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MINUTES OF THE
TENNESSEE ADVISORY COMMISSION
ON INTERGOVERNMENTAL RELATIONS

5 January 2016

Meeting Called to Order

The Tennessee Advisory Commission on Intergovernmental Relations met in Legislative Plaza Room 16 at 1:14 p.m., Chairman Mark NORRIS presiding.

Present 19	Absent 5
Mayor Tom Bickers	Ms. Christi Gibbs
County Mayor Ernest Burgess	Senator Randy McNally
Mr. Charles Cardwell	Representative Antonio Parkinson
Representative Mike Carter	Mayor Tom Rowland
City Commissioner Betsy Crossley	Mayor Pro Tem Kay Senter
Ms. Paula Davis	
County Mayor Brent Greer	
County Executive Jeff Huffman	
Representative Harold Love Jr.	
County Mayor Kenny McBride	
Mr. Iliff McMahon	
Senator Mark Norris	
Representative Charles Sargent	
Senator Jim Tracy	
County Mayor Larry Waters	
Comptroller Justin Wilson[1]	
Representative Tim Wirgau	
Senator Jeff Yarbro	
Mr. Kenneth Young	

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[1] Susan Mattson represented Justin Wilson.

1. **Call to Order and Approval of the Minutes**

Chairman Mark NORRIS called the meeting to order at 1:14 p.m. He dispensed with the calling of the roll. Chairman NORRIS requested approval of the minutes; Mr. MCMAHON moved adoption, and Mr. CARDWELL seconded the motion, which passed unanimously.

2. **Commission Updates**

Executive Director Lynnisse ROEHRICH-PATRICK asked the Commission to congratulate former Information Systems Manager Janet STEEN on her retirement and Research Manager David LEWIS on being the third member of our staff to graduate from LEAD Tennessee. Ms. ROEHRICH-PATRICK Chairman NORRIS also recognized Deputy Executive Director Cliff LIPPARD for his 20 years of state service.

3. **Broadband Internet Technologies, their Capabilities and Availability in Tennessee**

The Commission heard a staff presentation from Dr. Matt OWEN, Senior Research Associate, on the available data depicting broadband coverage in Tennessee as well as two presentations from experts, the first of which was on broadband technologies and the effects of connection speed and other factors on different online tasks. The second presentation was on Tennessee's existing state-managed broadband network and on guidelines developed for state employees working from home or in the field.

Dr. OWEN said that the available data on broadband coverage in Tennessee was collected from providers as part of the National Telecommunications and Information Administration's (NTIA) National Broadband Map project, which began in 2009. He said that the information collected about wired service includes census-block-level data on the technologies used for providing service, the maximum, advertised upload and download speed tiers available, and the typical upload and download speeds achieved, which the NTIA defines as the speed consistently achieved by most subscribers to the maximum-advertised speed during expected periods of heavy network usage.

Dr. OWEN said that because the NTIA requested this information about wired service only at the census block level, it is not possible to determine from the National Broadband Map data whether every address in a block or road segment has access to the reported coverage. Instead, the data show only that at least one address in a block is covered. Because of this, he said, the National Broadband Map and the data supporting it represent the maximum extent of coverage for wired service, a best-case scenario.

Dr. OWEN also said that not all information was reported for each census block. For example, no information about typical download speeds was reported for approximately half of the blocks where a maximum, advertised download speed was reported. For those areas where typical upload and download speeds were reported, Dr. OWEN said they tend to be similar to

maximum, advertised upload and download speeds at slower speed tiers and slower than maximum, advertised speeds for faster speed tiers.

The need for more information and context about existing broadband coverage in Tennessee was discussed following Dr. OWEN's presentation. Mayor BICKERS said that it would be helpful to compare coverage for wired broadband service with coverage for wireless broadband service. Dr. OWEN said that the NTIA also requested information about the technologies used for providing access, the maximum, advertised upload and download speed tiers available, and the typical upload and download speeds achieved for wireless service. But this information was not requested at the census block level. Instead, the NTIA requested that providers plot the extent of their wireless service areas on maps. Chairman NORRIS requested that staff provide maps that can be layered like transparencies to compare the extent of wired and wireless coverage in the state.

