Broadband Services Element

Goal

Baldwin County residents, businesses, and community facilities should have access to affordable and reliable internet services at speeds that support multiple high data usage activities like video conferencing, video and audio streaming, and file download and upload.

Needs and Opportunities

Discussions with local elected officials, city and county staff, local business leaders, and residents of Baldwin County indicated that there is a substantial need to improve high-speed internet services throughout the county. Many parts of the county do not have adequate internet service that allows them to use the internet for basic research, much less for high-data activities like video streaming or video calls. The COVID-19 pandemic, which resulted in many people having to work or learn from home, including made this infrastructure gap obvious. The following are the needs and opportunities identified by various stakeholders in the process.

1. Sizable portions of the county, particularly the eastern and northwestern portions of the county, remain underserved by reliable, high-speed internet.

Public hearings and ongoing discussion with local officials and stakeholders indicated that much of the rural parts of the county have sporadic internet service. This is verified by the Georgia Department of Community Affairs' analysis of served and unserved areas. While the majority of the county is served by DSL or satellite connections, the upload and download speeds are not sufficient to support many daily activities, and the speeds do not meet the speed standard to be considered broadband service. This leaves much of the county without reliable internet access. Further, if Windstream, the primary provider of DSL services in the county follows AT&T's path and phases out DSL services altogether, much of the county could be left with no option other than satellite service which is often very slow, sporadic, and expensive. Both the limited options and the type of internet options in the rural parts of the county have left thousands of residents without access to high-speed internet.

2. Poor broadband service causes disruptions in daily life and increases the digital divide.

High-speed internet access is increasingly considered essential for daily life. Increasing numbers of devices and services require decent internet access. Without reliable internet access, residents may not be able to take advantage of services like telemedicine, online learning, video chats, or even in some cases, basic internet research, paying the bills, or applying for unemployment. These issues with not having reliable internet came to the forefront during the COVID-19 pandemic.

The lack of high-speed internet posed significant challenges during the COVID-19 pandemic as students were unable to participate in classes fully and adults who were working from home were unable to as productive as needed because of poor broadband service. At the beginning of the pandemic, Baldwin County School District found that nearly 50 percent of its students did not have reliable internet access. The school district tried to resolve this by dispersing wi-fi buses throughout the county to provide internet capability for children at home. The Baldwin County School District also added antennas outside schools, which allowed parents to have internet access. The Friends of the Mary Vinson Memorial Library provided funding for the Twin Lakes Library System to purchase 10 hots spots that could be checked out to help

expand broadband access in the community. These hot spots were in addition to the 24/7 free WiFi provided around Milledgeville's government buildings and public parks. Baldwin County began installing WiFi hotspots at its fire stations around the county to expand access as well. Yet, these efforts still required people having to park near one of these wi-fi spots to learn and do work, which is not an ideal situation to learn and work.

This need for quality, high-speed internet access remains true even when not in a situation where people are studying and working from home. The digital divide continues to impact educational opportunities for children when they are not able to use the internet for homework help or research, putting them at an educational disadvantage. Further, as an increasing number of services offer online options, such as telemedicine, having consistent access to internet service will be critical to residents having a good quality of life.

3. EMCs, including Tri-County EMC and Washington EMC are adding fiber internet to their services, which could bring high-speed internet to the EMC's service area, which includes much of Baldwin County.

In 2021, Tri-County EMC and Washington EMC announced their plans to form partnerships that would allow the EMCs to begin providing high-speed fiber internet to much of their service area. Tri-County EMC serves Baldwin County west of the Oconee River while Washington EMC provides service east of the Oconee River. Tri-County EMC's service, Tri-Co Go, is expected to bring high-speed broadband internet, at up to one-gigabyte speeds to every home and business in their service area over the next four years. Washington EMC, in partnership with Conexon Connect, will be building a 3,000-mile fiber network, beginning in early 2022, that will provide high-speed access to all Washington EMC members. These initiatives by the EMC, if fully implemented, will provide the majority of Baldwin County residents with access to high-speed internet.

4. Deployment of fiber optic service remains limited and disconnected throughout the City of Milledgeville and Baldwin County.

