



CONNECTED  
**Tennessee**  
THE TRAIL TO INNOVATION®

April 13, 2009

Ms. Anna Gomez  
Deputy Assistant Secretary  
National Telecommunications and Information Administration  
US Department of Commerce  
Room 4701  
1401 Constitution Avenue, NW  
Washington, DC 20230

Mr. James R. Newby  
Acting Administrator  
Rural Utilities Service  
US Department of Agriculture  
Room 5801-S, Stop 3201  
1400 Independence Avenue, SW  
Washington, DC 20554

Mr. Michael Copps  
Acting Chairman  
Federal Communications Commission  
445 12<sup>th</sup> Street, SW  
Washington, DC 20554

Dear Deputy Assistant Secretary Gomez, Acting Chairman Copps and Acting Administrator Newby:

As the National Telecommunications and Information Administration, the Rural Utilities Service and the Federal Communications Commission work together to implement the broadband stimulus funding within the American Recovery and Reinvestment Act, Connected Tennessee is proud to serve as an example of how the public and private sectors can work cooperatively together to build sustainable and cohesive broadband networks across a state. Perhaps most importantly, Connected Tennessee hopes to serve as an example of how a public-private partnership can bring about not only broadband infrastructure, but sustained broadband adoption for improved access to education, healthcare and jobs.

Connected Tennessee submits these comments and suggestions in response to the Request for Information published March 12, 2009 by the US Department of Commerce National Telecommunications and Information Administration and the US Department of Agriculture Rural Utilities Service in Docket Number 090309298-9299-01. The information contained within this document pertains primarily to the questions in the Request for



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Information which are numbered seven (7) and eight (8), pertaining to the Broadband Data Improvement Act and its associated grant program for broadband mapping, demand stimulation and sustainable broadband adoption programs through state-based public-private partnerships.

#### Background

Connected Tennessee is an independent non-profit organization that operates as a public-private partnership on behalf of the State of Tennessee to develop and implement strategies for broadband deployment, literacy and use in every community across the state. Over the past two years, Connected Tennessee has partnered with public agencies, community leaders, telecommunications and information technology providers, business owners, researchers and universities in an effort to make broadband technology available and useful for every household in Tennessee. Through our grassroots efforts, our community involvement through eCommunity Leadership Teams and our broadband mapping capabilities, Connected Tennessee works to bring broadband access and computer technology to all Tennesseans, particularly those who are most disconnected.

Connected Tennessee, based on the Connected Nation model, has spent the past two years working on behalf of Governor Phil Bredesen and the State of Tennessee to build a coalition of more than 60 DSL, cable, wireless and fiber broadband providers across Tennessee. These providers represent both the public and private sectors, and they have voluntarily worked as part of the Connected Tennessee partnership to create one of the most ambitious and comprehensive broadband maps in the nation.<sup>1</sup> The result is a set of constantly updated broadband maps that show areas where broadband service is currently available, which areas are not currently served, the household density of all unserved areas, the average speeds of available broadband, the location of useable infrastructure for deployment such as cellular towers, broadband availability in relation to critical facilities such as hospitals, schools and libraries and a multitude of other maps, analyses and datasets which are developed on a continuing basis.

Connected Tennessee's broadband availability map, available online at our website ([www.connectedtn.org](http://www.connectedtn.org)), shows broadband availability down to the household level, allowing viewers to zoom to any spot or type in any address and instantly see which broadband providers offer service at that location. Mapping broadband availability at a household level is the only way to truly understand where the broadband gaps exist, particularly in rural areas. If broadband mapping is done at any higher level – for example, at a geographic unit level like census units or postal codes such as nine-digit zip code – the result will be a severe overestimation of broadband deployment statewide. Providing data at a household level allows citizens to know which broadband providers serve their residence, allows broadband

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<sup>1</sup> [http://www.connectedtennessee.com/broadband\\_landscape/availability\\_maps.php](http://www.connectedtennessee.com/broadband_landscape/availability_maps.php)



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providers to see the unserved areas into which they can successfully expand and allows Tennessee policymakers to track the effectiveness of the broadband expansion initiative. Broadband availability data from every participating provider, from the largest corporation to the smallest independent provider, is fully disclosed and transparent on our online interactive map. The only information that is not disclosed online is the physical location of proprietary network infrastructure.

