Tennessee Technology Trends:
RESIDENTIAL SURVEY

T CONNECTED
Tennessee
THE TRAIL TO INNOVATION ₛₘ

Stipulated Hearing Exhibit No. 1
EP / RLM

Docket No. 07-00269

Tennessee Technology Trends

Connected Tennessee's *Tennessee Technology Trends 2007* is a two-part comprehensive assessment highlighting the current usage of computers, Internet and broadband across the state. Additionally, it examines the barriers to adoption. Tennessee's Technology Trends 2007 was developed from a survey conducted in July 2007 which involved nearly 10,000 Tennesseans and more than 800 businesses representing each of Tennessee's 95 counties. The survey was designed to measure consumer technology indicators at the county levels for all counties in Tennessee. Approximately 100 interviews were completed in each county. The questionnaire screened respondents to include only adults age 18 or older with quotas set by gender and age to ensure adequate representation of all adults in each county. Additional indicators include education attainment, race and household size. This Survey Overview provides a summary of those trends. For more detailed findings, visit the Connected Tennessee website at www.connectedtennessee.org.

Key Findings

The survey reinforces the discrepancy between the urban and rural areas. It shows that while a large number of people have computers, fewer have broadband. The trends indicate that to many, education and awareness are the primary barriers to entry. The key findings follow:

Computer Ownership:

★ **71% of Tennesseans have a computer at home**

★ **Of all Tennesseans,**
   ● 45% have a desktop only
   ● 18% have both a desktop and laptop
   ● 7% have a laptop only
   ● 29% have no computer

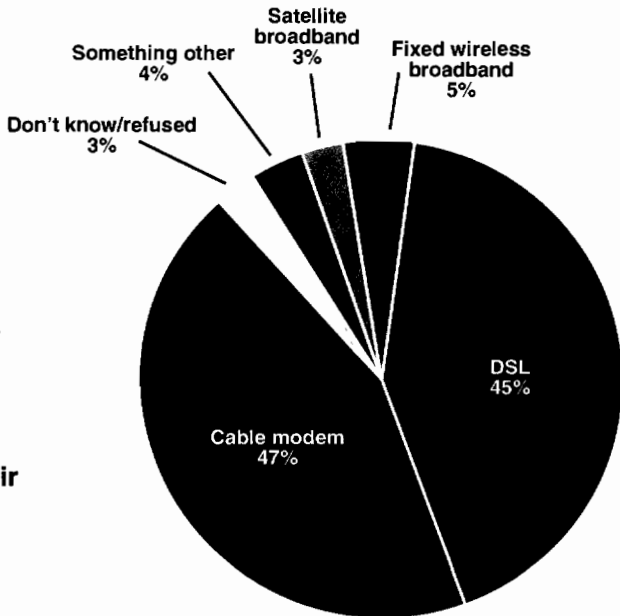★ **Tennesseans over age 65 are 42% less likely to have a computer at home**

No computer at home 29%
Desktop only 45%
Both desktop and laptop 18%
Laptop only 7%
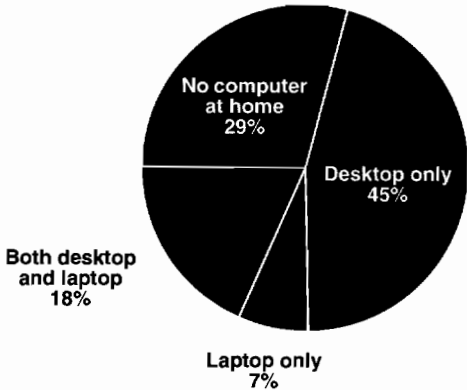
Internet Adoption:

★ **65% of Tennesseans access the Internet at home**

★ **30% of Tennesseans access the Internet at work**

★ **25% of Tennesseans don't access the Internet at all**

★ **Average cost of Internet access is $30.61 while dial-up costs an average of $17.82**

Broadband Adoption:

★ **Only 19 of the 95 Tennessee counties meet or exceed the state broadband adoption average**

★ **43% of Tennesseans use broadband at home**

★ **22% of Tennesseans use dial-up Internet only at home**

★ **74% of Tennesseans say they adopted broadband because dial-up was too slow**

★ **47% of broadband users utilize a cable modem for their access while 45% use DSL**