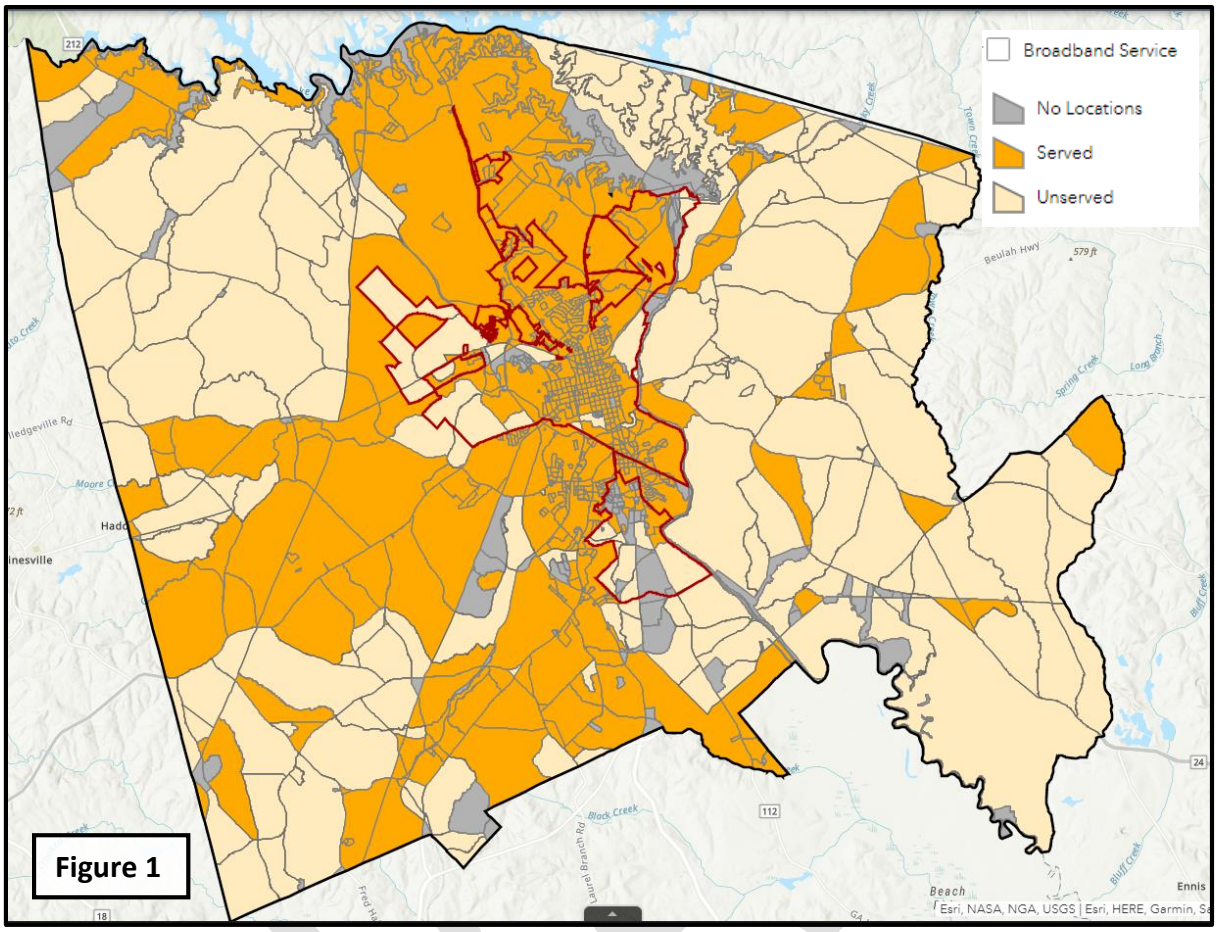
While fiber internet already exists in some of the more developed parts of Baldwin County, it is still spotty and disconnected. One census block has access to fiber internet, but across the street, connecting to fiber internet is not an option. There have been discussions to improve fiber optic services and connectivity within the City of Milledgeville and surrounding areas. Milledgeville had discussions with an external fiber provider that would provide service to much of the city, the colleges, and the hospital; however, those discussions had slowed due to funding constraints on behalf of the vendor. The Central State Hospital (CSH) Local Redevelopment Authority has also pursued EDA funding to expand fiber services on the CSH campus. This initiative would not only help provide fiber internet to businesses at the CSH campus but would also service Baldwin County residential neighborhoods in the area surrounding the campus. Despite these discussions and grant applications, fiber access remains disconnected in the more developed areas of Baldwin County and Milledgeville.

Geospatial Analysis of Underserved Areas

Access to broadband outside of the most developed areas of Baldwin County is sparse particularly east of the Oconee River and in northwest Baldwin County. Milledgeville and development between Milledgeville and Lake Sinclair along Highway 441 have been identified as served according to the Georgia Broadband Deployment Initiative (GBDI) data. However, outside of those areas, broadband access varies from census block to census block. Maps of the following pages provide an overview of geographic concentrations of served and unserved areas, particularly with residential, commercial, and industrial development.

Maps on the following pages show the locations of served and unserved census blocks in Baldwin County, using GBDI data. This initiative, using broadband data provided by various internet service providers throughout Georgia, mapped the locations of more than 5 million homes and businesses and overlayed that data with broadband provider service availability. For a census block to qualify as served, broadband service, with a download speed of 25 Mbps and an upload speed of 3 Mbps, had to be available to more than 80 percent of locations in a census block. When more than 20 percent of homes in a census block do not have access to this level of broadband, the census block is identified as unserved. Census blocks identified as neither served nor unserved did not have sufficient locations from which to collect broadband service data.

The map in Figure 1 shows broadband service in the county. Baldwin County has 204 census blocks that are unserved, which cover 144.7 square miles. The county has 776 census blocks that are served which cover 108.2 square miles. The remainder of the county's census blocks do not have enough data to determine the level of service or are in geographical features, like lakes, that would not have service. Figure 2 shows the same data for Milledgeville. Milledgeville has approximately 349 census block that are served, which covers 14.5 square miles. The city has approximately 24 unserved census blocks that cover 6.5 square miles.



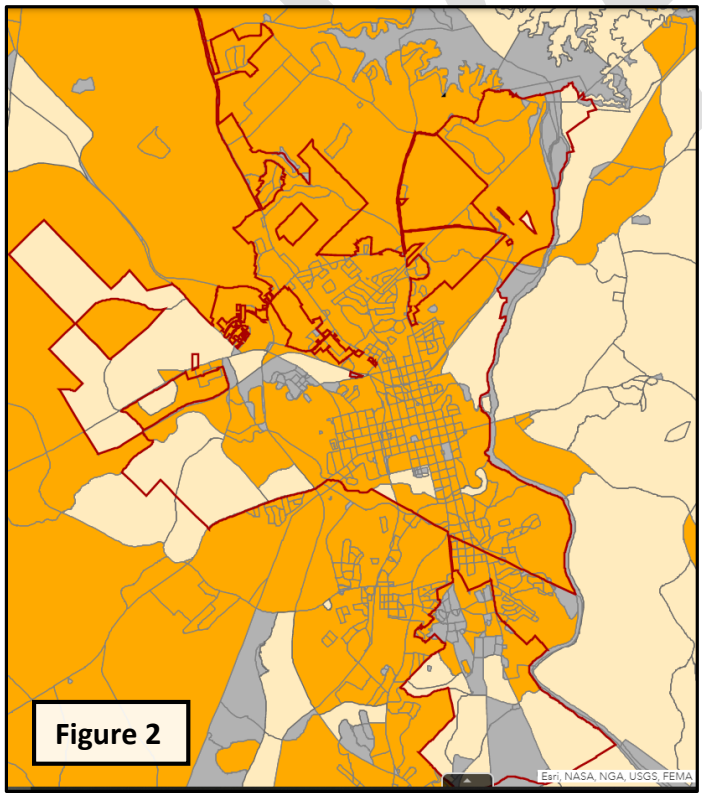


Figure 1 (above) shows broadband access for all of Baldwin County, with the eastern and western portions of the county have the largest underserved area.

