Department of Economic and Community Development

Randy Boyd   Bill Haslam
Commissioner   Governor

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Team Tennessee,

As I traveled across Tennessee in my first few months as TNECD commissioner last year and held town hall "listening" sessions, over half of each conversation focused on increasing broadband access.

After subsequent conversations with businesses, telecommunications industry stakeholders and legislators, we found there was general disagreement about Tennessee's broadband access and utilization needs.

We commissioned this report from leading consultants in the field to help answer four basic questions:

- What is the technical definition of broadband?

- How many Tennesseans do not have access to broadband?

- What is the cost of bringing broadband to Tennesseans that do not have it?

- What are best practices and lessons learned for promulgating broadband from around the country?

The consultants' study also included a robust, live assessment of Tennessee's broadband access. More than 23,000 Tennessee households and businesses participated in the assessment.

Businesses participating in the assessment said broadband enabled 43 percent of all net new jobs and 66 percent of revenues. In addition, 34 percent of businesses classified broadband as essential to selecting their location, and 56 percent noted that it was essential to remain in their location. Sixteen percent of economic development agencies reported that businesses frequently chose not to locate in an area due to insufficient broadband.

It is clear that broadband is critical to the economic future of Tennessee. Broadband already significantly contributes to Tennessee's economy. When a community lacks adequate access, economic opportunities are lost.
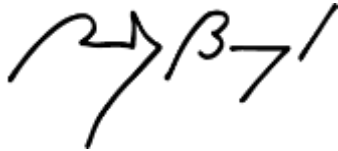
Attached are an executive summary and three reports provided by our consultants:

- *Internet Connectivity and Utilization* – Benchmarks current access and utilization.
- *eStrategy*– Outlines recommendations and options for increasing access and utilization.
- *Considerations and Best Practices for Statewide Broadband Initiatives* – Details best practices and lessons learned from other states' broadband initiatives.

This report is a starting point for meaningful conversations about broadband in our state. An internal working group will review the report and have discussions with stakeholders to develop potential solutions to close the gap on broadband access in Tennessee.

Not every option included in the report may be the answer for Tennessee, nor is there one simple solution. With the menu of options provided in the study, decision makers can begin a dialogue to find a win-win-win combination to ensure our communities have the broadband they need.

Warmest regards,

Randy Boyd
Commissioner

TNECD Broadband Initiative Summary

After leaders in all nine TNECD regions identified broadband as a crucial factor in the economic success of their communities, the Tennessee Department of Economic and Community Development (TNECD) commissioned a broadband study to assess the current state of broadband in Tennessee.

TNECD contracted with Strategic Networks Group and NEO Connect, global leaders in broadband consulting, to help answer specific questions about Tennessee's broadband access and recommend options for increasing access and utilization across the state. More than 23,000 Tennesseans and Tennessee businesses participated in the assessment.

In response, the consultants have provided a three-part report:

- *Internet Connectivity and Utilization:* benchmarks current access and utilization;
- *eStrategy:* outlines recommendations and options for increasing access and utilization;
- *Considerations and Best Practices for Statewide Broadband Initiatives:* details best practices and lessons learned from other states' broadband initiatives.

In the attached reports, the consultants answered the four main questions posed by TNECD:

1. How should Tennessee define broadband?

According to the consultants, Tennessee should adopt the Federal Communication Commission's definition of broadband as 25 Mbps download speed and 3 Mbps upload speed.

Other findings by the consultants included:

- The most frequently cited barrier to increased household utilization of the Internet is the speed and reliability of the service. 68% of respondents cited this as a very important barrier, while 20% said it was somewhat important.
- Satisfaction correlates with the speed of the service. At 25 Mbps or greater, 71% of household users reported that their speeds were fast enough compared to only 48% at 10 Mbps or less.
- For businesses, utilization correlates with upload speeds. Businesses need at least 3 Mbps upload speed to be actively engaged.
- Demand for bandwidth has increased and will continue to increase dramatically in the coming years.