In addition to information supplied by broadband providers, Connected Tennessee encourages public input through our interactive broadband maps, which are available on our website. Connected Tennessee encourages residents in every community to go to the online map and look up their address or call Connected Tennessee toll-free to confirm that the information provided is accurate. If there are any inaccuracies, consumers can immediately alert Connected Tennessee, and the maps are then immediately updated. In this way, Connected Tennessee aggregates input from both public and private entities to make useful, transparent and verifiable maps available to the public. This public-private method for broadband mapping is a vital step in ensuring the success of broadband expansion initiatives.

In the summer of 2007, the State of Tennessee implemented a statewide broadband expansion program with the creation of Connected Tennessee. Since then, Tennessee has seen growth in broadband and computer adoption outpace the national average. After 18 months of on-the-ground work by Connected Tennessee, home broadband adoption in Tennessee has increased by 26% compared to an estimated 15% growth nationally.<sup>2</sup> Computer ownership in Tennessee has more than doubled the national growth – increasing by 7% compared to an estimated 3% national growth.<sup>3</sup> Underserved populations in Tennessee have seen the largest increase in broadband adoption and computer ownership, particularly among those demographics which have been targeted through the Connected Tennessee program. Broadband adoption among low-income minorities nearly doubled within the first year of Connected Tennessee's work.<sup>4</sup>

A key factor in Tennessee's success is Connected Tennessee's focus on demand stimulation, in tandem with increasing broadband availability. This integrated process of demand stimulation and adoption programs works to ensure that broadband growth is sustainable. There are many areas in Tennessee where broadband availability is high, yet adoption levels

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<sup>2</sup> National figures are estimated from surveys conducted by the Pew Internet and American Life Project (March 2007-Dec 2008). Tennessee figures come from July 2007 and January 2009 Connected Tennessee<sup>®</sup> Residential Technology Assessments.

<sup>3</sup> Ibid.

<sup>4</sup> Source: July 2007 and July 2008 Connected Tennessee<sup>®</sup> Residential Technology Assessments. See Connected Nation policy brief, *The Call to Connect Minority Americans*, attached to this letter.



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continue to lag behind. For example, in Clay County, Tennessee, broadband is available to 100% of residents, but only 23% of Clay County adults report that they subscribe to home broadband service.<sup>5</sup> This means that for more than three-quarters of Clay County residents, obstacles other than availability must be overcome before they can benefit from home broadband service. A recent study by Connected Tennessee shows that statewide, more than one-third of residents who do not subscribe to broadband service say it is because they believe they do not need broadband or the Internet.<sup>6</sup>

To address this fundamental challenge of broadband adoption, Connected Tennessee has established local eCommunity Leadership Teams in every county to support grassroots efforts to increase broadband availability while simultaneously stimulating demand for broadband services through local technology planning, technology literacy programs and awareness building. The end result is that residents gain not only the tools necessary to enter the digital age, but those who are most disconnected gain the knowledge and the confidence to use those tools.

A prime example of this local, public-private collaboration is the town of Nankipoo in Lauderdale County. In mid 2008, Nankipoo was awarded a Community Connect grant through the USDA Rural Utilities Service. The Community Connect program is designed to supplement the cost of building broadband infrastructure into rural, unserved areas. The grant also provides two years of support for the Nankipoo Community Center which will provide computers and Internet access to Nankipoo area residents along with start-up training. Connected Tennessee assisted Lauderdale County with the application process for this grant by mapping the demand for broadband services and conducting propagation studies to determine the exact locations of currently existing technologies throughout the county. Now rural residents of Lauderdale County will be able to access broadband and all of the benefits afforded by a high-speed connection. The success of the project is due, in large part, to the grassroots level effort of the Nankipoo community working with the local broadband providers, West Tennessee Communications and ECSIS. Connected Tennessee provided the localized mapping and research tools and the community itself used these tools as the foundation for identifying resources and solving its own broadband challenge. This local element is critical to ensuring sustainable broadband solutions across Tennessee.