Figure 2 shows broadband access in Milledgeville. The majority of Milledgeville is served with some gaps in service as the southern end of the city near the Georgia Department of Corrections facilities. Notably, some of the census blocks where the Milledgeville-Baldwin County Industrial Park is located on the west side of the city are considered underserved.

Available Internet Services in Baldwin County

According to the Federal Communication Commission (FCC), there are various internet service providers available throughout the county that can provide internet service to at least one location in the census block.

Satellite

Currently, the most available internet service available is satellite internet which is available for the entirety of the county. According to the FCC, there are three satellite internet providers: GCI Holdings, ViaSat, and VSAT. Depending on the carrier and the location, the speeds can range from download speeds of 2 Mbps to 35 Mbps and upload speeds are between 1 Mbps and 3 Mbps. Issues with satellite internet, beyond potentially slow speeds, include data limits, high latency[1], geographical limitations (depending on topography, tree cover, etc.), and high jitter[2]. Satellite internet can also be cost-prohibitive depending on data usage and quality.

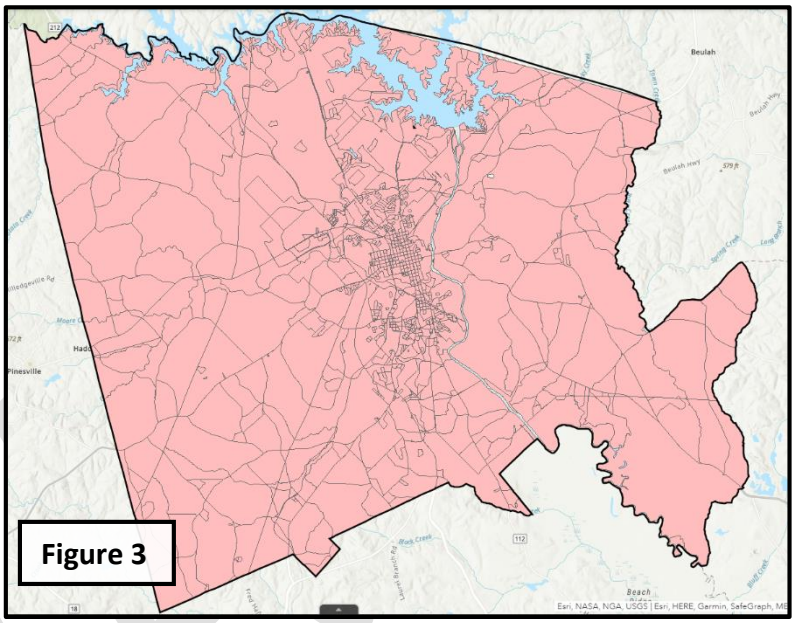


Figure 3

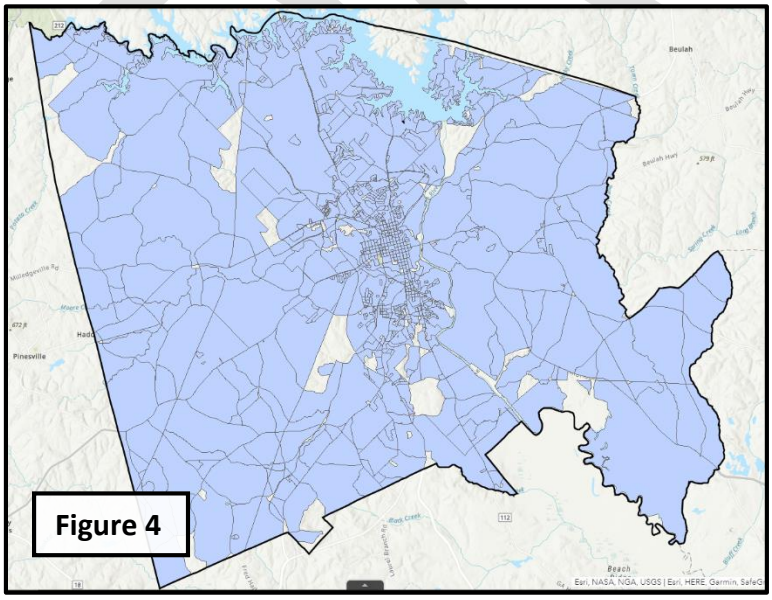


Figure 4

Digital Subscriber Line (DSL)

Digital subscriber lines use phone wires to transmit internet signals, meaning it is a more readily available internet service. DSL is widely available in Baldwin County with just a few census blocks identified as unserved in the county. While this is an available option because it can use existing phone lines, speeds can vary widely depending on how close a structure is to a DSL main distribution point. In general, DSL is considered an unreliable option for streaming videos or music or other high data usage activities.

[1] Latency: The amount of time it takes for data to be transferred between its original source and its destination

[2] Jitter: The time delay in sending data packets over a network connection, that can vary when the signal changes.

Fiber

Fiber optic internet is available in parts of Milledgeville and Baldwin County as shown in Figure 5. Fiber optic internet can have download and upload speeds of up to 1000 Mbps, making it an ideal option for high data usage internet activities. While the connection quality is high, some of the challenges with fiber are the initial installation costs and potential for [physical damage given that fiber is thinner and lighter than metallic wiring, making it more delicate.

