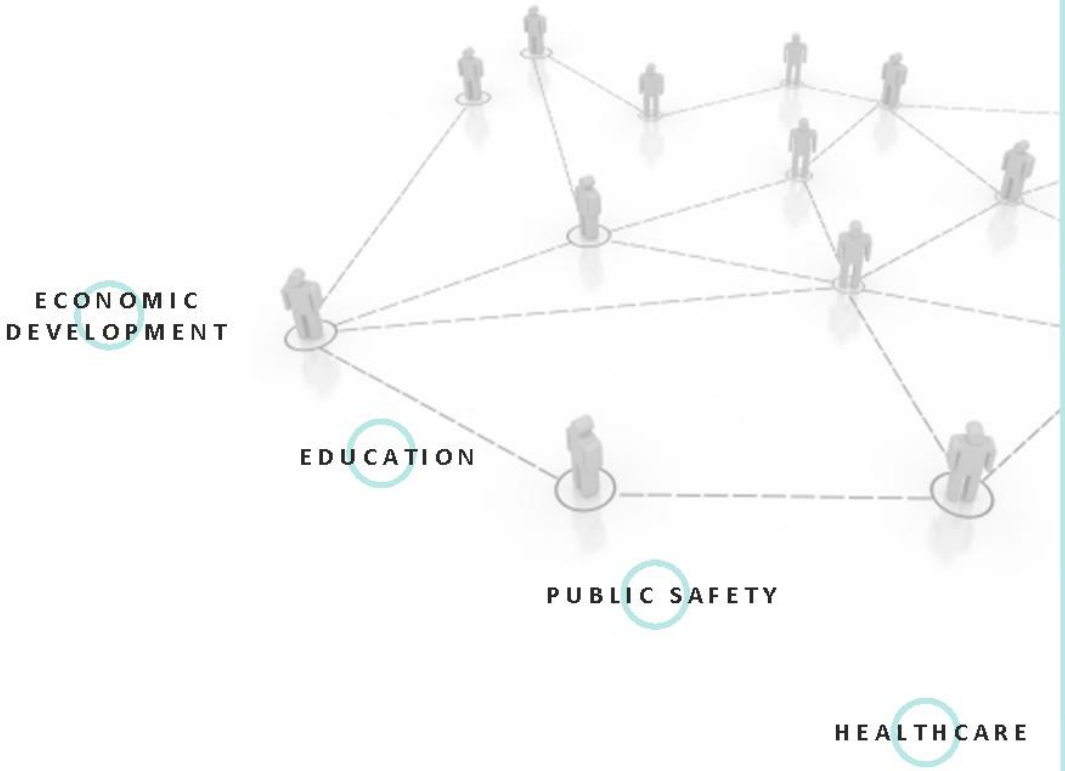
NORTHEAST GEORGIA DIGITAL ECONOMY PLAN

A PROJECT OF THE NORTHEAST GEORGIA REGIONAL COMMISSION IN PARTNERSHIP WITH THE GEORGIA TECHNOLOGY AUTHORITY



NEGRC
NORTHEAST GEORGIA REGIONAL COMMISSION

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Executive Summary

Under the American Recovery & Reinvestment Act (ARRA), the Georgia Technology Authority (GTA) received $5.2 million to facilitate a State Broadband Initiative through December 2014. A portion of these funds was set aside for the development of Regional Digital Economy Plans with Georgia's Regional Commissions.

The Northeast Georgia Regional Commission (NEGRC) is governed by a Council representing the 12 counties within its 3,260-square-mile service area. The NEGRC Planning & Government Services Division led the digital economy planning process with input from the Workforce Development and Aging divisions.

The purpose of the Northeast Georgia Digital Economy Plan is to document the resources and unmet needs of digital assets, broadband infrastructure, services, and related technology utilization and present strategies to fill identified gaps. Plan updates were provided regularly through a dedicated page under the Planning & Government Services Division tab on the NEGRC website at http://www.negrc.org/resource-1.php?page_ID=1406229947.

The planning process consisted of three primary components:

Data Collection & Analysis
NEGRC compiled data derived from GTA, existing regional planning documents (updated for this planning process), and other resources to help identify quantifiable and empirical strengths, weaknesses, opportunities, and challenges to a vibrant regional digital economy. Included in this effort were periodic updates to Community Anchor Institution (CAI) information within the 12-county area.

Stakeholder Engagement
Digital technology application was evaluated through a stakeholder engagement process with agencies and organizations working within the four State priority areas: Economic Development, Education, Public Safety, and Healthcare. NEGRC utilized several methods to obtain input from stakeholders. This process included the dissemination of web-based questionnaires for residents and businesses, presentations to regional groups, meetings with individuals, and email communications.

Strategy Development
The Planning & Government Services Committee of the NEGRC Council provided oversight over the strategies developed during the planning process. Additionally, NEGRC engaged an email listserv of individuals who, during the stakeholder engagement process, indicated an interest in receiving updates and invitations to comment as the plan took shape.

The Northeast Georgia Digital Economy Plan highlighted a need for meaningful coordination at the regional level and strategic and capital planning at the local and agency level. These needs may be addressed through the implementation of the four strategies detailed in this plan:

- Incorporate digital technology plan elements into the local comprehensive planning process.
- Develop “dig once” policies for local adoption.
- Develop regional coordination and sharing agreements for technologies and infrastructure.
- Identify specific training and education needs at an organization/agency level, and develop programs to address those needs.

Introduction

What is the Digital Economy?

The Digital Economy consists of business conducted through computers and computer networks. Farmers use wireless moisture sensors on farms to increase yield and use the Internet to advertise and sell their crops. Doctors see patients using telemedicine, detectives use social media to investigate crime and lawyers search and find legal precedents through online search rather than through paralegals and clerks. It is difficult to find a business or institution in Georgia that does not rely on the Internet and digital technology to improve service, lower cost, automate work, or expand into new markets.

The Digital Economy is not a replacement of our economy but an evolution of using technology to adapt business to global innovation. The Digital Economy is enabled by access to information technology infrastructure, skilled workforce and funding to incorporate these technologies and services into business operations. Computers, mobile phones, tablets, sensors, software applications and broadband networks are basic ingredients. Education, a skilled workforce, adult learning, and the financial resources to incorporate new technologies are critical enablers.

As business adoption of the Internet reaches critical mass, competition will intensify for companies and workers alike. It can produce benefits that include wider access to resources, more effective health-care and education systems, and a workforce with greater skills. Georgia's ability to incorporate and use them directly affects its competitiveness.

Why is a Digital Economy Strategy Important to Georgia?

Georgia's economy will increasingly be impacted by the Digital Economy, therefore, a long term strategy and planning is critical in providing stability and opportunity for future generations.

The Digital Economy is creating new industry and new business opportunities such as one Georgia startup company, AirWatch, which was sold in 2014 for over $1.5B. New technologies have lowered the costs and opened access to markets anywhere in the world by anyone in Georgia who has access to the technology, knowledge, skills and the drive to pursue them.

The Digital Economy disrupts businesses and institutions that took decades to build. Jobs are being lost to offshoring of manufacturing enabled by the technologies and networks of the Digital Economy. Many video and record stores, bookstores, and even shopping malls were other early victims. This trend will accelerate. One study done by Oxford Professors indicates 47 percent of current professions could be at risk for automation by 2025.

The Pew Research Center's Internet Project has been analyzing the impact of the Internet for over a decade. Its most recent study in August 2014 analyzes how daily life will be changed by 2025 through the Internet, artificial intelligence and robotics after speaking with almost 2,000

widely quoted technologists and analysts. The conclusions directly quoted below emphasize how large a role the Digital Economy will play in the future[1]:

Key themes: Reasons to be Concerned

1. Impacts from automation have thus far impacted mostly blue-collar employment; the coming wave of innovation threatens to upend white-collar work as well.
2. Certain highly-skilled workers will succeed wildly in this new environment—but far more may be displaced into lower paying service industry jobs at best, or permanent unemployment at worst.
3. Our educational system is not adequately preparing us for work of the future, and our political and economic institutions are poorly equipped to handle these hard choices.

Key themes: Reasons to be Hopeful

1. Advances in technology may displace certain types of work, but historically they have been a net creator of jobs.
2. We will adapt to these changes by inventing entirely new types of work, and by taking advantage of uniquely human capabilities.
3. Technology will free us from day-to-day drudgery, and allow us to define our relationship with "work" in a more positive and socially beneficial way.
4. Ultimately, we as a society control our own destiny through the choices we make.

What does the Regional Digital Economy Plan accomplish?

The Regional Digital Economy Plan examines local and regional abilities to participate in the Digital Economy and identifies important resources, organizations, leaders, programs and investments that already exist, that can be leveraged in the future. The plans also identify each region's gaps in infrastructure, workforce and access to capital and align, prioritize and convert these gaps into actionable projects with goals that can be measured.

The planning process analyzes the Digital Economy capacity of each region in at least three distinct areas:

1. Workforce capabilities and needs
2. Supporting infrastructure and services for Internet connectivity
3. Access to capital to invest in each region's plans to increase participation in the Digital Economy

[1] Aaron Smith and Janna Anderson. (August 2014) AI, Robotics, and the Future of Jobs. *Pew Internet.* http://www.pewinternet.org/2014/08/06/future-of-jobs/

Introduction

The most important value of these plans is to raise awareness, develop community and regional collaboration, prioritize objectives and establish plans to use our assets and strengths to be competitive.

The key to success for any region in the future will be cooperatively working together to leverage opportunities and mitigate threats brought about by the ever-growing Digital Economy.

The Northeast Georgia region comprises 12 counties and 54 municipalities, covering approximately 3,260 square miles. While the easternmost edge of the region remains largely rural, the Northeast Georgia experiences development pressures from the Atlanta metropolitan region to the immediate west.

The Northeast Georgia Regional Commission (NEGRC) serves this region. Created in 1963, the agency is a resource for planning, economic development, grant writing/administration, workforce training, and aging services. The digital economy planning process was facilitated by staff in the Planning & Government Services Division.

Introduction

Map 1- Northeast Georgia Region

NEGRC initiated the digital economy planning process in September 2013. The draft was circulated to stakeholders for review in August 2014, and submitted to GTA and the Middle Georgia Regional Commission for review in September 2014.

Regional Stakeholders

The Planning & Government Services Committee of the NEGRC Council served as the advisory committee for the Northeast Georgia Digital Economy Plan, and was provided with regular updates on progress made.

NEGRC engaged a variety of stakeholders representing the four State priority areas of Economic Development, Education, Public Safety, and Healthcare. Presentations were given to the following groups at their regularly-held meetings from January through April 2014. At these meetings, feedback was solicited in the form of hard-copy questionnaire forms, which included an option to sign up for email updates on the planning process (see Appendix III).

- NEGRC Council
- Northeast Georgia Regional Educational Service Agency (RESA) Curriculum Directors
- Northeast Georgia Aging and Disability Resource Connection(ADRC)
- Northeast Georgia Region 10 Emergency Medical Services Council
- Northeast Georgia Workforce Investment Board (WIB)
- Joint Development Authority of Northeast Georgia
- Regional Senior Center Directors

NEGRC staff had hoped for greater engagement from elected officials and/or administrative staff within city and county governments during the stakeholder engagement process, but was able only to solicit such input from three cities (Auburn, Porterdale, and Watkinsville). Staff within specific government-related departments or organizations (e.g. public safety, senior centers, and school systems) was more responsive. (See the Section III Appendix for a qualitative analysis of agency/organization questionnaire responses.)

During the planning process, input was also obtained through meetings and conversations with the following:

- Brian K. Thompson, MonroeAccess.net
- Lanier Dunn, ElbertonNET
- Paul Chambers, AT&T
- Robert Oakes, Georgia Public Web
- Jim Flannery, Four Athens
- Bryan Zulko, USDA-Rural Development
- UGA Carl Vinson Institute's Office of Information Technology Outreach Services (ITOS)
    - David Holcomb, Eric McRae, Mike Perkins, Jimmy Nolan
- Greg Laudeman, Greg Laudeman Consulting

NEGRC created and publicized two online questionnaires to gather information about how residents and businesses in Northeast Georgia use digital technologies. From February through April 2014, NEGRC collected 96 business responses and 448 resident responses. For both questionnaires, the highest number of responses came from Walton County, with 33% (32) of business responses and 24% (106) of resident responses. The second highest number of

resident responses came from Jasper County, at 19% (87). Nearly two-thirds (62%) of resident respondents live in a rural area. NEGRC staff expected greater engagement within Athens-Clarke County, given its relative concentration of commerce and population, but was unable to increase the response rate even after repeated social media postings and email blasts. The reason for this low level participation is unclear, but may be related to a real and perceived abundance of digital economy resources in Athens-Clarke County in comparison to the more rural communities. (See the Section III Appendix for questionnaire results.)

These outreach efforts, combined, directly informed the SWOC analysis and identification of strategic focus areas.