2. What are the penetration rates for broadband in terms of access and utilization?
According to data collected by the consultants, the FCC and other entities, 87% of households have access to broadband leaving 834,545 people without access.

Other findings by the consultants included:

- Existing broadband infrastructure is not fully utilized because 69% of businesses had speed tests below 25 mbps download speed and 76% of households had speed tests below 25 mbps download speed.
- Fiber connectivity is the most reliable, fastest and highly rated type of connectivity by a significant margin with cable and fixed wireless rated as the next best. DSL and mobile wireless performed at lower speeds with less reliability while satellite and dial-up had by far the poorest rated services. Over half (54%) of households are connected with these lower performing connectivity types (DSL, mobile wireless, satellite and dial-up).
- Areas with more service providers have higher speeds for both businesses and residents. For example, the average download speed for businesses with access to only one provider was 22.5 mbps while businesses with access to more than three providers averaged download speeds of 43.8 mbps.
- Almost 5% of assessment respondents reported no Internet at their home. Over half cited lack of availability as the cause with the second most frequent barrier as affordability. Only 2% said they did not need the Internet.

3. How much will it cost to ensure that all of our households are adequately connected?

In order to define the scope of the problem, the consultants conducted a cost estimate to build out Fiber to the Premise (FTTP), the gold standard in broadband technologies, to unserved or underserved households. The recommendation is not to have the state build out FTTP to each home. This number merely provides information about what it would take to build fiber to every home without broadband.

- Build out FTTP in areas without 10/1: $819,450,000 - $1,258,636,800
- Build out FTTP in areas without 25/3: $1,117,397,500 - $1,716,322,560

Other technologies can be used to provide 25/3 broadband from a fiber access point to a home. For example, fixed wireless can reduce the costs per home by $800-1,400.

- Build out fixed wireless in areas without 10/1: $360,547,000 - $996,420,800
- Build out fixed wireless in areas without 25/3: $491,654,900 - $1,358,755,360

4. What are the best practices and critical success factors from other states' broadband initiatives?

The consultants found the following best practices prevalent in other states' broadband initiatives:

- Strong public leadership that champion broadband projects;
- State broadband office or similar entity;

- Effective partnerships;
- Public seed funding and grant programs to encourage investment and build out;
- Transparency;
- Proper planning and due diligence.

This report is a starting point to advance the conversation about broadband in our state. Not every option included in the report may be the answer for Tennessee, nor is there one simple solution. An internal working group will review the report and have discussions with stakeholders to develop potential solutions to close the gap on broadband access in Tennessee.

About Strategic Networks Group (SNG)
Focused on economic advancement through broadband utilization, SNG is a group of broadband economists who develop strategies for most effectively leveraging broadband investments. SNG addresses broadband utilization from the individual organization level all the way up to working with more than 10 states across the United States. SNG looks to help make the most broad-reaching and transformational impacts that broadband can bring to enable businesses, communities and regions by delivering the data and analysis decision makers need to maximize broadband's potential. Learn more about SNG at www.sngroup.com.

About NEO Connect
At the forefront of broadband initiatives, from planning to execution, NEO is one of the nation's leaders in planning, engineering and developing strategies for community networks. With extensive experience in both the public and private sector, the NEO team is able to apply real-world business sense to every type of project. NEO has helped communities across the United States create successful and sustainable networks that meet each community's specific needs. Visit NEO online at www.NEOconnect.us.

About the Tennessee Department of Economic and Community Development
The Tennessee Department of Economic and Community Development's mission is to develop strategies which help make Tennessee the No. 1 location in the Southeast for high quality jobs. To grow and strengthen Team Tennessee, the department seeks to attract new corporate investment in Tennessee and works with Tennessee companies to facilitate expansion and economic growth. Tennessee is the only three-time winner of "State of the Year" for economic development by *Business Facilities* magazine. Find us on the web: tnecd.com. Follow us on Twitter: @tnecd. Like us on Facebook: facebook.com/tnecd.