Woman (28D-WY), Interview with the Author, June 25, 2007; Rancher (13D-WY), Interview with the Author, May 22, 2007.

¹²⁵⁶ Rancher (6D-WY), Interview with the Author, May 16, 2007.

¹²⁵⁷ Ranch Woman (37D-WY), Interview with the Author, July 12, 2007; Ranchers (14D-WY), Interview with the Author, May 23, 2007; Ranch Wife and Medical Transcriptionist (16D-WY), Interview with the Author, June 6, 2007.

¹²⁵⁸ Ranchers (1D-WY), Interview with the Author, May 11, 2007; Ranch Woman and Special Education Teacher (11D-WY), Interview with the Author, July 5, 2007; Ranchers (14D-WY), Interview with the Author, May 23, 2007; Ranch Woman (33D-WY), Interview with the Author, July 5, 2007.

¹²⁵⁹ Ranch Woman and Office Manager (9D-WY), Interview with the Author, May 21, 2007; Ranch Woman and Special Education Teacher (11D-WY), Interview with the Author, July 5, 2007; Ranchers (14D-WY), Interview with the Author, May 23, 2007.

phone, a bigger one, a NEC brick phone” that he used just for “emergencies.”¹²⁶⁰ Some of these phones were hand-me downs like the woman who noted, “I have an old bag phone ... I got it for my daughter when she went to college. They’ve evolved into different plans and I’ve kept it.”¹²⁶¹ People found they could not get parts for the analog phones when they broke¹²⁶² and bag phones were no longer available for purchase.¹²⁶³ Ranchers knew about the upcoming transition to digital phones.¹²⁶⁴ They viewed the transition negatively because digital phones did not work in the area.¹²⁶⁵ One rancher stated, “I know they [FCC] hurt themselves in this area” because of the transition to digital service.¹²⁶⁶

In addition to older models of cell phones, people used obsolete computers with dated software.¹²⁶⁷ One ranch couple had an older model laptop that still ran Windows ’98 in 2007,¹²⁶⁸ another subscribed to the lowest speed of line-of-sight wireless because they had a “dinosaur computer” and would receive no benefit from a faster internet package.¹²⁶⁹ The “holdout” rancher mentioned above had a hand-me down computer that

¹²⁶⁰ Ranchers (1D-WY), Interview with the Author, May 11, 2007.

¹²⁶¹ Ranch Woman and Special Education Teacher (11D-WY), Interview with the Author, July 5, 2007.

¹²⁶² Ranchers (14D-WY), Interview with the Author, May 23, 2007.

¹²⁶³ Ranch Woman (37D-WY), Interview with the Author, July 12, 2007.

¹²⁶⁴ Ranch Woman and Special Education Teacher (11D-WY), Interview with the Author, July 5, 2007; Ranchers (14D-WY), Interview with the Author, May 23, 2007; Ranch Woman (33D-WY), Interview with the Author, July 5, 2007; Rancher (30D-WY), Interview with the Author, June 27, 2007.

¹²⁶⁵ Ranch Wife and Medical Transcriptionist (16D-WY), Interview with the Author, June 6, 2007; Ranch Woman (37D-WY), Interview with the Author, July 12, 2007.

¹²⁶⁶ Rancher (30D-WY), Interview with the Author, June 27, 2007.

¹²⁶⁷ Rancher (6D-WY), Interview with the Author, May 16, 2007; Ranchers (39D-WY), Interview with the Author, July 18, 2007; Farmers and Ranchers (36D-WY), Interview with the Author, July 10, 2007.

¹²⁶⁸ Ranchers (39D-WY), Interview with the Author, July 18, 2007.

¹²⁶⁹ Farmers and Ranchers (36D-WY), Interview with the Author, July 10, 2007.

he said he “kept in a wheel barrow.”¹²⁷⁰ People used hand-me down cell phones and computers cast off by children and friends when they got newer equipment.¹²⁷¹

Some interviewees used negative language to describe the internet, cell phones, and television and their relationship to them. One rancher noted that people have an “addiction” to “communication,” “the business we do on it,” and “shopping.”¹²⁷² One rancher believed that people view cell phones as a necessity due to “social engineering”¹²⁷³ and another stated that people are “addicted” to their cell phones.¹²⁷⁴ Ranchers used the language of addiction quite frequently. People discussed being addicted to television.¹²⁷⁵ Two interviewees noted that either they or their spouses could get addicted to television.¹²⁷⁶ This negative language influenced some people’s experiences with communication technologies. Rather than a helpful tool to be welcomed into homes, some people saw communication technologies as enablers of addiction and sloth.

Diffusion of Innovations Literature

As Rogers discusses in the *Diffusion of Innovations*, communication through interpersonal networks can play a role in the adoption of an innovation.¹²⁷⁷ In the case of the rural Wyoming county, interpersonal communication played a large role in the uptake

¹²⁷⁰ Rancher (6D-WY), Interview with the Author, May 16, 2007.

¹²⁷¹ Ibid.

¹²⁷² Ranch Woman (33D-WY), Interview with the Author, July 5, 2007.

¹²⁷³ Rancher (6D-WY), Interview with the Author, May 16, 2007.

¹²⁷⁴ Ranch Woman and Extension Educator (10D-WY), Interview with the Author, May 21, 2007.

¹²⁷⁵ Ranch Wife and Medical Transcriptionist (16D-WY), Interview with the Author, June 6, 2007; Ranch Woman (31D-WY), Interview with the Author, June 28, 2007.

¹²⁷⁶ Ranch Wife and Medical Transcriptionist (16D-WY), Interview with the Author, June 6, 2007; Ranch Woman (31D-WY), Interview with the Author, June 28, 2007.

¹²⁷⁷ Rogers, *Diffusion of Innovations*, 67, 174.

of high-speed internet and also in individuals' decisions of which provider to select.

Many of those people subscribing to WildBlue did so because they heard from someone else in the county, a neighbor or a friend, that WildBlue was a good provider with affordable prices.¹²⁷⁸ One stated, "Friends had it...seemed to work."¹²⁷⁹ Another noted that a friend had "good success" with the line-of-sight provider.¹²⁸⁰ One ranch woman said that they used WildBlue because "our friends had it." She selected WildBlue over Hughes because "I had some friends that weren't that happy with it."¹²⁸¹ Some of the providers gave financial incentives for word-of-mouth promotion. Another ranch couple remarked, "we made some money from Dish for getting them customers."¹²⁸²

Rogers' diffusion of innovations paradigm holds true in the Wyoming county residents' uptake of high-speed internet. Those that were recent arrivals were more likely to subscribe to high-speed internet than those who had lived in the region for over fifteen years. The strongest indicator among interviewees for having high-speed internet at home was hailing from somewhere else. This factor supports what Rogers calls "cosmopolitanism." Nearly all of the interviewees (six of seven) who had moved to the area between two to seven years before had high-speed internet access at home. These interviewees moved to Wyoming from Colorado, California, Washington state, and Iowa and from other parts of Wyoming.¹²⁸³ Another weaker indicator of having access to

¹²⁷⁸ Ranchers (14D-WY), Interview with the Author, May 23, 2007; Ranch Woman (33D-WY), Interview with the Author, July 5, 2007; Ranch Woman (32D-WY), Interview with the Author, July 5, 2007. Another woman noted she thought about getting WildBlue and said "a friend got it up north." Ranch Woman and Office Manager (9D-WY), Interview with the Author, May 21, 2007.

¹²⁷⁹ Ranchers (14D-WY), Interview with the Author, May 23, 2007.

¹²⁸⁰ Farmers and Ranchers (36D-WY), Interview with the Author, July 10, 2007.

¹²⁸¹ Ranch Woman (37D-WY), Interview with the Author, July 12, 2007.

¹²⁸² Ranchers and Store Owners (7D-WY), Interview with the Author, June 15, 2007.

¹²⁸³ Rural Non-Ranch Resident and Energy Healer (3D-WY), Interview with the Author, May 17, 2007; Natural Rancher (5D-WY), Interview with the Author, May 15, 2007; Ranch Wife and Medical

high-speed internet at home was having a four-year college degree. Of 23 interviewees with established homes in the area who had lived there since the 1990s or earlier, thirteen people had access to the internet at home and eleven of these had high-speed internet access at home. Of these eleven with high-speed, six had Bachelor's degrees or were working on them.¹²⁸⁴ Both of the dial-up subscribers had one person in the household with a Bachelor's degree or higher.¹²⁸⁵ There are, however, cases where people with Bachelor's degrees did not have high-speed at home. Some people did not have access to the internet at home because they had ready access to it at work.¹²⁸⁶ These numbers skew the data somewhat because this included people with Bachelor's degrees. A link between income and high-speed internet cannot be analyzed because many people declined to discuss their net incomes.

Some of the interviewees who did not have access to the internet at home made the decision, as discussed above, based on finances. Only one of the four households that had a net loss the year before subscribed to high-speed internet and one subscribed to

Transcriptionist (16D-WY), Interview with the Author, June 6, 2007; Ranch Woman (23D-WY), Interview with the Author, June 19, 2007; Ranch Woman (32D-WY), Interview with the Author, July 5, 2007; Ranch Woman (33D-WY), Interview with the Author, July 5, 2007.

¹²⁸⁴ Rural Non-Ranch Resident and Energy Healer (3D-WY), Interview with the Author, May 17, 2007; Natural Rancher (5D-WY), Interview with the Author, May 15, 2007; Ranch Woman and Business Owner (12D-WY), Interview with the Author, May 21, 2007; Rancher (13D-WY), Interview with the Author, May 22, 2007; Rural Non-Ranch Resident and Telecommuter (21D-WY), Interview with the Author, June 14, 2007; Rancher (30D-WY), Interview with the Author, June 27, 2007; Farmers and Ranchers (36D-WY), Interview with the Author, July 10, 2007; Ranch Woman (37D-WY), Interview with the Author, July 12, 2007.

¹²⁸⁵ Ranchers (1D-WY), Interview with the Author, May 11, 2007; Ranchers (39D-WY), Interview with the Author, July 18, 2007.

¹²⁸⁶ Ranch Woman and Office Manager (9D-WY), Interview with the Author, May 21, 2007; Ranch Woman and Extension Educator (10D-WY), Interview with the Author, May 21, 2007; Ranch Woman (19D-WY), Interview with the Author, June 12, 2007; Ranch Woman and Special Education Teacher (11D-WY), Interview with the Author, July 5, 2007.

dialup.¹²⁸⁷ Two other women who mentioned financial difficulties, whose husbands did wage work, did not subscribe to either dial-up internet or high-speed internet.¹²⁸⁸

Besides economics, a strong factor keeping people from high-speed internet subscriptions was a more traditional, less cosmopolitan outlook. The people interviewed who shared this perspective were less inclined than the others to subscribe to high-speed internet at home and also they generally held that it was not a necessity for rural people. This group was varied in terms of highest level of education completed, with one having a bachelor's degree and another having only a grade school education;¹²⁸⁹ some of them had used the internet before and others had not. The commonality of this group was a desire to eschew a fast-paced modern life and live more slowly and simply.

As Rogers and Scott D. Mainwaring, Michele F. Chang, and Ken Anderson argue, there are also laggards and those that opt-out of innovations. There were individuals who fit these paradigms within the county. A small number of respondents and people in the community lived "off the grid" because of the expense of providing themselves with telephone and electrical service.¹²⁹⁰ One 56-year-old artist and ranch woman stated, "we just like to live simply." She and her husband lived off the grid. They did not have electric service, a telephone, television reception, or internet access. Rather than telephone her sons, she stated that she wrote them letters because "sometimes

¹²⁸⁷ 1D was on dial-up and 14D had satellite, which they found cheaper than their old dial-up connection. 6D and 28D did not have internet access at all. Ranchers (1D-WY), Interview with the Author, May 11, 2007; Ranchers (14D-WY), Interview with the Author, May 23, 2007; Rancher (6D-WY), Interview with the Author, May 16, 2007; Ranch Woman (28D-WY), Interview with the Author, June 25, 2007.

¹²⁸⁸ Ranch Woman (8D-WY), Interview with the Author, May 18, 2007; Rancher and Ranch Wife (31D-WY), Interview with the Author, June 20, 2007.

¹²⁸⁹ Artist and Ranch Woman (2D-WY), Interview with the Author, May 12, 2007; Rancher and Truck Driver (24D-WY), Interview with the Author, June 20, 2007.

¹²⁹⁰ Artist and Ranch Woman (2D-WY), Interview with the Author, May 12, 2007.

a phone call is inconvenient.” Additionally, she wrote her father every day.¹²⁹¹ Another woman who called herself a “dinosaur” shared a similar view.¹²⁹² A 39-year-old rancher was reluctant to get high-speed partially for financial reasons but he also stated he was “old fashioned” and felt that the “world moves too fast.”¹²⁹³ These were reasons not to jump onto the broadband bandwagon. One 66-year-old truck driver and rural resident stated, “I just wanna do what I wanna do instead of being dictated by electronics and machinery.”¹²⁹⁴ A 49-year-old rancher expressed a similar point of view. He disagreed with how companies wanted people to “think in certain ways” and “spend our money in certain ways” and because of this he was “a holdout.” Despite holding out, he began thinking of getting an internet subscription because with the internet, the “common man can go out and verify the facts.”¹²⁹⁵

What modern telecommunications would bring into their homes concerned another few interviewees. One woman reported that her husband would not allow a computer into her household because he “didn’t trust it.”¹²⁹⁶ A small business owner and town resident noted that she found “a whole lotta people don’t trust it [the internet]” in the area.¹²⁹⁷ Others also held this perspective but to a lesser degree, they preferred their isolation and did not wish to be connected to the modern world through telecommunications. A computer and office equipment repair, maintenance, and building service person noted that a detriment of having internet was that it “allows many

¹²⁹¹ Ibid.

¹²⁹² Ranchers (39D-WY), Interview with the Author, July 18, 2007.

¹²⁹³ Ranchers (1D-WY), Interview with the Author, May 11, 2007.

¹²⁹⁴ Rancher and Truck Driver (24D-WY), Interview with the Author, June 20, 2007.

¹²⁹⁵ Rancher (6D-WY), Interview with the Author, May 16, 2007.

¹²⁹⁶ Hand Cream Business Owner (40D-WY), Interview with the Author, Colorado, July 22, 2007.

¹²⁹⁷ Creator of Christmas Items and Town Dweller (18D-WY), Interview with the Author, June 11, 2007.

influences into your house, living room, mind” whereas “if you were dealing with something physical, you wouldn’t let it in.”¹²⁹⁸ He chose not to have a computer and the internet at home. Another rancher feared telecommunications in general; she noted “quite frankly I guess it almost scares me where we’re going to quite rapidly lose our identity.” Additionally, online record keeping concerned this same rancher because “I really think it’s sad that we don’t have more paper trails and backups.” She said that “computers that aren’t able to be brought up” concerned her because of what information could be lost.¹²⁹⁹

Some people were reluctant to use modern communication technologies, but they felt they had to go on. One rancher who raised registered Hereford cattle for seed stock and had never used the internet noted that the “registered people” wanted pictures of the cattle via internet.¹³⁰⁰ He, therefore, was considering getting the internet to sell cattle online. The trucker said he was “forced to” get a cell phone for trucking, but would not have otherwise. Although he felt he had to get the cell for work, he revealed that he called home every day while he was on long hauls to “check in” as his wife was at home with their two young great-grandchildren.¹³⁰¹

A few interviewees noted that they were isolated and that they rarely went into town. One woman reported that she had no guests for five months and she rarely left the ranch. Her husband worked away from home, often spending days away. She had no

¹²⁹⁸ Computer Service and Repair Business Owner (4F-WY), Interview with the Author, June 22, 2007.

¹²⁹⁹ Ranchers (39D-WY), Interview with the Author, July 18, 2007.

¹³⁰⁰ Rancher and Town Dweller (35D-WY), Interview with the Author, July 9, 2007.

¹³⁰¹ Rancher and Truck Driver (24D-WY), Interview with the Author, June 20, 2007.

internet connection, satellite television, or cell phone. Thus, her landline telephone was her connection to the outside world.¹³⁰²

Advanced telecommunications in Niobrara County, Wyoming were, to a certain extent, unavailable in mid-2007. The telephone system was unreliable and did not provide residents with access to enhanced services. Residents could not reliably use cell phones in most of the county. Both of these systems relied on terrestrial technology, in the case of the former telephone wire and poles and the latter, cell towers to provide signals to subscribers' phones. The companies involved did not upgrade or install the technology needed to improve these services. Satellite television and satellite internet were widely available and in both cases, there were competitive private providers in the region. Ranchers and rural residents did subscribe to both satellite television and satellite internet service, although more subscribed to the television services. A number of factors constrained residents from signing up for satellite internet: the cost of the equipment and the monthly service fees; the lack of knowledge that a provider was available; and some concern about not knowing how to use the internet as well as skepticism and fear about what the internet would bring into peoples' homes.

This chapter illustrates that the deregulation of telecommunications has had significant effects for rural dwellers. In Niobrara County, aged, unreliable telephone equipment served rural dwellers. Newcomers to the region had difficulty getting telephone service due to the limitations of the analog equipment and the cost of trenching out new telephone lines. The decline of the principles of universal service that were the norm during the regulated monopoly era meant that rural residents could no longer expect

¹³⁰² Rancher and Ranch Wife (31D-WY), Interview with the Author, June 20, 2007.

to have common carrier service extended to them at an affordable cost. Surely, under any measure, leaving rural residents on party-line telephones until 2007 did not provide services that are “reasonably comparable” to those in cities at similar rates as Section 254 of the Telecommunications Act of 1996 requires.¹³⁰³ Many rural residents found themselves unable to afford the alternative telecommunication technologies that would allow them to bypass the incumbent telephone provider.