Noting that broadband has joined electricity, natural gas, and water and wastewater as a necessary infrastructure for attracting industries and promoting economic development, County Executive HUFFMAN requested more information about where Tennessee communities, and in particular rural communities outside the state's core metropolitan areas, rank relative to those in other southeastern states for broadband coverage and where the southeast ranks relative to the nation as a whole. Dr. OWEN said that that is part of the project research plan.

Noting the difference between not having access to any broadband and choosing not to adopt available broadband services, Senator YARBRO said that existing coverage maps make it difficult to tell what percentage of the population is without any access to broadband and what percentage choose not to adopt it. Saying that he had seen estimates that four or five percent of residents nationwide lack access to any broadband service, he asked whether that information was available for Tennessee. Dr. OWEN did not have it but said staff would get it. [Note: The Federal Communication Commission's *2015 Broadband Progress Report* says that 17% of the US population and 18% of Tennesseans lacked access to a fixed (wired) connection at 25 megabit-per-second (mbps) download/3 mbps upload speeds; 7% of Americans and 11% of Tennesseans lacked access to wired 10 mbps download/0.768 mbps upload connections; and, 4% of Americans and 8% of Tennesseans lacked access to wired 3 mbps download/0.768 mbps upload connections.]

Representative CARTER said that it was important to consider subscription costs when determining for practical purposes whether broadband is available to residents and businesses in any given area and asked whether this could be mapped alongside existing coverage. Dr. OWEN said that cost data was not included in the information available from the NTIA's National Broadband Map project but that staff would research it.

In response to a request by Senator YARBRO for more information on coverage gaps in Tennessee, Dr. OWEN said that representatives of the Department of Economic and Community Development have been invited to present the results of its survey on broadband access and adoption in Tennessee, which Chairman NORRIS said may provide much of the

information and context needed to help answer questions about the extent of broadband coverage in Tennessee. Also at Senator YARBRO's request, Dr. OWEN said that staff will provide an overview of the regulatory landscape at the federal, state, and local levels at the Commission's spring meeting.

The Commission next heard from Mr. Victor HAZLEWOOD, chief operating officer of the University of Tennessee and Oak Ridge National Laboratory's Joint Institute of Computational Sciences (JICS), and Dr. Anthony MEZZACAPPA, director of JICS. Mr. HAZLEWOOD described available broadband technologies, including digital subscriber line (DSL), cable modem, fiber-optic cable, wireless, and satellite. He explained that DSL and cable-modem networks use existing telephone lines and cable television infrastructure respectively and that wireless networks can use either omnidirectional antennas that provide 360-degree coverage or directional antennas that focus coverage to a specific area. In response to Mr. MCMAHAN's question about the difficulty of providing wireless coverage in mountainous areas, Mr. HAZLEWOOD said that topographical features can block wireless signals but that it is possible to provide coverage by locating wireless antennas on mountaintops, especially directional antennas that can be aimed at individual communities.

Mr. HAZLEWOOD explained that broadband throughput—the amount of time it takes to complete different online tasks—is a better way to describe the technologies' capabilities than speed is. He said that the two factors most affecting throughput are bandwidth—which he also referred to as capacity—and latency. Mr. HAZLEWOOD described bandwidth using the analogy of two-lane roads, four-lane highways, and superhighways as small, medium, and large capacity networks and vehicles using the road as packets of data being transmitted. Just as vehicles share the road and too many at one time can slow traffic and increase travel time, data packets share the capacity of internet networks, and the amount of time needed to complete online tasks increases when the amount of data being transferred exceeds network capacity and creates bottlenecks. In other words, throughput is affected by the number of people sharing a network at one time. Although a low-capacity network may provide adequate service for one user at a time, it can quickly become congested as more users try to connect through it.

In response to Executive Director ROEHRICH-PATRICK's question about whether wireless networks are also shared by multiple users, Mr. HAZLEWOOD said that they are. He also said that wired and wireless networks are similar to road networks to the extent that connections linking individual users to the internet, much like surface streets in a neighborhood, tend to have smaller capacities than the long distance internet connections that, much like major interstates, link cities and regions around the world. Mr. HAZLEWOOD then described the current bandwidth capabilities of different broadband technologies.

