

**OREGON BROADBAND DATA COLLECTION
AND MAPPING**

REPORT TO THE PUBLIC UTILITY COMMISSION OF OREGON

TELECOMMUNICATIONS DIVISION STAFF

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OREGON BROADBAND DATA COLLECTION AND MAPPING

SUMMARY

This white paper provides an overview of the many factors associated with broadband data collection/mapping in the United States. It includes information on state data collection/mapping endeavors to date and identifies issues that hamper successful data collection. It also considers the focus or ultimate goal of broadband data collection/mapping efforts and recommends a course of action for Oregon.

BROADBAND AND THE DIGITAL DIVIDE

Broadband, also referred to as advanced telecommunications or digital technology, is the latest technological jewel in communications worldwide. The deployment and adoption of broadband services has become an obsession in America. “Digital Divide” is now the common term used to describe the gap between those that benefit from digital technology and those who do not. There is a wide-spread belief that broadband is a critical national infrastructure that positively affects businesses, consumers, health, education, communities and the economy in general and that the Digital Divide must be closed. While America attempts to close its Digital Divide, other countries are concentrating on deploying higher broadband speed to the mass-market.¹

Measuring the rapidly evolving broadband picture (availability, penetration, pricing, speed, consumer use and use in educational centers and health care systems) can provide decision-makers critical information to use in formulating strategies to meet goals established by the state, and in monitoring the results of active broadband programs. Collecting and processing accurate and detailed broadband data that clearly indicates where broadband has not been deployed and areas that are underserved will provide a state with the knowledge it needs to make informed decisions. Data collection is the first step in identifying the current extent of a state’s digital divide.

BROADBAND IS A CRITICAL INFRASTRUCTURE

1. State of Oregon

Oregon’s legislative findings on broadband services are in ORS 759.016.² While these findings do not contain specific duties or requirements they do establish a broad policy “to promote access to broadband services for all Oregonians in order to improve the economy in Oregon, improve the quality of life in Oregon communities and reduce the economic gap between Oregon communities that have access to broadband digital applications and services and those that do not, for both present and future generations” Actions to achieve this legislative goal include creating incentives, planning with public and private sector participants and removing barriers.

¹ Current Avg. speeds: Japan 61.0 Mbps, Korea 45.6 Mbps, Netherlands 21.7 Mbps, Sweden 18.2 Mbps, and USA 4.8Mbps. Data source: Information Technology and Innovation Foundation.

² Attachment A.

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Setting educational and health institutions aside, details about the current availability and demand for broadband in Oregon are very sketchy. Several surveys have gathered community and consumer responses to broadband telecom services in general.³ However these surveys do not provide sufficient data to depict actual public demand for broadband, or precisely where broadband has yet to be deployed.

Oregon has no pending legislation to specifically address either the deployment or adoption of broadband. This may be because Oregon does not know the extent of its un-served areas, the potential adoption rate or the economic value of its un-served areas. Oregon is not alone in this regard. The majority of states are in this same situation.

2. Federal Communications Commission (FCC)

Section 706 of the Telecom Act of 1996 requires the FCC and the state commissions to “encourage the deployment on a reasonable and timely basis of advanced telecommunications capabilities to all Americans (including, in particular, elementary and secondary schools and classrooms) . . .” and “The Commission [FCC] shall determine whether advanced telecommunications capability is being deployed to all Americans in a reasonable and timely fashion”

The FCC has responded with periodic reports depicting the nation’s deployment of broadband.⁴ Although data is reported by broadband providers at the zip code level, the data is aggregated and published at the state and national level by the FCC. These reports are not very useful because they utilize an outdated definition of broadband service and provide insufficient geographical detail. The FCC recently approved changes to its data collection process which will provide connection speed at the census block level in the future. These reports may be a year or more in the making.

“As I have often stated, having a comprehensive, reliable, and accurate understanding about the state of broadband deployment is the critical first step in a comprehensive effort to promote the availability of broadband services to all Americans.” (Statement of Commissioner Adelstein 3/20/08)

The Federal-State Joint Board on Universal Service Fund (USF)⁵, co-chaired by Oregon Commissioner Baum, concluded in its recommended decision to the FCC in November 2007, that a separate Broadband Fund should be established under the USF in which states could receive funding as construction subsidies for new facilities in under or un-served areas.⁶

The primary goal of the Broadband fund would be to advance internet access to

³ 2005 Telecommunications Consumer Survey prepared by The Gilmore Research Group & 2007 Survey Report on the Demand, Usage, Supply and Pricing of Broadband Services in Oregon.

⁴ The FCC compiles this data from the information provided by carriers semi-annually on form 477.

⁵ WC Docket No. 05-337 paragraphs 12 and 13.

⁶ Discussed on page 8.

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un-served areas by providing grants for the construction of new facilities. Secondary goals would include enhancing broadband services in areas with substandard service through grants for new construction and providing operating subsidies to broadband internet providers serving areas deemed uneconomical even after receiving a substantial construction subsidy.⁷

3. Congress

Legislation targeting broadband has been proposed in both the House and Senate. H.R. 3919, the “Broadband Census of America Act of 2007” provides for a comprehensive study on the nationwide availability of broadband internet service. This bill aims at improving the availability of broadband nationwide by enhancing data collection on the availability and quality of internet service across the country, by creating a map that shows where access is lacking, and by assisting communities in increasing local broadband deployment.

Oregon Senator Gordon Smith sponsored Bill 1583 “Universal Service for the 21st Century Act.” This bill would amend the Communications Act of 1934 to expand the contribution base for universal service and to establish a separate account within the USF to support the deployment of broadband services. Portions of the Bill were moved to the 110th congress under S. 711. Other bills pending include S. 1492 Broadband Data Improvement Act, S. 1190 Connect the Nation Act, and, S.R. 191 Resolution on Next-generation Broadband Networks.

Congress is reviewing current and pending legislation (the Farm Bill) associated with the Department of Agriculture’s funding programs including the Rural Utility Service (RUS) program that authorizes several types of grants for use in the deployment of broadband, and the Community Connect Grant program that provides financial assistance to eligible applicants that will provide currently un-served areas with broadband service that fosters economic growth and public safety services. A state or local unit of government can participate in this program.

Worldwide broadband availability and the average broadband speed utilized is compiled by country and reported regularly.⁸ Members of Congress are particularly concerned about the reported disparity between broadband deployment in the United States and deployment in other countries. Many in Congress are looking for a way to close the gap.

“If America hopes to catch up with the rest of the broadband world, we can't have policymakers flying blind with respect to where service is and isn't deployed, the speeds of such services, and consumer adoption rates.”
(Comments of Representative Markey)

⁷ WC Docket No. 05-337, Paragraph 12.

⁸ In 2007 the USA ranked 19th in world-wide broadband penetration: <http://www.internetworldstats.com>

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The most recent Global Information Technology Report completed by Insead, a business school near Paris, on behalf of the World Economic Forum ranked the US fourth in the world in national network readiness; however, this study used a broad range of measurement variables not just broadband availability or download speed.⁹

4. Economic Factors

Numerous organizations support the development of programs to expand broadband deployment based in part on studies that find there is a positive economic impact from mass-market utilization of broadband services.¹⁰ The most referenced study is one recently published by Connected Nations. It includes an estimate in dollars of the economic impact on employment and associated variables from broadband deployment and adoption.

The three recent studies, summarized below, all find that adoption of broadband has positive economic impacts. Note that there are some inherent limitations in these studies, however. First, they do not demonstrate or quantify the economic value of incremental broadband deployment and adoption specifically in high cost areas (those areas not already economically served by the provider) including those areas supported by USF subsidies. Second, these studies largely measure the effect of broadband adoption in prime areas.¹¹ One should be cautious in extrapolating from the broadband experience in densely populated, often more affluent areas, to predict the benefits of broadband deployment in very rural and often less affluent areas.

MIT/Carnegie/Mellon Study¹²

This study, “*Measuring Broadband’s Economic Impact*” finds a positive correlation between certain economic activity and the use of broadband by mass-markets. “The analysis presented in this paper represents a first attempt to measure broadband’s impact by applying controlled econometric techniques to national-scale data. The results support the view that broadband access *does* enhance economic growth and performance, and that the assumed (and oft-touted) economic impacts of broadband are real and

⁹ See Attachment F.

¹⁰ Measuring Broadband’s Economic Impact, pages 2 and 3. “The first generation of studies appeared in 2001 and 2002, before broadband had been significantly adopted in the U.S., and was correspondingly hypothetical and forward-looking. A well-known report from this period was prepared for Verizon by Criterion Economics (Crandall & Jackson, 2002), and developed several forward-looking models to estimate broadband’s economic impact. The study estimated that broadband, acting through changes to consumer’s shopping, commuting, home entertainment and health care habits, would contribute an extra \$500 billion in GDP by 2006. Other forward-looking studies from the time include the New Millenium Research Council’s estimate of 1.2M jobs to be created from the construction and use of a nationwide broadband network (Pociask, 2002), and a Brookings Institution report estimating that “failure to improve broadband performance could *reduce* U.S. productivity growth by 1% per year or more.” (Ferguson, 2002)

¹¹ Prime area is one in which an infrastructure or expense subsidy is not required by the supplying carrier.

¹² “*Measuring Broadband’s Economic Impact*,” Massachusetts Institute of Technology & Carnegie Mellon University, Revised January 17, 2006.

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measurable.” (Page 16)

The study measured certain economic activities between 1998 and 2002 and concluded that communities that had broadband available by December 1999 had more rapid growth in employment, the number of IT businesses and businesses overall. It also observed higher market rental rates in 2000. The study found its results supported previous statements of broadband advocates that broadband positively affects economic activities.

“The present study has several clear implications for policy-makers. The most obvious and important implication is that broadband *does* matter to the economy. Policy makers who have been spending their time or money promoting broadband should take comfort that their efforts and investments are not in vain.” “Such policies are indeed aimed at important goals. Broadband is clearly related to economic well-being and is thus a critical component of our national communications infrastructure.” (Page 17)

“Local policy-makers in particular may wish to understand whether the economic advantages conferred by broadband are temporary (i.e. growth in the early “have” communities came at the expense of the early “have nots”) or longer-lasting (i.e. broadband stimulated growth of the overall economic pie). If the advantages are temporary, then the benefits to be gained from local public investments to speed broadband availability will be muted once neighboring communities catch up. On the other hand, if broadband affects the base growth rate of the local economy, then the benefits from getting it sooner will continue to compound into the future. Because the present study only looks at one time period, it cannot address this important question directly. The results of our study can be seen as consistent with either hypothesis. Once broadband is available to most of the country, however, differences in economic outcomes are likely to depend more on how broadband is used than on its basic availability. The implication for policy makers is that a portfolio of broadband-related policy interventions that is reasonably balanced (i.e., also pays attention to demand-side issues such as training) is more likely to lead to positive economic outcomes than a single-minded focus on availability.” (Page 18)

Brookings Institute Study¹³

This study used FCC broadband penetration data for the lower 48 states over the 2003-2005 period and includes all connections of 200 Kbps and faster.