¹³⁰³ Section 245, Universal Service, Telecommunications Act of 1996, Appendix A in Aufderheide, *Communications Policy and the Public Interest*, 150; Fidelman, “The New Universal-Service Rules”; Strover and Berquist, “Telecommunications Infrastructure Development,” 10.

CHAPTER SIX

“A Lot of Decisions Aren’t Made to Serve Rural People”¹³⁰⁴: Analysis and Literature Review

There are multiple scholarly and popular literatures about the internet. Rather than focus on these, this chapter explores academic literatures with broader concerns that can be applied to the study of the internet and new information and communication technologies. Three genres of academic literature allow for a productive analysis of the Alberta and Wyoming case studies. The three genres are: science, technology, and society studies; the political economy of communication; and studies of the technological sublime. These literatures offer productive lenses through which to understand the importance of the empirical cases in the previous chapters and to consider what is at stake in the struggles to bring internet infrastructures to rural people.

Science, Technology, and Society

Scholars need to be critical of celebrations of revolution and progress centered on broadband infrastructures and rather view them as products of technological and political choices following the work done by science and technology scholars including Thomas P. Hughes, Steven Shapin, Simon Schaffer, Paul N. Edwards, and Gabrielle Hecht. This perspective views technical objects as the constructions of actors firmly embedded in their social, political, economic, and material world.¹³⁰⁵ Without consideration of these

¹³⁰⁴ Ranch Woman (28D-WY), Interview with the Author, June 25, 2007.

¹³⁰⁵ Thomas P. Hughes, *Networks of Power: Electrification in Western Society, 1880-1930* (Baltimore and London: The Johns Hopkins University Press, 1983), 79.

contexts, scholars cannot adequately study technological developments and in viewing artifacts as isolated from these realms, technology developers can miss important and crucial information about the users of the system. French sociologist of science Bruno Latour notes in “Technology: Technology is Society Made Durable,” that “any division we make between society on the one hand and scientific or technical content on the other is necessarily arbitrary.”¹³⁰⁶ This view leads science, technology, and society scholars to study systems and their contexts inseparably. As Edwards writes in *A Closed World: Computers and the Politics of Discourse in Cold War America*, “I shall cast technological change as technological choice, tying it to political choices and socially constituted values at every level, rendering technology as a product of complex interactions among scientists and engineers, funding agencies, government policies, ideologies, and cultural frames.”¹³⁰⁷ The case studies considered in the previous chapters considered these complex relationships.

Science, technology, and society studies (STS), particularly, scholars who study infrastructures and “large technical systems” (LTS) offer the best starting place. Infrastructures, as “large, layered, and complex” technologies have drawn the attention of scholars. Susan Leigh Star and Karen Ruhleder provide a detailed definition of infrastructure. Infrastructure is embedded into “structures, social arrangements, and technologies”; it invisibly supports tasks; it is used for more than a single event or practice; people learn to use infrastructure as a part of membership; it “shapes and is shaped by the conventions of a ‘community of practice’”; it connects in standardized

¹³⁰⁶ Bruno Latour, “Technology: Technology is Society Made Durable,” *Work and Society: A Reader*, ed. Keith Grint (Cambridge: Polity Press, 2000), 43.

¹³⁰⁷ Paul N. Edwards, *A Closed World: Computers and the Politics of Discourse in Cold War America* (Cambridge, MA: The MIT Press, 1997), xiii.

ways to other infrastructures; it is built on the strengths and limitations of the pre-existing base; infrastructure becomes visible when it breaks down; and finally, infrastructure is changed through negotiation and adjustment, rather than being altered from above.¹³⁰⁸

Both the Alberta SuperNet and Lusk's municipal grid fit within this definition. The SuperNet, to illustrate, is embedded into the existing structures and social arrangements of the province. Developers worked to give the SuperNet a role in the existing hospitals, schools, libraries, and public offices of the province, and it supports the tasks these organizations carry out, such as transmitting patient X-rays or MRIs to larger hospitals for analysis or carrying videoconferenced lessons to smaller schools across the province. The network supports an unlimited number of events and practices in a variety of areas and people learn to use it as a part of their membership in one of the "stakeholder" groups. Additionally, the extended fiber optic system in Alberta needed to connect to other infrastructures, the fiber optic trunk lines, to be operational.

The work of STS scholars in the realm of large technical systems illustrates the relevance of history to the study of new ICTs. The studies reveal parallels between the historical development of systems and infrastructures and the more recent development of ICTs. Historian of technology Thomas P. Hughes in his *Networks of Power: Electrification in Western Society 1880-1930* studies the development of electric systems in the United States, Britain, and Germany. Hughes examines electric systems and the environment in which they develop, illustrating that technological systems are caused by and can cause social change.¹³⁰⁹ He explicitly intended for the study to assist other

¹³⁰⁸ Susan Leigh Star and Karen Ruhleder in Geoffrey C. Bowker and Susan Leigh Star, *Sorting Things Out: Classification and Its Consequences*, (Cambridge, MA: The MIT Press, 2000), 35.

¹³⁰⁹ Hughes, *Networks of Power*, 6, 2.

historians of large-scale technology.¹³¹⁰ Hughes explores power systems from their invention and development, transfer from one place to another, growth, and momentum.¹³¹¹ He finds that the development of power systems in the United States, Britain, and Germany differed because the “geographical, cultural, managerial, engineering, and entrepreneurial character of the three regions differed...”¹³¹² Hughes develops a variety of concepts helpful for the study of systems and infrastructure. One is the idea of the system builder. Stemming from Hughes’ exploration of Thomas Edison as the innovator of the electric system, several STS commentators clarify the nature and purpose of this role. John Law calls the person who fills this role a “system builder” and Steven Jackson, Paul Edwards, Geoffrey Bowker, and Cory Knobel, describe the system builders as “individuals, teams, or in some cases institutions capable not only of producing ground-breaking inventions, but also imagining and bringing into being the large ensembles of techniques, practices, institutions, and other technologies needed to support and sustain them.”¹³¹³ Actors who possess knowledge and power make decisions regarding the construction and development of infrastructures.

In Alberta, the original system builder was Lorne Taylor, the Minister of Innovation and Science who initially conceived of a network crossing the province, and the developers from Bell and Axia who proposed the SuperNet, constructed it, and manage its operations. Importantly, Taylor envisioned the network as an economic development tool. In Lusk, Mayor Whiteaker was the primary system builder, who

¹³¹⁰ Ibid., 7.

¹³¹¹ Ibid., 14-15.

¹³¹² Ibid., 17.

¹³¹³ Steven J. Jackson, Paul N. Edwards, Geoffrey C. Bowker, and Cory P. Knobel, “Understanding Infrastructure: History, Heuristics, and Cyberinfrastructure Policy,” *First Monday*, 12, no. 6 (June 4, 2007): 2.

conceptualized the municipal grid, and had the power and knowledge to convince the State of Wyoming to provide funding and the incumbent telephone company to provide a fiber optic link to the trunk line.

Another concept adopted from *Networks of Power* is the “reverse salient.”

Reverse salients are critical problems that arise from within a technological system, from its social and organizational context, or from a complex combination of the two.¹³¹⁴

Reverse salients thwart the growth of a system and can end the infrastructure development if system developers do not take remedial actions.¹³¹⁵ Hughes finds critical problems stem from accidents and confluences that the system managers do not see in advance or, if they do see them, cannot repair quickly enough.¹³¹⁶

Both of the infrastructures described herein were beset by critical problems and both cases have similar reverse salients that caused lag in the systems. First, both infrastructures lost a central system builder before development was complete. Second, both experienced developer-user disconnects.

Taylor and Whiteaker, a Cabinet Minister and mayor, respectively, central advocates, developers, and champions for their infrastructures were, as elected officials, subject to the vicissitudes of politics. Taylor moved from the Ministry of Innovation and Science to the Ministry of the Environment in 2001, early in the SuperNet’s development. Whiteaker, the central system builder of Lusk’s grid, was, as outlined in

¹³¹⁴ Hughes, *Networks of Power*, 80-81; Paul N. Edwards, Steven J. Jackson, Geoffrey C. Bowker, and Cory P. Knobel, “Understanding Infrastructure: Dynamics, Tensions, and Design. Report of a Workshop on ‘History & Theory of Infrastructure: Lessons for New Scientific Cyberinfrastructures.’” Unpublished Report (January 2007): 7.

¹³¹⁵ Hughes, *Networks of Power*, 79-80.

¹³¹⁶ Ibid., 80.

Chapter Four, voted out of office before he could convince a corporation to come to town and connect and use the grid.

The successors of the system builders were less interested in the projects. Minister Doerksen, the new Minister of Innovation and Science was a technician, focused on construction rather than the larger picture of adoption and use. Doerksen and Ouellette, the Minister who adopted the SuperNet when the government transferred it to the Ministry of Restructuring and Government Efficiency, did not have the same visions for the project as Taylor did or such a strong commitment to economic development. Instead, the later overseers focused on construction of the physical infrastructure and then the delivery of social services. Mayor Whiteaker's successor, Wilson, refused to take up the system builder role and did not see the value of new ICTs for the town. He turned attention and money from the unused grid. These cases illustrate that the removal of a key individual in the system building team can spell disaster for a nascent infrastructure.

The second reverse salient was a series of disconnects between the developers of the systems and the communities that were to use them. A major argument put forth in the STS literature is the necessity to include a multiplicity of social groups into the process of technological development.¹³¹⁷ Failure to do so can lead to systems that privilege the system-builders' perspectives and visions to the exclusion of the wider publics. Additionally, this can create a significant disconnect between the design of the system and user needs and expectations, leaving some systems un- or under-used.¹³¹⁸

The sharing of realistic visions for infrastructure developments and outcomes among both

¹³¹⁷ Ellen van Oost, Stefan Verhaegh, and Nelly Oudshoorn, "From Innovation Community to Community Innovation: User-Initiated Innovation in Wireless Leiden," *Science, Technology, & Human Values*, 34, no. 2 (March 2009): 184.

¹³¹⁸ Jackson, Edwards, Bowker, and Knobel, "Understanding Infrastructure," 1.

system-builders and diverse publics is critical to their success. When such shared visions do not exist, severe disconnects can occur between the system and its context. Pinch and Bijker remind us that different social groups have “radically different interpretations of one technological artifact.”¹³¹⁹

In the SuperNet case, the government believed they had served their rural constituents by providing fiber drops into every community regardless of its size, pricing internet backhaul inexpensively, and endorsing Axia’s open access approach where multiple ISPs could provide internet service to individual homes. The Ministries involved argued that they had done their part in bringing high-speed network capacity to rural areas and that they had never planned to bring fiber to the home. On other occasions, developers argued internet service was like telephone service in the past and rural residents had to pay to connect. In the Alberta case, privately provided internet service does fit into the history of telecommunications development because although the province owned the telephone system, many rural residents provided their service cooperatively. This was a situation not unlike the solution developed for rural high-speed internet.

Rural denizens, Opposition members in the Legislature, and other commentators, however, view the province’s chosen plan as incomplete because it does not overcome the rural-urban digital divide, it simply brings the edge of the gap closer to home in the small towns. Thus, the government’s network did not adequately address one of their primary concerns; the lack of affordable high-speed service to many rural homes.

¹³¹⁹ Trevor J. Pinch and Wiebe E. Bijker, “The Social Construction of Facts and Artifacts: Or How the Sociology of Science and the Sociology of Technology Might Benefit Each Other,” in *The Social Construction of Technological Systems: New Directions in the Sociology and History of Technology*, ed. Wiebe E. Bijker, Thomas P. Hughes, and Trevor Pinch (Cambridge, MA: The MIT Press, 1989), 41.

A second disconnect in the SuperNet case between developers and users was, as is explored in Chapter Three, the differences in the government's visions for ISPs in rural areas versus the realities experienced by the ISPs. The government envisioned multiple competitive ISPs of various sizes in rural towns. The ISPs found extending service tough because of the limited number of subscribers, the inability to secure investments, and the costs to install equipment into the POP sheds as a second or later ISP.

Some of the disconnects between the government and its private partners and the user groups, the ISPs and rural denizens in Alberta, can be traced to a lack of communication between the two groups. Sociologists of technology Trevor Pinch and Wiebe E. Bijker argue that the social environment shapes the technical characteristics of an artifact. In the SuperNet case, the social actors shaping the artifact were limited to the government and the government's chosen contractors. Social construction of technology scholars remark that there is a period of time during the early development of a system where participants can define and solve problems about an artifact as well as express ideas about what goals the artifact should meet. However, "closure" is the moment where, in sociologist of technology John Law's terms, "debate and controversy about the form of an artifact is effectively terminated."¹³²⁰ After this period, the artifact is stabilized and further discussions about form are no longer welcome.

Closure in the case of the SuperNet occurred early because rather than participatory policy discussions, the SuperNet was developed as a contract between the provincial government and the two private providers, Bell and Axia NetMedia. The

¹³²⁰ John Law, "Technology and Heterogeneous Engineering: The Case of Portuguese Expansion," in *The Social Construction of Technological Systems: New Directions in the Sociology and History of Technology*, ed. Wiebe E. Bijker, Thomas P. Hughes, and Trevor Pinch (Cambridge, MA: The MIT Press, 1989), 111.

Ministry of Innovation and Science, actively involved in the process, could look out for the government's interests. Social groups that lay beyond these three actors, including Progressive Conservative and Opposition Members of the Legislative Assembly, people involved in the information and communication industries, organizations, and community members did not get a say in what the partners developed. Therefore, the government and the private partners were the only social groups involved in the development of the technology and as a result, the development did not consider the problems and concerns of other groups. It was not until closure had occurred and the SuperNet was under construction that the Ministry of Innovation and Science carried out work with Alberta's communities. These communications, however, were not consultative, but informational.¹³²¹

As a result of this early closure, the network that the partners developed considered the economic and ideological imperatives of the government, but it did not adequately address the economic realities of one group of end users, the private internet service providers that the government believed would provide internet service to rural customers. As a result, some rural areas remain without internet service, never mind the competitive internet service the provincial government envisioned. The government, as a key developer of the project, was able to ensure that the system served its core needs of expanding government network capacity; providing network connectivity to all schools, libraries, and public health facilities; and expanding provincial services in an economical way. In contrast, the network is not as successful at ending Alberta's rural-urban digital

¹³²¹ Former Minister (4C-AB), Interview with the Author, January 4, 2008.

divide in high-speed internet because the government closed the development process and thus did not understand the crippling constraints small internet service providers face.

The town of Lusk also experienced disconnects between the system builders and the community members. Although Lusk successfully built a fiber optic grid, town residents were unable to figure out how to use the system. In the mid- to late 1990s, town residents completed multiple surveys, attended meetings, were the subjects of studies, listened to guest speaker presentations, and received outside financial and technical assistance. Despite all of these, the townspeople failed to create and adopt the techniques and practices needed to use the grid. A large part of the disconnect between the available grid and the residents' inability to use it stemmed from their lack of the technical expertise needed to finish the grid and to develop community-based applications.

Another facet of the developer and potential user disconnect occurred in Lusk. The sharing of realistic visions for infrastructure developments and outcomes among both system-builders and diverse publics is critical to their success. When such shared visions do not exist, severe disconnects can occur between the system and its context. In Lusk, a yawning chasm existed between Whiteaker, the system's innovator and his cadre, notably the town's Superintendent of Municipal Public Works and the local newspaper, in contrast to some of the town's residents, including some powerful citizens. Assuming that the rest of the town shared his desire for economic development based on telecommunications and information, Whiteaker neglected to counter the strong negative opinions many people had about the influx of large companies to their quiet, traditional region. Whiteaker likely lost his mayoral post after fourteen years due to this issue. His successor, Wilson, was reluctant to bring large businesses to town. He believed the town

did not have enough housing or industrial space to offer incoming firms and discouraged an interested company. In the end, Wilson and the people who did not seek to change the character of the town won the battle, but at the expense of the municipal telecommunications system.

The science and technology studies approach views technological systems as both culturally constructed and interpreted. In their research, Pinch and Bijker illustrate that multiple approaches to artifact development are possible, but creators settle on one approach.¹³²² There are a multiplicity of reasons for selecting a particular path of development, including some reasons that have little to do with technological competency and much more to do with state constructions of its own power and identity. In Alberta, Members of the Legislative Assembly and people in the information technology industry argued that different approaches, including low-orbit satellite or improved copper technology, should be used for the network.¹³²³ They realized that fiber, while a wonderful conduit for long distance transport of signals was not a good solution to serve rural residents.¹³²⁴ Despite the objections of some, the government went forward with the installation of fiber across the province. This decision can be linked to the province's formation of its own identity and a display of provincial vision and wealth.

¹³²² Pinch and Bijker, "The Social Construction of Facts and Artifacts," 40.

¹³²³ Cao, "High-Speed Internet Access," in Legislative Assembly of Alberta, Tuesday, May 2, 2000 in Province of Alberta, The 24th Legislature, Fourth Session, *Alberta Hansard*, vol. III (May 2 to May 25, 2000), 1230; President and CEO, Internet Service Provider, Calgary (7F-AB), Interview with the Author, January 15, 2007; Owner, Internet Installer for South County (2F-AB), Town 1, South County, Interview with the Author, November 23, 2006.

¹³²⁴ President and CEO, Internet Service Provider, Calgary (7F-AB), Interview with the Author, January 15, 2007; M. Sawada, Daniel Cossette, Barry Wellar, and Tolga Kurt, "Narrowing the Urban/Rural Broadband Digital Divide in Canada with GIS: Implications for the Canadian Terrestrial Broadband Wireless Market," Unpublished Paper (August 16, 2005): 6.