Economic Summary

During FY2013, NEGRC facilitated the development of a Comprehensive Economic Development Strategy (CEDS), building on the *Northeast Georgia Plan 2035* developed during FY2011 and FY2012 per the regional planning standards and procedures established by the Georgia Department of Community Affairs (DCA). The following tables offer an update to much of the data presented in *2012 Northeast Georgia Comprehensive Economic Development Strategy*, using the most current information available.[2] [3]

Top 10 Sectors (2013)

The Georgia Department of Labor lists twelve "super sector industries" which is the ten super sectors that the US Bureau of Labor Statistics lists[4], plus government industry, and unclassified industry. These provide a way by which to classify all job types. The Area Labor Profile for Northeast Georgia lists the following as the top ten industries in the region (in terms of employment by super sector) for the fourth quarter of 2013, compared with the 2013 yearly average for the state.

Table 1

Rank	Northeast Georgia Region (4th Quarter of 2013)	Georgia (Yearly Average, 2013)
1	Government	Government
2	Trade/Transportation/Utilities	Retail Trade
3	Manufacturing	Health Care and Social Services
4	Education and Health Services	Accommodation and food services
5	Leisure and Hospitality	Manufacturing
6	Professional and Business Services	Administrative/waste services
7	Construction	Professional, scientific/tech services
8	Financial Activities	Wholesale Trade
9	Other Services	Finance and Insurance
10	Natural Resources, Mining and Agriculture	Construction

Sources: Georgia Department of Labor Area Labor Profile for Northeast Georgia; Georgia Department of Labor, Labor Market Statistics, Employment and Wages Program for 2013

[2] For comparison, please reference the *Northeast Georgia Plan 2035 – Regional Assessment*, p. 15-19. This document is available through the NEGRC website at http://www.negrc.org/resource-1.php?page_ID=1294178146

[3] For comparison, please reference the *2012 Northeast Georgia Comprehensive Economic Development Strategy* available through the NEGRC website at: http://www.negrc.org/resource-1.php?page_ID=1389969106

[4] U.S. Department of Labor—Bureau of Labor Statistics: http://www.bls.gov/iag/tgs/iag_index_naics.htm

Employment Wage Statistics (2013)

Wages for Northeast Georgia fall below wages statewide:

Table 2

	Average Hourly Wage	Average Weekly Wage	Average Annual Wage
Northeast Georgia (4th Quarter of 2013)	$17.98	$719	$37,388
Georgia (Yearly Average, 2013)	$22.48	$899	$46,748

Sources: Georgia Department of Labor Area Labor Profile for Northeast Georgia; Georgia Department of Labor, Labor Market Statistics, Employment and Wages Program for 2013

Here and in **Table 1**, quarterly figures are compared for the region, and yearly average figures for the state because the most recent data available in the Georgia Department of Labor reports covered different timeframes. This could may be problematic, especially in **Table 2**, as yearly averages are not impacted as significantly by holiday swings in employment and wages, for example, as are those in the fourth quarter (October, November, and December). This likely does not make a significant difference in this case, especially as far as top industries in Table 1, but should be taken into consideration while making conclusions using this data.

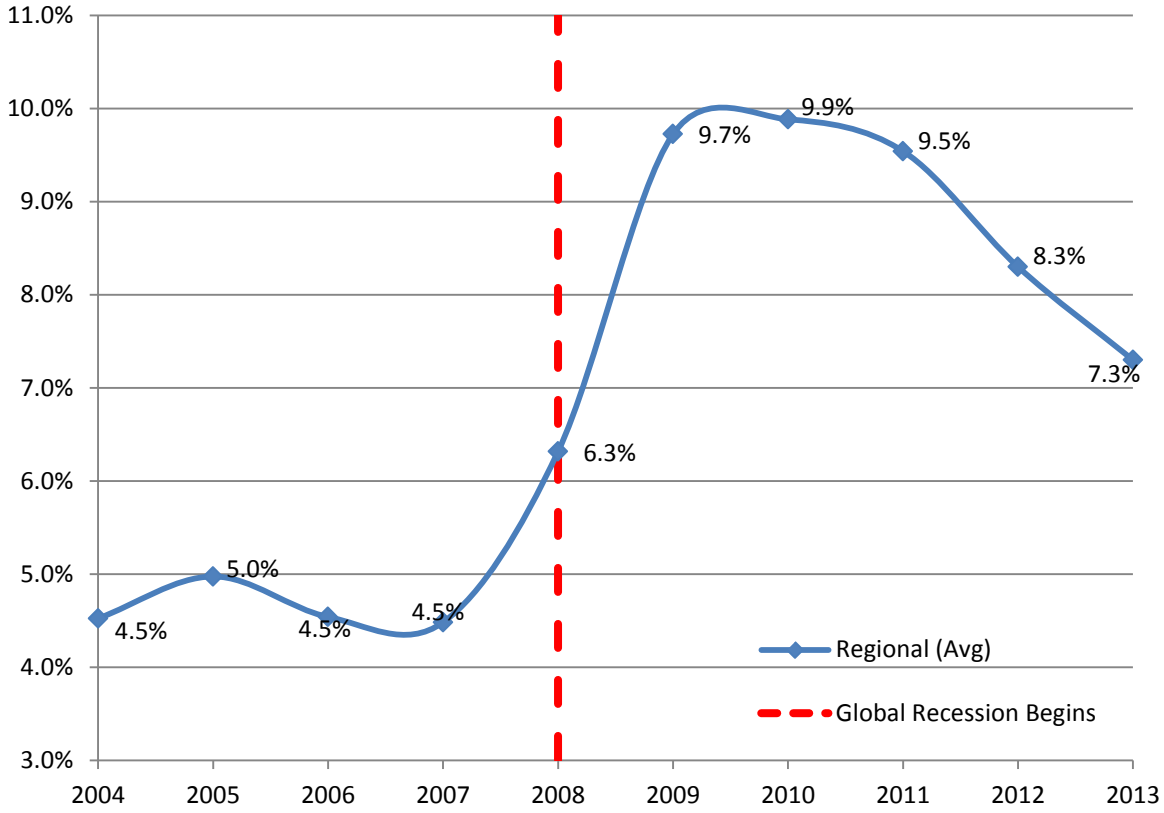
Unemployment Rate

Northeast Georgia's unemployment rate has been steadily declining since the high of near 10% during the recession of 2008/2009. It is currently declining at a faster rate than the both state of Georgia and the United States over the past two years (2012 and 2013), and the unemployment rate for 2013 was below both national and state averages.

Table 3

	% 2012	% 2013	% Change
Northeast Georgia	8.3	7.3	-11.5
Georgia	9.0	8.2	-9.4
United States	8.1	7.4	-8.4

Figure 1



Source: Georgia Department of Labor, U.S. Bureau of Labor Statistics

Opportunity Zones

The Georgia Department of Community Affairs (DCA) offers an enhanced job tax credit in designated Opportunity Zones (OZs). One method through which a municipality or county might designate an area or areas as an OZ is to first develop an Urban Redevelopment Plan (URP), for an area either within or adjacent to a U.S. Census block of 15% or greater poverty. Once designated, business owners creating at least two new jobs are able to claim a $3,500 job tax credit per job. Any business that expands or locates within a designated OZ qualifies for this job tax credit. This program is vital in redevelopment and revitalization efforts in certain older commercial and industrial areas.[5] According to DCA, as of July 2014, the following twelve Northeast Georgia communities have designated Opportunity Zones:

- Athens-Clarke County
- City of Auburn
- City of Commerce
- City of Covington

[5] Georgia Department of Community Affairs, http://www.dca.state.ga.us/economic/DevelopmentTools/programs/opportunityzones.asp

- City of Elberton
- City of Greensboro
- City of Madison
- City of Monroe
- City of Porterdale
- City of Social Circle
- City of Union Point
- Walton County

Burgeoning technology-related companies with limited resources might be attracted to communities with OZs to take advantage of the job tax credit incentive. Several additional Northeast Georgia communities have fulfilled the application requirements for OZ designation, and are awaiting a response from DCA.

Job Tax Credits

In 2014, the 159 Georgia counties have been re-ranked into four tiers based on unemployment rate, per capita income, and percentage of residents with incomes below the poverty level. A county's tier ranking determines the base number of job tax credits available to businesses engaged in manufacturing, warehousing and distribution, processing, telecommunications, broadcasting, tourism, and research and development industries. As noted above, all businesses, including retail operations, within designated OZs are eligible for these tax credits at the Tier 1 level. In addition, all 12 Northeast Georgia counties are eligible for an additional $500 tax credit per job created, as each is located within the jurisdiction of a Joint Development Authority.

- Tier 1 ($3,500 credit per job, minimum 5 new jobs): Clarke, Elbert
- Tier 2 ($2,500 credit per job, minimum 10 new jobs): Jasper, Newton
- Tier 3 ($1,250 credit per job, minimum 15 new jobs): Barrow, Greene, Jackson, Madison, Morgan, Oglethorpe, Walton
- Tier 4 ($750 credit per job, minimum 25 new jobs): Oconee

Joint Development Authorities

Joint Development Authorities (JDAs) exist for the purposes of promoting and expanding industry and trade within their respective jurisdictions. Members participate in regional efforts and partnerships intended to *attract new industry* and *provide increased employment opportunities* for its residents.[6] All twelve counties in the region fall under the jurisdiction of at least one of the five JDAs which crisscross the region: **Georgia Biosciences** (Athens-Clarke, Barrow and Oconee Counties); **Dekalb/Newton/Gwinnett**; **Northeast Georgia** (Athens-Clarke, Barrow, Elbert, Jackson, Madison, Oconee, and Oglethorpe Counties); **Jasper/Morgan/Newton/Walton**; and **Lake Oconee Area** (Greene). Additionally, the four

[6] Joint Development Authority of Northeast Georgia, www.negrc.org/resource-1.php?page_ID=1288630648

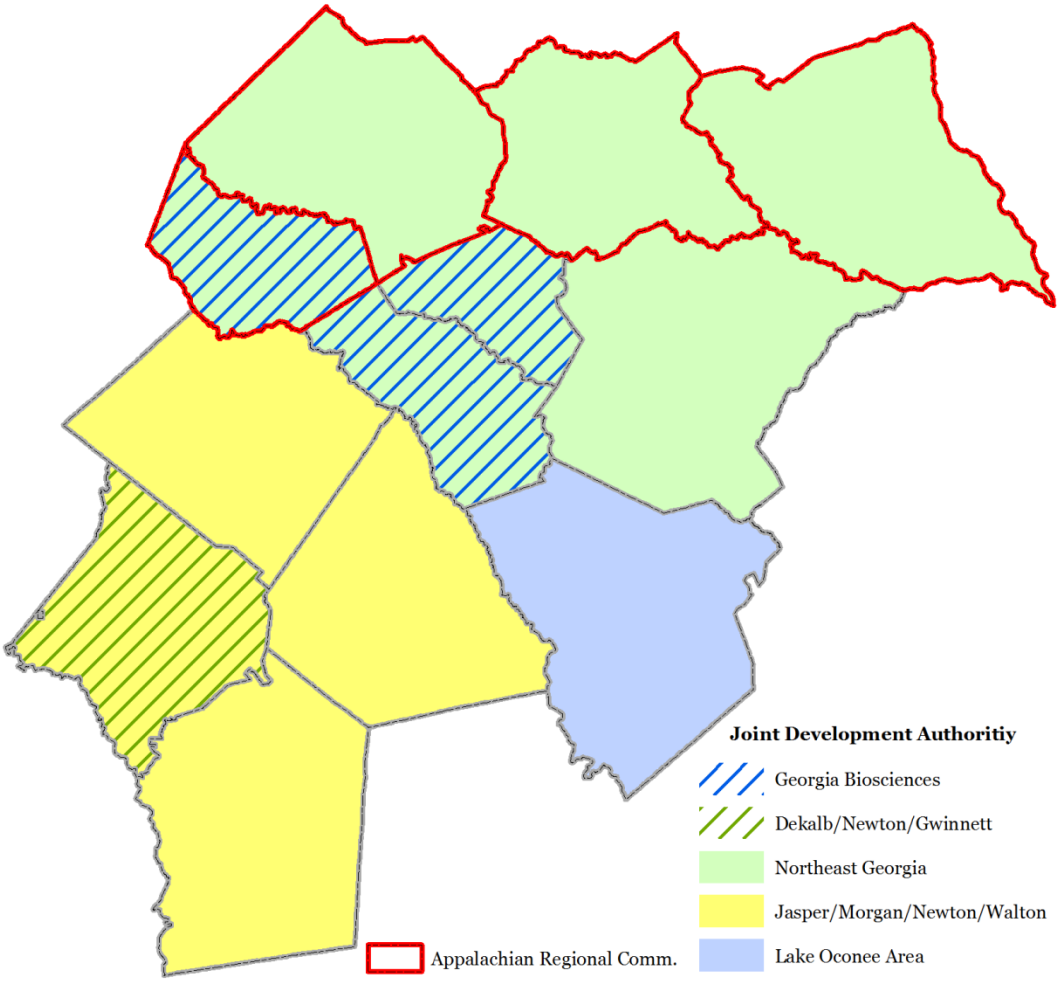
northernmost counties—Barrow, Elbert, Jackson and Madison Counties—fall under the jurisdiction of the **Appalachian Regional Commission** which exists to:

1. *Increase job opportunities and per capita income in Appalachia to reach parity with the nation.*
2. *Strengthen the capacity of the people of Appalachia to compete in the global economy.*
3. *Develop and improve Appalachia's infrastructure to make the Region economically competitive.*
4. *Build the Appalachian Development Highway System to reduce Appalachia's isolation.*[7]

JDAs and the ARC afford Northeast Georgia communities opportunities to formally collaborate with one another on regional initiatives, including those that may be related to the digital economy.