¹³ Robert Crandall, William Lehr, and Robert Litan, “*The Effects of Broadband Deployment on Output and Employment: A Cross-Sectional Analysis of US Data.*” The Brookings Institute, July 2007.

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According to Brookings Institute, “measuring the impact of broadband will present an on-going challenge for economist and other analysts that is especially acute at this early stage of broadband’s lifecycle.” (Page 3)

The study concludes: 1) Nonfarm private employment and employment in several industries is positively associated with broadband use, and 2) Employment in manufacturing and service industries (especially finance, education, and health care) is positively related to broadband penetration. In addition, the study proposed that the economic value of broadband penetration on employment was statistically measureable. It concluded that for every one percentage point increase in broadband penetration in a state, employment is projected to increase by 0.2 to 0.3 percent per year. (Page 2)

Connected Nations Study¹⁴

The economic results from advancing the deployment and adoption of broadband in this study are hypothetical, not statistical. The study’s goal is to assign an economic dollar value to the efforts of the ConnectKentucky broadband program that could be transferred to other states as an indicator of the dollar impact adopting a similar program could produce.

According to the Connected Nations, Inc. study, “Adopting a national policy to stimulate the deployment of broadband in underserved areas of the US could have dramatic and far-reaching economic impacts.” The study estimates that a 7 percentage point increase in broadband adoption could result in a positive economic impact of \$1.6 billion in Oregon¹⁵ based on Oregon’s population and five chosen values:

- Jobs created and retained
- Healthcare costs saved
- Mileage costs saved
- Hours saved
- Carbon offsets

Connected Nations’ economic impact estimate is the result of several assumptions. First, Kentucky’s broadband adoption rate was estimated by comparing results of a 2005 statewide digital dialed telephone survey and a 2007 statewide random digital dialed telephone survey.¹⁶ Second, Kentucky’s estimated broadband adoption rate was compared to national average broadband growth trends for this same period. The result showed that Kentucky’s broadband adoption rate *exceeded* that of the nation by 7

¹⁴ “*The Economic Impact of Stimulating Broadband Nationally*” released February 21, 2008, a report from Connected Nations, Inc.

¹⁵ The Connected Nations website provides economic growth figures for all states based on stimulating a 7% increase in broadband adoption rates in each state.

¹⁶ Kentucky’s data collection includes only deployment. Adoption is estimated through consumer surveys.

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percent. Third, the study concluded that the higher adoption rate in Kentucky was due to the efforts of the ConnectKentucky broadband program.¹⁷

Connected Nations then applied the finding in the Brookings Institute Study that for every one percentage point increase in broadband penetration in a state, employment is projected to increase by 0.2 to 0.3 percent per year. Connected Nation replaced 1 percent with 7 percent, and using state specific population and average annual wage data, was able to estimate an economic impact for each state. The 7 percent used by Connected Nation represents the broadband adoption growth rate a state can obtain by adopting and using the ConnectKentucky model.

The study's national economic projection of a \$1.3 trillion impact requires that each state exceed its normal annual growth by 7 percent which it suggests will happen if a national policy to stimulate the deployment of broadband in underserved areas is adopted.

It should be noted that if Kentucky measured its state employment status or economic status prior to and after the huge surge in broadband adoption estimated by telephone surveys, it is not readily available.

FEDERAL FUNDING TO SUPPORT STATE PROGRAMS

1. Broadband Data Collection

Broadband data collection and mapping require resources. How much depends on who provides the data, how it is provided, the level of detail to be collected, how it will be processed and displayed, and the existing capabilities of the entities doing the work. There are no national or state sponsored broadband data collection funding programs currently available for the State of Oregon's use. However, national funding to assist state efforts collecting and mapping broadband data is under consideration by Congress.

Senate Bill 1492, "Broadband Data Improvement Act" would, among other things,

- 1) Direct the Census Bureau to include a question in its American Community Survey that assesses levels of residential computer use and dial-up versus broadband internet subscribership.
- 2) Direct the Government Accountability Office (GAO) to develop broadband metrics that may be used to provide consumers with broadband connection cost

¹⁷ Kentucky was one of the lowest states in the nation for broadband adoption when ConnectKentucky began in 2002, so the excessive rate of adoption between 2005 and 2007 may include a late-adopter component.

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and capability information and improve the process of comparing the deployment and penetration of broadband in the United States with other countries.

3) Direct the Small Business Administration's Office of Advocacy to conduct a study evaluating the impact of broadband speed and price on small businesses.

4) Authorize a 5-year, \$40 million per year program that would provide matching grants to State non-profit, public-private partnerships in support of efforts to more accurately identify barriers to broadband adoption throughout the State.

2. Broadband Deployment

Once a state identifies areas where broadband availability is lacking, it may look for ways to subsidize broadband deployment in these areas.

Currently, there are no federally-financed nationwide assistance programs that states may use to specifically fund broadband deployment.¹⁸ The Federal-State Joint Board's proposed restructuring of the USF contains a recommendation to include federal funding specifically for use in deploying broadband to un-served and underserved areas. This recommendation is currently under consideration.

The Federal-State Joint Board concluded that "Effective use of federal funds for broadband will require a detailed knowledge of the areas in which effective terrestrial broadband service is unavailable. Collecting information on areas without broadband or where broadband is substandard is a complex task. Broadband availability can vary on a street-by-street basis, sometimes on a house-by-house basis. Moreover, the facts can change quickly, for example when a wireless internet service provider opens or closes its doors. To effectively apply federal funds to expand broadband deployment, primarily through new construction grants, it is essential that the agency responsible for dispensing the funds have access to detailed, current geographic information."¹⁹

The federal government does provide financial assistance to states for specific projects that are not directly related to broadband deployment but may otherwise support future broadband development. Vermont provides some examples. According to the Vermont Department of Public Service:

"Federal grants and appropriations are currently funding three large infrastructure projects in Vermont. The ConnectVermont Fiber Project, which will place fiber optic cable in interstate highway rights-of-way, is funded through a ten million dollar Federal Highway Administration High Priority earmark obtained through Senator Leahy. The North-Link project will construct fiber rings around Vermont's six northern

¹⁸ Individual telecommunications carriers may be indirectly using federal funding received for the provision of basic telephone services to subsidize broadband infrastructure because broadband is delivered over facilities used to provide basic telephone service.

¹⁹ WC Docket No. 05-337, Paragraph 13.

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counties. Senator Jeffords worked closely with the Economic Development Administration, which has provided \$3 million in grants for the North-Link project. Senator Leahy announced a \$500,000 federal appropriation for the project in December 2005.

Both the North-Link and ConnectVermont projects do require a local match, and each have particular limitations and requirements linked to the project, such as the requirement that the ConnectVermont dollars be spent on routes that will support Intelligent Transportation Systems (ITS). However, they do make financially feasible infrastructure projects that would not be on their own. In both of these cases, federal grant money has been available for “middle mile” projects (see below). While this type of project may support the development of “last mile” projects they do not provide broadband access directly to residences and small businesses. The Northern Community Investment Corporation (NCIC) is currently developing a “middle mile” project to bring broadband connectivity to the Northeast Kingdom and the North Country of New Hampshire. The project will ultimately use three fiber links that will provide a redundant wireless connection and an opportunity for Wireless Internet Service Providers to compete for customers in northern Vermont and New Hampshire. The US Senate, with the help of Senator Leahy, has awarded \$600,000 for the Vermont portion of the project. The funds for this project are now in the process of being appropriated.”²⁰

STATE INITIATIVES

Quite a few states are engaged in some form of broadband data collection, usually in response to legislation or governor initiatives. Other states have pending legislation or plans in the making that would either allow or require broadband data collection. It is difficult to determine how some states have paid for broadband data collection projects. Some states have given lead responsibility to the public utility commission, many have not. The following is a state-by-state summary of broadband data collection and mapping activity and where available, expansion efforts, associated legislation and funding mechanisms.

California The State of California conducted extensive data collection in the fall of 2007 under the auspices of the California Broadband Task Force (CBTF). The Governor created CBTF primarily to identify opportunities for and challenges to broadband deployment and adoption. Cable, satellite and incumbent telephone companies have representation on the CBTF, along with the PUC, universities, cities/counties and community nonprofit organizations. As part of carrying out its

²⁰ Understanding Broadband Deployment in Vermont - Vermont Department of Public Service.

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mission, the CBTF worked through another entity, the California Emerging Technology Fund (CETF) to gather data on broadband availability. The California Public Utility Commission (CPUC) created the CETF using \$60 million in one-time monies that parties to the SBC/AT&T and Verizon/MCI mergers contributed as a condition on approval by CPUC in November 2005. The CETF is charged with achieving ubiquitous access to broadband and advanced services in California, particularly in underserved communities through the use of existing and emerging technologies.

At the request of the CBTF, the CETF contracted with a third party, Michael Baker Corp. (Baker) to assist with the data collection.²¹ Using the CBTF's very detailed instructions and form confidentiality agreements, Baker obtained from cable and incumbent telephone companies, geographically specific location information for each broadband customer (e.g., latitude and longitude, 15 digit census block code, city block). The companies also supplied to Baker information on the highest upstream and downstream speeds they make available at each customer location. Baker entered the information into a database using CBTF instructions and then delivered the database to the CETF. The CETF in turn sent the database to the California Office of Statewide Health Planning and Development (OSHPD). The OSHPD combined CETF-supplied database with a commercially available address database and US Census housing data to create statewide and regional availability statistics and maps.²² CBTF summarized the OSHPD analysis in a recent report to the Governor, "The State of Connectivity, Building Innovation Through Broadband," Final Report of the California Broadband Task Force, January 2008.

As companions to the broadband availability study, California has two programs to support broadband deployment in un-served and underserved areas. The CETF awards grants for broadband projects. In addition, the CPUC recently created the California Advanced Services Fund (CASF) for the purpose of spurring broadband deployment in un-served and underserved areas. The CPUC created the CASF using its rather broad authority to establish universal service programs supporting advanced as well as basic services. Starting January 2008, the CASF is funded at \$50 million per year from a 0.25 percent surcharge on retail telecommunications customers' monthly bills. The CPUC also provided \$100 million in initial funding to the CASF by temporarily transferring monies from other state universal service programs.

Maine Maine's PUC conducted GIS mapping of broadband availability in 2005 with town level data (it had requested street level) provided by carriers under a protective order and at their own costs. PUC cost was minimal and was absorbed in the normal cost of doing business. The mapping is available on an interactive website. The endeavor was in response to a governor initiative and was utilized during the creation of ConnectME

²¹ CETF's contract with Baker was for \$460,000. This is only a portion of the cost of the overall project.

²² California has not identified the cost of work performed by and for the CBTF and the OSHPD, so the total cost is unknown.

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legislation and for ConnectME to determine grant eligible areas, thus fulfilling two purposes; knowledge and action.²³

The ConnectME Authority was approved by legislation with the goal of expanding broadband access in the most rural, un-served areas of the state. The Authority is to “identify un-served areas of the State; develop proposals for broadband expansion projects, demonstration projects and other initiatives; and administer the process for selecting specific broadband projects and providing funding, resources, and incentives.” The Authority will be funded with a 0.25% surcharge on instate retail communications services. The Authority will fund proposals through grants, direct investments, or loans made on behalf of, in partnership with, or in support of, one or more communications service providers.