Statewide, Connected Tennessee has established a computer connectivity program which has distributed over 1,302 computers to low-income and foster children across Tennessee. Since the beginning of the Connected Tennessee initiative, broadband adoption among low-

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<sup>5</sup> Connected Tennessee® Broadband Mapping Initiative (last updated March 31, 2009) and 2007 Connected Tennessee® Residential Technology Assessment.

<sup>6</sup> Source: January 2009 Connected Tennessee® Residential Technology Assessment.



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income families with children has increased by 24%.<sup>7</sup> Connected Tennessee has seen firsthand the large impact that these donations can have on those who are in the most need for assistance through these NTIA grants.

### Recommendations

As the NTIA implements the Broadband Data Improvement Act, we urge you to look closely at Connected Tennessee as an example of how the coordinating elements of the BDIA grant program can effectively build on one another to bring about sustainable broadband deployment and adoption. We have a number of suggestions for implementing the BDIA grant program as follows:

**1. Broadband mapping through public-private partnerships.**

Connected Tennessee and several other states have demonstrated that a public-private approach is the most effective means for mapping broadband availability at the household level. As described above, Connected Tennessee now has a publicly available and continuously updated map of unserved areas throughout the state, down to the street and household level. Tennessee is already using this tool to identify priority areas and coordinate responses for stimulus infrastructure grants. Additionally, the map will continue to be useful as a means of measuring the progress of broadband stimulus grants.

**2. Connecting sustainable broadband adoption programs with broadband mapping projects, as set forth in the Broadband Data Improvement Act.**

The Broadband Data Improvement Act clearly calls for an integrated approach to broadband mapping and demand stimulation through a public-private approach, in an effort to increase both broadband availability as well as broadband adoption. As outlined above, the broadband maps must be localized and granular in order to be useful, and must be publicly transparent in order to be reliable. Through the Broadband Data Improvement Act, these maps become one of the key supply-side tools in filling the broadband gaps. Working in concert with the maps, however, there must be extensive local research among both residents and businesses, grassroots action whereby communities own their solutions for broadband growth and integrated technology literacy/awareness programs that are based on statistical research and implemented through local efforts. The Broadband Data Improvement Act clearly sets forth this integrated approach to simultaneous supply and demand enhancement.

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<sup>7</sup> July 2007-January 2009 Connected Tennessee® Residential Technology Assessments.



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**3. Strict accountability to ensure efficient use of taxpayer dollars.**

The NTIA should require that all grant recipients provide annual performance metrics, to include information such as county-level reporting of unserved populations, trends in broadband adoption across the state, regular updates on grassroots demand stimulation projects and status of local technology planning teams. This would be in addition to online access to availability maps, as required by the BDIA, and access to tactical business plans designed by the local technology planning teams. Connected Tennessee strongly supports a requirement for all grant recipients to provide transparent, up-to-date information to the NTIA, state agencies and the public on broadband stimulation projects in every county across a state.

Connected Tennessee is excited to be an integral part of Tennessee's broadband expansion at such a pivotal time in America's technology growth. We believe that with the funds supplied by the BDIA, the NTIA can play a crucial role in establishing America once again as the global front-runner in broadband speed, adoption and availability. We want to see every state have a successful broadband expansion program and we hope that our experience can be helpful in that process.