The work of other scholars, including communication scholar Chandra Mukerji and historian of technology Gabrielle Hecht, explores how states use the built environment and technological systems to express their identities and ambitions. Mukerji's 1997 book, *Territorial Ambitions and the Gardens of Versailles*, explores the relationship between the French state and material power by examining the response to the dilemma in the early modern French state of how to legitimize the rule of King Louis XIV if he transferred his power to the bureaucratic state. To legitimate the king's authority over the realm, the state transferred the "authority from the heavens to the earth."¹³²⁵ To mark his territory, the king gave a new material form to the state; he marked France with the building of canals, construction of fortresses, conduct of war, and land management practices, marking the territory of France as a "political extension" of God's creation.¹³²⁶ With the demarcation of the French territory through a variety of engineering practices, Mukerji argues that the king built "an uncontested and identifiable political *location* for accumulating and exercising power: a territorial state."¹³²⁷ For Mukerji, some of the best engineering feats to explore the imprinting of the political order onto the land were the formal French gardens that surrounded the châteaux of France.¹³²⁸ The French political territoriality was both "a form of material practice and of political representation," where material practice was a way of acting on the land.¹³²⁹ Through the illustration of French cultural and technical achievements, gardens became a

¹³²⁵ Chandra Mukerji, *Territorial Ambitions and the Gardens of Versailles* (Cambridge: Cambridge University Press, 1997), 20, see also 320.

¹³²⁶ *Ibid.*, 21.

¹³²⁷ *Ibid.*, 1.

¹³²⁸ *Ibid.*, 2, 8.

¹³²⁹ *Ibid.*, 8-9.

site of state power.¹³³⁰ For scholars of Science Studies, the book opened up a discussion of the use of engineering practices to further the goals and ambitions of the state, an area that had not previously received scholarly attention.¹³³¹

In the end, Mukerji argues, “[t]he French formal garden was a vital political resource for state-formation in its time and place. It was a laboratory for the techniques of land control used to construct the territorial state. The very elements that went into building the garden were the ones necessary for rebuilding the landscape to make it a politically marked and fortified territory that both enhanced and defined state power.”¹³³² France was a material accomplishment, a political order etched into the land.¹³³³ Mukerji’s *Territorial Ambitions* illustrates that the territorial legitimacy of the early modern French state and King Louis XIV’s rule hinged on the state’s abilities in a variety of scientific, technical, and material realms; the king’s power rested on French material practices.

In the case of France’s post-war nuclear power program, Hecht locates the creation of the program at the apex of its desire to be technologically advanced, enlightened, and to express the geopolitical “grandeur” it possessed in earlier periods. Thus, Hecht argues that France’s “engineering choices must be understood as part of a struggle to define Frenchness in the postwar world.”¹³³⁴

¹³³⁰ Ibid., 32.

¹³³¹ Patrick Carroll-Burke, in his 2002 article “Material Designs: Engineering Cultures and Engineering States—Ireland 1650-1900,” like Mukerji before him, explores how material culture participates in state formation by looking at the Irish case. Patrick Carol-Burke, “Material Designs: Engineering Cultures and Engineering States—Ireland 1650-1900,” *Theory and Society*, 31 (2002): 75-114.

¹³³² Mukerji, *Territorial Ambitions*, 304.

¹³³³ Ibid., 324.

¹³³⁴ Gabrielle Hecht, *The Radiance of France: Nuclear Power and National Identity after World War II* (Cambridge, MA: The MIT Press, 1998), 3, 4, 5.

Hecht and Mukerji's work illustrate that states employ engineering and technologies to express their ambitions and their power. Technologies thus help form state identity because of the messages they send to those witnessing these instruments of state power. In Alberta's case, the development and construction of the SuperNet did, for the provincial government, become a material representation of its ambitions. As outlined in Chapter Two, as a province heavily dependent on agriculture and primary resource extraction, Alberta seeks to connect itself to scientific and medical research and endeavors. Partially, the province can afford to do this due to its huge oil revenues. All of the Ministry of Innovation and Science's reasons to build a fiber optic grid, which is the most expensive and technically optimal solution, cannot be placed in its desire to increase the capacity of the government network and provide affordable backhaul to rural internet service providers. This technological choice to wire the province with fiber optics must be linked to the government's notion of its own identity. Alberta based its technical choices partially on being advanced and using the best and newest technology and partially on being more "wired" than any other political jurisdiction in North America.¹³³⁵ Looking at the broader context in which a technology develops enables scholars to see a non-technical underpinning to the SuperNet development.

¹³³⁵ Lorne Taylor, "Scientific and Technological Innovation," Oral Question Period, Legislative Assembly of Alberta, Wednesday, March 15, 2000 in Province of Alberta, The 24th Legislature, Fourth Session, *Alberta Hansard*, vol. I (February 17 to March 22, 2000), 436, 437; Dr. Lorne Taylor, Minister of Science, Research, and Information Technology, "Subcommittee D—Science, Research, and Information Technology," Legislative Assembly of Alberta, Monday, March 29, 1999 in Province of Alberta, The 24th Legislature, Third Session, *Alberta Hansard*, vol. IV (November 25 to December 8, 1999, and Subcommittees of Supply), D42.

The Technological Sublime

The second corpus of literature necessary for analyzing the empirical cases herein pertains to the technological sublime. These works help to beneficially explore the many visions set forth by the Ministry of Innovation and Science in Alberta and by Mayor Whiteaker in Lusk, Wyoming. This scholarly approach chronicles the religious reverence with which people view technological artifacts. Studies in this genre explore people's responses to a variety of technologies, including steam power, railroads, electricity, and television.¹³³⁶ More recently, scholars argue that the utopian and overly-optimistic rhetoric about digital technologies falls into the well-worn grooves carved out by advocates of previous technologies who gushed that a future saturated with the new devices possessed unlimited possibility and would change the existing relations of society and bring world peace. For scholars of the technological sublime, history is of central importance for it affords parallels to be drawn between and among the various devices. Studies in this genre illustrate that technologies currently celebrated as revolutionary have important ties to the technologies of the past. A number of scholars have worked within the realm of the technological sublime, including Leo Marx, David E. Nye, James Carey, and Vincent Mosco.

In *The Machine in the Garden*, Marx argues that the machine is a powerful symbol of progress.¹³³⁷ The machine, in the American consciousness, is the metaphor for

¹³³⁶ In *Make Room For TV: Television and the Family Ideal in Postwar America*, Lynn Spigel discusses how proponents saw the television as the device that would build an "intellectual neighborhood," bring world peace, and "enhance the lives of disenfranchised groups." Lynn Spigel, *Make Room for TV: Television and the Family Ideal in Postwar America* (Chicago: The University of Chicago Press, 1992), 111-112, quotes from 112.

¹³³⁷ Leo Marx, *The Machine in the Garden: Technology and the Pastoral Ideal in America*, 35th Anniversary Edition (New York: Oxford University Press, 1964, 2000), 192.

the American ideology of industrialization.¹³³⁸ According to Marx, writers and others used the rhetoric of progress, which he calls the “rhetoric of the technological sublime.” Writers made innumerable assumptions about the influence of machines, such as the railroad, on the improvement of Americans.¹³³⁹ Writers claimed that machines would fulfill the goals and aspirations required for an ideal America.¹³⁴⁰ The commentators were ecstatic, certain that machinery would bring unlimited possibility.¹³⁴¹ Indeed, during the 1800s, Marx argues that the “awe and reverence once reserved for the Deity and later bestowed upon the visible landscape is directed toward technology or, rather, the technological conquest of matter.”¹³⁴² According to Marx, his work explores a divide in American culture and society, because it “separates the popular affirmation of industrial progress disseminated by spokesmen for the dominant economic and political elites, and the disaffected, often adversarial viewpoint of a minority of political radicals, writers, artists, clergymen, and independent intellectuals.”¹³⁴³

David E. Nye’s *American Technological Sublime* picks up from Marx and furthers the analysis into new realms. Marx was particularly concerned with the railroad and industrialization in general and the responses of a variety of writers to the machines. Nye looks at several devices including the railroad, bridges, skyscrapers, the factory, and electricity, contemplating the sublime from the 1820s to the 1990s. A central feature of the sublime is that technology shows people’s control over nature and our power to

¹³³⁸ Ibid., 181.

¹³³⁹ Ibid., 195.

¹³⁴⁰ Ibid., 164.

¹³⁴¹ Ibid., 198.

¹³⁴² Ibid., 197.

¹³⁴³ Ibid., 383.

transform and intensify the natural world.¹³⁴⁴ In his earlier *Electrifying America: Social Meanings of a New Technology, 1880-1940*, Nye notes, “By World War I much writing about electricity had become rather overblown and utopian in its predictions. Electricity seemed to ensure a brilliant future for civilization.”¹³⁴⁵ He explores the history of technology by examining “the social context of technology, with how new objects are interpreted and integrated into the fabric of social life.”¹³⁴⁶ To this end, he studies peoples’ experiences with technologies, through the press and public events, rather than arts or literature.¹³⁴⁷

Works about the sublime chronicle the celebration and reverence with which people received new devices. Nye notes that people do not revere one device indefinitely; rather people apply sublimity to different devices as they are introduced.¹³⁴⁸ The expression of the sublimity aroused by a particular device thus is what Nye studies. There are two important points that are relevant here. First, people apply the trope of the technological sublime to a variety of technologies, often using similar utopian predictions for diverse devices. Second, although scholars studying the technological sublime show continuities between different applications of sublimity, most writers exalting technologies appear to be unaware that others foresaw previous technologies as bringing about similar utopias.

Communication scholars have found the technological sublime to provide a helpful analytic tool to study communication and information technologies. James Carey

¹³⁴⁴ David E. Nye, *Electrifying America: Social Meanings of a New Technology, 1880-1940* (Cambridge, MA: The MIT Press, 1990), 46, 59.

¹³⁴⁵ Ibid.

¹³⁴⁶ David E. Nye, *American Technological Sublime* (Cambridge, MA: The MIT Press, 1994), xv.

¹³⁴⁷ Ibid., xvi.

¹³⁴⁸ Ibid., xiv.

and John Quirk examine the sublime in “The Mythos of the Electronic Revolution” and Vincent Mosco explores the myth of cyberspace in his 2004 book, *The Digital Sublime: Myth, Power, and Cyberspace*. In their chapter, Carey and Quirk state that the writing of futurologists “contains an orientation of secular religiosity that surfaces whenever the name of technology is invoked.”¹³⁴⁹ Carey and Quirk argue that futurologists also “predict a radical discontinuity from history and the present human condition.”¹³⁵⁰ They point out that people have attributed the rise of community, decentralization, environmental balance, and social harmony to various technologies.¹³⁵¹ They note that there are common ideas shared amongst the variety of people who posit arguments for the technological mythos. The most important of these ideas is that the technology under examination will “overcome historical forces and political obstacles” that stood in the way of previous utopias.¹³⁵² The authors note that the corporations involved with computing and electronics “promise everywhere to provide a cornucopia of jobs,” as well as markets for products, funding for universities, fulfilling jobs for the unemployed and the young, and “clean” industry.¹³⁵³ Carey and Quirk note that when Americans became aware that Industrialization and steam power would not bring about a “mechanical utopia” they applied sublimity to electricity.¹³⁵⁴ The major beneficiaries of the shift of the sublime trope were the electric light and power companies.¹³⁵⁵ In the era of new

¹³⁴⁹ James Carey and John Quirk, “The Mythos of the Electronic Revolution,” in James W. Carey, *Communication as Culture: Essays on Media and Society* (New York: Routledge, 1989), 113.

¹³⁵⁰ Ibid., 114.

¹³⁵¹ Ibid.

¹³⁵² Ibid., 115.

¹³⁵³ Ibid., 116.

¹³⁵⁴ Ibid., 120-121, 123.

¹³⁵⁵ Ibid., 129.

information and communication technologies, the beneficiaries of the myth are the telecommunications and info-tech companies, like Bell and Axia in the SuperNet case.

Carey and Quirk write that Franklin Delano Roosevelt, in 1936, hailed electricity as a source of energy that would decentralize American industry.¹³⁵⁶ This claim was mirrored in Lusk and Alberta where proponents argued that fiber optics would decentralize the economy and bring jobs to rural areas. Carey and Quirk note that Harold Innis, the Canadian communication scholar, did not believe that electricity would decenter industry or provide for democratic or cultural revivals as proponents claimed. Rather, Innis argued that this was an extension of technological control, an invasion of industry into more and more places.¹³⁵⁷ Carey and Quirk argue that scholars must demythologize the rhetoric of the electrical sublime.¹³⁵⁸

Mosco takes up the task encouraged by Carey and Quirk and demythologizes the digital sublime in *The Digital Sublime: Myth, Power, and Cyberspace*. Mosco's argument is that "when technologies such as the telephone and computer cease to be sublime icons of mythology and enter the prosaic world of banality—when they lose their role as sources of utopian visions—that they become important forces for social and economic change."¹³⁵⁹ He places the power of the myths surrounding digital technologies in the idea that we are leaving the Industrial era and going into the information/digital era due to these devices.¹³⁶⁰ As a result of this sense of newness and the unknown, Mosco argues digital myths work because they do not see history as

¹³⁵⁶ Ibid., 130.

¹³⁵⁷ Ibid., 133, 135.

¹³⁵⁸ Ibid., 139.

¹³⁵⁹ Vincent Mosco, *The Digital Sublime: Myth, Power, and Cyberspace* (Cambridge, MA: The MIT Press, 2004), 6.

¹³⁶⁰ Ibid., 32.

relevant since we have not experienced a transition like this before.¹³⁶¹ By denying history, the myths remove active human agency, the constraints of social structures, and the real world of politics.¹³⁶² In a very real sense, the necessity of the scholar is to re-inject history into the myths of digital technology. One way to do this, according to Mosco, is to recognize the importance of history and the local. Mosco notes that Raymond Williams strongly argued that global ideals had their origins in particular conflicts in particular locales.¹³⁶³ Mosco, to illustrate the persistence of history, looks to 9/11 and the World Trade Center and analyzes it from a political economic perspective. He locates the World Trade Center as a symbol of private enterprise and as a site of tension during the original construction of the towers. He notes the construction of the World Trade Center was an explicit attempt by New York officials to bring the post-industrial society to lower Manhattan.¹³⁶⁴ As such, he builds a history, one located in particular local circumstances, for a symbol of the post-industrial society.

This project is focused on the local as a way to demythologize broadband infrastructures. As a method, ethnography has a local entrance, in that it is engaged with particular locales. By using the ethnographic study of rural users and would-be users in two comparable sites as one of the approaches to study of telecommunications infrastructure, this project cracks open the myths of the digital sublime in local contexts. Mayor Whiteaker of Lusk, who read John Naisbitt's work, allows us to concretize the digital sublime in a local context and look at the effects that this mythos had on the community.

¹³⁶¹ Ibid., 82.

¹³⁶² Ibid., 35.

¹³⁶³ Ibid., 97.

¹³⁶⁴ Ibid., 143-154.

Mosco views governments as primary players in the digital sublime and the extension of digital devices increasingly into citizens' daily lives, for "much of its legitimacy today is based on identification with this future wave."¹³⁶⁵ Governments, in transferring much of their role to the private sector through deregulation and free trade and devolving their roles in the provision of social services, have actively promoted a rosy future created by digital technologies. Mosco argues that technology allows government to create a "genuine, universally recognized allure...." Clearly, the implication here is that because governments no longer ensure the modern infrastructural ideal and universal service, they need to provide something commonly desired by all citizens, and they find this common desire in new ICTs. In Alberta, amidst the wave of privatization and social services cut backs discussed in Chapter Two, technology via the SuperNet has become this universalizing public good.

Chapter Four of Mosco's book explores the internet and the myth of the end of geography and critically evaluates purveyors of the myth; including Frances Cairncross whose *The Death of Distance* is a well-known tome celebrating the internet's obliteration of space. Cairncross wrote, "No longer will location be key to most business decisions. Companies will locate any screen-based activities anywhere on earth, wherever they can find the best bargain of skills and productivity."¹³⁶⁶ Although as Mosco notes, the death of distance myth refers to the end of nation-states and bureaucracy in businesses, organizations, and governments,¹³⁶⁷ it is also, and much less radically, a myth about the

¹³⁶⁵ Ibid., 43.

¹³⁶⁶ Frances Cairncross, *The Death of Distance: How the Communications Revolution is Changing our Lives* (Boston, MA: Harvard Business School Press, 2001), xi.

¹³⁶⁷ Mosco, *The Digital Sublime*, 88-89.

end of physical distance.¹³⁶⁸ It is this aspect of the end of geography to which the Minister of Innovation and Science and the mayor of Lusk subscribed. Neither forecasted the end of their governments by the installation of the network technologies. In the case of the former, the SuperNet would extend the province's reach by assisting in the delivery of social services. Both the mayor of Lusk and Alberta's Minister of Innovation and Science believed that their telecommunication systems would increase economic opportunities for rural dwellers. Despite these beliefs, however, in the areas investigated, few real economic opportunities opened up for rural workers due to the digital technologies. Those that did, the medical transcription jobs, were certainly not careers located in the top tiers of the information economy hierarchy. Rather, Cairncross, as a writer for *The Economist*, is concerned employers get the cheapest and most adequately skilled workers regardless of location rather than that the workers in question have fulfilling careers.

Both the Alberta government and U.S. West used the death of distance argument as a reason for their involvement with the telecommunication systems. The oft-cited argument about the death of distance and the de-centering of geography that the internet will bring about has clearly not occurred in these two cases. This can be connected to supply side reasons firmly entrenched in capitalism. For rural communities, the death of distance trope and the digital sublime fall apart when, despite advocates' proclamations of future prosperity and progress brought on by new ICTs, much of their old economies remain firmly in place.¹³⁶⁹ The Lusk case study encapsulates the embrace of the digital

¹³⁶⁸ Ibid., 91.