In addition, Maine’s Title 35-A, Chapter 93: Advanced Technology Infrastructure Part 7 §9207 Collection of data states “Subject to the provisions in this section, the authority may collect data from communications service providers and any wireless provider that own or operate advanced communications technology infrastructure in the State concerning infrastructure deployment and costs, revenues and subscribership.”²⁴

Nebraska The Nebraska Public Service Commission (PSC), under legislative authority and its own initiative, opened an investigation to monitor broadband deployment in 2002. The PSC has continued to collect periodic broadband data.²⁵ In 2006 the PSC directed eligible telecommunications carriers and other possible providers of internet access to specify the speeds at which each service was delivered, the type of transmission facility, the price, the number of potential households in each area that can be served, and the number of subscribers in each area. The underlying geopolitical boundary reported may have been Rate Center, Zip Code, or population center name based. The responses ranged from no response, a response that they did not provide service in the state, a response that they were a reseller of another service provider, a response with data, or a response but did not provide data. It appears the PSC absorbs its collection/reporting costs and its periodic broadband reports are informational only.

The Nebraska Internet Enhancement Fund (NIEF) was created by the Legislature in 2001 to provide financial assistance to counties and other municipalities for the installation and delivery of broadband or other advanced telecommunications infrastructure and service.²⁶ \$250,000 in seed money was appropriated to start the program. The fund may receive gifts, contributions, property, and equipment from public and private sources for purposes of the fund. One such source is agencies and political subdivisions that lease dark fiber pursuant to Neb. Rev. Stat. § 86-2301 et seq., which requires that fifty percent of profits derived from such leases be remitted to the NIEF.

²³ <http://www.maine.gov/connectme/>

²⁴ <http://janus.state.me.us/legis/statutes/35-A/title35-Asec9207.html>

²⁵ Neb. Rev. Stat. § 86-122 (2004 Supp.) Previously codified in Neb. Rev. Stat. § 75-109. In 2002, the Commission’s statutes regarding telecommunications regulation were re-codified in Chapter 86.

²⁶ http://www.psc.state.ne.us/home/NPSC/communication/NIEF/2006_Guidelines.pdf

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Several counties and municipalities have received funding for the equipment necessary to provide wireless broadband to rural customers.

The Nebraska Information Technology Commission (NITC) was established by the Legislature in 1998 to provide advice, strategic direction, and accountability on information technology investments in the state. Numerous broadband efforts have been focused on education and health. Commercial grants are not available at this time.

Iowa Iowa's Utilities Board (IUB) and Department of Economic Development, in compliance with Senate File 2433 of the 1999 general session, submitted an assessment of the statewide availability of high-speed internet access. In response to recommendations contained in the first assessment, the IUB conducted additional assessments in 2001, 2003, 2004, and 2006. Broadband availability assessment costs are not identified separately by the IUB.

The IUB reported in its sixth assessment, published January 2008, a 98.3 percent response rate from the carrier's data collection efforts.²⁷ Local exchange carriers²⁸, cable providers, and wireless/satellite service providers completed the survey. Type of service available and price were included in addition to broadband availability. Survey respondents were also asked to identify communities in which they planned to deploy high-speed internet services within the next 12 months.

The report does not discuss or include confidential information from individual companies. It includes only publicly available information, aggregated information, and other information in a format that precludes the identification of company-specific confidential information. There is no indication that these periodic data collections are for uses other than broadband inventory awareness.

Massachusetts Massachusetts has developed a broadband map at the town level in response to a number of initiatives throughout the state surrounding the broadband question (not in response to legislation). The map was developed by the John Adams Innovative Institute (JAI), which is an arm of the Massachusetts Technology Collaborative (MTC), a quasi-state development agency. The JAI is state funded and provides support for technology-based economic development initiatives of the state. In 2006, the JAI Board allocated monies for its broadband initiative which in part funded the broadband data collection efforts. Costs for data collection and mapping are not separately identified.

Broadband data collection was intensively manual. ILEC and CLEC Broadband provider websites were used to determine availability. The study used wireless internet service provider's reported coverage areas to obtain wireless broadband availability information. Cable providers are state franchised and required to submit survey data.

²⁷ http://www.state.ia.us/government/com/util/docs/reports/InternetAccess_2008.pdf

²⁸ It should be noted that the three largest ILECs have deployed DSL to all of their exchanges.

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Information provided via surveys and phone calls with town halls was combined with provider data.

The Massachusetts governor has proposed a bill to “create and fund the Massachusetts Broadband Institute which will make strategic and targeted public investments with the objective of providing high-speed internet, or broadband service, to all currently un-served communities by 2010.”²⁹ The proposed Incentive Fund would facilitate broadband infrastructure, such as fiber and wireless towers by private-sector operators financed through a \$25 million general obligation bond. The governor’s plan calls for investments in technology-neutral, public-private partnerships to build necessary infrastructure.

The governor’s broadband proposal followed the Governor's Reorganization Plan, House Bill 2034. The plan eliminated the Department of Telecommunications & Energy as of April 11, 2007. In its place, the plan establishes two new agencies: The Department of Telecommunications & Cable (DTC) will handle telecommunications and cable issues and The Department of Public Utilities (DPU) will handle electric, gas, siting, pipeline, water and transportation issues.

The DTC will be overseen by the Office of Consumer Affairs and Business Regulation and will be within the Executive Office of Housing & Economic Development. The DPU will be overseen by the Undersecretary of Energy and will be within the Executive Office of Environmental Affairs.

Vermont Vermont’s Department of Public Service (DPS) started collecting data on broadband deployment in 2002. The most recent efforts are at the sub-town level and include data from wireless internet service providers in addition to cable providers, ILECs, and active CLECs serving residential customers. The DPS has received assistance from the Office of the Chief Information Officer and most recently the Vermont Telecommunications Authority in its data collection efforts.³⁰

Mapping has been completed by several entities including the DPS, Ohio State University, Lyndon State College, and most recently the Vermont Center for Geographic Information. The 2007 map reflects cable, ILEC, CLEC and wireless coverage. Cable companies provide this information in their annual reports. The mapping effort has been instrumental in informing state public policy action to expand broadband. The data has informed decisions regarding broadband expansion commitments in a Verizon alternative regulation plan and the FairPoint acquisition of Verizon in Vermont. It has been used to shape cable build out requirements and in creating legislation committing the state to 100 percent broadband availability by 2010.

The Vermont Telecommunications Authority (VTA) was established by the General Assembly in June 2007 with an eleven member board of directors from state

²⁹ Governor Deval Patrick October 18, 2007, letter to Senate and House of Representatives.

³⁰ <http://www.telecomvt.org/documents/Broadband-Map-2006-sm.pdf>

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agencies, two of which may not be state employees but have telecommunications expertise. Specific legislation includes:

1. that all residences and business in all regions of the state have access to affordable broadband services not later than the end of the year 2010;
2. the ubiquitous availability of mobile telecommunication services including voice and high-speed data throughout the state by the end of the year 2010;
3. the investment in telecommunications infrastructure in the state which will support the best available and economically feasible service capabilities;
4. that telecommunications and broadband infrastructure in all areas of the state is continuously upgraded to reflect the rapid evolution in the capabilities of available mobile telecommunications and broadband technologies, and in the capabilities of mobile telecommunications and broadband services needed by persons, businesses, and institutions in the state; and
5. the most efficient use of both public and private resources through state policies by encouraging the development of open access telecommunications infrastructure that can be shared by multiple service providers.

The VTA, among other responsibilities, can establish partnerships and contracts with providers of telecommunications services, provide financial assistance in the form of loans, grants, guarantees, other financial instruments and consult, contract, or partner with the Vermont Economic Development Authority (VEDA) which is a Public Instrumentality of the State of Vermont, not a state agency or department. The VEDA administers the Technology Infrastructure Fund (TIF) and has made available close to \$2 million in below market interest rate loans as part of the TIF Program. The TIF Program can make loans of up to \$1 million and was designed to aid the development of advanced technology infrastructure in Vermont.

In addition, a state grant program was established by the state in partnership with the Agency of Commerce and Community Development, the Department of Information and Innovation, the Vermont Sustainable Jobs Fund, the Vermont Council on Rural Development, and the Vermont Broadband Council. The program provides grants to communities that do not have, or likely are not able to financially afford, broadband service. The program is funded through the capital budget, with \$550,000 cumulatively appropriated in fiscal years 2005-2007, and has thus far awarded grants to twelve Vermont towns. Grants are limited to not more than \$50,000 per application.

Pennsylvania Pennsylvania's Department of Community and Economic Development (DCED) oversees the Broadband Outreach and Aggregation Fund (BOAF) founded by legislation in 2004. A website houses the state's broadband mapping with query capability by area, county or zip code, and by type of service, DSL or wireless. Query results can include providers if selected. The county maps are colored coded and contain county or zip code boundary lines and no other form of demarcation. The underlying data was provided by broadband service providers upon the request of the DCED. How the data was collected, who mapped it and the associated costs are unknown at this time.

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The BOAF is capped at \$5 million a year and is financed by assessments on participating incumbent local exchange carriers. 2008 fund availability is \$2.3 million. The DCED supports outreach programs for political subdivisions, economic development entities, schools, health care facilities, businesses, and residential customers concerning the benefits, use and procurement of broadband services. It also provides seed grants to aggregate customer demand for broadband services in communities with limited access to such services, and to request such services from a telecommunications provider.³¹

The DCED works with the Bona Fide Retail Request Program which was created to provide rural communities without broadband the ability to direct particular providers to deploy broadband service if certain levels of demand are met. If the threshold is met, service must be delivered to the community within one year. The threshold for communities is 50 potential customers or 25 percent of the total customers available, whichever is less.

Illinois The Institute for Regulatory Policy Studies (IRPS), Department of Economics, Illinois State University conducted a study and mapping of broadband access in Illinois in response to the Illinois Commerce Commission's 2005, *Digital Divide Elimination Infrastructure Request for Grant proposal*. The 2007 study was funded by a grant from the Illinois Department of Commerce and Economic Opportunity in conjunction with the Broadband Deployment Council (amount unknown).

IRPS' data collection and mapping effort had four objectives: (1) determine the availability and pricing for various broadband options at the zip code level, 2) determine the penetration rate of broadband at the zip code level, 3) identify areas that have fewer providers than predicted relative to the area's market characteristics or 4) identify areas that have less penetration than predicted relative to the area's market characteristics. Only the first was met. IRPS reported that, for a variety of reasons, it was unable to obtain sufficient data from various survey respondents to complete the other three tasks.

Prior to requesting data from all broadband providers (182), pretest letters and surveys were sent to five providers that represented the largest carriers and the different broadband technologies. Pretest results showed that the carriers were not willing to provide the data. IRPS then entered into negotiations with the carriers in an effort to obtain at least some amount of usable information. The response rate for the actual survey was less than 31 percent.

