

CITY OF HUNTSVILLE, ALABAMA

COMMUNITY INFORMATION

Prepared for
US Military/Government Personnel,
Contractors, and Others
Relocating to Huntsville



Office of the Mayor
City of Huntsville, Alabama
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Table of Contents

Overview	i
Chapter 1 – Economy	
I. Key Facts and Conclusions.....	1-1
II. Impact of Redstone Arsenal Activities on Local Economy.....	1-1
III. Economic Diversity.....	1-2
IV. Workforce Profile.....	1-4
V. Cost of Living.....	1-8
VI. Financial Outlook of Local Economy.....	1-11
VII. Current Economic Development Initiatives.....	1-13
Chapter 2 – Housing Characteristics and Availability	
I. Key Facts and Conclusions.....	2-1
II. On-Post Housing.....	2-1
III. Huntsville Area Housing.....	2-1
IV. Retirement Housing.....	2-3
Chapter 3 – Infrastructure and Environment	
I. Key Facts and Conclusions.....	3-1
II. Transportation	3-1
III. Airport Facilities.....	3-7
IV. Other Infrastructure.....	3-14
V. Environmental Quality.....	3-17
Chapter 4 – Educational Opportunities	
I. Key Facts and Conclusions.....	4-1
II. Local Schools – K through 12.....	4-1
III. Higher Education.....	4-16
IV. Unique Educational Opportunities and Specialty Programs.....	4-33
Chapter 5 – Healthcare Resources	
I. Key Facts and Conclusions.....	5-1
II. Physicians and Specialties.....	5-1
III. Medical Facilities and Services.....	5-2
IV. Public Health Services.....	5-6
V. Specialized Medical Training for Homeland Security.....	5-6
Chapter 6 – Public Safety and Emergency Response	
I. Key Facts and Conclusions.....	6-1
II. Medical Emergency Response Agencies.....	6-1
III. Law Enforcement.. ..	6-2
IV. Fire Department.....	6-4
IV. Other Public Safety Agencies and Organizations.....	6-5
Chapter 7 – Quality of Life	
I. Key Facts and Conclusions.....	7-1
II. Museums and Other Facilities	7-1
III. Organizations Dedicated to Promoting the Arts and Quality of Life.....	7-12
IV. Recreational Opportunities	7-14

V. Community Festivals and Events.....	7-32
----------------------------------------	------

Chapter 8 - Federal Presence/Military Support

I. Key Facts and Conclusions.....	8-1
II. Regional Support Structure.....	8-1
III. Shared Services.....	8-7
IV. Large Conferences/Training.....	8-9
V. Federal Presence.....	8-11

List of Tables

Chapter 1 – Economy

Table 1.1 – Employment by Industry and Occupation for Selected Metropolitan Areas.....	1-5
Table 1.2 – Percentage of Educational Attainment of the Population for Selected Metropolitan Areas – High School To Undergraduate Degrees.....	1-6
Table 1.3 – Percentage of Educational Attainment of the Population for Selected Metropolitan Areas – Masters Degrees to Doctorate Degrees.....	1-6
Table 1.4 – Comparison of Median and Per Capita Income for Selected Metropolitan Areas.....	1-7
Table 1.5 – Hourly Wages for Specific Technical Occupations Selected Metropolitan Areas	1-7
Table 1.6 – Hourly Wages for Specific Office Occupations Selected Metropolitan Areas.....	1-8
Table 1.7 – Comparison of Civilian Wages Among Other Locations.....	1-8
Table 1.8 – Cost of Living Composite Index Comparison of Selected Metropolitan Areas.....	1-9
Table 1.9 – State and Local Tax Rates.....	1-10

Chapter 2 – Housing Characteristics and Availability

Table 2.1 – Median Cost of Housing for Selected Metropolitan Areas.....	2-2
Table 2.2 – Median Cost of Rent for Selected Metropolitan Areas.....	2-2

Chapter 3 – Infrastructure and Environment

Table 3.1 – Year 2000 vs. Year 2010 Local Journey to Work Statistics.....	3-2
---------------------------------------------------------------------------	-----

Chapter 4 – Educational Opportunities

Table 4.1 – Recently Declared Majors of Undergraduate and Graduate Degree Candidates Local and Regional Colleges and Universities.....	4-16
Table 4.2 – Recently Declared Degrees of Students Attending Local and Regional Junior Colleges and Technical Training Institutions.....	4-17

Chapter 5 – Healthcare Resources

Table 5.1 – Healthcare Specialties Huntsville-Madison County.....	5-1
-------------------------------------------------------------------	-----

List of Maps

Chapter 1 – Economy

Map 1.1 – Major Defense Employers in the City of Huntsville.....	1-15
Map 1.2 – Major Aerospace Employers in the City of Huntsville.....	1-16
Map 1.3 – Major Manufacturing Employers in the City of Huntsville.....	1-17
Map 1.4 – Major Telecommunications Employers in the City of Huntsville.....	1-18
Map 1.5 – Major Electronics Employers in the City of Huntsville.....	1-19
Map 1.6 – Major Software Development and IT Employers in the City of Huntsville.....	1-20

Chapter 2 – Housing Characteristics and Availability

Map 2.1 – Major New Subdivision Developments in Huntsville	2-6
------------------------------------------------------------------	-----

Chapter 3 – Infrastructure and Environment

Map 3.1 – 2010 Census Tract Subareas.....	3-18
Map 3.2 – Major Transportation Improvements 1990-Present.....	3-19
Map 3.3 – Huntsville-Madison County Planned Transportation Improvement Projects 2008-2012.	3-20
Map 3.4 – Sanitary Sewer and Drainage Improvements.....	3-21

Chapter 4 – Educational Opportunities

Map 4.1 – Huntsville Area Specialty Schools.....	4-37
Map 4.2 – Huntsville Area Private Schools.....	4-38
Map 4.3 – Huntsville Area Colleges and Universities.....	4-39

Chapter 5 – Healthcare Resources

Map 5.1 – Hospitals in Madison County.....	5-9
--------------------------------------------	-----

Chapter 7 – Quality of Life

Map 7.1 – Area Museums and Points of Cultural and Educational Interest.....	7-34
Map 7.2 – City of Huntsville Parks.....	7-35
Map 7.5 – Conservation Properties in Huntsville/Madison County.....	7-36

List of Figures

Chapter 3 – Infrastructure and Environment

Figure 3.1 – Comparison of Total Commuters 2000 vs. 2010.....	3-3
Figure 3.2 – Huntsville International Airport Commercial Flight Destinations.....	3-9
Figure 3.3 – Rail Destinations.....	3-10
Figure 3.4 – Rail Cargo Service Region.....	3-10
Figure 3.5 – Air Cargo Destinations.....	3-11

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OVERVIEW

Huntsville, Alabama is part of the greater Tennessee Valley Region and Madison County, Alabama. It is nestled between the Tennessee River and the Appalachian Mountains, and as such, provides a varied terrain of mountains and valleys, and holds valuable water resources. Huntsville is home to Redstone Arsenal and NASA's Marshall Space Flight Center. The Huntsville Metropolitan Statistical Area (MSA) has a population of approximately 425,480 persons; while the area's regional population consists of over 830,742 residents. The area's climate is seasonal and the area tends to be family-oriented. The U.S. Census Bureau data of 2010 indicates the City of Huntsville was the home of 77,033 households, with an average household size of 2.25 persons. An enduring economic success story is that of the City of Huntsville and Redstone Arsenal. The City of Huntsville and Redstone Arsenal have lived, worked, and grown together for more than sixty years. Their relationship has developed into a synergistic partnership that strongly supports the U.S. Army mission and the quality of life of the soldiers and civilians who call this region home.

Key Facts and Messages

This Fact Book was assembled to collect and disseminate key information concerning the City of Huntsville. This information includes the local economy, quality of life, and public infrastructure. It is understood that it is appropriate to consolidate military installations or locate specific businesses, industries, and scientific research centers in regions where corporate needs are met with ready availability of a well-qualified workforce, as well as a quality of life and public services in the Huntsville that enable employees and families to flourish. The City of Huntsville offers such an environment, and more.

The City of Huntsville's relationship with Redstone Arsenal spans over six decades. Throughout the years, the relationship has transitioned into a mutually reliant partnership to support the mission of the U.S. Army and the quality of life of the soldiers stationed here, affiliated DoD civilians, and their families.

This support is evident and obvious within the community. The community holds a large defense sector, yet a diverse and broadbased market of other industrial sectors.

The region also holds a valuable and unique resource: A concentration of a highly trained and educated workforce. Educational and research facilities, and governmental labs fuel innovation and creativity, as well as provide experience for the educated imminent workforce, who number over 5,000 in fields of computer science, mathematics, engineering, science, and physics.

Community leaders appreciate the dynamic research occurring in Huntsville, and have proactively planned for future growth and development. The community has in the past responded well to an influx of population based upon its relationship with Redstone Arsenal and NASA. The planning for imminent and future growth is evident in current housing construction and availability, as well as roadway and infrastructure improvements that have been constructed or are being constructed presently. The area's partnership with Redstone Arsenal has ensured that transportation projects to support accessibility to Redstone Arsenal are undertaken, and have been planned from the present to the year 2019 in excess of \$464.5 million.

The partnerships extend further to the emergency response community. The City of Huntsville and its emergency response organizations have reciprocal aid agreements with Redstone Arsenal. Area

emergency response groups train and exercise with each other to prepare for community and on-post emergencies requiring mutual aid response.

Finally, the City of Huntsville provides an exceptionally high quality of life through its museums, educational facilities, and cultural and recreational activities. All of these opportunities, when coupled with the area's affordable housing and low cost of living, provide a unique environment for families to prosper.

Media Accolades

The Huntsville-Madison County area has been recognized by various leading publications and surveys as the premier place to rear a family, establish and grow a business, and to work. A sample of Huntsville's recent headlines follow:

- *Huntsville ranked #3 on the list of “Best Mid-Sized Cities to Make a Living - **Money Geek**, February 2016*
- *Huntsville is ranked #1 as the Best Affordable Places to Live – **Livability**, February 2016*
- *Huntsville area leads the nation in new construction job growth - **The Associated General Contractors of America**, February 2016*
- *Huntsville named top destination to get you psyched for hiking – **Recreational Equipment, Inc.**, January 2016*
- *Huntsville is the #3 City where your money goes the farthest – **Boston Business Journal**, October 2015*
- *Huntsville is one of the Best Metro Areas for Real Estate Agents – **GoodCall**, October 2015*
- *Huntsville is one of the top metros to “Power the U.S. Economy” – **Bloomberg Business**, September 2015*
- *Huntsville is #2 City in the U.S. for Tech Jobs – **Smart Asset**, September 2015*
- *NerdWallet ranked Huntsville one of the Best Places for STEM Grads – **NerdWallet**, June 2015*
- *Huntsville is among top 20 Southern cities for jobs right now – **Forbes**, April 2015*
- *Huntsville is NerdWallet's 2nd best place for tech jobs in the U.S. – **NerdWallet**, April 2015*
- *Huntsville receives Standard & Poor's best possible “AAA” credit rating for the seventh consecutive year – **Standard & Poor's**, March 2015*
- *Huntsville ranked among top cities for STEM jobs – **Smart Asset**, February 2015*
- *NerdWallet ranked Huntsville the nation's top engineering city – **NerdWallet**, February 2015*
- *Huntsville named one of the nation's best towns for college students – **American Institute for Economic Research**, October 2014*

- *Huntsville named one of the nation's Most Educated Cities – **WalletHub**, September 2014*
- *Huntsville is ranked one of the Happiest Cities in the country – **Washington Post**, September 2014*
- *Huntsville is #1 in Employee Engagement – **Forbes**, August 2014*
- *Huntsville tops Best Cities for Employee Recognition list – **Quantam Workplace**, May 2014*
- *Huntsville named among nation's Top 10 strongest economies – **Policom Corporation**, April 2014*
- *Huntsville's Rocket City marathon named a Top Race Worth Traveling for – **Flipkey/Trip Advisor**, April 2014*
- *Huntsville is one of the Top 30 fastest growing major metros in the U.S. – **U.S. Census Bureau**, March 2014*
- *Huntsville is among the top 10 Most Promising U.S. Tech Hubs to watch in 2014 – **Techie.com**, January 2014*
- *Huntsville-Madison County is No. 4 on the list of America's high tech hot spots – **Progressive Policy Institute**, January 2014*
- *Huntsville named one of the Best Places to Live – **Livability**, October 2013*
- *Huntsville is No. 5 on the list of best mid-size cities for Veterans to find careers – **USAA and the U.S. Chamber of Commerce Foundation's Hiring Our Heroes**, October 2013*
- *Madison County ranked No. 7 in the country of a great place to live and find a job – **CNN Money**, August 2013*
- *Huntsville named No. 2 city in the South for computer programmers – **Entrepreneur**, August 2015*
- *Huntsville is 4th for Growth Potential – **Business Facilities**, August 2013*
- *Huntsville takes 4th in affordable apartment ranking - **Apartment Guide**, August 2013*
- *Huntsville is a best destination for green travelers - **TravelNerd (NerdWallet)**, July 2013*
- *Huntsville ranks No. 3 on list of best places for Science, Technology, Engineering, Math graduates - **NerdWallet**, July 2013*
- *Huntsville named 2013 Playful City USA - **KaBOOM!**, May 2013*
- *Huntsville named one of 10 great places to be inspired by innovation - **USA Today**, April 2013*
- *Huntsville named among the nation's Top 20 strongest economies - **Policom Corporation**, April 2013*
- *Huntsville named among Forbes 25 Best Places to Retire – **Forbes**, February 2013*

- *Huntsville named among Metro Magnets Index "Fastest Growing U.S. Cities" - **Metro Magnets Index**, November 2012*
- *Huntsville ranked 3rd Best Cities for Mid-Career Professionals in the nation - **Kiplinger's Personal Finance**, July 2012*
- *Huntsville is one the nation's Top Ten Leading Creative Class Metros - **The Atlantic Cities**, July 2012*
- *Huntsville Ranked 4th Most Optimistic City in America - **Gallup**, March, 2012*
- *Huntsville named one of the Top 10 Best Performing Cities in the Country - **Milken Institute**, December 2011*
- *Huntsville named one of the nation's Leading Places to Retire - **CNN Money.com**, September 2011*
- *Huntsville ranks as the nation's 3rd largest aerospace & defense manufacturing hub - **Business Facilities: The Location Advisor**, August 2011*
- *Huntsville named one of Forbes Top 20 Leading Metros for Business – **Forbes**, July 2011*
- *Huntsville named one of the Top 5 Small Cities of the Future in North & South America - **FDI Magazine**, April 2011*
- *Huntsville's Concentration of High-Tech Workers is 2nd in the Nation only to San Jose's Silicon Valley - **TechAmerica Foundation, Cybercities Report**, December 2010*
- *Huntsville recognized as one of the country's leading Hotbeds for High-Tech Growth - **Area Development**, December 2010*

Given the area's national recognition for its quality of life and its attractiveness to business development and growth, it is easy to see why Huntsville area has dramatically grown over the years.

CHAPTER 1 ECONOMY

I. Key Facts and Conclusions

The Huntsville-Madison County economy is represented by various sectors of employment; and is anchored by a local defense and aerospace sector. These sectors are dependent upon companies with scientific and highly technical capabilities, which are also represented in the Huntsville metro area. The Huntsville metropolitan statistical area has experienced tremendous growth in the past ten years, expanding from 342,376 persons in 2000 to 425,480 in 2011; over a 24% increase in population. Such growth is a testament to the metropolitan area's robust economy.

II. Impact of Redstone Arsenal Activities on Local Economy

The greater Tennessee Valley's regional economy is significantly dependent upon the presence of Redstone Arsenal and other high tech companies that support defense, aerospace, and scientific research. An economic analysis of the impact of defense spending on the Huntsville-Madison County community was conducted by the College of Urban Planning & Public Affairs of the University of Illinois at Chicago in May 2012. The study revealed the following facts:

- Based upon procurement data and employment counts provided by Redstone Arsenal and the Huntsville-Madison County Chamber of Commerce, the total annual impact of Redstone Arsenal on the four-county region of Madison, Morgan, Limestone, and Lawrence Counties, Alabama is estimated at 90,500 jobs and \$10.56 billion in economic output. When the impact area is expanded to include consumer spending for approximately 7,000 Redstone Arsenal employees who reside in 10 counties outlying the core Huntsville area, the total annual impact is \$11.47 billion in economic output and approximately 101,000 jobs.
- The 90,500 jobs and \$10.56 billion in economic output provides approximately 5.9% of the total 2010 Gross Domestic Product (GDP) for Alabama, and nearly half the \$21.56 billion GDP of the Huntsville metropolitan area.
- Within the four-county region, Department of Defense spending on Redstone Arsenal provides nearly one job for every 4.5 residents, regardless of age or labor force status.
- The total payroll of Redstone employees residing in Madison County is \$2,500,461,556. When the four county region is considered, total payroll is estimated to be \$2,935,752,415.
- Through direct employment, procurement, and the spending of on-post workers and employees of contractors, Redstone Arsenal accounts for approximately 90,500 jobs in the four-county area – nearly 35% of the total December 2011 employment of 261,100.
- The total wages, salary, and benefits paid to employees of Redstone Arsenal, its contractors, and other impacted local businesses equal \$6,393,905,629.
- The personnel and procurement activities at Redstone Arsenal cumulatively generates approximately \$361.6 million in state and local tax revenues per year.

Another direct economic impact related to Redstone Arsenal's presence in the community is the amount of federal research and development dollars that are poured into the region. According to the National Science Foundation (NSF), Alabama is ranked 4th in the United States for receiving the most federal research and development (R&D) funds for defense purposes and ranked 5th in the U.S. for NASA-related spending for the year 2013. The NSF further states that the placement of Maryland, Washington D.C., and Virginia among the top receivers of federal R&D funds reflects the concentration of federal facilities and administrative offices within the national capital area. Alabama is ranked among the top 5 based upon the state's high shares of federal space and defense-related R&D. During 2013, the State of Alabama received over \$4.7 billion in federal obligations for research and development, with the Department of Defense and NASA being the recipient of more than 93% of the funds.

III. Economic Diversity

A. Diversity of Various Industry Sectors

Economic diversity is a key consideration when co-locating with other family members to the City of Huntsville. While the city has gained from the economic benefits of its relationship with Redstone Arsenal, it has also experienced growth in other employment sectors. According to reports filed by the Alabama Development Office, the Huntsville-Madison County area has consistently led in the State of Alabama in the most new industrial job announcements. During the period from January 2008 to December 2014, Huntsville industrial companies and businesses announced the creation of 17,027 new jobs and over \$1.42 billion of new capital investment. Huntsville has added nearly ½ of the State's total net jobs since 2000.

The Huntsville area is represented by various industrial sectors, and has established Cummings Research Park and local industrial parks to nurture diversity in regional economic growth and development. Cummings Research Park is the 2nd largest research park in the United States, and 4th largest in the world. Cummings Research Park is home to 300 companies, employing over 25,000 persons. Its tenants include Fortune 500 companies, local and international high-tech enterprises, US Space and Defense agencies, a technology business incubator, technology-oriented high schools, and competitive higher education institutions. It is located approximately 5 minutes away from Redstone Arsenal and the City of Huntsville, and provides quick access to the Huntsville International Airport.

Diversity among industry classifications is prevalent in the area. The major employment sectors in the City of Huntsville have been identified that significantly impact the local economy:

1. Defense Industry Sector - Locations of local major defense industry employers are shown at **Map 1.1**.
2. Aerospace Industry Sector –This sector supports local NASA related activities; however, DoD contracts support this sector as well. According to **Business Facilities** magazine (August 2011), Huntsville is the 3rd largest aerospace and defense manufacturing hub. Locations of major aerospace employers are shown at **Map 1.2**.

3. **Manufacturing Industry Sector** – Huntsville’s manufacturing industry showcases a diverse mix of technology, assembly, and production operations from domestic and international corporations. Consumer products and durable goods are manufactured in each of the area’s primary industrial parks with customs and foreign trade zone benefits available at Huntsville International Airport for overseas trade. Major products include electronics, computers, VCRs, and compact discs. Major employers within this sector are shown at **Map 1.3**.
4. **Telecommunications Industry Sector** – The Huntsville community is the premier location for telecommunications technology and capabilities. Commercial applications developed by the growing number of telecommunications industry companies in the community range from digital switching devices to advanced modems and transmission products. Major employers within this sector, located in the City of Huntsville, are shown at **Map 1.4**.
5. **Electronics Industry Sector** – The Huntsville community is recognized as a world-class location for the electronics and computer industries. Over 300 international and domestic corporations in Huntsville are currently involved in the design and production of electronics and computer-related technology. SCI Technology, headquartered in Huntsville, is one of the world’s largest contract manufacturers in the electronics industry, while Intergraph Corporation, also a Huntsville start-up, is the industry leader in CAD/CAM computer technology. Locations of major electronic employers are shown at **Map 1.5**.
6. **Software and IT Development Sector** – According to the Tech America Foundation’s **Cyber Cities Report** (December 2010), the City of Huntsville has the second highest concentration of high-tech workers in the nation, second only to San Jose, California. Twenty-three percent (23%) of Huntsville’s private sector workforce is in the tech industry. While 53 cities classified as “cybercities” lost high-tech employment during 2010, the City of Huntsville added nearly 900 jobs – the second largest gain in tech employment in the United States. Huntsville is home to some of the largest and most successful software development corporations in the country. Of the larger companies with offices in this area, greater than 90% have attained certification to ISO standards. Almost 60% of these companies are CMM (Capability Maturity Model) Certified at a Level 2 or higher, with the majority certified at Level 3 to Level 5. Adtran, Boeing, Computer Sciences Corporation, Dynetics, General Dynamics, Intergraph, Lockheed Martin, Northrop Grumman, Raytheon, Science Applications International Corp., Jacobs Sverdrup Technology, and Teledyne Brown Engineering are among the largest software development firms conducting business in the Huntsville metropolitan area. **Map 1.6** shows the location of the area’s major software and IT development companies.
7. **Biotech Industry Sector** – The HudsonAlpha Institute for Biotechnology, located in Cummings Research Park (CRP) on the 153-acre CRP Biotech Campus, celebrated its grand opening in April 2008. The campus embodies a synergistic cluster of talented science and business professionals collaborating to turn knowledge and ideas into innovative commercial products and services for improving human health and strengthening Alabama’s progressively diverse economy. Using whole-genome approaches, researchers at the non-profit HudsonAlpha Institute are working to identify the genetic causes of human

disease and will address other issues that impact quality of life such as agriculture, pollution, and biofuels. Thirty-one for-profit biotech companies lease space in the facility, currently providing a variety of services and products ranging from tools for researchers to diagnostics, therapeutics and drug delivery systems. About 700 employees are housed in the institute's main facilities. Hudson-Alpha's has generated more than a \$1.3 billion economic impact on the State of Alabama since its inception.

8. Retail Sector - Huntsville's retail sector has grown tremendously during the past several years, and serves over 670,269 persons with an estimated average household income of \$62,536 within a 35 mile radius. From January 2001 to December 2015, the City of Huntsville added nearly 7.2 million square feet of newly constructed retail space, providing residents and visitors to the area plenty of shopping options, and creating numerous jobs for area residents. Nearly 20% of this newly constructed retail square footage was added between January 2013 and December 2015. According to estimates made by ESRI forecasts for 2015, the average disposable income for the Huntsville Metropolitan Statistical Area is \$59,485. For those aged 45-54 years, the average disposable income is \$73,682. Retail sales per capita in Huntsville are \$17,910, which is higher than the national figure of \$16,470. It is anticipated that Huntsville's retail sales will only increase as this sector is currently expanding and the local economy is doing better than others in the State. Retail growth is occurring. Recent developments such as Twickenham Square, a retail component of the Redstone Enhanced Use Lease project, a new \$20 million Belk, Whole Foods at the Shops on Merchants Walk, Wal-Mart Supercenter near Parkway Place Mall, Cabelas at Parkside Town Centre, At Home Superstore, and UG White have been constructed in Huntsville. Retail developments under construction are The Avenue (20,000 square feet of retail and restaurant space), CityCentre at Big Spring (a \$100 million mixed-use development), and a 400,000 square foot shopping center with 19 storefronts at the northwest corner of Carl T. Jones Drive and Ledges Drive.

B. Diversity Through Business Opportunities with Minority-Owned Firms

The City of Huntsville and the Tennessee Valley Region not only has experienced economic diversity through various industry sectors, but has established a name for itself for having 70% of the State's top 50 minority firms represented in the North Alabama region. The City of Huntsville and the Tennessee Valley Region has numerous minority firms that are qualified and available to do business with government agencies and other public and private entities.

IV. Workforce Profile

This section provides an overview of the region's workforce by exploring unemployment, employment, income, level of education, and wages.

A. Unemployment

Huntsville metro unemployment is comparable to the U.S. unemployment rate, and typically trends lower than the nation's annual average. In fact, according to the Bureau of Labor Statistics, Huntsville is one of the top 10 metros in the South for employment

growth. Huntsville’s low unemployment rate reflects the area’s core economic stability of local businesses and industries, including the defense sector.

B. Employment

An assessment of the region’s civilian employed population, aged 16 and above, was conducted. Results revealed that the Huntsville metropolitan area has a large number of professional, technical, and highly trained employees. Statistics concerning occupational categories available from the US Census Bureau indicate the following:

- 1 out of 9 employed persons in Huntsville is employed in fields of professional, scientific, and technical services. The U.S. Census Bureau indicates that occupations falling in this category require a high degree of expertise and training.
- 1 out of every 16 persons in Huntsville is employed in architectural or engineering occupations.
- 1 out of every 19 persons in Huntsville is employed in computer and mathematical occupations.
- 1 out of every 18 employed persons in Huntsville is employed in education, training, and library occupations.

The Huntsville metropolitan area ranks well above the national average in these specialized fields, and ranks confidently with other metropolitan areas with similar interests. **Table 1.1** shows comparative data.

**TABLE 1.1
EMPLOYMENT BY INDUSTRY AND OCCUPATION FOR SELECTED METROPOLITAN AREAS**

Metropolitan Area	% Employed in Professional, Scientific, & Technical Services	% Employed in Computer & Mathematical Occupations	% Employed in Architecture & Engineering Occupations	% Employed in Education, Training, and Library Occupations
Huntsville, AL MSA	11.7%	5.4%	6.4%	5.7%
Atlanta, GA MSA	8.5%	3.6%	1.7%	6.3%
Austin-Round Rock-San Marcos, TX MSA	9.7%	5.0%	3.1%	6.7%
Charlotte-Gastonia-Rock Hill, NC/SC MSA	6.4%	3.1%	1.8%	5.8%
Orlando-Kissimmee-Sanford, FL MSA	6.7%	2.5%	1.8%	5.0%
Raleigh-Cary, NC MSA	11.3%	5.5%	2.9%	6.8%
Richmond, VA MSA	6.8%	3.3%	1.6%	6.1%
San Jose-Sunnyvale-Santa Clara, CA MSA	13.2%	8.6%	6.1%	5.4%
Washington-Arlington-Alexandria, DC/VA/MS/WV MSA	15.9%	6.9%	2.2%	6.1%
United States	6.4%	2.5%	1.9%	6.0%

Source: American Community Survey, 2011 Data, US Census Bureau
(Metropolitan Statistical Areas and Primary Metropolitan Statistical Areas are defined by the US Office of Management and Budget).

C. Educational Demographics

The Huntsville metropolitan area boasts a well-educated workforce, as can be verified by the density of professional employees residing in the area. Based upon the latest Census figures, the Huntsville metropolitan statistical area reports 21.6% of its population over

the age of 25 has a bachelors degree, 9.5% have obtained a masters degree, and 1.4% of residents over the age of 25 possess doctorates. According to the National Science Foundation’s Science and Engineering Profiles for Alabama, a total of 466 doctorates in the field of science and engineering were awarded during 2013 in the State of Alabama. A comparative analysis of educational attainment was conducted among selected metropolitan areas. The Huntsville metropolitan area ranks high in terms of educational attainment of its population, as shown at **Table 1.2** and **Table 1.3**.

**TABLE 1.2
PERCENTAGE OF EDUCATIONAL ATTAINMENT OF THE POPULATION
FOR SELECTED METROPOLITAN AREAS - HIGH SCHOOL TO UNDERGRADUATE DEGREES**

Metropolitan Area	High School Graduates 25 Years of Age +	Some College, One or More Years, No Degree	Associates Degree	Bachelors Degree
Huntsville, AL MSA	24.4%	21.7%	7.1%	21.6%
Atlanta-Sandy Springs-Marietta, GA MSA	25.4%	20.5%	6.7%	22.7%
Austin-Round Rock-San Marcos, TX MSA	19.5%	21.7%	6.5%	26.0%
Charlotte-Gastonia-Rock Hill, NC/SC MSA	24.3%	21.3%	8.2%	22.7%
Orlando-Kissimmee-Sanford, FL MSA	28.8%	21.1%	9.7%	18.7%
Raleigh-Cary, NC MSA	20.1%	19.3%	8.5%	27.9%
Richmond, VA MSA	27.6%	20.9%	6.1%	20.1%
San Jose-Sunnyvale-Santa Clara, CA MSA	16.4%	17.7%	7.3%	25.3%
Washington-Arlington-Alexandria, DC/VA/MD/WV MSA	19.5%	17.3%	5.5%	25.0%
United States	28.6%	21.0%	7.6%	17.7%

Source: 2011 American Community Survey (5-year Estimates), US Census Bureau
(Metropolitan Statistical Areas and Primary Metropolitan Statistical Areas are defined by the US Office of Management and Budget).

**TABLE 1.3
PERCENTAGE OF EDUCATIONAL ATTAINMENT OF THE POPULATION
FOR SELECTED METROPOLITAN AREAS - MASTERS DEGREES TO DOCTORATE DEGREES**

Metropolitan Area	Masters Degrees	Professional Degrees	Doctorate Degrees
Huntsville, AL MSA	9.5%	12.5%	1.4%
Atlanta-Sandy Springs-Marietta, GA MSA	8.6%	12.0%	1.2%
Austin-Round Rock-San Marcos, TX MSA	9.7%	13.9%	1.8%
Charlotte-Gastonia-Rock Hill, NC/SC MSA	7.5%	10.0%	0.8%
Orlando-Kissimmee-Sanford, FL MSA	6.5%	9.0%	0.9%
Raleigh-Cary, NC MSA	10.0%	14.0%	1.8%
Richmond, VA MSA	8.1%	11.1%	1.1%
San Jose-Sunnyvale-Santa Clara, CA MSA	13.9%	19.5%	3.1%
Washington-Arlington-Alexandria, DC/VA/MD/WV MSA	15.2%	22.5%	2.9%
United States	7.3%	10.5%	1.2%

Source: 2011 American Community Survey (5-year Estimate), US Census Bureau
(Metropolitan Statistical Areas and Primary Metropolitan Statistical Areas are defined by the US Office of Management and Budget).

D. Regional Income

The Huntsville area is a State leader when it comes to income. The latest U.S. Census information reveals that the median income of residents in the Huntsville metropolitan area is \$55,881 while per capita income is \$30,960. The regional income levels are very

high when compared to the rest of Alabama based upon the education of the workforce and the concentration of professional and highly technical personnel in the area. When income comparisons are made among other metropolitan areas with similar interests (**Table 1.4**), the Huntsville metropolitan area ranks competitively in the categories of median and per capita income. Additionally, the Huntsville metropolitan area has both a low cost of labor and a low cost of living, yet a highly educated workforce commanding competitive salaries for the East Southeast region. According to the Bureau of Economic Analysis, Huntsville is one of the top 20 metros in the country for wages and salary growth, and ranks number 5 in the South.

**TABLE 1.4
COMPARISON OF MEDIAN AND PER CAPITA INCOME
FOR SELECTED METROPOLITAN AREAS**

Metropolitan Area	Median Income	Per Capita Income
Huntsville, AL MSA	\$55,881	\$30,960
Atlanta-Sandy Springs-Marietta, GA MSA	\$56,618	\$28,880
Austin-Round Rock-San Marcos, TX MSA	\$61,900	\$32,035
Charlotte-Gastonia-Rock Hill, NC/SC MSA	\$52,591	\$28,403
Orlando-Kissimmee-Sanford, FL MSA	\$48,559	\$24,876
Raleigh-Cary, NC MSA	\$62,794	\$31,468
Richmond, VA MSA	\$59,677	\$30,944
San Jose-Sunnyvale-Santa Clara, CA MSA	\$92,960	\$42,176
Washington-Arlington-Alexandria, DC/VA/MD/WV MSA	\$91,756	\$43,884
United States	\$53,482	\$28,555

Source: 2014 American Community Survey (5-year Estimates), US Census Bureau (Metropolitan Statistical Areas and Primary Metropolitan Statistical Areas are defined by the US Office of Management and Budget).

E. Wages

The cost of labor in the Huntsville regional market is competitive and in some instances higher than the national average. The most recent median hourly wage information has been gathered from the U.S. Bureau of Labor Statistics. A comparative cost of wages can be drawn from other metropolitan areas. A selection of various technical and office occupations are compared at **Table 1.5** and **Table 1.6**.

**TABLE 1.5
HOURLY WAGES FOR SPECIFIC TECHNICAL OCCUPATIONS
SELECTED METROPOLITAN AREAS**

Metropolitan Area	Electrical Engineers	Computer & Mathematical Science Occupations	Computer Programmers
Huntsville, AL	\$47.11	\$41.80	\$41.72
Atlanta-Sandy Springs-Marietta, GA MSA	\$41.27	\$37.93	\$41.30
Austin-Round Rock-San Marcos, TX MSA	\$50.02	\$36.40	\$37.73
Charlotte-Gastonia-Rock Hill, NC/SC MSA	\$44.05	\$39.80	\$39.94
Orlando-Kissimmee-Sanford, FL MSA	\$39.55	\$33.52	\$32.95
Raleigh-Cary, NC MSA	\$37.73	\$38.93	\$39.17
Richmond, VA MSA	\$40.10	\$38.34	\$37.68
San Jose-Sunnyvale-Santa Clara, CA MSA	\$61.39	\$58.24	\$39.77
Washington-Arlington-Alexandria, DC/VA/MD/WV MSA	\$49.51	\$47.35	\$44.17
United States	\$43.95	\$38.18	\$37.28

Source: May 2014 Metropolitan and Nonmetropolitan Area Occupational Employment and Wage Estimates, U.S. Bureau of Labor Statistics

TABLE 1.6
HOURLY WAGES FOR SPECIFIC PROFESSIONAL AND OFFICE OCCUPATIONS
SELECTED METROPOLITAN AREAS

Metropolitan Area	Accountants & Auditors	Supervisors, Office & Administrative Support Workers	Executive Secretaries & Administrative Assistants	Receptionists
Huntsville, AL	\$32.94	\$23.11	\$25.89	\$11.50
Atlanta-Sandy Springs-Marietta, GA MSA	\$33.87	\$25.51	\$24.14	\$13.37
Austin-Round Rock-San Marcos, TX MSA	\$29.60	\$26.90	\$25.36	\$12.79
Charlotte-Gastonia-Rock Hill, NC/SC MSA	\$32.97	\$24.68	\$24.71	\$16.66
Orlando-Kissimmee-Sanford, FL MSA	\$29.03	\$22.73	\$20.42	\$12.64
Raleigh-Cary, NC MSA	\$30.06	\$24.28	\$21.61	\$13.40
Richmond, VA MSA	\$32.15	\$24.71	\$24.35	\$13.17
San Jose-Sunnyvale-Santa Clara, CA MSA	\$41.00	\$31.69	\$31.06	\$16.75
Washington-Arlington-Alexandria, DC/VA/MD/WV MSA	\$38.45	\$28.79	\$29.77	\$14.17
United States	\$31.70	\$24.42	\$24.65	\$12.87

Source: May 2014 Metropolitan and Nonmetropolitan Area Occupational Employment and Wage Estimates, U.S. Bureau of Labor Statistics

The cost of wages for persons employed in Huntsville, AL may appear to be relatively low when compared to San Jose, CA and Washington, DC. However, when the cost of living is considered, wages are considerably higher and provide newcomers more buying power for their money.

Additionally, the cost of wages for military personnel employed at Redstone Arsenal may appear to be relatively low when compared to the Washington, D.C. and Atlanta, Georgia area, but higher when compared to the national average. Civilian personnel receive salaries based upon “Locality Pay.” There are 46 Locality Pay regions across the country. Redstone Arsenal is located in one of the least costly regions. **Table 1.7** provides a comparison of January 2016 wages for a GS9, Step 5 civilian employee for several areas of the United States, including Limestone and Madison Counties, Alabama.

TABLE 1.7
COMPARISON OF GS9, STEP 5 DoD CIVILIAN WAGES
AMONG OTHER LOCATIONS

<u>Area</u>	<u>Annual Pay for GS9, Step 5</u>
Rest of the United States	\$55,495
Huntsville (Limestone & Madison Co), AL	\$56,476
Atlanta, GA	\$58,033
Raleigh-Durham, NC	\$57,237
Richmond, VA	\$56,665
San Jose, CA	\$65,881
Washington, DC-Baltimore, MD	\$60,557

V. Cost of Living

The cost of living in the Huntsville metropolitan area is among the lowest in the United States. This section will detail the overall cost of living composite index among other metropolitan areas, show increased salary requirements for moving from Huntsville to other selected metropolitan

areas, and provide an overview of the area’s cost for items not included in the overall composite score, such as sales tax and insurance.

A. Cost of Living Composite Index

An assessment of the Composite Cost of Living Index was conducted. The Composite Cost of Living Index wraps the cost of grocery items, housing, utilities, transportation, healthcare, and miscellaneous goods and services into one overall category. Each subcategory is weighted appropriately to determine the composite index. A comparison was drawn between the Huntsville metropolitan area and other selected locations (refer to **Table 1.8**). The Huntsville metropolitan area still maintains a low cost of living when this comparison is made.

**TABLE 1.8
COST OF LIVING COMPOSITE INDEX
COMPARISON OF SELECTED METROPOLITAN AREAS**

Metropolitan Area	Composite Cost of Living Index
Huntsville, AL Metro	90.1
Atlanta, GA	98.5
Austin, TX	95.6
Charlotte, NC	96.2
Orlando, FL	98.3
Raleigh, NC	89.8
Richmond, VA	93.7
San Jose, CA	Not Available
Washington – Arlington-Alexandria DC-VA	147.6
United States	100

Source: The Council for Community and Economic Research (C2ER)
2015 Second Quarter Data

B. Cost of Living Versus Earnings

Once cost of living is considered, earnings must be substantially more in some larger metropolitan areas to maintain an acceptable standard of living. An evaluation of wages versus cost of living was conducted. The Huntsville metropolitan area was compared with other metropolitan areas. It was determined that in many cases wages paid in other metropolitan areas must be considerably higher than wages paid in Huntsville, in order to maintain an employee’s current standard of living. The cost of living in Atlanta, Georgia is 9.3% higher than in Huntsville, Alabama. The cost of living in Charlotte, North Carolina is 6.7% higher than in Huntsville. Additionally, the cost of living in the Washington, DC metro area is 63.8% higher than in Huntsville.

If Huntsville metro area residents move to an area with a higher cost of living, salary levels must increase to maintain the individual’s current standard of living. It was determined that:

- Persons moving to the Atlanta, Georgia metro area from the Huntsville metro area would require a 9.3% increase in after-taxes income to maintain their present lifestyle.
- Huntsville, AL metro residents moving to the Orlando, Florida metro area would require a 9.1% increase in after-taxes income to maintain their present lifestyle.
- Huntsville metro residents moving to the Washington-Arlington-Alexandria DC-VA metro area will require a 63.8% increase in after-taxes income to maintain their present lifestyle.

When comparing the wages of a GS9, Step 5 DoD Civilian, it is determined that the employee in Washington, D.C. earns about 7.2% more than their counterpart in Huntsville; yet when cost of living is considered, it costs 63.8% less to live in Huntsville. Additionally, it is determine that the GS9, Step 5 DoD Civilian in Atlanta, Georgia earns over 5% more than their counterpart in Huntsville, yet when cost of living is considered, it costs 9.3% less to live in Huntsville. Washington, D.C. area residents relocating to the Huntsville metro area can afford an adjustment in salary while maintaining a very high quality of life. The overall cost of living and wage differentials required to maintain a comparable standard of living, make the Huntsville metro area a desirable place to live.

C. Cost of Living - Other Items

The cost of other items not included in the Cost of Living Composite Index was compiled.

Income taxes in the State of Alabama have been historically low. A chart depicting levels of taxation at the State and local level is included at **Table 1.9** as follows:

TABLE 1.9	
STATE AND LOCAL TAX RATES	
Sales Tax	
City of Huntsville:	9%
Property Tax	
City of Huntsville:	\$5.80 per \$100 assessed value
Income Tax	
Local:	There are no local income taxes
<u>State of Alabama:</u>	
<i>For single persons, heads of families, & married persons filing separate returns:</i>	
	2% on First \$500 of taxable income
	4% on Next \$2,500 of taxable income
	5% on All taxable income over \$3,000
<i>For married persons filing a joint return:</i>	
	2% on First \$1,000 of taxable income
	4% on Next \$5,000 of taxable income
	5% on All taxable income over \$6,000

The cost of fire insurance varies per location and per insurance company selected. Each municipality and rural area within Madison County has been assigned a public protection classification. The City of Huntsville currently has a public protection classification rating of 1. The highest public protection classification rating is 1, with the lowest classification being 10. Needless to say, lower public protection classification ratings typically yield lower fire insurance rates. Consultation with local insurance companies must be done, as coverage rates vary from location to location, and the type of structure covered.

The cost of flood insurance varies throughout the region as well; however, residents of the City of Huntsville purchasing flood insurance receive a special price break. The City of Huntsville has been designated a “Class 8” through the Community Rating System. This designation results in a 10% reduction in flood insurance premiums. The City of Huntsville is currently working toward improving their rating even more, which would result in additional benefits to the community.

VI. Financial Outlook of Local Economy

The local economy is strong, is sustaining current municipal services and infrastructure, and has long-range financial plans in place to construct capital improvements needed to accommodate growth of the city’s population base. The area’s economic success is based primarily on a strong high-tech business presence in the Tennessee Valley Region, the expansion and diversification of local industry, and the area’s relatively low unemployment rate. An overview of the past financial performance and the financial outlook of the City of Huntsville is provided.

A. Economic Performance - A Current View of Huntsville

Municipal and county revenues are vulnerable to economic shifts that significantly affect consumer spending because consumption taxes (e.g. sales tax) are a substantial part of total revenue, so diversification of our major tax bases is critical. The national recession that began in 2008 affected the City, but not as much as in other areas. Huntsville began a period of recovery after the 2008-2010 national recession, and its financial position continued to strengthen to the present time. An important factor in managing tough economic conditions is the strength of the City’s economic development efforts. Strategic planning that focuses far into the future has helped promote revenue stability through business diversification and residential growth.

The City’s population, business base, and revenue grew at an accelerated rate through early 2008. With the recession, City revenues first stagnated in February 2008, then decreased, and began to stabilize in early 2010. The greatest impact was from lower consumer and construction industry spending that decreased sales tax and license revenue. Interest rates dropped sharply and City interest earnings followed. Federal government program spending in Huntsville remained basically stable throughout the recession, which lessened the recession’s affects of the City.

One of the biggest economic development efforts in recent years was mostly realized in 2011, as military program transfers associated with BRAC 2005 were completed, resulting in about 5,000 new employment positions at Redstone Arsenal. Since then, the City has aggressively cultivated partnerships with state and federal agencies, and as a result, a significant number of local road projects include state and federal funding. Most

notably, in 2014 the City and State agreed upon a \$250 million road improvement program, with each providing one-half of the cost. The City of Huntsville increased its sales tax by one percent on March 1, 2014 to finance its share. This five-year plan will greatly enhance major thoroughfares across the City, maintaining our short-commute reputation.