[7] Appalachian Regional Commission, http://www.arc.gov/about/index.asp

Map 2—Joint Development Authorities & Appalachian Regional Commission



Source: NEGRC Databases

Major Employers

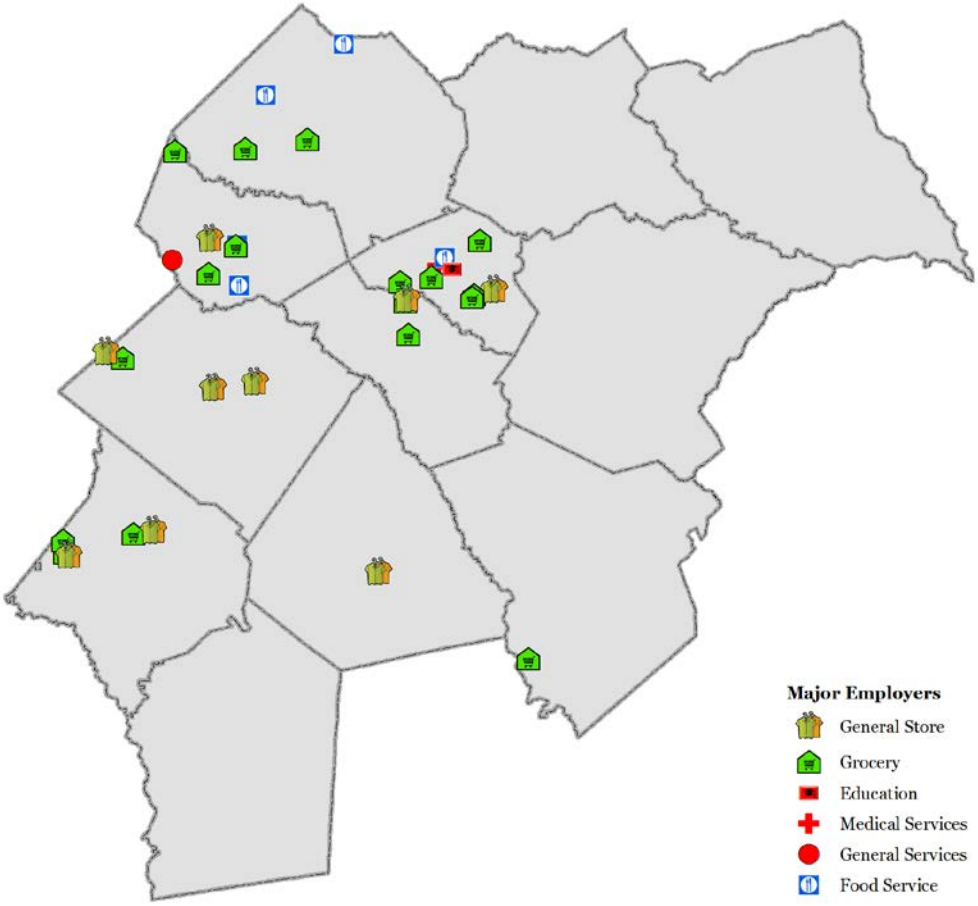
According to the most recent Georgia Department of Labor Area Profile, the ten largest employers in Northeast Georgia in the third quarter of 2013 were as follows (listed alphabetically):

- Athens Regional Medical Center
- Chico's Distribution Services, LLC
- Harrison Poultry, Inc.

- Pilgrim's Pride Corporation
- Publix Supermarkets, Inc.
- The Kroger Company
- The University of Georgia
- Walmart
- Wayne Poultry
- West Side Station*

*No information available on this outside GADOL report.

Map 3—Major Employers



Sources: Georgia Department of Labor Area Labor Profile for Northeast Georgia

Workforce and Demographic Summary

Population Forecasts Through 2030

By 2030, Northeast Georgia is expected to grow substantially in population. Every county is forecast to grow between 2010 and 2030. Athens-Clarke County will cease to be the most populous in Northeast Georgia by 2015, when Newton County is expected to surpass it. By 2030, Athens-Clarke will be the 4th most populous county behind Newton, Walton, and Barrow, respectively. Seven of the twelve counties are forecast to grow at a faster rate than the region (81.8%) during this timeframe. Sometime between 2025 and 2030, the population in Northeast Georgia is forecast to exceed the one million mark.

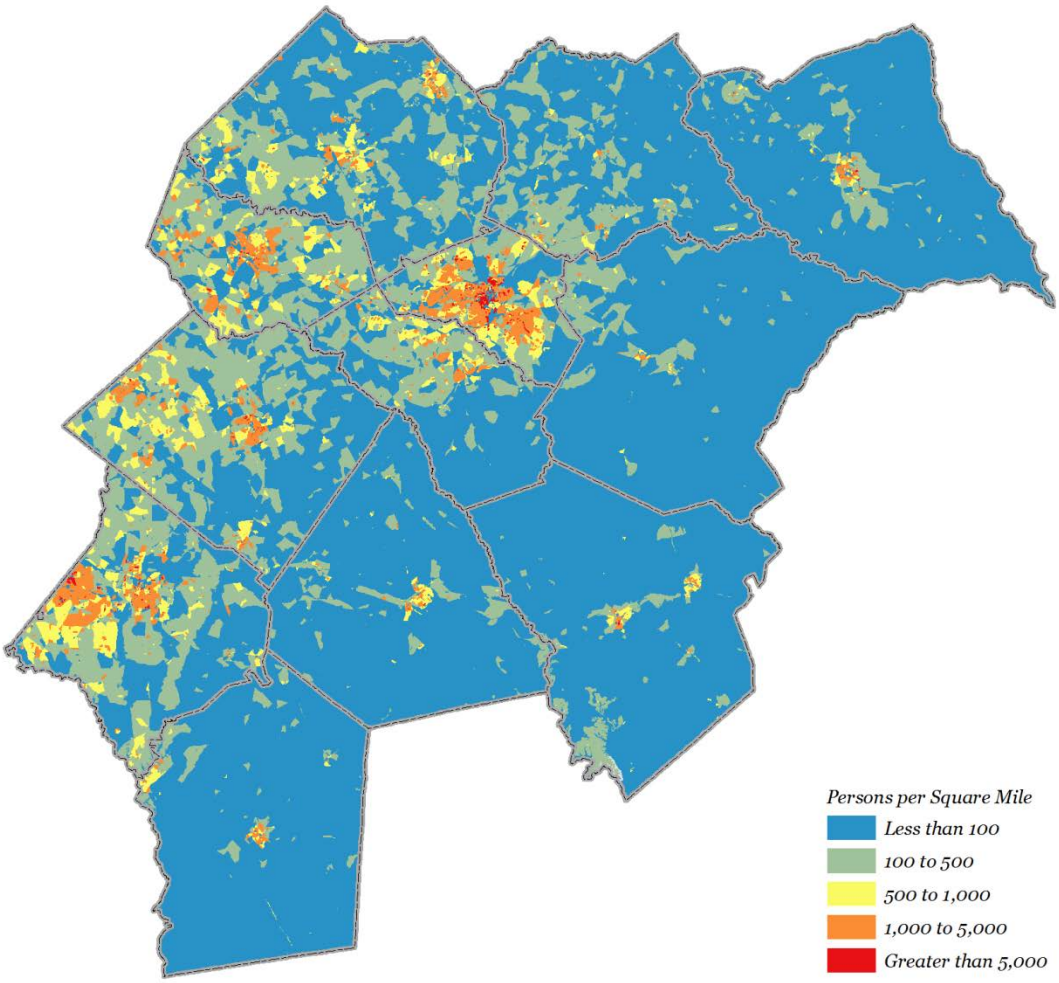
Table 4

County	2010	2015	2020	2025	2030	Rate
Barrow	69,367	90,162	107,798	128,994	151,417	**118.28%**
Clarke	**116,714**	123,967	131,257	139,121	147,373	26.27%
Elbert	20,166	20,906	21,136	21,312	21,427	6.25%
Greene	15,994	18,640	20,971	23,499	26,134	63.40%
Jackson	60,485	77,528	90,713	105,954	123,728	**104.56%**
Jasper	13,900	17,344	20,237	23,572	27,065	**94.71%**
Madison	28,120	31,847	34,796	38,014	41,029	45.91%
Morgan	17,868	22,019	24,787	27,832	31,090	74.00%
Newton	99,958	**129,789**	**157,414**	**191,000**	**227,537**	**127.63%**
Oconee	32,808	41,010	48,233	56,412	65,828	**100.65%**
Oglethorpe	14,899	17,601	20,620	24,127	28,081	**88.48%**
Walton	83,768	103,882	118,742	135,756	153,053	**82.71%**
REGION	574,047	694,695	796,704	915,593	1,043,762	81.83%

Sources: US Census Bureau 2010 Decennial Census; Governor's Office of Planning and Budget "Georgia 2030: Population Projections", March 12, 2010: http://www.georgialibraries.org/lib/construction/georgia_population_projections_march_2010.pdf (last accessed 7/24/2014)

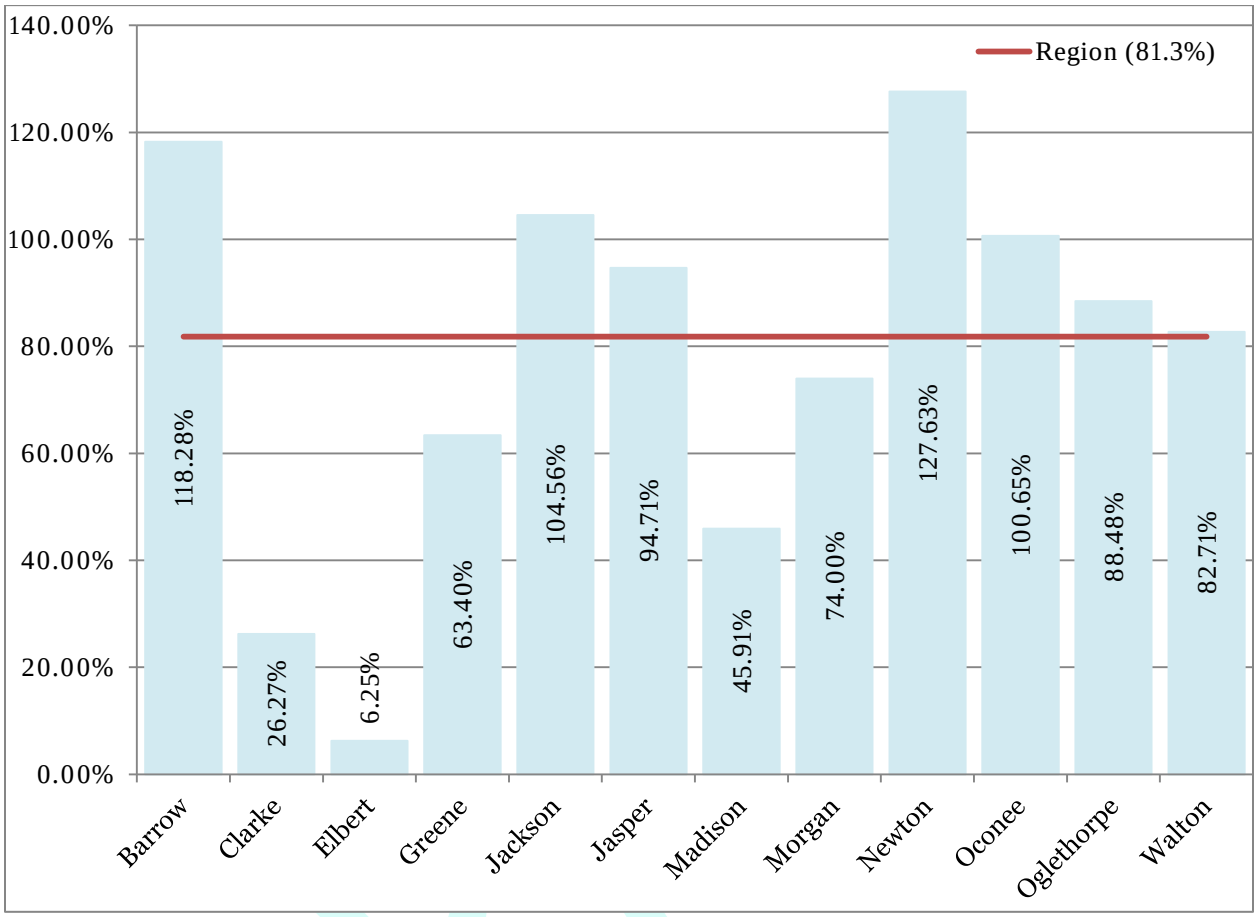
Note: Bold under year forecasts indicates most populous county. Bold under "Rate" indicates those counties forecast to grow at a faster rate than the region (81.83%) during 2010 to 2030.

