Department of Agricultural and Resource Economics

BRADLEY COUNTY BROADBAND ACCESS

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Background

Broadband access in Bradley County is still out of reach for a majority of residents. While the Federal Communications Commission (FCC) claims 96.3 percent of residents in Bradley County have access to broadband internet (25/3 mbps), Microsoft data indicates only 42.1 percent of residents use internet at broadband speeds.

The purpose of this study was to identify gaps in internet access and the types of devices used to access internet across school districts in Bradley County. This information is particularly useful for the Bradley County School Board to assess the ability of students to access online curriculum at home.

In collaboration with the Bradley County School Board and the Bradley County Commission, we conducted a survey of households in 11 elementary schools in Bradley County. Parents were asked to identify the school their children attended, if they had access to the internet at home, the types of devices available to connect to the internet, uses for the internet, and whether they would be willing to participate in
a mobile hotspot lending program if offered through the school library. The broadband access survey is presented in Appendix A.

Out of 4,637 elementary school students in Bradley County, 1,885 households with students attending one of the 11 elementary schools responded to the survey, a 40.7 percent response rate. The survey responses from 11 elementary schools are presented in Figure 1. The top three elementary schools with the most responses were Black Fox (248), Waterville Community (246) and Michigan Avenue (231). In terms of response rates, the top three schools with the highest response rates were Michigan Avenue (52%), Black Fox (47%) and Prospect (45%).

Figure 1. Survey Responses from Bradley County Elementary Schools.
When asked about the types of devices used to connect to the internet at home, 95 percent (1,792 users) of the households used a smartphone, 67.3 percent (1,269 users) used a laptop, and 59.4 percent (1,120 users) used a tablet. Among other devices, 43 percent (812 users) used an e-reader and only 30.1 percent (568 users) used a desktop computer. Also, it is worth noting that 13 households did not have any kind of devices to access the internet at home.

Figure 2. Devices at home in Bradley County.

While internet access is available to more than 81 percent (1,526 users) of the households in Bradley County, availability does not mean adoption of the internet. This is evident from Figure 4 where 35 percent (655) of the households indicated they would participate in a mobile hotspot lending program if offered through the school library.

Figure 3. Internet Access at Home.  
Figure 4. Willingness to Participate in a Mobile Hotspot Lending Program.
The number of households interested in participating in the program is more than twice of the households that do not have access to the internet at home. This finding is of interest because it highlights the importance of reliability and affordability of internet over access of a utility that is taken for granted in the greater part of the country, especially in the twenty-first century. On the other hand, while 1,526 households had access to the internet, only 1,194 households were not willing to participate in the mobile hotspot lending program, indicating a gap of internet adoption by 332 households in the sample.

To understand the gap in broadband across households that had children attending the 11 elementary school districts, Figure 5 presents the households that expressed an interest in participating in the proposed mobile hotspot lending program offered through the school library. On an average, 35 percent of the households across the county indicated an interest in this program. Oak Grove (44.9%), Prospect (42.5%), Taylor (41.5%), Valley View (37.5%) and Park View (36.1%) elementary schools indicated a higher interest in participation in the mobile hotspot lending program. North Lee (29%), Hopewell (31.2%), Black Fox (31.5%), Waterville Community (31.7%), Michigan Avenue (32.5%) and Charleston (33.1%) indicated a relatively lower than average interest in participation in the mobile hotspot lending program.

Figure 5. Broadband Gap by Elementary School in Bradley County.
Blackfox Elementary School

Figure 6. Internet Access at Home.

Figure 7. Need for a Mobile Hotspot.

Figure 8. Devices to Connect to Internet at Home.

Figure 9. Ranking of Importance of Internet Use.
Figure 10. Internet Access at Home.

Figure 11. Need for a Mobile Hotspot.

Figure 12. Devices at Home.

Figure 13. Importance of Internet Use.
North Lee Elementary School

Figure 14. Internet Access at Home.

Figure 15. Need for a Mobile Hotspot.

Figure 16. Devices at Home.

Figure 17. Importance of Internet Use.

7 Bradley County Broadband Access
Parkview Elementary

Figure 18. Internet Access at Home.

Figure 19. Need for a Mobile Hotspot.

Figure 20. Devices at Home.

Figure 21. Importance of Internet Use.

8 Bradley County Broadband Access
Taylor Elementary

Figure 22. Internet Access at Home.

Figure 23. Need a Mobile Hotspot.