The following significant economic development projects were announced from 2013 to early 2015, due largely to incentives by the City and its valuable state and local government partners:

- Twickenham Square, a mixed development that includes residential units, a high rise office, a hotel, a City parking garage and a Publix grocery store in south downtown is complete, which has completely renovated the former federal housing project located there.
- Remington Outdoor Company purchased a facility and has located a new advanced manufacturing plant that has exceeded initial hiring numbers and compensation amounts.
- In June 2014, ground was broken at the Shops at Merchant Walk, a 100,000 square foot shopping development that is anchored by Whole Foods Market and will include other new venues to the City. Whole Foods was recently opened to the public.
- Cabela's constructed an 80,000 square foot superstore at the \$80 million mixed-use development at Parkside Town Centre in Huntsville. The store was recently opened, and is located near the intersection of Interstate 565 and Research Park Boulevard. It is the first Cabela's store in Alabama and one of only a handful in the Southeast.
- During 2014, the Bridge Street Town Center welcomed a new \$20 million Belk, three parking areas creating 1,023 new parking spaces, and several important retail and restaurant venues.
- Construction is underway of a 600,000 square foot plant on a 435 acre site for Polaris Industries, located in the city limits of Huntsville in Limestone County. Polaris specializes in all-terrain vehicles, the Polaris RANGER and RZR side-by-side vehicles, snowmobiles, motorcycles, and on-road electric/hybrid powered vehicles. The facility is on target for a 2nd quarter 2016 opening.
- In April 2015, work began on a mixed-use project called CityCentre at Big Spring Park, in the heart of downtown. Phase 1 will include a new-to-market boutique hotel, 31,000 square feet of retail stores and restaurants, 53,000 square feet of office loft space, and 200 multi-family apartments.

Related to this, work continues at the Redstone Gateway Park, a partnership between the City, Redstone Arsenal through its enhanced lease program, and private developers. The 468 acre, \$1 billion office park at Redstone's primary entrance will expand the City's ability to meet the needs of the local defense industry, and highly compliment Cummings Research Park. Much of the public infrastructure has been completed through the City's TIF 5, and office buildings are complete and occupied with new ones under construction. The development boasts 4.4 million square feet of Class A office space and

approximately 1.2 million square feet of secured office space inside the Arsenal's gated perimeter. Boeing is the first tenant, occupying three buildings and 350,000 square feet.

Huntsville City Schools is building or rebuilding \$200 million of school facilities across the city. This combined with improvements in educational achievement throughout the system are further enhancing the City's reputation as a place for quality public education.

Other highlights of the City's economic standing are as follows:

- Standard and Poor's assigned Huntsville a bond rating of AAA, and Moody's Investors Services rates the City as Aaa. The triple-A ratings are the highest a city can achieve, and are awarded to a minority of government entities in the nation. Less than two percent of 17,205 municipal and county governments across America receive the AAA rating. The City of Huntsville is the first city in the State to achieve this rating, and has received this distinction for eight consecutive years. The City of Huntsville is recognized as the highest rated city in Alabama from both entities. Its high ratings are primarily attributable to the stable job market anchored by Redstone Arsenal and high wealth levels associated with the local educated and high-tech workforce. It is further important to note that these ratings were initially achieved during a period in which the City was managing economic struggles while maintain an aggressive economic development plan.
- The assets of the City exceeded its liabilities at the close of fiscal year 2014 by about \$857 million.

B. Planned Improvements to Accommodate a Growing Population

Local municipalities have financial plans in place to accommodate future population growth and the additional amenities required to maintain appropriate levels of service. The City of Huntsville has a Capital Improvements Plan (CIP) in place covering a time period of ten years. The CIP details specific projects related to road improvements, drainage, traffic improvements, sidewalks, educational facilities, economic development, and public safety, as well as upgrades and construction of community and recreational facilities. The City of Huntsville has planned improvements for the next ten years in excess of \$259.8 million. This proactive planning of future projects to enhance the community's quality of life is a testament to the area's dedication to anticipated growth and development.

VII. Current Economic Development Initiatives

The area's history of supporting the growth and development of its economy, coupled with the proactive planning for infrastructure improvements to support such growth, has greatly driven local economic development initiatives. The City of Huntsville has been recognized as the primary economic hub of the northern Alabama and southern Tennessee region. This recognition, as well as the area's success in past economic development initiatives, has caused investors to develop in Huntsville and the surrounding areas.

During the past several years, an international industry and a multitude of developers have announced major development and redevelopment projects in the area. Current economic development and expansion activities in Huntsville include the construction of a 600,000 square

foot plant for Polaris Industries, located in the city limits of Huntsville in Limestone County. This company is expected to provide 2,000 jobs to persons in the region. GE Aviation has announced an investment of over \$200 million to construct 2 facilities in Huntsville. The facilities are expected to be completed in 2018 and employ up to 300 people. An Enhanced Use Lease with Redstone Arsenal for a \$1 billion construction of mixed use facilities both behind the gate and immediately outside the western side of the installation is nearly complete. Retail expansion is occurring in the City of Huntsville, with a significant mixed use development in the downtown area.

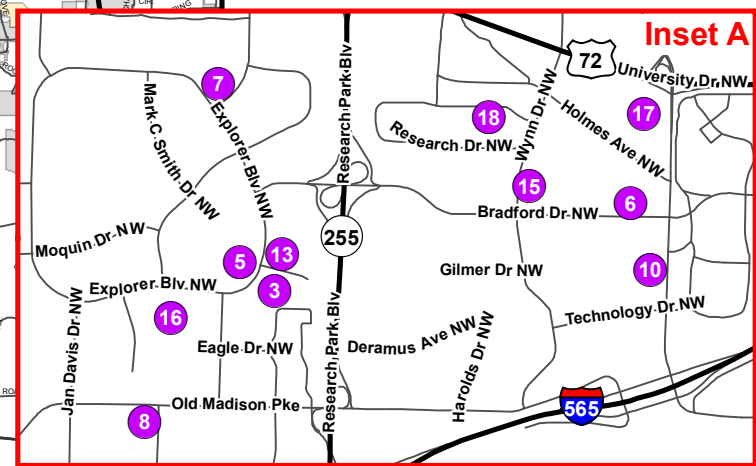
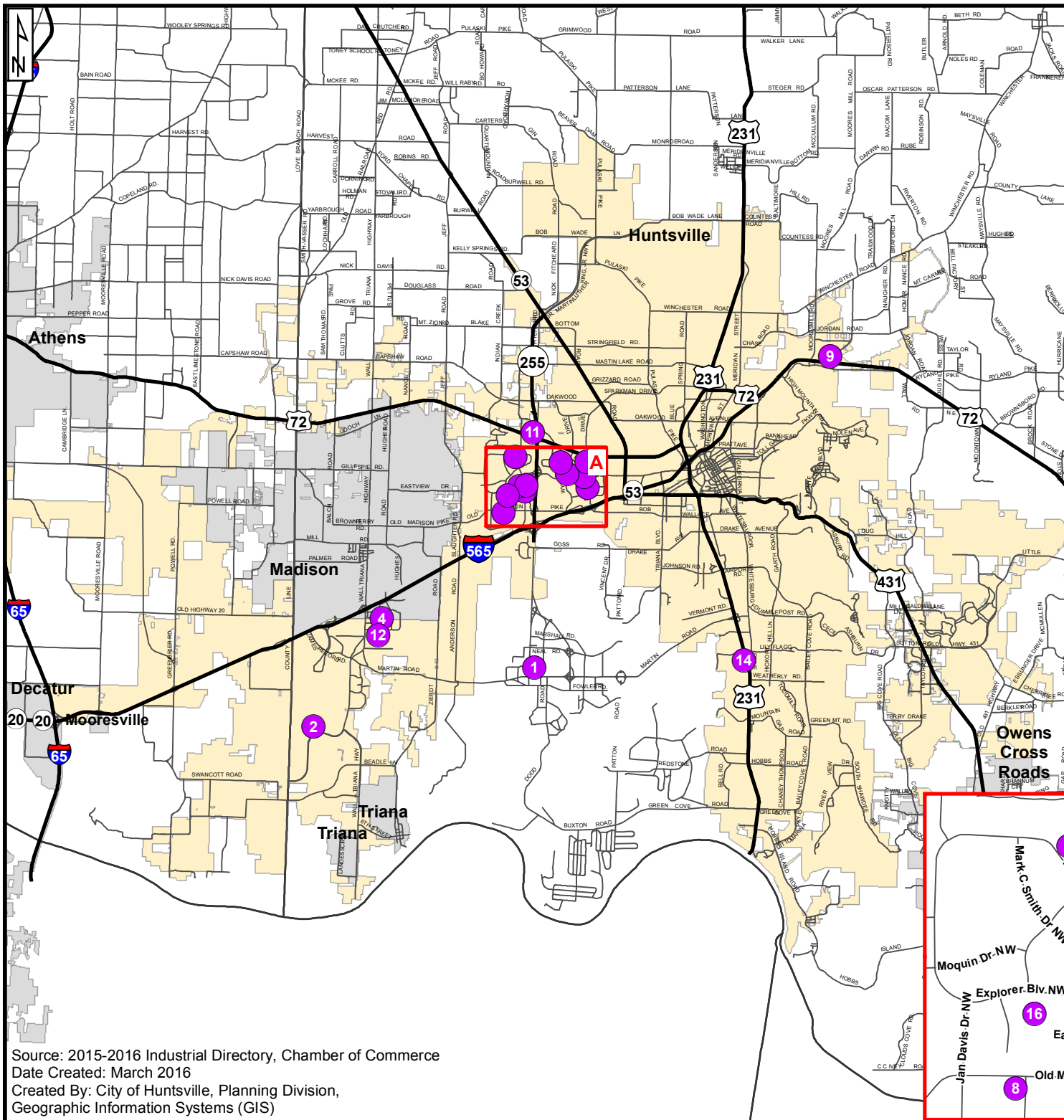
The initiative of developers and corporations to invest in the region represents good faith in the solidity of the municipal government's economy, and faith in local government's commitment to proactively plan for amenities and services that make these developments worthwhile.

Map 1.1 Major Defense Employers in the City of Huntsville

● Defense Industry

ID Company Name Employees

1	Redstone Arsenal/U.S. Army	31,500
2	The Boeing Company	2,600
3	SAIC	2,229
4	Intergraph Corporation	1,325
5	Northrop Grumman	1,200
6	Lockheed Martin	1,084
7	Dynetics, Inc.	1,009
8	Wyle/CAS, Inc.	975
9	PPG Aerospace	750
10	Teledyne Brown Engineering	721
11	Jacobs	710
12	SES, LLC	692
13	COLSA Corporation	598
14	SCI Technology, Inc.	563
15	Raytheon Systems Company	560
16	Vencore, Inc.	500
17	ERC, Inc.	480
18	Parsons (SPARTA, Inc.)	409

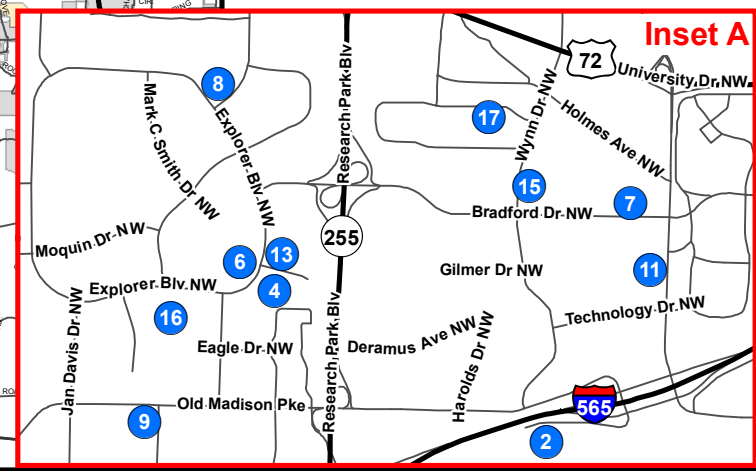
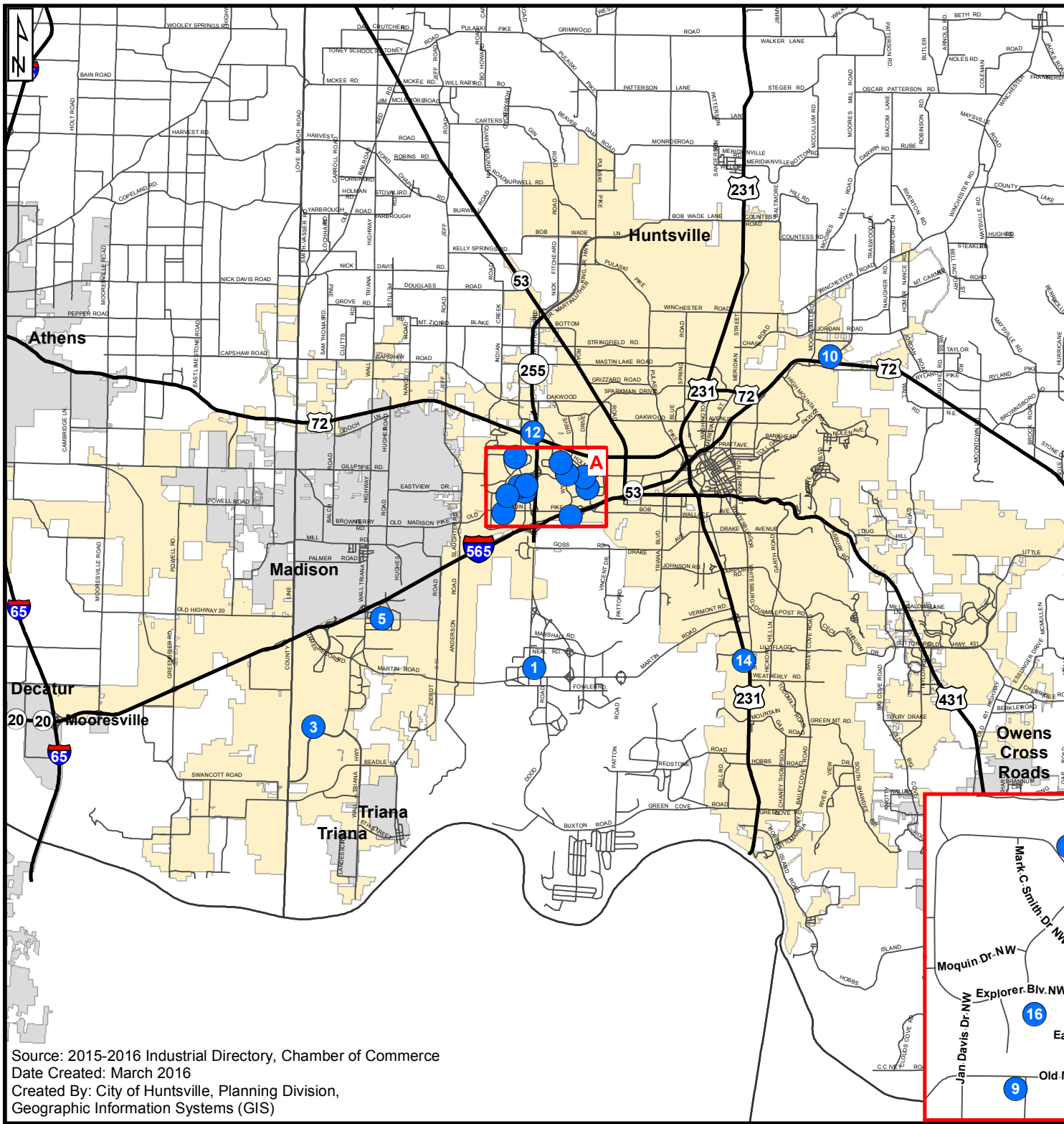


Map 1.2 Major Aerospace Employers in the City of Huntsville

● Aerospace Industry

ID Company Name Employees

1	Redstone Arsenal/U.S. Army	31,500
2	NASA	6,500
3	The Boeing Company	2,600
4	SAIC	2,229
5	Intergraph Corporation	1,325
6	Northrop Grumman	1,200
7	Lockheed Martin	1,084
8	Dynetics, Inc.	1,009
9	Wyle/CAS, Inc.	975
10	PPG Aerospace	750
11	Teledyne Brown Engineering	721
12	Jacobs	710
13	COLSA Corporation	598
14	SCI Technology, Inc.	563
15	Raytheon Systems Company	560
16	Vencore, Inc.	500
17	PARSONS(SPARTA, Inc.)	409



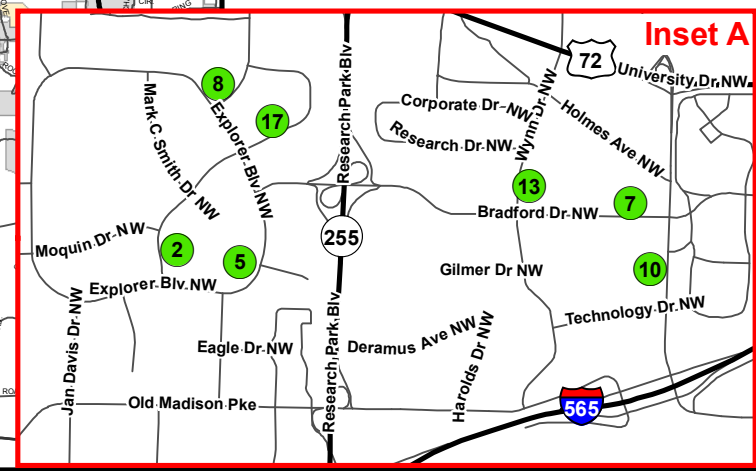
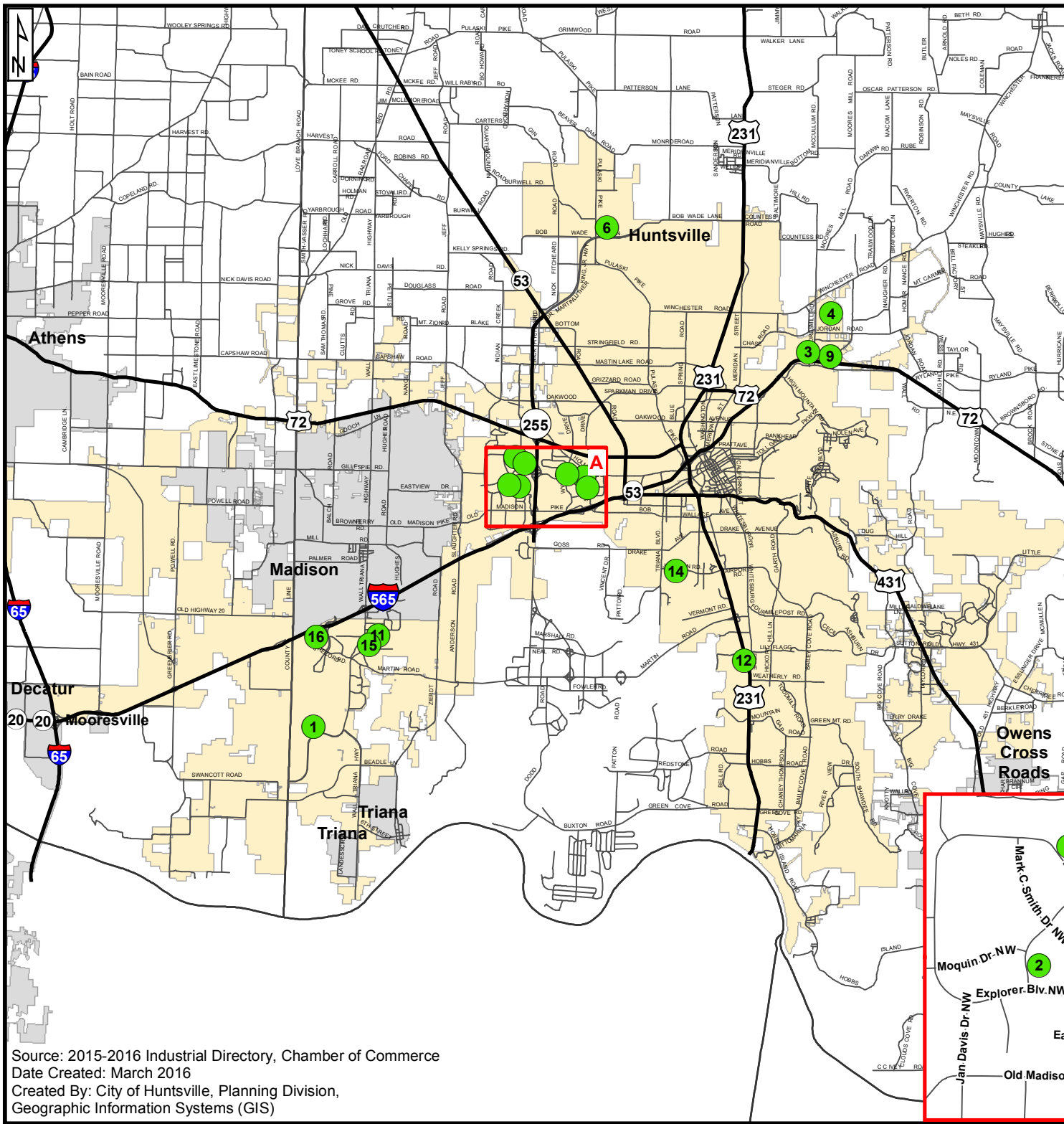
Source: 2015-2016 Industrial Directory, Chamber of Commerce
Date Created: March 2016
Created By: City of Huntsville, Planning Division,
Geographic Information Systems (GIS)

Map 1.3 Major Manufacturing Employers in the City of Huntsville

● Manufacturing Industry

ID Company Name Employees

1	The Boeing Company	2,600
2	ADTRAN, Inc.	1,549
3	Technicolor	1,450
4	Par Pharmaceutical	1,350
5	Northrop Grumman	1,200
6	Toyota Motor	
6	Manufacturing Alabama, Inc.	1,150
7	Lockheed Martin	1,084
8	Dynetics, Inc.	1,009
9	PPG Aerospace	750
10	Teledyne Brown Engineering	721
11	SES, LLC	692
12	SCI Technology, Inc.	563
13	Raytheon Systems Company	560
14	PHOENIX	520
15	BASF Corporation	490
16	LG Electronics Alabama, Inc.	360
17	Yulista	360



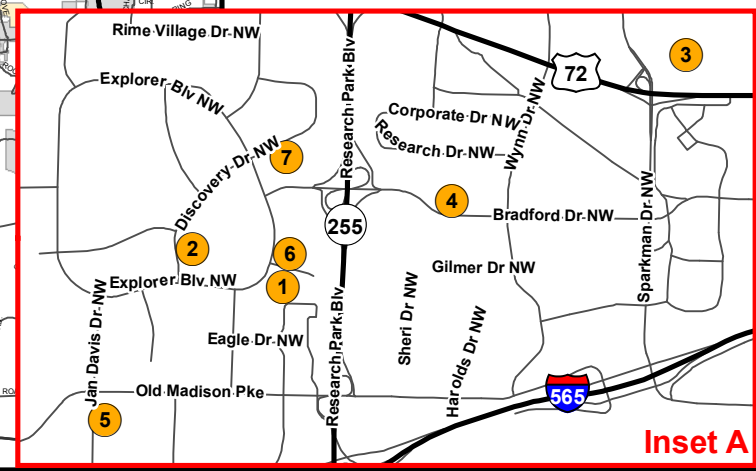
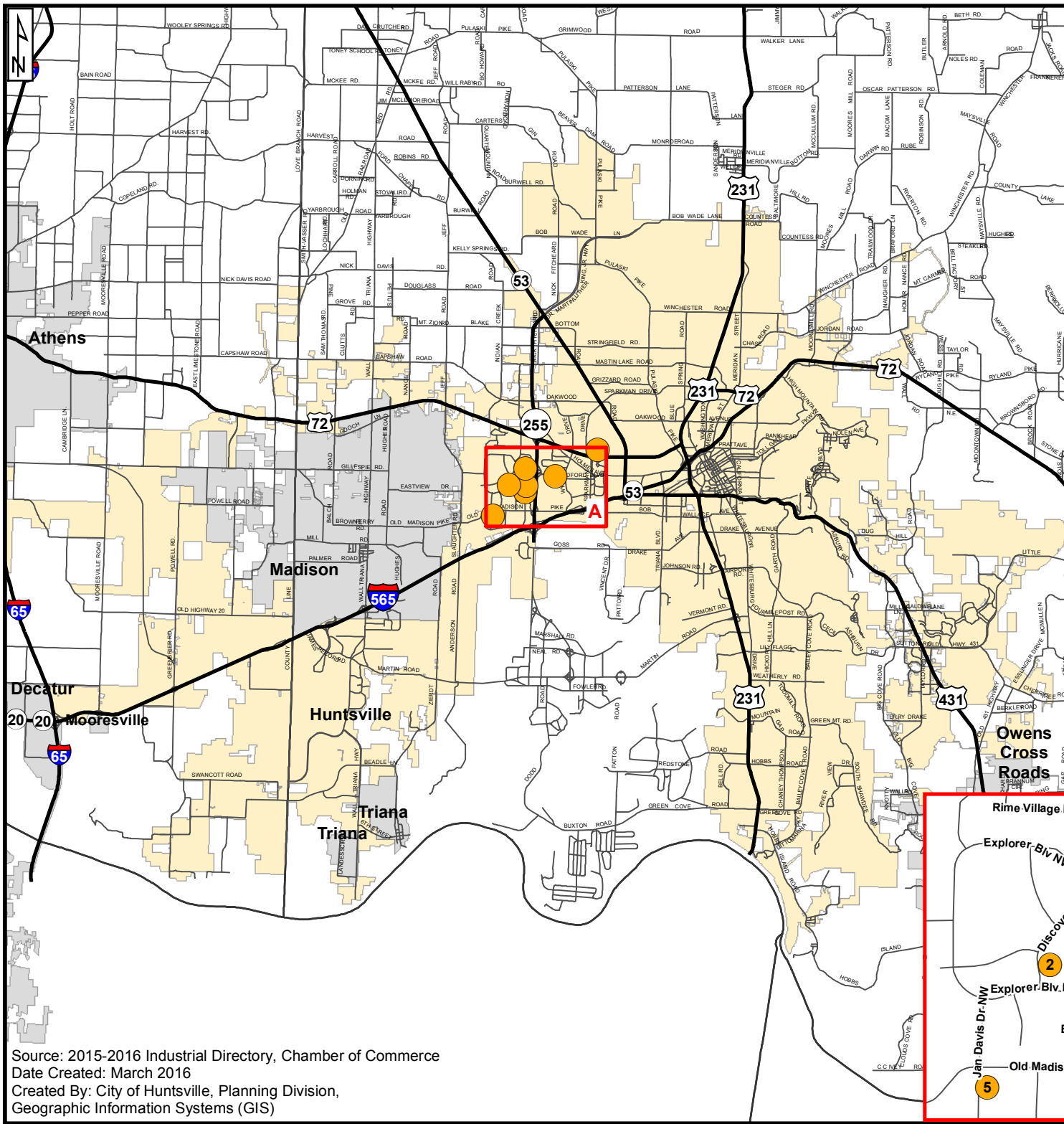
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Map 1.4 Major Telecommunications Employers in the City of Huntsville

● Telecommunications Industry

ID	Company Name	Employees
1	SAIC	2,229
2	ADTRAN, Inc.	1,549
3	Verizon Wireless	1,200
4	West Corporation	850
5	Direct TV Group	750
6	COLSA Corporation	598
7	AT&T	325



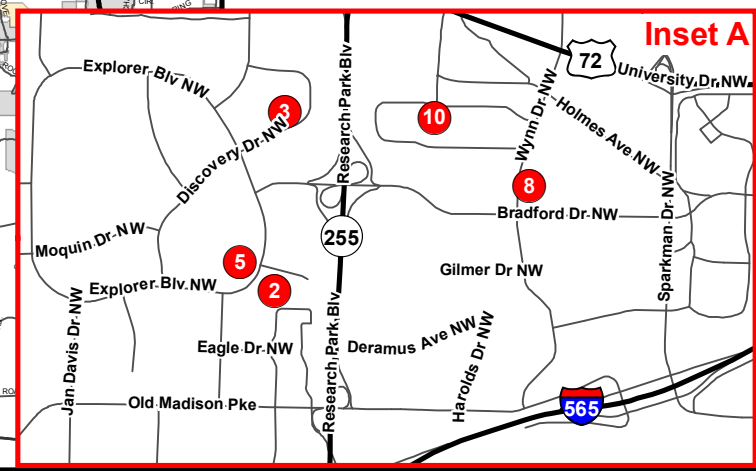
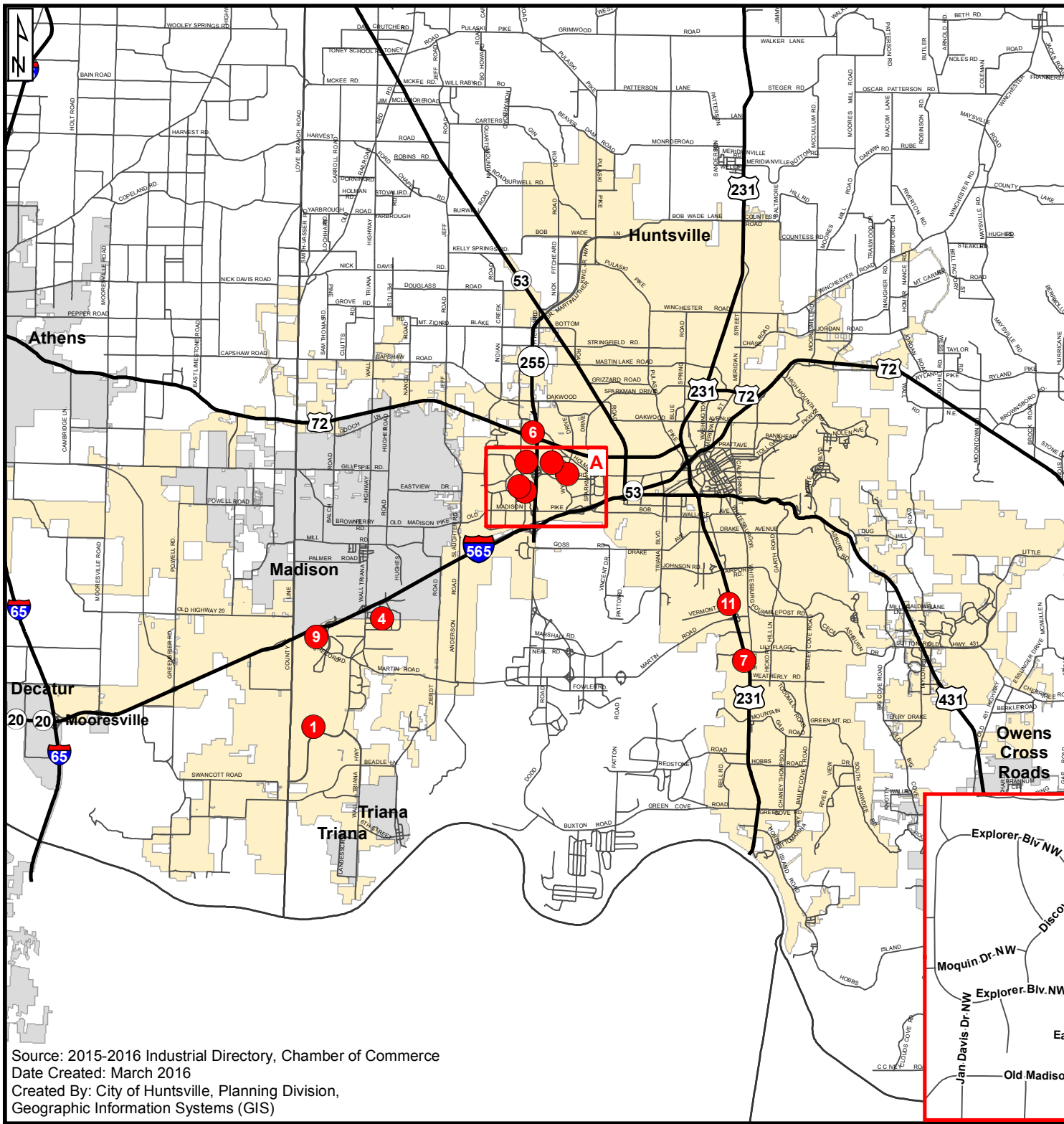
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Map 1.5 Major Electronics Employers in the City of Huntsville

● Electronics Industry

ID	Company Name	Employees
1	The Boeing Company	2,600
2	SAIC	2,229
3	Camber Corporation	2,000
4	Intergraph Corporation	1,325
5	Northrop Grumman	1,200
6	Jacobs	710
7	SCI Technology, Inc.	563
8	Raytheon Systems Company	560
9	LG Electronics Alabama, Inc.	360
10	Emerson Network Power	350
11	CSC	300



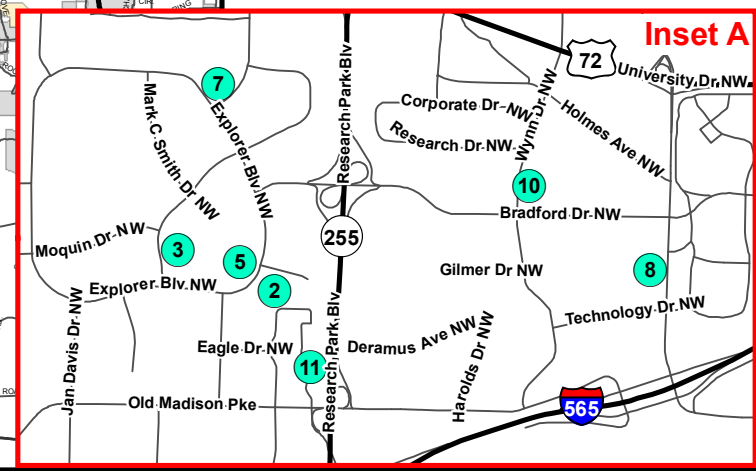
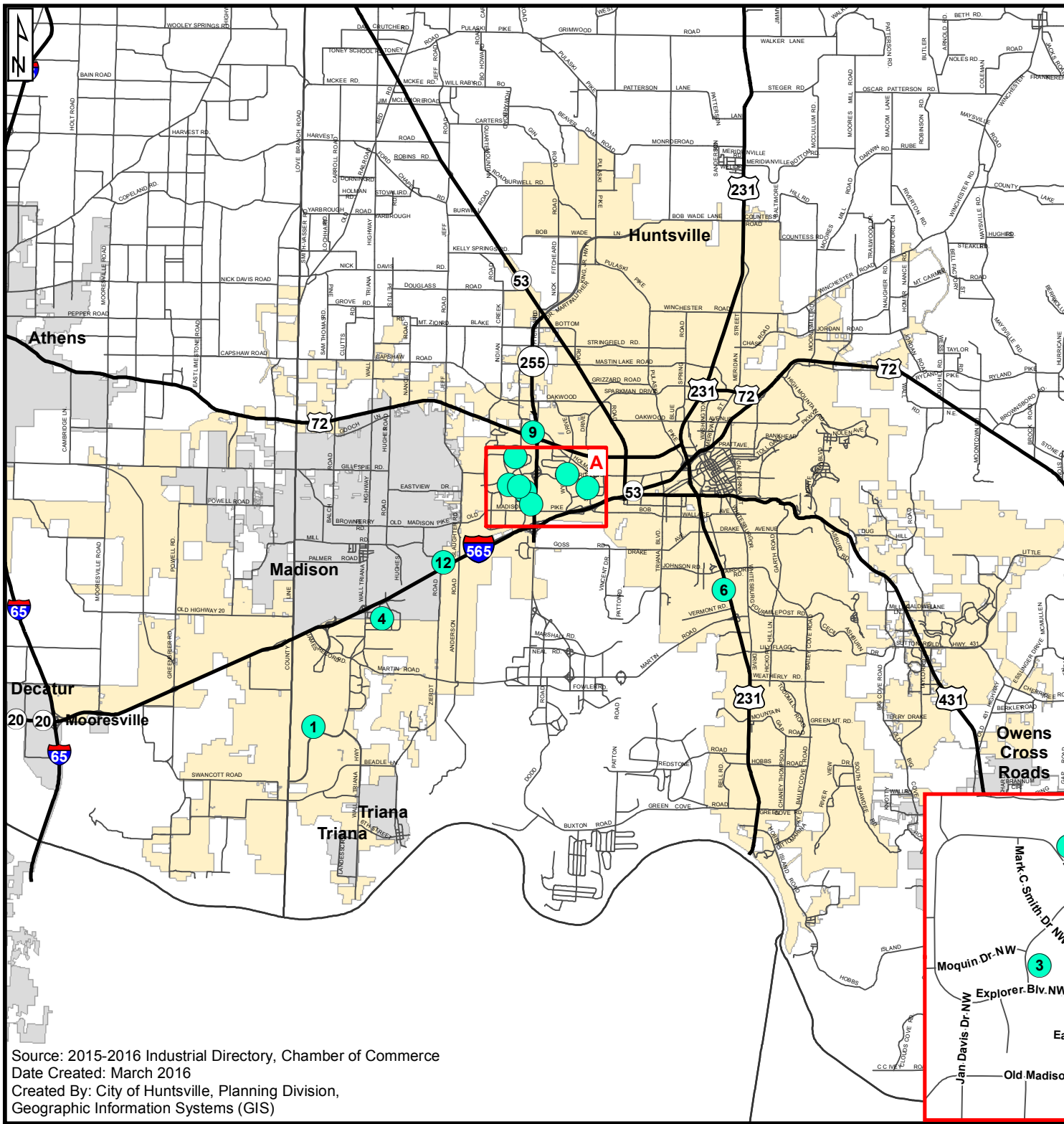
Source: 2015-2016 Industrial Directory, Chamber of Commerce
 Date Created: March 2016
 Created By: City of Huntsville, Planning Division,
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Map 1.6 Major Software Development Employers in the City of Huntsville

● Software Development Industry

ID Company Name Employees

1	The Boeing Company	2,600
2	SAIC	2,229
3	Adtran, Inc	1,549
4	Intergraph Corporation	1,325
5	Northrop Grumman	1,200
6	Lockheed Martin	1,084
7	Dynetics, Inc.	1,009
8	Teledyne Brown Engineering	721
9	Jacobs	710
10	Raytheon Systems Company	560
11	CSC	300
12	Wyle Laboratories, Inc.	174



Source: 2015-2016 Industrial Directory, Chamber of Commerce
Date Created: March 2016
Created By: City of Huntsville, Planning Division,
Geographic Information Systems (GIS)

CHAPTER 2 HOUSING CHARACTERISTICS AND AVAILABILITY

I. Key Facts and Conclusions

One major concern when deciding to relocate to another area is the immediate availability of quality and affordable housing. This is not a problem within the Huntsville-Madison County area. An evaluation of local housing availability and affordability shows that these issues should not pose a concern.. A variety of housing resources in the community have either been constructed or are in the process of being constructed.

II. On-Post Housing

The City of Huntsville has provided support to improve the quality of housing available on-post. The City of Huntsville, in coordination with the State of Alabama, took unprecedented action during 2003 and provided financing for the construction of three houses on-post for the three commanding officers: the Commanding General of Redstone Arsenal, the General of PEO Aviation, and the General of PEO Tactical Missiles. A total of \$1,050,000 was invested for the construction of these homes that replaced the previous 1950s era housing. Actual construction and project management was handled by the Huntsville-Madison County Homebuilders Association. Construction was completed during the fall of 2003. During 2005, the City of Huntsville also provided financing for seven additional General Officers' Quarters, in the amount of \$2,750,000. Construction of these dwellings was also managed by the Huntsville-Madison County Homebuilders Association, and has been completed.

III. Huntsville Area Housing

A. General Characteristics

According to the US Census Bureau, 70% of area residents are homeowners. Approximately 71.2% of the housing inventory in the Huntsville metropolitan area consists of single-family detached units, and an average house will have 6 rooms. Persons relocating to the Huntsville-Madison County area will find that housing is readily available and affordable. They will also find a quality of small-town community and desirable amenities within a bustling metropolitan area.

B. Affordability

According to the 2000 Census, the median value of housing in the Huntsville metro area is \$154,500, and the median value of monthly rent payments is \$682. Comparisons of the median housing and rent costs among selected metropolitan areas was conducted, and are shown at **Table 3.1** and **Table 3.2**. These comparisons reveal that housing and rents in the Huntsville, Alabama MSA are low. Richmond, Virginia's median value of housing is 47.3% more than Huntsville's, with Washington, DC being 158.5% more and San Jose being a staggering 336.7% more. The cost of rent in San Jose is 113.1% more than the Huntsville metro area's, with Washington, DC's being 98% more than the Huntsville MSA. In fact, housing in the Huntsville metropolitan area is among the most affordable in the State of Alabama. According to the Alabama Real Estate Research and Education

Center of the University of Alabama, the Statewide housing affordability index was reported at 202.4 during the third quarter of 2015, with the Huntsville metropolitan area's index reported at 230.0. The housing affordability index is calculated as a ratio of the State's or metropolitan area's actual median income to the income needed to purchase and finance the State's or metropolitan area's median priced home. An index number of 100 means that a family earning at median income levels has just enough buying power to qualify for a mortgage loan on a median priced home. The higher the index number, the more affordable the housing. Third quarter statistics provided by the Alabama Real Estate Research and Education Center indicate that as of September 2015, the estimated median income for the Huntsville metropolitan area was \$75,000 and the median sales price for housing was \$178,305. The Huntsville metropolitan area's housing affordability index number of 230.0 means that local families earning the area's median income have over twice the income needed to qualify for a loan on a metro area median-priced home. In other words, a family earning the Huntsville metropolitan area's median income could qualify for and purchase a home valued at \$410,102.

**TABLE 2.1
MEDIAN COST OF HOUSING
FOR SELECTED METROPOLITAN AREAS**

Metropolitan Area	Median Value of Housing
Huntsville, AL MSA	\$154,500
Atlanta-Sandy Springs-Marietta, GA MSA	\$184,900
Austin-Round Rock-San Marcos, TX MSA	\$186,300
Charlotte-Gastonia-Rock Hill, NC/SC MSA	\$171,400
Orlando-Kissimmee-Sanford, FL MSA	\$201,100
Raleigh-Cary, NC MSA	\$202,900
Richmond, VA MSA	\$227,600
San Jose-Sunnyvale-Santa Clara, CA MSA	\$674,800
Washington-Arlington-Alexandria, DC/VA/MD/WV MSA	\$399,400
United States	\$186,200

Source: 2011 American Community Survey (5-year Estimates), U.S. Census Bureau (Metropolitan Statistical Areas are defined by the US Census Bureau).

**TABLE 2.2
MEDIAN COST OF RENT
FOR SELECTED METROPOLITAN AREAS**

Metropolitan Area	Median Contract Rent
Huntsville, AL MSA	\$682
Atlanta-Sandy Springs-Marietta, GA MSA	\$937
Austin-Round Rock-San Marcos, TX MSA	\$936
Charlotte-Gastonia-Rock Hill, NC/SC MSA	\$818
Orlando-Kissimmee-Sanford, FL MSA	\$1,018
Raleigh-Cary, NC MSA	\$855
Richmond, VA MSA	\$921
San Jose-Sunnyvale-Santa Clara, CA MSA	\$1,454
Washington-Arlington-Alexandria, DC/VA/MD/WV MSA	\$1,353
United States	\$871

Source: 2011 American Community Survey (5-year Estimates), U.S. Census Bureau (Metropolitan Statistical Areas are defined by the US Census Bureau).