Map 4—Population Density



Source: US Census Bureau 2010 Decennial Census—Block Level Data

Figure 2



Source: US Census Bureau 2010 Decennial Census; Governor's Office of Planning and Budget "Georgia 2030: Population Projections", March 12, 2010: http://www.georgialibraries.org/lib/construction/georgia_population_projections_march_2010.pdf (last accessed 7/24/2014)

Workforce Summary

Significant gaps exist region-wide in workforce supply (employed persons in the region age 16 and older) and job supply. Only Athens-Clarke County has a positive gap in supply versus demand at +0.4%; slightly more people are coming into Athens-Clarke County for employment than are leaving. The remaining 11 counties see significant portions of their available workforce leaving the county for employment, with several seeing well over half their available work force having to commute outside the county for employment.

Table 5

			Gap	
	Workforce (Supply)	Jobs (Demand)	#	%
Barrow	31,360	16,789	(14,571)	-46.5%
Clarke	64,858	65,091	233	0.4%
Elbert	7,930	5,786	(2,144)	-27.0%
Greene	6,610	5,239	(1,371)	-20.7%
Jackson	25,728	19,498	(6,230)	-24.2%
Jasper	5,703	2,072	(3,631)	-63.7%
Madison	15,101	3,046	(12,055)	-79.8%
Morgan	8,389	5,926	(2,463)	-29.4%
Newton	43,376	20,557	(22,819)	-52.6%
Oconee	18,632	8,981	(9,651)	-51.8%
Oglethorpe	7,732	1,799	(5,933)	-76.7%
Walton	37,198	18,904	(18,294)	-49.2%
REGION	272,617	173,688	(98,929)	-36.3%

Source: Georgia Department of Labor Area Labor Profile (June 2014) for 2012/2013

Educational Attainment

Nearly 26,000 persons were enrolled in the high school in public school systems throughout the Northeast Georgia in the 2012/2013 school year (as of March 1, 2013), and approximately 5,100 graduated. Approximately 82% of the region has completed high school, and slightly under 30% of the region has received an associate's degree or higher. Four counties (Athens-Clarke, Jasper, Newton, and Oconee) have a higher percentage of high school graduates than the region as a whole, though most of the counties sit around the region average. Athens-Clarke and Oconee stand out with approximately 45% each of the population receiving an associate's degree or higher. This is likely attributable to the presence of and proximity to the main campus of the University of Georgia.

Table 6

	High School Graduate or Greater	Associate Degree or Greater
Barrow	79.5%	23.5%
Clarke	**85.1%**	**45.5%**
Elbert	75.9%	16.9%
Greene	76.3%	25.9%
Jackson	79.9%	24.6%
Jasper	**81.8%**	24.5%

Madison	74.6%	17.8%
Morgan	80.2%	**29.9%**
Newton	**84.2%**	26.5%
Oconee	**84.9%**	**45.3%**
Oglethorpe	76.7%	21.8%
Walton	81.1%	25.3%
REGION	81.7%	29.5%

Source: ESRI Business Analyst Online (BAO) "Community Profile" report
Note: Bold text indicates above region's percentage.

By Grade and Age Group (2012)

Table 7

	18-24 Years	25-34 Years	35-44 Years	45-64 Years	65+ Years	All Ages
Elementary	1.9%	4.0%	3.5%	5.1%	14.6%	5.5%
Some High School	12.1%	11.3%	9.1%	11.9%	14.2%	11.7%
High School/GED	30.1%	27.7%	31.5%	33.5%	34.0%	31.6%
Some College	45.9%	22.7%	23.2%	20.8%	15.2%	25.0%
College Grad (2-Year)	2.8%	6.7%	7.5%	6.9%	3.1%	5.7%
College Grad (4-Year)	6.7%	18.2%	15.6%	12.3%	9.6%	12.6%
Post Graduate Studies	0.1%	9.2%	9.6%	9.7%	9.2%	8.0%

Source: U.S. Census Bureau, 2012 American Community Survey (ACS) 5-Year Estimate

High School Graduates (2013)

Statewide, Georgia's public high school graduation rate in 2013, was 71.5%[8]. As a region, Northeast Georgia's high school graduation rate was slightly more than 5% higher than the state average with some wide variations at the county level. Oconee County had a high of 91%, well above both the state and regional average, while Greene County had a rate well below both state and regional averages. Only seven counties had a graduation rate of greater than the statewide average, and only five had a rate of greater than the region wide average.

Table 8

	HS Graduates (2013)*	4 Year Graduation Rate (2013)**	HS Enrollment (2013)*
Barrow	686	72.1%	3,628
Clarke	534	69.5%	2,952
Elbert	155	69.4%	842

[8] Georgia Department of Education, http://www.gadoe.org/External-Affairs-and-Policy/communications/Pages/PressReleaseDetails.aspx?PressView=default&pid=147

Greene	78	60.5%	530
Jackson	652	85.4%	3,115
Jasper	103	69.1%	566
Madison	261	78.1%	1,352
Morgan	202	85.6%	961
Newton	964	71.3%	5,081
Oconee	494	91.0%	2,044
Oglethorpe	134	74.9%	678
Walton	861	78.2%	4,163
REGION	5,124	76.9%	25,912

(*) Public school systems only
Sources: Georgia Department of Education, Enrollment by Ethnicity/Race, Gender and Grade Level (PK-12) for March 1, 2013; Georgia Department of Labor Area Labor Profile (June 2014) for 2012/2013
(**) 2013 4-Year Cohort Graduation Rates with subgroup file available from the Georgia Department of Education.

Educational and Workforce Development Resources

Northeast Georgia has a wealth of educational resources, with fourteen college and university campuses in 10 different cities (in 9 out of 12 counties). In addition to the University of Georgia in Athens, the region also plays host to three technical college systems (Athens Tech, Georgia Piedmont Tech, Southern Crescent Tech, and Lanier Tech). Newton County contains a branch of Emory University (Oxford College) and Troy University, an Alabama-based university with campuses in seven other states (Alabama and Georgia, as well as Florida, North Carolina, South Carolina, Tennessee, Texas, and Virginia) as well as three international locations in Japan, South Korea, and Vietnam. The region also has 140 public[9] and 8 private[10] K-12 schools as of the 2012/13 school year.

College/University	Location
University of Georgia	Athens
Athens Technical College (Main Campus)	Athens
Athens Technical College (Elbert)	Elberton
Athens Technical College (Greene)	Greensboro
Athens Technical College (Walton)	Monroe
Piedmont College	Athens
Oxford College of Emory University	Oxford
Troy University	Covington
Georgia Perimeter College	Covington
Georgia Piedmont Technical College	Covington
University of North Georgia	Watkinsville

[9] Georgia Department of Education
[10] Georgia Independent School Association

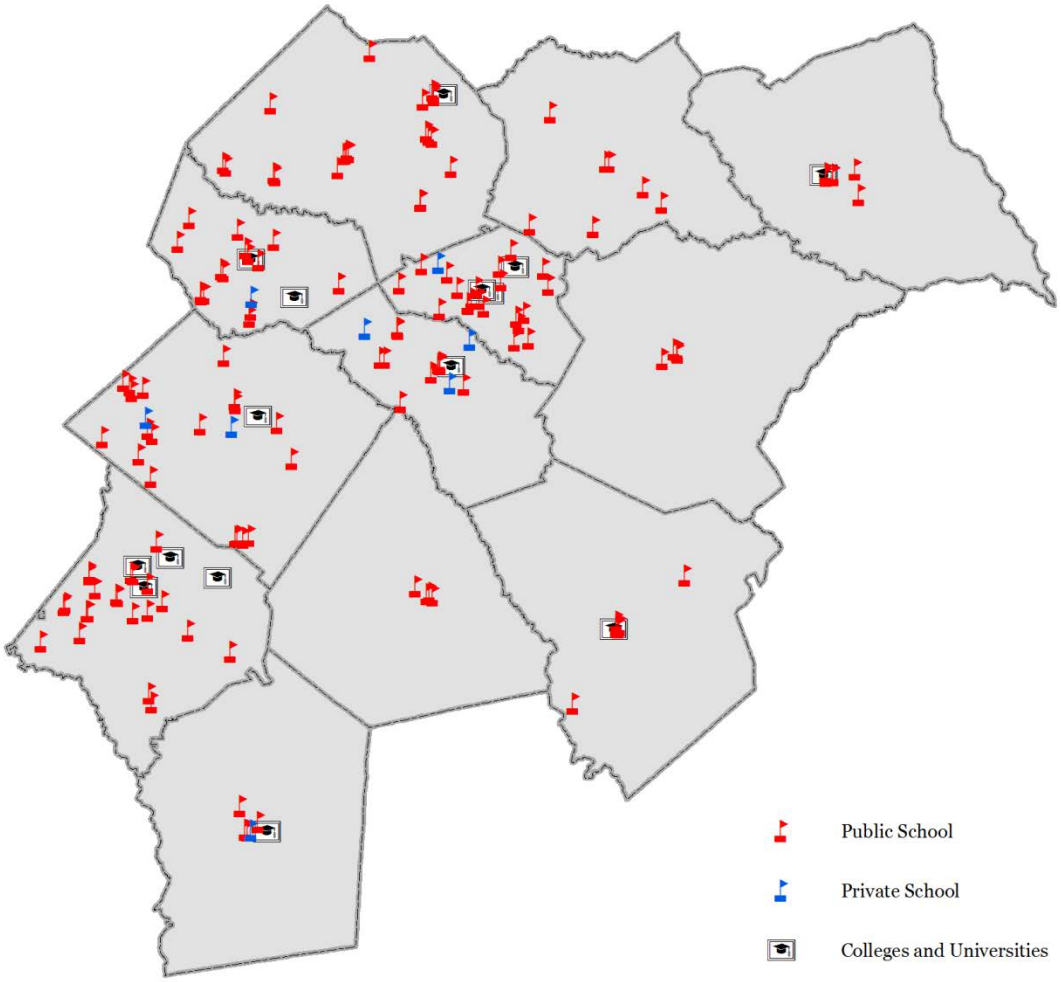
Lanier Technical College (Jackson)	Commerce
Lanier Technical College (Barrow)	Winder
Southern Crescent Tech (Jasper)	Monticello

Sources: Northeast Georgia Plan 2035: Regional Assessment 2011; 2012 Northeast Georgia Comprehensive Economic Development Strategy; Technical College System of Georgia.

In 2012, the University of Georgia opened a standalone College of Engineering, and more than 1,000 students are enrolled in one of the eight undergraduate degree programs currently offered, including a Bachelor of Science in Computer Systems Engineering. The new college also offers seven graduate-level engineering programs.[11]

[11] UGA College of Engineering, http://www.engineering.uga.edu/college-engineering.

Map 5—Educational Resources



Sources: Technical College System of Georgia; Georgia Department of Education; Georgia Independent Schools Association; NEGRC databases.

Several programs at the technical colleges have seen significant increases in numbers, greater than 100%, of graduates from 2011 to 2013. The greatest increase has been in Emergency Medical Technicians (or Paramedics) at over 600% and Health Information/Medical Records Technology at over 500%, likely due to the 2010 opening of Medical College of Georgia campus in Athens. Additionally, Data Processing Technology also saw significant growth of nearly 300%, though it's difficult to determine what is driving this growth. Fully one third of the thirty total businesses in the region which are considered "Data Processing"[12] are single employee

[12] NAICS Code 518210, "Data Processing, Hosting and Related Services"

companies and such businesses only employee 77 people or 0.04% of the available jobs in the region.[13]

Table 9

Tech College Program	2011	2013	% Change
Automobile/Automotive Mechanics Technology/Technician	1,375	2,481	**80.4%**
Business Administration and Management, General	226	477	**111.1%**
Carpentry/Carpenter	9	19	**111.1%**
Criminal Justice/Safety Studies	842	1,705	**102.5%**
Data Processing and Data Processing Technology/Technician	138	530	**284.1%**
Emergency Medical Technology/Technician (EMT Paramedic)	124	889	**616.9%**
Health Information/Medical Records Technology/Technician	24	146	**508.3%**
Hospitality Administration/Management, General	168	308	**83.3%**
Human Resources Management/Personnel Administration, General	64	146	**128.1%**
Machine Shop Technology/Assistant	232	396	**70.7%**

Source: Georgia Department of Labor Area Labor Profile (June 2014) for 2012/2013

Career centers for workforce development are located in Athens, Greensboro and Covington. The NEGRC Workforce Development Division lists several providers for workforce development training throughout the region as of June 2014.

Table 10

Workforce Training	Location
Athens Technical College	Athens
Bread for Life	Watkinsville
CDL of Georgia	Winder
Georgia Perimeter College	Covington
Georgia Piedmont Technical College	Covington
Goodwill of North Georgia	Athens
Lanier Technical College	Winder
Northeast Georgia RESA	Winterville
University of Georgia	Athens

(for more information about specific details and programs offered at these locations, see: http://www.negrc.org/user_files//1402596825_WIA%20NE%20GA%20EPL%206.10.14.pdf)

Computer Utilization and Digital Readiness

In 2013, approximately 72% (153,679) of the region's 213,096 households had a personal computer, approximately 83% (372,666) and approximately 54% (243,217) of the region's adult population has internet access and broadband at home, respectively. One significant finding from this data is that the percent of the population that has internet access is, in each county,

[13] Dun and Bradstreet Report available on ESRI's Business Analyst Online (BAO) for the region.

higher (and in some cases, significantly higher at greater than 10%) than those who have personal computers (PC) at home. This likely is because access to internet is attributed not only to internet access at home, but also at work, school, libraries, smart phones, and internet capable tablet PCs.