★ **Average cost of broadband is $36.65**

Something other 4%
Satellite broadband 3%
Fixed wireless broadband 5%
Don't know/refused 3%
DSL 45%
Cable modem 47%

Applications:

* ★ **65% of Tennesseans with the Internet use the Internet to send e-mail**
* ★ **53% of Tennesseans with the Internet use the Internet to research a product**
* ★ **53% of Tennesseans with the Internet use a search engine**

* ★ **49% of Tennesseans with the Internet use the Internet to purchase a product**
* ★ **45% of Tennesseans with the Internet use the Internet to find health or medical information**
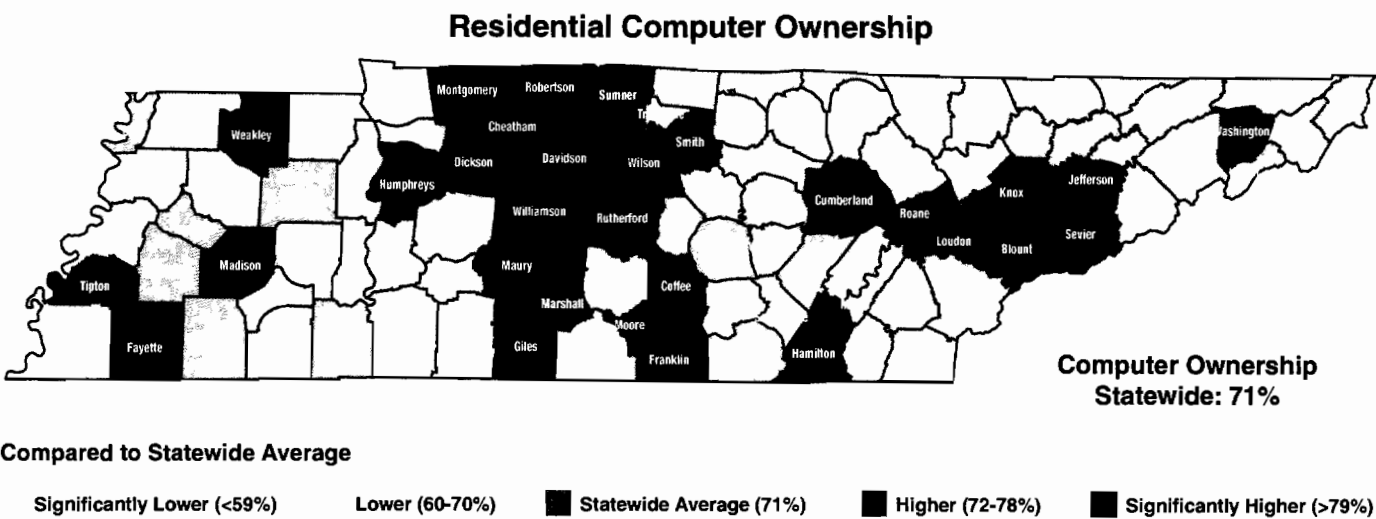
Teleworking:

* ★ **Among Tennessee residents employed full- or part-time:**
    * • 7% regularly telework now
    * • 25% would telework if allowed

* ★ **Twenty-seven percent of Tennessee residents not currently employed say they would be likely or somewhat likely to work outside the home if allowed to telework. Among those:**
    * • 62% are students
    * • 41% are unemployed
    * • 37% are homemakers
    * • 22% are disabled
    * • 15% are retirees

Urban Versus Rural:

* ★ **Only three rural counties are above the state average for broadband adoption.**
* ★ **Only one of seven urban counties has a broadband adoption rate under the state average.**
* ★ **Ten out of 21 urban/rural counties are below the state average for broadband adoption rates.**

* ★ **A significant difference exists between the rural areas of Tennessee and the urban areas.**
    * • Broadband adoption is 43% lower in rural areas than urban areas.
    * • Internet adoption is 14% lower in rural areas than urban areas.
    * • Computer ownership is 10% lower in rural areas than urban areas.
* ★ **Rural counties have a broadband adoption rate that is 37% lower than that of the state average.**

Computer Usage

The first step to technology and broadband adoption is computer ownership. According to the survey results, 71% of Tennessee households have a computer. Forty-five percent of households have a desktop only, 7% have a laptop only and 19% have both. When broken down by region, Middle Tennessee shows the highest adoption rate at 74%. The second highest is East Tennessee at 70%, while West Tennessee is at 68%.