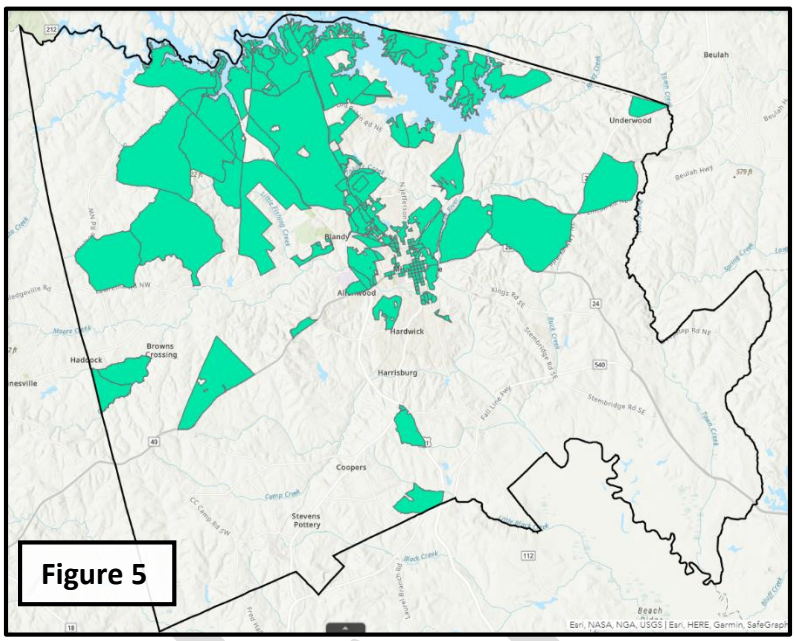


Figure 5

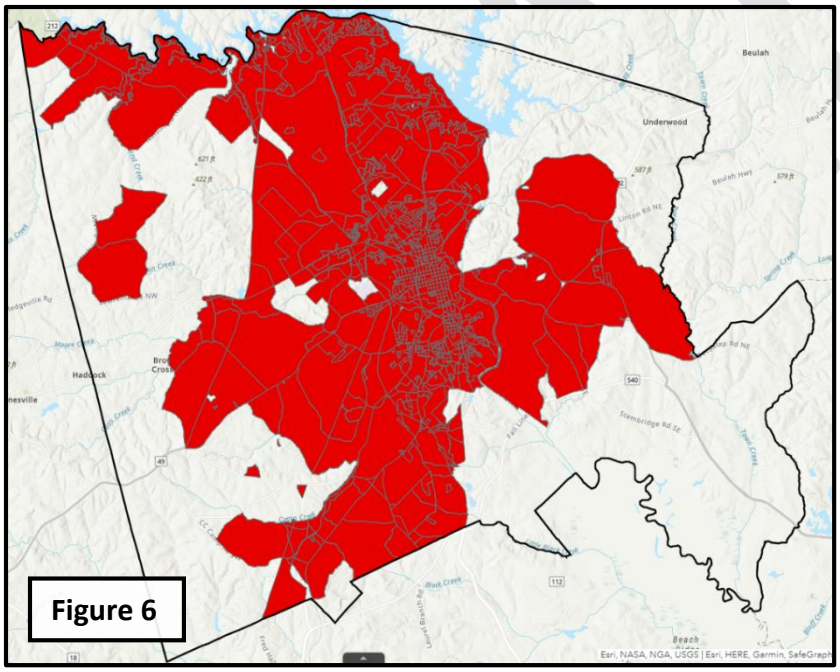


Figure 6

Cable Internet

Much of the central part of Baldwin County is served by internet via cable modem, which can provide download speeds of 940 Mbps and upload speeds of 35 Mbps, where available, according to FCC data. This type of internet service can allow for most high-data usage activities including streaming on multiple devices and operating multiple smart home devices simultaneously. There is limited availability of internet access via a cable modem because it requires coaxial wiring laid by a cable company, which may not be available in more rural areas.

Terrestrial Fixed Wireless

Fixed wireless internet transmits an internet signal via radio waves transmitted by a base station. Homes or businesses that opt for fixed wireless will have receivers that will receive a high-speed internet signal from a base station, which will then transmit to the modem in the structure, providing a high-speed internet connection. This option is ideal for rural areas where running cable or phone lines is cost-prohibitive. It also provides internet speeds similar to cable internet. However, a line of sight connection with the base station with minimal obstruction, like trees or hills is necessary. Structures using this service must also be within a certain distance of the base station.