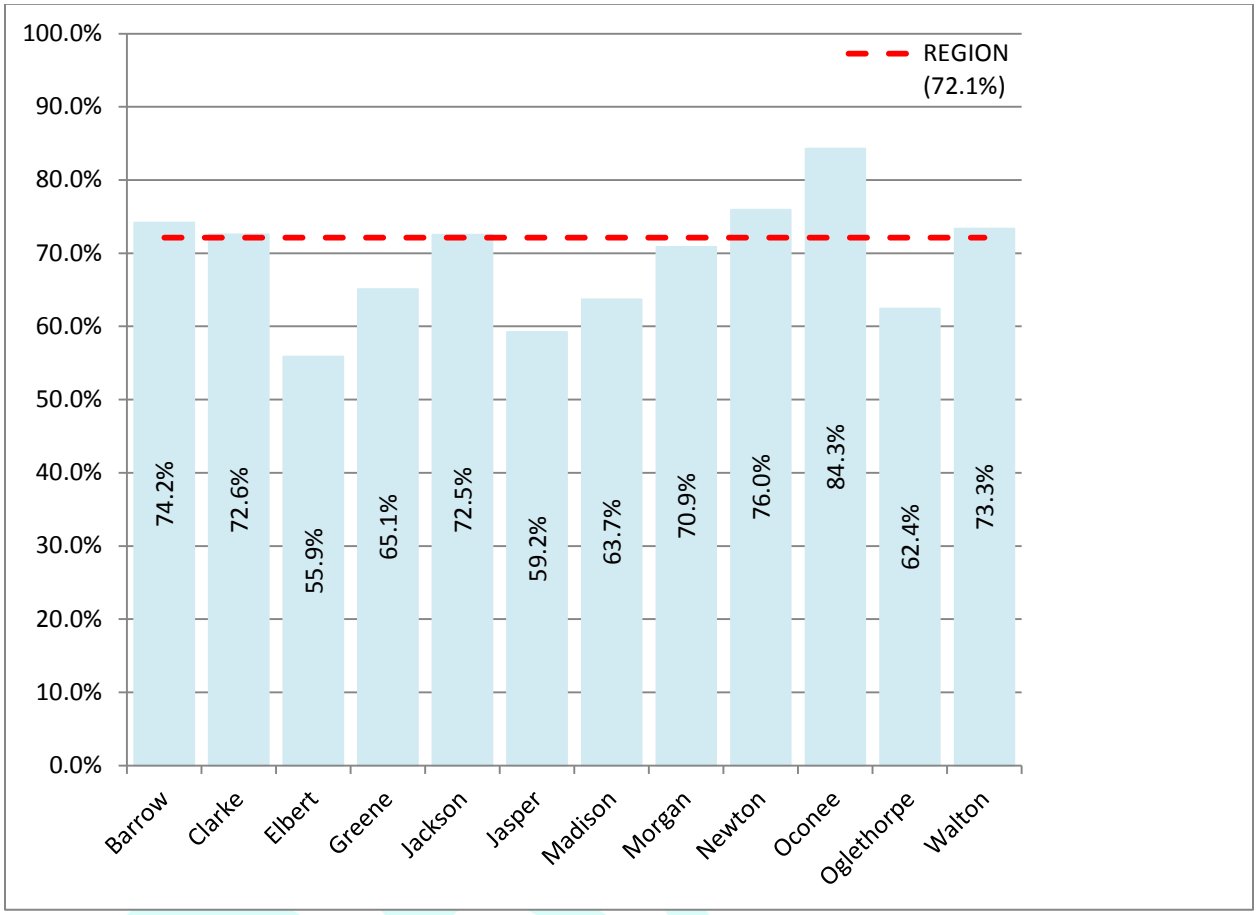
Table 11

	Households	Adult Population	Household Has Personal Computer		Adult Population Has Internet Access		Adult Population Has Broadband at Home	
Barrow	24,665	51,890	18,297	74.2%	44,078	84.9%	28,845	55.6%
Clarke	46,279	98,393	33,582	72.6%	84,446	85.8%	60,037	61.0%
Elbert	8,090	15,634	4,520	55.9%	10,915	69.8%	5,429	34.7%
Greene	6,791	13,295	4,419	65.1%	10,143	76.3%	5,919	44.5%
Jackson	21,872	46,219	15,859	72.5%	38,449	83.2%	23,969	51.9%
Jasper	5,039	10,540	2,984	59.2%	7,611	72.2%	3,922	37.2%
Madison	10,697	22,097	6,814	63.7%	16,711	75.6%	8,765	39.7%
Morgan	6,759	13,873	4,790	70.9%	11,372	82.0%	6,489	46.8%
Newton	34,960	73,724	26,553	76.0%	63,336	85.9%	43,435	58.9%
Oconee	12,062	25,183	10,167	84.3%	23,009	91.4%	17,288	68.6%
Oglethorpe	5,701	11,679	3,559	62.4%	8,666	74.2%	4,504	38.6%
Walton	30,181	63,416	22,135	73.3%	53,930	85.0%	34,615	54.6%
REGION	213,096	445,943	153,679	72.1%	372,666	83.6%	243,217	54.5%

Source: ESRI Business Analyst Online (BAO) "Electronics and Internet Market Potential" report

Household has Personal Computer

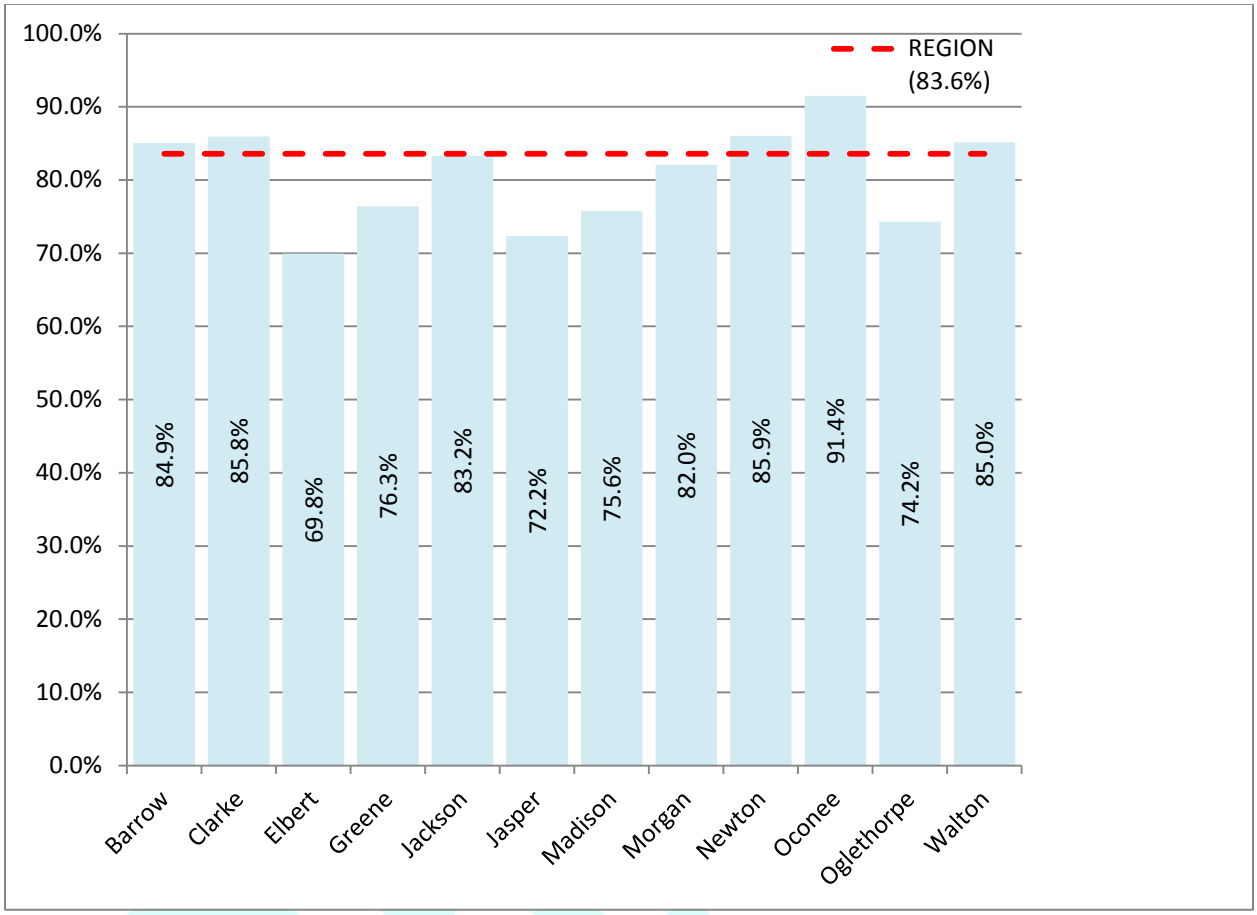
Figure 3



Source: ESRI Business Analyst Online (BAO) "Electronics and Internet Market Potential" report for the region.

Adult Population has Internet Access

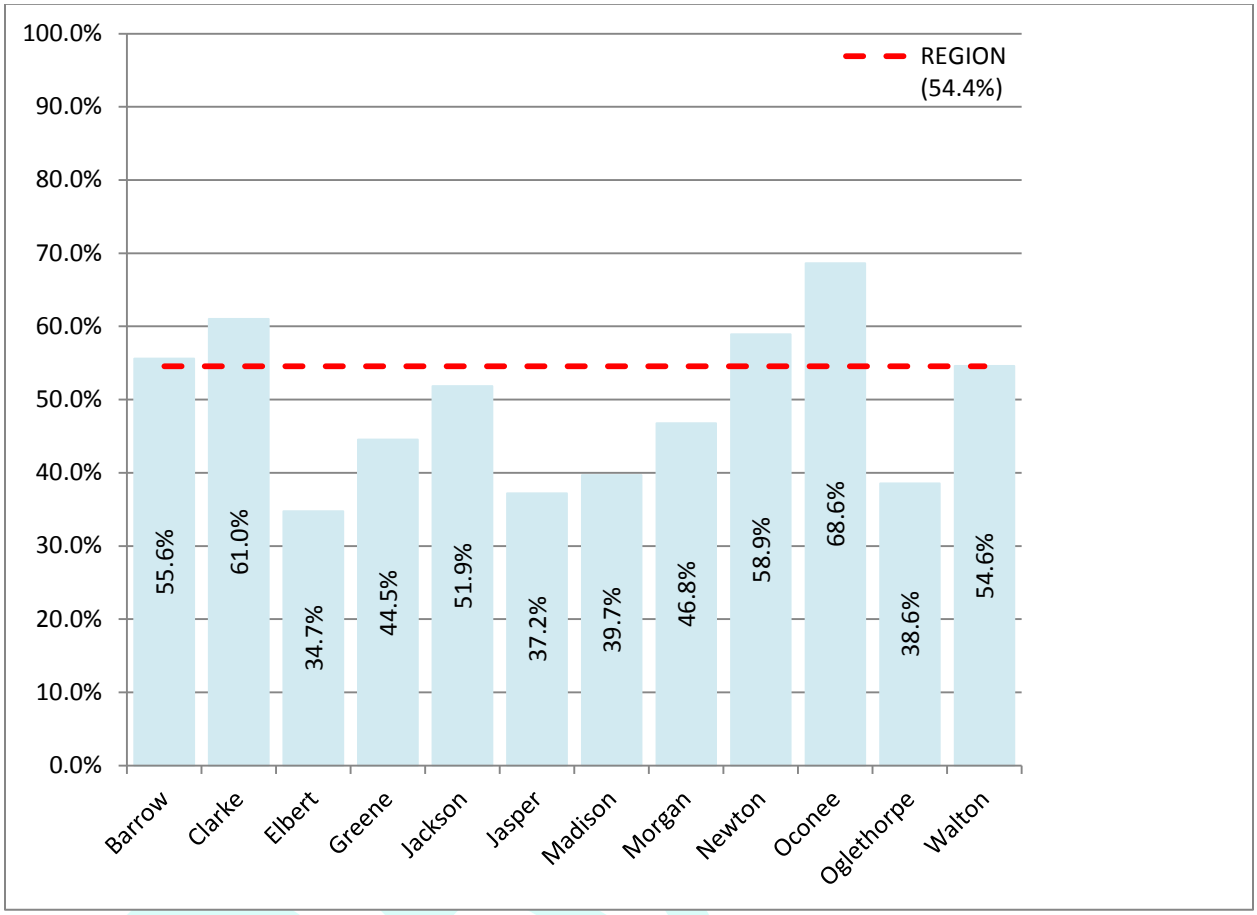
Figure 4



Source: ESRI Business Analyst Online (BAO) "Electronics and Internet Market Potential" report for the region.

Adult Population has Broadband Access at Home

Figure 5



Source: ESRI Business Analyst Online (BAO) "Electronics and Internet Market Potential" report for the region.