C. Availability

According to the Huntsville-Madison County Board of Realtors, over 6,617 homes in the Huntsville metropolitan area were on the market during the month of November 2015. The yearly average of homes on the market in the area during 2014 totaled 7,445. This trend of housing availability has been noticed since the close of 2009.

Not only are there homes currently available to support a relocating population, but new home construction is offered as an option as well. The Huntsville-Madison County area has experienced a home construction boom. Developers are actively preparing subdivisions and lots for new construction to begin. A count was taken of all residential preliminary or final subdivisions that have been approved by the City of Huntsville between January 2012 and November 2015. The assessment revealed that a total of 2,511 lots were being prepared for new housing construction (refer to **Map 2.1**). Also, several apartment complexes yielding a total of 1,791 units are currently under development. In addition to this construction, a total of 1,139 lots and 60 apartment units in the City of Huntsville have been approved for future development.

D. Quality of Community

Many of the new subdivisions that have been constructed or are in process of being constructed provide amenities beyond just the proximity of neighborhood schools. The current trend is toward total planned communities that include amenities such as walking trails, lakes, parks, clubhouses, swimming pools, tennis facilities, and in some instances golf courses, restaurants, and specialty stores. These communities encourage and provide amenities for a balanced lifestyle.

Many established communities have active community or civic organizations that proactively interact with local elected officials and city/county agencies to ensure that a high quality of life and high standards of services are maintained within neighborhoods.

IV. Retirement Housing

Many persons employed at Redstone Arsenal fall in love with the Tennessee Valley Region, and choose not to leave upon retirement. According to the latest estimates, Redstone Arsenal reports that approximately 150,000 retirees and their families reside in the North Alabama area. To serve the housing needs of an aging population, various residential amenities are available that cater specifically to retirees in place, as well as older persons that may be relocating with family members to the Huntsville metropolitan area. Full-service continuing care communities, assisted living facilities, senior apartments, and nursing homes are prevalent.

A. Continuing Care Communities

The concept of continuing care is new to the area. These facilities provide all aspects of senior living to its residents, from independent living to 24-hour nursing care. Currently, Magnolia Trace (<http://www.actsretirement.org/community-locations/al/magnolia-trace-huntsville/>) is a provider of these services in the Huntsville community. At Magnolia Trace, residents can live in apartments, duplexes, or single family homes. As health care needs change, residents can take advantage of Willow Brooke Court, an on-site state-of-

the-art health center that provides for short-term or long-term assisted living and skilled nursing care. Residents are provided with home maintenance, weekly maid service, yard service, and various dining options. Other specialized amenities are available as well.

Redstone Village (www.redstonevillage.org) is a continuing care facility that is open to retirees. The development caters directly to military retirees, their spouses, and widows. Redstone Village is a specialized retirement community providing high-quality housing options and service. The community offers spacious one- and two-bedroom apartments, cottages, and patio homes, and on-site long-term care if necessary. Residents are provided with numerous services to include housekeeping, restaurant-style dining, banking and postal services, home maintenance, transportation, as well as security monitoring. Other amenities are available such as a business center/computer room with internet access, a library, lounge, creative arts studio, severe weather shelters, and a fitness center with state-of-the art equipment. This development was supported locally by the Redstone Military Retirement Residence Association and Board of Directors, which is led by U.S. Army, Brigadier General William Fiorentino.

Regency Retirement Village (www.regencyretirementvillage.com) is another continuing care facility that offers independent living, assisted living, memory care apartments, skilled nursing care, and short-term stays. The independent living option offers apartments in one and two bedroom styles, and provides residents with 3 meals daily, weekly housekeeping, transportation if needed, activities, and much more. Regency Retirement Village is also licensed for 82 assisted living residents (61 apartments), for senior adults that need assistance with the activities of daily living, but do not need the skilled medical care provided by a nursing home. The memory care apartments at Regency Remembrances, is a specialty care assisted living community, providing a combination of residential housing and personalized assistance for those individuals with Alzheimer's or other dementia-related needs. The apartments are located on a secured wing with its own dining area, and provide both private and semi-private accommodations. Licensed nurses administer all medications, and all meals and personal laundry services are included, through a specially trained staff that is available 24 hours a day. Skilled nursing is provided through Regency Health Care and Rehabilitation Center, a Medicare and Medicaid certified, licensed, skilled nursing facility. Regency Retirement Village also offers a short-term retirement housing program for instances when families may need a helping hand in caregiving for elderly loved ones. On occasions of caregiver stress, when one simply needs a break, or when one must travel away from home, the short-term stay program allows for elderly loved ones to have their own private suite and be able to participate in all of the amenities that full-time residents enjoy.

B. Independent Living, Assisted Living Communities, and Nursing Homes

Other various independent living, assisted living facilities and nursing homes are located in the Huntsville metro area. These facilities provide for limited independent living to 24-hour full-service skilled nursing care. A comprehensive resource list can be found at the Huntsville-Madison County Senior Center (<http://www.seniorview.com/senior-service-directory>). Very few of these facilities have web sites. A listing of available web sites for these properties are as follows:

Aldridge Creek Terrace (www.merrillgardens.com)

Brookdale at Jones Farm (www.brookdaleliving.com)

Brookshire Healthcare Center (www.brookshirehealthcare.com)

Country Cottage (www.cottageassistedliving.com)
Diversicare of Big Springs (www.diversicarebigsprings.com)
Elmcroft of Byrd Springs (www.elmcroft.com/community/elmcroft-of-byrd-springs/)
Floyd E. "Tutt" Fann State Veterans Home (www.va.state.al.us/homes.htm)
Harbor Chase of Huntsville (www.harborchase.com)
Magnolia Trace (www.actsretirement.org/community-locations/al/magnolia-trace-huntsville/)
Millennium Nursing and Rehab (www.thmgt.com/millennium)
Redstone Village (www.redstonevillage.org)
Windsor House (www.dvcr.com)

C. Specialty Care Assisted Living

The region has in place various facilities that provide 24-hour care in a secure-locked environment for people with a diagnosis of Dementia/Alzheimer's. Services generally provided are assistance with dressing, bathing, toileting, meals, etc. Costs are private pay and are not covered by medical insurance. The facilities and their associated websites are as follows:

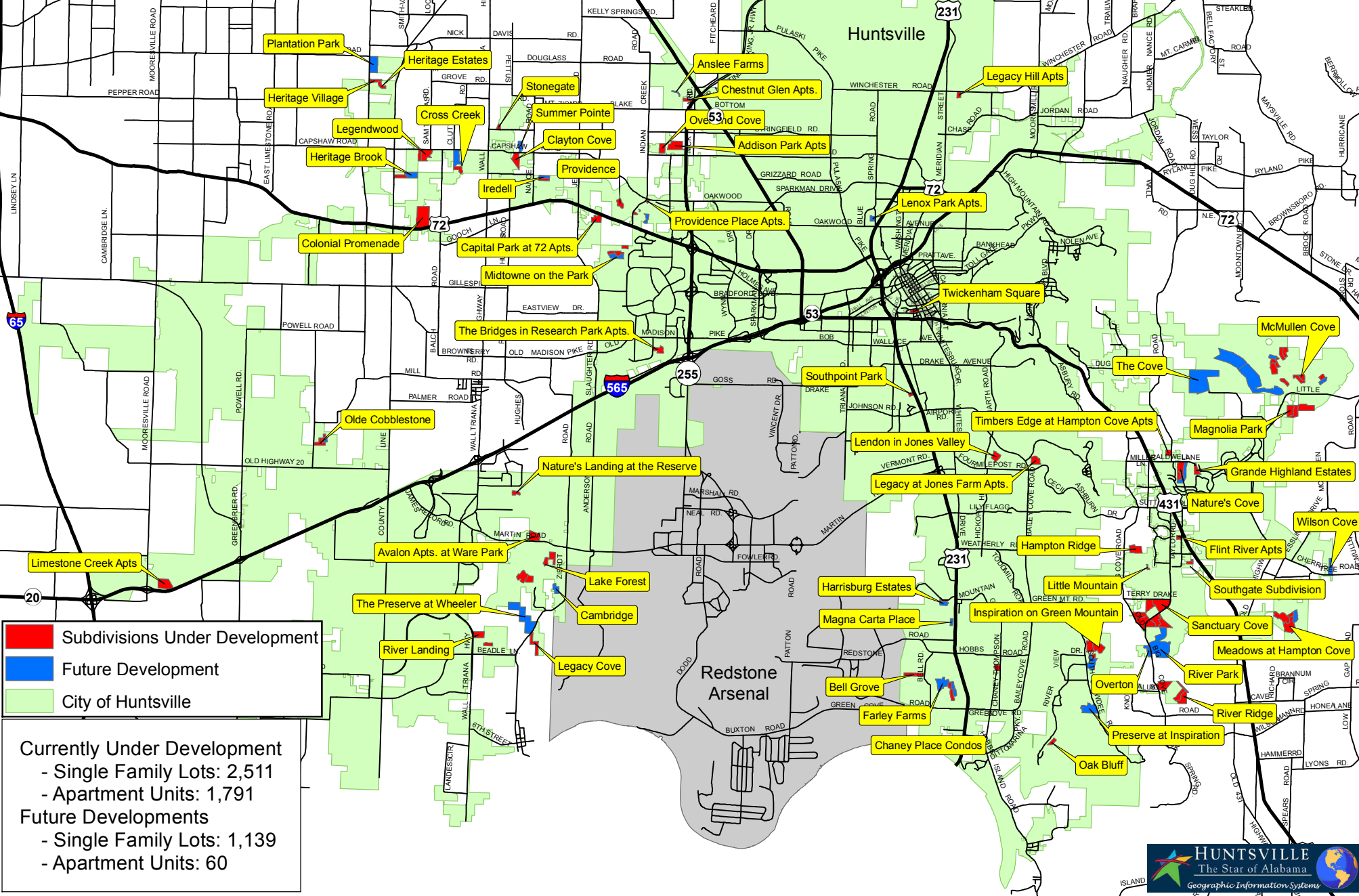
Clare Bridge of Hampton Cove/Brookdale Senior Living (www.brookdate.com)
Grandview Gardens at Redstone Village (www.redstonevillage.org)
Harbor Chase of Huntsville Specialty Care (www.harborretirement.com)
Haven for Greater Living (www.thehaven.com)
Merrill Gardens of Madison (www.merrillgardens.com/seniorliving)
Regency Retirement Village (www.regencyretirementvillage.com)

D. Senior Apartments

Senior apartments are also prevalent in the Huntsville-Madison County area. Fifteen independent living apartment complexes provide housing exclusively for senior residents. Valley Garden Apartments, located in Huntsville, tends to have residents of all ages with a primary senior population.

A variety of housing options to meet all needs, is available to accommodate an increase of population within the Huntsville-Madison County area. The selection of available housing is indeed affordable, and includes existing housing, construction of new housing on available lots, and apartments. Additionally, varied housing options that cater directly to the senior population are prevalent.

Map 2.1 Major New Subdivision Developments in Huntsville from Jan. 2012 to Nov. 2015



2-6

CHAPTER 3 INFRASTRUCTURE AND ENVIRONMENT

I. Key Facts and Conclusions

The City of Huntsville has adequate infrastructure and a high environmental quality to support its current residents, as well as an increase in population. The City's departments and agencies have short-term and long-term plans in place to pursue various improvement projects to support a growing population. These departments and agencies are working continually and diligently in planning and constructing improvements, while at the same time preserving the environmental integrity of the community. Local government's commitment to provide an adequate infrastructure to support a growing population, and in providing a clean environment for residents to live, is evident in the financial and management support that these initiatives receive.

- Ground transportation infrastructure is excellent, and commute times have remained stable over the last 10 years, even though the number of commuters has significantly increased.
- Air transportation connects to 10 major hubs, and the International Intermodal Center (IIC) provides key air and rail connectivity.
- Water, sewer, and networking infrastructure is in place and pre-planned for future needs.
- Environmental quality is taken seriously.

II. Transportation

Almost every large community has complex problems with transportation issues. This is not the case with the Huntsville-Madison County community. The Huntsville-Madison County area generally has effectively performing roadway networks. Community leaders have made, and are continuing to make, tremendous investments in the local transportation infrastructure as well as public transit systems. These investments positively impact the region with increased mobility on the local transportation network.

A. Current Roadway Networks

Current roadway networks are generally performing well. Multi-dimensional reviews of the area's transportation network have been conducted through comprehensive transportation studies to determine system mobility.

1. State of the System

When current network accessibility is examined, performance is found to be outstanding. Network accessibility has been measured by referring to transportation related statistics available from the US Census Bureau. Conclusions have been drawn from data presented in the Huntsville Planning Division's "Journey to Work" publication and the latest US Census data, which measure commuting patterns countywide. The statistics available in this report

are the measure of choice, since most peak-time travel is work-related, and most roadway congestion typically occurs during this time.

County-Wide Accessibility

Upon evaluating the available statistics, it was determined that overall congestion in the area is not extreme and network accessibility is acceptable. Under free flow conditions, persons can typically commute from one end of the county to the other in about 30 to 40 minutes. **Table 3.1**, which follows, shows some comparisons of Journey to Work Data between 2000 and 2010.

**TABLE 3.1
YEAR 2000 vs. YEAR 2010
LOCAL JOURNEY to WORK STATISTICS**

Location	% Drove Alone		% In Carpools		% Using Public Transit		% Using Other Means		% Walked or Worked at Home		Average Travel Time (Minutes)	
	2000	2010	2000	2010	2000	2010	2000	2010	2000	2010	2000	2010
Alabama	83%	83.6%	12.3%	11.1%	.5%	.5%	.9%	1.1%	3.4%	3.8%	24.8	23.9
Madison County	83.9%	85.0%	11.3%	9.6%	.4%	.4%	.7%	1.0%	3.6%	4.0%	20.9	20.8
Huntsville	83.8%	83.4%	11.2%	10.3%	.5%	.7%	.7%	1.3%	3.9%	4.4%	18.0	18.1
Madison	87.1%	88.9%	9.9%	7.5%	.1%	.1%	.4%	.6%	2.6%	3.0%	18.2	19.7

Source: US Census Bureau (Census 2000 and 2010 American Community Survey) and City of Huntsville Planning Division

The most noted change in review of commuting characteristics is the increase of single vehicles accessing the network. Even with an increase in the number of vehicles using the transportation network, the mean travel time to work increased in the City of Huntsville by a mere .1 minute during 2010.

A countywide analysis of commuter patterns shows that the number of commuters increased in 2010 by 18.3%, yet commuters experienced a slight increase decrease in travel time to work in most communities. A comparison of total commuters is shown at **Figure 3.1**, and a breakdown of travel time per subarea is provided at **Table 3.2** and **Map 3.1**.

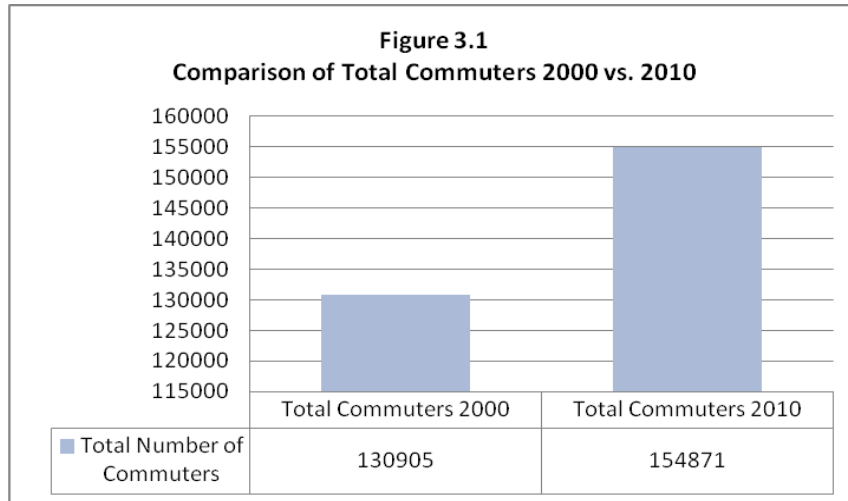


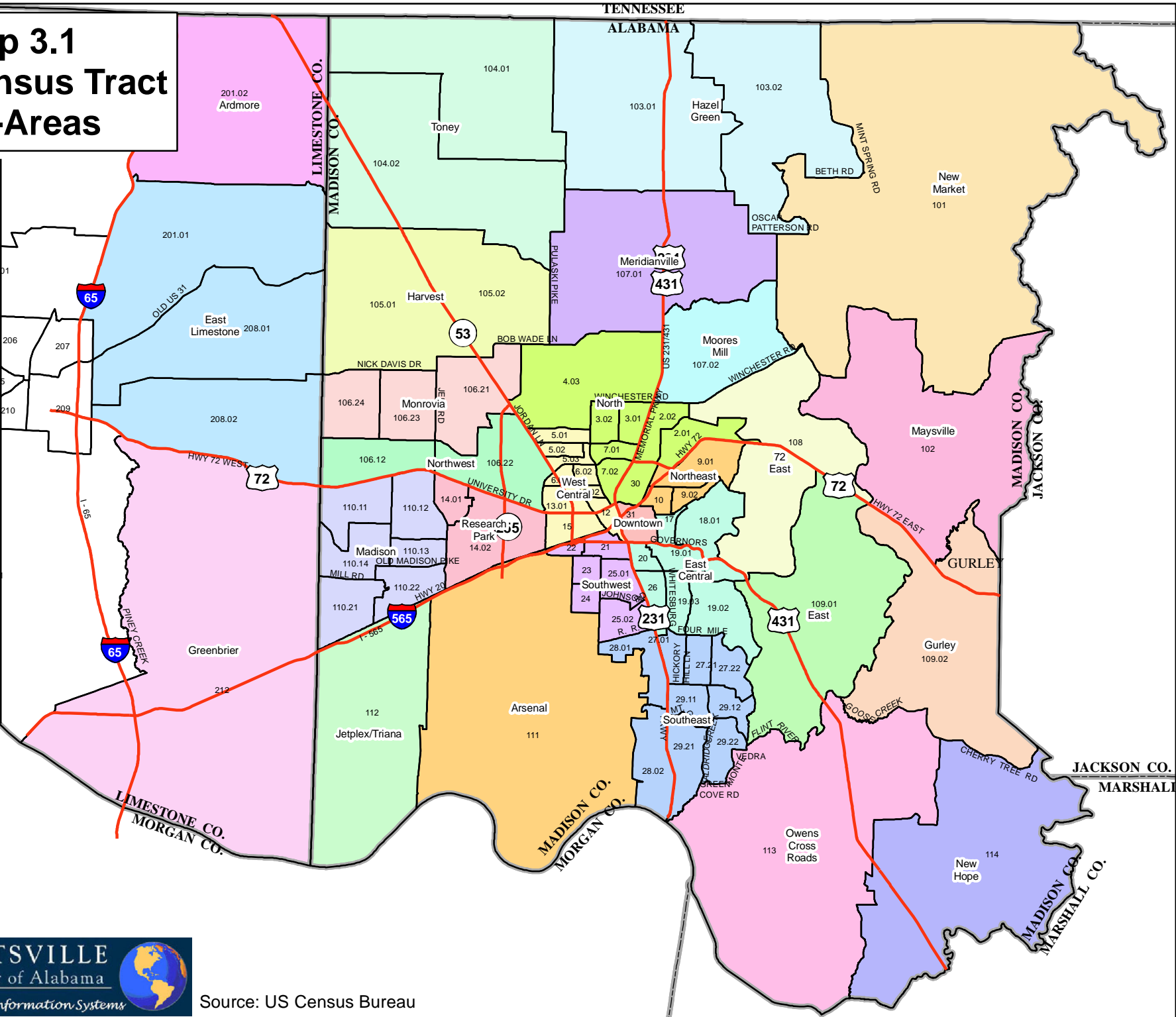
Table 3.2
Comparison of Travel Time to Work per Subarea Place of Residence

Subarea (Place of Residence)	Average Travel Time to Work (Minutes)			Change in Travel Time (Minutes) from 2000 to 2010
	1990	2000	2010	
72 East	25.5	24.7	22.4	-2.3
Ardmore	N/A	N/A	23.6	N/A
Downtown	15.8	12.2	13.0	+0.8
East	24.7	22.7	23.6	+0.9
East Central	19.3	16.2	17.6	+1.4
East Limestone	N/A	N/A	25.9	N/A
Greenbrier	N/A	N/A	21.5	N/A
Gurley	30.8	27.4	25.8	-1.6
Harvest	26.0	23.8	25.5	+1.7
Hazel Green	29.6	30.9	29.9	-1.0
Madison	19.4	18.2	19.3	+1.1
Maysville	31.2	27.1	25.6	-1.5
Meridianville	26.4	23.9	24.3	+0.4
Monrovia	26.0	23.8	22.2	-1.6
Moore's Mill	26.4	23.9	21.3	-2.6
New Hope	32.7	29.3	27.8	-1.5
New Market	32.4	31.1	30.7	-0.4
North	23.9	21.7	17.7	-4.0
North East	21.1	18.5	16.6	-1.9
North West	16.9	17.1	18.3	+1.2
Owens Cross Roads	30.6	27.7	25.5	-2.2
Redstone Arsenal	12.2	11.4	10.4	-1.0
Research Park	17.6	17.8	14.4	-3.4
South East	22.9	20.1	20.1	0
South West	18.4	17.1	17.4	+0.3
Toney	30.6	32.1	31.5	-0.6
Triana/Jetplex	19.3	18.4	18.8	+0.4
West Central	18.4	17.1	15.9	-1.2

Source: US Census Bureau and City of Huntsville Planning Division

Map 3.1 2010 Census Tract Sub-Areas

- MAJOR HIGHWAYS
- CENSUS TRACTS
- COUNTY LINE
- Sub-Areas**
- 72 East
- Ardmore
- Arsenal
- Downtown
- East
- East Central
- East Limestone
- Greenbrier
- Gurley
- Harvest
- Hazel Green
- Jetplex/Triana
- Madison
- Maysville
- Meridianville
- Monrovia
- Moores Mill
- New Hope
- New Market
- North
- Northeast
- Northwest
- Owens Cross Roads
- Research Park
- Southeast
- Southwest
- Toney
- West Central



Source: US Census Bureau

2. Transportation Planning Initiatives

The stability in travel time to work is directly related to local transportation planning activities and the implementation of those plans. Local transportation planning activities are handled through the Huntsville-area Metropolitan Planning Organization (MPO). The local MPO and its requirements set forth by federal legislation, seeks to insure that all transportation plans and programs are continuous, cooperative, and comprehensive and, therefore; coordinated with the planned development of the Huntsville urban area.

The local MPO is a coordinated organization comprised of local elected officials as well as a representative from the Alabama Department of Transportation. As such, they are legally empowered to implement transportation plans. They consider transportation planning goals and objectives along with financial and social consequences when adopting transportation plans. A Technical Coordinating Committee (TCC) provides the technical and professional guidance for the planning process and is composed of experienced professional persons who can determine if developed plans will be feasible for the local area. Both Redstone Arsenal and NASA representatives are members of the Technical Coordinating Committee, and provide technical planning assistance and input to the local transportation planning process. Public involvement in the transportation planning process is provided through a Citizens' Advisory Committee (CAC).

MPO members provide input to various transportation plans, including the **Transportation Improvement Program** and the **Long Range Transportation Plan**. All federally funded transportation projects in the urban area must be programmed for construction by the MPO, and be listed in the **Transportation Improvement Program** and the **Long Range Transportation Plan** adopted by the MPO.

B. Road Construction Projects

The construction of planned transportation improvements has contributed significantly to the mobility of area residents on local transportation corridors. The financial commitment of officials on the local, state, and federal level for the construction of these improvements has been tremendous.

1. Major Roadway Improvements - 1990 to Present

A map depicting all major roadway improvements completed since 1990 is shown at **Map 3.2**. All projects completed from 1990 to 2015 represent a joint local, state, and federal investment in excess of \$1.187 billion. This investment reflects monies spent for engineering design, utility relocation, right-of-way acquisition, and construction. Of all these improvements, the Interstate-565 construction project had the most impact on regional mobility. This project, completed in 1992, cost approximately \$425 million.

2. Major Roadway Improvements Under Construction

Various transportation improvement projects are underway in the Huntsville metro area. These projects reflect an investment of local, state, and federal funds in excess of \$112.43 million.

3. Planned Future Transportation Improvements

Various transportation improvements have been identified and approved by the local MPO and/or local jurisdictions, and are at different phases of design or construction.

a. **Fiscal Year 2016-2019 Transportation Improvement Program**

The **Fiscal Year 2016-2019 Transportation Improvement Program** is a program management tool prepared locally in coordination with the State of Alabama and local transit providers, and required by federal legislation. The bi-annually prepared document ties identified road construction projects with federal, state, and local financial commitments. Projects targeted for preliminary engineering, right-of-way acquisition, utility relocation, and construction during fiscal years 2016-2019 reflect joint federal, state, and local financial commitments in excess of \$464.5 million. These identified projects, shown on **Map 3.2**, will improve traffic flow throughout the community.

b. Capital Improvements Plan

The **Capital Improvements Plan** is a local long-range financial plan that ties funding for capital projects, such as road infrastructure improvements, to future years. The City of Huntsville's **Capital Improvement Plan** details specific projects for ten years. Funding for local transportation improvement projects identified in the City of Huntsville's **Capital Improvements Plan** total \$159,055,000. This financial commitment provides for the construction or improvement of pre-selected corridors.

c. Long Range Transportation Plan

The **Long Range Transportation Plan** is a document that identifies roads that require improvements in order to keep up with anticipated demand on the system. The plan covers a period of 25 years. The Huntsville area MPO adopts a new **Long Range Transportation Plan** every five years. This plan sets the tone for future transportation improvement investments that will be identified in the **Transportation Improvement Program** or in each jurisdiction's capital improvements plan. The Long Range Transportation Plan has identified specific projects that provide improved direct access to the region's high tech corridor or Research Park. These construction projects will alleviate anticipated congestion on the corridors, and will provide improved commute times for employees.

d. Restore Our Roads

The City of Huntsville has embarked upon a partnership with the State of Alabama to undertake the construction and improvement of several corridors that are critical to the region's mobility. Through this partnership, dubbed "Restore Our Roads," both parties agreed to equally split the cost of \$250 million for these projects over a five-year period.

C. Public Transit

In addition to funding commitments to improve roadway mobility, local, state, and federal funds are made available to support available public transit services. The **Fiscal Year 2016-2019 Transportation Improvement Program** indicates that during fiscal year 2016, over \$8.7 million in Federal Transit Administration funds will be allocated to support public transit services in the City of Huntsville. Estimated allocations for fiscal years 2016-2019 are approximately \$22.38 million.

The City of Huntsville Department of Parking and Public Transit administers a fixed route service - the Huntsville Shuttle. The Shuttle operates eleven routes within the city limits of Huntsville, and provides service Monday through Friday from 6:00 a.m. until 6:00 p.m.

The City of Huntsville also administers a demand response service, known as Handi-Ride. The Handi-Ride service operates Monday through Friday from 6:00 a.m. until 6:00 p.m. Service is limited to pre-qualified individuals that are elderly and/or disabled and cannot access traditional fixed route transit service. Handi-Ride transportation must be scheduled at least 24 hours in advance.

A 28,900 square foot facility was constructed in 2005 to accommodate Huntsville Public Transit's administrative and operational offices. The \$4.7 million facility also serves as the hub of the City's Shuttle service, and provides many amenities to transit users.

The benefits accrued through transportation planning initiatives have been made evident through reported decreased journey to work times and the provision of viable transit services. Local, state, and federal officials have committed financial and personal support to improve mobility in the community. Transportation planning initiatives and actual construction projects have improved mobility of the area's population, especially along corridors providing direct access to the Research Park area.

III. Airport Facilities

The Tennessee Valley Region has various airport and airfield facilities. Detailed information concerning the characteristics of each facility can be found at: www.airnav.com/airports/us/AL.

The Huntsville-Madison County area has the largest concentration of airport and airfield facilities in the region. Additionally, Huntsville is the site of the Huntsville International Airport, the only airport providing commercial flights in the Tennessee Valley Region.

Huntsville International Airport
Executive Director: Rick Tucker
1000 Glenn Hearn Boulevard
Box 20008
Huntsville, Alabama 35824
(256) 772-9395
Web Site: www.FlyHuntsville.com

The Huntsville-Madison County Airport Authority (HMCAA) operates the Huntsville International Airport (HSV) - which is located approximately 10 miles east of Decatur, and is the principal airport serving North Alabama and South Central Tennessee. The Port of Huntsville includes over 7,000 acres of land and includes two active runways, associated taxiways, the International Intermodal Center, and Jetplex Industrial Park. In addition to these three main operating entities, the Huntsville-Madison County Airport Authority owns, but has management contracts for, the Four Points by Sheraton, Signature Flight Support, and Foreign Trade Zone No. 83.

A. Huntsville International Airport (HSV)

1. Commercial/Passenger Service

Huntsville International serves approximately 1.2 million passengers each year through 70 passenger flights per day (arrivals and departures). The facility also provides more than 30 all-cargo flights per week. Passenger service is available from American Airlines, Delta Air Lines, and United Airlines. Non-stop service is available to the following cities: Dallas, Denver, Chicago, Atlanta, Washington DC (Reagan National & Dulles), Charlotte, Memphis, Detroit, and Houston. HSV provides one-stop service to virtually all national and most international destinations. Within the last few years, Huntsville International Airport completed a \$92 million capital improvement program that included a new checkpoint security area, public waiting area, flight information display systems, concessions, 1,300 space parking deck expansion and a new baggage claim area. Additionally, in 2015 HSV became the first airport in the southeast to incorporate all-glass jet bridges.

2. Private Flight Support

Fixed-base operations for private aircraft and air taxi, charter, sales, rental, training and other private flight services are also available through Signature Flight Support.

3. Expansion of Flight Support Capabilities

One of the key features attractive for international air cargo is HSV's two parallel runways - 12,600 feet, which is the second-longest runway in the Southeast U.S., and 10,000 feet. The runways are capable of handling Group VI aircraft with Boeing 747-8 international air cargo flights landing regularly. This designation is again very significant in that Huntsville is the smallest airport in the country to be certified by the FAA to accommodate the Boeing 747-8s.

**FIGURE 3.2: HUNTSVILLE INTERNATIONAL AIRPORT
COMMERCIAL FLIGHT DESTINATIONS**



B. International Intermodal Center

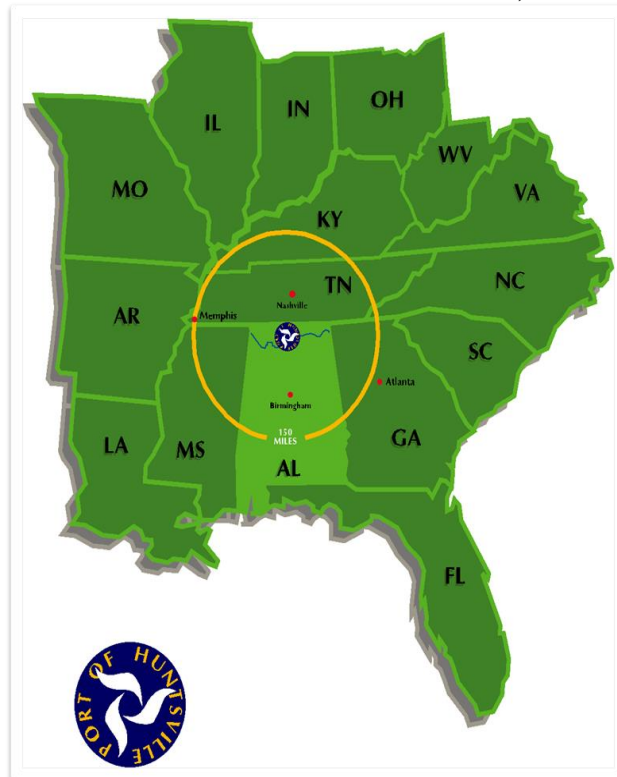
1. General Services

The Huntsville International Airport, part of the Port of Huntsville, is more than just an airport. It is a multifaceted transportation complex that brings together cargo movement and passenger travel with business and industry. The International Intermodal Center (IIC) is a central cargo hub that incorporates air, rail and highway modes of transportation. This one-stop complex for receiving, storing, and distribution of cargo has played a crucial role in the economic fortitude of this region. The IIC is located on-site at Huntsville International Airport. This center is designated as a US Customs Port of Entry, which is home to 24-hour US Customs & Border Protection, and is part of Foreign Trade Zone No. 83. Norfolk Southern railroad has been a partner with the Port of Huntsville since the Intermodal Center opened in 1986. Rail containers move to the IIC on a direct spur from the Norfolk Southern mainline. Once at the IIC facility, containers can be transferred to chassis or to the depot yard via one of the two 45-ton overhead gantry cranes. The Intermodal yard consists of approximately 45 acres and six miles of railroad track. Presently, more than 12 steam ship lines use the IIC serving shippers and consignees in Alabama and Tennessee. Rail destinations from the IIC are found at **Figure 3.3**; the rail cargo service region is shown at **Figure 3.4**.

FIGURE 3.3



FIGURE 3.4: RAIL CARGO SERVICE REGION, 150 MILES



Huntsville International Airport is ranked as the 16th largest airport in the US for international air cargo freight. This is due largely to the partnership that has lasted over 25 years between the Port of Huntsville and Panalpina. Cargo Carriers located at HSV are Atlas Air, Cargolux Airlines, Federal Express, Panalpina and UPS. This high-tech air cargo market is served by domestic and international all-cargo carriers. Weekly international nonstop is available to Europe, Mexico, Hong Kong and Sao Paulo, Brazil. The air cargo destinations are shown in **Figure 3.5**.

With nearly 300,000 square feet for receiving, storing, transferring and distributing domestic and international air cargo, Huntsville International Airport is a prime location for international air cargo services. HSV offers nationwide pick-up and delivery service, ground support equipment, 5,250 and 11,000 square feet of cold storage space and operates 24 hours a day.

FIGURE 3.5



C. Jetplex Industrial Park (JIP)

The Jetplex Industrial Park complements the Port of Huntsville with its existing infrastructure, presence of Foreign Trade Zone No. 83, high quality work force and direct access to a comprehensive multi-modal transportation network. Major tenants include Remington, The Boeing Company, Navistar, Northrup Grumman and LG Electronics. This park offers air, rail and highway transportation access to domestic and international markets. The JIP divides more than 4,000 acres into six sections – each with its own

distinct characteristics. Each section of the park is an integral part of Huntsville International Airport. Jetplex Aviation Center Central encompasses the land between the two parallel runways at Huntsville International Airport. This prime section of real estate is reserved for companies and industries that would require a location with direct runway access. Currently, 329 acres are available with runway access. Targeted companies would include maintenance repair and overhaul facilities, air cargo hubbing, and aviation aerospace manufacturing. The other five sections of the industrial park include Jetplex North, Jetplex South, Jetplex Supplier Park, Jetplex Aviation Center East and Jetplex Aviation Center West and are targeted for light manufacturing, warehousing and distribution.

Over 2,800 acres are available in the Jetplex Industrial Park for warehouse, distribution, light manufacturing, aviation, and aerospace usage and development. There is over three million square feet of developed tenant space and buildings available for warehousing and light manufacturing. The convenient location of the park to Huntsville International Airport and the International Intermodal Center offers commerce and industry the competitive tools necessary in today's global economy.

D. Airport Public Safety

1. General

The Airport Authority Public Safety Department includes 20 sworn police officers & certified firefighters. These employees are cross-trained. Facility coverage consists of six personnel per 24 hour shift -365 days per year.

2. Capabilities

The Public Safety Department staff has appropriate equipment and maintains its capabilities for emergency response through training and exercise drills.

The Public Safety Department has four Aircraft Rescue Fire Fighting (ARFF) vehicles. The newest of the four is the Rapid Intervention Vehicle (RIV). It has forward looking infrared guidance system capabilities.

The Public Safety Department staff at Huntsville International Airport has completed specialized ARFF training. Some of the specialized areas include haz-mat, high angle rescue, and confined space rescue. Also, all officers are sworn police officers with specialized training in aviation security. Several officers are paramedics and EMT's which enable the Airport to provide medical first response assistance 24/7.

For the 18th consecutive year, the Huntsville International Airport has passed the Federal Aviation Administration's rigorous FAR 139 airport certification inspection with no infractions. The inspection takes two days to complete and examines many aspects of airport operations. Such areas include the Airport Certification Manual, airfield lighting, pavement, markings, safety areas, snow plan, ARFF (Aircraft Rescue Firefighting) training and response drill, hazardous materials incidents, daily airfield inspections, ground vehicle operations, wildlife hazard management, fueling operations and obstructions. Each area of the inspection is scrutinized to ensure the airport is operating in a well-organized and

capable manner. Viable plans and the ability to implement those plans are essential in case of emergencies.

E. Huntsville International Airport's Support of the Redstone Arsenal/NASA Mission

The Huntsville International Airport has a strong working relationship with Redstone Arsenal and maintains mutual aid agreements for public safety response. The Airport has experience in providing public safety support and in moving secure, large cargo. This support can be made available to other organizations with this requirement.

1. Public Safety Support

The Public Safety Department works well with Redstone Arsenal, and provides support to their operations.

The Airport Authority and Redstone Arsenal have a signed mutual aid agreement for any emergency services that both departments provide. A relationship is maintained between the Airport's Chief of Public Safety and the fire chief at Redstone Arsenal through regular planning meetings and participation in local emergency response events.

2. Direct Support to Army and NASA Daily and Special Operations

The Airport has provided support to Redstone Arsenal and NASA for daily and special operations. Due to the dynamic infrastructure located at Huntsville International, both the U.S. Army and NASA are able to move cargo with ease around the world. As well, military charters of large commercial jets and carriage of missiles on wide-body freighters are able to move to "hot zones" on the airport in a safe and secure manner. The Airport has provided support in movements of special cargo shipments with both the U.S. Army and NASA. The Airport has also provided personnel and facilities to both Redstone and NASA for the movement of these shipments during day and night.

Additionally, during instances when the Redstone airfield has been closed for construction work, the Huntsville International Airport has provided appropriate facilities to support for their operations.

The capabilities, support, and resources that the Huntsville International Airport makes available to Redstone Arsenal highlights a partnership that has transcended many years and a valued commitment to continue support. Additionally, the multiple capabilities unique to the Huntsville International Airport-Port of Huntsville are available to support a variety of missions.

While transportation infrastructure and specialized services are vital to a region's livelihood and enhanced quality of life, we are still able to provide basic infrastructure and services to residents and businesses. These other services are highlighted as follows.

IV. Other Infrastructure

A. Sewer Services

Local sewer services are handled by the City of Huntsville's Water Pollution Control Department in the City of Huntsville, and by the Madison Water and Wastewater Board in the City of Madison. Rural Madison County residents do not have sewer services, but septic tanks.

City of Huntsville Water Pollution Control
Interim Director: Shane Cook
1800 Vermont Road
Huntsville, Alabama 35802
Phone: (256) 883-3719
Web Site: <http://www.huntsvilleal.gov/wpc/>

The Huntsville Water Pollution Control Department serves approximately 61,000 customers in the city limits of Huntsville and in the Town of Triana. The Huntsville department also serves Redstone Arsenal by accepting "food grade" grease from its facilities located on post. The average monthly collection from Redstone Arsenal is approximately 18,000 gallons per month.

Expansion of Service

The City's sewer system has recently expanded to support new and anticipated growth. The City of Huntsville has made investments totaling over \$245.5 million in sewer and drainage improvements from 2002 through 2015. Major sewer and drainage improvements are shown on **Map 3.4**.

B. Utilities

Public utility service in the Huntsville-Madison County area is provided by Huntsville Utilities, with the exception of several jurisdictions that supply drinking water to its residents. An overview of utility resources is provided.

Huntsville Utilities
Director: Jay Stowe
P.O. Box 2048
Huntsville, Alabama 35804
(256) 535-1200
Web Site: www.hsvutil.org

Huntsville Utilities is the local distributor of most utility services county-wide. It sells electrical, gas, and water services to area residents.

a. Electrical

The Tennessee Valley Authority (TVA) (www.tva.com/) is the supplier of electrical power to the Tennessee Valley Region. It sells power to Huntsville Utilities, who in turn provides the service directly to its customers. TVA serves the region with a diverse mix of power generation resources. As such, rates are low, and service is highly dependable. During fiscal year 2014, TVA efficiently

delivered more than 161 billion kilowatt hours of electricity through a 16,000 mile long transmission system; one of the largest in North America. According to TVA officials, the current reliability rate of the TVA power supply is 99.999%. In fiscal year 2012, disruption of TVA service amounted to only 4.47 minutes for the average customer. The reliability of TVA's power supply has exceeded 99.999% for 14 consecutive years, a top decile performance among utilities.

Huntsville Utilities has ninety-eight (98) electrical substations throughout Madison County. Forty-two (42) of those substations could have their transformer bank or banks size increased for additional capacity. Eighteen (18) of which could be expanded if necessary. Additionally, Huntsville Utilities has Nine (9) land sites for substations. Huntsville Utilities is expanding our fiber optic network to improve communications to all of our sites. Excess dark fiber can be leased by interested parties to provide internet and other broadband services, such as Google Fiber.

b. Gas

Huntsville Utilities purchases natural gas from suppliers along the U.S. Gulf Coast. The utility company receives gas pipeline services from American Midstream, Southern Natural Gas, and Tennessee Gas Pipeline. Huntsville Utilities provides natural gas services to customers in the City of Huntsville and portions of Madison County. To enhance system reliability and operating flexibility, Huntsville Utilities is planning to begin the construction of 48,000-LF of 12-inch steel pipe in the Spring of 2016. This section of pipe will complete the final segment of the high pressure system loop around the service area.

c. Water

Water services are provided to the residents of the City of Huntsville by Huntsville Utilities. The utility company also wholesales water to several other water systems in Madison County. Huntsville Utilities has a mixed source water supply, from the Tennessee River and from a series of wells located in the city. All water treatment plants have a total daily pumpage capacity of 111.5 million gallons of water and another 53.215 million gallons of water is in storage in 33 reservoirs located throughout the system. The new Southeast Water Treatment Plant will go online in 2017 with an initial capacity of 12 million gallons a day and after going through testing and permitting process will have a capacity of 24 million gallons a day. The plant can also be expanded in stages to an ultimate goal of 96 million gallons a day. The addition will add redundancy to our water system and much needed capacity for our customers. In addition to the new plant, we plan to add two additional ground storage tanks and three booster pump stations.

C. Wireless Networks

The Huntsville area is on the cutting edge of technology, and has a phenomenal wireless network infrastructure in place to support a high-tech work environment, technology resources throughout the state, and an emergency communications system.

1. Digital Networks

Huntsville's Tier1 network solution providers include AT&T, Sprint, Level(3) and UUNET. In addition to those Tier1 providers, extensive fiber optic networks have been developed throughout the Huntsville area by ICI/WorldCom, KMC, Knology, Comcast, BellSouth, HiWAAY, and API Digital in order to meet the demand of Huntsville's high-tech clientele. Southern Light has begun building fiber to the businesses at Cumming Research Park, and Comcast as well as AT&T have announced plans to offer gigabit service to customers.

As a viable alternative to traditional wide area networking (WAN) solutions some local companies opt for state of the art wireless networking solutions. Up to 20MBs of wireless, broadband, network connectivity is available from Traveler Information Services. Traveler's wireless WAN is facilitated via Western Digital's Tsunami equipment. When this technology is coupled with Canopy type wireless technology at the customer site, advanced wireless networking solutions in Huntsville are a reality.