Respectfully,

Michael Ramage  
Executive Director

Enclosures

**List of broadband providers partnering with Connected Tennessee**

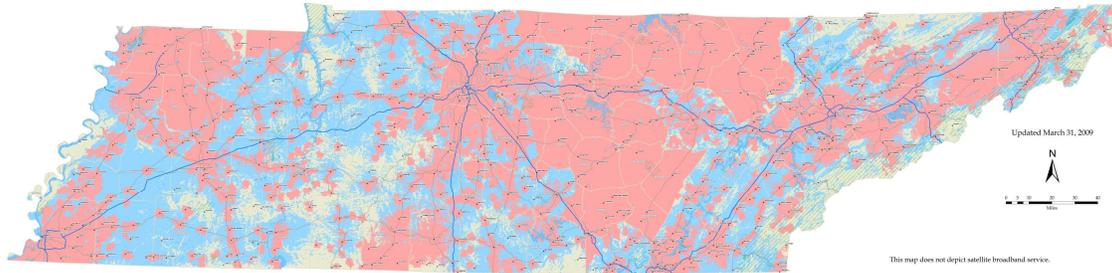
Aeneas Internet & Telephone	Millington Cable TV
Ardmore Telephone Company	Millington Telephone Company
AT&T	Monster Broadband, Inc.
Ben Lomand Telephone Cooperative, Inc.	Morristown Utility Systems
Benton County Cable	Net Express
Bledsoe Telephone Cooperative Corporation	NetEase
Bristol Tennessee Essential Services Cable One	New Wave Communications
Celina Cable	North Central Telephone Cooperative Corporation
Century Telephone	OnWav, Inc.
Charter Communications	People's CATV
Chattanooga Electric Power Board	People's Telephone
Clearwire Wireless	Planet Connect Internet
Columbia Power and Water Systems	Pulaski Electric System
Comcast Corporation	Quick Relay
Communicomm	Rural Tennessee Wireless Broadband, LLC
Concord Telephone Exchange	Skyline Telephone Cooperative, Inc.
Crockett Telephone Company	Small Town Communications
Dotspot Wireless	Softek
DTC Communications	Spirit Broadband
ECSIS.net	Surfmore.net
Ellijay Telephone Company	Tellico Telephone Company
Embarq	Tennessee Telephone Company
Fayetteville Public Utilities	TNWeb
Frontier Communications	Trenton TV Cable Company
Galaxy Cablevision	Tullahoma Utilities Board
High Country Online	Twin Lakes Telephone Cooperative Corporation
Highland Telephone Cooperative, Inc.	Ultramet
Humphrey's County Telephone Company	United Telephone Company
Infostructure Cable	WCRU.net
Jackson Energy Authority	West Kentucky Rural Telephone Cooperative Corporation, Inc.
Ken-Tenn Wireless, LLC	West Tennessee Telephone Company
Loretto Telephone Company	XTN
Mediacom	XXPansion Networks

# TN broadband map



## Broadband Service Inventory for the State of Tennessee

Submit questions or recommended changes to: [mapinfo@connectedtn.org](mailto:mapinfo@connectedtn.org)



Updated March 31, 2009



This map does not depict satellite broadband service.

\*This map is not a guarantee of coverage, contains areas with no service, and generally predicts where outdoor coverage is available. Equipment, topography and environment affect service.