¹³⁶⁹ William W. Falk and Linda M. Lobao, "Who Benefits from Economic Restructuring?: Lessons from the Past, Challenges for the Future," in *Challenges for Rural America in the Twenty-First Century*, ed.

mythos, the development of a municipal grid to capture the sublime, the failure of things to change, and the realization that technologies cannot overcome and erase the existing relations of society.

In “Five Rules of Virtuality,” sociologist Steve Woolgar critically evaluates the idea of the virtual society in ways that are productive for the cases described herein.

Woolgar argues that scholars need to consider the social dimensions of electronic technologies but critically interrogates the claim that the increase of new ICTs will lead us to a virtual society.¹³⁷⁰ He discusses what he labels “epithetized phenomena” or “descriptions used to conjure a future consequent upon the effects of electronic technologies.”¹³⁷¹ As such, commentators take existing social institutions and “epithetize” them, or indicate that they will in some way be transformed by the application of digital, networked ICTs. Government officials in both Alberta and Wyoming employed these phenomena. Woolgar argues, however, that although advocates believe that there is something new and better about the epithetized phenomena, rarely do their discussions of them include how the application of technology will change the activity or institution in question.¹³⁷²

Woolgar notes that much study of ICTs fell into one of two camps—either the uncritical celebration of ICTs that touted widespread adoption and proclaimed utopian futures or negative assessments focusing on negative social consequences of adoption.¹³⁷³

David L. Brown and Louis E. Swanson (University Park, PA: The Pennsylvania State University Press, 2003), 161.

¹³⁷⁰ Steve Woolgar, “Five Rules of Virtuality” in *Virtual Society? Technology, Cyberbole, Reality*, ed. Steve Woolgar (Oxford: Oxford University Press, 2002), 1-2.

¹³⁷¹ Ibid., 3.

¹³⁷² Ibid.

¹³⁷³ Ibid., 4.

Woolgar quotes Manuel Castells who notes that important issues around ICTs “are still couched in simplistic, ideological dichotomies that make an understanding of the new patterns of social interaction difficult.” The way of overcoming this, to Woolgar, is “more informed empirical study” that will allow a “more considered approach” providing for better understandings of the form and impact of ICTs.¹³⁷⁴

In both cases, the SuperNet and Lusk’s municipal grid, the developers viewed the infrastructures in technologically deterministic ways. They argued that the devices, once installed and in operation, would lift the communities above the existing relations of society and transform them. In other words, the infrastructures would cure the ills of rural society simply by being there. Both the SuperNet’s and Lusk municipal grid’s advocates viewed the devices as catch-alls, able to perform a number of functions for the societies in which they were installed. The SuperNet’s developers saw it as a cure-all, solving a number of social problems. First, it was to expand government network capacity because the government’s existing intranet was no longer adequate. Second, it was to provide network connectivity to all schools, libraries, and public health facilities to enable them to expand offered services using a host of digital applications. Third, and in a related stream, it was to expand provincial services in an economical way. Finally, it was to provide affordable backhaul for internet service providers to, in turn, allow them to provide affordable high-speed internet service to Alberta’s rural areas. The creator of Lusk’s fiber optic grid envisioned the system as a way to provide a variety of municipal services; monitor the town’s electric use; provide town residents with an alternative, affordable, and municipally-owned cable service; and draw firms to the region to bolster

¹³⁷⁴ Ibid., 4.

the town's ailing economy and provide residents with jobs.

For Woolgar, there are three notable characteristics of the perspective that offers an uncritical celebration of new ICTs: first, is their "sweeping grandiloquence" where perspectives make sweeping generalizations that clump together all people in an inclusionary way, not stopping to separate groups that will be most affected from those seeing little impact on their ways of life. Second, analyses tend to discuss the technologies in relation to macro-level trends without problematizing relations between technologies and the trends. Third, Woolgar notes that the perspectives center on "confident declarations of effect."¹³⁷⁵

The idea that information and communication technology systems could simultaneously perform such a variety of tasks and cure such a vast number of problems simply by being installed in Lusk and in all of Alberta's communities views telecommunications as above the existing relations of society.¹³⁷⁶ As only one example, in Alberta, the developers did not give enough attention to the economic constraints experienced by internet service providers in rural areas; an oversight that missed the fact that private ISPs might be unable to serve Alberta's rural communities.

Media scholar Brian Winston's law of suppression of radical potential and supervening social necessity offers a further counter to the grandiose proclamations of technology advocates that pulls the devices back into the existing relations of society.¹³⁷⁷ Winston argues that media develop due to supervening social necessities, but their radical

¹³⁷⁵ Ibid., 7.

¹³⁷⁶ Korinna Patelis, "The Political Economy of the Internet," in *Media Organizations in Society*, ed. James Curran (New York: Oxford University Press, 2000), 85.

¹³⁷⁷ Brian Winston, *Media Technology and Society: A History From the Telegraph to the Internet* (London: Routledge, 1998), 11, 13.

potential is suppressed by constraints. These “general social constraints coalesce to limit the potential of the device radically to disrupt pre-existing social formations.”¹³⁷⁸ In both cases, economic development in rural areas was a major concern. Winston notes that despite the media developed, institutions in society continue, there is no radical change. A variety of constraints operate on the media in question to suppress its radical potential. In the case of the SuperNet, constraints included the location of the SuperNet in the Ministry of Restructuring and Government Efficiency and the lack of resources to help rural Albertans use the network for economic ends. In the case of Lusk’s fiber optic grid, one of the constraints was people’s reluctance to change in the town. Another constraint was businesses’ unwillingness to locate in the town.

The Political Economy of Communication

Studies in communication remind us that we cannot only study the infrastructure, but also the structure of its ownership and importantly, the resulting content created to pass over the wires. The third body of literature productive for analyzing the empirical cases considered herein pertains to the political economy of communication. This literature provides a lens through which to view and interpret the micro-analyses within. Political economists of communication study social change and historical transformation from the entry points of commodification, spatialization, and structuration.¹³⁷⁹ Particularly, this field looks at the production and reproduction of economic structures and explores how these relate to social change (with respect to communication). One

¹³⁷⁸ Ibid., 11.

¹³⁷⁹ Vincent Mosco, *The Political Economy of Communication* (London: SAGE Publications, 1996), 27, 10.

concern within this literature is the exploration of disparities of access that result from the market pressure brought on by privatization.¹³⁸⁰

The political economy of communication perspective explores the transformation from an ideology based on assent to hegemony with “public goods” provided to citizens through the social contract to hegemony without the public goods.¹³⁸¹ For Mosco, and others working from this perspective, this is encapsulated in the shift from the ideal of public service to cost-based services.¹³⁸² The social relations created by communicative and informational technologies illustrate this shift.

In the case studies considered herein, the movement towards privatized cost-based services did not adequately provide broadband services for rural residents in either rural Alberta or Wyoming. In both cases, government took up the task of correcting these inadequacies by partnering (either formally, as in the case of Alberta, or informally in the case of Lusk) with private corporations to assist in the development of telecommunications. In both cases, the governments ensured the injection of some public service principles into their networks. In Alberta, bandwidth costs the same regardless of rural or urban location ensuring that prices are the same regardless of geographical location and that the same SuperNet service extended to all areas of the province (making the SuperNet fulfill common carrier obligations). In Wyoming, public interest principles were more focused on content carriage that was in the public interest, for example providing affordable cable services. Political economists of communication start from a moral position which “holds organizations, whether public or private, accountable to the

¹³⁸⁰ Ibid., 75.

¹³⁸¹ Ibid., 94.

¹³⁸² Ibid.

public good as expressed in concepts such as the public interest and public service,” connecting communication and culture to democracy.¹³⁸³

In her “Political Economy of the Internet,” Korinna Patelis argues against a conception of the internet solely as a delivery platform for applications and encourages scholars to move the focus back to the internet as a communications medium. Viewing the internet as a communication medium, to Patelis, also pulls scholars from making “an access-centred critique.” The problem with such a critique is that it is “formalist, it makes no normative claims and defends no ideal function for the Internet; it merely restates that the individual should have access to the Internet. There is no discussion of Internet content. The content could be anything.”¹³⁸⁴ Patelis argues that the concern of scholars, and this can be extended to governments, with broadband access is formalist and misses any discussion of content. She argues that scholars need to ask two important questions, first, access to what? and second, for what purpose?¹³⁸⁵

In both cases, that of the SuperNet and the fiber optic grid in Lusk, concerns with extending access to the internet overshadowed any larger consideration of what would flow over the pipelines. In Alberta, government Ministers adamantly argued that they were only in charge of building the pipelines, disengaging themselves from any consideration of content. The lack of concern with regard to content is one reason why the networks are less successful than they could be. Residents do not see them as integral to their lives or their work and they can get along without a higher speed connection. The SuperNet is much more successful in its government applications, because the provincial

¹³⁸³ Patricia Mazepa, “Democracy Of, In and Through Communication: Struggles Around Public Service in Canada in the First Half of the Twentieth Century,” *Emerald FullText*, 9, no. 2/3 (2007): 2.

¹³⁸⁴ Patelis, “The Political Economy of the Internet,” 89.

¹³⁸⁵ *Ibid.*, 90.

departments overseeing health, learning, and libraries can develop content for the successful application of the network. The provincial departments have the funds and the technical expertise to develop applications to be run over the SuperNet. On the goal of overcoming the digital divide, however, the SuperNet's effects are limited. This is partially because developers designed the network for several groups of end users: the "stakeholder groups," or the province's government offices, schools, libraries, and hospitals and internet service providers. The SuperNet does not address the valid concerns of the latter group of users and is, therefore, not as successful at ending the digital divide as developers hoped. There are historical parallels to illustrate how design of devices for specific users can complicate a broader application of the device. Dan Schiller illustrates the telegraph, a device designed to serve businesses, disappeared because it did not fulfill the needs of a larger group of potential users.¹³⁸⁶

The fieldwork for this project only begins to consider content. The small users in Alberta did not really know what content they would use the SuperNet for, making the lack of content and applications an important object of study. Additionally, the content of the women in Wyoming was tied to traditional tasks and clerical tasks rather than more liberating pursuits. The women who worked as medical transcriptionists engaged in the process of converting voice records to text records, but they did not create content of their own. The failure of the Lusk fiber-optic grid and the less-than satisfactory start of the SuperNet stem from the focus on the devices as delivery platforms or infrastructure rather than as primarily communications media.

¹³⁸⁶ Dan Schiller, *Theorizing Communication: A History* (Oxford: Oxford University Press, 1996), 8-10.

The SuperNet developers' view of the network as an infrastructure rather than a communication medium has an impact on how the device developed and its diffusion and use. The result is a decreased focus on policy. A greater concentration on policy, however, is what was needed to develop a culture of use for the SuperNet beyond the stakeholder groups. Both Mayor Whiteaker of Lusk and Minister Taylor of Alberta made the error of assuming that people would know how to use the networks. Rather, both should have placed more attention on the issue of the first mile and content development at the local level. In both cases, increased attention to training and software and to developing a culture of use through encouraging the development of specific local applications would have aided residents in domesticating the networks. Use is not organic, for it does not occur solely because the technology to enable it is available. Both the SuperNet and Lusk's municipal grid would have been well served by funding for training and encouraging the development of applications in local communities.

Many discussions of the internet have centered on its capacity to enable participatory democracy. Forums available on the internet allow people to contribute to debates with other, geographically dispersed speakers whom they have never met. This is, according to advocates of the internet, one of the most important facets of the internet for American public life. Despite this possibility, field research illustrated that few rural residents developed content of their own. Those that did were primarily involved in creating content for business purposes. Only one interviewee discussed using the internet to engage in democratic debate. The remainder of the interviewees used the internet for economic/commercial, social, consumer and information-seeking ends. The one

interviewee who engaged in democratic debate was a frequent contributor to the Casper *Star-Tribune's* online discussion forums.

From this study, the internet is a commercialized medium, used in the delivery of services, delivery of work to telecommuters' computers in remote locations, and for the buying and selling of one's own handicrafts or farm and ranch products and buying of consumer goods to prevent driving endless miles to big-box stores. Most of the interviewees found themselves in consumption roles, consuming content from newspapers, entertainment sites, and other corporate web pages.

Mosco also notes that the political economy perspective offers a corrective to the blindspot covering the focus of communication studies regarding consumers and media as a leisure activity. Rather in his recent work, Mosco pulls the focus back to its more Marxist roots and considers work and labor relations in the fields of communication and media.¹³⁸⁷ He points to the work of Michele Martin in *"Hello, Central?": Gender, Technology and Culture in the Formation of Telephone Systems* as an exploration of gender in the world of work in communication industries. Here, Stephen Norwood's *Labor's Flaming Youth: Telephone Operators and Worker Militancy, 1878-1923* also considers the role of gender in telecommunications work. A small part of the Wyoming case study herein opens up the important study of labor in relation to new information technologies. Rather than focusing on the highly-skilled jobs of the information workers commonly studied in literature of the new information age, Chapter Five explores a handful of female telecommuters in rural Wyoming. The interesting questions of telecommuting in rural areas are a fertile area for much more research as there is little

¹³⁸⁷ Vincent Mosco and Catherine McKercher, *The Laboring of Communication: Will Knowledge Workers of the World Unite?* (Plymouth: Lexington Books, 2008).

scholarly work to explore this nascent trend. Rural telecommuting and rural women's use of the internet to expand their incomes, businesses and educations is an understudied area. Very little literature in communication around the internet and work in rural areas exists and few have studied rural telecommuters, especially those living far from metropolitan centers. Interestingly, this challenges the often gendered perspective of heavy computer users being male.

It is an interesting reversal of the envisioned liberations of the internet, which would free people from work, to think of the ranch wife and mother who transcribed medical records in her house trailer at four in the morning. Information and communication technologies have enabled us to export service jobs, often poorly paid, to other countries and as this research shows, to less central areas of the United States. The work of political economists helps theorize the labor of these women as it points to the individualizing functions of telecommunications work. In the case of telecommuters, they are removed from the context of the workplace and telecommuting work alienates the workers from their colleagues.¹³⁸⁸

As an addendum, it is important to note that in *The Rise of the Network Society*, Manuel Castells explores how work is transforming. He views a shift to the informational society, where people are primarily employed in services.¹³⁸⁹ The medical transcription work and consumer use and data reports done by the Wyoming county's telecommuters were service based occupations. In Castells' terms, they are producer services, particularly "auxiliary services to businesses which may not be necessarily

¹³⁸⁸ Mosco, *Political Economy of Communication*, 225, 232-233.

¹³⁸⁹ Manuel Castells, *The Rise of the Network Society*, Second edition, vol. I of *The Information Age: Economy, Society and Culture* (Malden, MA: Blackwell Publishers, 1996, 2000), 219-220.

highly skilled.”¹³⁹⁰ Castells notes that one of the features of the transformation of work related to the transition to an informational society is the creation of a “‘white-collar’ proletariat, made up of clerical and sales workers.”¹³⁹¹ The telecommuting transcriptionists’ work has similarities to the work of telephone switchboard operators of an earlier era: a feminized workforce, with highly routinized tasks, and repetitive work. These telecommuters are not workers that have control over their production; they receive voice files and transcribe the words of the decision-making doctors.¹³⁹² The telecommuters, thus, seem to be a part of the white-collar proletariat.

Evaluation of Neoliberalism

Stemming from the literatures discussed above, particularly the political economy of communication approach, an evaluation of the successes and failures of neoliberalism in the two case studies can be identified. The notion of universal service with which the regulated monopoly had to provide the same services to everyone regardless of location has diminished, pushed back by the trend towards neoliberalism with its focus on competition and reduced public service goals. While the ideal of the networked nation, with the vignette of the farmer riding a tractor, typing on a computer terminal, offers the vision of a world in which all Americans and Canadians, rural and urban alike, have access to the same infrastructures and have the ability to connect up with others around the nation, the reality looks much different. Rural interviewees acknowledged the trend toward deregulation. As one poor rancher noted, “a lot of decisions aren’t made to serve

¹³⁹⁰ Ibid., 223.

¹³⁹¹ Ibid., 244.

¹³⁹² Ibid., 260.

rural people.”¹³⁹³ She was well aware that decisions made by governments and private corporations kept rural users from reaping the benefits of modern information and communication technologies.

In Alberta, the SuperNet plan was founded on ideas of fiscal conservatism and neoliberal economics that favored competition and private enterprise. An early result of the plan was the successful introduction of a large (and thus capable) competitor, Bell, to the Telus monopoly. Neoliberal trends eschew the older ideas of natural monopoly in telecommunications, and as such, the government desired competitive service to Telus, the privatized corporation created from the provincial telephone company. Under the neoliberal rhetoric, competition and consumer choice are good for people.

On another front, the establishment of Axia Netmedia as the manager of the SuperNet can be viewed as a failure of the neoliberal approach. The Alberta government has entrusted a private corporation to manage the network for a contract period of ten years. Additionally, the government is paying SuperNet connection fees for all schools, libraries, public health centers, and provincial offices. The result of this will be the enrichment of Axia from the provincial coffers, and hence, taxpayers. Had the government accepted network management responsibilities, taxpayer monies would not be continually transferred to enrich a small corporation. On a side note, provincial departments have seen their services tied to the SuperNet for years to come.

Another consideration is the neoliberal focus on localism, or the trend of increasingly giving local areas tasks that used to be performed more centrally. Localism was increasingly practiced in Alberta and Wyoming. In the U.S. during the 1980s, rural

¹³⁹³ Ranch Woman (28D-WY), Interview with the Author, June 25, 2007.

sociologists Falk and Lobao argue that the federal government devolved its social programs to state and local governments.¹³⁹⁴

Many of the rural people interviewed for this study preferred localism. In both field sites, people had a strong preference for local companies. In Alberta, some were frustrated that inter-provincial companies were thriving while local firms were not. In Wyoming there was a preference to support local companies; some interviewees mentioned, for instance, that the line-of-sight wireless firm was a local company and preferred it for this reason. Additionally, a majority of interviewees in the Lusk mayor's survey stated they would support a local cable company. People preferred to support local companies above those that hailed from outside of the region.