The City of Huntsville, in an effort to upgrade fiber networks to meet the area's growing data and communications needs, has put forth a goal to be a "Gig City." The City announced in early 2016, that this goal is becoming a reality, with the construction of a new fiber network, through Huntsville Utilities. As Huntsville Utilities works toward constructing this network, they will have additional fiber capacity that will be available for lease by interested parties, such as Google Fiber. The company has already announced it will be bringing its high-speed tv and internet service to Huntsville residents and small businesses.

2. Statewide Technological Support

The Alabama Supercomputer Center (www.asc.edu/index.shtml) is located in the Alabama Supercomputer Authority's 24,000 square foot building in Huntsville's Cummings Research Park. The Center houses the SGI UV 2000 and the DMC Cluster, with the SGI UV 2000 providing 268 CPU cores, 4160 GB of shared memory, and 182 terabytes in the GPFS storage cluster. The DMC cluster provides 2216 CPU cores and 16 terabytes of distributed memory. This tremendous computing power is connected via the Alabama Research and Education Network (AREN) which provides Internet access for Alabama state government, four-year universities, two-year colleges, K-12 schools, and libraries. The Authority has become an Affiliate Member of Internet 2, a cooperative effort of 202 member universities working together with private member companies and non-profit organizations to provide the tools for scientific research and higher education in the 21st century. As a shared resource for academic research, AREN successfully provides cutting-edge computational science tools and technology for all Alabama public education institutions.

3. Emergency Communications System

Huntsville is a regional leader in Emergency Response and Management (<http://www.madisoncountyema.com>). The basis for timely and accurate response to emergencies is the communications systems. Madison County, along with the cities of Huntsville and Madison, are served by the Huntsville-Madison County 9-1-1 (HMC 9-1-1) System (<http://www.madco911.com>), a world class 9-1-1 system where all local Police, Fire, and EMS communications personnel

are collocated under one roof. This provides timely, accurate, and cost effective responses to requests for emergency services. The HMC 9-1-1 Center is the largest such facility in Alabama, with state-of-the art communications equipment and highly trained communications personnel.

Agencies resident at the HMC 9-1-1 Center include Huntsville Police and Fire Departments, Madison Police and Fire Departments, Madison County Sheriff Department, Madison County Fire Department, and Huntsville Emergency Medical Services, Inc.

HMC 9-1-1 completed Alabama's first IP-based simulcast P25 radio system in August 2012. This digital, interoperable radio system includes six tower sites providing outstanding geographical coverage throughout Madison County and beyond. HMC 9-1-1 is now working with several other P25 radio system owners across Alabama to link similar radio systems with an ultimate goal of a single, seamless radio system for the entire state.

In addition to the public safety agencies housed at the HMC 9-1-1 Center, the HMC 9-1-1 radio system provides services to the Huntsville Airport Authority, Oakwood College, Alabama A&M University, University of Alabama in Huntsville, Huntsville Utilities, the Huntsville-Madison County Metro Jail, and other public safety entities.

An adjacent county, Morgan County, utilizes the HMC 9-1-1 radio system's switching system (core) to allow systems interoperability on four P25 radio towers located there. Discussions are underway with two additional adjacent counties, Limestone and Marshall, for similar arrangements to expand interoperable communications to additional public safety agencies and jurisdictions in North Alabama.

The Huntsville-Madison County 9-1-1 System is a model for public safety call taking and dispatching as well as its leadership in public safety communications throughout the state and the nation.

V. Environmental Quality

The Huntsville-Madison County region takes environmental quality very seriously, and has several departments with a primary mission to prevent and/or address environmental issues in the community. This proactive stance has ensured that the area's air is healthful and that communities are clean.

Huntsville's commitment to environmental protection is evidenced by the fact that there is an environmental protection division within municipal government. The City of Huntsville has one of only two local air pollution control programs in the State of Alabama. This program is implemented by the City's Division of Natural Resources and Environmental Management. In addition to the air pollution control program, the Division of Natural Resources is also responsible for implementing the City's explosive blasting control program, and for enforcing the noise ordinance and a storm water management program.

The City of Huntsville's Operation Green Team, which is an integral component of the Mayor's Office, manages anti-littering programs, provides public education, and organizes volunteers for beautification projects and community clean-up events. During December 2003, the Department received the President's Golden Circle Award from the National Keep America Beautiful Office due to its efforts. Additionally, the office was instrumental in the City of Huntsville receiving the designation as one of the Top Ten Green Cities in the U.S., by the *Green Guide* in April 2006.

The City has also initiated an "Environmental Court" that tries only cases that have an impact on the environment and quality of life in the city.

The municipal initiatives undertaken by the City of Huntsville ensure that the environmental quality of the area remains sound, and that water and air resources remain protected.

A. Water Quality

According to the Alabama Department of Environmental Management, the quality of Alabama's surface waters is of generally high overall quality. At the present time, approximately 15 State agencies are involved with maintaining the area's water quality and quantity. The Tennessee Valley Authority is also active in area water quality initiatives. The organization recently certified its first Tennessee Valley Clean Marina at Ditto Landing Marina, Huntsville. The efforts of the State of Alabama and the Tennessee Valley Authority, in addition to various local watershed protection groups, make certain that the region's water resources are of high integrity.

B. Air Quality

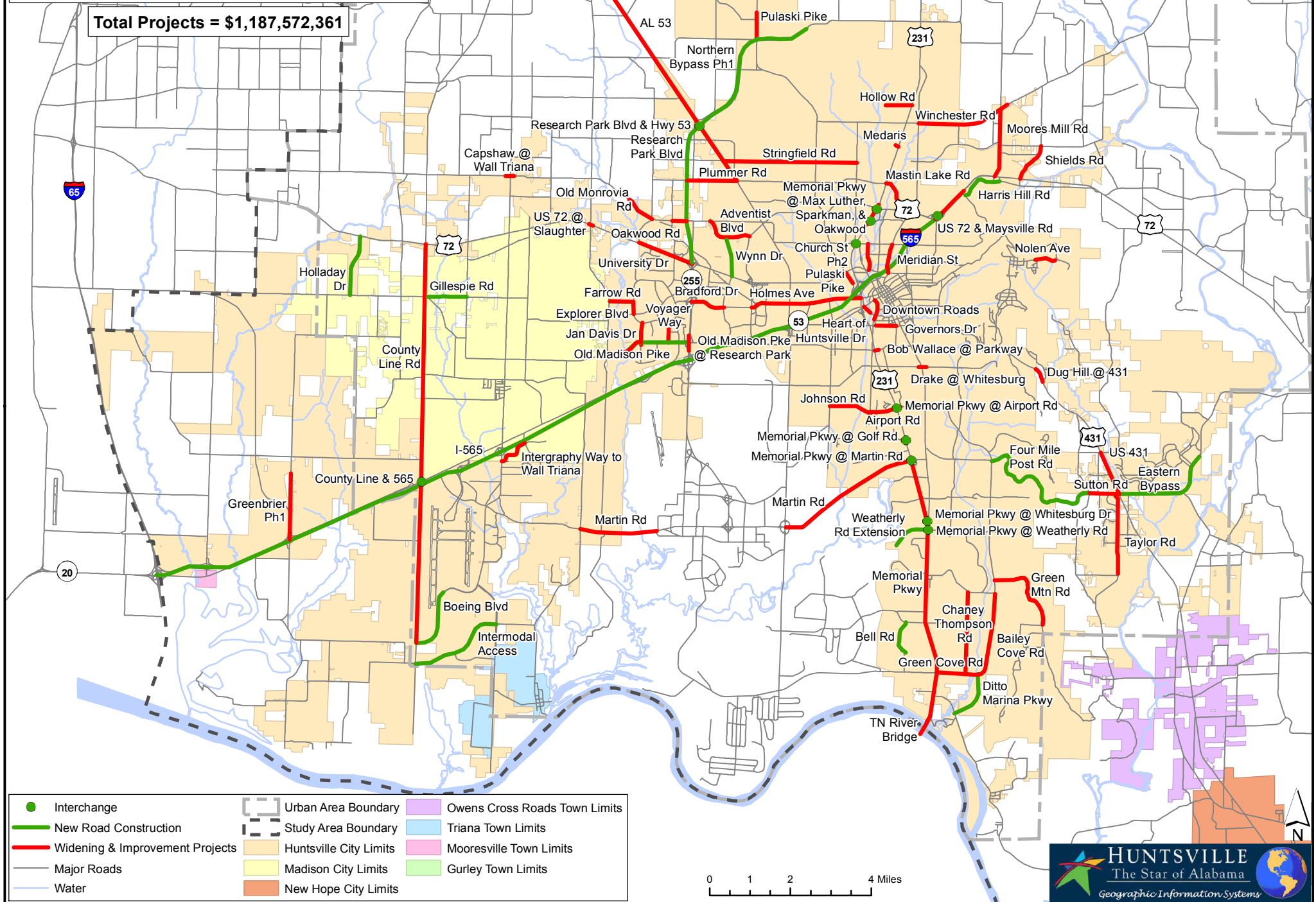
Huntsville is presently designated as an attainment area for all criteria pollutants, i.e. those pollutants for which the federal Environmental Protection Agency (EPA) has established NAAQS. In keeping with the recent trend toward progressive tightening of federal ambient air quality standards, EPA recently established a new ozone standard of 70 parts per billion. Huntsville does meet these air quality standards. Huntsville's three-year average is 0.068 ppb,

The nature of Huntsville's industrial community reflects the large presence of high-technology, low-polluting industries. The presence of these "clean" industries and the absence of heavy manufacturing operations has had a tremendous impact on air quality in the region.

The City of Huntsville has proactive leaders that work diligently to ensure that the area's transportation network and services, and other infrastructure is up-to-date and can serve a growing population. Expansion capabilities have been built into many systems, and in some instances expansion is occurring. The balance of growth and environmental quality presents a challenge to many communities. Initiatives taken by the City of Huntsville to insure environmental integrity of the region despite growth and development are evident in the quality of water and air resources, and the quality of life enjoyed by residents in the region.

Map 3.2 Major Transportation Improvements 1990 - 2015

Total Projects = \$1,187,572,361

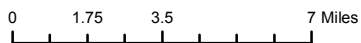
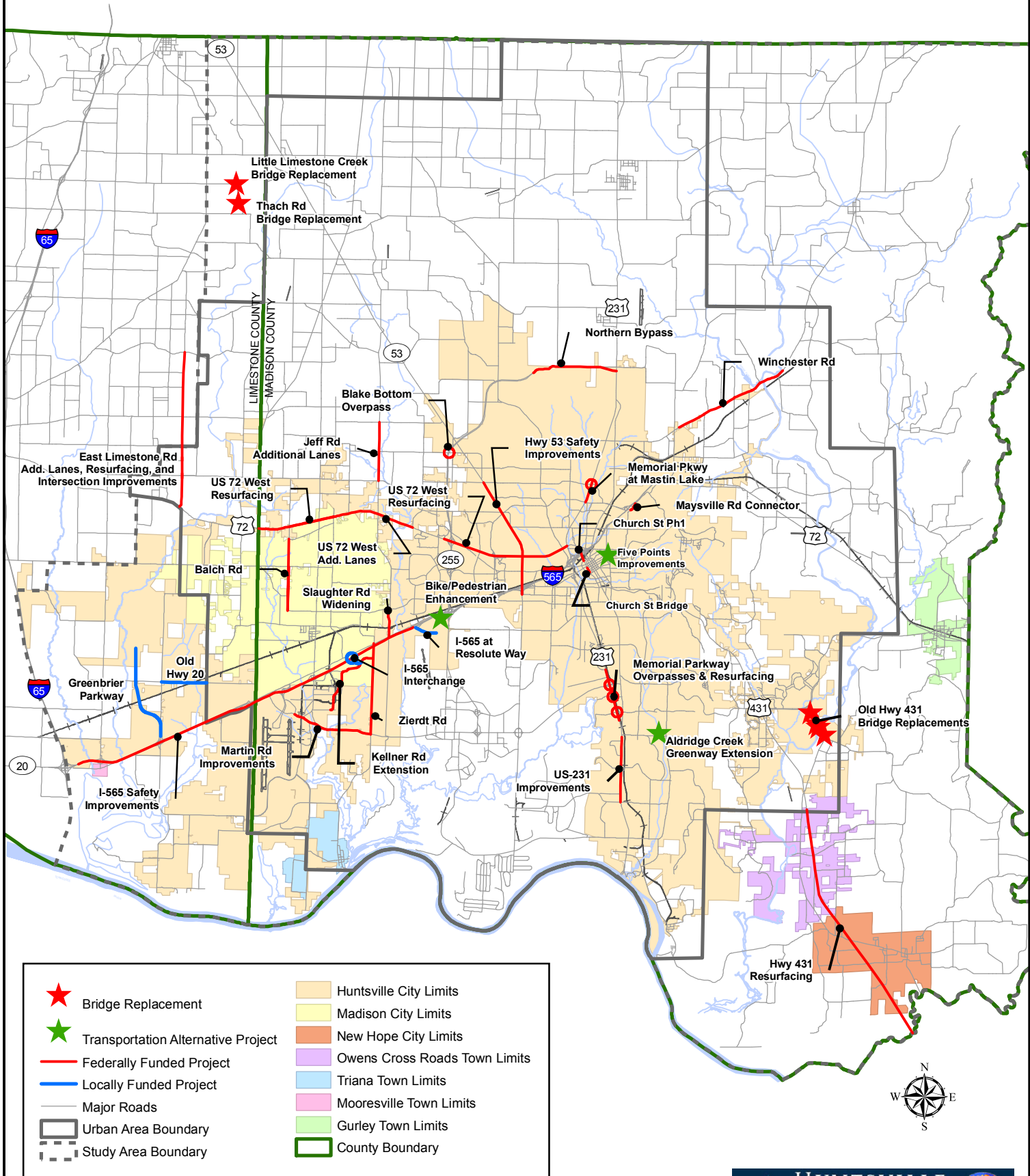


- Interchange
- New Road Construction
- Widening & Improvement Projects
- Major Roads
- Water
- Urban Area Boundary
- Study Area Boundary
- Huntsville City Limits
- Madison City Limits
- New Hope City Limits
- Owens Cross Roads Town Limits
- Triana Town Limits
- Mooresville Town Limits
- Gurley Town Limits

0 1 2 4 Miles

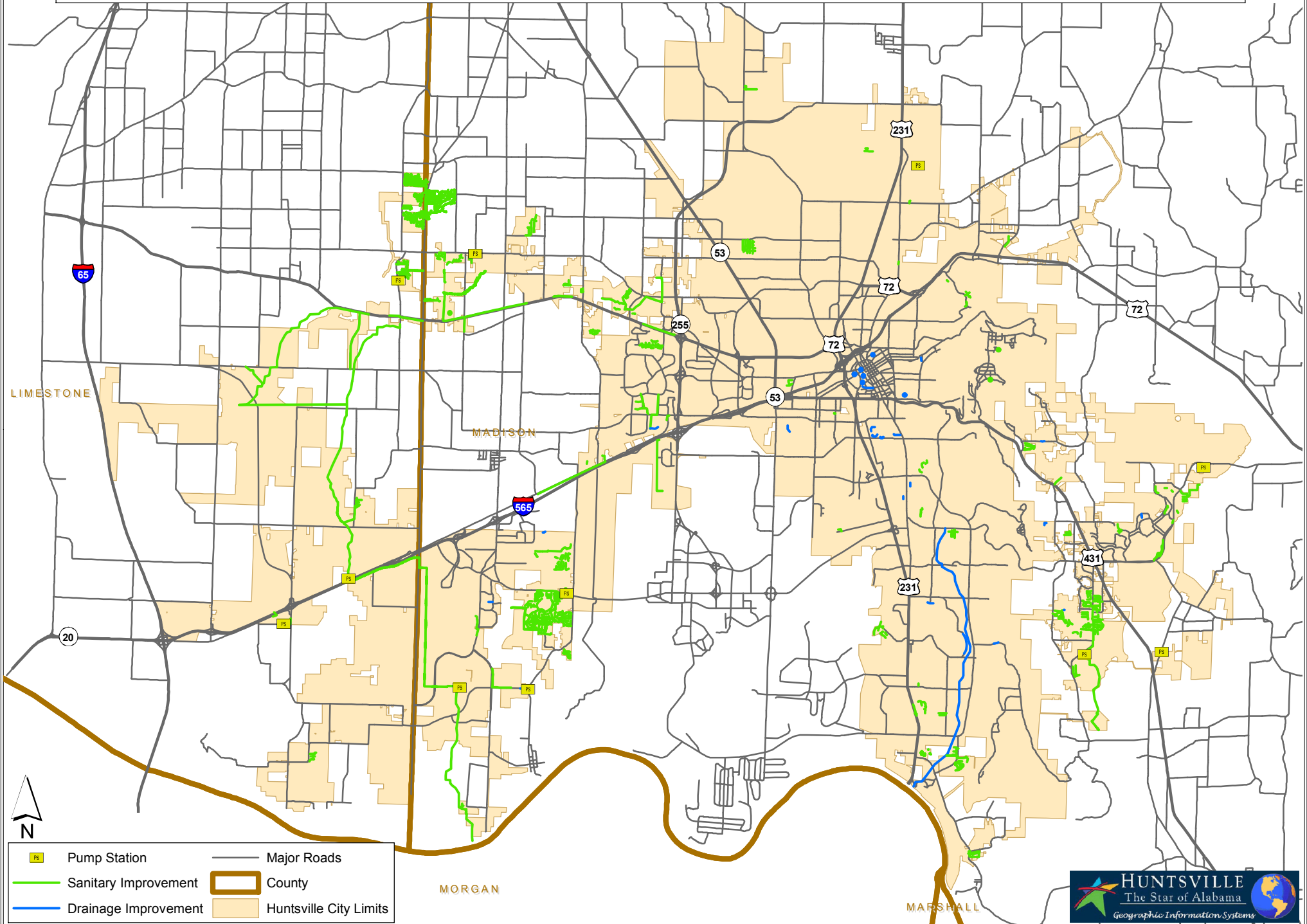


Map 3.3 Transportation Improvement Program Projects FY 2016-2019



Map 3.4

Major Sanitary Sewer and Drainage Improvements 2002-2015 Total Investments: \$245,570,604



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CHAPTER 4 EDUCATIONAL OPPORTUNITIES

I. Key Facts and Conclusions

The region provides unique educational opportunities for students from pre-elementary school to the post-doctorate level. Educational facilities and resources in the region provide traditional educational instruction as well as specialty programs focused on scientific research and development. Children are taught critical thinking skills at an early age, and have an opportunity to develop those skills up to the post-doctorate level, through exceptional educational programs focusing on math and science initiatives and scientific research and development.

The region has a commitment to excellence in education, to support families and students, as well as defense-related research and development initiatives at the university and graduate school level. An overview of some of the educational opportunities available in the area is provided.

The City of Huntsville has strong education systems from kindergarten through colleges and universities. The following key facts help substantiate the benefits that our educational systems bring to families relocating to the area:

- The children of our citizens can expect to be in a system with outstanding test scores and high likelihood of scholarships.
- Local colleges and universities provide exceptional quality and good value for money, thereby supporting high technology needs in the region.
- A diversity of unique educational opportunities provide choice and options for all people.
- A cultural emphasis exists on providing safe educational programs in high quality, well-equipped facilities.

II. Local Schools – K through 12

The expectation of educational program delivery is high based upon the level of educational attainment of area parents. Local public school systems and private schools have met the demands set before them, and provide innovative and competitive educational opportunities for their students. In addition to typical school facilities, several specialty schools are offered to students. A map depicting the locations of these facilities is located at **Map 4.1**. A review of educational opportunities available at public and private schools located in the Huntsville area was conducted, with information following:

A. Public Schools

Huntsville City Schools

Superintendent: Dr. Casey Wardynski

Phone: (256) 428-6800

Web Address: www.huntsvillecityschools.org

Overview

The mission of the Huntsville City Schools, as an educational system set in one of the world's most technologically advanced communities, is to inspire, develop and engage all students in becoming career and college ready; creative problem-solvers; active citizens; and life-long learners in a globally connected society.

The Huntsville City Schools has a current enrollment of more than 24,000 diverse students. Expenditure per student is \$10,040.

Accomplishments

The Huntsville City School District has a total of nine Blue Ribbon Schools, with the Huntsville Middle School being showcased nationally for its innovative engagement of students through instruction in entertainment technology. During the 2014-2015 academic year, Grissom High School was listed in Newsweek magazine's America's Top Public High Schools. Among other honors received were as follows:

- Lee High School, Grissom High School, and Whitesburg P-8 were named 2015-2017 National PTA Schools of Excellence. They are three of only 124 schools nationwide to receive this honor.
- Hampton Cove Middle School was honored by the FBI as October's national winner of the agency's Safe Online Surfing program.
- Students from Huntsville City Schools will travel to Houston to compete in the Culinary Challenge at NASA's Johnson Space Center. The team is one of ten finalists from around the nation that will prepare an entrée in the Space Food Systems Laboratory at the Space Center for taste-testing and evaluation by an astronaut crew. The winner will have their menu prepared and sent to the International Space Station. The student culinary challenge is a part of NASA's HUNCH (High Schools United with NASA to Create Hardware) program. Students must adhere to a strict set of nutritional guidelines with each dish: One that is vegetable-based, contain at least 3 grams of fiber, less than 8 grams of sugar, and only contain between 300-500 calories. The dish also has to be suitable for consumption in the weightless environment on the space station.
- A fifth grader at Mountain Gap School, is the new Alabama State Spelling Bee Champion. She will be competing nationally in Washington, DC in 2016.
- Huntsville High students with the Apex Predators robotics team traveled to Texas to the South Super Regionals to battle it out against 70 other teams from across the southeast. The Huntsville Team earned one of 24 bids to the 2016 FIRST (*For Inspiration and Recognition of Science and Technology*) Tech Challenge World Championship. The Huntsville High Apex Predators will now face 127 of the best robotics teams from 20 countries in a highly competitive technology challenge.
- Huntsville City Schools teacher Sue Zupco was honored at the National Oceanic and Atmospheric Administration Teacher at Sea's 25th Anniversary Celebration and Awards Ceremony. Zupco, who teaches at Weatherly Heights, was one of 10 most deserving United States alumni that demonstrated excellence in science education and dedication to NOAA research.
- The Huntsville City School System's cyber program is being recognized as a Cyber Patriot Center of Excellence by the Air Force Association.
- Two cyber teams from the district, Grissom High and New Century High, earned a spot in the national finals earlier this year. Grissom won first place in the country. The district is one of only seven school systems in the nation to be honored.

- Huntsville City Schools teams swept the top three spots in the CyberPatriot Middle School Division Semifinals Round held in February among Alabama participants. Teams from Challenger Middle School finished first and second while Mountain Gap P-8's team finished third in the state. The teams outperformed a majority of high school teams who are tasked with similar competitions. In all, 3,379 schools registered to compete this year including 300 middle school teams.
- Huntsville City Schools has also worked with the Alabama State Department of Education to develop a four-year Cyber Security Curriculum. The district works with local and state colleges and universities to support Cyber training for teachers, along with recruiting team members from local industries to work with students. In addition, Huntsville City Schools now has partnerships with industries for internships with our CyberPatriot students. The program provides a vital link between academics and careers in the high demand for a Cyber workforce. CyberPatriot established the Centers of Excellence program in 2011 to recognize educational institutions that provide leadership and support to further the STEM experiences of their students through the CyberPatriot program. Only six other districts, from California, Oklahoma, Texas, Virginia, and Tennessee, have received this certification.
- New Century Technology High, a Huntsville magnet school, was chosen by the Alabama Department of Education to represent the state for the ACT College and Career Ready Campaign.
- Huntsville City Schools was recognized by the Alabama State Board of Education for the GreenpowerUSA initiative. The program is a STEM based hands-on learning program that requires students, with help from teachers and industry mentors, to design, build, and race electric cars. Each team is given the same standard motor, set of batteries, and a strict set of guidelines to follow. Students have to use all of their science, technology, engineering, and math skills to come up with a race-worthy vehicle. Huntsville City Schools held the very first GreenpowerUSA race this year with 15 teams from four different school districts, involving over three hundred students.
- Two years ago, the Huntsville City Schools became the first school system in the area to have interactive classrooms (SMALLab) in its middle schools. Now, all middle school students can participate in an immersive, interactive environment to enhance students' understanding across a broad range of topics such as math, physics, chemistry, biology, earth science, English language, and performing arts.

Advanced Learning Programs

The Huntsville City Schools implemented Distance Learning Labs through a grant from Toyota and The Schools Foundation in the Spring of 2001. The program offers a broad range of courses and simultaneously links classrooms on different campuses through technology resources. Through the Distance Learning Labs, students are given an opportunity to hear guest lecturers speak on topics such as contemporary literature to medical concepts. Additionally, Advanced Placement courses in English, math, science, computer science, foreign language, social studies, and art allow students to prepare for college and earn college credits.

Magnet Schools

Huntsville City Schools sponsors magnet programs at the elementary through high school level.

The Academy for Academics and Art, and the Academy for Science and Foreign Language are magnet schools that serve students in grades K-8. Both provide intense instruction in such areas as academics, foreign language, the arts, and science. The Academy for Academics and Art moved to a new renovated facility during the 2015-2016 school year, including a brand new state of the art theater. The Academy for Science and Foreign Language offers the only K-8 International Baccalaureate program in northern Alabama. The academic framework of the program, developed by the Middle Years Programme of the Switzerland-based International Baccalaureate Organization, allows students to study a variety of interrelated disciplines.

J.E. Williams Technology Middle School, a School of Choice program gives middle school students an opportunity to explore the world of technology. Working closely with local business leaders, students are exposed to the many aspects of the technology industry. The program, NASA'S Beginning, Engineering, Science, and Technology or NASA'S-BEST, integrates activities and technologies that challenge students in a fun environment utilizing many of the same projects as NASA engineers. The curriculum requires students to think critically, collaborate to solve real world problems and actively participate in the engineering process. Through William's NASA's BEST magnet program, students are given an opportunity to imagine, plan, design, and then build a project, just like real engineers. The program combines Next Generation Science Standards along with the International Baccalaureate foundations in building connections to the Alabama College and Career Ready Standards. This magnet program allows students to gain knowledge of the engineering process, strong technical writing skills, as well as the positive self-esteem needed to conquer any task. Upon completion of this program, students will have the problem solving skills and competitive edge to feel confident in any academic setting.

At the high school level, multiple magnet programs are offered. Lee High School's magnet program focuses on the Creative and Performing Arts. The school has received many awards for its programs in visual arts, vocal music, creative writing, dance, drama, photography/video, and technical theater production. Students develop a strong base for building their future education and/or a career in the arts. Enrollment for the Creative and Performing Arts tract is only by application and interview, audition, or portfolio. With a focus on developing the critical thinking needed to succeed in the creative and performing arts, Lee's programs let students focus in a specific field—similar to a college major—to complement and extend their academic studies. Honors and AP Courses are offered in both academics and arts courses. Students develop the work ethic and growth mindset needed to become college and career ready. The Creative and Performing Arts Programs at Lee High School embrace diversity as part of an authentic life and as essential in education the whole student. Problems are seen as opportunities for creative problem-solving and for improvement. Academics are extended into the work of the creative and performing arts in order to develop student voice and talent. Lee offers the following areas of concentration: Creative Writing, Dance, Technical Theatre, Theatre Performance, Orchestra, Photography, New Media Arts/Cinematography, Visual Arts, and Vocal Performance.

New Century Technology High School students complete Science, Technology, and Engineering courses focused on research and application for real-world problems. Students gain strong academic knowledge and skills by completing specialized courses in one of three Areas of Study - Biomedical Science, Computer Science, and Engineering.

Students in the Biomedical Science Strand learn about 21st century Biomedical Innovations, Biotechnology, and Bioinformatics applications used for genome analysis, disease studies, and patient care. Biomedical students also become well-versed in Medical Terminology and explore numerous medical career options through job shadowing and internships at local hospitals and local universities. Computer Science students learn about securing networks, operating systems, and applications to mitigate risks, in addition to problem solving skills using computer programming languages like Python, C++, and Java. Computer Science students have the opportunity to compete in national cyber security and programming contests, as well as to become certified in IT Essentials, Network+, CCENT, CCNA, Security+ and Certified Ethical Hacking. Engineering students learn about 3D modeling software and design solutions to real problems by understanding the design process, research and analysis techniques, communication methods, engineering standards, and technical documentation. Engineering students have opportunities to collaborate with industry leaders, such as NASA and Raytheon, in systems engineering projects and original research. In addition to our core curriculum in these three Areas of Study, NCTHS students can take specialized electives such as Modeling and Simulation, App and Game Development, Genetic Technologies, Computer Networking, Multimedia Production, Human Biochemistry, Robotics, and Engineering Concepts.

Career/Technical (Career Readiness) Training Programs

Career and Technical Education “Career Academies” are located in six high schools and the Huntsville Center for Technology. The Huntsville Center for Technology provides skill training on an itinerate basis to all Huntsville City Schools high school students. By fall of 2017, the remaining programs housed at the Huntsville Center for Technology will relocate to our newly constructed high schools. All students have access to a number of highly technical skills training offered at our schools:

- Advanced Manufacturing Academy
- Health Science Academy
- Building Science Academy
- Culinary Arts Academy
- Cyber Security Academy
- Esthetics and Spa Management Academy
- Law & Public Safety Academy
- Microsoft IT Academy
- PLTW Biomedical Science
- PLTW Engineering Academy
- Precision Machine Technology Academy
- Television Production Academy
- Transportation, Distribution, & Logistics Academy
- Welding Technology Academy

Partnerships with J.F. Drake State Technical College and Calhoun Community College give students the opportunity to earn dual enrollment credit and articulated credit. Night courses from both post-secondary institutions are offered in the evening at the Huntsville Center for Technology. Work-Based Learning also gives our students the opportunity to participate in apprenticeships, internships, and paid employment in their chosen career pathway.

Career preparedness planning is also available for middle school students and freshmen academy students. Students who complete career academy programs are eligible to test and earn industry recognized credentials in their chosen career pathway. All seniors are assessed each spring using the ACT WorkKeys assessment. Career Academy opportunities offered to Huntsville City Schools' students are constantly evolving to meet Region II workforce needs.

After School & Special Programs

Huntsville City Schools provide convenient extended day care at a rate comparable to other childcare facilities. Many Title 1 schools also have an after-school enrichment program, Camp Success, to assist students with homework, reading, and other activities. Programs such as Credit Recovery, Homebound, and night school allow students to make-up missed classes and homework.

The Huntsville City Schools also promotes military education and training through its Junior Reserve Officer Training (ROTC) programs offered at the high school level. Students can participate in the Army program at Columbia and Lee, Marine program at Johnson, or the Air Force program at Huntsville High School. School officials report that many ROTC students continue their training with careers in the military after graduation.

Extra-Curricular Activities

In addition to these programs, students can also participate in extra-curricular activities such as band, choral, drama, forensics, student government, service clubs and organizations, student publications such as literary magazines, and athletics.

Students can participate in football, volleyball, basketball, cheerleading, and track at the middle school level. High school students can participate in football, volleyball, hockey, cross country, swimming, basketball, wrestling, indoor track, softball, baseball, tennis, soccer, cheerleading, dance, and golf.

Expansion of Facilities

To accommodate population growth, the City of Huntsville recently constructed a new Whitesburg P-8 school. Additionally, a new Grissom High School is being built, and a new high school, Jemison High, is being constructed to replace J.O. Johnson High School.

More information concerning the Huntsville City Schools is available at: www.huntsvillecityschools.org

B. Private Schools

Many independent or religiously-affiliated private schools are located in the Huntsville-Madison County area. Private schools give parents the option of selecting an educational institution with a smaller student-teacher ratio, traditional or alternative curriculum offerings, and other specialty programs. Many of the schools administer standardized testing programs, which measure the effectiveness of instruction and the selected curriculum. Private school administrators are invited to join the Huntsville-Madison Private Schools Association, a professional group that meets monthly to coordinate and support the initiatives of private school instruction. Additional information concerning private schools in the area can be found at: www.huntsvillemadisonprivateschools.org. Where available, tuition rates are generally based upon the 2015-2016 school year, and

are subject to change from one school year to the next. **Map 4.2** shows the location of private schools in the area.

Independent Private Schools

Randolph School

President and Headmaster: Mr. James E. Rainey, Jr.

Phone: (256) 799-6100

Web Site: www.randolphschool.net

Grades Served: K-12

Enrollment: 974

Student/Teacher Ratio: 8:1

Enrollment for 2015-2016:

Lower School K-4: 292

Middle School 5-8: 305

Upper School 9-12: 377

Tuition Rates/Year: \$15,390 Grades K-4
 \$16,990 Grades 5-6
 \$17,990 Grades 7-8
 \$19,490 Grades 9-12

The only K-12 independent college preparatory day school in North Alabama, Randolph School, founded in 1959, draws students from a 40-mile radius in all directions who are academically minded and motivated to make the most of their educational experience. The School offers a rigorous academic curriculum, which includes an outstanding arts education and an excellent athletics program. Students have numerous opportunities to become involved in community service, clubs and leadership organizations. A low student/teacher ratio and an advisory program that begins in the 5th grade ensure that every student is known well and each is encouraged and challenged to excel. A house system in the Middle School enables students and teachers to know each other across grade levels and provides opportunities for student leadership. The School has an Honor Code that is introduced to students in Kindergarten. In the 9th grade, students sign the Honor Pledge and have the opportunity to run for seats on the Honor Council, which upholds the Honor Code in the Upper School. A week-long Interim program in March immerses students in educational travel, career internships, service learning, and on-campus learning outside of the regular curriculum.

The Lower School program (K-4) is grounded in the latest brain research and fosters a developmentally appropriate approach to learning, character education, and personal growth. Foreign languages (French and Spanish), science lab, design lab, music, and art are an integral part of an experiential, often interdisciplinary, progressive curriculum.

In the Middle School (5-8), students can further explore and develop their interests through a wide variety of electives, including design engineering, 3D printing in art, and PE mini-courses in sports, yoga, and strength conditioning, while continuing to be challenged in the traditional subjects. Students are exposed to chemistry in the 7th grade, typically take Algebra I in the 8th grade and are also working at a 9th-grade level in

foreign language. Independent thought and research are promoted in each grade and culminate in an 8th grade capstone experience called 8Lead.

Upper School (9-12) students work with the academic deans and their advisors, who stay with them all four years, to take on a challenging course load while making the most of the high school experience. Because of the importance we assign to hands-on learning in laboratory experiments, the average Randolph student spends more time in science classes than in any other discipline and substantially more time than in any other school in our region. The average Upper School student is enrolled in an art course throughout his or her high school experience. A 9th-grade cancer research project in Biology and an 11th-grade English research project are two places where students can explore and make meaning of topics of particular personal interest. In their final year, students may apply to a college-level, interdisciplinary senior capstone seminar where they design an original work and present it to the community. Students have composed music and Arabic poetry and built architectural models and a halfscale model of Quick's Monoplane among other projects.

Advanced Placement: Courses are offered in every academic discipline. More than 80% of students take at least one AP course before graduation. More than 90% of seniors score 3 and above and 70% score 4 or 5. Of the students who have taken three or more AP courses, more than 90% typically are named AP Scholars. There were 31 AP Scholars in the Class of 2015.

College plans: Starting in 9th grade, students are thinking about and planning for college, and by the time they make their applications they have the skills and attitudes to flourish in higher education. Two full-time college counselors work with all juniors and seniors to plan for the college application and selection process. The Class of 2015 applied to 171 colleges in 38 states, D.C., and Puerto Rico, as well as three foreign countries, with an acceptance rate of 76%. Nearly 70 percent of the class received and will use merit-based aid at the college of their choice. 100% of students in the Class of 2015 who applied for merit-based scholarships received at least one award.

Faculty: Through the School's affiliation with national benchmarking, accrediting, and professional organizations, Randolph is able to attract top educators and administrators from around the country, creating an intellectually stimulating and diverse environment. Randolph School's faculty members have an average of 14 years of classroom experience, and 71% hold advanced degrees. Employees take advantage of professional development on- and off-campus with a school schedule that builds in time for Wednesday-morning collaborations and 10+ professional development/in-service days. Summer grant opportunities are also encouraged, and 45 teachers were awarded summer grants in 2015. In addition, faculty and staff serve as accreditors, presenters and online contributors for several of the professional non-profit organizations of which Randolph is a member (NAIS, SAIS, CASE, AISAP, AISA).

Profile for Class of 2015: 91 Graduates

SAT scores

Critical Reading (Middle 50% Range)

Randolph - 490-630 / 520-680 in 2016

Alabama - 460-630

National - 410-570

Math (Middle 50% Range)
Randolph - 480-640 / 520-680 in 2016
Alabama - 450-630
National - 430-590

Writing (Middle 50% Range)
Randolph - 500-640 / 510-670 in 2016
Alabama - 450-620
National - 400-560

The Writing Skills test includes a required essay. Randolph students perform significantly better on this (by a full standard deviation) than their state or national peers. These scores reflect the strength of our critical reading and writing program.

National Merit Scholars: 10-20% of seniors are typically named National Merit Finalists, Semifinalists and Commended Scholars. In the Class of 2016, there are eight National Merit Semifinalists and six Commended Scholars. Randolph has the highest percentage of Semifinalists of any area school.

ACT (Middle 50% Range) 24-30; Composite: 27.3

In the last two graduating classes, 37% of students earned a composite score of 30 or higher on the ACT, almost twice the rate achieved by the next highest-performing school in North Alabama.

Extracurricular activities: Extracurricular activities available to students include student government, Honor Council, theater productions, academic and special interest and service clubs, and academic competition teams. Upper School Science Olympiad typically qualifies for Nationals. The 2015 Middle School Future City team was second in state. The Upper School robotics team came 4th overall in the area at the 2015 Boosting Engineering, Science, and Technology (BEST) robotics competition. Randolph's theater troupe has represented Alabama at the Chapter Select Showcase at the International Thespian Festival more than any other school in the state. The Upper School Band has received superior ratings in their Music Performance Assessment for the last six performances. Randolph's Upper School Concert Choir and the Middle School Percussion Ensemble were both selected to perform at the 2016 Alabama Music Educators Association Conference.

Athletics: In grades 7-12, 70% of Randolph students participate in at least one team sport with 33% participating in more than one sport. The School fields 72 athletic teams, with development for the highest levels of play starting as early as 3rd grade. K-6 students play in the Huntsville Independent School League. A full-time strength and conditioning coach works with Middle and Upper School athletes throughout the year. Starting in 7th grade, students compete in the Alabama High School Athletic Association (AHSAA) at the 4A level. Interscholastic sports offered for students in grades 7-12 are baseball, basketball, bowling, cheerleading, cross country, football, golf, soccer, softball, swimming and diving, track and field, tennis, and volleyball. Randolph has earned 43 state titles and 34 runners-up, 19 of these in the last five years. Two seniors were named for both of the 2016 AHSAA Bryant-Jordan Student-Athlete regional awards.

Randolph offers an innovative summer program with camps in a wide variety of academic subjects, including technology and the arts, as well as sports camps taught by current faculty.

Admissions: Randolph offers rolling admissions, and while the bulk of applications are made in the winter, inquiries and applications are welcome at any time. ISEE testing is required of applicants for 5th grade and up. More information and an online application can be found on the School's website. The School is committed to making a Randolph education affordable for all students with the appetite and drive to commit to a challenging academic and extracurricular program. Tuition assistance is offered to qualified applicants. Currently, the School awards \$800,000 of tuition assistance annually with 12% of students receiving some amount of assistance with an average annual award of \$7,000.

Technology Access: Randolph's campus is enhanced with four computer labs, a campus-wide wireless network, classroom computers and tablets for K-6, and a laptop program for grades 7-12. There are maker labs with 3D printers in each division.

Campus: The School is situated on two campuses within a mile of each other in Jones Valley in Southeast Huntsville.

Governance, Accreditation and memberships: Randolph School is governed by a Board of Trustees composed of parents of present and former students, alumni, and community leaders. Randolph is accredited by the Southern Association of Colleges and Schools and is a member of the National Association of Independent Schools, Southern Association of Independent Schools, Alabama Independent School Association, Council for the Advancement and Support of Education, and INDEX.

Motto: *Diligentes ad Veritatem Quaerendam* (Diligent in Seeking Truth)

Mission: *Seeking Truth, Building Character, Nurturing All*

Randolph School provides a rigorous and well-rounded K-12 college preparatory education within a nurturing community. Through a commitment to excellence in academics, the arts, and athletics, the School's program and its faculty demand diligence and discipline while encouraging creativity and discovery. Above all, the School emphasizes honor, integrity, and character so that all in partnership with Randolph are elevated and inspired to enrich their families, communities, the nation, and the world.

The Montessori School of Huntsville

Administrator: Ms. Allison MacKenzie

Phone: (256) 881-3790

Web Site: www.montessorihuntsville.org

Grades Served: Toddlers – 6rd grade, beginning in 2011

Student/Teacher Ratio: Young Toddler - 3:1

Older Toddler – 6:1

Preschool – 10:1

Elementary – 12:1

Tuition Rates: Call for information.

The Montessori School of Huntsville has an enrollment of approximately 114 students on two campuses. Both staff and students are from many national origins and ethnic backgrounds.

Religiously-Affiliated Private Schools

Pope John Paul II Catholic High School

Principal: Mr. Vince Aquila

Phone: (256) 430-1760

Web Site: www.jp2falcons.org

Grades Served: 9-12

Student/Teacher Ratio: 17.5:1

Tuition Rates/Year: \$8,300 (includes textbooks, lab fees, art fees, computer fees, etc.)

Catholic High School has an enrollment of 439 students, with 100% enrolling in college. Faculty is comprised of 44 members, holding doctorates, masters degrees, or undergraduate degrees. A majority of the faculty hold advanced degrees. The school is affiliated with the Catholic faith, and encourages spiritual and academic growth of its students. Sporting activities available at the school include: golf, swimming, cross country, softball, football, track and field, cheerleading, tennis, baseball, volleyball, basketball, and soccer.

Grace Lutheran School

Principal: Mr. Joshua Swartz

Phone: (256) 881-0553

Web Site: www.gls-hsv.org

Grades Served: Pre-K to 8th Grade

Student/Teacher Ratio: 12:1

Tuition Rates/Year: \$3,595 for Pre-K3 - K (1/2 day)

\$5,900 for Grades Pre-K/K-8 (full day)

*Discounts for Grace Lutheran Church members

Grace Lutheran School is a Christian-based school that emphasizes quality academics and a traditional curriculum. It is accredited by the National Lutheran Schools Association. The school serves a student population of over 160. The school has 12 full-time and 9 part-time faculty members, with an average of 26 years of experience in education. Over 50% of the faculty have masters degrees. Sports programs offered at the school include: soccer, basketball, track, t-ball, cheerleading, and volleyball. The school participates in new military family orientation programs at Redstone Arsenal during the summer. Additionally, the school hosts various after-school STEM clubs. The school boasts smart technology interactive classrooms, with tablet learning in grades preschool to grade 5. Chromebooks are used in grades 6-8.

Holy Family School

Principal: Ms. Michelle Kinney

Phone: (256) 539-5221

Web Site: www.holy-family-school.com/

Grades Served: Pre-K-8

Student/Teacher Ratio: 20:1
Tuition Rates/Year: \$4,781 for Parishioner
\$6,280 for Non-Parishioner

Holy Family was founded as a Black Missionary School, and was the first school in the State to be integrated. Diversity and a strong academic program are their strengths. The school has a highly educated faculty of 18, and approximately 200 students. Thanks to an annual appeal campaign, a number of students attend Holy Family with scholarship assistance. Holy Family provides about \$70,000 a year in tuition assistance.