Figure 24. Devices at Home.

Figure 25. Importance of Internet Use.

9 Bradley County Broadband Access
Waterville Community Elementary

Figure 26. Internet Access at Home.

Figure 27. Need for a Mobile Hotspot.

Figure 28. Devices at Home.

Figure 29. Importance of Internet Use.
Figure 30. Internet Access at Home.

Figure 31. Need for a Mobile Hotspot.

Figure 32. Devices at Home.

Figure 33. Importance of Internet Use.
Michigan Avenue Elementary

Figure 34. Internet Access at Home.

Figure 35. Need for a Mobile Hotspot.

Figure 36. Devices at Home.

Figure 37. Importance of Internet Use.

12  Bradley County Broadband Access
Oak Grove Elementary

Figure 38. Internet Access at Home. No, 32, 21% Yes, 124, 79%
n=156

Figure 39. Need for a Mobile Hotspot. No, 85, 55% Yes, 70, 45%
n=155

Figure 40. Devices at Home. Smartphone: 142 Laptop: 86 Desktop: 37 iPad: 52 Tablet: 102 None: 4 n=156

Figure 41. Importance of Internet Use. Ranking importance of internet use n=156

13 Bradley County Broadband Access
Prospect Elementary

**Figure 42. Internet Access at Home.**

- Yes, 145 (81%)
- No, 33 (19%)

**Figure 43. Need for a Mobile Hotspot.**

- Yes, 77 (43%)
- No, 102 (57%)

**Figure 44. Devices at Home.**

- Smartphone: 172
- Laptop: 108
- Desktop: 54
- iPad: 69
- Tablet: 106
- None: 1

**Figure 45. Importance of Internet Use**

- Most important
- Important
- Moderately important
- Slightly important
- Not important

- For my work/job
- Research
- Schoolwork
- Entertainment
- Other

n=178
Valley View Elementary

Figure 46. Internet Access at Home.

Figure 47. Need for a Mobile Hotspot.

Figure 48. Devices at Home.

Figure 49. Importance of Internet Use.

Yes, 74, 75%
No, 25, 25%

Yes, 39, 39%
No, 62, 61%

n=99

Smartphone
Laptop
Desktop
iPad
Tablet

Most important
Important
Moderately important
Slightly important
Not important

Other
Entertainment
Schoolwork
Research
For my work/job

n=99

Yes, 39, 39%
No, 62, 61%
Appendix A. Bradley County Broadband Access Survey

The Bradley County School Board in collaboration with University of Tennessee Extension is conducting a survey to determine the internet access availability of our elementary school students.

Please complete this survey and return it to your child’s first period teacher by Friday, November 15.

The information collected will be used as part of the grant application for providing mobile internet hotspots for free loan from Bradley County School Libraries.

1. Which schools do your children attend? (Select all that apply)
   - ☐ Black Fox Elementary
   - ☐ Hopewell Elementary
   - ☐ North Lee Elementary
   - ☐ Park View Elementary
   - ☐ Taylor Elementary
   - ☐ Waterville Community Elementary

2. Do you have broadband internet access at home?
   - ☐ Yes
   - ☐ No

3. Which of the following devices do you have at home? (Select all that apply)
   - ☐ Smartphone
   - ☐ Desktop computer
   - ☐ Tablet
   - ☐ Laptop
   - ☐ iPad

4. Rank the following in order of importance (1-5) for your internet use:
   - _____ For my work/job
   - _____ Research
   - _____ Schoolwork
   - _____ Entertainment
   - _____ Other, please specify: ____________________________________________

5. If available, would you have the need for the free use of a mobile hotspot to access internet at home?
   - ☐ Yes
   - ☐ No

A hotspot lending program extends access to users who cannot afford in-home internet access or do not have access to internet infrastructure.

_____________________________________________________________________________________

Thank you for taking the time to complete the survey, we appreciate your help!
### Appendix B. Internet Speed Test Results in Cleveland and Bradley Counties

<table>
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<tr>
<th>Location</th>
<th>Service Provider 1</th>
<th>Service Provider 2</th>
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<tr>
<td></td>
<td>Download (mbps)</td>
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<tr>
<td>Paul Huff Parkway/Mouse Creek Rd NW</td>
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<td>North Lee Hwy US-11 and Tasso Lane NE</td>
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<tr>
<td>Average speed</td>
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**Note:** Speed test conducted on 12/05/2019