The Governor created the Broadband Deployment Council, under executive order in 2005, to improve high-speed internet access for all Illinois residents. The council has representatives from eight state agencies dealing with commerce, transportation, finance and economic development and two education boards and sixteen individuals with consumer and business perspectives from both underserved urban areas, as well as rural communities. The Council will make recommendations to the General Assembly regarding telecommunications initiatives that require legislative approval, including the

³¹ <http://www.newpa.com/default.aspx?id=199>

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creation of a state entity that handles distribution of funds for private and public telecommunications projects.

In October 2007, the General Assembly approved the High Speed Internet Services and Information Technology Act to encourage additional deployment and adoption of high speed internet.³² The Department of Commerce and Economic Opportunity will choose and oversee a qualified nonprofit corporation that will create a geographic, statewide inventory of high speed internet service and other broadband and information technology services; track and identify statewide residential and business adoption of high speed internet, computers, and related technology; create local technology planning teams; and work with high speed internet providers and state government to encourage deployment and increase computer usage.

The not-for-profit corporation must be governed by a board which has a majority of individuals representing private sector interests. To launch the new effort, the legislation transfers \$4 million from the Illinois Commerce Commission's Digital Divide Infrastructure Elimination Fund into the High Speed Internet Services and Information Technology Fund.

Kentucky According to published information, the Kentucky Infrastructure Authority (KIA), which is administratively attached to the Governor's Office of Local Development, in collaboration with ConnectKentucky, produces and maintains a geographic information system (GIS) inventory of broadband infrastructure and service availability. The GIS broadband maps identify areas at the county and census-block levels with *inadequate broadband service and existing infrastructure*, such as cellular towers and elevated water tanks. Cost for data collection and mapping are unknown.

Broadband maps are available on-line and are interactive; allowing for broadband technology and provider look-ups.³³ ConnectKentucky is also working with internet leadership teams in each county to confirm and refine the accuracy of mapped broadband coverage areas.

Kentucky 2004 legislation established the Kentucky Broadband Task Force (KBTF) to examine the expansion of the availability of broadband internet access, including consideration of regulation, cost, access to facilities, and market competition and report its findings and recommendations for increasing broadband deployment to the Legislative Research Commission and the Governor.³⁴ The KBTF includes nineteen (19) members representing the Senate, House, PSC, local exchange carriers, competitive local exchange carriers, Internet Service Providers, municipal utilities, the Environmental and Public Protection Cabinet; and the Commissioner of Public Protection.

³² <http://www.technologyforhumanity.org/articles/highspeedbill.html>

³³ <http://www.connectkentucky.org/>

³⁴ <http://www.lrc.ky.gov/lrcpubs/RM501.pdf>

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The KBTF's 2006 report recommended adopting the recommendations suggested by ConnectKentucky, that is, to continue KIA funding and the state's policy to achieve deregulation, and to create solutions for broadband satellite cost-sharing programs. Activity for this task force seems to have ended with this report.

In 2004, the governor's office reported that the Center for Information Technology Enterprise (CITE) is the administrator of ConnectKentucky and that ConnectKentucky is a public-private partnership between Kentucky's Office for the New Economy, private industry, Kentucky's universities, and CITE. ConnectKentucky's industry partners currently include: Alltel, Bank One, Belcan, Bellsouth, Cincinnati Bell, Commonwealth Industries, CSX, Humana, Insight Communications, Leapfrog, Nortel Networks, Qwest, Toyota, USEC, and Yum! Brands.

CITE is a contract research and consulting enterprise that provides information technology strategy and policy planning to business, government, and educational institutions around the globe. CITE offices provide state-of-the-art video conferencing and collaboration technology value-added services. It appears that CITE and ConnectKentucky became one in the same organization in 2005. ConnectKentucky does not refer to itself as a non-profit entity.

ConnectKentucky works with both state and local leaders to build technology awareness and adoption in education, government, health care, community-based organizations, libraries, tourism, agriculture, and business. At a local level, e-community leadership teams work in each county to benchmark broadband technology use and implement online applications to drive adoption.

House Bill 550 established a combination loan/grant fund under KIA to help provide broadband coverage to households that were still un-served. However, there was no appropriation to the fund. As a result, state financial assistance for broadband deployment is limited to reallocating funds from other state programs, such as the Agricultural Development Board. ConnectKentucky has gained RUS grants for three broadband providers and funds from the Appalachian Regional Commission's Information Age Appalachia program (federal) to support its operations. The ConnectKentucky website refers readers to other grant/loan programs.³⁵

Tennessee The Tennessee General Assembly created the Tennessee Broadband Task Force (TBTF) in 2005 to examine the deployment of broadband in the state, including, but not limited to, broadband service regulation, cost, access to facilities, and market competition. The Task Force has fourteen plus members representing state departments, including the Tennessee Regulatory Authority (TRA), and all segments of broadband providers including satellite and wireless.

Specifically, the TBTF was charged with preparing, by January 2006, a baseline assessment of broadband deployment (including cable) that contained the number of

³⁵ http://migration.kentucky.gov/newsroom/kyagpolicy/060706_goap_release-pilotbroadband.htm

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digital subscriber lines, their location and use. Legislation also included a requirement that telephone utilities and cable service providers submit information to the TBTF as needed, with a disclaimer that private industries are not required to release proprietary information, including the penetration of customers or customer information. The TRA staff was to provide aid to the TBTF in completing its study.

The TBTF was unable to prepare a baseline assessment because only forty-five of the one hundred and four known broadband providers responded to the TBTF. Even the provided responses were incomplete or questioned the TBTF's authority to request the information. BellSouth and Comcast were among those that refused to supply data.

The TBTF suggested a public-private partnership to develop a statewide plan to promote broadband availability and usage, similar to the ConnectKentucky program. Connected Nation created Connected Tennessee as an independent non-profit Nashville based subsidiary of Connected Nation. It released a broadband inventory map by county in July 2007. The map is housed on Connected Tennessee's website along with a state map of population density. Queries can be made for broadband providers. As with other Connected Nations mapping projects, these maps are basic and depict a minimal amount of information. The costs for the data collection, maps, website and website maintenance are unknown.³⁶

Connected Tennessee has formed "eCommunity" teams to assess local needs and work with residents, businesses and internet providers to expand service. "They will focus on the counties with holes in deployment, identify demand (for service), encouraging demand and working with providers to build out those areas," said TRA director Pat Miller, a task force member.

Ohio The State of Ohio recently adopted a Connected Nation approach to mapping broadband availability and expanding deployment of broadband services.

Connected Nation is an offshoot of ConnectKentucky and is apparently a national 501(c)3 non-profit organization. It currently lists eight people on its leadership team and twenty-two staff members. Its primary service, *performed under contract as a distinct subsidiary like Connect Ohio*, is broadband data collection and mapping that identifies broadband gap areas. Connected Nation also advances its program at the national level by advocating for federal legislation which supports federal funding mechanisms for mapping and broadband infrastructure investments.

Newly contracted subsidiaries like Connect Ohio are staffed and trained to perform set functions that 1) support "eCommunity" projects with a goal of broadband demand stimulation and aggregation in un-served areas, 2) generate federal and/or state funding appropriations for specific areas/providers, and 3) facilitate cooperation among private partners, corporate foundations and state governments to place computers and printers into the homes and schools of disadvantaged children.

³⁶ <http://www.connectedtn.org/>

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On December 17, 2007, the Governor of Ohio launched Connect Ohio, by partnering with Connected Nation, Inc., to form the non-profit Connect Ohio Initiatives, LLC with oversight from the Ohio Office of Information Technology and the Ohio Broadband Council (OBC), which is a government entity under the Governor. Membership on the OBC is primarily state and local government entities, including one representative from the Public Utility Commission of Ohio. The president of AT&T Ohio and a vice-president of Time Warner Cable are also members.

The state budget for the Connect Ohio project is \$2.9 million in the 2008-2009 biennium, and an estimated \$3.9 million in the 2010-2011 biennium. Connect Ohio will seek additional non-government funding. The initial \$2.9 million in State funding represents 80 percent of the planned budget, the remainder expected to come from cable and telecommunications companies, and other private businesses. It is unclear whether the \$6.8 million in state funding will provide actual grants to broadband providers.

North Carolina The North Carolina legislature created the e-NC Authority in 2003 to encourage citizens to use the internet to improve their economic prospects.³⁷ The e-NC Authority is the successor of the Rural Internet Access Authority which was created in 2000 by the North Carolina General Assembly. It began operation in January 2001.

The e-NC Authority and its predecessor have generated broadband maps and reports since 2001. GIS maps are elaborate, containing several layers of data including census and statistical information.³⁸ Numerous on-line automated queries are available and broadband providers have log-in access to add or modify their services and locations.³⁹

The e-NC Authority's fifteen commissioners are appointed by the General Assembly and the Governor to guide the work of the e-NC Authority. The commissioners are chosen for their expertise and leadership in technology, education, public policy, and economic and community development, represent rural and urban communities, and volunteer their time in service of the board. The e-NC Authority is charged with continuing the work of the Rural Internet Access Authority which included the following goals:

- To provide local dial-up internet access from every telephone exchange within one year (achieved in August 2001);
- To provide high-speed internet access at competitive prices (at least 128K for residence and 256K for businesses) within three years;
- To significantly increase ownership of computers and computer devices and internet use;
- To establish telecenters located in the state's most economically distressed areas;

³⁷ <http://www.e-nc.org>

³⁸ http://204.211.239.208/enc-telco-maps/eNC_LaunchMap.htm

³⁹ See Attachment C for additional information.

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- To establish a web site to provide North Carolinians with complete information on internet and telecommunications services, how they can be obtained and what kinds of services will be available in the future;
- To develop internet applications that improve government services in areas such as education and health care;
- To encourage all potential internet service providers to participate in the effort, regardless of the technologies they employ (telephone, cable, wireless, satellite); and
- To recommend to the Governor and General Assembly actions to improve internet access statewide.

The e-NC Authority operates as a coalition that includes the North Carolina Rural Economic Development Center, the legislature and state government, the telecommunications industry, non-profit organizations and individuals. It is housed and staffed by the North Carolina Rural Economic Development Center and operates statewide through contributions from foundations, nonprofit organizations, US government grants, and public and private entities. Its annual operational overhead, including GIS integrated mapping, appears to be between \$1 and \$2 million.

The e-NC Authority oversees several on-going programs focused on specific results. Each program is monitored and results are reported annually. In its first three years over \$25 million in funding was provided to rural counties.

“In working toward its mission, the authority has sought to invest the greatest amount of funding in areas with the greatest connectivity challenges. In awarding grants, the authority has considered a variety of factors. In particular, it has taken great care to award grant funding with consideration for leveraged funds, which are a critical indicator of community, public and private support as well as a project’s long-term sustainability. During the course of three years, the authority and its programs statewide have leveraged an estimated \$200 million in cash and in-kind resources in addition to the \$30 million in private funding committed by MCNC⁴⁰ that has supported the effort.”⁴¹ (2003 annual report)

South Carolina 2007 South Carolina legislation created the South Carolina Broadband Technology and Communications Study Committee (Committee) to evaluate the state’s broadband communications infrastructure and assess the availability of and need for broadband services in un-served and under-served areas within the state.