A primary benefit to localism is that rural communities can design programs and policies that best fit their needs.¹³⁹⁵ As discussed in Chapter Three, the terminating of the SuperNet fiber in towns and villages has led communities without a private ISP to find home-grown solutions to connect to high-speed internet. These solutions let individual communities choose how to develop their systems and which values, like affordable service or universal service, are included.

Although some communities find successful local solutions, there are also detriments to local provision. As seen in Alberta's southern county and in Lusk, some communities are struggling to make local solutions work. A significant issue for communities in regard to localism is the question of their lack of expertise in complex technical realms. Here, one can recall the earlier recounting of the chief administrative

¹³⁹⁴ Falk and Lobao, "Who Benefits from Economic Restructuring?," 160.

¹³⁹⁵ Mildred E. Warner, "Competition, Cooperation, and Local Governance," in *Challenges for Rural America in the Twenty-First Century*, ed. David L. Brown and Louis E. Swanson (University Park, PA: The Pennsylvania State University Press, 2003), 260.

officer of the northern county in Alberta who admitted she was not “fully aware of the technology” but had heard from technical experts that WiMax was a good solution. This lack of necessary expertise problematizes the decision-making capabilities of local officials as they are left to develop and manage systems about which they may have only a cursory understanding. This did, as in the case of Alberta’s southern county, lead to a county being locked into a contract with a service provider on unfavorable terms, where the county absorbed the costs of wireless infrastructure, but the private ISP partner reaped the rewards, in the form of subscriber fees. County residents, thus, paid for all of the system: the construction of the towers through their taxes and then monthly service fees to the private provider.

As economist Mildred E. Warner points out, rural areas face additional challenges in the decentralized era because federal redistributive aid does not correct for inequalities as it did in the past. Warner warns that in the neoliberal era, with its focus on competition, state and local governments must cooperate to fulfill redistributive goals; local governments and private providers need to cooperate to ensure that there are market efficiencies, even in high-cost rural areas; and governments, private companies, and citizens must work together to ensure diverse voices are heard.¹³⁹⁶ Cooperation in these realms is central for fulfilling rural citizens’ needs in the neoliberal era.

These cases question the logic of the increased localization and privatization of service provision. While in some cases, respondents prided themselves and their communities on finding successful work-arounds to interest a private provider and build an internet system, in many other cases, localization meant that private providers did not

¹³⁹⁶ Ibid.

extend service and communities had not yet found a solution. The polar opposites of the tiny Alberta village that connected internet into its existing cable system and delivered internet to society members' homes contrasts to the failure of Lusk to finish building out its telecommunications system to provide services to its residents. For all rural areas, localism might not lead to positive ends.

Horwitz and Winston remind us that new information and communication technologies are often distributed among the established players.¹³⁹⁷ The result of this is to decrease the threat to their businesses. Interestingly, both the last mile of the SuperNet and Lusk's municipal grid were designed to work against this trend. Mayor Whiteaker created Lusk's grid for the purpose of replacing the incumbent cable provider. As recounted in Chapter Four, however, the town eventually sold the grid to the provider. While the SuperNet's construction contract went to a large and established telecommunications company, the ends of the system are open access. It is too early to foretell whether a variety of small, local providers will continue to serve Alberta's rural communities. Perhaps the small providers will be unable to compete and a large ISP, like that from the Maritimes, will take over service.

Finally, policies developed from neoliberalism may be attempts to download costly and difficult rural service onto smaller businesses. One could view the decision to create the SuperNet as an open access network as a way to push serving the "last mile" in costly rural areas onto small companies rather than large corporations or the provincial government while cloaking this decision in the rhetoric of economic development and

¹³⁹⁷ Robert Britt Horwitz, *The Irony of Regulatory Reform: The Deregulation of American Telecommunications* (New York: Oxford University Press, 1989); Brian Winston, *Media Technology and Society, A History: From the Telegraph to the Internet* (London: Routledge, 1998).

competition. There are two pieces of evidence to back this position up. The first was the partners' decision not to provide internet as a part of the SuperNet. This provided a way for developers to dismiss legitimate arguments of bringing internet access to people. By decoupling the SuperNet and the internet, the partners could permit rural Albertans to fail technologically while escaping any real culpability for the deprivation of service.

Additional evidence for this is Bell's reluctance to fulfill the provider of last resort clause. The company seemed loath to provide service to costly rural areas. By touting the virtues of local competition and small businesses, the government of Alberta and its private partners detached themselves from the necessity to provide universal service.

Theorizing the Demand Side

There is much more scholarly attention paid to the developers and development of information and communication devices than to their subscribers. Scholars often compile subscription information as quantitative data summarizing vast numbers of users.

Scholars of technology studies literature have turned their gaze to the role of users. This field of study explores the active role that users play in shaping technologies and negotiating meanings.¹³⁹⁸

Ruth Schwartz Cowan's "The Consumption Junction: A Proposal for Research Strategies in the Sociology of Technology" and other user-centered studies like Roger Silverstone and Eric Hirsch's *Consuming Technologies*:

Media and Information in Domestic Spaces (1992) and M. Lie and K. H. Sorenson's

¹³⁹⁸ Sally Wyatt, Graham Thomas, and Tiziana Terranova, "They Came, They Surf, They Went Back to the Beach: Conceptualizing Use and Non-Use of the Internet," in *Virtual Society? Technology, Cyberbole, Reality*, ed. Steve Woolgar (Oxford: Oxford University Press, 2002), 25.

Making Technology our Own? Domesticating Technology into Everyday Life (1996)

productively incorporate users into technology studies.

Schwartz Cowan remarks that in the history of technology,

a large number of relevant social groups are involved in the success or failure of any given artifact (ranging for example, from the small groups of craftsmen or engineers who may be responsible for innovation to the somewhat larger group of managers who may make decisions about the innovation, to the even larger group of production experts who must turn it into an artifact, to the even larger group of people who must distribute, market, and sell it, and then to the potentially even larger group of people who will consume it). Any one of these groups, or individuals acting within the context of their group identity or (worse) combinations of those groups or (even worse yet) some other group not yet enumerated (such as purchasing agents for governments), may be responsible for the success or failure of any given artifact.¹³⁹⁹

To narrow down the expansive number of individuals and groups involved in the success or failure of particular artifacts, Schwartz Cowan studies “the consumption junction,” or the place and time when consumers make choices between competing technologies. She attempts to recreate the situation that the potential consumers view and examine why they selected the technologies they did.¹⁴⁰⁰ To do this, she embeds the consumers into a network of relations, which allows for the investigation of their choices and the consideration of a wide variety of social groups.¹⁴⁰¹ For Schwartz Cowan, such an

¹³⁹⁹ Ruth Schwartz Cowan, “The Consumption Junction: A Proposal for Research Strategies in the Sociology of Technology,” in *The Social Construction of Technological Systems: New Directions in the Sociology and History of Technology*, ed. Wiebe E. Bijker, Thomas P. Hughes, and Trevor Pinch (Cambridge, MA: The MIT Press, 1989), 262.

¹⁴⁰⁰ Ibid., 263.

¹⁴⁰¹ Ibid., 278, 279.

analysis permits the bridging of the chasm that exists between “historians who like to tell good stories and sociologists who would like to turn those stories into case studies.”¹⁴⁰²

Roger Silverstone, Eric Hirsch, Merete Lie, and Knut H. Sørensen advocate research beyond the diffusion stage that Schwartz Cowan studies and look to the integration of technology into everyday life.¹⁴⁰³ For these authors, “everyday life” is the routine activities people do daily. The active acceptance and work that adopters carry out to incorporate and appropriate devices is called domestication.¹⁴⁰⁴ It is, according to Lie and Sørensen, only when technologies interact with everyday life that they acquire meaning.¹⁴⁰⁵ As such, the scholars advocate studying the incorporation of technologies into daily practices and exploring the complexities and conflicts that emerge along the way.

Significant portions of this project looked into the adoption of ICTs into rural homes. From interview data, some comparisons of rural residents in the Alberta and Wyoming field sites are appropriate here. The majority of interviewees in the Alberta counties said that high-speed internet access was a necessity for rural people. They tended to regard it as another device needed for living in our social context. In contrast, the majority of interviewees in the Wyoming county said that high-speed internet was not necessary. Many of the Wyoming interviewees took a pragmatic approach and noted that the internet was not necessary because it is not like food or water. This raises important

¹⁴⁰² Ibid., 280.

¹⁴⁰³ Roger Silverstone and Eric Hirsch, “Introduction,” in *Consuming Technologies: Media and Information in Domestic Spaces*, ed. Roger Silverstone and Eric Hirsch (London: Routledge, 1992), 3; Merete Lie and Knut H. Sørensen, “Making Technology Our Own? Domesticating Technology into Everyday Life,” in *Making Technology Our Own? Domesticating Technology into Everyday Life*, ed. Merete Lie and Knut H. Sørensen (Oslo: Scandinavian University Press, 1996), 1.

¹⁴⁰⁴ Ibid., 10.

¹⁴⁰⁵ Ibid., 17.

questions about what essential services are and at what point a given service becomes essential. Regardless of their views about the necessity of high-speed internet, in both sets of respondents, more people subscribed to satellite television service as compared with internet service. Some respondents noted that internet service was too expensive, but they did not balk at paying equally or higher prices for satellite television services. Thus, interviewees placed a clear priority on the entertainment they received from television subscription.

Strong factors in both the Alberta and Wyoming counties for subscribing to high-speed internet was having moved into the region from somewhere else or had strong social or economic ties to another region. People had a variety of reasons for this: doing long distance work for the same employer; wanting to continue high-speed internet subscription as they had in their old homes; and keeping in touch with family and friends in different areas. This supports Rogers' argument in the *Diffusion of Innovations* that more innovative people have more widely distributed social networks.¹⁴⁰⁶

Another commonality between the rural residents in the Alberta and Wyoming counties is that numerous people listed the same two constraints to using the internet. Both cost for the services and difficulties in knowing how to use the internet effectively were the two most widely cited hindrances to connecting. This leads to another piece of the scholarly literature; that which considers those left out of the internet and its applications.

A particularly important subset of consumers and citizens are those excluded from the internet and new ICTs. Scholars working from a variety of theoretical positions

¹⁴⁰⁶ Rogers, *Diffusion of Innovations*, 22.

consider this group. Some divide the excluded into sub-categories, including those who choose to be excluded and those excluded due to finances or technical knowledge. A consideration of the variety of categories of the excluded is important here. Urban geographers Stephen Graham and Simon Marvin discuss the mechanics of exclusion in their *Splintering Urbanism: Networked Infrastructures, Technological Mobilities, and the Urban Condition*, outlining the transition from the modern infrastructural ideal to the “unbundled” provision of services.

Susan Leigh Star discussed the “orphans” of infrastructure, the groups or individuals who do not fit or do not fit well into emerging infrastructures. According to Edwards, Jackson, Bowker, and Knobel, “being ‘orphaned’ by infrastructure is to be on the receiving end of a significant exercise of exclusionary power....” To make things worse, the layering of inequalities means that people who are excluded from one infrastructure are often excluded from others, which serves to worsen the effect.¹⁴⁰⁷

Political economists of communication have focused their attention on those excluded from telecommunications developments both globally and within the United States. Especially notable here are the works of Herb Schiller. These scholars often discuss the resisters of globalization and neoliberalism, including oppositional and alternative movements. In *The Political Economy of Communication*, Mosco writes that it is “significant to document the consequences of a lack of access to the means of communication, mass media, and telecommunication.”¹⁴⁰⁸ In *The Digital Sublime*, Mosco provides evidence that some people do not want to jump on the bandwagon of new ICTs and high-speed internet. Research in both Canada and the U.S. show

¹⁴⁰⁷ Edwards, Jackson, Bowker, and Knobel, “Understanding Infrastructure,” 25.

¹⁴⁰⁸ Mosco, *The Political Economy of Communication*, 229.

substantial numbers of cyberspace “choose-nots” who select not to subscribe to high-speed internet because they have no reason to pay.¹⁴⁰⁹

Rogers discusses individuals and groups who reject innovations. He finds there are two categories, the “active” rejecters who consider adoption and try an innovation, but ultimately decide not to adopt it. Rogers contrasts the active rejecters to the passive ones, who do not consider the use of the innovation at all.¹⁴¹⁰

Other scholars point out that the excluded are not a monolithic group and divide rejecters and the excluded into a number of distinct categories, the main split being excluded by choice and excluded by factors beyond the individual’s control. People do not subscribe simply because high-speed internet is available; rather, people make adoption decisions based on whether the technologies have a use for them and whether they fit into their lived experiences. In “They Came, They Surfed, They Went Back to the Beach: Conceptualizing Use and Non-Use of the Internet,” Sally Wyatt, Graham Thomas, and Tiziana Terranova note the broadly held belief that the expansion of internet access is a good thing and, as barriers to access and use are removed, more and more people will sign on to the network culture for productive uses.¹⁴¹¹ For the authors, however, non-use is an important aspect and non-users of technology must necessarily be considered along with users. Wyatt, Thomas, and Terranova note that research indicates people are leaving the internet; former users cite loss of interest and cost as reasons for disconnecting.¹⁴¹² They identify four categories of non-use: resisters, rejecters, excluded, and expelled. Resisters are the people that have never tried the internet because they do

¹⁴⁰⁹ Mosco, *The Digital Sublime*, 167.

¹⁴¹⁰ Rogers, *Diffusion of Innovations*, 178.

¹⁴¹¹ Wyatt, Thomas, and Terranova, “They Came, They Surfed, They Went Back to the Beach,” 25.

¹⁴¹² *Ibid.*, 31.

not want to. Rejecters are those who tried the internet and used it for a period of time, but then stopped using the internet. There are multiple reasons for this, including cost and disinterest. The excluded include people that have not used the internet because they cannot get access. For the authors, these people are thus “socially and technically ‘excluded.’” The expelled are those that used to use the internet, but they have had to involuntarily stop using it, either because they can no longer afford to do so or because of a change in institutional circumstances, such as the loss of connection at work or the closing of a public library.¹⁴¹³ Wyatt, Thomas, and Terranova challenge the universalizing claim that all non-users are non-users due to lack of access. They encourage scholars to separate non-users into different strands, for there are distinct policy implications for each group.¹⁴¹⁴

Importantly, as more and more government content moves online, there are serious implications for non-users. Governments must be aware that not everyone chooses to connect. In Alberta, interviewees expressed worry as cattle registration and government forms migrated online with graphic rich web sites. Not having high-speed internet access excluded these folks from easily fulfilling their obligations to the state and their industry. As more content moves online, these stories will only increase in number.

The field interviews in Wyoming and Alberta uncovered resisters, rejecters, the excluded, and the expelled. A variation on the expelled group are those people (and there were many in both Alberta and Wyoming) who found themselves in a liminal space between excluded and fully connected because they were stuck with dial-up internet because high-speed via satellite was too expensive. The fear here, to link back to

¹⁴¹³ Ibid., 36.

¹⁴¹⁴ Ibid., 36-37.

Edwards, Jackson, Bowker, and Knobel's work, is that due to the layering effects of inequalities, choosing not to have access to the internet will lead to other social and economic complications for rejecters.

Methodological Considerations

This study has compared the supply and demand sides of broadband infrastructure in counties in rural Wyoming and Alberta. Rural sociologist Daryl Hobbs noted, "when you've seen *one* rural community, you have seen *one* rural community."¹⁴¹⁵ This statement has merit in that no community is exactly the same as another. Woolgar's first rule of virtuality is that "The uptake and use of the new technologies depend crucially on local social context."¹⁴¹⁶ However, as a communication scholar, while acknowledging that places are not precise comparisons and that all communities have particular identities and characteristics, I argue that patterns and similarities can be located between places and infrastructures. Despite this, considerable variation exists due to each project's location in a specific community, a specific political-economic context. This study has engaged the local on its own terms while still allowing for tentative analysis and conclusions across cases.

Despite their differences the cases nicely reflect the extreme techno-optimism of the 1990s and early 2000s and the idea that technologies on their own can solve complex

¹⁴¹⁵ Louis E. Swanson and David L. Brown, "Conclusion: Challenges Become Opportunities: Trends and Policies Shaping the Future," in *Challenges for Rural American in the Twenty-First Century*, ed. David L. Brown and Louis E. Swanson (University Park, PA: The Pennsylvania State University Press, 2003), 397.

¹⁴¹⁶ Woolgar, "Five Rules of Virtuality," 14.

social and economic issues. The Wyoming case is a small-scale example and the Alberta SuperNet, a larger scale.

Alberta was chosen as a site of research because the SuperNet development suggests what the future networked nation may look like. The Alberta counties were selected because they provided a good case study because of the different local approaches to providing internet developed within them. Wyoming was selected as a comparison case, because like Alberta, the state has a lot of revenue from primary industries and it is a mountain-region state. It was a fortuitous coincidence that the Wyoming county had previous experience with a network plan. Despite similarities in the counties, there are differences within the field studies.

The Alberta case study contains more interviews with people representing organizations, social service offices, towns and village offices, schools, libraries, and health centers and fewer rural residents. The Wyoming case study focuses more on rural residents and less on representatives from organizations. This happened for two reasons. The most important reason is simply that developers designed the SuperNet project so that organizations and internet service providers would be the users of the network. The rural residents were users of the organizations' and ISPs' services and hence they were second-level customers. The second was an effect of snowball sampling; organizational interviewees in Alberta often provided recommendations to other organizational interviewees whereas in Wyoming, rural residents suggested other rural residents. Additionally, because the Alberta county had ten towns and villages whereas the Wyoming county had three, there were more organizations to contact in Alberta. While not an exact comparison, it is striking that both field cases experienced similar problems

with broadband infrastructures. While both successfully built the infrastructures, each experienced difficulties in getting the systems adopted and used. In both cases, cost and uncertain evaluations of necessity are significant limiting factors slowing the uptake of high-speed internet.