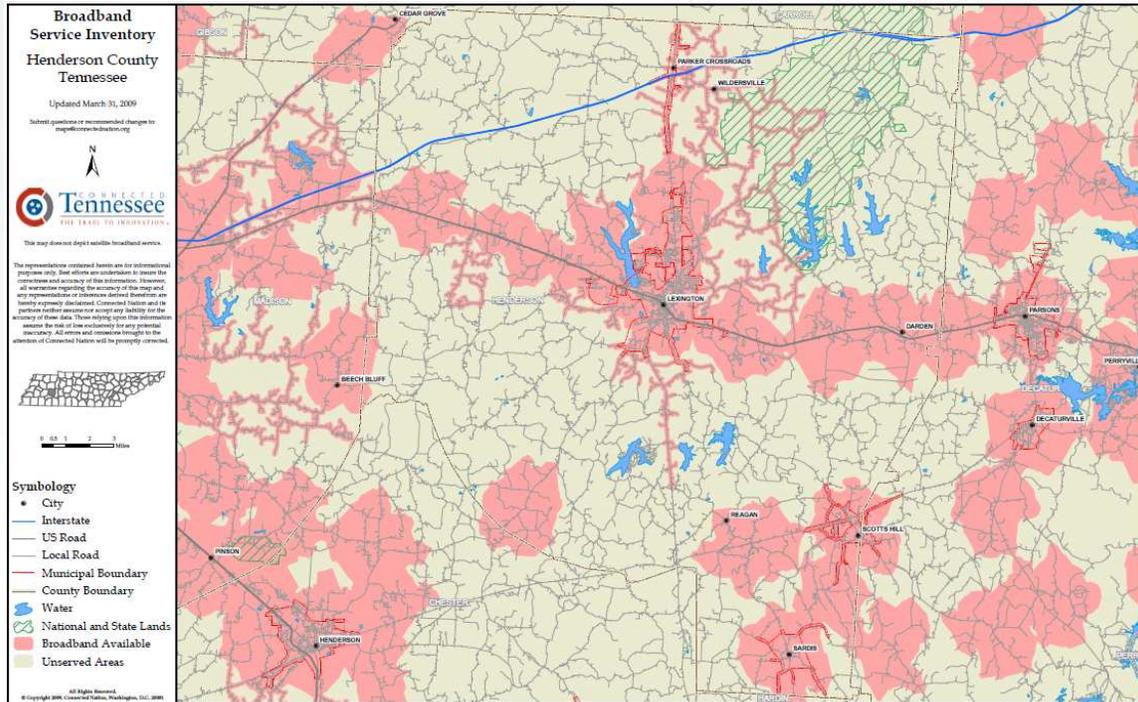
With the support of Governor Brodies, the Department of Economic and Community Development, the Office for Information Resources, and the Tennessee Broadband Task Force, Connected Tennessee has worked with broadband providers throughout the State to identify the gaps in broadband service - the first step in a statewide effort to "fill the gaps" for 100% broadband availability.

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- Symbology**
- City
  - Interstate
  - US Road
  - County Boundary
  - Water
  - National and State Lands
  - Broadband Available
  - Mobile Wireless Broadband Available\*
  - Unserviced Areas

# TN county level map (Henderson County)



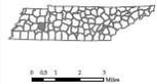
### Broadband Service Inventory Henderson County Tennessee

Updated March 31, 2009

Submit questions or recommended changes to: [mapinfo@connectedtn.org](mailto:mapinfo@connectedtn.org)