This newly created Committee commissioned Connected Nation to create a broadband inventory map of South Carolina (no data is available on the cost).⁴² Connected Nation, in conjunction with South Carolina's broadband providers, updates these maps as needed to reflect current broadband infrastructure. Maps include:

⁴⁰ Microelectronics Center of North Carolina - operator of the state’s research education network.

⁴¹ <http://www.e-nc.org/pdfs/2003annualreport.pdf>

⁴² http://www.connectednation.org/state_programs/south_carolina.php

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- Inventory: Large and highly detailed map; data includes broadband coverage by platform, tower and water tank sites, corporate and county boundaries, and detailed road information.
- Household: Represents the number of un-served households by Census block along with proposed roads and water projects.
- Density: Represents the density of the households in un-served census blocks. This map also shows proposed roads and water projects.

The Committee is composed of seventeen members, of whom fourteen are voting members and three are nonvoting members. Members include state department, municipality, county, library and university officials and five are from the private sector with telecommunications background. It has been reported, but not confirmed, that the governor has earmarked \$2 million to be used for grants and to match private-sector dollars aimed at creating broadband infrastructure in rural areas. The Committee is charged with fostering the relationship between the private and public sectors, engaging consultants with expertise in broadband and serving as an advisory committee to the General Assembly.

West Virginia West Virginia broadband mapping was funded by Verizon Communications and performed by Connected Nation for an unknown amount. The three map types required by state law are contained on the Connected West Virginia website. The website notes that Connect West Virginia, in conjunction with West Virginia's broadband providers, updates these maps as needed to reflect current broadband infrastructure.⁴³

Legislation passed March 8, 2008 creates a Broadband Development Fund and a Broadband Development Council (Council). The legislation provides that “[it] is a primary goal of the Governor, the Legislature and the citizens of this state, by the year two thousand ten, to make every municipality, community, and rural area in this state, border to border, accessible to the internet through the expansion and extension of broadband services and technology.”

The Broadband Fund will collect money from gifts, donations and budget appropriations. Information on initial appropriation amounts is not available. The Council is a governmental instrumentality of the state created under the West Virginia Infrastructure & Jobs Development Council for administrative, personnel and technical support services only and will consist of nine members; three government representatives and six persons representing a union, a telecommunication broadband provider, a cable broadband provider, a broadband device or equipment manufacturer and two residents.

Based on its analysis of mapping, broadband demand, and other relevant data, the Council will designate un-served areas of the state as being one of three distinct types. These types are as follows:

⁴³ http://www.connectwestvirginia.org/mapping_and_research/state_maps.php

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- Type 1: an area un-served in which broadband may be deployed by service providers in an economically feasible manner;
- Type 2: an un-served area in which broadband may be deployed by broadband service providers and other entities in an economically feasible manner, provided some form of state moneys is made available; and
- Type 3: an un-served area in which, at present, cable or wireline broadband cannot be deployed in an economically feasible manner and an intermodal approach employing other technologies, such as satellite and wireless, is required to provide that area with high-speed internet access.

Other duties of the Council include:

- Stimulation of demand through public outreach and education.
- Development of guidelines and application for funding assistance; emergency rule-making authority.
- Requirements for project funding assistance; review of project application by council; competitive applications.
- Protection of proprietary business information.

DATA COLLECTION AND MAPPING EFFORTS

The resources a state expends to collect and map broadband data are likely to align with the broadband commitments it has established. This also holds true for determining the amount, type, level of detail and frequency of the data required to meet its commitments. The success of its efforts may depend on the responsible state agency's authority to collect broadband data.

When a state has legal or implied requirements for broadband data submission it will have some measure of success in collecting provider data. The magnitude of its success can be attributed to the type of data it is allowed to collect and the type of providers who are required to submit data. For example, Massachusetts cable providers have annual reporting requirements, whereas the ILEC, CLEC and wireless providers do not. Broadband data for those providers must be estimated manually by the state.

Several issues can hamper successful data collection efforts when legal requirements to submit broadband data do not exist. These issues are separately identified below. However, many of these issues can be overcome if the data collection efforts are aligned with established broadband goals.

A simple goal, such as identifying the scope of the state's digital divide without regard to other factors (adoption rate, connection speed, price, number of providers, etc.) may be more easily satisfied than a multipurpose goal or a set of goals. A multi-purpose goal, like identifying the digital divide with decision-making information, such as adoption and price, could frustrate the data collection effort.

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A state broadband plan's perceived value can contribute to broadband data collection success. State plans that include: 1) specific broadband goals, 2) an oversight instrument, 3) expansion incentives (grants, tax relief, low interest loans, etc.), and 4) technology neutrality are more likely to generate compliance with requests for data.

Even with a concise plan, broadband providers may not participate fully or participate at all in supplying data if they were not included in the state's initial planning stages or do not perceive an own benefit. Nebraska, as an example, collects and maps broadband availability almost yearly, has an oversight committee and a funding mechanism for rural areas. However, broadband survey responses indicate provider unwillingness to either provide data or provide it at the level requested. These negative responses may be reactions to an established funding mechanism that only funds counties and municipalities, not providers.

Connected Nation asserts in its numerous marketing messages that its broadband inventory maps are industry leaders. It creates GIS maps of existing broadband services based on provider data but many of the states that use these maps are requesting public input to validate or improve the information. As with any output material, it is only as good as the input data provided.

Broadband data collection and mapping in California met with success. It might be assumed that broadband provider involvement at the decision making level and the utilization of a third party data aggregator were two key contributors of this success.

Following are key considerations in collecting and mapping broadband data.

1. Level of Detail

Available information on existing state broadband data collection methods indicates, with only a few exceptions, that the data collected is not granular enough to be entirely useful. When using FCC collected data from Form 477, reported at the zip code level, a state will be overstating broadband availability. Just one household served in a zip code qualifies that zip code as broadband deployed. Requesting data at the wire center level may provide more accuracy on availability for the ILEC but other providers may not be able to gather information on that basis. The same holds true for serving area. Wireless broadband providers may only be able to depict general coverage areas. Cable franchise areas have unique boundaries as well.

Broadband availability by street address, shown in the aggregate, would provide the most accurate picture of broadband supply without compromising providers. This data can be displayed at different levels; census block, service area, 9 digit zip code, etc. When street address information is requested, many broadband providers may not have extraction methods and may respond with high level data, not respond at all, or request financial assistance with the extraction. While more detail at street level will aid with formulating plans and achieving specific goals, incomplete data at a granular level may be less useful than complete data at a broader level.

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Collecting customer penetration, price and connection speeds provides demand-type dimensions allowing for further analyses. If broadband penetration, price or speed is sought, providers are more likely to object.

A high-level municipality, county or zip code broadband inventory is probably the most practical for states without specific goals and funding mechanisms. It would provide an overall picture of areas not served. This could be augmented with data compiled from public survey responses to questions pertaining to broadband access and use for validation and adoption estimates.

2. Accuracy

Accuracy of data is also a concern. Some states have produced on-line lookup maps to assist customers in determining broadband availability in their areas, but the information can be misleading, not specific enough, or missing. The data may also incorrectly identify un-served areas because it is missing competitor, wireless, or cable information. There is no practical way to audit data provided. Connected Nation is now using customer surveys and interactive websites to collect additional data from the public to correct or corroborate existing provider-submitted data.

Accuracy can be compromised by the agendas of the industry participants. For example, in many proceedings, incumbent local exchange carriers argue in favor of further regulatory relief, asserting that competition for broadband access and other last-mile telecommunication services is strong. This raises a legitimate concern that the providers might seek to bias the data collection or reporting processes so as to further support their arguments.

3. Availability

Many states have found that collecting broadband data can be difficult. Broadband providers may refuse to submit the requested data. In some instances, the requesting agency lacks authority. In others, the providers are unwilling or unable to submit data at a sufficient level of detail because of proprietary issues or ready availability. Some states have laws forbidding utility regulators from collecting certain kinds of data, although they may allow a state department such as Economic Development to proceed with broadband data collection. Many states have overcome the proprietary concern by utilizing a third party to collect and consolidate provider data prior to mapping.

4. Timing

In order to support a state's on-going broadband deployment efforts, broadband data collection must be continued or at least augmented periodically. Even if broadband providers were willing to submit data one time, they may not be willing to continue doing

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so indefinitely. This may be why Connected Nation has instigated a drive to solicit input from members of the public in order to improve accuracy of its current broadband maps.

5. Cost

Broadband data collection costs and mapping costs are difficult to identify for several reasons. First, if performed by a state agency the costs are usually absorbed. Second, the costs may be aggregated with other expenditures being funded by the state's overall broadband initiative. Third, a third party contract may not be readily accessible to the public. Only California specified the cost contracted with the third party aggregating the collected broadband data, however this was only a portion of California's total costs. Not all states collecting broadband data generate a map or maintain an interactive website to house it.

Ohio indicated that \$2.9 million from the current 2008 - 2009 State of Ohio budget has been put aside for the state's broadband data collection/mapping needs. Ohio is a client of Connected Nation.

Current or pending state broadband legislation rarely provides an appropriation for the actual collection of broadband data. This may be an oversight. More likely, it reflects an assumption that the data collection process itself is inexpensive (little data is being sought).

Several consulting firms and Connected Nation will assist states with their broadband data collection/mapping needs or do them entirely. The cost for these services is unknown but would necessarily vary by state and the scale and scope of the effort. Several sources indicate \$0.5 million is only the baseline rate for a firm such as Connected Nation.

The earliest state broadband data collection efforts were performed by a state agency in its normal courses of doing business, i.e., without additional funding. These efforts were simplistic views of broadband deployment and may not have included data from all providers. Most of these studies are used to monitor and not to set policy or fund programs. Samples of state designed data collection forms, complete with carrier instructions, are available.

OREGON BROADBAND MAPPING OPTIONS

After review of other states' efforts, Staff has identified several basic options for broadband data collection and mapping in the State of Oregon.

Status Quo

The State can defer broadband data collection and mapping until sufficient funds

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are made available or there is a defined need to do so. As discussed above, federally appropriated funds for mapping may be made available to states as well as funding for expanding internet access infrastructure.⁴⁴ State-driven initiatives may arise as they have in other states prompting the need for broadband data.⁴⁵ In addition, the FCC has committed to provide future broadband availability reports at a more granular level. This new level of detail may provide Oregon a satisfactory assessment of its digital divide eliminating the need to collect data for this reason. The new federal reports could be reviewed to determine whether or not the data could be successfully mapped using GIS.

Until federal funding is available, or an Oregon initiative ear-marks dollars for data gathering and mapping, broadband deployment would continue under normal market mechanisms, relying on consumer demand and the decisions of broadband providers to determine what, where, when, and at what price broadband services will be available. The State would focus primarily on creating a positive business climate for all broadband providers. Qualifying broadband providers would continue to request and receive federal funding under existing USDA programs for assistance in deploying broadband to unserved areas in Oregon.