From Scholarship to Praxis

Both the STS and political economy of communication traditions share a perspective that scholarship must necessarily go beyond theoretical reflections and journey into the realm of praxis.¹⁴¹⁷ In “Understanding Infrastructure: History, Heuristics, and Cyberinfrastructure Policy,” Jackson, Edwards, Bowker, and Knobel note that their scholarship must provide “‘rules for the road,’ that present-day cyberinfrastructure developers and users might do well to keep in mind as they go about their work.”¹⁴¹⁸ The political economy of communication tradition follows in the trend of Antonio Gramsci’s “organic intellectual” that sees a role for the scholar from the moral philosophical dimension of contesting power stemming from the dominant/hegemonic position in society.¹⁴¹⁹ From this position then, scholarship actively intervenes into society. Despite this, Science Studies also reminds us that it can be difficult for scholars to share their normative claims with policy makers, scientists, and technology developers because the groups read and work in different ways.¹⁴²⁰

¹⁴¹⁷ Mosco, *The Political Economy of Communication*, 133.

¹⁴¹⁸ Jackson, Edwards, Bowker, and Knobel, “Understanding Infrastructure,” 1.

¹⁴¹⁹ Mosco, *The Political Economy of Communication*, 133.

¹⁴²⁰ Chandra Mukerji’s *A Fragile Power: Scientists and the State* outlines some of the communication differences between elite scientists and the government officials they interact with. Chandra Mukerji, *A Fragile Power: Scientists and the State* (Princeton, NJ: Princeton University Press, 1989).

This dissertation project offers productive lessons for developers of new infrastructures and for those involved in public policy. At this moment, funding for the extension of broadband infrastructures to underserved and unserved areas is an integral part of stimulus plans in countries including the United States, Canada, and Germany. Other nations, such as Australia and France, have developed separate broadband plans.¹⁴²¹ It behooves the granters of stimulus funding and the developers of new broadband infrastructures in rural areas to attend to the lessons offered by the academic examination of previous projects. Unfortunately, the speed required by stimulus plans does not always lend itself to a sustained consideration of historical examples.

In March of 2009, the National Telecommunications and Information Administration (NTIA) and Rural Utilities Service (RUS) held joint public meetings in D.C. and in Las Vegas, Nevada, and Flagstaff, Arizona, to discuss how best to distribute federal funding for the expansion of broadband into rural and underserved areas and to consult the public about decisions being made. The meetings covered a variety of topics ranging from the definition of broadband, reaching vulnerable populations, and creating innovative programs to drive demand. Noticeably absent from the public panels was a consideration of history. Previous programs to provide broadband service to rural and underserved populations, whether successful or not, received nary a nod from the multiple panelists. Indeed references to any previous infrastructure builds were cursory at best.¹⁴²² Additionally, the Governor of Wyoming, Dave Freudenthal, in his submission

¹⁴²¹ Eric Pfanner, "Broadband Expansion is Popular in Stimulus Plans," *The New York Times* (February 26, 2009).

¹⁴²² For example, on one occasion, panelist Betty Ann Kane (Utility Commissioners' NARU) noted, "people used analogy of the interstate highway system, the Eisenhower bill. As I recall, I was not quite aware of but there was an actual prohibition of having tolls on the interstate. It was built with federal

to the NTIA and RUS about broadband development in Wyoming fails to mention the unconnected grid.¹⁴²³ The consideration of earlier broadband projects could provide the NTIA and RUS with important historical information for shaping the current programs. It would behoove the agencies granting broadband stimulus funds to consider historical cases of broadband expansion and the development of wired communities during the granting process of federal funds through the American Recovery and Reinvestment Act. To ignore history, as we are too often reminded, allows us to repeat our mistakes.

Concluding Remarks

The work of many scholars in the fields of science, technology, society; the technological sublime; the political economy of communication; and diffusion and use of devices have provided insights and analytical lenses through which to view the expansion and adoption of broadband internet in rural areas of Alberta and Wyoming. Importantly, these theoretical and conceptual perspectives all privilege the place of history and encourage the use of the past to help provide explanations of and for the present moment.

money and was to be available to all.” This is a rare instance where a panelist mentioned other infrastructure projects. Betty Ann Kane, “Session 2: Roundtable on Definition of Underserved Areas and Reaching Vulnerable Populations,” Definition of Broadband; Definition of Underserved Areas and Reaching Vulnerable Populations; Rural and Unserved Areas, U.S. Department of Commerce, Washington, D.C. (March 19, 2009), URL: http://www.ntia.doc.gov/broadbandgrants/090319/NTIA_031909_1300_1430_session.pdf (accessed October 27, 2009): 78.

¹⁴²³ Dave Freudenthal, Governor of Wyoming, to Secretary Gary Locke, U.S. Department of Commerce, Secretary Tom Vilsack, U.S. Department of Agriculture, Acting Assistant Secretary and Deputy Assistant Secretary for Communications and Information Anna Gomez, Office of the Assistant Secretary, National Telecommunications Information Administration, and Marlene H. Dortch, Office of the Secretary, Federal Communications Commission, April 10, 2009, National Telecommunications Information Administration, Broadband Grants Comments, <http://www.ntia.doc.gov/broadbandgrants/comments/7E8A.pdf> (accessed November 27, 2009).

The literature reviewed above encourages scholars to view technology as a product of the social, political, economic, and material world in which it developed. This insight led this project to explore the circumstances surrounding the conception and development of the projects and to include political, bureaucratic, economic, and technical questions. Additionally, it led me to also study the demand side of diffusion and use of high-speed internet and other communication devices. The major benefit of this approach is that it removes technology from the realm of the sublime, effectively situating it into the sphere of the banal, where people use—or do not use—a device in their everyday lives. Carrying out research from both the supply and demand side enabled this project to identify constraints and disconnects between technology developers and the intended users.

Proponents and admirers exalted both the Alberta SuperNet and Lusk's municipal grid. While the SuperNet is "one of the most brilliant government innovations" to supporters, to the Albertans whose needs were excluded from the development process and who still do not have high-speed internet access, the system does not serve at all. In Lusk, the sale of the grid to the incumbent cable provider in the end brought improved cable service and introduced high-speed internet service to town residents. In exchange, the town and its residents sacrificed coordination and control of the grid. The Alberta SuperNet and the municipal grid in Lusk offer examples of broadband infrastructure development from which to take some important lessons. Monies for the construction of technological systems are simply not enough. Funds must be reserved for in-depth work to help local populations transition to a digital existence, including monies to develop meaningful content and sufficient programs to develop a culture of use.

CONCLUSION

The United States and Canada's deregulation of telecommunications in the 1990s has opened up opportunities to study how private corporations provide telecommunications services to residents in the post-regulatory moment. While the current climate of deregulation and neoliberalism would seem to discourage government involvement in solutions to overcome rural-urban digital divides, specific regions see government intervention as the only way to bridge the gap. Through the exploration of supply of advanced telecommunications capacity in Alberta and Wyoming, we see that some level of government involvement is required to spur development of telecommunication infrastructures. The solutions that the Province of Alberta and the Town of Lusk developed were both high capacity fiber-optic systems, capable of serving their respective jurisdictions for years to come. On a technical level, the networks are optimal. Despite being cutting edge systems, these solutions do not meet the needs of the citizens and consumers they are intended to serve. In Alberta, the SuperNet has been successful at assisting in the provision of provincial social services, thus benefiting Albertans as students, patients, and citizens. The second aim of the project, bridging the rural-urban digital divide has been less successful in the short term. As such, the project is a short term (four years after launch) failure at providing rural Albertans with the opportunities to access high-speed internet like it is available in the province's cities. In Lusk, the sale of the municipal fiber optic grid to the incumbent, private cable company ended an opportunity the community had at actively developing their network for the public good and having control over their own communication network. As it rests with

the private cable provider, the fiber optic grid brings cable television and high-speed internet in town, providing residents with greater consumer choice. Thus, the solutions developed in Alberta and Lusk do meet the needs of the populations as citizens and consumers in some ways, but not in others.

On a much larger level, this dissertation illustrates that telecommunications development in the neoliberal, post-regulatory moment faces severe challenges and leads to some service failures. In the SuperNet case, the public-private partnership privileged the imperatives of the private companies and the government's objectives while excluding citizens from the development process. Neo-liberal states and governments focus on infrastructure access and public-private partnerships because these appear to provide cost-effective and innovative (from industry participation) developments for regions while backing away from the values associated with the regulated, common carrier, universal service model that operates for the public good. What the neoliberal and attendant focus on access creates, however, is a dearth of focus on content and encouraging communities of use. Additionally, leaving telecommunication development to local governments has challenges, as a lack of technical knowledge at the local level complicates development and leads to developments that do not serve the communities or their constituents well. Finally, rural subscribers are in the initial stages of developing online communities of use. Many do not desire technically optimal broadband solutions because they find themselves priced out of the market.

It is deterministic to believe that the creation of a technology to expand service provision and ease the harsh economic realities of agricultural communities in the 21st century will create a "virtual" society, one that is different from, and better than, the

society from which it formed. Rather technologies enhance the existing relations of society, for better or worse. This dissertation shows that the relationship between infrastructure developers and their innovations is one threaded with political, social, cultural, and economic considerations. The relationship between infrastructures and the rural people who use them is complex, complicated by factors of geography, economics, assumptions and understandings, and social factors.

The rural case studies herein illustrate that we would do well to re-infect our discussions of advanced telecommunications and the network society with a stronger emphasis on considerations of the public good and universal service. Otherwise, rural residents of Canada and the United States may be disconnected from advanced telecommunications and the changes that our society is undergoing.

APPENDIX

Ethnographic and Methodological Notes

To study people's experience with cell phones, satellite receivers, high-speed internet, and the SuperNet in rural Alberta, I conducted ethnographic research in a county in central Alberta and its adjoining region from October 2006 to January 2007 and December 2007 to January 2008. The county is neither "remote" nor "northern" by Canadian definitions and it is approximately five hours north of the U.S.-Canada border.¹⁴²⁴ Although original research plans focused on one county, there were interesting additional reasons to look at adjacent areas; they implemented different solutions to the broadband problem. The county's rural population was 3,697 in the 2001 Census, but a representative from the county office noted it has likely increased since then, largely due to an influx of people escaping the high costs of the cities, costs that are increasing in the province's booming economy.¹⁴²⁵ This population is limited to rural dwellers as the county is responsible only for those people in unincorporated areas. Residents of incorporated towns and villages have separate municipal organizations. In 2001, the combined population of the county's ten towns and villages was 5,277, the largest being 1,004 and the smallest 161.¹⁴²⁶ Again, town officials suspect population increases in the next census data. Agriculture and resource exploration and extraction are

¹⁴²⁴ Industry Canada, "Community Demographics," URL: http://www.broadband.gc.ca/demographic_servlet/communitydemographics/, (accessed September 11, 2006).

¹⁴²⁵ Senior Financial Officer, Central County (2A-AB), Interview with the Author, October 24, 2006.

¹⁴²⁶ Statistics Canada is still tabulating population data from the 2006 Census.

the central industries. The region's economy is based on wheat, canola, oats, pulse crops such as peas, cattle, coal mining, and oil drilling. The county's towns and villages provide services to the surrounding areas and the grain elevators, seed cleaning plants, and farm implement dealerships are prominent structures on the town landscapes. In each town and village that has them, the grain elevator or seed cleaning plant is the tallest building in town. The county has a slightly older population than the province; in the county, the median age is 38.1. In the province, it is 35.¹⁴²⁷ From an education standpoint, the county's population has much lower university education rates than the province in general.¹⁴²⁸ One important challenge the county currently faces is that there is no post-secondary institution within its borders. The county is an hour drive (91 kilometers) from a larger neighboring town with a population of 5,215 in 2001 although the 2006 Census will likely show a significant population increase and two hours from the closest city.¹⁴²⁹ I selected the county because of its distance from major towns and cities and because in some areas, companies and residents have found a variety of ways to provide high-speed internet service while other regions remain without affordable high-speed internet options despite the province's broadband fiber optic network, the Alberta SuperNet. I did some work in two adjacent counties, one to the north and one to the south because these counties are establishing municipal-private partnerships for high-speed internet provision. The county that I worked in currently has "no plans" to

¹⁴²⁷ Statistics Canada, 2001 Community Profiles: Flagstaff County (County/Municipality), URL: <http://www12.statcan.ca/english/census06/data/profiles/community/Details/Page.cfm?Lang=E&Geo1=CSD&Code1=4807031&Geo2=PR&Code2=48&Data=Count&SearchText=flagstaff%20county&SearchType=Begins&SearchPR=01&B1=All&Custom=> (accessed September 11, 2006).

¹⁴²⁸ Ibid.

¹⁴²⁹ Statistics Canada, 2001 Community Profiles: Stettler, Alberta (Town). URL: <http://www12.statcan.ca/english/profil01/CP01/Details/Page.cfm?Lang=E&Geo1=CSD&Code1=4807026&Geo2=PR&Code2=48&Data=Count&SearchText=stettler&SearchType=Begins&SearchPR=01&B1=All&Custom=> (accessed February 28, 2007).

establish such a solution, according to a county representative. Instead, they prefer to leave provision entirely to private enterprise.¹⁴³⁰

I located potential research subjects in Alberta in four ways. First, I made both personal visits and telephone calls to municipal offices, community social services, and local businesses to solicit their participation. These calls and visits often led to an interview with an employee of the office or service and at times to additional recommendations of people with whom to speak. The vast majority of my county and town official, social service, education, and library interviews resulted from this approach. The second approach used to locate subjects was to publicly advertise the research. During a trip to the newspaper office to enquire about the costs of placing recruitment advertisements, I introduced myself, and the project, to the person at the counter. This woman was the newspaper's temporary editor and she asked to interview me for an article. I did the interview and the article, "University Student Comes Back to Her Alberta Roots," appeared on page two in the October 31, 2006 edition of the newspaper.¹⁴³¹ The article included details about my research, a plea for interviewees, my photograph, and a telephone number and my e-mail address where potential interviewees could contact me. From this request for interviewees, I received only one e-mail response. This response, however, led to an interview and the individual introduced me to two of her co-workers who agreed to participate. The article did, however, provide me with a formal introduction to the region and I did meet other people who said they read about me or saw my picture in the newspaper, so the article successfully introduced

¹⁴³⁰ Senior Financial Officer, Central County (2A-AB), Interview with the Author, October 24, 2006.

¹⁴³¹ Cathy Weetman, "University Student Comes Back to Her Alberta Roots," *The Community Press* (October 31, 2006): 2.

my work to the community. A community member told me near the end of my fieldwork that this newspaper may not have been the best vehicle to use. The person stated that the newspaper had many problems, a major one being a new editor every few months, that people stopped reading it. The problem appears to stem from a lack of trust in the publication. As another means of subject recruitment, I posted Institutional Review Board (IRB) approved research subject recruitment flyers in all of the ten towns and villages. In most cases, I posted the flyers on the post office bulletin board, either inside or outside the building, where rural people pick up their mail. In one town with rural delivery (and no bulletin board at the post office), I posted flyers at the grocery store and at a popular restaurant. In another town without a post office bulletin board, I pinned up an advertisement at the local Co-op grocery store. None of these flyers received any response, although they included both my telephone number and e-mail address. The third subject recruitment method was through people I met during observations. I sat in on computer courses taught at the adult learning center and introduced myself and the project to students during these classes, asking for participants and I observed the public access terminals at one of the county's libraries and spoke to potential interviewees who used the computers. This approach located a handful of participants. The final and most successful way of finding participants was via people in the field. On my first full day in the field site, I learned the value of personal connections as I found my initial contacts in an interesting way. I was sitting in the car in the parking lot of a grocery store, studying the county map, deciding on a plan of action for the afternoon. Morning visits to the town office and library had been fruitless. A full-size pick-up truck pulled into the spot next to the car. I heard the driver get out and shut the door, but I did not look up. Then,

there was a rap at my window by a hand encased in a clean, tan colored leather work glove. I looked at the man and opened the car door. He was older, perhaps in his sixties, with white hair, a cowboy hat, and black jeans. When I opened the door, he remarked that he saw me studying the map and then he saw the California license plates. He wondered if I needed help and joked that it had taken me a long time to discover I was lost. After I explained my project and my California license plates in rural Alberta, the man stated he used to be a county councilor. He noted that the county is not doing much with SuperNet, but, the “county north of here” has a commission about how to bring high-speed internet to everyone in its borders. He gave me the town secretary’s name and suggested I talk to him. Also, he said that I should go down Main Street to the county’s Family and Community Services office and talk to his “good friend” who could tell me about the social ills of the small community.¹⁴³² After meeting this man, I went to the Family and Community Services office as he suggested. There, the social worker invited me to attend a meeting of regional social service workers immediately. I could not believe my good fortune. At this gathering, I met several individuals important to my work: the county literacy coordinator, the learning center’s administrator, and a couple of potential rural community member interviewees. Thus, a chance meeting in a parking lot served as the catalyst for my early interviews. In addition to the former county councilor, an invaluable resource for me was a former neighbor of mine from Calgary who now lives on a farm in an adjacent county. This friend suggested people to call and allowed me to use her as a reference. On other occasions, she would phone the potential interviewee herself to recommend me and say I would call. This system worked well.

¹⁴³² Alberta Field Notes, October 17, 2006.