Holy Spirit School

Principal: Ms. Beth Mattingly
Phone: (256) 881-4852
Web Site: www.hstigers.org/

Grades Served: K-8
Student/Teacher Ratio: 22:1
Tuition Rates/Month: \$491 for Parishioner
\$546 for Non-Parishioner

Holy Spirit School is a nationally recognized Blue Ribbon School, affiliated with the Catholic faith. The school serves a highly technical and sophisticated community that expects quality in education. Currently enrollment stands at over 450 students.. Sports programs offered at the school include: soccer, volleyball, basketball, track, t-ball, and cheerleading.

Islamic Academy of Huntsville

Principal: Dr. Hamsa Mahafza
Phone: (256) 722-9838
Web Site: www.islamicacademyofhuntsville.org

Grades Served: Pre-K to 8th Grade
Student/Teacher Ratio: Varies from 6:1 to 12:1, depending upon grade
Tuition Rates/Year: Pre-K: \$4,450 for full day program
K-4: \$3,850
5-8: \$4,050

The Islamic Academy serves mostly multi-ethnic families from Asia, Africa, the Middle East, and North and South America. The school has highly-educated faculty members, with several specializing in reading and Montessori. Students receive personal attention due to small classes. The school offers multi-age classrooms, cooperative learning groups, interactive and hands-on curriculum with a focus on teaching to multiple intelligences. The school is involved in community service and tutoring, and provides for an Islamic environment with daily prayers and the celebration of Islamic holidays.

Madison Academy

President: Mr. Barry Kirkland
Phone: (256) 971-1620
Web Site: www.macademy.org/

Grades Served: 3 year olds-12th Grade

Student/Teacher Ratio: 15:1
Tuition Rates/Year: \$6,525 for Pre-School
\$7,200 for K
\$7,775 for Grades 1-6
\$8,372 for Grades 7-12

Madison Academy is affiliated with the Churches of Christ. Ninety faculty members serve a student population of 850. A total of 40% of faculty members hold advanced degrees. The school holds the distinction of being an Apple Distinguished School with a 1:1 student to device ratio beginning in 3rd grade. Sports activities available at the school include football, basketball, baseball, soccer, golf, volleyball, softball, cross country, and cheerleading.

St. John the Baptist Catholic School

Principal: Ms. Sherry Lewis
Phone: (256) 722-0772
Web Site: www.stjohnb.com/

Grades Served: K-8
Student/Teacher Ratio: 18:1
Tuition Rates/Year: \$4,550 for Parishioner
\$7,820 for Non-Parishioner

St. John the Baptist Catholic School has an emphasis on academics and service to others. A highly educated faculty of 25 serves a student population of over 450. Sports activities available at the school include football, basketball, baseball, soccer, volleyball, t-ball, softball, and cheerleading.

Valley Fellowship Christian Academy

Principal: Ms. Patti Simon
Phone: (256) 533-5248
Web Site: www.valleyfellowship.com/

Grades Served: Pre-K to 12th Grade
Student/Teacher Ratio: 13:1
Tuition Rates/Year: \$4,300 for Grades K5-4
\$4,500 for Grades 5-8
\$4,700 for Grades 9-12
Tuition discounts available for multiple children

Valley Fellowship Christian Academy serves a diverse student population of about 200. The class of 2014 had 100% college-bound seniors, The school has 21 faculty members. Sports programs offered at the school include: soccer, basketball, and volleyball. Valley Fellowship plans to construct a new campus in the near future.

Westminster Christian Academy

Lower School Principal: Ms. Maria Lyman
Upper School Principal: Mr. Kerry St. John
Phone: (256) 705-8000
Web Site: www.wca-hsv.org/

Grades Served: Pre-K to 12th Grade
Student/Teacher Ratio: 18:1
Tuition Rates/Year: \$5,350 for Pre-K
\$6,250 for K
\$7,320 for Grades 1-5
\$8,720 for Grades 6-8
\$8,950 for Grades 9-12

Westminster Christian Academy serves a student population of 702 on two separate campuses.. Approximately 90% of students attend college. Sports programs offered at the school include: cross country, basketball, swimming/diving, wrestling, baseball, track, softball, golf, and volleyball.

Whitesburg Academy

Headmaster: Jerry Reeder
Phone: (256) 704-5678, extension 353
Web Site: www.whitesburgchristianacademy.com

Grades Served: K -12th Grade
Student/Teacher Ratio: 15:1 Lower School; 13:1 Upper School
Tuition Rates/Year: \$5,800 for Grades K
\$6,300 for Grades 1-3
\$6,500 for Grades 4-5
\$6,900 for Grades 6-8
\$7,400 for Grades 9-12

Whitesburg Academy is the only Christian Classical School in the area. The school provides quality education to a very technical and educated community. Current student enrollment stands at over 381 children. The school has 43 teachers. The class of 2015 had 100% of its students to enroll in college. Volleyball, cross country, track and field, soccer, tennis, and basketball sports programs are offered at the school.

Private Specialty Schools

Several private specialty schools catering to students with special needs are located in the area. The schools provide special assistance to students with learning challenges, and provide a lower student/teacher ratio.

Greengate School

Head of School: Dr. Debbie Hargett
Phone: (256) 551-4439
Web Site: www.greengateschool.org/

Grades Served: K -8th Grade
Student/Teacher Ratio: ~4:1
Tuition Rates/Year: \$18,900

Greengate School is the only school for children with dyslexia in the Tennessee Valley. The program uses multi-sensory language instruction to help dyslexic children establish the neural patterns for efficient reading, writing, and spelling. The school also incorporates daily, individual language tutoring for every student. The school has 25

highly specialized faculty members. Greengate School is a member of the International Dyslexia Association. The school also offers tutoring for high school students.

Huntsville Achievement School

Director: Mr. Richard Reynolds

Phone: (256) 539-1772

Web Site: www.huntsvilleachievement.com

Grades Served: K-12th Grade

Student/Teacher Ratio: 5:1

Tuition Rates/Year: \$5,950 for Grades K-8

\$6,069 for Grades 9-12

Huntsville Achievement School provides a specialized learning experience for children with learning disabilities, developmental delays, and for the physically challenged. The school serves a diverse student body. All faculty members are certified in special education. The school also offers an after-school program.

Janice Mitchell Isbell Academy

Principal: Ms. Janice Mitchell

Phone: (256) 226-5044

Web Site: www.angelfire.com/al4/isbell_academy/

Grades Served: 1st -8th Grade

Student/Teacher Ratio: 12:1

Tuition Rates/Month: Call for rates

Janice Mitchell Isbell Academy provides educational services for students with dyslexia, central auditory processing disorder, attention deficit disorder, and learning disabilities. The administrators and faculty strives to accelerate the knowledge, skills, and abilities of the students it serves. The school specializes in teaching students with learning disabilities, or who perform poorly in a traditional classroom environment.

C. Homeschooling

Homeschooling is available to parents as an option. Several "cover schools" operate in the North Alabama area; however, the cover school selected does not have to be local - only located within the State of Alabama. A listing of all available "cover schools" in the State of Alabama can be found at: www.northalabamahomeeducators.freesevers.com.

D. Day Care

There are a multitude of daycare facilities in operation in the region. Currently, there are approximately 85 licensed daycare centers, 80 homes licensed for daycare, and 87 facilities that have been granted special exemptions. The State Department of Human Resources licenses daycare facilities in Alabama. The Childcare Management Center provides a comprehensive listing of daycare facilities in Madison County. They assist families with State financial aid for daycare services. Clients can directly contact the Center for assistance, or be referred by the Department of Human Resources. The Center can be contacted at (256) 534-5110.

III. Higher Education

The superior quality of educational programs and the intense research and development performed by local students at university and government labs, is fueled by the region's need to produce top-notch graduates to support research and development at a professional level - specifically for DoD and NASA programs.

Area colleges and universities provide a critical mass of students pursuing degrees in science, mathematics, computer science, and engineering. These students, given their incredible exposure and experience through practical applications of scientific and engineering research and software development, are among the best candidates in the country to fill positions in fields of scientific research. During the 2015-2016 academic year, an assessment was conducted of area colleges and universities to determine the intensity of declared majors in computer science, math, physics, and certain engineering fields. The results are shown at **Table 4.1** and **Table 4.2**. The North Alabama region has a large mass of highly qualified and highly educated students that already have experience working in a high-tech environment.

**TABLE 4.1
RECENTLY DECLARED MAJORS OF UNDERGRADUATE AND GRADUATE DEGREE CANDIDATES LOCAL AND REGIONAL COLLEGES AND UNIVERSITIES**

Declared Major/Field of Study	Undergraduate Degree Candidates	Graduate Degree Candidates	Total Undergraduate & Graduate Degree Candidates
Computer Science	688	179	867
Computer Information Systems	188	28	216
Computer Engineering	250	51	301
Mathematics	83	29	112
Subtotals:	1209	287	1496
Optical Engineering	11		11
Optical Science & Engineering		17	17
Applied Physics		12	12
Physics	128	54	182
Subtotals:	139	83	222
Electrical Engineering	502	134	636
Electrical Engineering Technology	6		6
Industrial & Systems Engineering	108	110	218
Industrial Technology		1	1
Mechanical Engineering	849	103	952
Mechanical Engineering Technology	6		6
Aerospace Engineering	330	66	396
Subtotals:	1,801	414	2215
Atmospheric Science	76	66	142
Material Science		17	17
Systems & Material Engineering		11	11
Subtotals:	76	94	170
Biotechnology Science & Engineering		32	32
Modeling & Simulation		19	19
Information Assurance		35	35
Biology	375	20	395
Chemistry	80	16	96
Civil Engineering	143	23	166
Chemical Engineering	175	7	182
Subtotals:	773	152	925
Grand Totals, Per Degree Type:	3,998	1,030	
Grand Total All Degrees, All Students:			<u>5,028</u>

Source: Inquiry of UAHuntsville and Alabama A&M University: 4-Year and Graduate Degree awarding institutions. Information current as of 2015-2016 Academic Year.

**TABLE 4.2
RECENTLY DECLARED DEGREES OF STUDENTS
ATTENDING LOCAL AND REGIONAL
JUNIOR COLLEGES AND TECHNICAL TRAINING INSTITUTIONS**

Declared Field of Study	Total Degree Candidates
Aerospace Technology	92
Missiles & Munitions Technology	1
Industrial Electronics Technology	4
Electrical Technology	79
Automation/Robotics	26
Engineering	5
Advanced Manufacturing (Includes Robotics, Industrial Technology, etc.)	682
Computer Information Systems	321
Mathematics	7
IT, Science, Math or Engineering (Breakdown not specified)	10
Grand Total, All Degrees: 1,227	

Source: Inquiry of Calhoun College and J.F. Drake State Community and Technical College
Information current as of 2015-2016 Academic Year

A. Local Colleges and Universities

A location map depicting Huntsville-area institutions is provided at **Map 4.3**.

University of Alabama in Huntsville (UAHuntsville)

President: Dr. Robert Altenkirch

Phone: [\(256\) 824-1000](tel:2568241000) or 1-800-UAH-CALL

Web Site: www.uah.edu/

Type School: Four-Year Research University, offering BS, MS, and Ph.D degrees

Affiliation: State Institution

Student/Faculty Ratio: 16:1

Tuition/Semester:

\$5,420 for Resident Undergraduate (Based upon 20 hours)

\$12,373 for Non-resident Undergraduate (Based upon 20 hours)

The University of Alabama in Huntsville (UAHuntsville) is strategically located near Redstone Arsenal, as well as technology-related companies that, with UAHuntsville combine to form one of the nation's largest research parks. Supporting and growing with these entities over the years, UAHuntsville has become one of the South's outstanding providers of science and technology related research, and undergraduate and graduate education. These recognized strengths are complemented by excellent undergraduate programs in business, liberal arts, and nursing. The university boasts 110 areas of study, 71 degrees and 8 colleges. UAHuntsville has more than 7,400 high quality, highly motivated students from across the country and 76 countries. UAHuntsville leads Alabama in research in the areas of engineering and physical and information science.

Federally funded research during 2015 totaled \$98 million, with R&D research expenditures being \$74.8 million. The university is ranked as #2 in federally funded R&D in Alabama. The largest research awards during 2014 were given by the Department of Defense in the amount of \$49.9 million and NASA, in the amount of \$19.1 million. Research is conducted within the individual colleges or through 15

independent research centers, laboratories and institutes. Major interdisciplinary research thrusts include: applied optics; Earth system science; information technology; management of science and technology; mechanical and aerospace engineering; modeling and simulation; nano and micro devices; space plasmas and astrophysics; space propulsion; biotechnology; systems engineering; and robotics.

There are currently 2,465 students that will graduate with degrees in highly technical scientific fields such as physics, mathematics, computer science, and engineering. Additionally, UAHuntsville's graduate school currently has 881 students pursuing PhDs in these fields as well.

UAHuntsville has extensive partnerships with governmental agencies, including the U.S. Army's Aviation and Missile Command, the Army's Space Missile and Defense Command, and NASA's Marshall Space Flight Center. Many of the research centers at UAHuntsville were specifically developed to support the needs of their government partners. Specific centers supporting activities of both the U.S. Army and NASA include:

- Information Technology and Systems Center
- Rotorcraft Systems Engineering and Simulation Center
- Systems Management and Production Center (SMAP)
- Propulsion Research Center
- Aerophysics Research Center
- Center for Applied Optics
- Center for Modeling, Simulation and Analysis
- Center for Materials Research
- Center for Space Plasma and Aeronomic Research
- Consortium for Materials Development in Space
- Earth Systems Science Center
- Laboratory for Materials and Surface Sciences

Additionally, the National Space Science and Technology Center (NSSTC) (<http://www.nsstc.uah.edu/nsstc/>) is a research facility with its core facility located in Robert "Bud" Cramer Research Hall, on the campus of UAHuntsville. It blends the talents and capabilities of NASA researchers with students and faculty, to develop new technologies that can be used by the space agency as well as transferred to the defense sector.

Beginning in the spring of 2010, UAHuntsville welcomed personnel from Oak Ridge National Laboratory to their new office on the UAHuntsville campus. The office will facilitate intensive, on-going collaborations in academic and research programs in a number of areas vital to national security and economic development. The Oak Ridge-Huntsville partnership office will foster joint opportunities with NASA, U.S. Army, and contractors at Redstone Arsenal and Cummings Research Park. Additional partnerships will include the Livermore National Laboratory, the Y-12 National Security Complex, and the Oak Ridge Association of Universities.

Cross-Educational Programs with Redstone Arsenal:

UAHuntsville has partnered with both the U.S. Army and NASA to provide support to their various missions through research and other activities. Also, the University in

partnership with AMCOM, SMDC, and NASA provides Cooperative Education opportunities to UAHuntsville students.

SMAP Research to Support AMCOM Missions

The UAHuntsville Systems Management and Production Center (SMAP) has approximately 100 people working at AMCOM. These researchers are UAHuntsville employees who are located at Redstone Arsenal to directly support AMCOM.

- Areas of support to AMCOM include:
 - Logistics/supply chain management
 - Continuous improvement, Lean
 - Modeling and simulation
 - Visualization
 - Reverse Engineering
- The UAHuntsville Systems Management and Production Center (SMAP) developed a virtual model of the UH60 Black Hawk helicopter and incorporated that model into a complex training package. The UH60 Interactive Multimedia Instruction (IMI) package will be used at Ft. Eustis, Virginia to train soldiers in the proper methodologies to maintain and support the Black Hawk.
- Another impressive accomplishment was the development of an innovative method to disseminate *Safety of Flight (SoF)* alerts to soldiers. The Army teamed with the SMAP to create a multi-media, interactive CD using photorealistic 3D models and animations to illustrate to aviation support personnel proper and specific maintenance techniques of the CH47 (Chinook) helicopter. In this process, a new methodology for improving the safety of the military's fleet of helicopters was created. SMAP staff delivered the first draft of the software package within one week, and the final CD version at the end of two weeks. Over 200 CDs were distributed within a two-week period.

Cooperative Education (Co-op)

UAHuntsville students participate through a co-op program, to provide support to Redstone Arsenal missions. Typically, over 300 students are employed at AMCOM, the Army Corp of Engineers, NASA, the SMDC, local defense contractors, as well as other businesses.

Additional University Highlights

With more than 2,000 colleges and universities across the United States, only one in nine can be classified as a "national" university. The University of Alabama in Huntsville is in that special category. The university has also been added to the upper echelon of research universities, being ranked as a "very high research activity" institution by the Carnegie Foundation.

In addition:

- UAHuntsville has the largest research expenditures in the nation (more than \$83 million in 2009-10) compared to all other public universities of its size (~ 7,700 students.) These expenditures rank UAHuntsville in the top 100 of the nation's public research universities.

- UAHuntsville ranks second to Georgia Tech in annual research expenditures as a percentage of total budgetary expenditures when compared to the 31 universities in the Southern Universities Group.
- Four UAHuntsville research disciplines rank in the top 50 in the nation in federal research funding, according to the National Science Foundation.
- UAHuntsville's earth systems science program was in the top 10, atmospheric science was 19th in national funding, computer science at 20th, mechanical engineering at 26th, and electrical engineering at 49th.
- UAHuntsville is the first university in the United States to have Oak Ridge National Laboratory operate offices on a college campus. Oak Ridge has formal affiliations with 103 universities across the nation and around the world. Savannah River National Laboratory and the Y-12 National Security Complex also have campus offices.
- UAHuntsville is partnered with MIT, The Smithsonian Astrophysical Observatory, Los Alamos National Laboratory, NASA Marshall Space Flight Center and the University of California-Berkeley to win part of a \$57 million scientific experiment on NASA's \$1billion Solar Probe Mission.
- UAHuntsville was among 17 research organizations and universities in the U.S. invited to join the National Systems Engineering Research Center created by the Department of Defense and National Security Agency.
- UAHuntsville consistently ranks among the top schools in the nation in NASA research funding to universities.
- UAHuntsville's College of Business was ranked in the top 10 in the U.S. by the National Science Foundation for contracts and grants.
- UAHuntsville has some of the highest academic entry standards of any public university in Alabama - the average ACT of the freshman class of 2015 is 26.7.
- The cost of education at UAHuntsville (tuition, fees, housing, meals and parking) is the lowest of our peer research universities in Alabama.
- UAHuntsville has been named the 22nd best economic value in the nation by USA Today/Princeton Review.
- UAH ranks among the top 20 universities in the nation for awarding bachelor's engineering degrees to women.

Sports programs are available to students at the University. UAHuntsville boasts the south's only NCAA Division I ice hockey program. Along with hockey, UAHuntsville competes in volleyball, softball and men's and women's soccer, cross country, track, basketball, and tennis. With the exception of ice hockey, the university is a member of one of the nation's most competitive conferences, the Gulf South Conference. The UAHuntsville ice hockey team competes in the Western Collegiate Hockey Association Conference. Prior to moving to its current status, the UAHuntsville ice hockey team captured the NCAA Division II national championship in 1996 and 1998 and was

national champion runner-up in 1995 and 1997. The university has won 29 conference championships and awards \$2.7 million in athletic scholarships annually. Additionally, other intramural and club sports are available on campus.

Academic programs are always in the process of re-evaluation to adjust to the needs of the community and the demands of the student body. Multi-disciplinary and cross-college programming are of special interest, as is the expansion of distance learning.

A variety of student housing and special amenities are available on campus.

Alabama A&M University

President: Dr. Andrew Hugine, Jr.

Phone: (256) 372-5000

Web Site: www.aamu.edu/

Type School: Doctoral Intensive, Research-Oriented Historically Black University
Affiliation: State Institution

Tuition/Semester: \$4,683 for Resident Undergraduate, Commuting, 12-18 hrs.
\$8,568 for Non-resident Undergraduate, Commuting, 12-18 hrs.
Tuition/Hour: \$393 for Resident Graduate
\$786 for Non-resident Graduate

Alabama A&M University is a historically black, land grant university, located four miles away from downtown Huntsville. The University offers a variety of degrees through five schools with significant program areas. Additionally, the School of Graduate Studies serves about 1,400 and offers doctoral degree programs in Applied Physics, Food Science, Plant/Soil Science, and Reading/Literacy. Alabama A&M has a total enrollment of 5,814 diverse students, and a faculty of 348 members. The student body is comprised of young adults from approximately 44 different states and draws many international students (currently from 11 countries).

Alabama A&M University has been supporting north Alabama with educational opportunities since it opened its doors in 1875. For four consecutive years, the university placed students on the coveted academic teams of USA Today. It was also named one of the Top 50 schools nationwide for African Americans by Black Enterprise magazine.

In 2007, Alabama A&M University continued to enhance its position as a learning community with national recognition. For example, in their ranking of institutions of higher learning in the United States, *U.S. News & World Report*, *Washington Monthly*, and *Diverse: Issues in Higher Education*, ranked Alabama A&M University in the following categories:

- 31st in the nation among “National Universities” – *Washington Monthly*
- AAMU among top 100 undergraduate and graduate degree producers for African Americans - *Diverse*
- 2nd in the nation in the production of African-American Ph.D. physicists – *Diverse*
- 5th in the nation in the production of African-American teachers
- 5th in the nation in the production of African-American mathematicians – *Diverse*

- 10th in the nation in the *production* of African-American engineers – *Diverse*
- 13th in the nation in the *production* of African Americans with agriculture-related degrees - *Diverse*
- 14th in the nation in the *production* of African-American students with degrees in biological/biomedical sciences
- North Alabama's only accredited source for master's degree in social work (M.S.W) - *Diverse*
- 34th in the nation in the *production* of African-American computer scientists - *Diverse*
- A leading *producer* of African-American physicists and plant/soil scientists

These rankings are indicative of the critical role that Alabama A&M University plays in providing a viable educational environment for minorities to achieve success. Further, with the growing number of Hispanics in the North Alabama area, the University is moving ahead to implement programs and services to attract and meet the needs of this population.

Each degree awarded by Alabama A&M University represents an individual but it is the combined impact on the population and economies of Alabama that is the most significant if the compounding effect in enhancing the economic and technological base of the state is considered. For example, Alabama A&M University's teacher education graduates are employed in urban and rural school systems throughout the State. In Madison County, the home of Alabama A&M University, nearly 80% of all teachers in the city and county school systems have received one or more degrees from Alabama A&M University. The quality of our program in teacher education is a testimony to the quality of the elementary and secondary programs in the city and county systems. The high rankings of the county and city school systems are a major factor in attracting business and industries to this area.

Alabama A&M University is mindful of the growing population of nontraditional students. To meet the needs of this segment of the student population, the University uses a variety of flexible delivery systems and distance learning technology. Through the University's local TV Station Channel 78, students have access to general education courses in mathematics, English and reading. Distance learning classes are offered in agriculture, family and consumer sciences, biology, plant and soil science, and community planning at the graduate and undergraduate levels. Further, several degree programs may be completed using the evening and weekend programs; these include human development and all of the master's level education programs. All of the Technology Education programs at the master's level are offered online. Through the State Transfer and Articulation System (STARS), Alabama A&M University participates with the Junior College System to facilitate the ease of transfer and acceptance of courses for the completion of the four-year degree. Additionally, articulation agreements exist with the University of Alabama in Huntsville for Biology, Art and Engineering.

The University rounds out its academics with various sports programs to include: football, baseball, basketball, bowling, cross country/track and field, golf, soccer, tennis, and volleyball.

Partnership with Redstone Arsenal and NASA

Alabama A&M has had a strong relationship with Redstone Arsenal and NASA since at least 1978, and supports Army initiatives through cooperative education programs and scientific research.

Cross-Educational Programs with Redstone Arsenal

Alabama A&M and Redstone have had a partnership for many years, and each have been mutually supportive of the University's and the Army's mission.

AAMU Business-Industry Cluster

NASA and the U.S. Army Aviation and Missile Command have been key partners in the success of the AAMU Business-Industry Cluster, an organization that helps the University maintain its important link with the business sector, while engaging that entity in the mutually beneficial collaborations.

Alumni

AAMU boasts nearly 300 NASA-affiliated alumni.

NASA Administrator's Fellowship Program

AAMU has participated for a number of years in the coveted NASA Administrator's Fellowship Program. For example, Dr. Goang-Shin Liaw is a Professor of Civil Engineering who participated in Cohort 10 of the program. He has served as Chairman of the Department of Civil Engineering for more than 16 years and as Interim Dean of the School of Engineering and Technology from 1990 to 1992. Dr. Liaw has been heavily involved in Computational Fluid Dynamics (CFD) for many years. He has planned, directed, and executed more than 10 research projects at AAMU with contract values in excess of \$2 million. He has authored over 50 technical articles, reports, and papers as a result of his research work. Dr. Liaw's NAFB research interests are to apply nanotechnology in water and air purification systems in the Environmental Control and Life Support System (ECLSS) for the International Space Station and future Lunar Habitat.

Past Collaborations

Recently retired AAMU professor Ravindra B. Lal was the principal investigator of two NASA Space-lab projects and successfully performed the space flight experiments on subsequent flights in 1985 and 1992.

Research Interests

Among research faculty's interests are: Space Physics (Upper Atmosphere, Ionosphere and Magnetospheric Physics), Solar-Terrestrial Physics and Aeronomy, Auroral Physics, Space Plasma & Solar Wind Physics

Space Physics

Concentration in Space Physics as part of its doctorate-granting academic program in applied physics.

Research to Support DoD/Army and NASA Initiatives

Alabama A&M University scientists and students have participated in many research and development projects to support DoD/Army initiatives as well as those of NASA. Since 2005, the University received \$54.09 million in DoD and NASA research grants. During

2014, the National Science Foundation indicates that \$2.7 million was received for DoD research and \$642,000 was awarded for NASA research. Additionally, Alabama A&M University is a research partner in the Universities Space Research Association, working towards the development and application of space-related science, technology, and engineering.

Other Research Grants Received

Alabama A&M's research extends beyond the partnership with Redstone Arsenal and NASA. The University has also been awarded research grants from the following agencies, since 2005:

Department of Health and Human Services, over \$24.85 million

National Science Foundation, \$27.25 million

US Department of Agriculture, \$34.7 million

US Department of Energy, \$3.68 million

Oakwood University

President: Dr. Leslie N. Pollard

Phone: (256) 726-7000

Web Site: www.oakwood.edu/

Type School: Four-Year Liberal Arts College

Affiliation: Private Institution – Seventh Day Adventist Faith

Tuition/Semester: \$7,857/semester

Oakwood University is a four-year liberal arts college offering bachelors degrees in various fields. Some representative majors are: math and computer science, biological sciences, chemistry, math, computer science, and computer information systems. The college has a total undergraduate enrollment of over 2,000 students, and a full time faculty of 106 members. A variety of student housing is available on campus. The university ranks among the nation's top 5 colleges and universities providing black applicants to medical schools. The university is also recognized for having the #1 science program among Historically Black Colleges and Universities, according to Ebony Magazine.

Since 2008, the National Science Foundation reports that the university received a total of \$4.59 million in R&D funding. Of this, NASA research funds total \$2.3 million, DoD research funds total \$321,000, the Department of Health and Human Services research funds total \$267,000. The National Science Foundation also provided \$884,000 in research funding.

UAB School of Medicine, Huntsville Regional Medical Campus

Associate Dean: Dr. Robert Centor

Phone: (256) 539-7757

Web Site: www.uab.edu/medicine/home/huntsville-campus

Type School: Medical School and Residency

Affiliation: State Institution

Tuition/Year: Call for Rates

UAB - Huntsville is a branch of the University of Alabama School of Medicine. The university provides training for junior and senior medical students in the clinical disciplines of medicine. Over 250 North Alabama physicians serve as members of UAB's volunteer faculty. The family residence program trains residents in a 3-year program. A Sports Medicine Fellowship and an OB Fellowship are also offered after completion of the residency. The university is housed in a 93,000 square foot medical school and clinic.

Faulkner University

Director: Mr. Douglas Cure

Phone: (256) 830-2626

Web Site: www.faulkner.edu/

Type School: Four-Year College

Affiliation: Private University - Church of Christ Faith

Tuition/Hour: Depends upon degree. Contact the University for information.

Faulkner University is based in Montgomery, Alabama, but provides degree programs in Huntsville through its satellite campus. It is a private institution catering to the working adult. Class schedules allow students to work full time while pursuing a degree. The university offers both associates and bachelors degrees. Associates degrees offered include Business Administration, Criminal Justice, Business Information Systems, Informatics, Arts and Sciences, Legal Studies, and Liberal Arts. Bachelors degrees offered include Business Administration, Criminal Justice, and Management of Human Resources.

ITT Technical Institute

Director: Teresa Patton

Phone: (256) 542-2900 (Huntsville campus)

Web Site: www.itt-tech.edu/campus/school.cfm?lloc_num=116

Type School: Four-Year Community College

Affiliation: Private, Technical College

Tuition/Hour: Call for rates

ITT Technical Institute opened in March 2008 in Madison, Alabama. The Institute offers associate of applied science degree programs of study in Computer and Electronics Engineering Technology, Computer drafting and Design, Criminal Justice, Information Technology – Computer Network Systems, Paralegal Studies, Software Development Technology and Visual Communications. Bachelor of Science degree programs of study are offered in Construction Management, Criminal Justice, Electronics and Communications Engineering Technology, Information System Security, Project Management and Software Application Development.

Calhoun Community College

President: Dr. James Klauber

Phone: (256) 890-4700 (Huntsville campus)

Web Site: www.calhoun.edu

Type School: Two-Year Community College
Affiliation: State Institution

Tuition/Hour: \$109 for In-State Residents
\$218 for Out-of-State Residents

Calhoun Community College is Alabama's largest two-year college, serving students of North Alabama at two campuses. The college provides educational and training opportunities for approximately 11,000 students, and dozens of area business and industry which include the Tennessee Valley Authority, The Boeing Company, NASA, and United Launch Alliance. With campuses located in Decatur, Alabama, and in Huntsville's Cummings Research Park, Calhoun is the only two-year college in the United States with a campus located in a research park. Of the approximately 11,000 students enrolled at the college, more than 4,200 were enrolled at the Huntsville Campus.

Accredited by the Southern Association of Colleges and Schools Commission on Colleges, Calhoun holds state and national accreditations for programs in Dental Assisting, Nursing, Surgical Technology, EMT, Accounting, Business, Computer Information Systems, Design Drafting, Air Conditioning, and Machine Tool Technology. The College offers a dual enrollment program for area high school students, providing them the opportunity to earn college credit prior to graduation from high school.

Calhoun partnered with the Hudson-Alpha Institute to acquire a \$5 million Department of Labor WIRED grant to establish the State's first Associates Degree program in Biotechnology. Students are able to complete their degree within two years and either transfer to a 4-year institution or become employed as a biotechnology technician. The first classes began Fall 2007.

The college has a strong emphasis in STEM (Science, Technology, Engineering and Math) programs, preparing students to pursue careers in STEM related fields. Calhoun has over 1,100 students annually majoring in pre-engineering, advanced manufacturing fields, as well as math and science.

Calhoun was selected by former Governor Bob Riley to house a state-of-the-art robotics training and education center. The Alabama Robotics Technology Park (RTP) is a collaboration between the State of Alabama, the two-year college system, AIDT, and robotics industry leaders. Because the Huntsville area is considered to be among the nation's leaders in robotics, North Alabama is the logical place for a robotics center. Phases I and II of the RTP are complete and fully operational. Construction of Phase III is on the drawing board awaiting available funding.

Recognized among the region's most successful economic and workforce development engines, Calhoun's economic impact to the region is significant. According to a 2012 report from the Alabama Community College System, Calhoun's local economic impact was \$279,284,280, for a return on \$1 investment (ROI) of 12:1, the highest among the state's 25 two-year colleges. During 2014, Calhoun was selected as one of the nation's "Top 150 Community Colleges" by the Aspen Institute.

Services to Veterans and the Military

Calhoun is extremely proud of its programs geared to serving area veterans and military families. The college maintains an office dedicated to meeting the needs of these individuals.

J.F. Drake State Community and Technical College

Acting President: Dr. Kemba Chambers

Phone: (256) 551-3117

Web Site: www.drakestate.edu/

Type School: Two Year Technical College

Affiliation: State Institution

Tuition/Hour: In-State: \$143

Out of State: \$286

J.F. Drake State Technical College is the only public technical college in the Tennessee Valley. J.F. Drake State Community and Technical College (Drake State), a student-centered two-year public institution, offers flexible and affordable university-transfer and technical degrees, certificates, adult and continuing education, and customized workforce training to fulfill the diverse needs of the community. Over 2,000 students attend the college in a variety of technical professions including: Practical Nursing, Drafting and Design Technology, Cosmetology, Industrial Electronics, and Computer Information Systems Technology. Other two-year programs include: Accounting, Office Administration, Air Conditioning and Heating, Automotive Mechanics, Industrial Electricity, Graphics and Printing Communication, Machine Tool and Welding. Students who desire short-term classes in specialized areas may enroll in the Continuing Education division. Authorized academic training in the field of Information Technology is offered through the MicroSoft and CISCO labs on the college's campus. In addition to the traditional bricks and mortar locations, Drake State Technical College also offers internet-based classes through the Business Department.

Relationship with Science and Engineering Services, LLC (SES)

With industry partner Science and Engineering Services, Inc. (SES), Drake State has established the North Alabama Manufacturing Technology Education Collaborative (NAMTEC) to capitalize on the education and training capacity of the college, working in concert with its manufacturing industry partners, to produce multi-skilled manufacturing technicians for employment in North Alabama industries. The NAMTEC program was designed in 2014 and later implemented in 2015. The program features mechatronics, precision machining, robotics, industrial maintenance, plastic and composite materials, additive manufacturing, quality and lean principles, and other key manufacturing processes. Three Drake State students are currently employed at SES as an intern or full-time employee. The program currently has 12-15 students, in which five students received the NAMTEC scholarship during the 2014-2015 academic year.

Designed to serve the expanding manufacturing needs of North Alabama, Drake State's program is patterned after the successful program implemented by Shelton State Community College to support the workforce needs of the Mercedes plant in Vance, Alabama. Students in the program will be eligible for paid apprenticeship jobs for 16 hours per week while attending classes.

Grants Received

Over the past four years, J.F. Drake State Community and Technical College was awarded two grants by the National Science Foundation (NSF): The Digital Technology Education Center (DigiTEC) grant and the HBCU-Undergraduate Programs (HBCU-UP) grant for curriculum development and promotion of STEM careers and STEM education for minority youth and undergraduate students. The HBCU-UP grant is a \$1.7 million multi-year grant. The college was recently approved for a no-cost extension to complete and evaluate the DigiTEC grant, which was also a multi-year grant amounting to \$2.9 million. Drake State also serves a sub-awardee on other NSF STEM-related grants with Alabama A&M University and Clark Atlanta University. Overall, the college has received over \$4.8 million from federal and state agencies to address the needs of the workforce and increase STEM (Science, Technology, Engineering, and Science) awareness and research in undergraduate programs. These grants also promote higher learning and STEM studies in the Huntsville/Madison County School districts and workforce training, which include ongoing and developing partnerships with industries, high and middle schools, and 4-year universities.

Other Significant Information

In 2012, the college received affirmation of its accreditation by the Southern Association of Colleges and Schools Commission on Colleges (SACSCOC), a regional body for the accreditation of degree-granting higher education institutions. In addition, the college maintains several programmatic accreditations.

Drake State Programmatic Accreditations	
Program	Accrediting Agency
Heating and Air Conditioning Technology	HVAC Excellence
Automotive Service Technology	National Automotive Technicians Education Foundation (NATEF)
Machine Tool Technology	National Institute for Metalworking Skills, Inc. (NIMS)
Welding	National Center for Construction Education and Research (NCCER)
Electrical Technology	National Center for Construction Education and Research (NCCER)

The college has existing dual enrollment arrangements with several secondary schools in its service area and has an articulation agreement with Athens State University to facilitate transfer of its students to upper division work leading to the baccalaureate degree. In addition, the college completed a similar articulation agreement with Alabama A&M University. The college also has an articulation agreement with the University of Alabama in Huntsville, University of West Alabama, and Oakwood University.

B. Colleges and Universities - Located on Redstone Arsenal

Redstone Arsenal is a participant in the Army Continuing Education System (ACES), and provides four colleges and universities on-post to serve the needs of active duty military personnel, their families, and DoD civilian employees at Redstone. Class times and condensed semesters (minimesters) are structured to meet the needs of an adult working population.

All colleges and universities on-post are affiliated with the Servicemember Opportunity Colleges Network (SOC). Other institutions that are affiliated with the SOC Network will accept college credits from the educational facilities at Redstone. This insures that Army students and their family members can continue their education and complete degree programs, even though the Army may transfer them several times.

Colleges and universities available on-post are: Athens State University, Columbia College, Embry-Riddle University, and Florida Institute of Technology.

Athens State University has a campus in the region, and is discussed in depth elsewhere in this chapter. A review of the remaining on-post colleges and universities follows:

Athens State University

President: Dr. Robert Glenn

Redstone Arsenal Point of Contact: Mr. Rodney Stevens

Phone: (256) 876-7561

Web Site: www.athens.edu

Type School: Upper Division Two-Year Liberal Arts College

Affiliation: State Institution

Tuition/Hour: \$552 for 3 Hours; In-State Residents
\$1,104 for 3 Hours; Out of State Residents

For more information, refer to Athens State University under section III.D. of this Chapter.

Columbia College

Redstone Arsenal Point of Contact: Ms. Barbara Pounders

Phone: (256) 881-6181

Web Site: www.ccis.edu/

Type School: Four-Year College

Affiliation: Private Coeducational Institution

Tuition/Hour: \$200 for On-Campus Courses
\$275 for Distance Education

Columbia College is a private comprehensive institution offering career-oriented academic programs, strongly centered in the liberal arts. Columbia's main campus is located in Columbia, Missouri and offers extended studies through 30 campuses.

Columbia has had a relationship with Redstone Arsenal for 41 years. The college began offering an MBA in 2004.

Embry-Riddle Aeronautical University/Huntsville Center

Redstone Arsenal Point of Contact: Ms. Adrian Fields

Phone: (256) 876-9763

Web Site: www.ec.erau.edu/apps/wwc/centerinfo.cfm?code=F3

Type School: Four-Year College, Aviation-Aerospace Oriented

Affiliation: Private Non-Profit

Tuition/Hour: \$250 - \$355 Undergraduate Classroom Instruction & Distance Learning
\$520 - \$600 Graduate Classroom Instruction

The Embry-Riddle Aeronautical University/Huntsville Center opened in May 2003 as part of the Embry-Riddle extended campus. Embry-Riddle operates approximately 130 centers throughout the United States and Europe, and an internet based Distance Learning program. The Huntsville Center offers degrees in Aeronautical Science, Technical Management, Professional Aeronautics, and Aircraft Maintenance Technology.

Florida Institute of Technology – Huntsville Site

Redstone Arsenal Point of Contact: Dr. Timothy White

Phone: (256) 876-1581

Web Site: www.fit.edu/ or <http://uc.fit.edu/es/redstone/>

Type School: Graduate School

Affiliation: Private Non-Profit

Tuition/Hour: \$600 per hour

Florida Institute of Technology (FIT) is an independently controlled and supported university offering graduate course work and professional development programs at its Huntsville site. FIT has provided graduate education in business and management at its Huntsville site since 1976. It offers masters level degrees in 25 disciplines. Students can take advantage of traditional classroom instruction or distance learning.

C. Specialized Defense-Related Universities

Defense Acquisition University- South Region

Phone: (256) 922-8020

Web Site: www.dau.mil/

Type School: DoD Corporate University

Affiliation: Department of Defense

Tuition/Hour: None

Defense Acquisition University - South Region, provides Redstone Arsenal and other Southeastern U.S. acquisition, technology, and logistics workforce members with the

training required to become a certified professional. Training is offered at no cost to the Redstone community, both in the distance learning and classroom modes. The facility offers a Learning Resource Center, a fitness center, and nearby shopping and dining options.

D. Regional Colleges and Universities

Athens State University

President: Dr. Robert Glenn

Phone: (256) 233-8100

Location: Athens, Alabama

Web Site: www.athens.edu/

Type School: Upper Division Two-Year Liberal Arts College

Affiliation: State Institution

Tuition/Hour: \$552 for 3 hours, In-State Residents (& 9 counties in Southern TN)
\$1,104, Out of State Residents

Athens State University is an upper division, two-year, degree granting institution. The school is intended primarily to provide coursework at the junior and senior year level. Its charter from the Alabama College System is to serve graduates of state junior, community, and technical colleges. Athens State University is based in nearby Athens, Alabama, but has served the Redstone Arsenal Community for over 30 years through an on-post extension. The university has broadened that concept and is in the process of establishing other extensions in other communities in North Alabama. Athens State University is based in nearby Athens, Alabama, and has an extension at Redstone Arsenal.

The University of North Alabama

President: Dr. Ken Kitts

Phone: (800) TALK-UNA

Location: Florence, Alabama

Web Site: www.una.edu/

Type School: Regional University - Master's Level

Affiliation: State Institution

Tuition/Hour: \$254 Undergraduate In-State, \$508 Out-of-State
\$210 Graduate In-State, \$598 Out-of-State

The University of North Alabama (UNA) is a regionally accredited, comprehensive state university. The campus is over 130 acres located in a residential section of Florence, Alabama. State-of-the-art computer labs are located throughout the campus and world-wide web access is available to all students and faculty.

UNA supports more than 110 student organizations including honor societies, departmental student organizations, service clubs, the Student Government Association, special interest groups, fraternities and sororities, and religious organizations.

The campus has a total enrollment of over 7,000 students, and a faculty of over 275. Student housing is available, both on and off campus. Varsity sports are offered in football, basketball, baseball, tennis, golf, cross-country, volleyball, softball, and soccer.

Sewanee: The University of the South

Vice-Chancellor: Dr. John M. McCardell, Jr.

Phone: (931) 598-1000

Location: Sewanee, Tennessee

Web Site: www.sewanee.edu/

Type School: Four-Year Liberal Arts College

Affiliation: Private Institution, Episcopal Faith

Tuition/Year: \$54,500 (plus room, board, and fees)

\$16,106 plus other fees (School of Theology)

The University of the South, known familiarly as “Sewanee,” is a nationally-recognized liberal arts university consisting of a College of Arts and Sciences, a School of Theology, and a School of Letters offering an innovative summer master’s degree program. The liberal arts college offers bachelor’s degrees in 36 majors and pre-professional programs in business, engineering, medicine, law and education. The School of Theology offers master’s and doctoral degrees in theology. Representative science majors are computer science, math, forestry, geology, biology, chemistry, environmental studies, and physics. The campus has a total enrollment of 1,600 residential students and a faculty of 135 full-time members and 75 part-time members. Graduates of the University include 26 Rhodes Scholars, 26 NCAA Post-Graduate Fellows, and dozens of Watson Fellowship and Fulbright Scholarship recipients.

The University’s 13,000-acre landholdings function as an outdoor laboratory, strengthening the University’s position as a leader in the study of forestry, geology, natural resources, and the environment. Other notable science facilities on campus include the Cordell-Lorenz Observatory and a new state-of-the-art science building featuring chemistry, biology, and Geographic Information System laboratories designed to encourage collaboration.

A distinguished faculty committed to teaching and research has won prestigious awards, including three Carnegie Foundation Tennessee Teacher of the Year Awards, two Guggenheim Fellowships, and multiple Fulbright Fellowships. Collaborative student-faculty research is an important part of the Sewanee education, and the University’s director of undergraduate research was recently elected to a three-year term as a Councilor for the Chemistry Division of the Council on Undergraduate Research. The University has received research grants in the past from the National Science Foundation and the Environmental Protection Agency.

Student housing is available, as well as rental apartment housing for married students. Varsity competition is offered in 24 NCAA Division III sports, including football, basketball, baseball, track and field, swimming, volleyball, equestrian, softball, soccer, and field hockey.