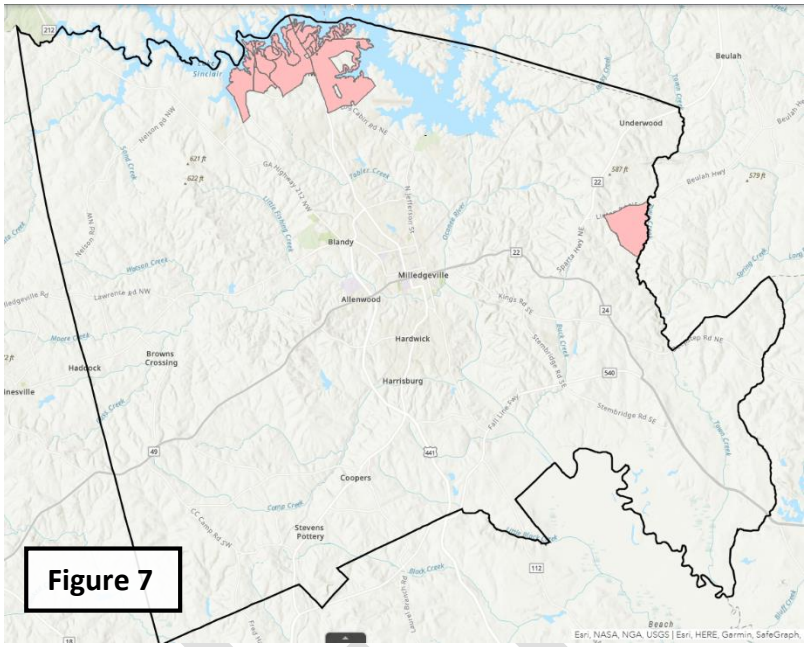


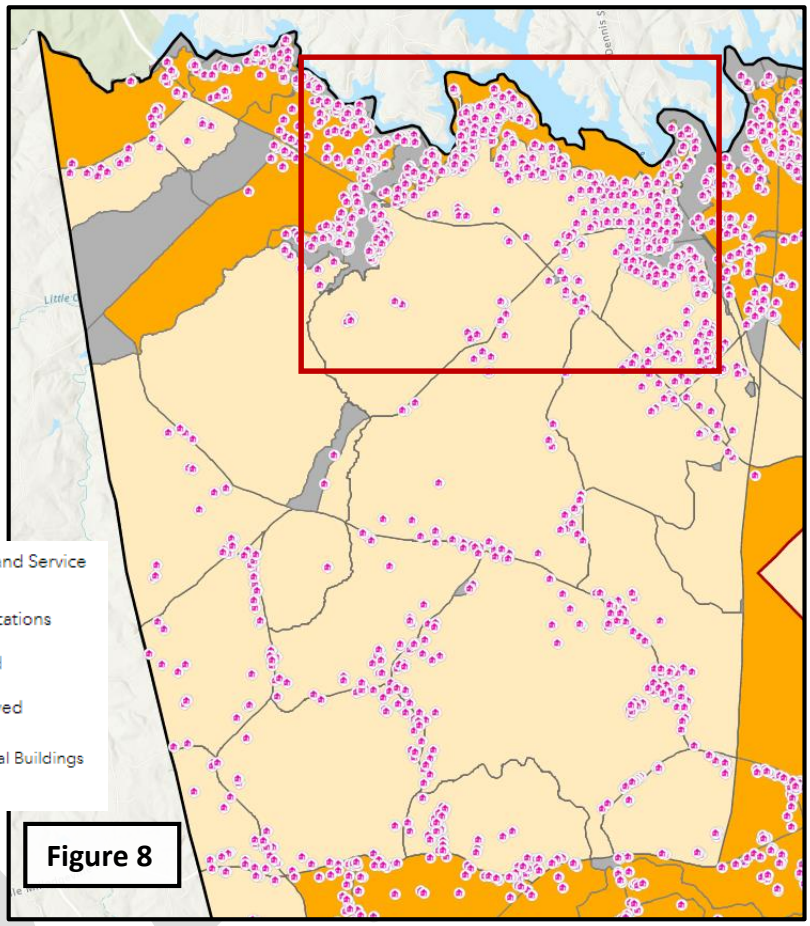
Figure 7

Geospatial Analysis of Underserved Areas

Within the underserved portion of Baldwin County, there are specific areas worth noting, particularly given the density of residential development. The following is a brief overview of the underserved areas of Baldwin County that may wa

Northwestern Baldwin County

In the northwestern corner of Baldwin County, there are a significant number of homes that do not have access to broadband service. While some residential units along Lake Sinclair are served, their neighbors across the lake are in unserved blocks as shown in Figure 8. The lack of service is more prevalent as one goes south away from the lake where there are no served block groups. While residential density is less in these areas, there are still numerous residential structures in pockets dispersed throughout this area as shown in Figure 9.



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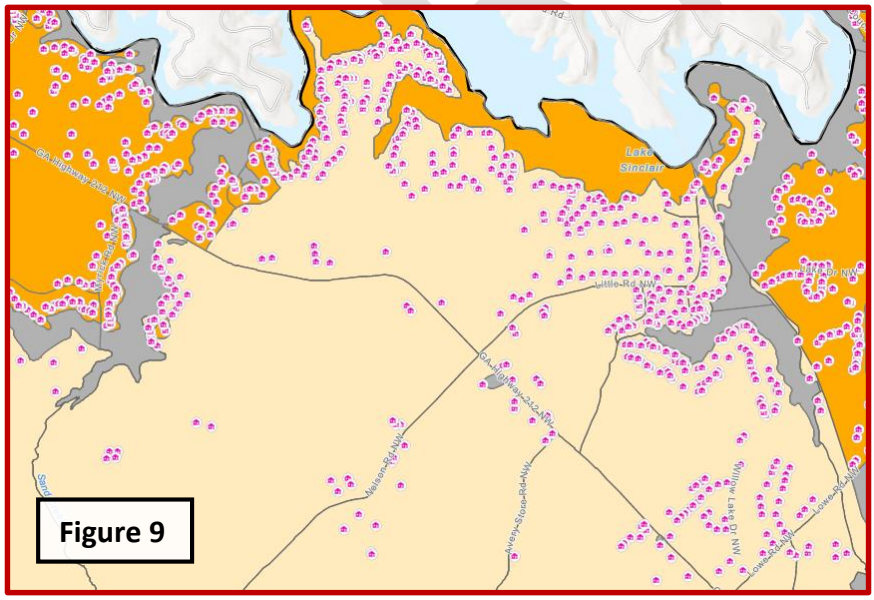