Residential Computer Ownership

**Computer Ownership
Statewide: 71%**

Compared to Statewide Average

| Significantly Lower (<59%) | Lower (60-70%) | ■ Statewide Average (71%) | ■ Higher (72-78%) | ■ Significantly Higher (>79%) |

Computer ownership broken down by county as compared to the state average

The survey shows that income is an influence in computer ownership. Those making over $50,000 annually have a computer ownership rate of more than 92%. Those making over $75,000 have a computer ownership rate of 95%. Conversely, those making under $25,000 have an ownership rate of only 40%.

The level of education attained impacts computer ownership. Those with less than a high school education are 49% less likely than the state average to have a computer at home with a computer ownership rate of 36%. Compared to the state average of 90%, Tennesseans with a 4-year college degree or higher are 27% more likely to have a computer.

Another factor impacting computer ownership is age. The survey divides age into six brackets. Computer ownership is highest in the 35 to 44 age group and is lowest in the 65 and older age group. The complete breakdown of computer ownership by age group across the state is following (from highest to lowest):

- 86%: 35 to 44 age group
- 81%: 25 to 34 age group
- 78%: 45 to 54 age group
- 68%: 18 to 24 age group
- 67%: 55 to 64 age group
- 41%: 65 and older age group

A number of additional factors impact computer ownership. Among those without a computer, the leading barrier to computer ownership as cited by 58% is, "I don't need a computer." The second highest barrier is, "Computer ownership is too expensive," cited by 22%. Other reasons cited are, "I use a computer at a different location," "don't know," and "other."
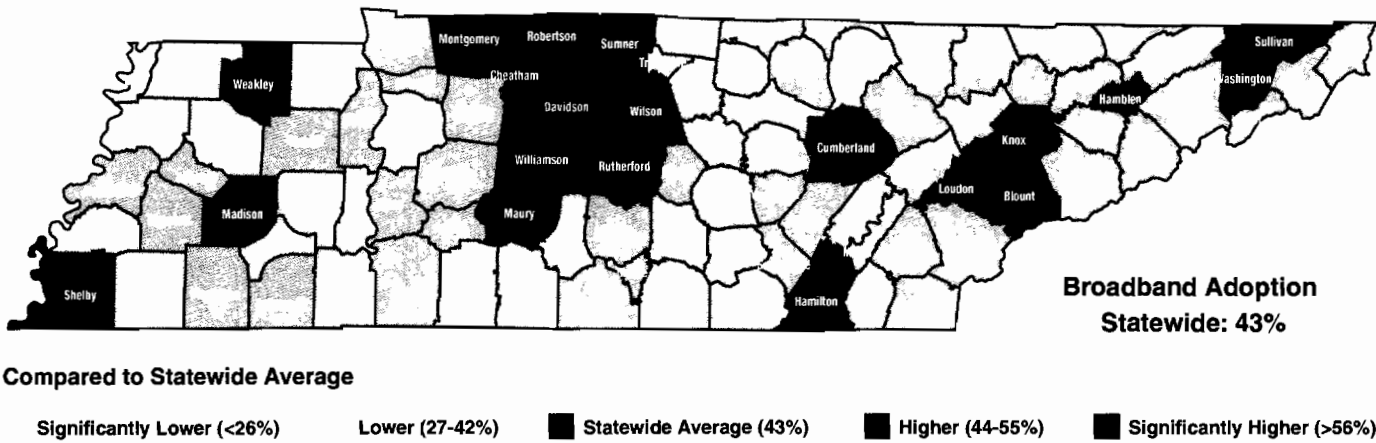
Broadband Usage

To fully experience the Internet, a user would be better served by access via broadband or a high-speed connection. The current broadband adoption for home Tennessee users is 43%. Broadband adoption rates are highest in Middle Tennessee at 46%. The second highest adoption rate is in East Tennessee at 41%. The lowest adoption rate is found in West Tennessee at 40%. Broadband pricing varies across the state with the lowest price in East Tennessee at $35.34, then Middle Tennessee at $37.02, and $37.84 in West Tennessee. The average price for broadband is $36.65 across the state as a whole.