Motlow State Community College

President: Dr. Anthony Kinkel

Phone: (800) 654-4877

Location: Lynchburg, Tennessee

Web Site: www.mscc.edu/

Type School: Two-Year Community College

Affiliation: State Institution – State of Tennessee

Tuition/Hour: \$181.50/Hour for In-State Residents

(Madison Co. residents can attend for In-State tuition.)

\$642.50 for Out-of-State Residents

Motlow State Community College is a two-year community college, with campuses located in nearby Lynchburg and Fayetteville, Tennessee. The campus has a total enrollment of over 4,200 students, and a faculty of 262 members. It is a "commuter" campus, and does not have available student housing.

Motlow State offers 2-year degrees to students planning to transfer, 2-year career education degrees, 1-year certificates for students immediately planning to enter the workforce, non-credit courses in workforce development, and non-credit community service classes.

IV. Unique Educational Opportunities and Specialty Programs

Because of the region's partnership with Redstone Arsenal and with NASA, many educational opportunities and initiatives have evolved to enhance the level of research being conducted at local government labs, and to build a quality future workforce in the fields of science, mathematics, and engineering. These educational opportunities support learning from elementary school grades to the post-doctorate level. Several of these opportunities that are unique to the area, and sometimes the United States, are explored in this section.

A. National Space Science and Technology Center

320 Sparkman Drive

Huntsville, Alabama 35805

Phone: (256) 961-7002

Web Site: <http://www.nsstc.uah.edu/nsstc/>

Originally established in 2001, the National Space Science and Technology Center (NSSTC) is a research facility located on the campus of the University of Alabama in Huntsville (UAHuntsville), in Robert "Bud" Cramer Research Hall. The University hosts a research environment that enables collaboration between NASA's Marshall Space Flight Center, universities, and other federal agencies by providing laboratory space for cutting-edge research in Earth Science, Space Science and Information Technology. The facility is also a focus for hands-on education of undergraduate and graduate students who contribute to various research projects.

Currently the NSSTC hosts NASA, UAHuntsville, and Universities Space Research Association personnel, the National Oceanic Atmospheric Administration's National Weather Service Forecast Office, private sector scientists and engineers, and the not-for-

profit Von Braun Center for Science and Innovation research organization. The work performed at the facility ranges from program/project management, science hardware and instrument development, and science and technology research using spacecraft, sounding rockets, balloons and aircraft, as well as laboratory experiments. Applications of the research's results yield benefits for both the private and public sectors.

Through collaborations fostered by co-location within the Robert "Bud" Cramer Research Hall, government organizations benefit through an increased scientific productivity by leveraging resources, gain a richer scientific yield by sharing expertise through partnering, and receive more effective outreach and education efforts by uniting knowledge generation and education. Academia benefits through enriched educational opportunities for faculty and students, the provision of unique teaming opportunities for multi-disciplinary research, opportunities from investment/seed funds, and through student involvement in research. Private sector engagement enables companies to tap into the rich technical experience within government and academia, as well as build a pipeline of students and young professionals who become the next generation of corporate and technical leaders.

B. Alabama Math, Science, and Technology Initiative (AMSTI)

Carol Mueller, Director
The University of Alabama in Huntsville
301 Sparkman Drive
Huntsville, Alabama 35805
Phone: (256) 824-2806
Email: muellerc@email.uah.edu
Web Site: www.amsti.org

The Alabama Math, Science, and Technology Initiative (AMSTI) has a state-wide focus of providing inquiry-based teaching and learning of math and science for grades K-12.

The project is supported through a grant from the Alabama Department of Education. It provides for professional development for all teachers in the selected schools through two week Summer Institutes. Curriculum materials are then provided at no additional cost to the school districts thereafter. The University of Alabama in Huntsville (UAH) was the first recipient of the State grant, and was among the first to begin the program in the State of Alabama. UAH coordinates professional development for the program and refurbishes curriculum materials. While the Alabama State Department of Education provides the funding to support the direct costs of AMSTI activities, UAH provides direction, administrative support, and considerable space for training and materials as a public service to the program.

As of March 2016, approximately 100 schools in North Alabama, from Elementary through High School, are involved in this program.

C. NASA/Marshall Space Flight Center Education Programs

Ms. Tammy Rowan, Manager
Academic Affairs Office
Mail Code HS30
NASA/Marshall Space Flight Center

Huntsville, AL 35812
Phone: (256) 961-0954
Web Site: <http://www.nasa.gov/offices/education/centers/marshall/home/index.html>

NASA's Marshall Space Flight Center (MSFC) actively supports educational initiatives in the regional community by providing assistance to teachers and faculty, inspiring and encouraging the educational development of students, and by facilitating the development of instructional products. NASA's MSFC efforts are assisted by established partnerships with educational institutions, industries, and other government agencies. The local efforts are extremely far-reaching and the educational programs offered to area students and educators are too extensive to list in this document. Readers would be best served to visit the NASA/Marshall Education website at:

<http://www.nasa.gov/offices/education/centers/marshall/home/index.html> for a complete review of available opportunities.

- D. Alabama Council for Technology in Education
Web Site: www.alcte.org

The purpose of the Alabama Council for Technology in Education (ACTE) is to advance and promote the application of educational technology at all levels of instruction. The ACTE Northwest Region is comprised of schools in Colbert County, Cullman County, Franklin County, Lauderdale County, Lawrence County, Limestone County, Madison County, Marion County, Morgan County, and Winston County. More information can be found at: www.alcte.org.

The Northwest Regional organization sponsors an annual technology fair and competition usually in March. Students from grades K through 12 can compete in categories of information technology, computer programming, general applications, hardware: robotics, multimedia, video production, webpage design, and a team programming challenge. Winners proceed to the State ACTE Fair in May.

- E. US Space and Rocket Center - Space Camp
Executive Director: Dr. Deborah Barnhardt
1 Tranquility Base
Huntsville, Alabama 35805
Phone: (256) 837-3400
Web Site: www.spacecamp.com

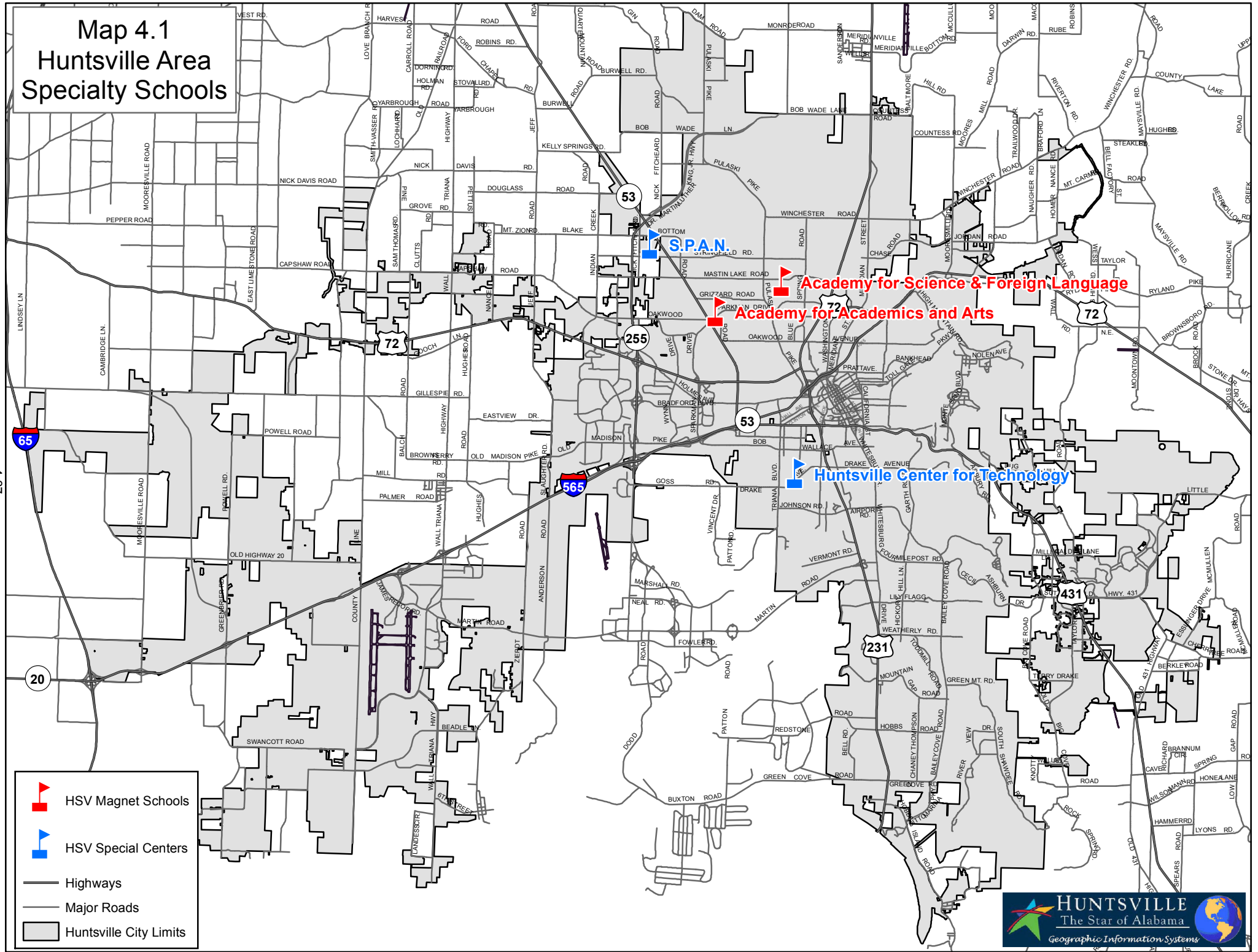
Tuition: Varies, depending upon program selected. Visit web site for breakdown.
Scholarships are available.






Space Camp uses the excitement of space exploration to motivate students (grades 4-12) to study math, science, technology, and engineering. A companion program, Aviation Challenge, uses the same format of aviation and pilot training to accomplish the same goals of inspiring the next generation to be prepared for the technological challenges of the future. Space Camp's proximity to Redstone Arsenal and NASA's Marshall Space Flight Center creates a special educational environment that makes this possible. A week at Space Camp is part of the award for the National Teacher of the Year and for the Teachers of the Year selected from the 50 states and U.S. territories. In addition to grants from NASA and corporate foundations, local industries and businesses partner with Space Camp.

The Huntsville area provides unique opportunities for educational development at all levels. High quality educational programs and special partnerships exist among area schools, Redstone Arsenal, the US Army, and NASA to develop and support a future science, math, engineering, and technology-driven workforce.

These partnerships, combined with specialty programs and consortiums fostering education in our community's youth and adults, make the Huntsville area a center for educational excellence focused on providing innovative experiences in training the upcoming and imminent workforce.

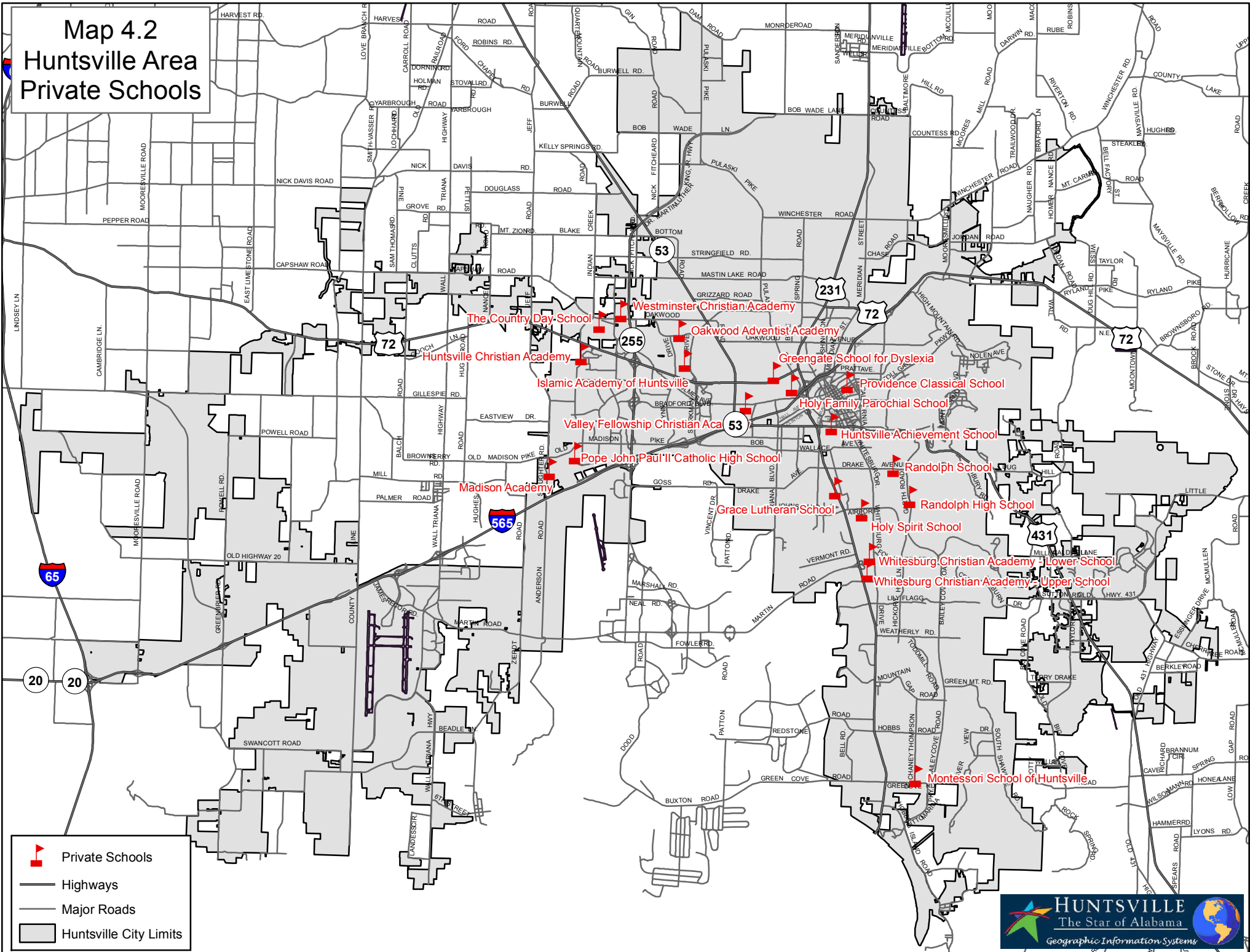
Map 4.1 Huntsville Area Specialty Schools



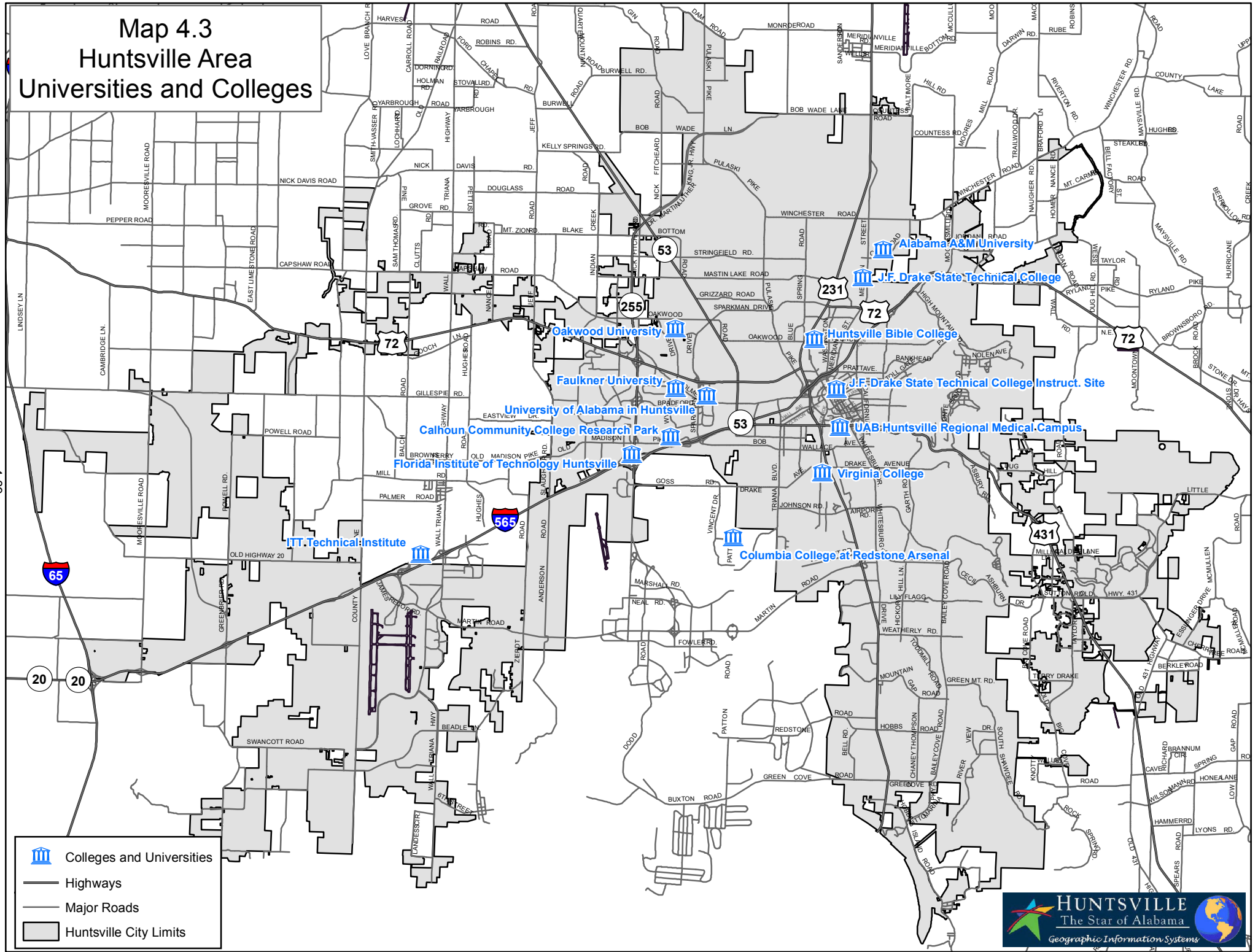
-  HSV Magnet Schools
-  HSV Special Centers
-  Highways
-  Major Roads
-  Huntsville City Limits





4-37

Map 4.2 Huntsville Area Private Schools



Map 4.3 Huntsville Area Universities and Colleges



-  Colleges and Universities
-  Highways
-  Major Roads
-  Huntsville City Limits

HUNTSVILLE
The Star of Alabama

Geographic Information Systems



4-39

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CHAPTER 5 HEALTHCARE RESOURCES

I. Key Facts and Conclusions

The Huntsville area healthcare community is committed to providing quality healthcare services in the North Alabama and Southern Tennessee region. While general medical support is available in other area cities, Huntsville is the regional center for specialized healthcare services. The availability of these exceptional and highly specialized services coupled with healthcare professionals dedicated to continually improving healthcare delivery has made Huntsville the regional leader in medical care and support. Some key facts about the region’s healthcare capabilities are very enlightening:

- 997 private physicians practice in the region, which is equivalent to 3.4 physicians per 1,000 persons – the highest in the State.
- Two local major hospitals and several major clinics in the region, plus other nearby hospitals, provide any necessary capability with coverage of all healthcare specialties.
- Specialized medical training and capabilities to support Homeland Security preparedness provide critical readiness to this region.

II. Physicians and Specialties

A. Huntsville-Madison County Area

According to the latest information available from the Alabama Department of Public Health’s Center for Health Statistics, Huntsville-Madison County provides the region with more physicians per 10,000 population than the Alabama State average. According to the Madison County Medical Society, there are 997 physicians in the Madison County area. This translates into over 3.4 physicians per 1,000 population. There are various specialties represented. Table 5.1 provides a comprehensive listing of these specialties.

**TABLE 5.1
HEALTHCARE SPECIALTIES IN HUNTSVILLE-MADISON COUNTY**

Allergy	Oncology	Radiation Oncology
Anesthesiology	Ophthalmology	Radiology
Cardiology	Orthopedics	Rheumatology
Colon/Rectal Surgery	Otolaryngology	Surgery - Cardiothoracic
Dermatology	Pain Management	Surgery - General
Emergency Medicine	Pathology	Surgery - Neurology
Endocrinology	Pediatric Orthopedic Surgery	Surgery - Ophthalmology
Family Practice	Pediatric Otolaryngology	Surgery - Oral/Maxillofacial
Gastroenterology	Pediatric Allergy	Surgery - Orthopedics
Hematology/Oncology	Pediatric Cardiology	Surgery - Plastic
Infectious Diseases	Pediatric Neonatology	Surgery - Thoracic
Internal Medicine	Pediatrics	Surgery - Trauma
Nephrology	Physical Medical Rehabilitation	Surgery - Vascular
Neurology	Psychiatry	Urology
Obstetrics/Gynecology	Pediatric Psychiatry	
Occupational Medicine	Pulmonary	

Not only is the area heavily endowed with specialized physicians - it also produces top-notch physicians through the UAB School of Medicine, Huntsville Regional Medical Campus (www.huntsville.uab.edu/). The university provides training for 3rd and 4th year medical students in the clinical disciplines of medicine. Over 250 North Alabama physicians serve as members of their volunteer faculty. The family residence program trains 12 residents per year in its 3-year program. Students are trained in family practice, internal medicine, pediatrics, OB/Gyn, psychiatry, general surgery, and neurology. An ER Fellowship and an OB Fellowship are also offered after completion of the residency. The University is located in a 93,000 square foot medical school and clinic.

Additionally, the University of Alabama in Huntsville produces many of the area's professional nurses. The University provides both bachelors and masters degrees in the field. Oakwood University and Calhoun Community College also provide nursing programs and degrees.

The Huntsville area is fortunate to have the students and faculty of the UAB School of Medicine-Huntsville Regional Campus and the graduates of the UAH School of Nursing, Oakwood University, and Calhoun Community College as regional partners in healthcare services.

B. Southeastern United States

Huntsville is centrally located between Birmingham, Alabama and Nashville, Tennessee. These two locations have been recognized as providers of highly specialized medical services for residents in the Southeastern United States. Tennessee Valley residents can receive additional medical support, if necessary, by traveling two hours north or south on Interstate 65.

III. Medical Facilities and Services

Local hospitals and facilities have expanded or are currently expanding their facilities or services to improve the delivery of healthcare treatment to a growing client base. **Map 5.1** shows the location of hospitals in Madison County. A review of primary medical facilities and services is provided.

A. Hospitals Located in Madison County

1. Crestwood Medical Center
CEO: Dr. Pamela B. Hudson
Phone: (256) 429-4000
Web Site: www.crestwoodmedcenter.com/

Crestwood Medical Center is an acute care, 150-bed hospital located in southeast Huntsville. The hospital has more than 500 physicians on staff representing 50 different specialties. The staff at Crestwood Medical Center has consistently ranked in the top percentile of hospitals nationwide in many areas including patient, physician, and employee satisfaction; infection control; and other quality measures. It is Crestwood's mission to serve the community by striving to provide the highest level of quality patient care and service excellence for all patients and their families who choose Crestwood. Crestwood keeps up-to-date

with cutting edge medical technology and has added new state-of-the-art equipment in their surgery suites, endovascular laboratory, Women's Center and imaging department.

Specialty Services Available

Crestwood Medical Center provides the following services: Comprehensive Surgical Services, Women's Center with Digital Mammography, Nuclear Medicine, 64 and 32 slice CT Scan, Ultrasound, X-Ray/Fluoroscopy/Panoramic Imaging Services, 24-hour Full Service Lab, Cardiac & Endovascular Catherization Lab, High Field Open MRI, Breast MRI, ALS Clinic, GI/Endoscopy Services, Occupational Health Services, Wound Clinic and Hyperbaric Medicine, Hospitalist Services, Sleep Disorders, Pulmonary Care, Emergency Services, Special Procedures, Behavioral Health, Critical Care Unit, Maternity Center, The Center for Cancer Care, Vein Center, Food & Nutrition, Physical Therapy, Pastoral Care, Senior Circle, and Volunteer Services.

Expansion Plans

Crestwood currently has 150 beds at its facility, but is expanding by an additional 30 general acute care beds, bringing the total bed count to 180. Construction of the estimated \$8.9 million, 21,300 square foot project began in early 2016 and will be completed during the third quarter of 2017. An existing unfinished space located on the fourth floor of Crestwood's East patient tower will be built out to create the 30 private patient rooms.

2. Huntsville Hospital

CEO: David S. Spillers

Phone: (256) 265-1000

Web Site: www.huntsvillehospital.org

Huntsville Hospital is the region's largest healthcare provider, serving as the regional referral center for the entire Tennessee Valley. It is the 2nd largest hospital in the State of Alabama. Established in 1895, the hospital is among the largest, not-for-profit hospitals in the nation. Huntsville Hospital provides 881 beds on its Huntsville campus, and serves as the regional trauma center and one of only three hospitals in Alabama dedicated to the care of women and children. Huntsville Hospital for Women and Children is also home to one of only six pediatric clinics in the U.S. affiliated with St. Jude Children's Research Hospital. Huntsville Hospital also operates a Medical Mall and several outpatient facilities on its main campus. HealthSouth Rehabilitation Hospital operates a 70-bed facility adjacent to Huntsville Hospital. The hospital is used by the UAB School of Medicine-Huntsville Regional Campus as a clinical teaching facility.

Huntsville Hospital's Madison Medical Park is a 25 acre complex in the City of Madison that includes an urgent care center, diagnostic imaging center, wellness facility, and a physician office building. Madison Medical Park is also the site for the 60-bed Madison Hospital. The Madison Hospital facility can eventually grow to 200 beds. Athens-Limestone Hospital in nearby Athens is formally affiliated with Huntsville Hospital, as is Helen Keller Hospital in Sheffield and Decatur General Hospital. Together, these facilities make up the Huntsville Hospital System, making it the 3rd largest publicly owned hospital in the nation with more than 1,800 beds and 12,000 employees.

Huntsville Hospital is ranked as Alabama's only Top 50 Heart Hospital. The Heart Center in Huntsville, which encompasses the region's largest cardiology practice, joined the hospital in 2009. Huntsville Hospital Physician Network today includes more than 100 primary care, emergency, and specialty physicians in the community.

Specialty Services Available

Huntsville Hospital's major services are: cardiovascular, obstetrical, comprehensive surgical services including neurosurgical and orthopedic/joint replacement services. Huntsville Hospital offers comprehensive emergency/trauma care, stroke, pediatric, pediatric emergency, pediatric surgery, neonatal, women's health, oncology, medical, pulmonary, and nephrology services. Outpatient services include endoscopy, sleep disorders, wellness, sports medicine, diagnostic imaging, heart failure, wound care, diabetes management, laboratory and physical, speech and occupational therapy services.

B. Major Area Health Clinics

1. **Fox Army Health Center**

Commanding Officer: Col. David J. Carpenter
Phone: (256) 955-8888 or 1-800-223-9531
Redstone Arsenal, Alabama
Web Site: www.redstone.amedd.army.mil/

Fox Army Health Center serves over 60,000 soldiers, retirees, family members, and civilian employees who make up Team Redstone. The medical staff consists of approximately 300 soldiers, civilian employees, and contractors providing primary care, occupational healthcare, and outpatient specialty care. This health care facility provides a tremendous service to the Redstone community.

Specialty Services Available

Fox Army Health Center provides comprehensive healthcare through their Primary Care Clinic, Pediatric Clinic, Internal Medicine Clinic, Physical Therapy, Optometry Clinic, Occupational Medicine Clinic, Warrior Medicine Clinic, Physical Exams Section, and Wellness Center. The facility also offers a pharmacy and limited pathology and radiology services. It is not a 24-hour facility.

The Redstone Arsenal Dental Clinic shares space in the same building. Outlying services are the Behavioral Medicine Division and the Army Substance Abuse Program.

2. **UAB Health Center Huntsville**

Administrator: Scott Bence
Phone: (256) 536-5511
Huntsville, Alabama
Web Site: www.uabhuntsville.com

The UAB Health Center Huntsville is located in close proximity to Huntsville Hospital, and provides specialized healthcare through 30 faculty physicians and resident physicians. Hours of operation are 8am-5pm Monday-Friday.

Specialty Services Available

The UAB Health Center offers care in the following specialties: Family Practice, Internal Medicine, Pediatrics, and Psychiatry. The health center also offers research programs, assessment, education, and treatment for chronic illnesses such as Diabetes, Hypertension and Asthma. Outpatient procedures are available, as is an in-house laboratory and an on-site pharmacy. Physicians are on call 24 hours a day, 7 days a week, year round and have hospital privileges.

3. VA Clinic
Phone: (256) 535-3100
Huntsville, Alabama

The local VA Clinic has a new \$39.5 million, 47,800 square foot facility located on 500 Markaview Road in Huntsville. The clinic serves qualified veterans in Madison County. The clinic provides primary care, mental health, women's health, audiology, optometry, radiology, as well as an on-site pharmacy. The new VA Clinic brings together the Madison/Decatur and Huntsville Community Outpatient Clinics together under one roof. It brings expanded services and new specialty care clinics to the area, which will provide healthcare for many veterans. The Huntsville location makes care more accessible, in that patients will not need to travel to Birmingham for care they can receive closer to home. Patients are seen by appointment only. Office hours are Monday through Friday from 8:00 am until 4:30 pm.

4. HealthSouth Rehab Center
Phone: (256) 535-2300
Huntsville, Alabama

HealthSouth Rehab Center is owned locally by Huntsville Hospital, and through agreement is managed by HealthSouth, Inc. The Center has a total of 70 beds and typically provides after-hospital care for individuals needing rehabilitation services for improved mobility.

5. Fresenius Medical Care - Dialysis Units
Phone: (256) 536-1881
Huntsville, Alabama

Fresenius Medical Care (FMC) operates eight dialysis treatment centers in the greater Huntsville area. Each unit has a medical staff of registered nurses, a licensed social worker, a registered dietitian, and patient care technicians. Local nephrologists serve as primary care physicians for the patients. Each clinic has a medical director on staff. Fresenius Dialysis Clinics operate a network of clinics throughout the United States, so transfer of care is not a tremendous burden. Persons moving into the Huntsville area wishing to transfer care to Huntsville, or for those wishing to temporarily transfer care to a Huntsville Facility must call the admissions office at 1-866-434-2597.

6. Bradford Health Services of Huntsville
Phone: (256) 461-7272 or 895-3848
Huntsville, Alabama
Web Site: www.bradfordhealth.com/locations/huntsville-regional-office/

Bradford Health Services locally provides treatment and support in the greater Huntsville area. Bradford Health Services provides substance abuse and mental health programs for adults and adolescents. The staff at Bradford has developed a variety of innovative inpatient and outpatient services, and are committed to provide effective and affordable treatment to their clients.

IV. Public Health Services

The Huntsville community is not only committed to a high quality of healthcare services, but also to the integrity of public health. The protection of public health is the primary responsibility of the Madison County Health Department. A profile of the Department's activities follows:

Madison County Health Department

Director: Dr. Larry Robey

Phone: 539-3711

Huntsville, Alabama

The Madison County Health Department works closely with the private medical community and with various non-profit agencies providing health services to low income or underinsured members of the greater Huntsville area. The Health Department is a typical local unit of the Alabama Department of Public Health, offering the core public health services in both the environmental health and preventative medical services.

Services Provided

The Environmental Division inspects and permits all food service establishments, hotels and motels, onsite sewage systems (septic tanks) and other public residential facilities such as camps. The Madison County Health Department has several special programs which include permitting of private wells, investigating and abating illegal dumping, verification of dog and cat rabies vaccinations and within the city limits of Huntsville, controlling mosquitoes and abating other animal and insect pests on public property.

Medical services include childhood immunizations; issuing blue slips to meet school entrance requirements; adult vaccines for work, travel, and influenza; testing and treatment of sexually transmitted infections including HIV/AIDS, and tuberculosis; investigation of any reportable disease; family planning; cancer detection; high blood pressure detection and treatment for non-insured residents; pediatric services both physician and nursing; employment physicals; WIC nutrition services; and medical social workers. The main office also provides certified vital records for all events that occurred in Alabama.

V. Specialized Medical Training for Homeland Security

Medical Preparedness integrates private and public organizations at the local, state and federal levels so when disasters occur, medical staff and supplies can be used with great efficiency to meet the needs of the sick or injured.

The Alabama Department of Public Health (ADPH) has the responsibility for maintaining public health throughout the state. To improve their capability, ADPH has established eleven Public Health Areas in the state. The Public Health Areas have staffs with an Area Coordinator; Public Health Environmentalist; Surveillance Nurse Coordinator; Emergency Preparedness Coordinator; Epidemiologist; Pandemic Influenza Coordinator and other positions. Madison County is in Public Health Area 2. Duties of the Public Health Area staffs include: surveillance; investigation; sample collection; education, public information as well as response.

The Madison County Health Department is responsible for maintaining public health in the county. The County Health Officer reports to the State Health Officer and coordinates activities with the Public Health Areas.

Medical response to any local mass casualty event is organized under the Huntsville Metropolitan Medical Response System (MMRS) Plan, a Department of Homeland Security Initiative to prepare major cities against terror attacks with biological, chemical, radiological and nuclear weapons (Weapons of Mass Destruction) plus natural disasters and hazardous materials accidents. Medical and emergency response communities are organized to treat, for the first 48-hours, casualties and fatalities from a WMD chemical, biological, radiological dispersion device (RDD), as well as any number of casualties from Natural Disasters (i.e. Pandemics) or Hazardous Materials incidents.

All hospitals and many major clinics in Madison County as well as those in 13 other north Alabama counties participate in the Huntsville MMRS Plan.

In addition to providing local emergency medical response to handle mass casualty events, Huntsville also participates in the Strategic National Stockpile (SNS) program. SNS, a preparedness initiative of the Centers for Disease Control, can bring medicines and pharmaceutical supplies to an area stricken by terrorism or natural disasters. These pharmaceuticals would be used to treat patients, responders and the public. Patients would receive treatments in hospitals while responders and the public would receive medications at Points of Dispensing (PODs). Geographically located throughout the county, PODs would be staffed by a mixture of ADPH staff and volunteers recruited by the Medical Reserve Corps (MRC) to serve nearby residents. The MRC recruits, trains and organizes retired, working-out-of-medicine and others with medical training to augment ADPH, hospital or other places of need during emergencies.

ADPH leads the way in Alabama in preparing for Pandemic Influenza. Harnessing all the preparation made in the state's four MMRS cities, ADPH has developed a robust system of surveillance; diagnosis; prevention; prophylaxis; treatment and public education. The ADPH program has been given top marks by the CDC for its efforts.

Huntsville area hospitals exercise their training during full-scale community-wide drills. Both Huntsville Hospital and Crestwood Medical Center are continually preparing to handle WMD events in addition to their routine day-to-day healthcare services.

These vital services, and the medical community's capability to provide them, is a testament of the quality and integrity of healthcare deliverables in the Huntsville community.

The Huntsville community is the healthcare leader in the region, and provides both opportunities and many options for persons requiring routine and specialized medical treatment. Additional healthcare resources are located within a two-hour drive on Interstate 65.

Not only is the area dedicated to providing superb healthcare services to area residents, the Madison County Health Department is committed to provide a daily, healthful environment for individuals and families to thrive.

Medical response during community emergencies is handled by local hospital facilities. Hospitals located in the City of Huntsville have received specialized training and have ready access to equipment and resources needed to respond to a WMD event that may threaten the population. Area hospitals also participate in community exercises that test their emergency response to WMD events as well as natural, man-made, or technological events.

The quality, quantity, and magnitude of medical personnel and resources in the Huntsville area provides the region with a standard of healthcare services that is not easily matched anywhere else.

Hospitals in Madison County

Huntsville Hospital Main
101 Sivley Rd
Huntsville, AL 35801








Huntsville Hospital for Women and Children
245 Governors Dr
Huntsville, AL 35801

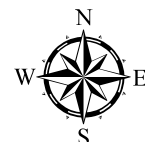
Health South Rehab Hospital of North Alabama
107 Governors Dr
Huntsville, AL 35801

Crestwood Medical Center
1 Hospital Dr
Huntsville, AL 35801

Bradford Health Services at Huntsville
1600 Browns Ferry Rd
Madison, AL 35758

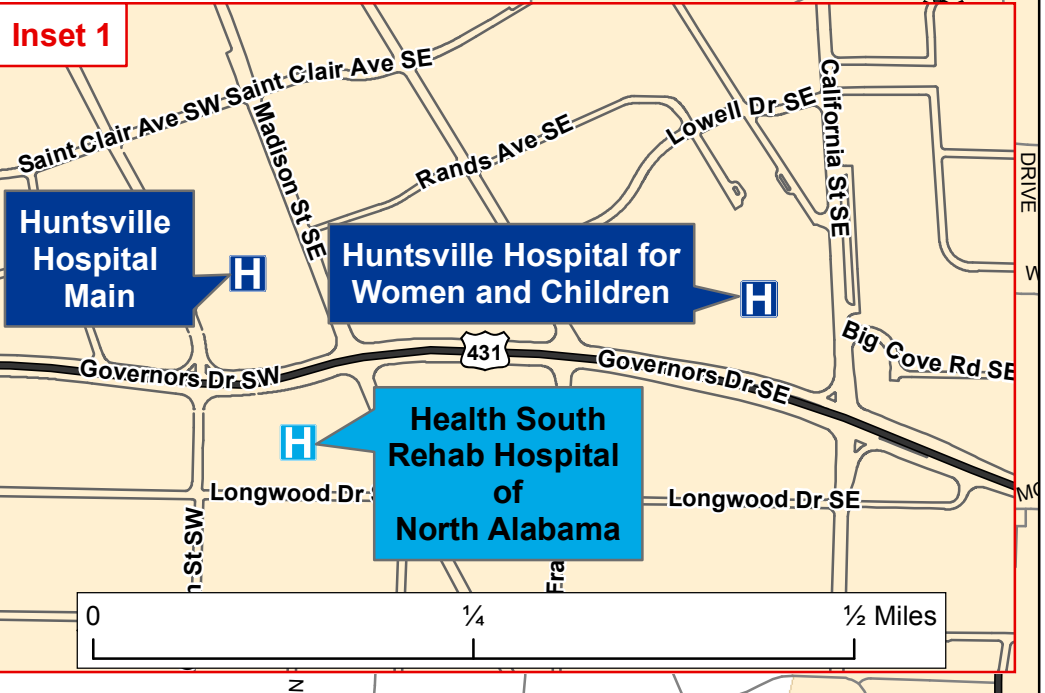
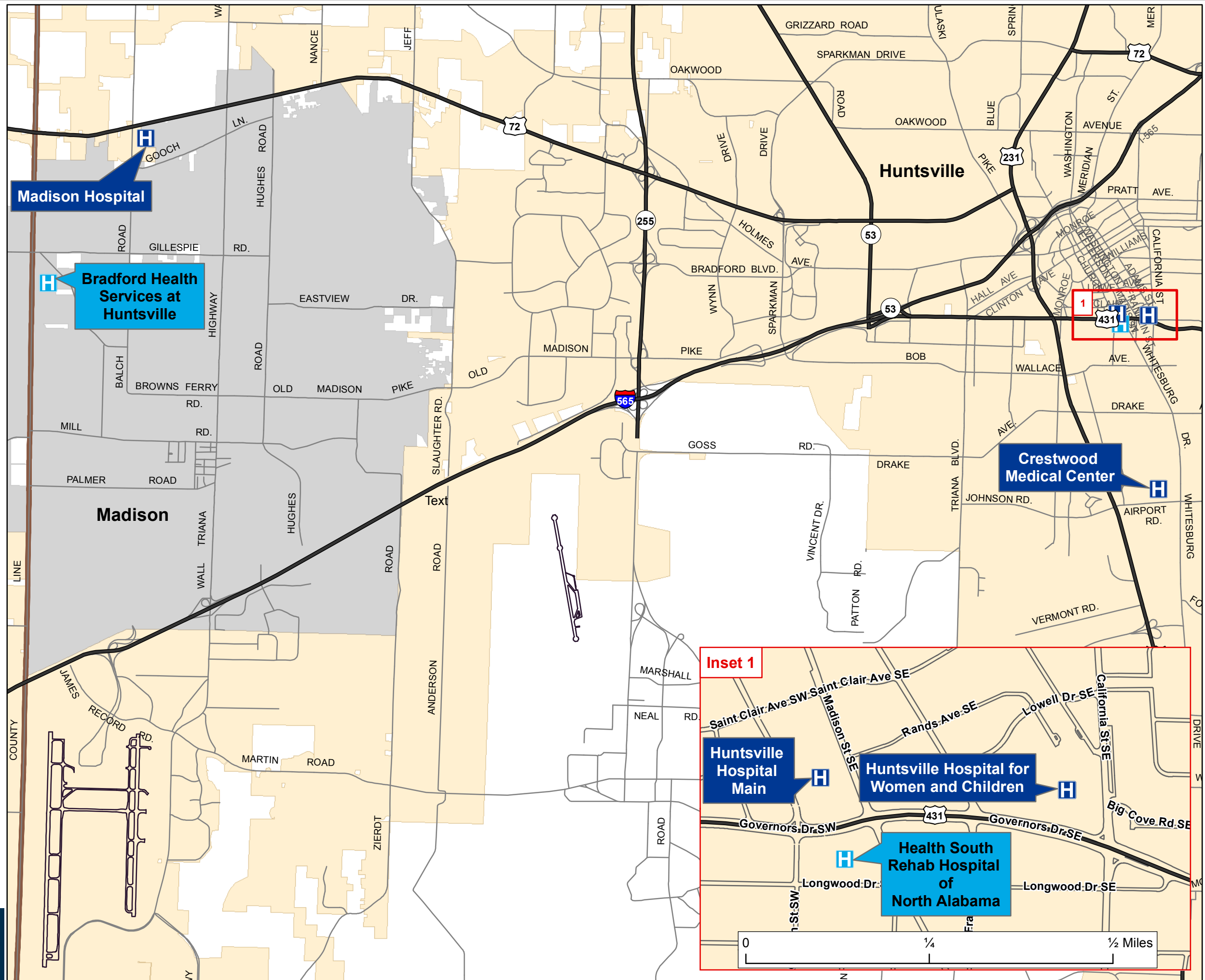
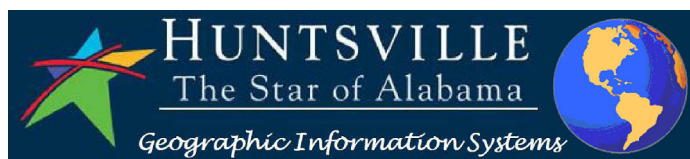
Madison Hospital
8375 US 72 W Hwy
Madison, AL 35758

-  Hospital
-  Rehabilitation Center
-  Highways
-  Major Roads
-  County
-  Huntsville City Limits
-  Other Incorporated Areas



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March 2016



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CHAPTER 6 PUBLIC SAFETY AND EMERGENCY RESPONSE

I. Key Facts and Conclusions

The City of Huntsville has dynamic emergency response capabilities to support area residents as necessary, and the community during all types of crisis. Capabilities include well-trained police and fire departments, as well as specialized emergency management response agencies. Some key facts about the area's capabilities follow, and are supported with detailed information in the remainder of this chapter.

- Highly trained local emergency response agencies that routinely exercise and demonstrate their capabilities.
- Local law enforcement and local fire departments that work, and have in place agreements and working relationships with Redstone Arsenal to enhance response capabilities.
- Additional specialized public safety organizations that support the community.