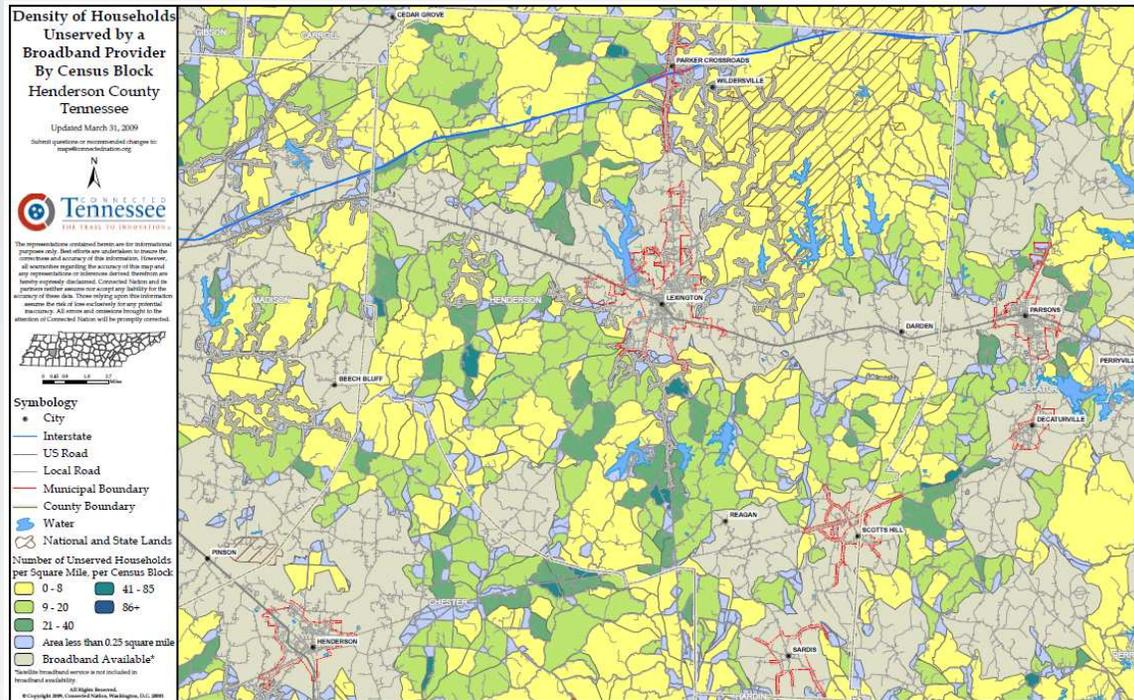
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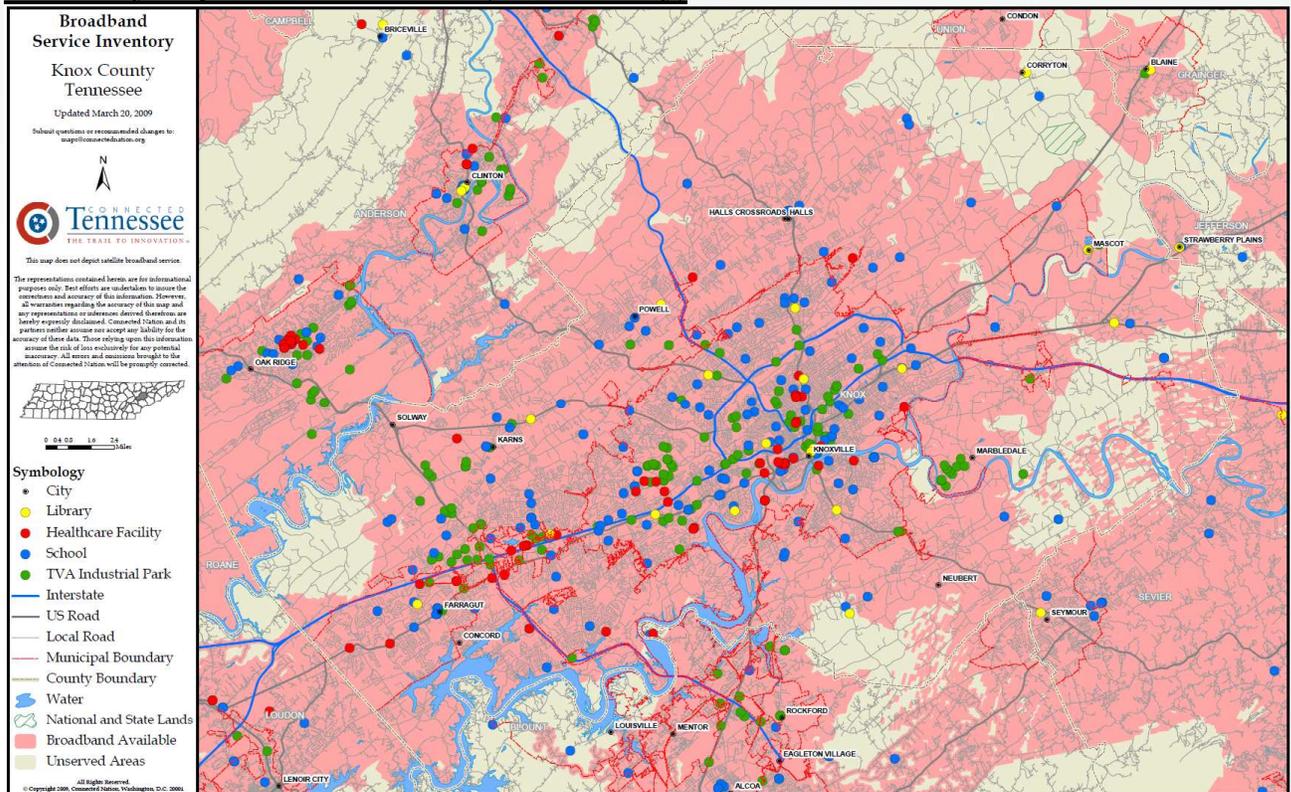
- Symbology**
- City
  - Interstate
  - US Road
  - Local Road
  - Municipal Boundary
  - County Boundary
  - Water
  - National and State Lands
  - Broadband Available
  - Unserviced Areas