Mr. HAZLEWOOD described latency as the time required for data packets to travel between the endpoints of an internet connection, which depends on distance. As distance increases, for example transferring files between users in Nashville and Tokyo, the amount of time it takes to complete an online task also increases. He said that latency can especially be an issue for

satellite connections because the distance data must travel between a user and a satellite is thousands of miles.

Mr. HAZLEWOOD explained how different bandwidth connections affect throughput for tasks involving files of various sizes ranging from very small files like simple emails with small attachments to research and industrial size files such as a hospital's entire radiological image collection. He said that five megabit-per-second connections were generally acceptable for most tasks an average user might undertake, including those involving up to around 100 megabytes. In response to Executive Director ROEHRICH-PATRICK's question about whether a five megabit-per-second connection would support streaming video, Mr. HAZLEWOOD said that it could. However, Mr. HAZLEWOOD said that a five megabit-per-second connection would not provide enough throughput to be practical for tasks involving larger files, especially those above one gigabyte such as the new Microsoft Windows operating system, which is a three-gigabyte download. Because of this, he said that a one gigabit-per-second connection standard is a reasonable ten-year target for the state. Dr. MEZZACAPPA added that the throughput needed for various online tasks can be objectively measured and that this one-gigabit-per-second capacity standard would support the throughput needs of hospitals, schools, libraries, and industries.

Mr. HAZLEWOOD said that deploying broadband across the state and reaching this capacity target depends on three sets of factors in addition to cost: whether a location is urban or rural, whether the technology being used is wired or wireless, and whether the public or private sector is making the investment. Dr. MEZZACAPPA said that rather than relying entirely on wired connections or private investment, any strategy will involve some combination of all of these factors.

In response to County Executive HUFFMAN's question about whether there are any federal or state programs for improving broadband deployment, Mr. HAZLEWOOD said that the Connect America Fund is the largest and most well-known federal program. He said that there are other federal funding programs, but they are smaller and less easily accessed. Mr. HAZLEWOOD is unaware of any state program that he would hold up as "best practices."

Next, the Commission heard a presentation from Mr. Ron GROVE, executive director of enterprise shared solutions for the Tennessee Department of Finance and Administration's Strategic Technology Solutions division, on NetTN—the existing state-managed broadband network—as well as on guidelines developed for state employees working from home or in the field. Mr. GROVES was accompanied by Mr. Jim WINTERS, the NetTN operations manager for the NetTN Program Office. In response to Chairman NORRIS' question about Strategic Technology Solutions' role in broadband, Mr. GROVE said it helps state agencies coordinate to meet their broadband needs.

Mr. GROVE said that NetTN connects approximately 1,300 sites, including health care facilities, colleges and universities, primary and secondary schools, libraries, and state and local government offices across Tennessee. He said that the network's ten gigabit-per-second backbone links the state's major metropolitan areas and that the network includes

redundancies to ensure that it functions during emergencies. In response to City Commissioner CROSSLEY's question about whether this redundancy is by design, Mr. GROVE said that it is and that these redundancies are necessary to support programs like Next Generation 911. He said that Tennessee is the only state where Next Generation 911 is available throughout and that this is a result of the redundancies built into the network.

In response to Senator YARBRO's question about the amount of bandwidth NetTN provides at individual sites such as libraries, Mr. GROVE said that it varies from several megabits per second to multiple gigabits per second depending on the number of people expected to use the connection as well as what they are using it for. He said that the state monitors the amount of bandwidth used at individual sites to determine whether increases are needed. In response to Senator YARBRO's question about the difficulty of upgrading all of the connections on the state's network to gigabit-per-second speeds to meet a target like the one Mr. HAZLEWOOD described, Mr. GROVE said it would be costly. He said that fiber networks in particular are expensive and that it had recently cost the state $100,000 to provide a fiber connection for a single location in West Tennessee. Mr. GROVE said cost can be especially challenging in areas where population density is low.

In response to Mayor BICKERS' question about whether all primary and secondary schools have broadband connections, Mr. GROVE said that the 15% of primary and secondary schools connected to the NetTN network have fiber connections; the rest are connected through Education Networks of America's network. Mr. GROVE said that programs like the federal E-Rate program for schools help, especially now that the Federal Communications Commission has set a new connection standard of one gigabit per second for schools receiving E-Rate funding. Responding to another question from Mayor BICKERS, Mr. GROVE said that he believes that the Department of Education works with districts to take full advantage of their E-Rate funding.