II. Medical Emergency Response Agencies

- A. Huntsville Emergency Medical Services, Inc. (HEMSI)
Director: Jon Howell
P.O. Box 7108
Huntsville, Alabama 35807
Phone: (256) 536-6660
Web Site: www.hemsi.org/

HEMSI is the primary provider of pre-hospital emergency medical services in the Huntsville-Madison County jurisdiction. The agency is one of over 100 ambulance services in the United States and one of four in the State of Alabama that is accredited by the Commission on Accreditation of Ambulance Services (CAAS). This accreditation signifies that services provided by HEMSI meets the "gold standard" determined by the ambulance industry, and exceeds the standards typically established by local or state regulations.

The staff of highly qualified and trained emergency medical professionals is committed to the provision of quality EMS in Madison County through a variety of response programs. In addition to its operation of 37 ambulances responding from 14 strategically located stations (plus one on Redstone Arsenal), HEMSI coordinates, equips, and provides support infrastructure for special units with unique expertise.

The High Angle Rescue Team (HART), Dive Rescue Team, and the Search Dog Unit are three such specialized emergency response programs. The HART unit is on call with Search and Rescue certified individuals for rough mountain terrain rescue, including vertical descent and ascent capability. The Dive Rescue Team is also available for response, with certified SCUBA rescue personnel for any water event in the Tennessee River or its tributaries. The Search Dog Unit provides services in 4 disciplines: man

trailing (to follow a scent), air scenting, human remains detection, and disaster recovery. The search dog program works in tandem with other emergency organizations. These specialty units are only one aspect of HEMSI's effort to provide a comprehensive approach to the provision of emergency medical services.

HEMSI operations are dispatched from the Huntsville-Madison County 911 Center, and response is coordinated as necessary with other emergency response groups. HEMSI works closely with other emergency response groups in preparedness planning and the exercise of coordinated emergency plans. Additionally, HEMSI is the primary provider of emergency medical services to Redstone Arsenal, and can support the installation during community emergencies via mutual aid agreements signed through the local emergency management agency.

The organization also works closely with the community, providing training to various groups in the methods of CPR, as well as informational programs.

HEMSI continues to upgrade its technology and work toward the expansion of its operations. The emergency response group has contracted with NASA to provide an ambulance on site at the Marshall Space Flight Center in Huntsville.

- B. Madison County Rescue Squad
Point of Contact: Joseph Donoghue
820-A Cook Avenue
Phone: (256) 536-2720
Web Site: www.rescuesquad.net

The Madison County Rescue Squad provides supplemental emergency response with an all-volunteer staff. The organization answers approximately 1500 calls per year for various rescue and emergency medical response.

The Rescue Squad responds anywhere in Madison County, and may respond to Redstone Arsenal, if requested. The group also provides mutual aid to Lacey's Springs and Ardmore, Alabama. Capabilities include: advanced vehicle response and rescue, water search and rescue, trench collapse rescue, industrial rescue, limited land search and rescue, and emergency medical response.

III. Law Enforcement

Response to police matters in the City of Huntsville is handled by the City of Huntsville Police Department. This department, working in both crime response and prevention programs, insure that the area is a safe place to live, work, and play. A review of the Huntsville Police Department is provided:

Huntsville Police Department
Chief of Police: Mark McMurray
815 Wheeler Avenue
Huntsville, Alabama 35801
Phone: (256) 427-7001
Web Site: www.hsvpolice.com/

The Huntsville Police Department is a CALEA accredited agency, providing community law enforcement services with 387 sworn officers. In addition to routine policing operations, the department has also highly trained officers in tactical programs to protect the community.

Specialized Training

In addition to routine training and readiness exercises, the department has embarked on an extensive WMD training program in order to remain at the forefront of current practices and information.

All sworn personnel have at least been trained at the awareness level.

Community Policing

The Huntsville Police Department adheres to the philosophy of Community Policing. The department believes in the concept that police officers and private citizens working together in creative ways can help solve contemporary community problems related to crime, fear of crime, social and physical disorder and neighborhood decay. The Huntsville Police Department has developed relationships with members of the community, allowing them a greater voice in setting police priorities and involving them in efforts to improve the overall quality of life in their neighborhoods. The department has formed partnerships with Community Watch Associations and Civic Associations (www.hsvcommunitywatch.com/) that resulted in nationally recognized community policing projects. The importance of forming partnerships cannot be emphasized enough. Members of community watch groups volunteer their time to perform community patrols and other activities to ensure the early detection and reporting of suspicious activity. This program has been very effective in the City of Huntsville, with over 181 active watch groups providing an extra set of ears and eyes in area neighborhoods.

Specialized Capabilities

The Special Operations Division of the Huntsville Police Department consists of 14 specialized units and 19 separate job functions. The Division is divided into Special Services and Tactical Services. Special Services includes D.U.I. Task Force, Traffic Services Units, School Resource Officers, Public Safety Aides and part-time units of Honor Guard, Bike Squad and Motor Carrier Safety Officers. Tactical Services includes K-9 Unit, STAC team, JTTF/WMD and the part-time units of SWAT, CNRT, JTTF/WMD, Bomb/Arson, and the Incident Response Team. The Honor Guard and Incident Response Team operate directly for the Commander of Special Operations.

Highlighted Services

The **SWAT Team** is a group of highly trained officers specializing in tactical response. They are prepared to deal with a number of potential critical incidents including: hostage situations, barricaded subjects, high-risk warrant service, and dignitary protection. The Team utilizes a variety of specialized equipment and weapons. They are experts on law enforcement tactics and often train local officers and others on issues related to officer safety and response.

The **Crisis Negotiation Response Team (CNRT)** responds to tactical situations and collaborates with SWAT and others to reach a successful resolution to critical incidents requiring expert communications skills.

The **HPD Bomb Squad** is the designated FBI/HDS Region 6 response team for a 10 county area of North Alabama. They have the capability to respond with full x-ray, transport, robotic, and disrupter capabilities. They are trained to identify and work around various hazardous materials as they would be used in a Weapons of Mass Destruction Incident. The Bomb Unit trains and works closely with the local FBI. They also work with the Huntsville Fire Department to investigate arsons.

The **K-9 Unit** is staffed with eight dual purpose and two bomb detection teams. They have several USPCA certified trainers and use the HPD training facility to train K-9 teams from throughout the region.

The Huntsville Police Department is also the lead agency in the **Madison/Morgan County Strategic Counterdrug Team (STAC)**. This unit is a HIDTA funded joint task force that combines personnel from the various local and Federal agencies to handle all aspects of drug enforcement. As the lead agency, the department provides personnel as well as the Unit supervisor and Commander.

Special Traffic Services units focus on traffic enforcement, DUI enforcement, and special event planning and operations. They have experience in handling many major events ranging from local marathons to presidential visits. The Bicycle Squad provides focused patrols at parks, special events, and other designated locations.

School Resource Officers provide direct police services to the Huntsville City School System at the high schools and the middle schools. SROs also handle calls for service at the elementary schools and the specialty education centers. They teach anti-gang curriculum to middle school students, teachers, parents, and concerned citizens.

Homeland Security: The Homeland Security Coordinator collaborates with other agencies and organizations for the exchange of information to facilitate sharing and multi-jurisdictional preemption of terrorist acts or events. The coordinator also provides training and terrorism awareness information within its service area and ensures agency compliance to federally mandated standards. The coordinator pursues funding opportunities to strengthen the department's security and response capabilities.

Mutual Aid: The Huntsville Police Department can provide assistance to Redstone Arsenal via formal mutual aid agreements through the Huntsville-Madison County Emergency Management Agency.

Huntsville Police personnel actively participate with Redstone Arsenal in planning and evaluating joint response capabilities. The department also operates a joint firearms training facility with NASA Security, located on Redstone. Members of the Huntsville Police Department have participated in numerous training and informational sessions with members of the Provost Marshall's Office, as well as several areawide planning committees and groups.

IV. Fire Department

Fire suppression is handled by the Huntsville Fire & Rescue. A review of local capabilities and relationships with Redstone Arsenal is provided:

Huntsville Fire and Rescue
Chief: Howard W. McFarlen
815 Wheeler Avenue
Huntsville, Alabama 35801
Phone: (256) 427-7401
Web Site: http://www.huntsvilleal.gov/fire/fire_index.html

Huntsville Fire & Rescue operates 18 fire stations in addition to one volunteer fire station on Green Mountain. The department has 327 fire suppression personnel, and a total of 395 employees. Department resources include 19 frontline engine companies, 2 backup engine companies, 4 aerial trucks, 2 hazmat units, and a decontamination unit.

Specialized Capabilities

Huntsville Fire and Rescue has a fully trained and highly qualified hazardous materials team comprised of 50 responders. The department also provides emergency medical services out of three fire stations, with 158 certified emergency medical technicians citywide. Other capabilities include specialized units to perform vehicle extrication using the "jaws of life."

Specialized Training

In addition to routine fire suppression drills and preparedness activities, Huntsville Fire and Rescue has participated in community-wide exercises related to a WMD event. Redstone Arsenal was also involved, so all agencies have drilled together to build community response capabilities.

Mutual Aid

Huntsville Fire and Rescue has its own mutual aid agreement signed with Redstone Arsenal to provide direct response and support to fire suppression activities on Redstone Arsenal in the event of a major fire. Both Redstone Arsenal fire suppression units and Huntsville Fire & Rescue use compatible equipment, so response actions can proceed quickly and effectively. Redstone Arsenal has also been involved with community-wide training and exercise events with Huntsville Fire and Rescue. Monthly lunch meetings are held with all area fire chiefs (including Chief of Redstone Arsenal), to discuss mutual issues and to explore ways of providing support to each other through mutual training.

V. Other Public Safety Agencies and Organizations

- A. Huntsville-Madison County 911 Center
Director: Ernie Blair
5827 Oakwood Road
Huntsville, AL 35806
Phone: (256) 722-7140

The Huntsville-Madison County 911 Center is the largest emergency facility of its kind in the State of Alabama. It is a consolidated dispatch and communication facility, and houses all call-taking and dispatching public safety agencies serving Madison County, the City of Huntsville, and the City of Madison. The following emergency response groups have a presence within the center: Huntsville Police Department, Huntsville Fire & Rescue, Madison County Sheriff's Department, Huntsville Emergency Medical Services (HEMSI), City of Madison Fire Department, City of Madison Police Department, and Madison County Fire Department.

The co-location of highly trained emergency response call-takers and dispatchers ensures appropriate and timely emergency response during typical emergency events as well as times of community crisis. State-of-the-art equipment indicates real-time vehicle location of Huntsville Police, Madison Police and HEMSI Units. This capability allows the dispatcher to effectively manage response resources, by contacting the appropriate, nearest available unit to the caller's location. Having this technology in the 911 Center is critical, when minutes and seconds count. The Center also has the capability to pinpoint the location of cellular 911 calls, contingent upon cellular service providers and the user's cell phone capabilities.

B. Huntsville-Madison County Emergency Management Agency

Director: Jeff Birdwell

P.O. Box 308

Huntsville, Alabama 35804

Phone: (256) 427-5130

Web Site: <http://www.madisoncountyema.com/>

The Huntsville-Madison County Emergency Management Agency is a joint city-county agency that primarily coordinates emergency preparedness, response activities, and available resources for community-wide emergencies or extreme localized events. The agency is managed by the Huntsville-Madison County Emergency Management Board. Funding for the agency is primarily carried by the City of Huntsville municipal government.

The goal of the agency is to minimize the effects of disasters on the lives and property of the citizens of Madison County through leadership, coordination, and support in the four phases of emergency management: mitigation, preparedness, response, and recovery. The agency has identified the community's major hazards, and plans, trains, and exercises with other emergency response groups to respond to these events. Redstone Arsenal is a key player in the area's emergency response community and has been integrated into the community's mitigation initiatives, emergency plans, training, exercises, and response and recovery activities.

1. Mitigation Activities

Mitigation activities are actions taken to minimize the effects of hazards upon the community. The Huntsville area has been active in this.

a. Flood Protection

Through the efforts of the City of Huntsville's Flood Hazard Mitigation Program, area residents are better protected against flooding events. This proactive program has placed Huntsville at a Level 8 in the National Flood Insurance Program's Community Rating System, resulting in a 10% reduction in homeowners' flood insurance policy premiums.

b. Community Emergency Response Teams

The Huntsville-Madison County Emergency Management Agency has provided training for area residents in responding themselves to community emergencies before emergency services help arrives. This

proactive program allows community leaders to serve each other and provide immediate life saving assistance to their neighbors.

c. Storm Ready Community

The Huntsville-Madison County jurisdiction has been declared a "Storm Ready" community by the National Weather Service. This means that certain preparedness activities have been initiated and put into practice to better protect residents in the event of severe weather.

d. Emergency Warning

One vital role that Emergency Management plays in the community is that of providing emergency warning. This is done through the traditional means of alerting the news media of various events. Another critical method of communicating to the public is through the county's siren warning system, a state-of-the-art computerized system that supports the activation of 128 sirens. While other communities may have more sirens, the Huntsville-Madison County community has one of the best coverage ratios in the United States, when coverage is based upon population density. At the present time, approximately 95% of Huntsville residents are covered by the siren warning system. Redstone Arsenal is covered as well, and has six sirens on-post that cover the major population centers. The sirens on-post were paid for by federal funds. Through agreement, the Huntsville-Madison County Emergency Management Agency can activate the sirens on Redstone Arsenal alone upon special request. The specialized technology supported by Motorola Corporation, allows singular activation of warning sirens as well as periodic self-testing of equipment to ensure that systems are always operational. Local political jurisdictions have invested over \$2.3 million dollars in siren warning equipment alone.

2. Emergency Plans

The Agency has exceptional emergency plans in place to address multi-hazards. Hazard specific plans have been used as prototype and example for other jurisdictions and have been used for training throughout the United States. Planning is not performed in a vacuum, but is done through coordination of local emergency response groups. The Local Emergency Planning Committee (LEPC) is the main vehicle through which this coordination takes place. The LEPC meets periodically to discuss emergency response issues, planning initiatives, and training and exercise programs. Work is done primarily through subcommittees that report to an Executive Committee. The Army at Redstone Arsenal is well represented on the LEPC, and provides staff from the AMCOM Plans Division, AMCOM Environmental Division, the Defense Intelligence Agency, the Army Corps of Engineers, Fox Army Health Center, Redstone Arsenal Garrison, and Redstone Arsenal Force Protection. NASA is also represented on the committee. All entities are familiar with each other's emergency response plans, and all represented Emergency Operations Centers have each other's emergency response plans in their possession. The integration of these key Redstone players

has made a tremendous difference in the planning efforts for emergency response both on and off-post.

3. Emergency Operations

During an actual or potential emergency, the Huntsville-Madison County Emergency Operations Center (EOC) is activated to monitor events, notify key people and agencies and to monitor and coordinate a response. Once notified, agencies activate their internal plans and coordinate actions through the EOC.

The EOC has direct communications with the Redstone Arsenal Installation Emergency Operations Center (IEOC) via telephone, radio and a PC interface called WebEOC, a web-based, situational awareness crisis communications software. All county first responders, including Police, Fire, EMS and Hospitals plus the Redstone IEOC, NASA/Marshall Space Flight Center EOC and surrounding counties have access to WebEOC. Additionally, the Redstone IEOC monitors the Alabama Emergency Management Agency's (AEMA) Emergency Management Information Tracking System (EMITS), a statewide web-based event log and bulletin board. Events are logged, their status recorded and resources are tracked through EMITS. The NASA EOC has instant and direct radio communications with the EOC through a new countywide digital 700 MHz radio system; presently, the Redstone IEOC does not have access to the countywide digital 700 MHz radio system, but is researching the necessary equipment. The EOC, IEOC and NASA EOC have terminals on the National Warning System (NAWAS).

Madison County is the point of contact for the Alabama Regional Incident Support Unit (R6). This is a mobile state communications asset which contains an ACU 1000 unit that connects multiple radios, satellite communications including internet and video. This unit is an additional means to provide situational awareness and connectivity between disparate communications systems. It was used successfully in a joint exercise between Redstone Arsenal and local responders. WebEOC, EMITS, and a weather radar link all are accessible on the Incident Support Unit (R6). The EOC also has an ACU 1000 network accessible system with similar radio capabilities.

These communications capabilities improve local response operations. For example, both NASA and Redstone Arsenal have trained weather spotters that report weather observations to the EOC. The EOC relays that information to the Huntsville Weather Forecast Office of the National Weather Service so they can correlate these ground truth observations with radar imagery. This partnership assists in community warning and response to severe weather.

Redstone Arsenal officials have a seat in the EOC to coordinate actions on a face-to-face basis. Redstone's support to the EOC does not end there. In an effort to test how military technology integrates into civilian emergency response operations, SMDC, as well as local defense contractors have worked closely with EMA to beta-test emerging technologies.

In the event of an emergency at Redstone Arsenal that requires Emergency Management support, the EMA staff has badges to get on-post.

4. Training and Exercise

The Huntsville-Madison County Emergency Management Agency coordinates and provides supplemental training programs to emergency responders for community-wide response. Additionally, training received and general preparedness activities are exercised and evaluated on periodically. EMA includes Redstone Arsenal in these activities. Representatives from the Redstone Garrison and the Provost Marshall's Office participate in the agency's annual winter storm preparedness briefings. Additionally, EMA participates in Redstone Arsenal's Safety Days, and provides emergency preparedness classes for the installation's soldiers.

The Huntsville-Madison County emergency response community supports Redstone Arsenal's exercise requirements. In April, 2005, Redstone Arsenal hosted a functional Weapons of Mass Destruction exercise involving the release of a chemical agent (chlorine). In October, a full scale Weapons of Mass Destruction exercise was conducted involving a radiological dispersal device, which Redstone Arsenal personnel observed. In November, Redstone Arsenal participated in a countywide public information tabletop exercise designed specifically to discuss interactions with the media and public with regards to a biological weapons of mass destruction event. In 2006, Redstone Arsenal conducted a full-scale weapons of mass destruction attack exercise "Blister Rain", in which law enforcement, emergency medical service, emergency management, fire and rescue and the medical community participated. Every three years the Huntsville International Airport conducts a mass casualty exercise in which Redstone Arsenal participates. Over the past several years the Redstone Arsenal has conducted numerous full-scale exercises that have incorporated WMDs, pandemic, natural hazards, and active-shooter type events that resulted in numerous casualties, as well as widespread damage depending on the scenarios. The local emergency response community, including fire and rescue, emergency medical services, hospitals, law enforcement, and emergency management have participated in the planning of these exercises, as well as providing personnel as participants. The relationships established and the lessons learned through these exercise and training programs is critical and puts into practice the reciprocal agreements between local governments and Redstone Arsenal to support each other during emergencies.

5. Mutual Aid

The Huntsville-Madison County Emergency Management Agency has mutual aid agreements in place with other North Alabama counties in the North Alabama area through the North Alabama Mutual Assistance Association. A total of 16 counties are members, and 5 additional counties are associate members. These agreements are signed by all local jurisdictions, and provide for the sharing of emergency response personnel and resources in the event of a local disaster. The Agreement, originally signed in 1979, was a Statewide model, and still serves the

southeastern United States as a regional model for coordinated emergency response and recovery spanning multiple jurisdictions.

While eventual emergency response beyond the capabilities of Redstone Arsenal will be handled on-post at the federal level, the Commander at the installation and local governments recognize that immediate emergency response during disastrous situations is critical in saving lives and in minimizing property damage. With that in mind, the Commander at Redstone Arsenal, the Center Director at NASA, and all major local jurisdictions have signed mutual aid agreements with each other to provide emergency support upon request. Redstone Arsenal emergency response groups and local emergency response groups train and exercise together to maximize effective response and recovery efforts. These agreements enable local emergency response groups to support soldier and civilian lives during emergencies on-post, and allows Redstone Arsenal to support local resources, if needed, during an off-post community emergency. Actual coordination and activation of these agreements are done through request of the local emergency management agency. All emergency response groups concur that mutual aid agreements that local governments have signed with Redstone Arsenal has put in place the framework for coordination with resources on-post to better protect employees of Redstone Arsenal and the community as a whole.

6. Homeland Security

The Huntsville-Madison County Emergency Management Agency has taken a lead role in the coordination of local homeland security efforts. These initiatives involve the planning, training, and exercise of response to terrorism-related events.

a. Planning

Integrated planning for terrorism-related events is coordinated by the Emergency Management Agency through the Local Emergency Planning Committee. Local emergency responders have plans in place to handle terrorism-related events. These plans are continually updated as emergency responders increase their knowledge base, skills, improve their abilities and practice emergency response techniques.

b. Training

In addition to planning, training is an essential ingredient for local preparedness. To date, hundreds of first responders from across north Alabama have received training for response to a Weapon of Mass Destruction (WMD) incident. More than 200 responders have received advanced level training in Incident Command and Operational level training in a WMD environment. Not included in this total are a number of force protection elements of Redstone Arsenal that routinely attend and participate in training opportunities sponsored by local agencies. These courses have included discipline specific training as prescribed by the United States Department of Homeland Security, Office of Domestic Preparedness, as essential training for emergency first responders.

Local emergency responders have established a relationship with the Center for Domestic Preparedness (CDP) and the Noble Training Center. The CDP conducts live nerve agent training for civilian first responders from its headquarters at the former Fort McClellan Base as well as providing mobile training teams throughout the United States. Medical staffs are trained at the Noble Training Center in appropriate response to a WMD event. Huntsville area responders have tested innovative techniques in terrorism-related response established by the Noble Training Center to verify practical applications of the techniques in the field.

c. Exercise

Once planning and training activities occur, the effectiveness of these programs must be evaluated. This is done through community-wide exercises.

Exercising these plans and incorporating lessons learned is the final essential component of a truly prepared community. During 2003, a vigorous exercise schedule has seen tabletop chemical, biological, and mass casualty exercises in the Huntsville community. In each of these exercises the Redstone Arsenal community has been well represented as well as the Garrison Command. Lessons learned through the tabletop exercises were incorporated into a full-scale chemical weapons exercise at a local sporting venue. The simulated terrorist attack tested the response and mutual aid component in the Huntsville area. Redstone Arsenal supplied not only emergency response personnel, but also nearly seventy-five actors that simulated the effects of nerve agent contamination. Their participation was a vital element to this community response exercise. Evaluators stated that the Huntsville emergency response community was well prepared for a terrorism-related event. Additionally, several response procedures employed by local emergency response groups were unique and will be incorporated at the national level as a model for terrorism response.

d. Increasing Capabilities

The City of Huntsville has received funds from several federal programs for anti-terrorism preparedness. One program Huntsville participates in is the Metropolitan Medical Response System (MMRS). Medical response to any local mass casualty event is organized under the Huntsville Metropolitan Medical Response System (MMRS) Plan, a Department of Homeland Security Initiative to prepare major cities against terror attacks with biological, chemical, radiological and nuclear weapons (Weapons of Mass Destruction) plus natural disasters and hazardous materials accidents. Medical and emergency response communities are organized to treat, for the first 48-hours, casualties and fatalities from a WMD chemical, biological, radiological dispersion device (RDD), as well as any number of casualties from Natural Disasters (i.e. Pandemics) or Hazardous Materials incidents.

All hospitals and many major clinics in Madison County as well as those in numerous other north Alabama counties participate in the Huntsville MMRS Plan.

In addition to providing local emergency medical response to handle mass casualty events, Huntsville also participates in the Strategic National Stockpile (SNS) program. SNS, a preparedness initiative of the Centers for Disease Control, can bring medicines and pharmaceutical supplies to an area stricken by terrorism or natural disasters. These pharmaceuticals would be used to treat patients, responders and the public. Patients would receive treatments in hospitals while responders and the public would receive medications at Points of Dispensing (PODs). Geographically located throughout the county, PODs would be staffed by a mixture of ADPH staff and volunteers recruited by the Medical Reserve Corps (MRC) to serve nearby residents. The MRC recruits, trains and organizes retired, working-out-of-medicine and others with medical training to augment ADPH, hospital or other places of need during emergencies.

To effectively support the local emergency medical response of WMD events, local hospitals have either constructed a decontamination room or purchased decontamination tents. Additionally, local emergency medical responders and managers have received the latest instruction in WMD preparedness activities.

Through the Alabama Homeland Security Office, the Huntsville area has received more than \$1 million of funding to develop teams for State-to-State response.

The Huntsville Police Department has dedicated personnel that serve a full time duty assignment as a member of the Federal Bureau of Investigation's, North Alabama Joint Terrorism Task Force (NAJTTF). This task force includes members of the 902nd Military Intelligence unit stationed at Redstone Arsenal and serves as the focal point of counter-terrorism investigation and response for the North Alabama law enforcement community. Additionally, the nationally recognized Huntsville Police Department canine squad assists Redstone Arsenal and SMDC force protection units with routine explosives detection searches.

These support capabilities will add to the current resources made available through Huntsville-Madison County to the North Alabama response community.

Working with various emergency response groups in the planning, training, and exercise of terrorism related response is critical to a community's success in handling such an event. During the latest exercise, evaluators were positively impressed by local emergency response to these type events. The Huntsville community is prepared. The Huntsville community is a regional leader in terrorism-related response efforts, and either have developed capabilities or are developing capabilities to be used regionally to support

a terrorism-related event. The efforts of community leaders as well as emergency response agencies has put the Huntsville community on the forefront of terrorism-related planning, training, response, and recovery efforts.

C. National Weather Service - Huntsville Weather Forecast Office

Warning Coordinator: Mr. David Nadler

320 Sparkman Drive

Huntsville, Alabama 35805

Phone: (256) 890-8503

Web Site: www.srh.noaa.gov/hun/

The Huntsville Weather Forecast Office of the National Weather Service provides support to 11 counties in North Alabama and 3 counties in Southern Tennessee. In addition to forecasting duties and the issuing of special weather statements, the staff is involved in special projects, outreach activities, and storm surveys.

One of several special projects involves the close and productive collaboration with atmospheric scientists at NASA Marshall Space Flight Center (MSFC) and the University of Alabama Huntsville (UAH). As a result of this partnership, NASA has developed the Short-term Prediction Research and Transition (SPoRT) Center. The primary objective of the SPoRT Center is to transfer and incorporate NASA earth science technology and research into the National Weather Service's operational environment. The Center's emphasis will be on improving service delivery as well as short-term forecasting for the residents of the Tennessee Valley. These initiatives will be conducted through certain tools, to include real-time total lightning information, high-resolution supplemental model data, and an array of data sets and products from NOAA and NASA owned satellites. More information concerning the SPoRT Center and ongoing activities is available at: <http://www.ghcc.msfc.nasa.gov/>

Outreach activities performed by the local office include educational programs and storm spotter training. Classes in "storm spotting" are offered periodically by the National Weather Service, usually in conjunction with local emergency management agencies. Persons completing the classes are certified, and can work with local emergency management agencies in reporting suspicious cloud formations and severe weather-related events that may verify the National Weather Service's radar observations. These classes have been offered to Redstone Arsenal and NASA personnel, and these employees provide support to local groups in reporting real-time weather observations.

Storm surveys are typically performed by National Weather Service staff after a major storm, wind event, or tornado. These surveys verify radar observations and storm patterns, and provides weather forecasters with additional information concerning the event so that it may be studied further.

D. National Children's Advocacy Center

Director: Mr. Chris Newlin

210 Pratt Avenue

Huntsville, Alabama 35801

Phone: (256) 533-5437

Web Site: www.nationalcac.org/

The National Children's Advocacy Center (NCAC) is a non-profit agency providing prevention, intervention, and treatment services to physically and sexually abused children and their families within a child-focused team approach. Since opening in 1985 as the nation's first Children's Advocacy Center, the NCAC has become a leader in the field of prevention and intervention of child maltreatment. To date, over 900 national and international centers have been opened nationwide, built upon the Huntsville model.

The NCAC offers several child abuse prevention programs involving education of high-risk parents as well as children. The Center also provides national training at its National Child Abuse Symposium and through state-of-the-art facilities. Approximately 2,500 professionals are trained each year at the Center, and more than 70,000 persons have been trained in Huntsville since 1985.

The City of Huntsville provides a well-rounded public safety community that is dedicated and committed to providing the best services to its residents. Emergency service groups serve the community in providing response to a variety of community needs and at varying levels. These groups have attained national recognition for their innovation and efforts to make the Huntsville community a safe place to live.

CHAPTER 7 QUALITY OF LIFE

I. Key Facts and Conclusions

The Huntsville metropolitan area has been recognized nationally for the high quality of life it affords its residents. *National Geographic Adventure* has named Huntsville as one of the country's top adventure towns. Huntsville has been recognized as one of the top 100 places to live, according to *Relocate America.com*, and *Family Digest* ranks Huntsville as the top community for Black Families. Huntsville was also named as one of the top 50 places to raise children in the U.S. by *Business Week*.

The Huntsville metro area provides a high quality of life to its residents through cultural activities and recreational opportunities provided in state of the art facilities. The information that follows presents a brief overview of the activities that are available for residents of the Huntsville and surrounding communities.

- Organizations and infrastructure that strongly promote the arts and education, promoting good quality of life for everyone in the region.
- An abundance of recreational opportunities that let the hard-working community to relax.
- Community festivals and events that support and attract community spirit.

II. Museums and Other Facilities which Promote Cultural, Regional, and Educational Awareness

The Huntsville area provides a myriad selection of activities and educational opportunities that are presented in a fun and unique way. These facilities and their special programs promote a great awareness of the area's environment and invite the exploration of all minds. A map of these facilities is shown at **Map 7.1**.

- A. Huntsville Museum of Art
President: Christopher Madkour
300 Church Street
Huntsville, Alabama 35801
Phone: (256) 535-4350
Web Site: www.hsvmuseum.org/

Square Feet of Exhibit Space: Approximately 30,000
Acreage under Management: Less than 2 acres

Admission Rates: \$12.00 general admission, discounts given to military, seniors, students, and groups of 10 or more. Members and children under 6 are admitted free.

Annual Attendance: 72,000

The Huntsville Museum of Art brings people and art together through acquiring, preserving, exhibiting and interpreting the highest quality works of art. The Museum is a non-profit municipal corporation established by the City of Huntsville and governed by a city-appointed Museum Board.

The Huntsville Museum of Art offers free admission to military personnel and their families during Armed Forces Celebration week in July. The Huntsville Museum of Art is committed to providing quality programming to enhance the experience for our visitors. Throughout the year, it offers special programs such as the Museum Academy, Classic Movies in the Park, Art with a Twist, Align & Wine, BBQ & Bluegrass, and Family Art Activity Day. These programs consist of live music from local groups, art and craft projects in the galleries, lectures, docent led tours and so much more. The Museum often partners with local attractions, groups and businesses to provide special events or demonstrations.

Approximately one-third of the Museum's budget comes from local, state, and federal sources; one-third from patron support and usage; and one-third from special events, programming and various other sources.

The Huntsville Museum of Art recently experienced an expansion which doubled its size. The expansion, named The Davidson Center for the Arts for its largest contributors, opened on November 21, 2010. The new facility includes seven new exhibition galleries, the Stender Family Education Galleries (which house interactive and hands on exhibits), four new special event facilities and an adjacent parking lot for ease of access.

B. Huntsville Botanical Garden

Director: Paula Steigerwald
4747 Bob Wallace Avenue
Huntsville, Alabama 35805
Phone: (256) 830-4447
Web Site: www.hsvbg.org

Acreage under Management: 112 Acres

Admission Rates: \$12.00 Adults; \$10.00 Seniors/Military; \$8 Children 3-18; Children under 3 are Free.

Annual Attendance: 235,000

The Huntsville Botanical Gardens provides a beautiful and tranquil site for perennial, daylily, rose, annual, wildflower, fern and herb gardens and aquatic gardens. The Garden seeks to educate, excite, surprise and inspire both young and old to the world of horticulture through world class botanical displays, educational outreach, plant trials and evaluations, and collections.

The Garden offers special programs: Spring Festival of Flowers during April, Butterfly House (open May – September), Scarecrow Trail (featured in September and October), and the Galaxy of Lights holiday extravaganza Thanksgiving through New Year's Eve.

The Garden provides summer camps for children ages 4-12. These camps are three-hour programs and based on the Garden's summer features. Children are grouped by ages and participate in arts, crafts, and related activities. The Garden also participates in Home School Programs. Additionally, the Garden presents a horticultural therapy program that provides field trips and workdays with activities tailored for special needs groups.

The Garden offers 2 free days to the public each year, as well as a 10-day period of free admission to the Armed Services and NASA employees.

The Botanical Garden's property was originally owned by the Department of the Army. A majority of funding comes from membership dues and facility rentals. The Garden recently completed the next phase of their development with an expanded Butterfly House, Children's Garden, and a new lake.

C. Early Works Museums

Director: Bart Williams
404 Madison Street
Huntsville, Alabama 35801
Phone: (256) 564-8100
Web Site: www.earlyworks.com/

The Early Works Complex operates three major museums in the City of Huntsville: Early Works Children's Museum, Alabama Constitution Village, and the Historic Huntsville Depot.

All three provide experience-driven programs, activities, exhibits and events. The Early Works Museums provide audiences of all ages a hands-on connection to the past, thereby, providing them a clear understanding of our lives today. The facilities provide history-centered educational opportunities, and provide summer camps for area youth.

Early Works Children's Museum is the south's largest hands-on history museum for youth. Alabama Constitution Village traces the history of the birth of Alabama in downtown Huntsville at the 1819 Constitutional Convention. The Huntsville Historic Depot is one of the nation's oldest railroad structures, and is on the National Register of Historic Places.

The Museums provide special programming centered around Armed Forces Week. The Museums also host the Whistle Stop Festival and Bar-B-Cue Competition, Santa's Village, and a Folk Life Festival.

Early Works Children's Museum

Square Feet of Exhibit Space: Approximately 50,000
Acres under Management: 1 acre

Admission Rates: Call for rates
Annual Attendance: 100,000

Alabama Constitution Village

Square Feet of Exhibit Space: Approximately 20,000

Acreage under Management: 1.5 acres

Admission Rates: Call for rates

Annual Attendance: 45,000

Historic Huntsville Depot

Square Feet of Exhibit Space: Approximately 30,000

Acreage under Management: 5 acres

Admission Rates: Call for rates

Annual Attendance: 45,000

D. U.S. Space and Rocket Center

Executive Director: Dr. Deborah Barnhardt

1 Tranquility Base

Huntsville, Alabama 35805

Phone: (256) 837-3400

Web Site: www.rocketcenter.com

Acreage under Management: The U.S. Army deeded 459 acres; 40 are used by the U.S. Space and Rocket Center (*an additional 247 acres are leased at no charge to the City of Huntsville as a botanical garden and a sportsplex*)

Admission Rates: \$28.00 Adults; \$20.00 Children 5-12; Children under 4 are Free. Discounts for Military, Retired Military and NASA employees, Senior Citizens.

Museum only: \$23.00 Adults; \$15.00 Children 5-12; Children under 4 are Free.

Marshall Space Flight Center Bus Tour: \$15.00; Children under 4 are Free.

Annual Attendance: 390,000

The US Space and Rocket Center, NASA's first visitor center, opened in 1970 and has served over 12 million visitors to date. As the Official Visitor Information Center for the Marshall Space Flight Center (MSFC), the US Space and Rocket Center is committed to educating the public and students who attend SPACE CAMP about the work being done at MSFC, particularly in the area of propulsion where MSFC has made significant contributions in the Apollo and Shuttle programs and is again on the forefront with the Ares rockets.

The U.S. Space and Rocket Center celebrates and chronicles the history of the space program in the United States at its birthplace-Huntsville, Alabama. As such, it has the greatest collection of rockets and space memorabilia anywhere. It is recognized as one of the most comprehensive U.S. manned space flight hardware museums in the world. The facilities include Spacedome Theater, Rocket Park, the Education Training Center, which houses NASA's Educator Resource Center, and more. The Davidson Center for Space Exploration is like

no other in the country. In its 476 foot long, 90 foot wide and 63 foot high structure, suspended 10 feet above the floor, is a national historic treasure, the Saturn V, restored to its Apollo era readiness. The vehicle is elevated above the floor surface with separated stages and engines exposed, so visitors have the opportunity to walk underneath the rocket. In 2008, Good Morning America named the Saturn V as one of the Seven Wonders of America (ranked 5th), and televised a segment honoring the Saturn V from the Davidson Center.

The Center provides guided bus tours of NASA's Marshall Space Flight Center where visitors can look behind the scenes where scientists and engineers are shaping the nation's future in space. Interactive exhibits and an IMAX theater are among other activities that visitors can experience. The Center also operates the popular Space Camp.

The Center also provides several traveling exhibits and special programs, typically involving high profile speakers such as NASA special project managers and astronauts.

- E. US Space and Rocket Center - Space Camp
Executive Director: Dr. Deborah Barnhardt
1 Tranquility Base
Huntsville, Alabama 35805
Phone: (256) 837-3400
Web Site: www.spacecamp.com

Tuition: Varies depending upon program. Refer to web site for program descriptions. Scholarships are available.

Space Camp uses the excitement of space exploration to motivate students (grades 4-12) to study math, science, technology, and engineering. A companion program, Aviation Challenge, uses the same format of aviation and pilot training to accomplish the same goals of inspiring the next generation to be prepared for the technological challenges of the future. Space Camp's proximity to Redstone Arsenal and NASA's Marshall Space Flight Center creates a special educational environment that makes this possible.

- F. Veteran's Museum
2060A Airport Road
Huntsville, Alabama 35801
Phone: (256) 883-3737
Web Site: www.memorialmuseum.org

Square Feet of Exhibit Space: Approximately 24,000
Acreage under Management: Approximately 2 acres

Hours of Operation: Wednesday-Saturday 10 a.m. – 4 p.m.

Admission Rates: \$5.00 Adults; \$4.00 Seniors;
\$3.00 Children/Students under 18

Annual Attendance: 2,000 and growing (recently established)

The Veteran's Memorial Museum, operated by the Alabama Center of Military History Inc., is a non-profit, tax exempt educational institution founded for the purpose of historical preservation, public display, and public education. The Museum is dedicated to memorializing the deeds of American military men and women. Emphasis is on participants of World War II and subsequent conflicts.

The Museum displays more than 30 historical military vehicles and field pieced, maps, artifacts, and other memorabilia dating from 18th Century campaigns to the present. It has been designated by the State Legislature as the State of Alabama Veteran's Memorial Museum.

In addition, the museum's reference library contains military publications and reminiscences of local veterans. School groups are welcome. The Museum will provide speakers to visit classrooms on request.

The Museum loans historical items to Redstone Arsenal in support of their special events. Additionally, the Museum furnishes typical military equipment for the local Veteran's Day parade and the Statewide military vehicle rally held each Memorial Day. Staff are also participants in the Library of Congress' Veterans History Project.

G. Burritt on the Mountain - A Living Museum

Director: Leslie Ecklund

3101 Burritt Drive

Huntsville, Alabama 35801

Phone: (256) 536-2882

Web Site: www.burrittonthemountain.com/

Square Feet of Exhibit Space: Approximately 8,100

Acreage under Management: Approximately 167 acres

Admission: \$10.00/Adults, \$9.00/Seniors and Military, \$8.00/Students 3-18, Children 2 and under and Burritt Museum members are free.

Annual Attendance: 100,000

Burritt on the Mountain - A Living Museum, is an educational institution interpreting the history of the people and the environment of the Southern Cumberland region of Alabama and Tennessee based on the acquisition, preservation, and documentation of the region's human and material culture and its natural characteristics.

The Museum has been named as one of the top ten tourist attractions in the state by the Alabama Bureau of Tourism and Travel for more than a decade. It was named as winner of the 2006 Rand McNally Best of the Road Editor's Picks, along with 28 other sites around the country.

The Museum offers guided tours, outreach programs, and all-day field trip programs related to a special theme (e.g., Indian Heritage). The Museum also offers camps on a number of topics related to their mission in the summer and

during spring break. Camps range from programs on insects for 5 year olds to programs on skills needed in the 19th Century by girls for 11-14 year olds.

The Museum also sponsors several enjoyable community events such as the City Lights and Stars outdoor concert series (6 in summer); Gospel Singing on the Mountain (summer); Monte Sano Homes tours (September); Great Mountain Fest (entire month of October); Candlelight Christmas (December); Holiday Magic Dinners (December); and the Spring Farm Festival (entire month of April).

I. North Alabama Railroad Museum

694 Chase Road
Huntsville, Alabama 35815
Phone: (256) 851-6276
Web Site: www.northalabamarailroadmuseum.com

Square Feet of Exhibit Space: Approximately 53,000
Acreage under Management: Approximately 30.5 acres

Annual Attendance: 10,000

The North Alabama Railroad Museum is located in the historic Chase Community, approximately 10 minutes east of downtown Huntsville. In addition to its routine operational hours, the Museum is also open by special appointment. Visitors can choose a free self-guided tour or a special guided tour of the depot, museum grounds, facilities and historic display train.

There is no admission to visit the museum, but donations are always welcomed. The guided tour, for a nominal price, offers an audio/visual presentation in a unique railcar, and a view of the interior of a restored Railway Post Office car, a day coach and a Pullman sleeping car. The centerpiece of the museum features the Chase Depot, the smallest Union depot in the country since it served more than one railroad when in service. Visitors attending the museum on a day when the train is running, can ride a vintage train over the museum's own Mercury & Chase Railroad.

Over twenty-seven pieces of major rolling stock have been preserved including both freight and passenger equipment and three historic locomotives (one off-site). Plans for future development are being made, and when completed the museum is sure to be a facility that is both unique and attractive while maintaining a character all its own.

J. Weeden House

300 Gates Avenue
Huntsville, Alabama 35801
Phone: (256) 536-7718

Acreage under Management: Approximately 1/2 acre

Annual Attendance: 3,000

The Weeden House, built in 1819, served as the Weeden family home for more than 100 years. In 1973, the Twickenham Historic District Association purchased the house and now operates it as a house-museum. It is named in honor of Maria Howard Weeden, a 19th Century artist and poet.

The first Historic American Buildings survey in 1935 included this grand, two-story residence. Drawings made of the structure are preserved in the Library of Congress.

The house is located in the Twickenham Historic District which is included in the National Register of Historic Places.

- K. State Black Archives Research Center and Museum
In the James Hembray Wilson Building, on the campus of
Alabama A&M University
P. O. Box 595 Normal, Alabama 35762
Phone: (256) 372-5846

Acreage under Management: Located on Alabama A&M University Campus

Annual Attendance: 2,500 - 3,500

The primary purpose of the State Black Archives, Research Center & Museum is to create a repository of source materials on African American history and culture. The repository is housed in the James H, Wilson Building, a national register historic structure on the Campus of Alabama A&M University restored for the use of the State Black Archives, Research Center and Museum.

The bill establishing the State Black Archives Research Center and Museum was passed by the State legislature in 1987 and the repository opened in 1990. Its mission is outreach oriented and statewide in scope and therefore highly consonant with the land grant concept of the university. Since January 1995, its programmatic basis has had a four component focus which includes (1) on-loan/traveling exhibits and small permanent displays, (2) public forums, (3) archival materials and (4) historic sites and heritage education.

Group tours and lectures are scheduled throughout the year for public school students, campus groups and the public at large. Appointments should be arranged for group tours.

- L. Von Braun Astronomical Society Observatory and Planetarium
P.O. Box 1142
Huntsville, Alabama 35807
Web Site: www.vbas.org

Acreage under Management: 10 acres

Annual Attendance: Membership stands at 150 members, events are open to the public

The Von Braun Astronomical Society is a non-profit volunteer organization of amateur and professional astronomers. The organization operates a planetarium and observatory located in Monte Sano State Park just east of Huntsville, Alabama. Public astronomy programs are held on selected Saturday evenings at 7:30 p.m. Member's meetings are held on the third Friday of every month, and the public is welcome.

The Wernher von Braun Planetarium is used for a variety of public and special sky shows which are presented by both VBAS members and outside speakers drawn from the Huntsville community. Members are encouraged to develop and present their own shows. Observation of the night sky through various telescopes follow each program, weather permitting.