As the mother of one of my adolescent interviewees remarked, they only did the interview because of this friend; they most likely would not have done it if I had cold called them.¹⁴³³ Some of the interviewees that this friend suggested then referred me to other people, who put me in contact with yet others as potential subjects. In this way, much of the rural community member research used the snowball sampling method.

In Alberta, I conducted 73 long interviews, ranging from 45 minutes to over three hours long. The average interview was an hour and a half. I interviewed a variety of people in the county including county representatives, both elected officials and civil servants; people who worked for community and social service organizations including adult learning and literacy, career consulting, librarians, chief administrative officers of towns and villages, mayors, health care personnel, and school representatives; rural community members; internet service providers; computer consultants; business owners or representatives; people who in some way facilitated high-speed internet coming to the county; and provincial government representatives. I also interviewed people out of the county who were in some way connected to it. For example, Alberta arranges many social service organizations, including health and education, in regional groupings. Interviewees included people who worked for these regional organizations. Other examples of people I interviewed outside of the county were internet service providers and computer consultants located in cities and towns beyond the county lines; government representatives who worked in Edmonton, the provincial capital; and officials in neighboring counties who selected different solutions to high-speed internet provision than the county that was the focus of my work. I spoke to rural community

¹⁴³³ Mother of Rural Adolescent Interviewee (7D-AB), conversation with the Author, November 29, 2006.

members from outside of the county, but they often had ties to it, for example, land ownership in the county, their children attended county schools, or they lived just across the county line. This illustrates that political borders do not define people's lives, rather they are fluid. Additionally, I spoke with many people on the telephone who stated that they did not want to be interviewed but told me briefly about their technology use. These people were largely town and village officials, health care centre workers, and school officials.

There were a few examples of non-response. My practice was to call companies and organizations several times, if needed, to get a response. For rural community members, my practice was to call twice. If I could not reach an individual and the potential interviewee did not return my phone call, I assumed the person did not wish to be interviewed, and I stopped phoning. In a few cases, I reached the potential interviewee but they stated they were too busy to help out. My practice was to have all of the consent forms signed at the time of the interview. In some cases, however, the necessary consents could not be completed as a witness was not present to sign the forms. This proved a greater challenge than expected. Rural interviewees would arrange times to talk when their spouses were away and often there was not an adult witness for miles. In these cases, I left the forms with the interviewee and arranged to have them sent to by mail or I would return and pick them up. Once, I completed an interview with a community member and afterward, he declined to sign the consent forms.

There were a variety of responses to the Institutional Review Board (IRB) consent forms. Some people signed them without comment. Others, however, were suspicious of the forms. One potential interviewee asked, "Why do I have to sign anything?" and then

declined to be interviewed. Someone else remarked that the IRB forms looked like something he had signed for a medical procedure. Many people remarked that the two or three consent forms, one for the interview, one for the audio recording of the interview, and one for a photograph of the interviewee were too complex and unnecessary.

Updating human subjects' permissions and following human subjects' guidelines in the field proved to be challenges. A packet of updated consents was lost in the mail for two months, generating panicked phone calls from myself to the IRB and slowing down my work. Additionally, I had difficulty securing the signed consents and interview data. To satisfy IRB requirements for risk management, my research protocol states "In addition to protecting confidentiality, all data pertaining to the study will be stored in locations that are not publicly accessible. Interviews will be coded with a key that will be stored separately from the interview data." In San Diego, this sounded reasonable and easy to do. In the field, however, storing people's personal information and signed consent forms separately from interview data presented problems at times, because I had only two locked spaces, my car and the motel room in which I stayed.

After each rural community member interview, I asked the respondent if they would fill out a seven day Media Use Diary. The diaries were a blank chart and I asked people to record their use of internet, e-mail, television/cable/direct-to-home satellite, radio, land line telephone, cellular telephone, newspapers, magazines, books, cinema, and an "other" category where respondents could list movies viewed at home and video games. During the research, I distributed 21 diaries in rural Alberta to people who agreed to complete them. I received ten back, a rate of 47.6% completion. In addition to non-response, the diaries had self-reporting problems. In one case, a farmer completed three

days of the diary and then scrawled across the top, “Pattern is same most days.”¹⁴³⁴ In another, I received a media diary via post in the city on January 12th, 2007. The post office date stamped the envelope January 8. The interviewee claimed to record her media use from January 6th to 12th, which could not have been the case since the envelope was postmarked four days earlier.¹⁴³⁵

In addition to interviews, I carried out observations in the field. I had permission from the county’s Family and Community Services office to observe their monthly inter-agency meetings and to attend a Community Resource Officer Celebration. I went to three inter-agency meetings one each in October, November, and December 2006. At these meetings, there was a discussion of communication technologies, including internet, computers, and cell phones. I also observed four adult computer classes: Internet and E-mail, Home and Business Internet Safety, Basic Computers for Seniors, and Computer Basics. Additionally, I observed public internet access points. I spent one day observing at the learning center that has six computers hooked up to high-speed internet for public use. No one came to use the machines. I also observed people’s use of the computers with internet access at three of the county’s public libraries.

Unlike my previous academic work that I carried out in archives, this project centers on people. To acknowledge my gratitude of the participants’ willingness to assist me, I sent a hand-written thank you card to all of the people with whom I had a long interview and to anyone who had helped me either by suggesting interviewees or providing some assistance during my fieldwork.

¹⁴³⁴ Farmer (13D-AB), Media Diary, Postmarked January 18, 2007.

¹⁴³⁵ Rural Non-Farm Resident (22D-AB), Media Diary, Postmarked January 8, 2007.

The majority of the respondents included people who lived and worked in the county. The rural community member interviewees included both farm and rural non-farm dwellers, which are people living on acreages that do not produce crops or livestock. I spoke to eighteen farm and two non-farm people. The farms were family farms, in some cases passed from grandfather, to father, to son. Only some people could make a living from farming or wanted to farm full-time. I spoke to eight farm homes with full time farmers. In all cases, the wives had full time jobs or more than one part time job. In the other seven cases, both husband and wife worked in addition to farming. The women had careers in education, social work, accounting, farm management, consulting, architecture, nursing, town administration, law, fund raising, and emergency response medicine. The men, other than the full-time farmers, worked in coal mining, power generation, the oil fields, truck driving, farm chemical sales, and mechanics. Largely, I spoke to the wives. I interviewed nine rural women, four rural men, and two couples. I interviewed two teenagers, one person in their twenties, one in their thirties, nine in their forties, four in their fifties, and two in their sixties. Class is difficult to determine in rural areas. I asked interviewees what their household income was. Several people balked at, and did not answer, the question. One interviewee stated, “we don’t give out that information to anyone.”¹⁴³⁶ Many people said they did not know their income because they reinvest the money in the farm; they do not take it as income. Five of the farm families I interviewed lived outside of my county of primary interest. Three lived in the county to the south along the county line. One lived in a county to the west, but owned land in and enrolled their children in school in the county. One lived in a county to the

¹⁴³⁶ Mother of Rural Adolescent Interviewee (7D-AB), Conversation with the Author, November 29, 2006.

north-west, but had their post office box in the county; this family also lived very close to the county line.

One remarkable thing about the participants is that all of my interviewees were Caucasian. Indeed, I saw very few people of color while I was in the field, except as owners and employees at two motels and three restaurants in the larger towns. The largest minority group in the county is a religious sect, the Hutterites, who live communally in colonies, speak a German dialect, and eschew modern society. Unlike the Amish in the United States, the Hutterites accept certain forms of modern technology, limited to those devices useful for farming. They drive plain vans and pick-up trucks and in my attempts to contact them, I learned they now have telephone lines to the colony. I wanted to interview a colony representative, but a reverend and the community's financial officer declined to speak with me.

In central Alberta, I lived in two of the small towns where I carried out research. Ideally, I would have stayed on a farm, but my severe allergy to cats precluded this option as almost all of the farms I visited had cats that were in the house at times. Instead, due to an absence of rental housing in the county, I lived in a motel next to men working in Alberta's booming oil fields. I shopped at the local stores (and there was a big push regionally to shop within the county for the upcoming winter holiday season) and at times, ate at the local restaurants. Additionally, when invited, I spent the evenings having dinner with families in the field.

In this study, communication is of central importance. The county that I worked in had week day courier (DHL) service to the towns and mail service. Some people had rural mail delivery but most used post office boxes in the nearest town or village. Rural

people could not get home delivery of the Edmonton *Journal*, the capital's newspaper because the *Journal* does not deliver to rural areas.¹⁴³⁷ Rural people stated they cannot shop online because most internet shopping outlets require a street address for delivery not a rural route or a post office box. Some people worked around this by having goods ordered online delivered to their offices in town.¹⁴³⁸ Additionally, services such as public photocopying and facsimile were difficult to find. In the county that I worked in, public copies were available at the libraries and in the drugstores for 25 cents per page and at the county newspaper office for ten cents a page. The county newspaper office would also send faxes. Many conveniences of large urban areas were unavailable, stores and restaurants close early in the evening and most businesses remain closed on Sunday. Indeed, an archivist related her shock to me when the county's largest grocery store contemplated opening its doors to shoppers on Sunday; she felt the hours were unnecessary.¹⁴³⁹ The store added the hours of noon to five on Sundays.

Since UCSD's human subjects' forms include the institution name and I drove my car with California license plates in Alberta, people asked me on a daily basis whether I am American. I had to stress my Alberta heritage often while in the field. I related this to the journalist who wrote about my fieldwork and she emphasized my links to the

¹⁴³⁷ At least three people described a trick they play on the telephone subscription calls they receive for the newspaper. These residents know that the newspaper does not deliver to rural areas. When a representative calls to offer them a week's free home delivery, people agree to try the newspaper, give the representative all the information they need. At the end of the call, the potential customer asks whether the paper will be delivered to their door. The representative guarantees delivery and at that point, the rural resident points out that their home is in a rural area. The representative is then forced to rescind the offer of home delivery, offering instead that the customer's paper be delivered to the nearest town for pick up. The customer then declines this offer, thus wasting the representative's time because the rural resident knows at the commencement of the call that home delivery is not an option where they live. At this point, the call ends.

¹⁴³⁸ Senior Financial Officer, Central County (2A-AB), Interview with the Author, October 24, 2006.

¹⁴³⁹ Alberta Field Notes, October 19, 2006.

province in the title of her article, “University student comes back to her Alberta roots.” Several people asked whether I am related to a family in the county sharing the same surname. There is no relation that I am aware of and I told people this. I also often joked that it would be useful to be related. From this it seemed that people had a strong desire to make me local, to make me one of them.

When I was in the field, the importance of two topics of common interest cannot be ignored. While many people asked me to compare California and Alberta, which I did, this did not lead to an actual conversation. But, I found two topics that interested most people or they had experienced. These were food production and the Canadian weather.

When interviewees invited me for supper or sometimes at the conclusion of an interview, these times to talk found us sharing information about our lives and often speaking about a topic of common interest: food and food production.¹⁴⁴⁰ People in my field site were intimately linked to food production for themselves, for friends and neighbors, and for the market. I have had a long-standing interest in food, the history of food items like chocolate and coffee, the recent exposé of the unhealthiness of fast food, and investigations into food production. I have read Eric Schlosser’s 2001 bestseller *Fast Food Nation*, seen Morgan Spurlock’s 2005 film *SuperSize Me*, and read Michael Pollan’s 2006 book *The Omnivore’s Dilemma*. Pollan’s book, which I read months before going into the field, proved to be a boon to Prairie field work as it offered me an occasion to reflect on the process by which animals get from the farm to my dinner plate. This shared interest generated a very important line of conversation between the

¹⁴⁴⁰ Alberta Field Notes, November 28, 2006; November 29, 2006; December 12, 2006; December 14, 2006.

producers of food in Alberta and I. I spoke with grain farmers, cattle producers, and others about food quality and purity. In addition to the spoken words, I was also involved in savoring the products of the farmers' labors. At many a table, I was served meals built around food grown at home and if not from a person's own farm, often from someone locally. Home produced food included beef, vegetables, preserves, and fruit.

Additionally, I was served fish, buffalo, and on one occasion venison shot by a guest less than a week before we ate it. People remarked that they raised cattle, chickens, turkeys, and laying hens to ensure a supply of hormone and antibiotic free meat and eggs for their families. In one case, the farmer, although not a certified organic producer, does not use hormones or antibiotics with his cattle. His family and his local consumers only get hormone- and antibiotic-free meat. If a cow becomes ill and requires medicine, he told me, he takes the cow to auction and it ends up on the supermarket shelf. I found this topic to be a successful way of linking two lifestyles, my urban Southern California life with rural Canadian ways.

The second nexus of topics of common interest were the weather, the seasons, and driving in the harsh conditions. A stereotype of Canadians is that they spend inordinate amounts of time talking about the weather and the extreme climate gives citizens much to say, especially for farmers, people whose livelihood is directly and intimately connected to the land and the weather. In my field site, once hearing how much I drove each day (my round trip journey from San Diego to the field and back to San Diego was 11,144.29 miles), people would often discuss inclement weather and terrible driving conditions. They provided me with a laundry list of items to have in the car to survive being stranded for days and to dig my car out of snow on my own if the need arose and by mid-

November I had a shovel, sleeping bag, emergency candles, matches, food, blankets, snow boots, and other gear stowed in the car trunk. Community members treated me to countless harrowing tales of their experiences of hitting the ditch, running into deer, and getting stuck or stranded in the snow. I reciprocated with an account of my terrifying careen into a roadside ditch after hitting black ice. Rural research from October to January in Canada presents particular challenges, largely due to bad weather and low temperatures mixed with long driving distances from one interview location to the next. My field site was located between 52 and 53 degrees latitude, only a few degrees north of the 49th parallel, the Canada-United States border. Most residents have four-by-four vehicles to navigate the snowy and icy roads that can remain unplowed for days in extreme cases. I drove a compact car, an unfortunate reality that made winter driving on rural roads a more unnerving proposition. During my fieldwork, a patch of black ice sent my car careening into the roadside ditch at high speed and the car often got stuck in loose or drifted snow on the roads. An additional hazard was the fleet-footed deer that bounded across the road, often directly in front of the car. On the two occasions where I could not get the car out of bad situations, when I was in the ditch and once when I was stuck in snow, local men helped repair and get the car out. Indeed, I learned the habits of the region were to stop whenever someone was on the road with their car stopped, for whatever reason. When I was in the ditch, a passerby pulled over to assist me and twice when I was on the road taking photos of moose, people slowed down and asked if I was all right. I learned these customs quickly and when I saw a car vertically stuck in a snow bank from the bumper to the windshield, I too stopped to offer a ride and my cell phone to the car's stranded occupants.

After passing the winter months in the salubrious climate of San Diego, I embarked on the second stage of field research. The second field site included in my study was to be in Wyoming, a choice made because like Alberta, Wyoming is a Rocky Mountain state and it has strong industry bases in agriculture, primarily ranching, and resource extraction, including coal, oil, and natural gas. I set out to conduct ethnographic research in a county in Wyoming from April to July of 2007, armed with 2000 Census data identifying a region to study that had similar industrial bases and population demographics as the Alberta field site. On the trip northward from San Diego, I stopped in Laramie, Wyoming, at the University of Wyoming to meet with Professor George Gladney. When I told him of my intended destination, he said the county is the “hub of big coal” and suggested that I be careful out there because, in his words, it is “rough and tumble, the Wild West.”¹⁴⁴¹ Undeterred, the next day I set out for the chosen county. Arriving at its center, I discovered the population had ballooned from 12,000 people in the 2000 Census to 19,646 according to the sign at the city’s entrance. It had begun to take on the monotony of other urban spaces: Wal-Mart, Starbucks, Kmart, Staples, and a cluster of hotel and fast food chains. The city was not, of course, the ideal place to meet rural people. It had the feel of a frontier boomtown, where people came to make their fortunes. Newly constructed motels were brimming with work crews from the mines, the railroad, and with others hoping to find jobs and homes in the area. Someone told me the gender ratio was twelve men to one woman, perhaps a good reason for why men said hello or tipped their hats at me everywhere I went: the grocery store, the gas station, the

¹⁴⁴¹ George Gladney, Personal Communication with the Author, April 26, 2007.

public library. Armed with more 2000 Census reports (and a good dose of skepticism), I left for less densely populated counties to the south that had smaller service centers.

I settled in a county with a total population of 2,407 in the 2000 Census, which included a rural population of 841 and a population of 1,447 in the largest service center.¹⁴⁴² There are two other towns in the county, one with 101 people and the other with 18.¹⁴⁴³ The county was 2,625.81 square miles and there were 0.9 people per square mile.¹⁴⁴⁴ The primary industries in the county are agriculture and increasingly resource exploration and extraction, although the relationship between these two industries was at times uneasy. Beef cattle are the basis of the region's economy. There were other smaller industries including sheep ranching, wheat growing, and alfalfa hay farming, but the primary agricultural industry was cattle ranching. The majority of producers still operated at the level of the independent family ranch in the county, but a handful of vast ranch corporations were located in the county as well.¹⁴⁴⁵ The central town provided services to the surrounding county, including a busy ranch supply store, although some rural dwellers found it easier and closer to get services from centers in other counties and across state lines. A major industry, the state's women's prison, operated in the town. The prison was a base service, providing an influx of money to the small town. The central town was the site of a prison. Flora and Flora argue, "Small towns (along with

¹⁴⁴² U.S. Census Bureau, State and County QuickFacts, URL: <http://quickfacts.census.gov/qfd/states/56/56027.html> (accessed August 25, 2008).

¹⁴⁴³ Public Affairs Office, Wyoming Department of Transportation, Wyoming: Official State Highway Map of Wyoming, (Cheyenne, WY: Wyoming Transportation Commission, 2006).

¹⁴⁴⁴ U.S. Census Bureau, State and County QuickFacts, URL: <http://quickfacts.census.gov/qfd/states/56/56027.html> (accessed August 25, 2008).