Figure 9

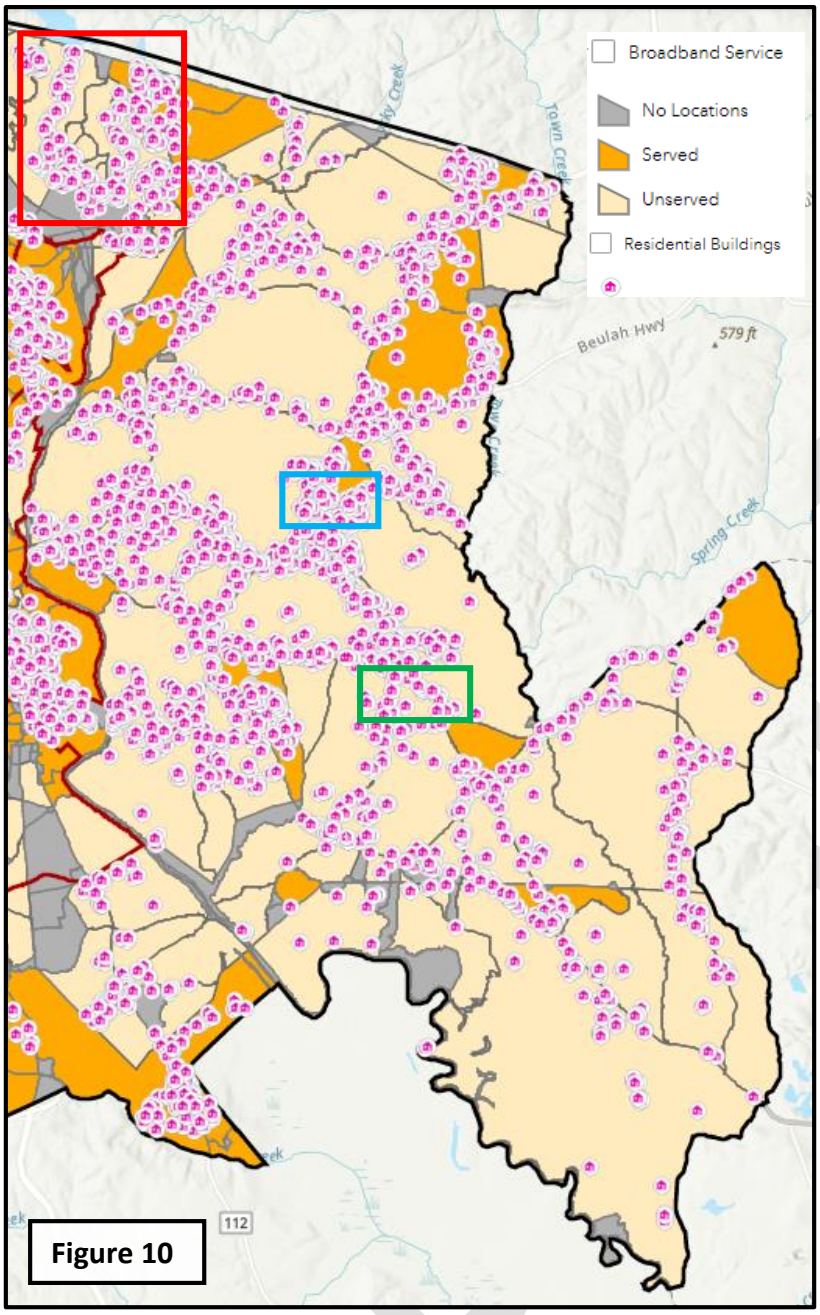

Figure 10

East of the Oconee River

The broadest area where broadband service is the sparsest is between the Oconee River and Hancock and Washington counties as shown in Figure 10. Despite the presence of several residential neighborhoods, much of the eastern portion of the county does not have reliable access to broadband service, shown in Figures 11-13.