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## TN county level HH density map (Henderson County)



## TN county map of critical facilities (Knox County)



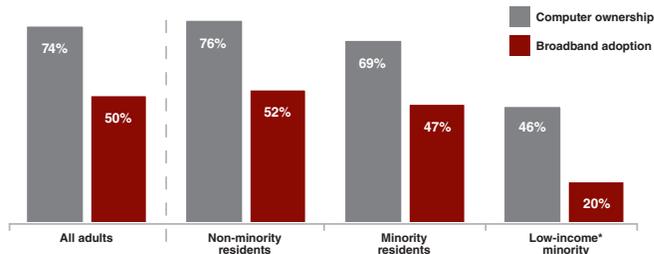


# The Call to Connect Minority Americans: A Connected Nation Policy Brief

Recent studies show that American minorities continue to be among the nation's digitally disconnected. In surveys conducted across three states, computer ownership and broadband adoption among minority residents lag behind non-minorities.

- Only 69% of minorities own computers, compared to 76% of non-minorities. Among low-income minorities, computer ownership falls significantly lower at 46%.
- Only 47% of minorities subscribe to broadband at home, compared to 52% of non-minority residents. Home broadband adoption among low-income minorities falls to a staggering 20%.

## Technology Adoption Among Minorities

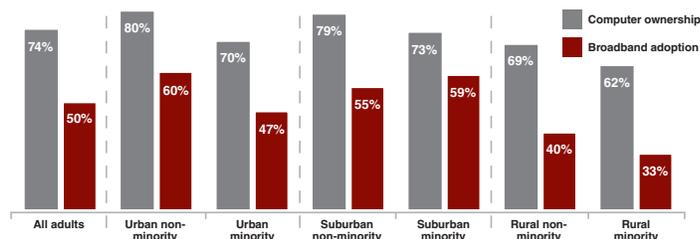


Q: Does your household have a computer? And  
Q: Which of the following describe the type of Internet service you have at home?  
n=3,005 TN, KY, and OH residents  
\*Annual household income less than \$25,000  
Source: 2007-2008 Residential Technology Assessments of Tennessee, Kentucky, and Ohio

The technology gap for minorities is evident in both urban and rural areas. It is only in suburban areas that minorities maintain computer ownership and broadband adoption rates that are equal or better than average.

- In urban areas, where broadband is nearly ubiquitous, broadband adoption among minorities remains low at only 47%. By contrast, 60% of non-minorities subscribe to broadband in urban areas.
- In rural areas, broadband adoption among minorities still falls well below non-minorities. Only 33% of minorities subscribe to broadband compared to 40% of non-minorities.

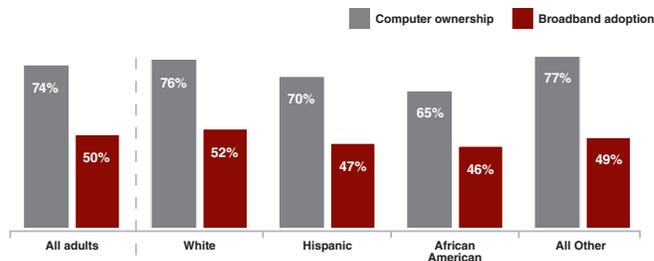
## Technology Adoption Among Minorities in Urban and Rural Areas



Q: Does your household have a computer? And  
Q: Which of the following describe the type of Internet service you have at home?  
n=3,005 TN, KY, and OH residents  
Source: 2007-2008 Residential Technology Assessments of Tennessee, Kentucky, and Ohio

The racial breakdown illustrates lower broadband adoption rates among all minorities, with Hispanics and African Americans posting significantly lower computer ownership rates.