If broadband data collection and mapping funds become available, Staff estimates data collection and mapping could be completed in six months through a third party. Federal funding may require a state match and, although not likely, may include data collection and mapping standards or criteria. Oregon initiated funding should require specific collection and mapping requirements and a completion timeline.

Request Bidding

The State can open bidding for outside firms, such as Connected Nation, to perform broadband data collection and mapping with the goal of establishing a one-time look at where broadband is deployed. Based on information from other states, Staff estimates that such a contract would cost from \$500,000 to \$1,000,000, depending on the amount and detail of data gathered, mapping requirements, time frame, and the resources that State agencies can donate to the project.⁴⁶

The State will need to determine a responsible agency and a source of funding. The responsible agency would develop a request for proposals with a specific set of deliverables, including the level of geographic detail, time frame for completing projects, and requirements for making accessible the broadband data and maps. Each firm contacted may have specific limitations that could narrow the selection. Connected

⁴⁴ For example, the FCC is considering whether to create a new Broadband Fund within the federal universal service fund. Under federal law, state public utility commissions, in this case the Public Utility Commission of Oregon (OPUC) is responsible for designating providers as eligible to receive federal universal service support. The OPUC would act promptly to process requests under applicable standards so that Oregon gets its share.

⁴⁵ Other state's initiatives have included specific data collection and mapping methods superseding previous data collection efforts.

⁴⁶ Interactive website maps or demand-type information are not included in this estimate.

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Nation reports that it provides and maps broadband data it collects directly from the providers. CostQuest can estimate the cost of deploying different types of technologies to un-served areas for an additional unknown amount.

When the mapping is completed state officials should at least have the baseline information necessary to assess the broadband situation in Oregon. If enough detail is obtained and the mapping is timely, the state can effectively apply USF funds that may become available; otherwise the study will have to be repeated to accomplish this.

Establish Comprehensive Broadband Program

The State can collect and map broadband data in conjunction with a comprehensive broadband program along the lines of California's program. A comprehensive program would include broadband deployment grants and subsidies or other incentives, as well as demand stimulation. This would be an ongoing program with a dedicated source of funding such as a surcharge on broadband services. The State would establish an advisory body with broad industry and public representation, plus an office or agency with administrative and policy responsibilities. Data collection and mapping would be designed to specifically meet the needs of the program using contracted services as required. Based on information from other states, Staff estimates this would cost at least \$3,000,000 per year in addition to the broadband grants and subsidies.

CONCLUSION AND RECOMMENDATIONS

It is easy to get caught up in the excitement of the broadband revolution and assume that State government should lead the way in eliminating the "Digital Divide." That is the message from organizations such as Connected Nation, Inc. The federal government and the states mentioned above have concluded that it is not enough to just let broadband happen; that government should do something to encourage or assist wide deployment of robust broadband services, including service to rural and less wealthy areas.

The Public Utilities Commission has generated several studies over the past several years, each concluding that Oregon's deployment and adoption of broadband is in line with the rest of the nation. As more and more states implement broadband programs Oregon may find itself behind in an otherwise digital nation. The importance of broadband to Oregon citizens and Oregon's economy has not been defined other than through its statute. Oregon law, ORS 759.016 declares that it is "the goal of this state to promote access to broadband services for all Oregonians" The question is how to best implement this policy.

There are three key factors for a state to consider when contemplating a project to collect and map broadband data. 1) The project will have its greatest meaning and impact

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if it is in the context of a clear plan to deploy broadband in un-served areas in conjunction with a funding mechanism for grants and subsidies. 2) The project will have greater legitimacy and perceived importance if it is under the auspices of a governor-appointed task force or working body representing diverse interests. 3) The project will be more proficient and more readily replicated if a State agency or outside contractor has clear responsibility for carefully designing the details of data collection and mapping. Preferably, the project would be designed with the participation of broadband providers. Several states have, through Governor Initiatives or legislation successfully approached their broadband needs in this fashion.

The options above are not necessarily mutually exclusive choices. Rather, the State could blend options together, or do them in sequence. The State could bid out all or most of a data collection and mapping project and then, using this data, decide whether the State should develop a broadband grant and subsidy program, or the State could first establish a comprehensive broadband program and then carry out a data collection and mapping project as part of that broader effort. The 'Status Quo' still allows the State an opportunity to receive funds for broadband data collection and mapping and federally reported broadband data at some point in the future.

Staff recommends that the Governor or the Legislature first establish a comprehensive broadband program, including creation of an advisory task force and designation of a responsible agency, then do data collection and mapping in a manner that meets the needs identified by the program. The primary purpose of data collection and mapping would be to assess where the program should step in to promote provision of broadband services with grants and subsidies. The data collection and mapping project also would help focus demand-side efforts. As discussed above, a data collection and mapping project will be more meaningful, have greater impact, acquire greater legitimacy, and be carried out more proficiently if a comprehensive program is established first. In other words, such a project would be more cost effective. Federal data or funding may become available during the time frame in which this program is being developed, providing additional support.

OREGON BROADBAND DATA COLLECTION AND MAPPING

ATTACHMENT A

Oregon Revised Statutes (ORS) 759.016

The Legislative Assembly finds and declares: (1) That it is the goal of this state to promote access to broadband services for all Oregonians in order to improve the economy in Oregon, improve the quality of life in Oregon communities and reduce the economic gap between Oregon communities that have access to broadband digital applications and services and those that do not, for both present and future generations; and (2) That the goal set forth in subsection (1) of this section may be achieved by:

- (a) Expanding broadband and other telecommunications services;
- (b) Creating incentives to establish and expand broadband and other telecommunications services;
- (c) Undertaking telecommunications planning at the local, regional and state levels that includes participants from both the public and the private sectors;
- (d) Removing barriers to the full deployment of broadband digital applications and services and providing incentives for the removal of those barriers; and
- (e) Removing barriers to public-private partnerships in areas where the private sector cannot justify investments. [2003 c.775 §1]”

OREGON BROADBAND DATA COLLECTION AND MAPPING

ATTACHMENT B

KENTUCKY

*The Economic Impact of Stimulating Broadband Nationally*¹, a report from Connected Nation, Inc. February 21, 2008, as found starting on page 9.

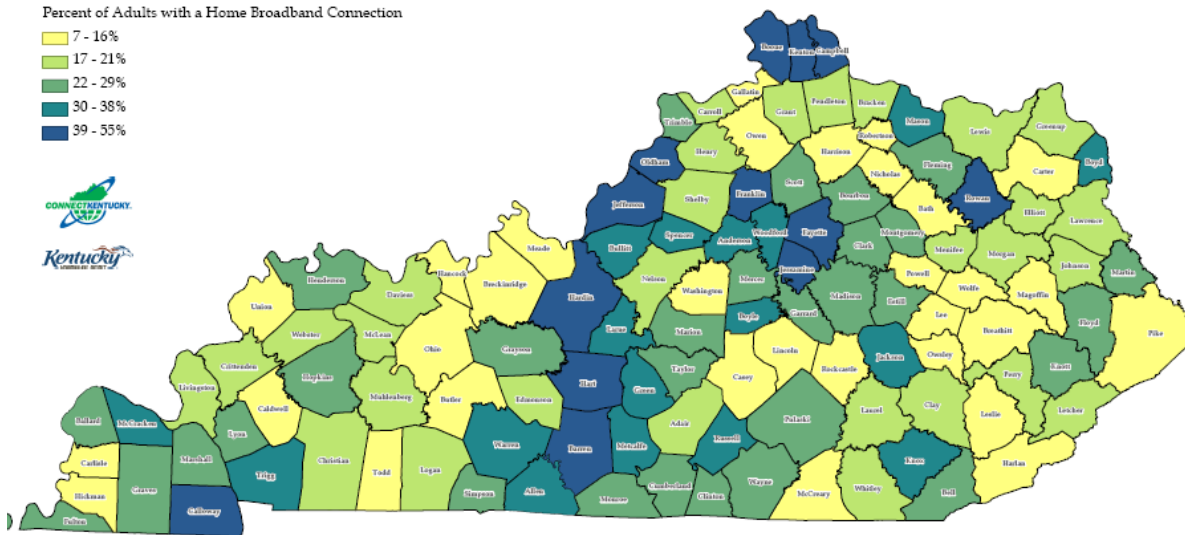
The ConnectKentucky model is rooted in a community-driven technology planning process that creates demand for broadband and information technology services, which in turn drives the investment that extends the supply of those services. The point of contact between supply and demand is within communities themselves. The ConnectKentucky model attempts to foster a sustainable, grassroots coalition of community leaders representing education, healthcare, businesses, government, libraries, agriculture, tourism and community-based organizations. These “eCommunity Leadership Teams” utilize ConnectKentucky’s community-level consumer research and other forms of market intelligence to develop customized technology programs, targeted awareness campaigns and community-oriented applications to increase adoption and generate demand for services. Meanwhile, best practices are shared across the state to encourage smart and cost effective investments. Local volunteers number greater than 4,000 citizens, working together to make a better use of technology in their community.

ConnectKentucky pairs this local technology planning with a collaborative engagement among all broadband providers, which yields a statewide, household-level mapping of broadband “gaps” and customized plans to fill those gaps with highly used services. Mapping these broadband gaps allows for an in-depth market analysis of unserved areas, including household densities, potential collocation resources such as water and cell towers, terrain analysis and proposed infrastructure such as water lines, sewer projects and future roads. The combination of local knowledge and resources with an effective broadband map allows broadband providers and communities to accurately mesh technology deployment with potential users of application development, all while ideally increasing community awareness and adoption.

¹ http://www.connectednation.com/documents/2008_economic_impact_study_final_000.pdf

OREGON BROADBAND DATA COLLECTION AND MAPPING

Broadband Adoption in Kentucky



Telling the Broadband Story²

Nothing better supports the case for broadband expansion like the stories from those who use the technology in an innovative way. Below are multiple examples that tell the stories of Americans using broadband.

Health Care

- Broadband technology allows a rural Kentucky company to transmit digital medical imaging for diagnosis.
- Healthcare information is regularly updated and secured by DataHEALTH, an eastern Kentucky medical data storage company.
- Ephraim McDowell Regional Medical Center uses broadband technology to maintain digital medical records. Medical records can be recalled instantaneously for any emergency the hospital my experience.

Arts and Culture

- Regional art form of basket making is made available to the world on the Basket Maker's Catalog in Allen County, Kentucky.
- WMMT FM Radio 88.7, the 24-hour voice of the mountains, is available to anyone with a computer via the Internet. The station is broadcasting Appalachian culture to the world and creating a diverse fan base.

² http://www.connectednation.com/research_and_mapping/telling_the_broadband_story.php

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- Kentucky Artisan Heritage Trails (KAHT) Internet-based driving trails direct tourists to craftsmen and treasured destinations.

Entrepreneurship

- Saucing up the Internet!! McDowell Farms Salsa has experienced a financial boom with internet. Belinda Fay and Carla McDowell are selling the family salsa recipe to the world.
- Ever wanted to run a global business? Rosalee Belamy of Clarksville, Tennessee is making her line of plus-size clothing available to the world with customers in the US, Canada, the United Kingdom, Australia, the Arctic Circle, the Caribbean Islands, Mexico, and several other smaller countries.
- Family-owned deer outfitters in Grayson County successfully takes Kentucky hunting online with Buck Country Outfitters.