¹⁴⁴⁵ The industrialization and concentration of livestock production greatly changed American agriculture between 1960 and 2000. Frederick H. Buttel, "Continuities and Disjunctures in the Transformation of the U.S. Agro-Food System," in *Challenges for Rural America in the Twenty-First Century*, ed. David L. Brown and Louis E. Swanson (University Park, PA: The Pennsylvania State University Press, 2003), 184.

state and federal governments) have for decades invested in prison construction as a community economic development strategy.” The expectation is that prisons create jobs, jobs that bring higher wages to the area, and the wages will circulate through the local economy.¹⁴⁴⁶ The median age in the county is 42.8. The county has lower education rates than the State of Wyoming or the general U.S. population. In the county, 15.3% of people aged 25 or older had a Bachelor’s degree or higher; in the state, 21.9% of people have reached this education level; and in the U.S. as a whole, the rate is 24.4%.¹⁴⁴⁷ Similarly to the Alberta field site, the Wyoming county did not have a post-secondary institution. The closest junior college was in a neighboring county. The distance from the service center, located in the southern part of the county, to the college is 57 miles, but people traveling from other parts of the county would have a significantly longer drive, adding an hour or more to the total commute time. The county is a three-hour drive from Cheyenne, the state capitol and over 70 miles from a neighboring city. I selected the county because of its distance from cities and because of its low population density.

On my first full day in the county, I set out to locate potential research subjects. The first thing I did was stop at the University of Wyoming Cooperative Extension Office. This office became a community for me, a place to drop by to speak to the staff, to locate assistance when needed, to make copious photocopies of IRB consent forms, and to just hang out. The office is located on the county fairgrounds, so there was always

¹⁴⁴⁶ Cornelia Butler Flora and Jan L. Flora with Susan Fey, *Rural Communities: Legacy and Change* (Boulder, CO: Westview Press, 2004), 190-191, quoted from 190.

¹⁴⁴⁷ U.S. Census Bureau, State and County QuickFacts, URL: <http://quickfacts.census.gov/qfd/states/56000.html> and <http://quickfacts.census.gov/qfd/states/56/56027.html> (accessed August 25, 2008).

something interesting to see, including meetings, children's activities, and special events. On the first visit, the University Extension Educator talked with me for nearly an hour. She gave the contact names of a host of people in the community who are involved in rural organizations: the local Farm Bureau, Homemakers' Council, County Commissioners, the Electric Association, Cattlewomen's Association, the Livestock Association, 4-H, Community Education Office, School Board Superintendent, Sheriff, local Chamber of Commerce, and Fair Board. Additionally, she gave me the names of the local mayors and invited me to attend two meetings the next week: the Fair Board meeting and the Homemakers' Council meeting. The educator put me on the agenda of the meetings so I could introduce myself and my project and ask for interviewees. A visit to the town's Chamber of Commerce office the next week netted another list of potential contacts. These two initial sources led me to all of my community social service interviewees. Interestingly, there were fewer of these interviews than in Alberta; partially because there were fewer municipalities. To gather rural community member interviewees, I went to a variety of meetings, the Fair Board, the Homemakers, and the Farm Bureau, and I explained my project and asked for interviewees. This was one approach for gathering subjects. From these interviewees, I used snowball sampling. Interviewees gave me the names of other people with whom to talk. Snowball sampling played a large role in the gathering of subjects. In this county, I did not post any flyers because there were few community boards and locations for public postings. Rather, I used word of mouth, a strategy that proved effective in gathering new interviewees.

I conducted 58 long interviews, ranging from an hour to two and a half hours long. The average interview was approximately an hour and a half long, although this is

difficult to measure as many rural resident visits included lunch and hence were much longer than the formal interview. I interviewed a variety of people in the county, including the county commissioner; people who worked for community and social service organizations, including community education, the county librarian, a former public works official, the hospital administrator, the school superintendent, and the manager of the electric co-op; rural community members; people who provided computer services; small business owners; and state government representatives. The bulk of these interviews, forty in total, were with rural community members. I also interviewed people out of the county who were in some way connected to it, including a representative from the closest community college and someone from the economic development organization in the next county. Other examples of people I interviewed outside of the county were internet service providers, cable service providers, and computer consultants located beyond the county lines and government representatives who worked in Cheyenne, the state capitol. I spoke to one rural community member from outside of the county, but the same companies provided her communication technologies as those in the county. Other potential interviewees, including former and current mayors and some ranchers, did not return my phone calls. It was, however, the spring and summer and a variety of ranch tasks, including branding, the castration of the cattle, and later artificial insemination were under way. Some potential interviewees were simply too busy to take time to talk, a luxury allowed more in the winter months. Unfortunately, the ranch calendar and the academic calendar did not align well. Again, I followed the same practice as I did in Alberta. I called public officials and community service workers several times but I limited my calls to rural community members to two. If they could

not be reached or did not return my calls, I did not call again. Luckily, in Wyoming, the motel owners where I stayed took phone messages and people would stop by the motel to locate me. Outside of the service center, cell phone service was unavailable, so I could not contact interviewees if I was running late or call for help in an emergency. Again, I attempted to have all of the consent forms signed at the beginning of the interview. In some cases, this was simple, as an interviewee could get their co-workers or spouses to sign the forms. In other cases, I had to go to the Chamber of Commerce, the Extension Office, or somewhere else to have a signature witnessed. In a few instances, interviewees signed consent forms earlier than the interviews so a witness would be present to sign the forms.

As in Alberta, following the human subjects' guidelines in the field was a challenge. Securing interview data and signed consents was difficult because of a paucity of places to lock up forms. Again, I shared interview data and completed consent forms between the locked motel room and the car.

As in Alberta, after each of the rural community member interviews, I asked my respondents if they would complete a seven day Media Use Diary. During my field research, I left 31 of the diaries to be completed and received 17 back, a rate of 54.8%, a slightly higher percent than I received back from the respondents in Alberta.

In addition to conducting interviews, I also attended meetings and events. As previously mentioned, I went to a Fair Board meeting, a Farm Bureau meeting, and three Homemakers meetings. Additionally, community members invited me to special events: the Homemakers luncheon, the Electric Association annual meeting and dinner, a ranch auction and benefit, the 4th of July celebration, and a play the county puts on annually.

All of these meetings and events afforded me opportunities to interact with community members, to observe community members and community life, and to be involved in the county. One interviewee took me on an off-road car trip to see the new land divisions in Wyoming, sold largely to buyers from out of state that she felt were encroaching on the ranch land.

As in Alberta, my research was dependent on the willingness of community members to give their time and to participate. To acknowledge their participation, I again sent out hand-written thank you notes, almost always including something unique to the specific meeting that I had. This practice took a lot of time as I always had notes to write, but at the same time, I think people appreciated the gesture.

Most of the interviewees were people that lived and worked in the Wyoming county of my research. This was an area of family ranches. Many people were related to others in the community and many ranched land that their fathers and grandfathers ranched before them. The rural community members were largely ranchers, however, a few respondents only farmed. Finally, there were a few non-ranch and non-farm rural residents, but these were a minority of the people interviewed. I spoke to 26 ranch, two farm, and three non-ranch/non-farm rural people. In Wyoming, out of 26 ranch/farm households (two were excluded because the people were not married or cohabiting); twelve households included both partners who ranched full-time. In eight households, the wife worked, but the husband ranched full-time. Some of these women had full-time jobs, including wives who worked as an office manager, a teacher, a medical transcriptionist, and a bank teller. Other women had part-time jobs in addition to their ranch work, including store owner, artist, photographer, document shredder, and post

office clerk/substitute teacher/bus driver. In four cases, the husband worked, but the wife was on the ranch full-time. In these cases, the husbands were a long-haul truck driver, water well repairman, driver, and welder. Two of the men that ranched full-time worked for another rancher rather than on their own land. In one case, both partners worked as well as ranched. In addition to ranching, the wife was a full-time extension educator and her husband worked for the veterinarian. I spoke to 19 women, six men, and six couples. In the cases of the two single people I interviewed, one was a full-time rancher (a man) and the female interviewee worked as well as kept horses. Interestingly, in Wyoming, at times my visit was a family affair; the husband would come in from the ranch to speak to me. For some interviewees my visit was a special occasion. My travels made me realize that for some women, isolation was still a real problem in Wyoming, even in the 21st century. For several of the interviewees, I was a rare non-family visitor to the ranch. One woman told me that I was the first person over to her house in five months. This interviewee had very few communication devices and spent much of her time alone at home because her husband worked away from the ranch.¹⁴⁴⁸ This interview was a full-day event, with the interview, lunch, and then an afternoon of chatting. It appears that rural isolation still occurs.

Most of the rural interviewees raised cattle. Eleven of 29 people who raised crops or animals raised only beef cattle. Six of the 29 raised cattle and hay. This number would likely be higher had drought conditions not existed in Wyoming for several years. People mentioned growing alfalfa hay when there was rain, but noted it had not rained enough to hay for years. Other combinations involved someone who raised horses only;

¹⁴⁴⁸ Ranch Woman, (31D-WY), Interview with the Author, June 28, 2007.

sheep only; beef cattle, sheep and horses; cattle and sheep; two ranchers grew cattle, wheat, and hay; grass, pasture, and hay; cattle, sheep, and garden produce; cattle, sheep, hay and produce; cattle, corn, alfalfa hay, and oats; and one rancher leased his land and worked full-time for another rancher. In this last case, the rancher had been “droughted out.” They had no water and this forced them to sell their cattle.¹⁴⁴⁹ In this case, and in one other, where the interviewee noted that their cattle were somewhat of a “hobby,” both women identified themselves as “rancher” and “ranch wife.”¹⁴⁵⁰ Being a rancher apparently was perhaps more about identity than about actually raising cattle. One of the rural, non-ranch/farm families raised pigs.

I interviewed one person in her 20s, six in their 30s, five in their 40s, nineteen in their 50s, five in their 60s, and one in his seventies. The respondents in Wyoming were much more willing to disclose their incomes than were those in Alberta. I spoke to people who were visibly poor. In Wyoming, about half of the ranch homes were not permanent structures; they were manufactured homes. One community member told me the county was too far out for the construction crews to come and build houses; having a construction crew drive out to build a house was too expensive. Permanent homes were usually older structures that had been passed from parents to children. Two interviewees lived in new manufactured homes. Others lived in older manufactured homes or the original ranch houses. One interviewee built a small home with her husband.¹⁴⁵¹ Another, who lived close to town, had recently moved into a new, unique home, built

¹⁴⁴⁹ Ranch Woman (8D-WY), Interview with the Author, May 18, 2007.

¹⁴⁵⁰ Ranch Woman (8D-WY), Interview with the Author, May 18, 2007; Ranch Woman, (31D-WY), Interview with the Author, June 28, 2007.

¹⁴⁵¹ Artist and Ranch Woman (2D-WY), Interview with the Author, May 12, 2007.

from a barn package and turned into a house.¹⁴⁵² I asked everyone what their net household income was. Many people found this question was difficult to answer. Six people said they did not know or declined to answer. Four people admitted they had a net loss the previous year. One person reported a net income of under \$5,000; two people said they made less than \$20,000; one person claimed an income of \$20,000 to \$30,000; one person said theirs was \$30,000; two people said their income was \$30,000 to \$35,000; one person said \$35,000 to \$45,000; four people said \$40,000; one person said \$40,000 to \$50,000; one said \$50,000 to \$60,000; one said \$60,000; and finally two reported a net income of over \$100,000. On the income question, one interviewee told me that a rancher is “happy if you break even” and another woman replied that it is “as much [a] lifestyle as your occupation.”¹⁴⁵³

In Wyoming, all except one of the participants in my study were Caucasian. There were very few people of color in the county. The official Census numbers state that 2,390 people in the county are white, three are black, twelve are American Indian or Alaskan Native, three are Asian, twelve were an “other” race, and seventeen people were “Two or more races.”¹⁴⁵⁴ There were very few people of color at any of the events, except for the county play that attracted American Indians from neighboring counties and states.

In Wyoming, I lived in the county’s largest town. I did not stay on a ranch, largely because the distances between ranch homes and other places were prohibitive. I

¹⁴⁵² Rancher, Farmer, Business Proprietor (22D-WY), Interview with the Author, June 18, 2007.

¹⁴⁵³ First quote from Ranch Woman (32D-WY), Interview with the Author, July 5, 2007; second quote from Farmers and Ranchers (36D-WY), Interview with the Author, July 10, 2007.

¹⁴⁵⁴ U.S. Census Bureau, State and County QuickFacts, URL: <http://quickfacts.census.gov/qfd/states/56/56027.html> (accessed September 7, 2008).

lived in a motel that served as a home for tourists, unemployed ranch hands, railroad workers, and wedding parties. I shopped at the local stores when possible, including the grocery store and the drug store and I ate at the local restaurants. Several of my interviewees provided me with lunch or dinner, often out of necessity because the drive to a ranch home could be 30 to 50 miles one way. Combined with a long interview, this was a significant amount of time. Since there are no restaurants outside of the main center, interviewees would invite me to lunch so that I would not be hungry. Like the residents in the county, every few weeks, I would leave the county and drive either east or west to one of the larger centers where there was a Target store and a larger grocery store.

The Wyoming county had weekday UPS and FedEx service that delivered to rural addresses, which allowed rural people to shop online if they chose to. The Chamber of Commerce representative told me that online shopping was good for the town's businesses because people who shopped online left the county less often and therefore spent more money in town.¹⁴⁵⁵ Most goods had to be purchased outside of the county, such as shoes, electronics, and furniture. The General Manager of the Electric cooperative, however, said the direct opposite, arguing online shopping hurt the businesses in town because residents could bypass them, finding better deals online.¹⁴⁵⁶ The USPS does rural delivery so people received mail to their homes three times a week. As in Alberta, services like photocopying and fax were difficult to find. The library staff would make photocopies, but these cost \$0.25 per page. Originally, I would travel two and a half hours to the city to make large numbers of copies. Later, the Extension Office

¹⁴⁵⁵ Executive Director, Chamber of Commerce (2B-WY), Interview with the Author, May 8, 2007.

¹⁴⁵⁶ General Manager, Electric Cooperative (1F-WY), Interview with the Author, May 7, 2007.

allowed me to make copies there so that I would not have to drive so much. They also permitted me to send faxes when necessary. Stores and restaurants closed early in the evening, with the exception of the truck stops. All businesses except for the grocery store and the truck stops remained closed on Sunday.

In Alberta, I spent much time explaining that I was not an American. In Wyoming, I again drove my car with California license plates. People in the county asked me almost daily whether I am a Californian. I learned early on that people in Wyoming dislike Californians, largely because they are perceived as over consumptive and very liberal. Interviewees often told me that the Wyoming ranchers disliked Californians more than they disliked Coloradoans. It was to my benefit that I could respond that I am Canadian and Albertan. Many people in my Wyoming field site were familiar with Calgary, the city where I grew up. Several people had been there, to the Calgary Stampede or on cattle business. Some people expressed relief that I am not a Californian and oddly, people were much happier that I was Canadian (and by extension not an American) rather than being an American and a Californian. Sometimes this came up as a simple conversation. Other times it went further. Once, I was half-jokingly asked to park my car away from someone's home in case God saw the California license plates and decided to strike it with lightning. I was at a loss for words. I parked out on the driveway. Many people seemed to believe that I was more like them because I am Canadian than I would be if I was a Californian. At the Farm Bureau meeting I attended,

one man from the board of men asked where I would go once I finished my degree. They agreed they would rather go to Canada than remain in California.¹⁴⁵⁷

In Alberta, food production and the weather were topics that I commonly discussed with community members and interviewees. In Wyoming, three topics that community members repeatedly raised were their dislike of Californians and Coloradoans, the encroachment of outsiders on Wyoming ranch land, and their opinions about liberal university professors.

Many people asked me about living in California and about what I thought of the state. Some were quick to bring up stereotypes of the state and felt it was a place where people consumed too much, spent inordinate amounts of money, did not know the value of hard work, and were involved in a Hollywood-inspired lifestyle. Additionally, people often said negative things about Californians and Coloradoans. These comments would at times lead people to tell me that too many outsiders were moving into Wyoming and buying up land. On more than one occasion, I heard that these outsiders expected everything without pitching in themselves. For instance, the ranchers provided a rural fire brigade, all volunteer to protect their property and that of others in the county. One rancher noted the new people did not want to participate in this important community venture. Several other times, ranchers noted in disgust that the Californians are buying up land in Colorado, pushing the displaced Coloradoans to buy land in Wyoming. One interviewee was frustrated by a land developed bordering her ranch land, where the developer sold unserviced plots of land to out-of-state buyers. The woman was certain

¹⁴⁵⁷ Wyoming Field Notes, May 7, 2007.

the buyers were unaware there was no water or cell service and her husband lamented the enclosure of land he hunted on and explored his whole life.

Interviewees commonly asked me about my thoughts on liberal universities and liberal university instructors, both of which the interviewees were critical of. Many felt that socially and politically leftist instructors were unfairly foisting their biased views on college students. As an example, many raised the case of Ward Churchill, a professor of Ethnic Studies at the University of Colorado at Boulder who argued that America provoked the 9/11 terrorist attacks. The majority of the interviewees who raised Churchill's case felt he deserved to be fired.

During the course of my fieldwork, I traveled 21,034.03 miles, conducted 131 long interviews, and over six months of ethnographic work. I was able to compare and contrast the availability and people's use of new information and communication technologies in a county in Alberta and one in Wyoming. My ethnographic work allowed me a much more intimate view of rural communities and their residents that methods such as surveys would not have allowed. My deepest appreciation goes to the many research participants who welcomed me into their homes and offices and who told me about their use of new information and communication technologies.

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