## Technology Adoption by Race



Q: Does your household have a computer? And  
Q: Which of the following describe the type of Internet service you have at home?  
n=3,005 TN, KY, and OH residents  
Source: 2007-2008 Residential Technology Assessments of Tennessee, Kentucky, and Ohio

## Statewide Public-Private Partnerships for Digital Inclusion

Among the broadband stimulus funds in the American Recovery and Reinvestment Act of 2009, Congress and the Obama administration have empowered states and communities to address the digital divide through funding the Broadband Data Improvement Act of 2008. This funding is available to states to develop and implement public-private partnerships for grassroots-driven expansion of broadband and computer use, particularly among low-adoption and underserved populations.

The Broadband Data Improvement Act (as funded in the stimulus act) provides states with a prime opportunity to address the connectivity challenges among minorities. The BDIA grant program provides funds to:

1. Develop street-level broadband availability maps,
2. Conduct detailed market research on the barriers to broadband adoption among various demographics,
3. Establish local technology planning teams in every county for increased broadband use,
4. Facilitate collaboration among the public and private sectors, and
5. Establish computer and Internet connectivity programs, particularly among low adopters and disenfranchised groups.

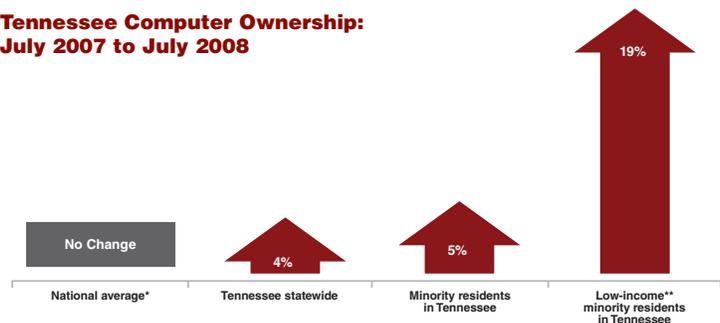
In order to be eligible for funding, states should designate an eligible entity to apply for the grant and operate the statewide program in each community across the state. This eligible entity may be a non-profit organization such as Connected Nation.

In states such as Kentucky, Ohio, and Tennessee, public-private partnerships are connecting the disconnected. Minorities are among those seeing the greatest impact.

After just one year of the Connected Tennessee program, statewide computer ownership increased by 4% compared to stagnant national growth. The increase in computer ownership among minorities was even higher at 5% (again, compared to 0% growth in the rest of the nation). Among low-income minorities, computer ownership increased by 19% in just one year.

Meanwhile, home broadband adoption in Tennessee has realized significant growth, particularly among minorities. Within the one year period, Tennessee's statewide broadband adoption grew two percentage points faster than the nation as a whole, with 18% broadband growth among minorities, and 90% broadband growth among low-income minorities.

### Tennessee Computer Ownership: July 2007 to July 2008



Q: Does your household have a computer?

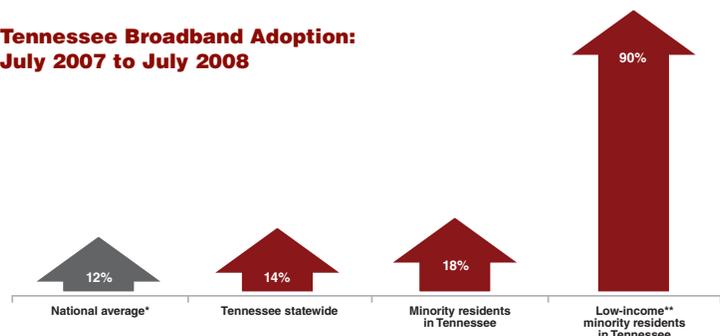
n=1,200 Tennessee residents

\*National growth estimated using figures from the Pew Internet and American Life Project

\*\*Annual household income less than \$25,000

Source: 2007-2008 Residential Technology Assessments of Tennessee, Kentucky, and Ohio

### Tennessee Broadband Adoption: July 2007 to July 2008



Q: Does your household have a computer?

n=1,200 Tennessee residents

\*National growth estimated using figures from the Pew Internet and American Life Project

\*\*Annual household income less than \$25,000

Source: 2007-2008 Residential Technology Assessments of Tennessee, Kentucky, and Ohio