Infrastructure

Broadband Service Providers

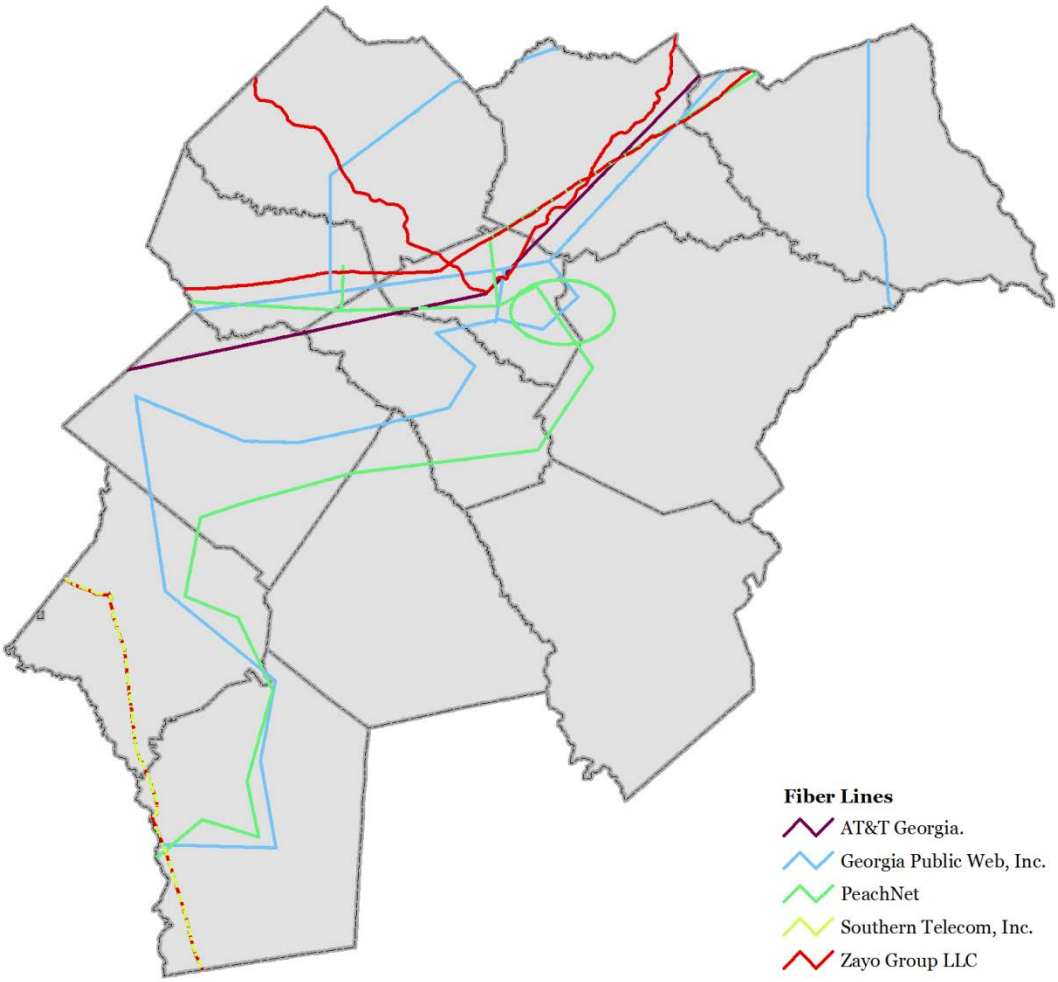
According to data provided by the Georgia Technology Authority, there are a total of 27 internet services providers (ISPs) within Northeast Georgia, including cellular companies. Of these ISPs, two are municipal governments (Elberton and Monroe).

Table 12

Provider	Location (HQ)
AT&T	Dallas, TX
AT&T Mobility, LLC	Dallas, TX
Advanced Technology Group	Atlanta, GA
Bulldog Cable Georgia, LLC	Watkinsville, GA
Charter Communications, Inc.	Stamford, CT
Clearwire Corporation	Kirkland, WA
Comcast	Philadelphia, PA
ElbertonNET	Elberton, GA
Georgia Public Web*	Sandy Springs, GA
Hart Telephone Company	Hartwell, GA
HughesNET	Germantown, MD
Level 3 Communications, LLC	Broomfield, CO
Megapath Corporation	Costa Mesa, CA
Metro PCS	Bellvue, WA
MonroeAccess.net	Monroe, GA
Parker Fibernet*	Summerville, GA
Plantation Cablevision, Inc.	Eatonton, GA
Public Service Data Wireless	Reynolds, GA
Skycasters	Akron, OH
Southern Telecom, LLC*	Atlanta, GA
Sprint	Overland Park, KS
Starband Communications	McLean, VA
T-Mobile	Bonn, Germany
TruVista	Chester, SC
Verizon Wireless	Bedminster, NJ
ViaSat, Inc.	Carlsbad, CA
Wilkes Telephone & Electric Co.	Washington, GA
Windstream	Little Rock, AR
XO Communications Services, Inc.	Herndon, VA
Zayo Group*	Boulder, CO

*Participation in the State Broadband Mapping Initiative is voluntary, and these broadband service providers opted not to share data with the Georgia Technology Authority and Sanborn Map Company. NEGRC staff met with a representative from Georgia Public Web, a nonprofit provider, to learn about the services offered by the organization.

Map 6—Fiber Lines in Region



Source: Georgia Technology Authority Middle Mile Database

Key Broadband Strengths

According to available provider data, the region is well covered in terms of both wireless and wireline internet connectivity.[14] Less than 0.02% of the region's population (or approximately 100 persons) lack wireless coverage and only slightly over 5% of the region lacks access to wireline coverage. This figure was calculated using in a GIS using ESRI's desktop software by

[14] "Since the census block is the smallest geographic unit for which the U.S. Census collects aggregate data, if a provider offers availability to any location within a census block less than two square miles, we estimate household or population coverage will include the entire block, even though it is possible that some areas are not covered." Retrieved on July 29, 2014 from the Technical Overview page of the National Broadband Map website at http://www.broadbandmap.gov/about/technical-overview/assembling-the-data.

creating a coverage file of wireless internet access in the region from GTA, overlaying it on U.S. Census Bureau block level data, and selecting those blocks that did not intersect the broadband coverage file. This is reflected by questionnaire responses; 99% of respondents to the business questionnaire have access to internet at their location. Similarly, nearly 100% of respondents to the residential questionnaire have an internet-enabled device at home. Additionally, two cities in the region—Elberton and Monroe—offer municipal broadband access to its residences.

Areas in Need

Regionally, while nearly 13% of the land area lacks access to any broadband (defined by GTA as having a maximum advertised download speed of 3Mbps or greater), this only accounts for slightly over 1% of the total population. So in terms of access to broadband internet, the region is pretty well covered. Gaps still exist, and infrastructure could stand to be improved to cover this roughly 477 square mile and 6,300 population gap. More notable, however, is lack of access to *adequate* broadband for individual/residential needs, and institutional/business needs. To determine what qualified as adequate and inadequate, the following information was consulted, adapted from the New America Foundation[15]:

Table 13

Bandwidth Needs of Individual Broadband Applications

	56Kbps	768Kbps	1Mbps	10Mbps	20Mbps	50Mbps	100Mbps	1Gbps
				ADEQUATE				
Download MP3 Music File (4MB)	Poor (10 min)	OK (42 sec)	Good (32 sec)	Good (3 sec)	Best (1 sec)			
Online Software Purchase (500MB)	Poor (20 hrs)	Poor (87 min)	Poor (67 min)	OK (7 min)	Good (4 min)	Good (80 sec)	Good (40 sec)	Best (1 sec)
HD Movie Download (5GB)	Poor (9 days)	Poor (15 hrs)	Poor (12 hrs)	Poor (67 min)	OK (34 min)	Good (14 min)	Good (7 min)	Best 40 sec)
Skype Video Call	Poor	OK	Good	Best				
Stream HD Video	Poor		OK	Good	Best			

Bandwidth Needs of Institutional Broadband Applications

	56Kbps	768Kbps	1Mbps	10Mbps	20Mbps	50Mbps	100Mbps	1Gbps
						ADEQUATE		
Video Conference Between Two Users	Poor	OK		Good	Best			
Online Higher Education Courses	Poor			OK	Good	Best		
Video Conference with several users	Poor			OK	Good	Best		

[15] Benjamin Lennett, Patrick Lucey. (May 6, 2014). The Art of the Possible: An Overview of Public Broadband Options. *New America Foundation.* http://oti.newamerica.net/publications/policy/the_art_of_the_possible_an_overview_of_public_broadband_options.

Infrastructure

Telehealth (remote X-Rays, HD video consultations	Poor	Good	Best

For the purposes of analyzing areas in need of improved broadband infrastructure, NEGRC staff set a threshold of 10 Mbps and greater for individual/residential needs, which sets most applications at "Good" or better. For institutional/business applications, a 50 Mbps and greater threshold was established. For individual/residential applications, approximately 45% of the total area, and approximately 9% of the total population, lacks adequate bandwidth access (or lacks broadband access entirely). Most areas that lack adequate broadband bandwidth are in the eastern, more rural, counties, including Elbert, Madison, Oglethorpe, Morgan, Greene, Jasper, and southern Oconee (an area between SR 15, and US Highway 129 / SR 441, south of Watkinsville), with pockets in Barrow, Jackson, Athens-Clarke, Walton, Newton, and the remaining portion of Oconee County. For business applications, approximately 62% of the total area, and approximately 20% of the total population, lacks adequate bandwidth access (or lacks broadband access entirely). These areas are geographically similar to those lacking adequate broadband for individual/residential use, but encompass larger swaths of the counties.

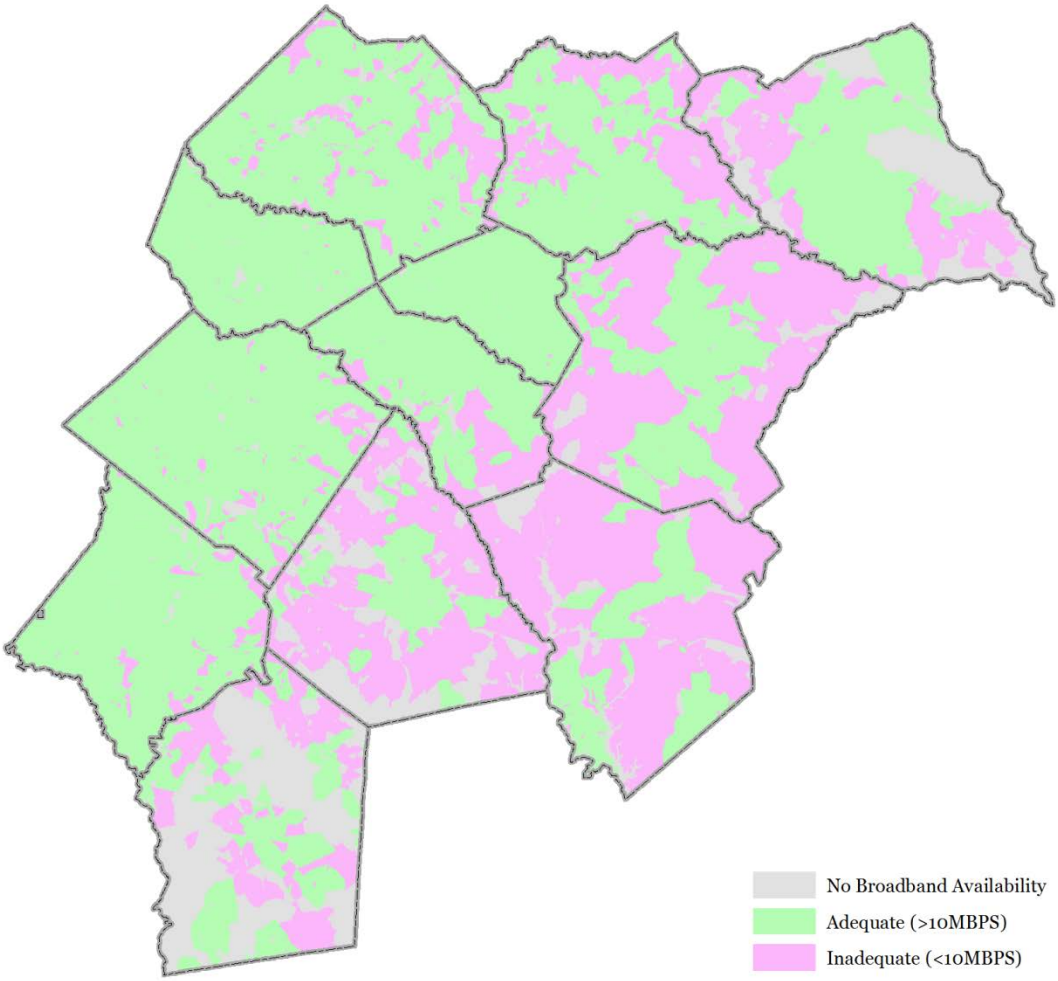
Table 14

	Total Area (sq. mi)	**Area with Adequate Bandwidth (sq. mi)**	**Area Lacking Adequate Bandwidth (sq. mi)**	**Area Lacking *Any* Broadband (sq. mi)**	**% of Area of Inadequate/ No Bandwidth**
Individual/ Residential Applications	3,665	2,007	1,183	476	45.3%
Institutional/ Business Application	3,665	1,405	1,785	476	61.7%