The leading types of broadband access are cable modems at 47% and DSL at 45%. Fixed wireless use is at 5% and satellite is at 3%. Fifty-two percent of Tennessee residents have subscribed to broadband within the past two years while 24% subscribed more than four years ago. The top four reasons contributing to broadband adoption for Tennesseans are as follows:

- 74%: Dial-up was too slow
- 28%: Broadband became available
- 28%: Broadband became more affordable
- 27%: Needed broadband to conduct business online

Residential Broadband Adoption

**Broadband Adoption
Statewide: 43%**

Compared to Statewide Average

| Significantly Lower (<26%) | Lower (27-42%) | ■ Statewide Average (43%) | ■ Higher (44-55%) | ■ Significantly Higher (>56%) |

Computer ownership broken down by county as compared to the state average

According to the above map, four counties have significantly higher than average adoption rates. Those counties include Cheatham, Davidson, Montgomery and Williamson. However, only 19 out of 95 counties meet or surpass the state average for broadband adoption. As with computer ownership, broadband is influenced by age, income and education attained. Only 17% of those over the age of 65 have adopted broadband. Of those aged 25 to 34, the adoption rate is 54%, with those aged 35 to 44 following closely at 53%, making those the two highest age groups for broadband adoption.

Broadband adoption rates are influenced by educational attainment. Compared to the state average, Tennesseans who have a 4-year degree or higher have a 53% higher rate of broadband adoption. Conversely, the adoption rate for those with less than a high school diploma is 70% less than the state average.

Income is another factor impacting the adoption of broadband. Generally, the higher a person's income, the higher the broadband adoption rate. The following breakdown shows broadband adoption rate by income bracket (from highest adoption rates to lowest):

- 74%: $75,000 and higher
- 59%: $50,000 to $74,999
- 42%: $35,000 to $49,999
- 33%: $25,000 to $34,999
- 15%: $0 to $24,999

A number of barriers exist to broadband adoption. Those with dial-up Internet access cite the following barriers (starting with the largest barrier):

- 36%: Broadband is not available in my area
- 32%: I don't need broadband/don't know why I don't subscribe
- 23%: Broadband is too expensive
- 5%: I can get broadband access elsewhere

Twelve percent of respondents report using a hotspot. Based on the percentage of respondents using each type of hotspot, the top locations in Tennessee are:

- 52%: Hotels
- 49%: Restaurants or coffee shops
- 41%: Airports
- 37%: Work
- 19%: Library
- 15%: Outdoor Public Zones

Internet Applications

Survey respondents were asked about their use of (30) different Internet applications. Statewide, the top applications are sending e-mail (65% of Tennesseans use this application), researching a product online (53%), using a search engine (53%), purchasing a product online (49%) and finding health or medical information online (45%). These five items are the same for both West and East Tennessee. However, in Middle Tennessee the number five application of the Internet is to send or receive photos. The table below shows the top ten applications for each region.

West

1. **Sending e-mail**
2. **Researching products**
3. **Using a search engine**
4. **Purchasing products**
5. **Searching for health or medical information**
6. **Sending or receiving photos**
7. **Researching or booking travel**
8. **Reading news online**
9. **Searching for community event information**
10. **Online banking**

Middle

1. **Sending e-mail**
2. **Using a search engine**
3. **Researching products**
4. **Purchasing products**
5. **Sending or receiving photos**
6. **Researching or booking travel**
7. **Reading news online**
8. **Searching for health or medical information**
9. **Searching for community event information**
10. **Online banking**

East

1. **Sending e-mail**
2. **Using a search engine**
3. **Researching products**
4. **Purchasing products**
5. **Searching for health or medical information**
6. **Sending or receiving photos**
7. **Researching or booking travel**
8. **Reading news online**
9. **Searching for community event information**
10. **Online banking**

Top applications used by Internet users broken down by region of Tennessee

Other Internet application usage of note follows:
- Reading news online – 44%
- Online banking – 38%
- Online transactions with government – 33%
- Research for school work – 32%
- Researching government information – 29%
- Contacting teachers – 23%
- Work from home – 22%
- Taking online classes – 12%

No matter the age group, income bracket or education attained, e-mail is the most often used application. Those making over $75,000 per year are twice as likely to buy a product online as those making under $25,000. Playing games online is a top ten application for those with a high school diploma or less, while it is not for those with a 4-year degree or higher. Respondents aged 25 to 34 are twice as likely to use online banking or searching for community events online as those over 65.