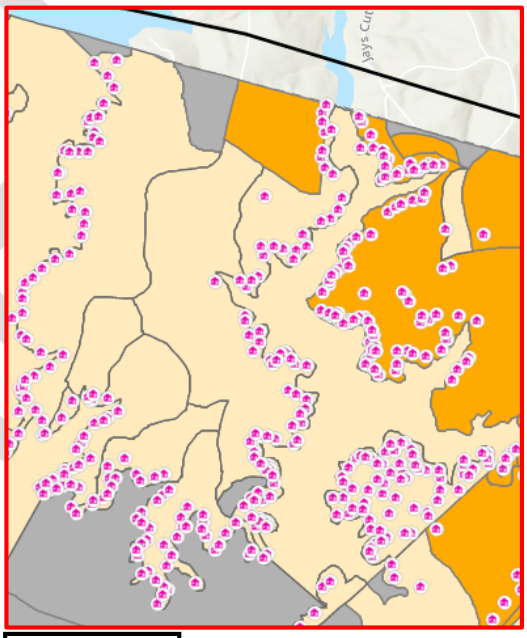

Figure 11

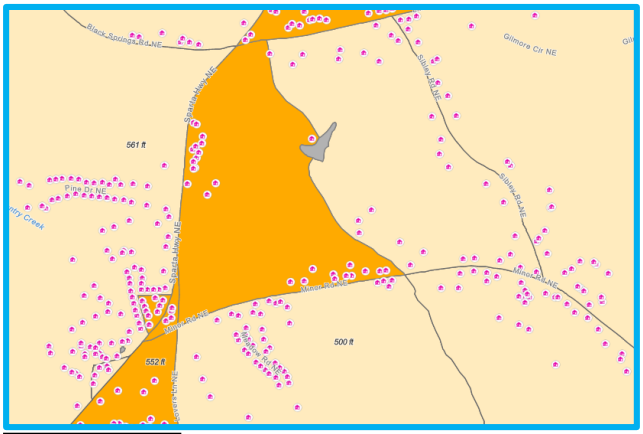

Figure 13

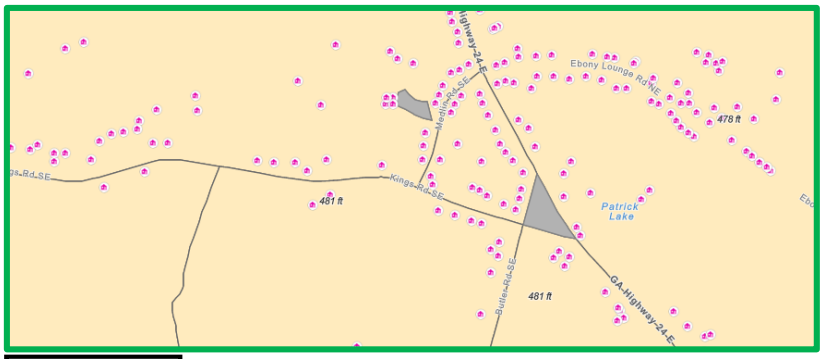

Figure 12

Milledgeville – Baldwin County Industrial Park

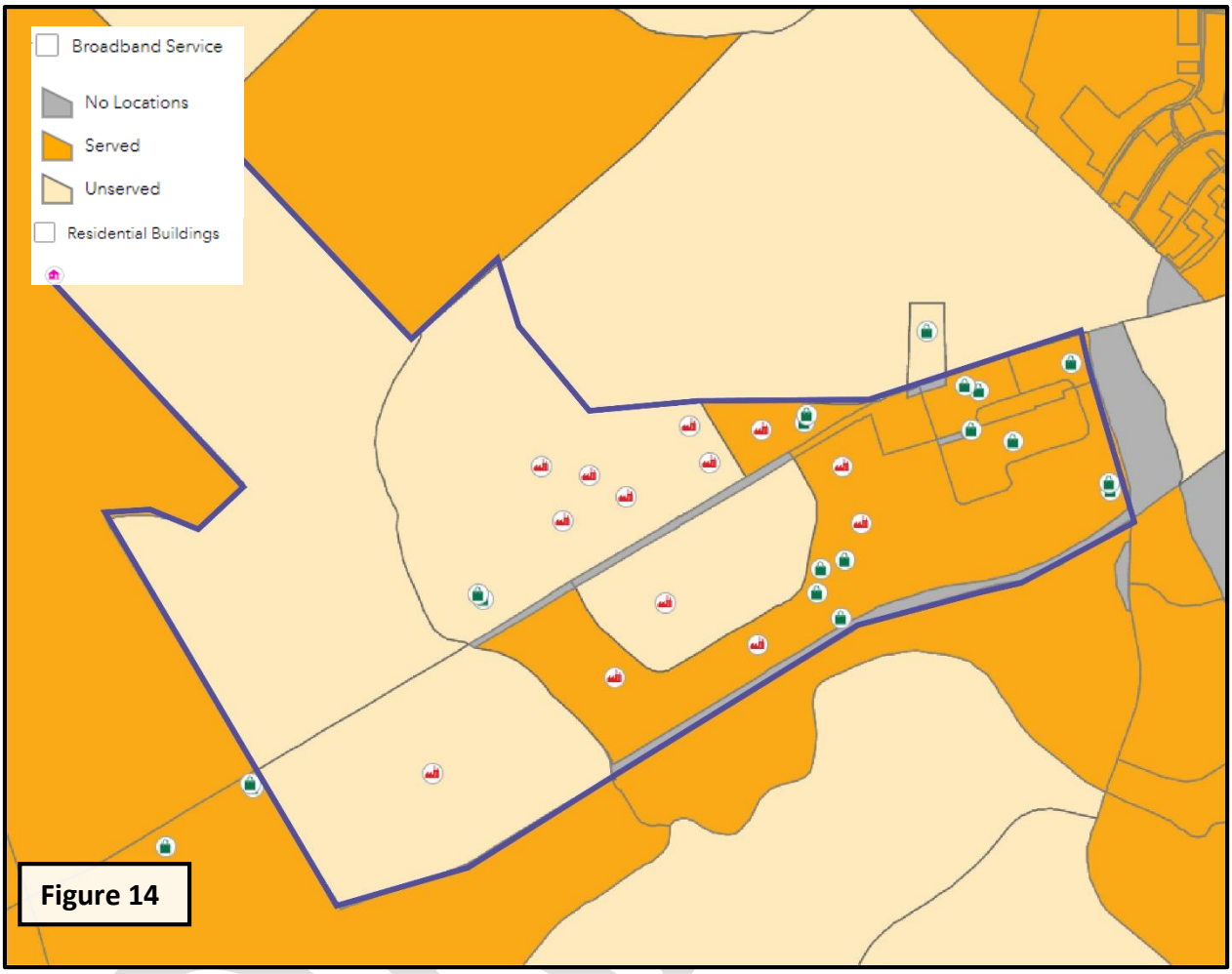

Figure 14

Much of the Milledgeville-Baldwin County Industrial Park, along GA Hwy 22, is in census blocks that have been identified as unserved as shown in Figure 14. While there are fewer locations in these blocks from which to gather broadband service data, the GBDI analysis found that in the unserved blocks within the industrial parks, more than 50 percent of the locations surveyed were considered unserved. Expanding high-speed broadband will open the park up to more development.

The aforementioned areas are all prime candidates for initial broadband service expansion, given the residential density, lack of service, and opportunity for development. However, broadband service is needed across the county, regardless of density. Expansion of high-speed service as quickly and efficiently as possible is the goal as residents and businesses need to be served as soon as possible. Strategies and action items for broadband deployment are included in the community work programs for reach jurisdiction.