Manufacturing

- Leading regional manufacturer of metal castings, fabrications and machined parts considers broadband technology essential to getting the next job – literally. J.R. Hoe and Sons depends on broadband technology to bid for large jobs online.
- Griffin Industries in Campbell County, Kentucky is using creative methods of biodiesel development, all of which are dependent on broadband technology to market them to the world.
- Tarter Gate Farm Equipment depends on a robust fiber network to keep its 600-plus employees connected and manufacturing line to create 3,000 gates a day.

Sports and Leisure

- Thoroughbreds heat up with track and the Internet. Stonerside Stable, a leading thoroughbred breeding and racing farm in the heart of Kentucky, uses broadband technology for daily race updates from their horses in England and around the world.
- Rick Dees, a nationally syndicated radio personality, uses broadband internet to broadcast his daily show and weekly top 40 show from his farm outside Danville, Kentucky. Broadband allows Dees to enjoy the benefits of the bluegrass state without missing a beat in Los Angeles.
- Broadband on the Boat. Green Turtle Bay and Marina in Grand Rivers, Kentucky wanted to bring technology to the boats to increase tourism. The marina transmits wireless broadband to all boats on dock.

Non-profit

- Sarah's Place Women's Resource Center, Inc. uses broadband technology to help clients help themselves. A home for domestic violence victims and anyone else in need, Sarah's Place teaches online classes to increase work skills for participants.
- The Fairy God Foundation provides teenage girls who would not be able to go to the prom an opportunity. With the help of the foundation website, the Fairy God Foundation is enabling a memorable prom for disadvantaged students.

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Agriculture

- In Mercer County, Kentucky, Anderson Circle Farms wants to move the industry further ahead with a new application that allows farm workers to record information at any location inputting inventory, labor, machine maintenance, physical structure, agronomics, accounting and livestock data.
- Sweet Farm Equipment sells refurbished and antique farm equipment online to customers around the world. A sweet solution for a farm facing the farmer's struggle in a faltering economy.
- Bring technology to the cornfields. AgConnections, Inc. provides agriculture software to farms across the country from a rural community in west Kentucky.

OREGON BROADBAND DATA COLLECTION AND MAPPING

ATTACHMENT C

NORTH CAROLINA

Information about telecommunications infrastructure penetration is tracked by the e-NC Authority through data solicited directly from service providers, and the percentage of connectivity in each county reflects a composite of cable modem and DSL access. The figures represent penetration and availability of high-speed internet in each county and not actual adoption. Satellite and wireless access are not included for reasons of low data reliability.

The e-NC Authority also utilizes the visualization power of Geographic Information Systems (GIS) to develop and document research projects. By juxtaposing information about socioeconomic status, educational systems and health care facilities with geographic availability of high-speed internet access, more effective programming can be developed and recommended to address specific community needs. The Web-based Telecom Service Provider Mapping System continues to provide a real-time picture of statewide deployment.

But even with limited connectivity . . . the valuable information about programs, policy and research on the e-NC Authority Web site receives over 19,200 visitors per month.

On a near-constant basis, the e-NC Authority receives e-mails and phone calls from citizens, community leaders and elected officials with one finite question: When will high-speed internet be available? Small business owners need it to remain competitive in their operations, neighbors want it for correspondence with families far away, and parents deserve it for their school-aged children and the hope of opportunity to come.

When service inquiries are received by the e-NC Authority staff, they are logged and documented before being forwarded to the service provider working within the area in question. Every effort is made to secure an answer for each inquiry, no matter the amount of time needed. Between January 2006 and June 2007, 73 service inquiries were directly received or forwarded to the e-NC Authority, and all inquiries have a personal story or frustration behind them.

OREGON BROADBAND DATA COLLECTION AND MAPPING

ATTACHMENT D

WASHINGTON

Chapter 262, Laws of 2008

60th Legislature
2008 Regular Session

TECHNOLOGY OPPORTUNITIES--HIGH-SPEED INTERNET EFFECTIVE DATE: 06/12/08

SECTION. 1. (1) The legislature finds and declares the following: (a) The deployment and adoption of high-speed internet services and information technology has resulted in enhanced economic development and public safety for the state's communities, improved health care and educational opportunities, and a better quality of life for the state's residents; (b) Continued progress in the deployment and adoption of high-speed internet services and other advanced telecommunications services, both land-based and wireless, is vital to ensuring Washington remains competitive and continues to create business and job growth; and (c) That the state must encourage and support strategic partnerships of public, private, nonprofit, and community-based sectors in the continued growth and development of high-speed internet services and information technology for state residents and businesses.

(2) Therefore, in order to begin advancing the state towards further growth and development of high-speed internet in the state, and to ensure a better quality of life for all state residents, it is the legislature's intent to conduct a statewide needs assessment of broadband internet resources through an open dialogue with all interested parties, including providers, unions, businesses, community organizations, local governments, and state agencies. The legislature intends to use this needs assessment in guiding future plans on how to ensure that every resident in Washington state may gain access to high-speed internet services and, as part of this effort, to address digital literacy and technology training needs of low-income and technology underserved residents of the state through state support of community technology programs.

NEW SECTION. Sec. 2. (1) After the broadband study authorized by the legislature in 2007 has been completed, or by July 15, 2008, the department of information services, in coordination with the department of community, trade, and economic development and the utilities and transportation commission, shall convene a work group to develop a high-speed internet deployment and adoption strategy for the state.

(2) The department of information services shall invite representatives from the following organizations to participate in the work group:

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(a) Representatives of public, private, and nonprofit agencies and organizations representing economic development, local community development, local government, community planning, technology planning, education, and health care; (b) Representatives of telecommunications providers, technology companies, telecommunications unions, public utilities, and relevant private sector entities; (c) Representatives of community-based organizations; and (d) Representatives of other relevant entities as the department of information services may deem appropriate.

(3) The department of information services shall, in consultation with the work group, develop a high-speed internet deployment and adoption strategy to accomplish the following objectives: (a) Create and regularly update a detailed, geographic information system map at the census block level of the high-speed internet services and other relevant telecommunications and information technology services owned or leased by public entities in the state with instructions on how proprietary and competitively sensitive data will be handled, stored, and used. Development of this geographic information system map may include collaboration with students and faculty at community colleges and universities in the state. The statewide inventory must, at a minimum, detail: (i) The physical location of all high-speed internet infrastructure owned or leased by public entities; (ii) The amount of excess capacity available; and (iii) Whether the high-speed internet infrastructure is active or inactive; (b) Work collaboratively with telecommunications providers and internet service providers to assess, create, and regularly update a geographic information system map at the census block level of the privately owned high-speed internet infrastructure in the state, with instructions on how proprietary and competitively sensitive data will be handled, stored, and used; (c) Combine the geographic information system map of high-speed internet infrastructure owned by public entities with the geographic information system map of high-speed internet infrastructure owned by private entities to create and regularly update a statewide inventory of all high-speed internet infrastructure in the state; (d) Use the geographic information system map of all high-speed internet infrastructure in the state, both public and privately owned or leased, to identify and regularly update the geographic gaps in high-speed internet service, including an assessment of the population located in each of the geographic gaps; (e) Spur the development of high-speed internet resources in the state, which may include, but is not limited to, soliciting funding in the form of grants or donations; establishing technology literacy programs in conjunction with institutions of higher education; establishing low-cost hardware and software purchasing programs; and developing loan programs targeting small businesses or businesses located in underserved areas; (f) Track statewide residential and business adoption of high-speed internet, computers, and related information technology, including an identification of barriers to adoption; (g) Build and facilitate local technology planning teams and partnerships with members representing cross-sections of the community, which may include participation from the following organizations: Representatives of business, telecommunications unions, K-12 education, community colleges, local economic development organizations, health care, libraries, universities, community-based organizations, local governments, tourism, parks and recreation, and agriculture; (h) Use the local technology planning teams and partnerships to: (i) Conduct a needs assessment; and (ii) Work collaboratively with high-speed internet providers and technology companies across the state to

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encourage deployment and use, especially in un-served areas, through use of local demand aggregation, mapping analysis, and creation of market intelligence to improve the investment rationale and business case; and (i) Work with Washington State University extension pursuant to section 6 of this act to establish low-cost programs to improve computer ownership, technology literacy, and high-speed internet access for disenfranchised or un-served populations across the state.

(4) By September 1, 2008, the department of information services shall provide a status update to the telecommunications committees in the house of representatives and the senate, outlining the progress made to date by the work group and the issues remaining to be considered.

(5) By December 1, 2008, the department of information services shall complete the high-speed internet deployment and adoption strategy and provide a report to the fiscal and telecommunications committees in the house of representatives and the senate, the governor, and the office of financial management. The main objective of the report is to outline, based on the efforts of the work group, what legislation is needed in order to implement the high-speed internet deployment and adoption strategy, including a range of potential funding requests to accompany the legislation. Specifically, the report shall include the following: (a) Benchmarks, performance measures, milestones, deliverables, timelines, and such other indicators of performance and progress as are necessary to guide development and implementation of the high-speed internet deployment and adoption strategy, both short term and long term, including an assessment of the amount of funding needed to accomplish a baseline assessment of the high-speed internet infrastructure owned by public and private entities of the state in an eighteen-month period; and (b) Ways to structure and appropriately scale and phase development and implementation of the high-speed internet deployment and adoption strategy so as to link to, leverage, and otherwise synchronize with other relevant and related funding, technology, capital initiatives, investments, and opportunities.

NEW SECTION. Sec. 3. A new section is added to chapter 43.105 RCW to read as follows:

(1) For purposes of compliance with section 2 of this act or any subsequent high-speed internet deployment and adoption initiative, the department of information services, the department of community, trade, and economic development, the utilities and transportation commission, and any other government agent or agency shall not gather or request any information related to high-speed internet infrastructure or service from providers of telecommunications or high-speed internet services that is classified by the provider as proprietary or competitively sensitive.

(2) Nothing in this section may be construed as limiting the authority of a state agency or local government to gather or request information from providers of telecommunications or high-speed internet services for other purposes pursuant to its statutory authority.

NEW SECTION. Sec. 4. Nothing in this act may be construed as giving the department of information services or any other entities any additional authority, regulatory or otherwise, over providers of telecommunications and information technology.

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NEW SECTION. Sec. 5. A new section is added to chapter 43.105 RCW to read as follows: (1) By January 1, 2009, the department, in consultation with Washington State University, shall identify and make publicly available a web directory of public facilities that provide community technology programs throughout the state.

(2) For the purposes of this section, "community technology program" has the same meaning as in section 7 of this act.

NEW SECTION. Sec. 6. The community technology opportunity program is created to support the efforts of community technology programs throughout the state. The community technology opportunity program must be administered by the Washington State University extension, in consultation with the department of information services. The Washington State University extension may contract for services in order to carry out the extension's obligations under this section.