Urban Versus Rural

As expected, there is a large discrepancy between the urban counties and the rural counties. Using the FCC designation of rural, urban, and rural/urban county breakdown, Tennessee has seven urban counties, 21 urban/rural counties and 67 rural counties. The only rural counties with broadband adoption rates above the state average are Cheatham (56%), Weakley (51%) and Cumberland (49%).
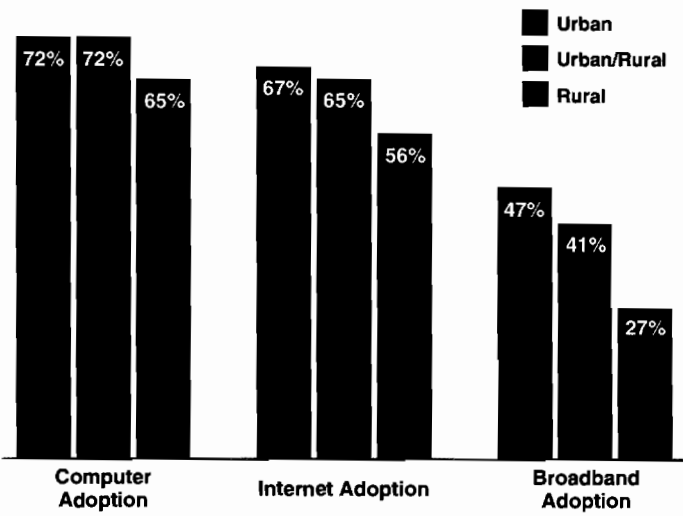
Broadband adoption rates are 75% lower in rural areas. Internet adoption is 20% lower in rural areas while computer adoption is just 11% lower in rural versus urban areas.

Urban/rural counties outperforming the state broadband adoption average include: Williamson (67%), Montgomery (58%), Washington (55%), Wilson (54%), Rutherford (50%), Maury (49%), Shelby (46%), Sumner (46%) and Robertson (44%).

The top five rural counties for broadband adoption are Cheatham, Weakley, Cumberland, Fayette (42%) and Franklin (40%). The lowest adoption rates for rural counties (bottom five) are Hancock (9%), Bledsoe (10%), Morgan (15%), Wayne (15%) and Moore (15%).

Legend: Urban, Urban/Rural, Rural

Computer Adoption: 72%, 72%, 65%
Internet Adoption: 67%, 65%, 56%
Broadband Adoption: 47%, 41%, 27%

The top five rural/urban counties in terms of broadband adoption are Williamson, Montgomery, Washington, Wilson and Rutherford. The bottom five urban/rural counties for broadband adoption are Sequatchie (13%), Unicoi (25%), Hawkins (30%), Carter (31%) and Putnam (32%).

All urban counties outperform the state average except for Bradley (35%). Adoption rates for the remaining urban counties are Davidson (56%), Hamilton (52%), Knox (50%), Sullivan (46%), Blount (45%), Hamblen (43%) and Bradley (35%).

Conclusion

The Tennessee Technology Trends 2007 has shown through the residential survey that a significant discrepancy exists between the urban and rural areas of Tennessee. Broadband adoption rates in the rural areas are significantly lower than the urban areas, a statistic that Connected Tennessee will address through its eCommunity Leadership Team planning process. The primary barriers discovered across all types of technology adoption are education and awareness. Through the planning process and other awareness methods, Connected Tennessee will create a messaging campaign to share the benefits of broadband and technology with all consumer and business organizations to include a central theme of how broadband can impact your life. This message will be shared throughout the State of Tennessee in the coming months.