Table 15

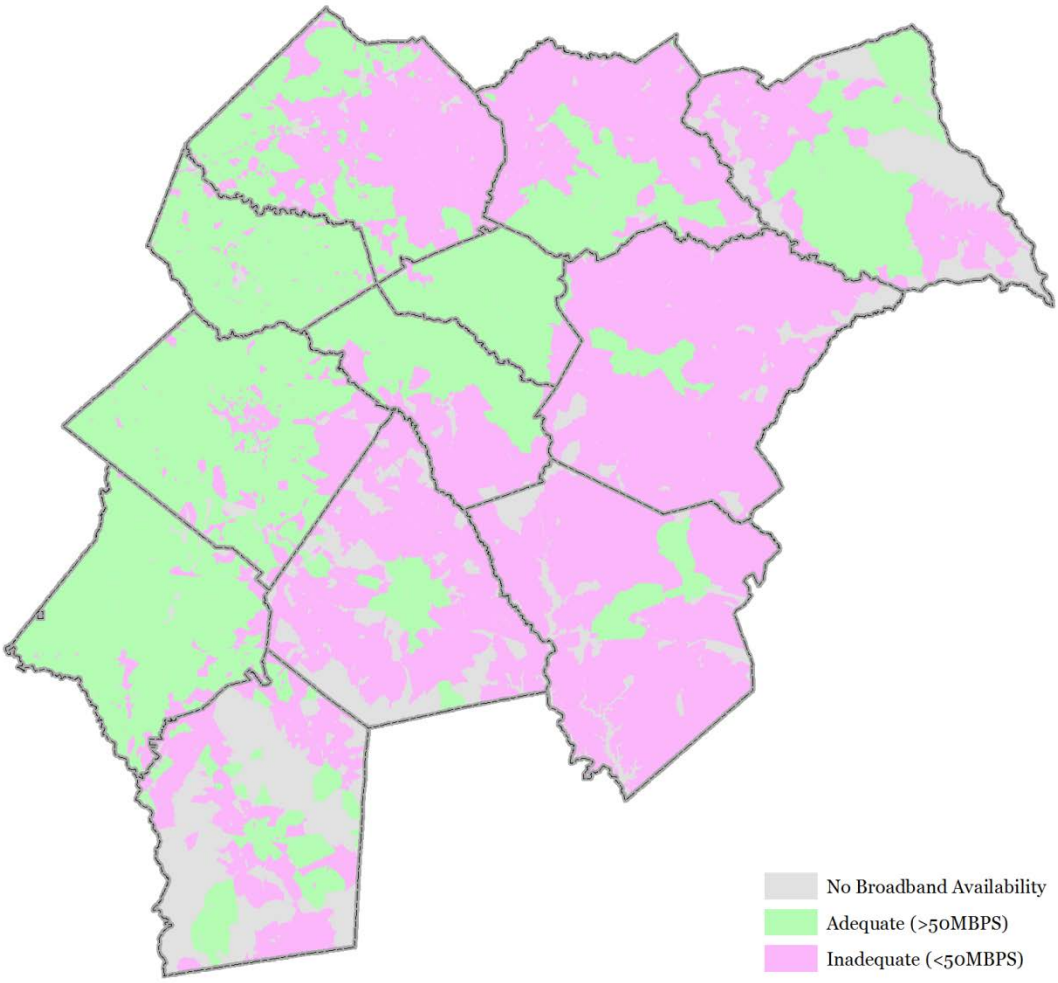
	Total Population (2010)	**Population with Adequate Bandwidth**	**Population Lacking Adequate Bandwidth**	**Population Lacking *Any* Broadband**	**% of Population w/ Inadequate/ No Broadband**
Individual/ Residential Applications	574,047	522,714	45,068	6,265	8.9%
Institutional/ Business Application	574,047	457,711	110,071	6,265	20.3%

Map 7—Adequate Broadband for Individual/Residential Applications



Source: Georgia Normalized Broadband Database (Dataset 8--December 2013)

Map 8— Adequate Broadband for Business Applications



Source: Georgia Normalized Broadband Database (Dataset 8--December 2013)

Key Broadband Weaknesses

According to available provider data, sizable swaths—greater than 10% of the land area—of half of the counties in the region, mostly the more rural eastern counties, lack wireline broadband connectivity. Approximately 45% of all connections in the region are via DSL. Cable internet connectivity is relegated chiefly to the western, more urban, counties. There is also a lack of choice throughout the region. In most counties, there are two main competing ISPs. Similarly, there is limited choice of broadband type for businesses and residences based on their location. The questionnaires indicate that there are a fair number of issues with consistency in connectivity. Fifty-one percent of business and 43% of residential respondents

recently experienced non-weather related service disruptions lasting from one hour to one day. Additionally, less than half of residential respondents to the questionnaire think their internet speed is "OK" or better, while nearly one-quarter find it to be slow or "severely limiting".

Potential Partners for Infrastructure

The United States Department of Agriculture (USDA) provides several opportunities for infrastructure development in the form of grants and loans, primarily geared towards rural counties—defined as having a population of less than 35,000, seven of which are in the region as of April 2014.[16]

The Georgia Department of Community Affairs (DCA) offers grants through several different programs for infrastructure and equipment purchases for governments, and governmental authorities.

The Appalachian Regional Commission (ARC) offers infrastructure grants for the governments within its jurisdiction, four counties and twenty-three cities of which are in the Northeast Georgia Regional Commission area.

The University of Georgia, and Georgia Institute of Technology operate university accelerators which offer various grants, loans, and awards for seed and early-stage capital for student and faculty entrepreneurs in technology, biotechnology, and life sciences.

The United States Department of Commerce's Economic Development Administration (EDA) offers grants for infrastructure improvement for governmental entities.

The Georgia Department of Education/Governor's Office of Student Achievement—Connections for Classrooms offers grants for infrastructure improvements for Public Local Educational Agencies (LEAs)—in other words, school districts.

Other Infrastructure Resources

Four Athens is a technology incubator located in downtown Athens-Clarke County. It was formed to provide physical workspace, shared amenities, mentorship, and guidance to technology-related business start-ups.

The Georgia BioBusiness Center (GBBC) is a bioscience and technology incubator located on the main University of Georgia campus in Athens-Clarke County. With a focus on academic entrepreneurship, the GBBC encourages "the commercialization of UGA faculty, staff, and student discoveries in the fields of medicine, agriculture, bioinformatics and environmental science." (sourced on 6/30/14 from http://www.ovpr.uga.edu/gbbc/)

The New Media Institute (NMI) is a teaching and research unit within the University of Georgia Grady College of Journalism and Mass Communication with a focus on digital media technology. The NMI offers a New Media Interdisciplinary Certificate, demonstrating to future employers a mastery of technology as applied within a student's chosen field.

[16] Madison, Oglethorpe, Elbert, Oconee, Morgan, Greene, and Jasper.

Infrastructure

A number of other private initiatives, investment funds, and independent not for profit groups offer discounts, grants, and matching funds for technology infrastructure development, primarily in rural counties. [17]

[17] For more information about these, please refer to the funding sources section of this document.

Capital

Technology-Related Venture Capital Investments

Based upon data retrieved from GTA via the CB Insights venture capital database, the following investments within the Northeast Georgia region are highlighted as being specifically technology-related. This is not an exhaustive list; however, outreach to other sources did not result in additional information on venture capital investments.

Table 16

Company	Company Description	City	Sector	Industry	Investors
Abeome	Abeome is a biotechnology firm dedicated to leveraging its technology that aims to enhance the speed, efficiency and stability of developing and producing monoclonal antibodies.	Athens	Healthcare	Biotechnology	Advanced Technology Development Center; Georgia Venture Partners
Bacterial Barcodes	Bacterial Barcodes is a subsidiary of Biomeriux Inc. and aims to provide the equipment, reagents and software for microbial genotyping of bacteria and fungi. Packaged together, these components are referred to as the DiversiLab System	Athens	Industrial	Machinery & Equipment	Spectral Genomics
Body Surface Translations	Body Surface Translations is a biomedical device company focused on discovery and marketing of imaging technology that can be used to estimate the weight of an animal. The initial target markets will be agribusiness (swine and cattle) but opportunities in other aspects of agriculture and human health are envisioned as well.	Athens	Healthcare	Medical Devices & Equipment	Georgia BioBusiness Center
Evirx	Evirx, was formed to commercialize technology based solutions for human performance assessment and accountability (HPAA). Its lead product, Video Analysis Tool (VAT) combines customizable live video and commentary or assessment tools.	Athens	Computer Hardware & Services	Specialty Computer Hardware	Georgia BioBusiness Center
Eyelevel Interactive	Eyelevel Interactive offers EI Tag, a branded MAC (mobile action code) that allow consumers to interact with a campaign or promotion displayed on a uniform by linking it to any desired URL.	Greensboro	Mobile & Telecom-munications	Mobile Software & Services	Undisclosed Investors

Millenium Cryogenics	Millenium Cryogenics, Inc. aims to provide critical infrastructure needs of the biotech and biomedical industries for the protection and safe storage of valuable biological samples.	Athens	Healthcare	Biotechnology	Georgia BioBusiness Center
Natural Science Enterprises	Natural Science Enterprises Inc. is a research and development group dedicated t the understanding of basic biochemical processes with an emphasis on application for treatments. The company has developed a technology platform, a cationic sub-micron emulsion, allowing for a broad pipeline of products for addressing major conditions as well as orphan diseases.	Athens	Healthcare	Drug Discovery	Georgia BioBusiness Center
P3 Laboratories	P3 Laboratories aims to provide consulting, development, production, and post-marketing technical support to the pharmaceutical industry for the development of niche products.	Winder	Business Products & Services	Consulting & Outsourcing	Georgia BioBusiness Center
Powers Partners	Powers Partners is a manufacturer of overhead distribution transformers, serving utility, industrial and commercial customers in North America, Central America, Mexico, the Caribbean and other markets.	Athens	Energy & Utilities	Electric	Undisclosed Investors
Utility Associates	Utility Associates develops and markets software/hardware, turnkey solutions that enable customers with large mobile workforces to significantly increase field operational efficiency and reduce energy consumption.	Covington	Mobile & Telecom-munications	Mobile Software & Services	Braemar Energy Ventures

Table 17

Funding Sources

Funding Source	Source Type	Funding Type	Eligible Project(s)	Eligible Applicant(s)
Georgia Department of Community Affairs – One Georgia Equity	State	Grant	Infrastructure	Governments and government authorities, including multi-county authorities
Georgia Department of Community Affairs – One Georgia EDGE	State	Grant	Infrastructure and equipment	Governments and government authorities, including multi-county authorities
Appalachian Regional Commission (ARC)	Federal	Grant	Infrastructure	Governments located in Barrow, Elbert, Jackson, and Madison counties
U.S. Department of Agriculture (USDA) – Community Connect	Federal	Grant	Infrastructure	Rural governments, nonprofit organizations, for-profit companies
U.S. Department of Agriculture (USDA) – Distance Learning & Telemedicine	Federal	Grant	Infrastructure	Rural governments, nonprofit organizations, for-profit companies providing education and medical care
U.S. Department of Agriculture (USDA) – Telecommunications Infrastructure Loan Program	Federal	Loan	Infrastructure	Rural governments, nonprofit organizations, for-profit companies providing telephone services
U.S. Department of Agriculture (USDA) – Expansion of 911 Access Loan Program (through Telecommunications Infrastructure Loan Program)	Federal	Loan	Emergency communications equipment	Rural governments, nonprofit organizations, for-profit emergency communications equipment providers
U.S. Department of Commerce Economic Development Administration (EDA)	Federal	Grant	Infrastructure	Governments
Georgia Partnership for Telehealth – Rural School-Based Telehealth Center Initiative	Independent Nonprofit	Grant	Telemedicine equipment	Nonprofit health centers located in defined Rural Counties [18]
Universal Service Administrative Company (USAC) – Rural Health Care (RHC) Program	Independent Nonprofit	Discount	Tele-communications services	Healthcare Providers (HCPs) located in defined Rural Areas [19]
Athens Angel Fund	Investment Fund	Equity	Early-stage capital	Technology-based start-up companies in the Southeast U.S.

[18] Georgia's Rural Counties as identified by the State Office of Rural Health: https://dch.georgia.gov/sites/dch.georgia.gov/files/related_files/document/Georgia%27s%20Rural%20Counties-April%202014.pdf.

[19] Eligible Rural Areas search-by-state tool: http://www.usac.org/rhc/telecommunications/tools/Rural/search/search.asp.

Capital

Funding Source	Source Type	Funding Type	Eligible Project(s)	Eligible Applicant(s)
Atlanta Technology Angels	Investment Group	Equity	Early-stage capital	Technology-based start-up companies in the Southeast U.S.
Georgia BioBusiness Center Venture Lab (University of Georgia)*	University Accelerator	Grant, Award, Loan	Seed and early-stage capital	UGA faculty entrepreneurs in biotechnology and life sciences sectors
Georgia Venture Partners	Investment Fund	Equity	Seed and early-stage capital	Life science companies with a focus on those located in Georgia
Advanced Technology Development Center Venture Lab (Georgia Tech)	University Accelerator	Grant, Award	Seed and early-stage capital	Georgia Tech student and faculty entrepreneurs in technology
Georgia Department of Education, Governor's Office of Student Achievement – Connections for Classrooms	State	Grant	Infrastructure	Public Local Educational Agencies (LEAs)
ConnectED Initiative	Private	Grant	Software and training	Schools may apply for software and training grants through private company participants in the Federal initiative[20]

*The Georgia BioBusiness Center Venture Lab at UGA uniquely provides funding to UGA faculty; most faculty members are based at the main campus in Athens-Clarke County.