Mr. GROVE also said that Strategic Technology Services has guidelines for state employees working from home and in the field. He said that a connections with upload speeds of six megabits per second and download speeds of six megabits per second are sufficient assuming that no other user is sharing that bandwidth and the individual is not working during periods of peak network traffic, typically from 7 p.m. to 11 p.m.. In response to Executive Director ROEHRICH-PATRICK's question about how much bandwidth would be needed if the connection were shared with a second user streaming videos for an online class, Mr. GROVE said that it would depend on the quality of the video but that he would probably recommend a ten megabits-per-second connection.

Following Mr. GROVE's presentation, the Commission discussed the next steps in the research process. Executive Director ROEHRICH-PATRICK said based on the complexity of the project, as made evident by the panels at the Commission's October meeting and by the staff's initial work, the plan is to present additional research updaes at the Commission's spring and summer meetings and submit a report for review and comment in the fall and for approval by January 2017 as contemplated when the study was originally proposed. This timeline will allow staff to
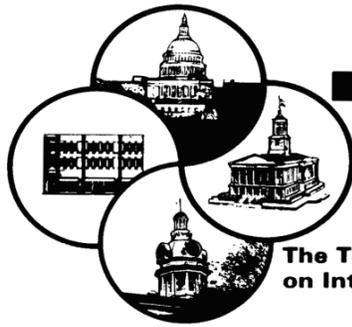
explore the regulatory environment, identify barriers to deploying and adopting broadband, and explore alternatives to close existing coverage gaps. In response to Representative CARTER's concern that this timeline for completion could affect pending legislation, Chairman NORRIS reiterated that the Commission's study will have no effect on any bills this session.

4. County Employees Serving on their County Commissions—Final Report for Approval

Senior Research Associate Jennifer BARRIE presented the final report on legislation to prohibit county employees serving on their county commissions. Ms. BARRIE discussed clarifications made to the report in response to questions from commissioners at the October meeting and noted that a map and table were added showing the survey results by county.

Responding to the concern of Representative SARGENT and others that voting to approve the report might be perceived as support for the proposed legislation, Chairman NORRIS suggested amending the report, as proposed by Mr. MCMAHAN, by deleting language "Rather than forbidding all county employees to serve on their county commissions" on page 5. Senator TRACY moved to make this change, Mr. MCMAHAN seconded the motion, and the motion passed. Mr. MCMAHAN then moved approval of the report as amended, with Mayor BURGESS seconding the motion. The motion failed nine to seven.

Chairman NORRIS adjourned the meeting at 3:50 p.m.

**The Tennessee Advisory Commission
on Intergovernmental Relations**

MINUTES OF THE
TENNESSEE ADVISORY COMMISSION
ON INTERGOVERNMENTAL RELATIONS

6 January 2016

Meeting Called to Order

The Tennessee Advisory Commission on Intergovernmental Relations met in Legislative Plaza Room 16 at 8:35 a.m., Chairman Mark NORRIS presiding.

Present 18	Absent 6
Mayor Tom Bickers	County Mayor Ernest Burgess
Mr. Charles Cardwell	Ms. Paula Davis
Representative Mike Carter	Ms. Christi Gibbs
City Commissioner Betsy Crossley	Representative Harold Love Jr.
County Mayor Brent Greer	Senator Randy McNally
County Executive Jeff Huffman	Mayor Tom Rowland
County Mayor Kenny McBride	
Mr. Iliff McMahan	
Senator Mark Norris	
Representative Antonio Parkinson	
Representative Charles Sargent	
Mayor Pro Tem Kay Senter	
Senator Jim Tracy	
County Mayor Larry Waters	
Comptroller Justin Wilson[1]	
Representative Tim Wirgau	
Senator Jeff Yarbro	
Mr. Kenneth Young	

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[1] Russell Moore represented Justin Wilson.

Call to Order and Reconsideration of Final Report on County Employees Serving on their County Commissions

Chairman NORRIS called the meeting to order, and Mayor GREER, having voted on the prevailing side of the previous day's vote against approving the report on county employees serving on the commissions that employ them, moved to reconsider that vote. Mayor MCBRIDE seconded the motion. Following some discussion, Executive Director ROEHRICH-PATRICK suggested adding the sentence "The Commission chose not to recommend the bill and approve the attached report describing alternatives that could be considered instead" to the transmittal letter bound into and part of the final report. Representative WIRGAU moved to approve the report, amended per Ms. ROEHRICH-PATRICK's suggestion. Mr. MCMAHAN seconded the motion, and the Commission unanimously approved the report.