Auction 904: Rural Digital Opportunity Fund (RDOF)

In November 2020, the FCC recently concluded its most recent auction process under the Rural Digital Opportunity Fund (RDOF). This auction provides funds to recipients to offer broadband services in areas where there is not a provider that is offering or committed to offering the minimum service of 25 Mbps downstream speed and 3 Mbps upstream speed. The RDOF auctions off those unserved areas and awards support to recipients who much offer at least one voice and one broadband service which meets certain requirements to all locations in the awarded area in a specific time frame. In the 2020 auction, the areas shown in red in Figure 15 were auctioned to service providers and will potentially have gigabit speeds available. Areas that remain unserved are ideal candidates for grants or local funding support, such as Community Development Block Grant (CDBG) funding or OneGeorgia Authority funding under the Georgia Broadband Deployment Initiative.

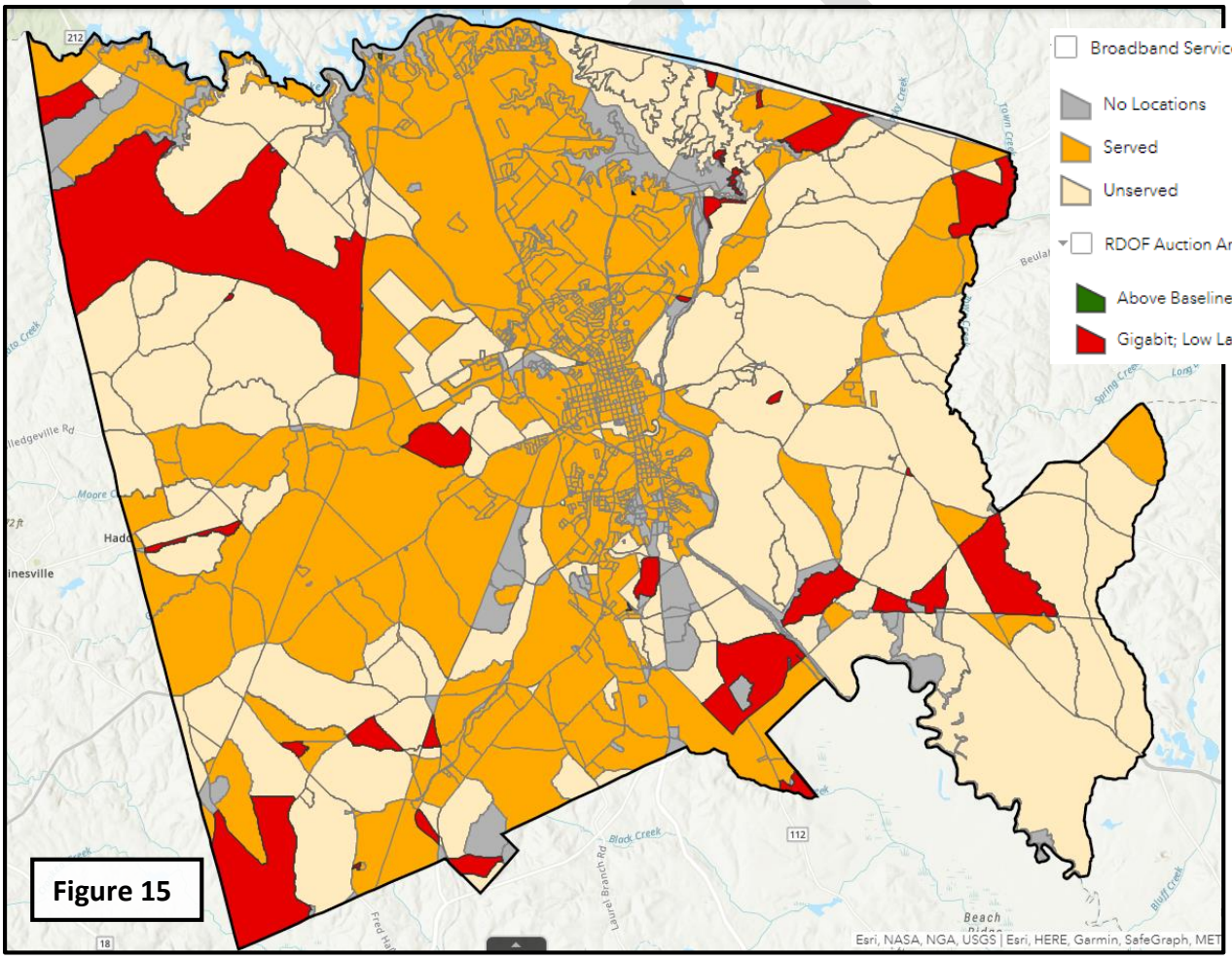

Figure 15

*The red areas on the map show the areas that were auctioned off. The Gigabit; Low Latency label represents the service tier that was auctioned. This service tier means that the downstream speed will be greater than one gigabyte per second and the upstream speed will be 500 Mbps with a two-terabyte usage allowance.

Baldwin County and the City of Milledgeville Community Work Program

Activity	Timeframe	Cost Estimate	Responsible Party	Funding Source	Needs and Opportunities
Broadband Services					
Apply for a Broadband Ready designation	2021	Staff Time	City of Milledgeville, Baldwin County	Budget	BS.1, BS.2, BS.3, BS.4
Directly apply for grant funding or provide local funding to expand broadband services for areas that private sector partners will not be able to serve.	2021	Staff Time	City of Milledgeville, Baldwin County, CSH Redevelopment Authority	Budget	BS.1, BS.4
Maintain internet hotspots and access at city and county public facilities (e.g., library, parks, fire stations)	2021-2023		City of Milledgeville, Baldwin County	Budget	BS.2
Review local ordinances and processes and amend as needed to eliminate barriers to broadband deployment and encourage greater broadband coverage.	2021	Staff Time	City of Milledgeville, Baldwin County	Budget	BS.1, BS.3, BS.4
Encourage new developments to include infrastructure for high-speed internet access.	2021	Staff Time	City of Milledgeville	Budget	BS.1, BS.3, BS.4