(1) In implementing the community technology opportunity program the administrator must, to the extent funds are appropriated for this purpose: (a) Provide organizational and capacity building support to community technology programs throughout the state, and identify and facilitate the availability of other public and private sources of funds to enhance the purposes of the program and the work of community technology programs. No more than fifteen percent of funds received by the administrator for the program may be expended on these functions; (b) Establish a competitive grant program and provide grants to community technology programs to provide training and skill-building opportunities; access to hardware and software; internet connectivity; assistance in the adoption of information and communication technologies in low-income and underserved areas of the state; and development of locally relevant content and delivery of vital services through technology.

(2) Grant applicants must: (a) Provide evidence that the applicant is a nonprofit entity or a public entity that is working in partnership with a nonprofit entity; (b) Define the geographic area or population to be served; (c) Include in the application the results of a needs assessment addressing, in the geographic area or among the population to be served: The impact of inadequacies in technology access or knowledge, barriers faced, and services needed; (d) Explain in detail the strategy for addressing the needs identified and an implementation plan including objectives, tasks, and benchmarks for the applicant and the role that other organizations will play in assisting the applicant's efforts; (e) Provide evidence of matching funds and resources, which are equivalent to at least one-quarter of the grant amount committed to the applicant's strategy; (f) Provide evidence that funds applied for, if received, will be used to provide effective delivery of community technology services in alignment with the goals of this program and to increase the applicant's level of effort beyond the current level; and (g) Comply with such other requirements as the administrator establishes.

(3) The administrator may use no more than ten percent of funds received for the community technology opportunity program to cover administrative expenses.

(4) The administrator must establish expected program outcomes for each grant recipient and must require grant recipients to provide an annual accounting of program outcomes.

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NEW SECTION. Sec. 7. The definitions in this section apply throughout this chapter unless the context clearly requires otherwise.

(1) "Administrator" means the community technology opportunity program administrator designated by the Washington State University extension.

(2) "Community technology program" means a program, including a digital inclusion program, engaged in diffusing information and communications technology in local communities, particularly in underserved areas. These programs may include, but are not limited to, programs that provide education and skill-building opportunities, hardware and software, internet connectivity, and development of locally relevant content and delivery of vital services through technology.

NEW SECTION. Sec. 8. The Washington community technology opportunity account is established in the state treasury. Donated funds from private and public sources may be deposited into the account. Expenditures from the account may be used only for the operation of the community technology opportunity program as provided in section 6 of this act. Only the administrator or the administrator's designee may authorize expenditures from the account.

NEW SECTION. Sec. 9. Sections 6 through 8 of this act constitute a new chapter in Title 28B RCW.

NEW SECTION. Sec. 10. If sections 1 through 5 of this act become null and void, the department of information services shall include high-speed internet adoption and deployment in its 2009-2011 strategic plan.

NEW SECTION. Sec. 11. If specific funding for the purposes of sections 1 through 5 of this act, referencing sections 1 through 5 of this act by bill or chapter number, is not provided by June 30, 2008, in the omnibus appropriations act, sections 1 through 5 of this act are null and void.

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ATTACHMENT E

PENNSYLVANIA

September 2006

FOR IMMEDIATE RELEASE:

Sept. 28, 2006

**CONNECTING PENNSYLVANIA: GOVERNOR RENDELL'S INITIATIVES WILL
EXPAND BROADBAND ACCESS IN PA
*GOVERNOR ACCELERATES DEPLOYMENT OF HIGH SPEED COMMUNICATION LINES***

HARRISBURG — Governor Edward G. Rendell today said the commonwealth is implementing programs to accelerate the delivery of high-speed internet to every Pennsylvania community as quickly as possible.

As a result of Act 183, providers across the state have made some aggressive commitments on deploying broadband service.

"Providing high-speed internet access, which allows for the speedy transmission of data and other information, is critical for our businesses to compete in global markets. Our students also need broadband service, which will enhance instruction, raise student achievement and prepare our students to compete for the very best jobs with their peers from around the world," Governor Rendell said. "I want the smallest towns and villages in Pennsylvania to have the same high speed access as our cities. We are connecting Lake Wynonah, Shohola, Spring Mills and Corsica to the global community."

In an effort to boost awareness of the benefits of broadband service, Governor Rendell announced the release of guidelines for the Broadband Outreach and Aggregation Fund (BOAF) program. This program is designed to provide funding for communities to promote broadband service and to build demand. It will be administered by the Department of Community and Economic Development (DCED).

"We want to make people aware of the benefits of broadband service, a technology that opens a 'highway' to a world of exploration, education and business opportunities. Such high-speed data transmission is no longer a convenience, it is a necessity," the Governor said.

It is projected that \$2.3 million will be available for BOAF grants in its first year, fiscal year 2006-07.

Governor Rendell also announced the implementation of the Bona Fide Retail Request (BFRR) Program that will provide rural communities without broadband the ability to direct particular providers to deploy broadband service if certain levels of demand are met. If the threshold is met, service must be delivered to the community within one year. The threshold for communities is 50 potential customers or 25 percent of the total customers available, whichever is less.

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"We are putting Pennsylvanians in the driver's seat, allowing a community with a known interest for broadband service to receive that service within a year after sufficient consumer interest has been identified," Governor Rendell said. "The Bona Fide program is our good faith approach of matching broadband providers with a valuable pool of interested consumers. As of today 27 communities have taken advantage of the BFRR program and will enjoy the benefits of broadband."

Both broadband initiatives were made possible by Act 183 of 2004, commonly referred to as Chapter 30.

The Governor also said local governments should complete the [municipal cable franchise survey](#) to access the status and impact of cable franchising. Sept. 30 is the final day to complete the survey.

For more information visit Governor Rendell's [broadband initiatives](#).

Edward G. Rendell, *Governor*

Broadband Initiatives

Pennsylvania is home to one of the country's most aggressive broadband deployment commitments: by 2015, and as early as 2008, every city, town and village will have access to broadband service, even in the most rural areas.

Commonwealth Administered Act 183 programs:

Consumers & Communities - Communities can apply for grant funding to help aggregate the demand for broadband service. Broadband Outreach & Aggregation Fund (BOAF) guidelines have now been published. [Download here](#).

Businesses - Find out about a unique business attraction and retention program to help build the telecommunications infrastructure, or to help your business get broadband.

Bona Fide Retail Request Program (BFRR): This consists of a program offered by participating telecommunications providers in order to attract and aggregate requests for services.

To inquire about Act 183 programs, please contact Broadband@NewPA.com.

OREGON BROADBAND DATA COLLECTION AND MAPPING

PENNSYLVANIA

Inventory of Broadband Services:

Use the search below to search for broadband access in your area.

Broadband Search

Search for broadband service in your area

The enlarged broadband coverage map and list of available providers display in pop-up windows. Please disable the pop-up blocker in your browser to view this information.

The broadband coverage map and list of available providers use SSL (HTTPS) to display the data. Please be sure that your browser supports SSL (HTTPS).

STEP 1

County

-OR-

Zip

STEP 2

Type of service

- DSL
- Wireless

SEARCH →

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ATTACHMENT F

New York Times

April 9, 2008

Study Gives High Marks to U.S. Internet

By JOHN MARKOFF

SAN FRANCISCO — Contradicting earlier studies, conventional wisdom and politicians' rhetoric, European researchers say that the Internet infrastructure of the United States is one of the world's best and getting better.

The Global Information Technology Report issued on Wednesday found that the United States now ranked fourth in the world behind just three European nations: Denmark, Sweden and Switzerland. Last year the United States was ranked seventh.

The study, which has been issued annually for the last seven years, is an effort to draw a more complete picture of national network readiness.

The study was done by Insead, the business school near Paris, on behalf of the World Economic Forum, a policy and conference group based in Switzerland. It used an index generated from 68 variables including market factors, political and regulatory environment and technology infrastructure rather than just bandwidth capacity and data transmission speeds.

Some Internet industry veterans were skeptical of the positive claims about the United States compared with the rest of the world. "My gut feeling is that we don't have the type of deployment you have abroad," said David J. Farber, an Internet pioneer and a professor of computer science at Carnegie Mellon University. "If you are looking at broadband, we have a lot of problems. We are slow as molasses in deploying the next generation."

The Insead assessment offers a stark contrast to other appraisals based on single measures that have portrayed the United States, the nation that invented the global data network, as both lagging and declining in the broadband boom. Last year a range of statistics on global bandwidth use indicated that the United States was trailing other industrial nations in both broadband network consumption and penetration as a percentage of population.

For example, statistics maintained by the Organization for Economic Co-operation and Development gave a conflicting message. The average advertised broadband download speed of 23 American providers was 8.8 megabits a second, while the average for 23 providers in Denmark was a considerably slower 5.9 megabits. At the same time the number of broadband subscribers in Denmark was 34.3 for every 100 inhabitants, compared with 22.1 in the United States, according to a study in October 2007.

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However, one of the authors of the Insead report said the narrow measures had failed to capture the true impact of the Internet when it was considered in a cultural, economic and political context.

“What the U.S. has is a number of strengths along a number of dimensions,” said Soumitra Dutta, a professor of information systems at Insead and the director of the study. “It is not just a question of technology. Political and economic factors become extremely important.”

He pointed to France as a country that was a technology leader in terms of network services that had trailed in the study, ranked at 21. “It’s not because France is lacking in technology,” Professor Dutta said. “If you look at other kinds of regulatory issues and labor conditions, you find a rigid situation that prohibits companies from making the most effective use of technology.”

An O.E.C.D. economist acknowledged the nuances in taking into account government regulatory and related factors, and said it was hard to draw a single conclusion from the data. “I think we can say that a lot of the situation in the United States is a result of the lack of competition,” said Taylor Reynolds, an economist in the Internet and Telecommunications Policy section of the O.E.C.D. “In Europe we have adopted an unbundling strategy wholeheartedly.”

That has led to more competition in markets outside the United States, he said, which in turn has driven internet service providers elsewhere to offer speedier service and lower prices.

One aspect of global competition that is being watched closely, he added, is the way fiber optic networks are being introduced in different regions. Even though the United States has begun to accelerate the availability of fiber optic services, it is lagging Europe and Asia in network speeds.

While Verizon is offering 50 megabit FIOS in the United States, 100 megabit services are common in Europe, and the Japanese are offering 1 gigabit services.

Still, there are puzzling aspects to the American market, which has higher broadband availability than many countries but lower adoption rates. More customers have retained dial-up services than most countries, which might be explained by price or lack of attractive broadband services.

Industry executives in the United States said the Insead report was a significant counterweight to the one-dimensional O.E.C.D. statistics. “Being an optimist, I’m seeing some significant and promising things happening in the United States,” said Robert Pepper, senior managing director, Global Advanced Technology Policy at Cisco Systems, the world’s largest networking equipment company.

OREGON BROADBAND DATA COLLECTION AND MAPPING

The study portrayed a number of global trends. Five Nordic countries were reported among the world's top 10. South Korea posted one of the most significant improvements in the last year, moving up 10 places in the ranking to ninth, and China moved up five positions to 57th.