[20] Additional information on the White House ConnectED Initiative: http://www.whitehouse.gov/issues/education/k-12/connected#schools.

Current Project Highlights

The following section describes ongoing or recent digital economy-related projects within the Northeast Georgia region. Each is identified by type:

- "E" = Education/Workforce
- "I" = Infrastructure
- "C" = Capital

The North Georgia Network is proposing to create a fiber route that will travel through Hart, Stephens, Franklin, and other counties in the Georgia Mountains region and Madison, Jackson and Barrow counties in the Northeast Georgia region to metro Atlanta. The Joint Development Authority of Franklin, Hart and Stephens Counties is partnering with TruVista, and is currently seeking funding through the One Georgia Equity Fund program to construct the fiber line between the lateral termination point in Hart County (a substation just south of Royston in Hart County) and Atlanta.

Project type: I

Upload Newton was organized for the first time in February 2014 by The Center for Community Preservation and Planning to be a one-day challenge for independent developers and designers to serve local businesses' web-based needs. Three challenge options were available for participants: design a logo for Franklin Restoration, build a basic website for Church of the Good Shepherd, or develop a mobile application prototype for the Rockdale/Covington News.

Project type: E, C

Hack for Athens is an annual two-day event organized in conjunction with the National Day of Civic Hacking and licensed under Random Hacks of Kindness. Web and software developers, designers, community organizers, and other folks from all over Athens-Clarke County gather to tackle local challenges with technology.

Project type: E, I, C

Rails Girls Athens was organized by local volunteers for the first time in April 2014. As part of an international Rails Girls initiative, Rails Girls Athens aims to open up technology and make it more approachable for girls and women by teaching Ruby on Rails over the course of a weekend workshop event. A Meetup.com group, created to maintain the momentum of the event, holds monthly meetings in Athens-Clarke County to learn and teach the Ruby on Rails coding language via collaborative projects.

Project type: E

The Newton County School System Technology Conference has been held annually since 2010, and was developed for the purpose of offering innovative ideas for implementing technology into every classroom in Newton County.

Project type: E

Many Northeast Georgia school districts are adopting Bring Your Own Technology/Bring Your Own Device (BYOT/BYOD) policies and implementing One-to-One (1:1) initiatives to encourage digital learning in classrooms.

Project type: E

Several Northeast Georgia communities are interested in potentially offering broadband services directly to citizens. Commerce will soon conduct a study to this effect, and the Oxford listed the effort as a line item in the 2013-2018 Short-Term Work Program of its comprehensive plan. A group of stakeholders in Athens-Clarke County is researching methods for getting internet services to low-income neighborhoods. Currently in Northeast Georgia, the cities of Elberton and Monroe offer municipal broadband. (See the Section III Appendix for summaries of interviews with the Elberton and Monroe broadband utility providers.) All four of these communities (along with the Covington, Mansfield, and Monticello), as public power utilities, are members of the Municipal Electric Authority of Georgia (MEAG) and Electric Cities of Georgia (ECG).

Project type: I, E

The mission of the Athens chapter of the Technology Association of Georgia (TAG) is "educating, uniting, promoting, and influencing Georgia's technology community in the Athens area."[21] The TAG Athens Board of Directors comprises local elected officials as well as university, nonprofit, and private sector representatives.

Project type: E

Previous Digital Economy Efforts

In 2009, the Athens-Clarke Economic Development Foundation (absorbed in 2013 by the newly-created Athens-Clarke Economic Development Department) applied for a federal grant to develop Northeast Georgia Net, a project calling for $3.2 million to develop wireless Internet networks covering 29 cities in Clarke, Barrow, Jackson, Madison, Oconee and Oglethorpe counties. The project was not funded.

Project type: I

Recent Economic and Community Development Projects

NEGRC works with communities on a variety of economic and community development projects and plans. Thus far in 2014, new funding applications have been prepared by NEGRC staff for consideration through the following programs:

- Regional Economic Business Assistance (REBA) Program

[21] Athens TAG Chapter, http://www.tagonline.org/chapters-and-societies/athens/.

  - Walton County: Expansion of an automobile technology manufacturing facility
  - City of Jefferson: Location of a new retail distribution facility
- OneGeorgia Economic Development, Growth, and Expansion (EDGE) Fund
  - Morgan County: Expansion of a floor coverings manufacturing facility
- CDBG Redevelopment Fund (RDF)
  - City of Auburn: Phase 1 of the rehabilitation of a publicly-owned historic building to a multi-use facility
  - City of Madison: Reconstruction of a small food and dry goods retailer to serve a surrounding residential neighborhood
- Appalachian Regional Commission (ARC) Pre-Applications
  - City of Bowman: Phase 1 of the rehabilitation of a publicly-owned historic building to house a new library and retail space
  - City of Nicholson: Sewer infrastructure to serve businesses along State Route 441
  - Barrow County: Water infrastructure to serve the Barrow County Arts Center
  - Madison County: Rehabilitation of an historic courthouse

In addition to funding applications, NEGRC works with local governments to prepare strategic plans that include economic and community development strategies. NEGRC staff is currently working on such plans with the cities of Commerce, Bowman, and Oxford. Each plan is different, and will be tailored to address specific needs and opportunities within individual communities

SWOC

The following table depicts the major Strengths, Weaknesses, Opportunities, and Challenges of the digital economy in Northeast Georgia, as gleaned from stakeholders during the planning process. Items identified by NEGRC staff as most critical to the region are highlighted.

Table 18

Strengths
Level of apparent wireless coverage throughout the region; Only 0.019% regional population unserved
Level of apparent wireline coverage throughout the region; Only 5.04% regional population unserved
K-12 school systems utilizing new mobile technologies for instruction
Two Northeast Georgia cities (Monroe and Elberton) offer municipal broadband access to residents
Two existing technology-related business incubators are located in Athens-Clarke County (FourAthens, Georgia BioBusiness Center)
99% of business respondents to DEP questionnaire have access to the internet at their location
Nearly 100% of resident respondents to the DEP questionnaire have an Internet-enabled device at home
UGA-Carl Vinson Institute's Office of Information Technology Outreach Services (ITOS) as a resource
Basic computer classes offered at libraries, Athens Technical College, and Lanier Technical College campuses
Northeast GA region projected to grow manufacturing tech, information tech (IT), and other tech jobs at faster rate than the state through 2021
Region has competitive advantage in the state for manufacturing tech occupations and for various life, physical, and social science occupations

Weaknesses
Major wireline coverage gaps: Morgan (35.73% unserved); Jasper (28.59% unserved); Elbert (20.42% unserved); Greene (17.58% unserved); Madison (16.42% unserved); Oglethorpe (11.18% unserved)
Approximately 45% of the existing connections are via DSL; coverage for cable is relegated primarily to the western part of the region and surrounding county seats
Limited choice of internet service providers (ISPs) based on location; in most counties, there are two main competing ISPs
Limited choice of broadband type for businesses and residents based on location
Minimal participation by local government officials in the digital economy stakeholder engagement process
51% of business respondents and 43% of resident respondents to the DEP questionnaire recently experienced non-weather related service disruptions lasting from 1 hour to 1 day
45% of resident respondents to the DEP questionnaire think their internet speed is “okay;” 24% find it to be slow or “severely limiting”
Opportunities
63% of business respondents and 53% of resident respondents to the DEP questionnaire presume there will be a need to increase internet speed within the next 2 years
Growing demand for qualified IT professionals
Need for planning and coordination amongst local and regional organizations and agencies
Need for technical assistance and support for local and regional organizations and agencies
Need for affordable training on utilization/deployment of digital technologies
Recently revised Georgia Department of Community Affairs local comprehensive planning guidelines encourage communities to develop specialized plans; relevant examples might include local digital economy, technology, and wireless facility plans
Challenges
Pace of technology changes/updates is overwhelming
Hardware, software, and service affordability; gap exists between what people expect from service (access, speed, etc.) and what they are willing/able to pay to ISPs
End of support for Microsoft Windows XP will require replacement of incompatible computers
Rural technology-related and Internet-based businesses long-term outlook is critically threatened by lack of reliable and efficient broadband infrastructure
Limited state and federal grant funding for digital economy projects
Mobile BILD Act (HB 176) places stricter procedural standards on local governments regarding regulation of location, construction, collocation, modification, and operation of wireless facilities
Accuracy of broadband coverage data limited to two (2) square miles; at smaller geographies, ISPs report coverage along roads even if only one of many residences is served

Strategic Focus Areas

SFA 1: Incorporate digital technology plan elements into the local comprehensive planning process.

As of March 1, 2014, the local comprehensive planning standards for Georgia counties and cities encourage the development of "optional" plan elements to address specific community needs that extend above and beyond the minimum requirements. Communities in Northeast Georgia are encouraged to opt for the inclusion of digital technology plan elements into local comprehensive plan documents. Such elements may address the following:

- Wireline infrastructure coverage
- Mobile broadband infrastructure (cell tower) location and design
- Hardware and software update/replacement schedule
- Staff training/education
- Social media procedures
- Electronic records management
- Website development and maintenance
- Online payment services
- Policies and ordinances

Upon completion of the digital technology plan element, a local government may identify broadband infrastructure and facility needs within the capital improvements element (CIE).
Steps:

1. Determine comprehensive plan deadline at www.georgiaplanning.com.
2. Select planning process facilitator.[22]
3. Identify *Needs and Opportunities* specific to digital technology.
4. Incorporate implementation strategies for addressing digital technology *Needs and Opportunities* into the *Community Work Program*.
5. Adopt comprehensive plan.

Technical Assistance Resources:

- Georgia Department of Community Affairs (DCA)
- NEGRC
- University of Georgia Carl Vinson Institute
- Utility managers
- Informational technology (IT) staff

[22] Per the most recently-adopted Local Planning Requirements, Regional Commissions are able to prepare the three core elements (Community Goals, Needs and Opportunities, Community Work Program) at no cost to the local government. A small fee may be charged for preparation of additional plan elements.

- Local web developers

SFA 2: Develop "dig once" policies for local adoption.

"Dig once" policies or ordinances refer to requirements designed to reduce the number and scale of repeated excavations for the installation and maintenance of broadband utilities in public right-of-way (ROW).[23]

The State of Georgia does not currently operate under a "dig once" policy for state highway construction projects. However, counties and cities in Northeast Georgia are encouraged to adopt "dig once" policies for local road and utility ROWs. Such local policies or ordinances would facilitate coordination between government departments (e.g. public works, utilities, planning, and transportation) and wireline broadband providers during the ROW project development stage, and should reference and comply with utility guides published by the American Association of State Highway and Transportation Officials (AASHTO).

SFA 3: Develop regional coordination and sharing agreements for technologies and infrastructure.

Examples may include:

- Software product subscriptions
- Data and geographic information systems
- Wireline infrastructure development

Coordination and sharing between counties and cities in Northeast Georgia may result in significant cost savings to local governments. Additionally, projects that are regional in nature and involve multiple stakeholders are often viewed as attractive to both public and private funding sources. Such agreements may be developed through multi-county authorities and/or facilitated by NEGRC.

Technical Assistance Resources:

- Multi-county authorities
- NEGRC
- Utility managers

SFA 4: Identify specific training and education needs at an organization/agency level, and develop programs to address those needs.

Stakeholders representing local government organizations and institutions identified a need, generally, for training and education opportunities on a range of digital technologies, including

[23] Retrieved from the FHWA website on June 26, 2014 at http://www.fhwa.dot.gov/policy/otps/exeorder.cfm.

software applications (e.g., geographic information systems (GIS), public safety operations, public administration, and utility management) and social media tools (e.g., Twitter, Facebook, and Tumblr). With instruction on their use, these technologies enable agencies to realize financial and temporal efficiencies.

Steps:

1. Identify all digital tools that are currently or will be used by the agency.
2. Determine comfort level of staff persons responsible for using each tool.
3. Seek out training and education opportunities to address knowledge.

Technical Assistance Resources:

- University of Georgia Carl Vinson Institute's Office of Information Technology Outreach Services (ITOS)
- NEGRC

Table 19

Strategy	Estimated Timeframe	Responsible Parties	Estimated Cost	Possible Funding Sources
SFA 1: Local plans	Varies depending on community planning deadlines	County and city governments	$1,000-5,000 per plan (NEGRC)	General fund
SFA 2: Dig-once policies	Two to six months	County and city governments	Minimal (staff time)	General fund
SFA 3: Regional agreements	Ongoing, as needs arise	County and city governments, joint development authorities, NEGRC	Minimal (staff time)	General fund
SFA 4: Training/education programs	Ongoing, as needs arise	County and city governments, ITOS, NEGRC	To be determined based on needs	General fund, private foundation grants, DCA-NEGRC planning services contract