5. Lodging Taxes—Final Report for Approval

Senior Research Associate Michael MOUNT presented the final report on the effect of hotel occupancy taxes on the economy, tourism, and the hospitality industry. Mr. MOUNT reviewed changes made since the draft report was presented to the Commission at its October 2015 meeting, including new maps showing lodging tax authority, rate capping, earmarking, and overlapping of lodging taxes by state, and a new section discussing definitions of tourism. Mayor SENTER moved approval of the report, Mayor MCBRIDE seconded the motion, and it was unanimously approved.

6. Adjusting the Homestead Exemption to Reflect Cost of Living (Public Chapter 326, Acts of 2015)—Final Report for Approval.

Research Associate Tyler CARPENTER presented the final report on whether homestead exemptions should be increased to accurately reflect the cost of living. Mr. CARPENTER reviewed changes made to the report since the draft was presented at its October 2015 meeting. Chairman NORRIS asked whether there is anything about the level of our exemptions that disadvantages any particular group of people. Mr. CARPENTER said that individuals and joint filers are at a disadvantage since their amounts have lost value over time and that Tennessee falls near the bottom by nearly every standard.

After discussion of the limited applicability of the report to judgments other than in bankruptcy and concerns about the effects of increasing the homestead exemptions outside of bankruptcy, Chairman NORRIS recommended using the transmittal letter to convey the limited scope of the study. Ms. ROEHRICH-PATRICK suggested the following language: "The options presented in the attached report approved by the Commission have been studied primarily in the context of bankruptcy and the Commission makes no recommendation outside of that context." Mayor BICKERS moved adoption of the report with the clarifying clause in the transmittal letter, and Representative WIRGAU seconded his motion, which was approved unanimously.

7. Tennessee Valley Authority Payments in Lieu of Taxes—Annual Report for Approval

Dr. Reuben KYLE presented the annual update on Tennessee Valley Authority (TVA) payments in lieu of taxes (PILOT) for approval. He said that the amount Tennessee is estimated to receive from TVA decreased because of reduced power sales even though the state's estimated share of the Authority's PILOT increased because TVA retired several of its coal-fired units in Alabama, decreasing that state's share. Dr. KYLE reviewed TVA's strategies for meeting energy demands while rebalancing its power network, saying that they could affect the PILOT. When asked by County Executive HUFFMAN about the likelihood of TVA's PILOT increasing over the next five years, Dr. KYLE said that it has fluctuated along with power sales in recent years and would likely continue fluctuating.

Following the presentation, the Commission discussed actions that might affect the PILOT distribution in Tennessee. County Executive HUFFMAN asked whether private companies purchasing TVA power plants or building their own plants in Tennessee would affect the Authority's PILOT. Executive Director ROEHRICH-PATRICK said that a decrease in the amount of TVA power property in Tennessee relative to other states would reduce Tennessee's share of the Authority's PILOT and, absent other changes, would reduce the amount that local governments and the state receive from TVA relative to other states although private companies owning power plants would pay local property taxes. Currently, there are no private companies that own electric power plants in Tennessee. Appalachian Power, a for-profit subsidiary of American Electric Power, distributes electricity in and around Kingsport, but it does not have any power plants in the state.

County Executive HUFFMAN also asked whether other utilities that use TVA's transmission system when selling electricity would affect the PILOT. Other utilities using TVA's transmission system to sell electricity in communities outside the Authority's service area do not affect the PILOT. A utility that sold power directly to distributors in TVA's service area using the Authority's transmission system would reduce the PILOT to the extent that TVA sales to those distributors decreased. However, under the Energy Policy Act of 1992 Section 212(j), TVA does not have to allow other utilities to use its transmission system to sell power directly to distributors or consumers within its service area.

Mr. MCMAHAN moved approval of the report, Mr. CARDWELL seconded the motion, and it passed unanimously.

Chairman NORRIS adjourned the meeting at 10:00 a.m.