The Von Braun Astronomical Society was founded in 1954 by a high school student (Sam Pruitt) with the assistance and supervision of Wernher von Braun under the name Rocket City Astronomical Association (RCAA). During the formative years of the RCAA, guidance was provided by members of the Von Braun missile team. The first major project was the construction of the Conrad D. Swanson Observatory completed in 1956, currently housing a 21 inch telescope and a Celestron C-16 Schmidt-Cassegrain telescope.

The Von Braun Astronomical Society currently numbers over 150 members and welcomes anyone with an interest in Astronomy or observing the night sky. All programs, activities, and facilities upkeep are done by VBAS Member volunteers who give generously of their time to further other's interests in Astronomy.

The Von Braun Astronomical Society has facilities on top of Monte Sano, within the State Park. The organization maintains a planetarium, a domed observatory, and a roll-off roof observatory. Also in the complex is a well-stocked library, restroom, telescope storage room and computer room. The observing field has approximately 10 concrete pads for telescopes. The society also maintains and has available a rather large and varied inventory of telescopes.

M. Huntsville-Madison County Public Library

Director: Laurel Best
915 Monroe Street
Huntsville, Alabama 35805
Phone: (256) 532-5950
Web Site: www.hmcpl.org

Square Feet under Management: 143,000 at Main Branch
Acreage under Management: 4.5 acres at Main Branch
Hours of Operation: Monday-Thursday 9 a.m. - 9 p.m. (Main Branch)
Friday-Saturday 9 a.m. – 5 p.m.
Sunday 1 p.m. – 5 p.m.

Admission Rates: Free

Annual Attendance: 4,000 per day; 1,400,000 per year
1.2 million loans per year

Total System Volumes Available: 570,000, plus DVDs and CDs

The Huntsville Public Library is one of the most used community facilities in the Huntsville area, and one of the busiest systems in the State. Approximately 70% of Huntsville area residents have library cards, and the national average for a city the size of Huntsville is 47%.

The Huntsville Public Library serves the Huntsville community with materials and special programs that enrich the educational, recreational, and cultural life of its residents. This is done through the Main Library Branch and 11 branches that are geographically convenient to the public. The library also provides service through a Bookmobile.

The Huntsville Public Library serves as the gateway to the Alabama Virtual Library, a statewide database which is available 24/7, and provides access to nearly 4,000 periodicals, encyclopedias, and other reference material free to library patrons. Online public access computers, computer training and online catalogs are used heavily by area residents. The library also provides a collection of e-books. Computer usage is a popular service.

Special Services and Programs

The Main Library houses a Subregional Library for the Blind and Physically Handicapped located on the 2nd floor. The library also offers summer reading programs for children each year. Typically, several thousand children are involved in this program. Other activities offered are young adult programs, preschool story times, computer labs, and homework assistance. Special programs of interest to the public are offered through the course of the year.

The library is supported through municipal and county appropriations, library organizations, and private and corporate donations.

III. Organizations Dedicated to Promoting the Arts and Quality of Life

A. The Arts Council

Director: Allison Dillon-Jauken
700 Monroe Street
Huntsville, Alabama 35801
(256) 519-2787
Web Site: www.artshuntsville.org/

1. General

The Arts Council (TAC) produces, promotes, coordinates and advances the arts to enrich the quality of life, education, and economy of the greater Huntsville-Madison County community. Founded in 1963, TAC is a private, non-profit arts organization led by a 24-member board of directors and 7 professional staff. The Arts Council offers six core programs:

Arts in Education - providing resources and support to arts educators,

giving children opportunities to grow, and working to strengthen K-12 education through the arts.

Panoply Arts Festival - an annual three-day outdoor festival featuring performances, exhibits, arts demos, and hands-on activities.

Concerts in the Park - free summer concerts in Big Spring Park, co-produced with the City of Huntsville, presenting jazz, rock, classical, big band, country, and everything in between.

Create Huntsville – a unified cohesive initiative to support Huntsville-Madison County’s quality of life and economic development by expanding arts and cultural opportunities for all.

Galleries and Public Art – hosts two gallery spaces: art @TAC and The Gallery at Sam & Greg’s, and promotes member galleries including the Huntsville Art League, Huntsville Photographic Society, Lowe Mill Arts and Entertainment, and Flying Monkey Arts. The Arts Council also works to incorporate public art throughout the community to increase the livability, walkability, and desirability of neighborhoods and overall quality of life.

Arts Assembly and Member Benefits - facilitating the work of member arts organizations through grants, technical assistance workshops, networking and information sharing.

2. Arts Organizations

There is an opportunity for everyone in the community to get involved in the arts in Huntsville-Madison County. There are a variety of organizations available that are always looking for new members. A sampling of arts-oriented organizations follow:

[Alabama Youth Ballet](#)

[American Association of University Women \(AAUW\)](#)

[American Guild of Organists](#)

[Bravo School of Fine Arts](#)

[Broadway Theatre League](#)

[Burritt on the Mountain](#)

[Covenant Dancers](#)

[Fantasy Playhouse Children's Theater](#)

[Hawthorne Conservatory](#)

[Huntsville Art League \(HAL\)](#)

[Huntsville Ballet](#)

[Huntsville Chamber Music Guild](#)

[Huntsville Community Chorus Association](#)

[Huntsville Community Drumline](#)

[Huntsville Concert Band](#)

[Huntsville Feminist Chorus](#)

[Huntsville Gem & Mineral Society](#)

[Huntsville Literary Association](#)

Huntsville Museum of Art
Huntsville-Madison County Botanical Garden
Huntsville Master Chorale
Huntsville Photographic Society
Huntsville Skating School and Training Academy
Huntsville Symphony Orchestra
Huntsville Symphony Orchestra Guild
Huntsville Youth Orchestra
Land Trust of North Alabama
Lowe Mill Arts and Entertainment
Merrimack Hall Performing Arts Center
Nomad Tapestry Belly Dane and Music
North Alabama Dance Center
Tennessee Valley Jazz Society
Theatre Huntsville
Therapy Partners, Inc.
UAH-Professional and Continuing Studies
Valley Arts and Entertainment
Valley Conservatory

The Arts Council also provides information concerning a wide variety of educational programs for children through adults. Arts-related camps for children are available as well.

More information concerning each group's activities can be found at The Arts Council web site at: www.artshuntsville.org

3. Redstone/Defense Contractor Support for the Arts

The arts community receives much support from the area's Redstone Arsenal and NASA affiliated employees and defense contractors. The support of these individuals and companies are a tremendous asset to the community, and contribute themselves to the high quality of life that is enjoyed throughout the region.

B. The Huntsville-Madison County Senior Center

Director: Tom Glynn
2200 Drake Avenue
Huntsville, Alabama 35805
(256) 880-7080
Web Site: www.seniorview.com/

Hours of Operation: Monday-Thursday, 7:30 a.m. - 4:30 p.m.
Friday, 7:30 a.m. – 12:00 p.m.

1. General

The Huntsville-Madison County Senior Center offers a unique combination of enrichment programs and care services for people 60 years of age or better. The goal of the Senior Center is to foster community involvement, enhance dignity and support independence for

all participants; as such, it is highly successful, and provides a high quality of services for the area's senior population.

The Center's nationally recognized programs and facility place them among the best Senior Centers in the United States. There are several overriding reasons why this is the case:

- There is an exceptionally high level of community interest and support
- Active participation of all members of the Board - all volunteers who have expertise in interrelated fields
- Talented, dedicated personnel who are committed to work as a team to achieve goals of the Senior Center
- More than 40% of Madison County seniors use the Center for programs and/or services
- The Center enjoys senior involvement that is 3 times the national average
- The state-of-the-art facility was specifically designed for senior use, has 45,000 square feet and 82 rooms
- The Senior Center places more than 600 senior volunteers at over 100 local non-profit agencies each year, and 1500 volunteers support their programs
- 137 local merchants participate in the "Senior Discount" program
- The Center maintains at least 300 low income people, who would otherwise be in nursing homes, in their own home
- Over 7,000 issues of *SeniorView*, the Center's highly regarded magazine, are distributed throughout Madison County monthly and is also available on the internet
- There is NO membership fee

2. Activities and Services

The Center offers personal enrichment programs and care services.

Personal enrichment programs include:

- Performing arts - Orchestra, chorus, and acoustic workshops are offered
- Recreation - Organized activities range from table games, trips and dances, to sporting events, line dancing, and performing arts
- Creative skills - Pottery, woodworking, painting, needlework and stained glass are some of the classes offered continuously
- Health - Maintenance programs feature exercises, screenings, education, and grief support
- Education - Language, writing, genealogy, and computer classes are offered
- Special transportation services - Assistance is provided for those unable to use the City Shuttle bus
- Retired and Senior Volunteer Program - Seniors provide valuable services for area Non-Profit Agencies
- Satellite Centers - Over 40 satellite groups, extensions of the main Senior Center, meet throughout Madison County.

Care services include:

- Meals on Wheels - Volunteers deliver nutritious lunches to hundreds of homebound Seniors during the week
- Nutrition Centers - Hot meals served in a social atmosphere at six locations in Madison County, including the Senior Center
- Community-Based Care - light housekeeping services for seniors; based on need not income. Information and referrals concerning local senior services
- Adult Day Health Care - Supervised weekday program for mentally or physically disabled adults

Activities are available for individuals of all ages in the Huntsville area community that enhance each person's quality of life. In addition to cultural and other activities, there are many recreational activities in which persons may participate. The Tennessee Valley Region is geographically diverse and has rivers, lakes, mountains, and valleys. The nature of the area presents many opportunities for a variety of recreational participation.

IV. Recreational Opportunities

A. Facilities and Natural Features

1. Monte Sano State Park
5105 Nolen Avenue
Huntsville, Alabama 35801
(256) 534-3757
Web Site: www.alapark.com/MonteSano/

Monte Sano State Park is comprised of 2,140 acres on top of Huntsville's Monte Sano Mountain. The park provides the following amenities: camping (14 cabins and 89 campsites), mountain top hiking, playground, open-air amphitheater for outdoor concerts and performances, and picnic facilities. Work has been done to restore the old Monte Sano Tavern. It is used for community events.

2. Ditto Landing
Huntsville - Madison County Marina & Port Authority
P.O. Box 14250
Huntsville, Alabama 35815
Phone: (256) 882-1057 (Administrative Office)
Web Site: www.dittolanding.com

Ditto Landing Marina, operated by the Huntsville-Madison County Marina and Port Authority, is located in Madison County on the Tennessee River. The marina was recently honored with the prestigious "Clean Marina" Award, presented by the Tennessee Valley Authority. The marina provides wet slips, dry storage, transient boat docks, campgrounds, picnic areas, and pavilion rentals. Recreational activities include tennis and fishing. Bass, crappie, catfish, and bream are a few of

the many fish found in abundance here. Ditto Landing also has a "Senior Citizens Fishing Pier" reserved and designed especially for their senior guests. The marina also has a ballpark for organized sports activities.

3. Tennessee River

The Tennessee River is located along the southern boundary of Madison County and Redstone Arsenal. The river itself provides many recreational activities for its users, including fishing, swimming, tubing, water skiing, and boating.

4. Joe Wheeler State Park
201 McLean Drive
Rogersville, Alabama 35652
(256) 247-5466
Web Site: www.alapark.com/JoeWheeler/

Joe Wheeler State Park is a sprawling resort park located in nearby Rogersville, Alabama. The park provides various types of accommodations. Recreational activities provided are boating and fishing, golf, tennis, and swimming. Picnic facilities are also available.

5. Wheeler National Wildlife Refuge
2700 Refuge Headquarters Road
Decatur, Alabama 35603
(256) 350-6639
Web Site: <http://www.fws.gov/refuge/wheeler>

Wheeler National Wildlife Refuge is located along the Tennessee River between Huntsville and Decatur, Alabama. It offers a variety of recreational opportunities including a Visitor Center, wildlife observation, wildlife photography, fishing, hunting, hiking, boating, and educational interpretive programs. A wildlife observation building provides visitors an opportunity to view various types of wildlife. Six improved boat launch areas provide access to the Tennessee River (Wheeler Reservoir) and several of its tributaries. Bank fishing opportunities also exist. The refuge encompasses 35,000 acres and is home to 115 species of fish, 74 species of reptiles and amphibians, 47 species of mammals, and 285 species of birds. The refuge also manages and protects the habitat for 10 federally endangered or threatened species.

6. Lake Guntersville State Park
7966 Alabama Highway 227
Guntersville, Alabama 35976-9126
(256) 571-5444
Web Site: www.alapark.com/LakeGuntersville/

Lake Guntersville State Park encompasses 5,909 acres in Guntersville, Alabama. A variety of accommodations are available, as is a convention

center. Recreational activities include swimming, boating, fishing, golf, tennis, and hiking. Other amenities include a nature center and picnic areas. Eagles tend to congregate at the park, and park organizers offer special Eagle Awareness programs during the month of January.

7. Municipal Parks and Playgrounds

The City of Huntsville maintains over 60 parks and playground facilities located in the City of Huntsville, accounting for over 1400 acres of park land. **Map 7.2** shows the locations of these parks and facilities. Parks and recreational facilities and programs are managed in the City of Huntsville by the Huntsville Parks and Recreation Services (<http://www.huntsvilleal.gov/recreation/>). The City operates various recreational facilities and gyms and offers a full complement of recreational activities for youth and adults. These activities will be explored further in this report. Additionally, the City of Huntsville has created a dog park within their jurisdiction to provide exercise for dogs and their humans.

8. Conservation Lands

Local leaders realize there must be a balance between developing land and conserving properties that have a regional and natural significance. **Map 7.3** shows the conservation properties located in the Huntsville area. Of these, the most notable are the Hays Preserve, the Goldsmith-Schiffman Wildlife Sanctuary, and the properties of the Land Trust of Huntsville and North Alabama.

Hays Preserve (www.huntsvilleal.gov/recreation/hayesnature/index.php) Nestled in the old Big Cove area is the largest donation of land to the City of Huntsville, the Hays Nature Preserve. Encompassing about 600 acres of bottomland forests, tupelo sloughs, and creeks, the Hays Preserve provides for passive recreation. Picnicking, mountain biking, running, hiking, horseback riding, walking and nature study is available along the 7 miles of primitive trails. A greenway, suitable for the physically challenged and street bicycles also connects the Preserve to the Hampton Cove area.

Various events and activities began at the Preserve, including: Art Parties, Yoga by the River, Preserve Pals and a variety of themed guided hikes. Additionally, in 2012 a nature playground was developed amidst the trees near the entrance.

An Education Center was opened at the Preserve during 2013. The Preserve has two miles of river frontage on the Flint River, and short canoe trips can be planned. Horseback riding is also a favorite pastime. All groups are welcome at the Preserve, and group tours are a regular event.

In 2003, the Hays Nature Preserve was designated as a part of the North Alabama Birding Trail. There is a great diversity of wildlife and wild

habitats on the Preserve. Special events occur throughout the year. The Preserve is open for daylight use only, except for special evening events sponsored by the City of Huntsville.

Goldsmith-Schiffman Wildlife Sanctuary

The Goldsmith-Schiffman Wildlife Sanctuary is the newest land donation to the City of Huntsville. The sanctuary encompasses 300 acres in the Big Cove area. Plans are to construct a visitor's center, wildlife overlooks, bike trails and a canoe run down the Flint River. The land is located near the Hays Preserve. Together with the Hays Preserve, the community will possess a wildlife preserve of about 1,000 acres.

The Land Trust of Huntsville and North Alabama

[\(www.landtrustna.org/\)](http://www.landtrustna.org/)

The Land Trust of Huntsville and North Alabama is a non-profit organization dedicated to preserving lands for public use to enhance recreation, education, conservation and prosperity in the North Alabama region. Known as the community's "Other Space Program," the Land Trust has contributed greatly to the area by preserving over 6,000 acres of land that is open to the public's recreational use. Land Trust properties provide for these activities: picnicking, mountain biking, bird watching, nature study, and horseback riding. Horseback riding is permitted at the Wade Mountain Preserve. The Land Trust maintains 3 nature preserves and 38+ miles of trails open to the public.

9. Greenways

Greenways are protected corridors of open space along natural features, such as streams or ridges, or along man-made features such as abandoned railroad corridors or scenic roadways. Greenways protect important community resources, such as historic sites and streams, and connect these resources to each other and to parks, schools, and neighborhoods. They also provide recreational opportunities such as hiking, biking, canoeing, walking, jogging, and fishing, and provide a place for people to enjoy nature.

The City of Huntsville recently adopted an updated master plan to guide the development of greenways throughout the community. When complete, the system will include over 130 miles of interconnected trails, including canoe trails, pedestrian/bike trails, and hiking trails. Currently, seven greenways are open to the public: Aldridge Creek, Big Cove Creek, Indian Creek, Flint River Phase I, Flint River Phase II, Little Cove Road, and Wade Mountain. The greenway at Big Cove Creek allows for horseback riding.

10. Bike Routes

The City of Huntsville has addressed the needs of bicyclists in the community by developing and adopting the City of Huntsville Bikeway Plan. The updated plan, approved by the Metropolitan Planning Organization in August 2006 and further amended in 2007, identified 39

different, yet interconnecting, bike routes to be placed throughout the city within a four-year period. All routes have been identified by signage. The bike routes cover 160 miles within the City of Huntsville.

The bike routes provide access to existing and planned greenways in the city. Additionally, the bike plan was coordinated with the city's public transit routes. The plan recommends that bike racks be installed on all city Shuttle buses to encourage multi-modal transportation uses. Integrating public transit with bicycling will allow multi-modal transit users to cover more distance and/or overcome geographical barriers that are difficult for bicyclists to negotiate.

Input and recommendations concerning the plan's development and its implementation were received from a Bicycle Advisory Committee, comprised of citizens with interests and expertise in bicycling, members of various safety associations, and technical city and county staff.

11. Point Mallard
P.O. Box 488
Decatur, Alabama 35602
(256) 341-4900
Web Site: www.pointmallardpark.com/

Point Mallard Park is located in nearby Decatur, Alabama. It is owned by the City of Decatur, and open 365 days a year. The park property comprises 500 acres. It is a family-oriented park, with multiple activities available. The facilities provide for camping, golfing, ice skating, tennis courts, baseball fields, batting cages, hiking/jogging/biking trails, and a driving range. Point Mallard also has a wave pool – the first in America.

The park hosts community festivals every year: the Alabama Jubilee in May, and the Spirit of America Festival during July 3-4.

12. Madison County Lake
2501 County Lake Road
Gurley, Alabama 35748
(256) 776-4905

The Madison County Lake is a 105 acre lake located 11 miles east of Huntsville. It is a public fishing lake, and no other aquatic activities are allowed. It is stocked with bass, crappie, catfish, bluegill, and redear sunfish.

Amenities available at the lake include: Clean public restrooms, a wide variety of fishing tackle, live and artificial baits, and other fishing supplies, as well as drinks and refreshments. An accessible fishing pier makes it easy to reach deeper water without using a boat. Boats, electric motors and batteries are also available for rent; a launching ramp is available for anglers with their own boats.

13. YMCA of Huntsville & North Alabama
Huntsville, AL 35803
256-883-(YMCA)-9622 – Southeast Huntsville Branch
256-730-9622 – Downtown
256-428-9622 – Corporate Office
256-705-9622 – Hogan Family Y
Web Site: www.ymcahuntsville.org

The YMCA of Huntsville and North Alabama has recently opened several new facilities. During the end of 2003, the YMCA opened a new \$6 million, 54,000 square foot facility in south Huntsville. Available amenities are: treadmills, stairclimbers, bicycles, free weights, aerobics theater, swimming pool, a therapeutic pool, a kid's pool, whirlpool, sauna, six basketball goals, two indoor soccer goals, a suspended walking and jogging track, a kid's gym, a Teen Development Center, a Child Watch Area (babysitting for parents using the facility), and community meeting room. In addition to routine sports offerings, the facility also offers aerobics classes, swimming lessons, organized youth sports, and fitness evaluations. The YMCA opened a new state-of-the-art facility in downtown Huntsville during June 2008. The facility has numerous amenities. Most recently, the Hogan Family Y opened in the City of Madison. Available amenities are strength training and free weight centers, sauna and steam rooms, a natatorium featuring two swimming pools and whirlpool spa, kids' gym, teen center, racquetball courts, gymnasium; adult, family, and special needs locker rooms; outdoor sports fields, and personal training.

The YMCA also operates a summer youth camp for children ages 7-15 in nearby Guntersville, Alabama.

14. Benton H. Wilcoxon Municipal Ice Complex
3185 Leeman Ferry Road
Huntsville, Alabama 35805
(256) 883-3774
Web Site: www.iceskate.org

The Benton H. Wilcoxon Municipal Ice Complex in Huntsville, Alabama is a relatively new facility, offering two NHL size rinks, a fully stocked concession stand, four party rooms, and arcade games for the entire family. The facility also operates the SkateWorld Pro Shop, offering the largest selection of hockey equipment in the area. It offers both competitive and recreational skating, and daily public sessions. The Ice Complex is the home rink of the Huntsville Amateur Hockey Association (www.hahahockey.org/) and the Huntsville Figure Skating Club.

The Ice Complex has hosted skating events in the past, and has six public locker rooms, spectator seating, a large conference room, and a ballet room.

Additionally, skating lessons are available, as well as competitive figure skating and hockey.

15. Von Braun Center
700 Monroe Street
Huntsville, Alabama 35801
(256) 533-1953
Web Site: www.vonbrauncenter.com/

The von Braun Center, named for rocket pioneer Dr. Wernher von Braun, hosts over 600 events per year and brings in almost a million people. The von Braun Center exists today because local leaders followed a community vision that valued the cultural and performing arts. This vision was endorsed by Dr. von Braun and the community's German friends at Redstone Arsenal.

In addition to hosting conferences and special events, the von Braun Center hosts many different entertainment venues in its 170,000 square foot facility. The facility is comprised of various components that together make a center where quality venues are performed, and sporting events are played. Most of these events occur in the von Braun Center's Playhouse, Arena, and Concert Hall. The von Braun Center recently completed \$8 million in renovations to the Mark Smith Concert Hall and the Propst Arena.

The von Braun Center is the home of several local sports teams, including the Huntsville Havoc Hockey Team, Alabama Hammers Arena Football Team, and the University of Alabama in Huntsville Hockey Team.

B. Sporting Events and Available Activities

1. Spectator Sports

There is an opportunity to attend sporting events in the city of Huntsville. The city is home to several professional sports teams, and has two universities that provide collegiate sports.

a. Hockey

The Huntsville Havoc
(<http://huntsvillehavoc.pointstreaksites.com/view/huntsvillehavoc>)
play at the von Braun Center. The team is affiliated with the Southern Professional Hockey League. The team recently won the 2009-2010 SPHL President's Cup.

b. College Sports

Huntsville's two universities: the University of Alabama in Huntsville (UAH) and Alabama A&M University, provide plenty of opportunities to watch collegiate sports. UAH has a nationally recognized hockey program. Its popular basketball program recently competed in the semi-finals of the NCAA

Division II Men's Basketball Elite Eight. Alabama A&M has a football team that plays in its own stadium at the university. It also has a popular basketball program and an award-winning women's volleyball program. More information concerning all collegiate sports available can be found on the UAH Athletic Department (www.uahchargers.com) and Alabama A&M University Athletic Department's (<http://aamusports.com/>) web sites.

c. Sports Festivals

The City of Huntsville has its own Huntsville Sports Commission to recruit, organize, and stage amateur sporting events. The City has hosted many competitions and tournaments for both youths and adults (State soccer tournaments, U.S. National Synchronized Skating Championship, State wrestling tournaments, among others).

2. General Participatory Sports

The Huntsville area has a multitude of recreational opportunities available for adults and youths. The City of Huntsville Parks and Recreation Services provide organized sports and other recreational activities. Additionally, several private clubs and organizations exist that embrace persons with the same athletic interests and pursuits. A comprehensive list of available activities follows:

a. Biking

Mountain biking is available at Land Trust properties. The City of Huntsville also has bike routes available, and has "signed" a total of 39 routes. The Spring City Cycling Club (www.springcity.org/), founded in 1892, organizes a wide variety of bicycling activities suitable for all biking enthusiasts at all levels.

b. Walking Trails/Hiking

Walking and hiking trails are available at Monte Sano State Park, Burritt Museum, Green Mountain Nature Trail, Hays Preserve, area greenways, and the Huntsville-Madison County Land Trust properties. Several trail maps are available on the Land Trust's web site at: <http://www.landtrustna.org>.

c. Running Courses and Racing

The Huntsville Track Club (www.huntsvilletrackclub.org/) provides information on running and racing in Huntsville and the Tennessee Valley. The group directs various running events and races during the year, including the annual Rocket City

Marathon - the first one held in the State of Alabama over 26 years ago.

Additionally, the City of Huntsville's John Hunt Park has a 3-mile cross-country running course. The Huntsville Track Club, a local running club, holds events every Tuesday night and numerous special running events on Saturdays during the entire year. Area high schools use the course for metro & sectional cross-country running meets. The City of Huntsville Parks and Recreation Services has sponsored annual spring and fall running events open to any runner wanting to participate.

Madison County maintains the Madison County Par Course, a 2-mile jogging trail located in the City of Huntsville.

d. Adult Softball

The Adult Softball Program is headquartered at the City of Huntsville's Metro Kiwanis Sportsplex (<http://www.huntsvilleal.gov/recreation/sportsplex/index.php>), and consists of three (3) seasons (spring, summer, & fall) for weekday play. Sunday League will have one (1) season. Organizers are able to accommodate 60 teams maximum during the weekday leagues. Check the website for the most updated information.

e. Golf

The Huntsville area provides many golfing opportunities through both public and private courses. A listing of public courses follow:

Colonial Golf Course

4000 Colonial Dr.
Meridianville, AL 35759
Phone: 256-828-0431

18 holes, par 72, offers large Bent grass greens and open fairways. 8 miles north of Huntsville on U.S. 231 at Meridianville.

Fox Run Golf Course

870 McCollum Rd.
Meridianville, AL 35763
Phone: 256-828-7564

18 holes, par 72, with Bermuda grass, 9 miles north of Huntsville in Meridianville on McCollum Road.

Hampton Cove Golf Course

Hampton Cove, Alabama
Phone (256) 551-1818
Web Site: www.rtjgolf.com/hamptoncove/

18-hole Highland Course and 18-hole River Course, which encompasses 26 ponds, have Bent grass greens. The 18-hole Short Course is on a par 3 layout.

This course is the northernmost of the nine stops on Alabama's famed **Robert Trent Jones Trail**. The 54 holes cover 650 acres in a river valley setting surrounded by mountains. A 35,000-square-foot clubhouse contains a large golf shop and dining room. A veranda overlooks the courses.

Becky Pierce Municipal Golf Course

2151 Airport Rd.

Huntsville, AL 35801

256-880-1151

Web Site: <http://www.huntsvilleal.gov/recreation/golf.php>

18-hole course public facility covering 6,500 yards. The course has Bermuda tees, fairways with Bent grass greens, grass and sand bunkers, mounds and water hazards. A practice putting green, a driving range and a sandwich shop is available. Just off South Parkway (U.S. 231) at Airport Road.

The Links at Redstone Arsenal

(Open to active/retired or reserve military ID holders)

4140 Goss Road

Redstone Arsenal, AL 35898

Phone: 256-883-7977

Web Site: www.redstonemwr.com/recreation/golfing.html

This beautifully landscaped facility offers 36 challenging and scenic holes, a modern club house and pro shop, and a short order restaurant for your convenience. Also provided is an excellent driving range for putting, chipping, and sand play.

Private Courses:

Private Courses are available for member and guest play at The Ledges, Valley Hill Country Club, and Cherokee Ridge Country Club.

f. Putt Putt - Miniature Golf

The Huntsville area has several putt putt - miniature golf courses. The most recent course is located at Insanity Skate Park (www.insanityskate.com/). Their Harris Challenge Golf Course presents miniature PGA stylized greens, sand traps, roughs, and water traps.

g. Hockey

Amateur competitive hockey is available in Huntsville through the Huntsville Amateur Hockey Association (HAHA) (www.hahahockey.org/) from age 4 to adult. The Association

organizes three levels of hockey. There is a house league for adults, a house league for youth, and a competitive travel league for youth seeking competition beyond the local level. The HAHA is a member of USA Hockey and its affiliate Southern Amateur Hockey Association, which qualifies their players to participate in USA Hockey programs such as select hockey camps, and district, and regional playoffs. The HAHA home rink is the Benton Wilcoxon Ice Complex.

h. Figure Skating

Recreational and competitive figure skating is available at the Benton Wilcoxon Ice Complex. Local activities are organized through the Huntsville Figure Skating Club (www.hsviceplex.org/figure-skating). The Club's mission is to encourage full participation in the sport of figure skating by everyone. The Club has approximately 200 members, with skaters from Basic Skill Levels to Senior Levels. Ice skating lessons are taught at the Ice Complex by highly trained staff.

i. Swimming

The Brahan Spring Park Natatorium (<http://www.huntsvilleal.gov/recreation/aquatic.php>) in Huntsville accommodates major competitive swimming events and features 2 three-meter and 2 one-meter diving boards. The Olympic-size pool is heated and covered, featuring a roof that is rolled back during the summer to make an outdoor pool area. The Aquatic Center, also located in Huntsville is a covered and heated pool that provides equipment for the handicapped and offers learn-to-swim classes, aerobics classes and range of motion classes taught by professionals. Huntsville's newest aquatic facility located inside the Dr. Richard Showers, Sr. Recreation Center (256-851-4003) features 2 one meter diving boards, provides equipment for the handicapped and offers learn-to-swim classes. The City of Huntsville will be remodeling the Natatorium to add two new pools, including a therapy pool and another for special needs swimmers. The improvements are expected to be completed in summer 2017. At that point, the Jim Williams Aquatic Center will be demolished. Swimming facilities are also available at several private gymnasiums in Huntsville.

Competitive swimming for youths is available in Huntsville.

j. Water Aerobics

The City of Huntsville offers water aerobics classes at the Natatorium, Aquatic Center, and the Showers Center. Several private area fitness centers offer classes as well.

k. Frisbee Golf

Huntsville boasts three permanent 18-hole disc golf courses: one at Brahan Springs Park, one on Redstone Arsenal, and one on the campus of UAH. Huntsville's Disc Golf Club, the Rocket City Chain Gang, has been host to numerous professional disc golf tournaments including the 1983 and 1993 World Championships, and a few of the country's top ranked players live in the Huntsville area.

l. Ultimate Frisbee

An Ultimate Frisbee (www.huntsvilleultimate.com/) club is offered in the Huntsville area. The group is associated with the National Ultimate Player's Association, and provides tournaments in the Huntsville area.

m. Rugby

Competitive rugby is available through the Huntsville Rugby Club (www.huntsvillerrugby.com/). The Club is a division three member of the Mid-South Rugby Union, and practices at Rick Cooper Memorial Park in the City of Huntsville. The Huntsville Rugby Team won the 2010 Alabama State Rugby Championships.

n. Volleyball

Competitive volleyball is available through the City of Huntsville Parks and Recreation Services as well as the Huntsville Volleyball Association (HVBA). The HVBA (www.hvba.org) organizes various volleyball leagues in the Huntsville area. The City of Huntsville has completed construction of 6 sand volleyball courts at Brahan Springs Park.

o. Water Skiing

Abundant water resources in the region provide plenty of opportunities to water ski at Guntersville Lake and on the Tennessee River.

p. Snow Skiing

Snow skiing is offered at nearby Mentone, Alabama at Cloudmont Ski and Golf Resort (<http://www.cloudmont.com/>). The resort has two one-thousand foot beginner-intermediate slopes. Additionally, the Huntsville Ski Club (www.huntsvilleskiclub.org) organizes stateside and international ski trips with its members.

q. Hunting/Fishing

Within an hour's drive of Huntsville, anglers can have the opportunity to catch a variety of species in four Tennessee River reservoirs - Gunter'sville, Wheeler, Wilson and Pickwick lakes. The former world record blue catfish weighing 111 pounds came from Wheeler Lake in 1996, and anglers have caught largemouth bass up to 15 pounds, smallmouth bass up to 9 pounds and spotted bass up to 5 pounds. Other popular species include crappie, sauger, bluegill, white, striped and hybrid bass.

In Tennessee, Tims Ford Lake near Fayetteville offers good camping and fishing opportunities, including for stocked rainbow trout in the Elk River below the dam. Crappie and striped bass also are often targeted by anglers.

Hunting is popular, with deer, turkey, waterfowl and small game seasons open about eight months of the year. Public areas include the Skyline-Martin Wildlife Management Area (WMA) near Scottsboro and Swan Creek WMA north of Decatur, while limited opportunities exist on the Wheeler National Wildlife Refuge and Redstone Arsenal.

r. Spelunking

Spelunking, or caving, is definitely available in the Huntsville area. The Huntsville Grotto (www.caves.org/grotto/huntsville/) is an official club of the National Speleological Society (www.caves.org/). The National Society is headquartered in Huntsville. The local group plans activities and caving expeditions.

s. Fencing

The Huntsville Fencing Club (www.huntsvillefencingclub.org) is organized to provide classes for beginners and a location for experienced fencers to practice.

t. Canoeing and Kayaking

Canoeing and kayaking activities (www.huntsvillecanoeclub.org) are available along the many waterways in the area. The Huntsville Canoe Club is an organized group that coordinates river trips.

u. Rowing

The Rocket City Rowing Club (www.rocketcityrowing.com) provides opportunities for novice and experienced rowers, and conducts clinics to introduce people to the sport of rowing.

Activities are provided for both junior level and adult level groups.

v. Horseback Riding and Equestrian Activities

The Huntsville-Madison County area offers horseback riding and equestrian activities. 3H Stables (www.3hstables.com) provides horseback riding adventures on mountain trails. Additionally, several other stables are in the area for boarding horses. Horseback riding lessons for all ages are available. Several clubs are offered as well: The Hazel Green-Toney Saddle Club, and the Huntsville Pony Club (www.huntsvilleponyclub.org).

w. Roller Skating

Several roller skating rinks are located in the Huntsville area. The activity is popular with the area's youth.

x. Bowling

Several bowling alleys are located in Huntsville. Competitive League play is available.

y. Rocket City Motorsports

The Rocket City MX Park offers a motorcross/supercross style track for dirt bike enthusiasts.

z. Spring City Triathletes

The Spring City Triathletes exist for the promotion and development of triathlon and other multi-sports for sport, fitness, recreation, and safety education. The Spring City Triathletes host The Heart Center Rocketman Triathlon on Redstone Arsenal each summer attracting hundreds of triathletes from all over the southeastern U.S.

aa. Dance

A variety of dance activities are available for all ages. Students can take ballet, tap, jazz, ballroom, bellydancing, or modern dance. Competitive dance is also available for young persons enrolled in dance classes. There are also various clubs that promote square dancing and ballroom dancing.

bb. Basketball

In addition to the organized city, county, and church league play for youth, the YMCA of Huntsville & North Alabama offers basketball activities for adults at their Southeast Huntsville

facility and at the Hogan Y. The City of Huntsville Parks and Recreation Services offers adult basketball at its Berachah Gym.

cc. Tennis

Eighty-nine tennis courts are operated by the City in various locations. During 2004, the City of Huntsville expanded its tennis facilities with the construction of a new 31 court Tennis facility located in John Hunt Park. The courts consist of 24 clay, 6 hard, and one clay championship center court. The facility offers a new state of the art two story club house with covered balconies surrounding the upper level for viewing play.

There are various private clubs maintaining major tennis facilities in the area: The Huntsville Tennis Center, The Huntsville Racket Club, and The Huntsville Athletic Club.

dd. Shooting Sports and Archery

Skeet shooting is available at Big Sky Skeet & Trap Club located across the Tennessee River in Lacey's Spring. The club has four skeet and two trap fields, offers memberships for those who want to join and has competitions sanctioned by the National Skeet Shooting Association, including the annual "Rocket City Open" that is among the Top 100 shoots in the country.

The Madison County Shooting Sports Association (www.mcssa-al.org) supervises and maintains a lighted skeet and trap range at Sharon Johnston Park, a multi-use facility owned by Madison County and located in New Market. The range has lighted fields as well as a covered pistol-rifle range, offers lessons with instructors certified by the National Rifle Association and often hosts events in conjunction with other organizations such as the Paralyzed Veterans of America.

Other public shooting ranges include the ones at Swan Creek Wildlife Management Area in Tanner (north of Decatur) and at Skyline-Martin Wildlife Management Area north of Scottsboro. A permit is required and the ranges are owned and maintained by the Department of Conservation and Natural Resources.

Blue & Gray Rifle and Pistol Club (www.bgrpc.org) is located near Guntersville Dam and offers memberships. Currently it has about 250 members. It is affiliated with the National Rifle Association and the U.S. Army Director of Civilian Marksmanship Program. It has a 200-yard big bore range, 100-yard small bore range and 50-yard covered range for pistols.

Archery shooters can test their skills at various archery ranges in the North Alabama region. Visit www.outdooralabama.com/hunting/ for more information.

ee. Martial Arts

A variety of martial arts are offered in the Huntsville area through approximately 14 studios or academies. Martial Arts are also available at the Hogan Family Y in Madison and at the University Fitness Center on the campus of the University of Alabama in Huntsville. Available classes in the Huntsville area range from karate, to taekwondo to the newly-popular kickboxing. Many studios are members of the Martial Arts Industry Association.

ff. Radio Controlled Flying

The Rocket City Radio Controllers (www.rocketcityrc.com) is an organization dedicated to the flying of radio controlled airplanes. Their activities take place in the City of Huntsville at John Hunt Park. Facilities include: an AMA chartered flying field, 600x50 Ft. Paved Runway, Large Grass Landing Area, Recovery Vehicle, 20x160 Ft. Covered Pilot Shed with electrical outlets, plenty of parking, safety fence, air conditioned clubhouse, covered picnic area, covered spectator seating with safety screens, and technical instruction & assistance.

gg. Soccer

Competitive soccer is popular in the Huntsville area. In addition to youth leagues, adult soccer is available. The City of Huntsville Parks and Recreation Services offers competitive soccer in the City of Huntsville, as does the Huntsville Adult Soccer League (www.hasl.org/). The City of Huntsville has state-of-the art soccer facilities at both Merrimack Park and John Hunt Park. These facilities have hosted State Championships in the past. The soccer complex at Merrimack Park has 10 soccer fields with 7 lit for night play, concession stand/meeting room facility, additional restrooms and pavilions. John Hunt Park has 25 soccer fields. Indoor soccer is available at the Hogan Family YMCA.

hh. Yoga/Pilates

There are several private studios in the area offering classes.

3. Youth Sports

a. Municipal and County Sponsored Sports

Organized recreational sports sponsored by government entities are available through the City of Huntsville by the Huntsville Parks and Recreation Services (<http://www.huntsvilleal.gov/recreation/>).

The City of Huntsville Parks and Recreation Services provides the following activities for its youth (ages 5-18):

- Football
- Basketball
- Baseball/Softball
- Volleyball
- Recreational Soccer
- Club Soccer (competitive level)

The City of Huntsville provides opportunities for children to participate in basketball and football camps. In addition to these organized sports, previously mentioned sports of hockey and figure skating are popular. Other youth recreational activities are also offered:

b. Soccer

Soccer is wildly popular in the State of Alabama. Locally, there are clubs that offer both recreational and competitive soccer through the American Youth Soccer Organization and the Alabama Soccer Association. A good source for information on soccer in North Alabama is the North Alabama Soccer League (www.nasoccerleague.org). Soccer camps are provided for children as well. An indoor soccer field is also located at the Hogan Family YMCA.

c. Basketball

In addition to the organized municipal and county league play for youth, the YMCA of Huntsville & North Alabama offers basketball activities. Area churches also offer “Upward Basketball” programs for boys in grades 1-6.

d. Baseball Camps and Training Centers

Several former professional baseball players provide coaching at their own facilities in the Huntsville-Madison County area. These facilities are the Todd Burns School of Baseball and the Diamond Play Training Center.

e. Extreme Skating

The City of Madison is home of Insanity Skate Park (www.insanityskate.com/), which offers extreme skating to the region’s youth. It is the only facility of its kind in the southeast, and is ESPN ready. Insanity Skate Park is a 30,000 sq. ft. world-class extreme skatepark for skateboarding and aggressive inline skating.

f. Skateboarding

The City of Huntsville has a public skateboard park located in downtown Huntsville. It is open to the public seven days a week.

g. Rollerskating

The Huntsville area has several rollerskating rinks to serve the youth.

h. Wrestling

The Huntsville area has a strong youth wrestling program. The Southern Youth Wrestling Organization (SYWO) has several area clubs that travel to competitive venues in the region. The SWYO offers a developmental/competitive program that includes wrestlers in a broad range of skill levels.

i. Competitive Swimming

Competitive swimming is offered in the City of Huntsville. The Huntsville Swim Association is a USA Swim Team in the local swimming committee of USA Swimming, Southeastern Swimming and covers portions of the State of Alabama the State of Tennessee, and portions of the State of Florida.

j. Dance

There are numerous studios in the area offering dance instruction, ranging from ballet to modern dance. Youth taking dance lessons can also enter the competitive arena.

k. Gymnastics

There are various private facilities that offer gymnastics training to children. Various centers in the area provide this training to youth of all ages.

l. Cheerleading and Dance Team

Several private highly competitive All-Star Cheerleading and Dance Team programs are available in Huntsville-Madison County for youth, aged 4 years old to 12th grade.

m. Lacrosse

The Huntsville Lacrosse Club is a volunteer organization committed to growing youth and club lacrosse in the Huntsville-Madison County region. The club was founded in 2007. More information about lacrosse in Huntsville-Madison County can be found at: <http://huntsvillelax.org/>.

V. Community Festivals and Events

The Huntsville-Madison County area provides many festivals and annual events that have proven popular with both residents and tourists. This section focuses on the major festivals and special event that are held every year:

A. Panoply of the Arts (www.panoply.org)

The Panoply Arts Festival celebrates the arts with a wide array of performances, exhibits, demonstrations, and hands-on activities. It is held annually the last weekend of April in Big Spring Park.

The event features hands-on art activities for children and adults as well as musical, dance and drama stage performances from local or traveling performers. Patrons can shop in the Boeing Art Marketplace to grow or even begin their art collection. There is also an array of artists demonstrating their skills in the park, strolling performers and much, much more.

B. Whistle Stop Festival

The Whistle Stop Festival is held every May at the Historic Huntsville Depot in downtown Huntsville. The festival includes a sanctioned bar-be-cue cook-off competition as well as musical entertainment from local artists.

C. Concerts in the Park

Each Monday night from June through Labor Day, audiences can enjoy an eclectic blend of tunes, from jazz to rock-n-roll, underneath the stars in Big Spring Park, located in downtown Huntsville. Those who attend are encouraged to bring a picnic and enjoy this casual evening of entertainment. Refreshments are also available at the park.

The admission-free summer concerts take place at the south end of the park near the eternal flame. Concert time is 6:30 p.m. until 8:00 p.m., except at the grand finale Labor Day Concert which will end at 9:00 p.m.

The Monday night of Armed Forces Week (July) kicks off with a military band performing patriotic tunes. This is one of the most popular concerts of the summer with more than 6000 people attending to pay tribute and salute our military forces.

D. Veterans Day Parade

The City of Huntsville is the site of the annual Veteran's Day parade – the only Veteran's Day parade held in Northern Alabama. The event is co-sponsored by the North Alabama Veterans and Fraternal Council, City of Huntsville, a local industry partner, and a local TV station. It is the only Veterans Day parade in Northern Alabama.



E. Other Events

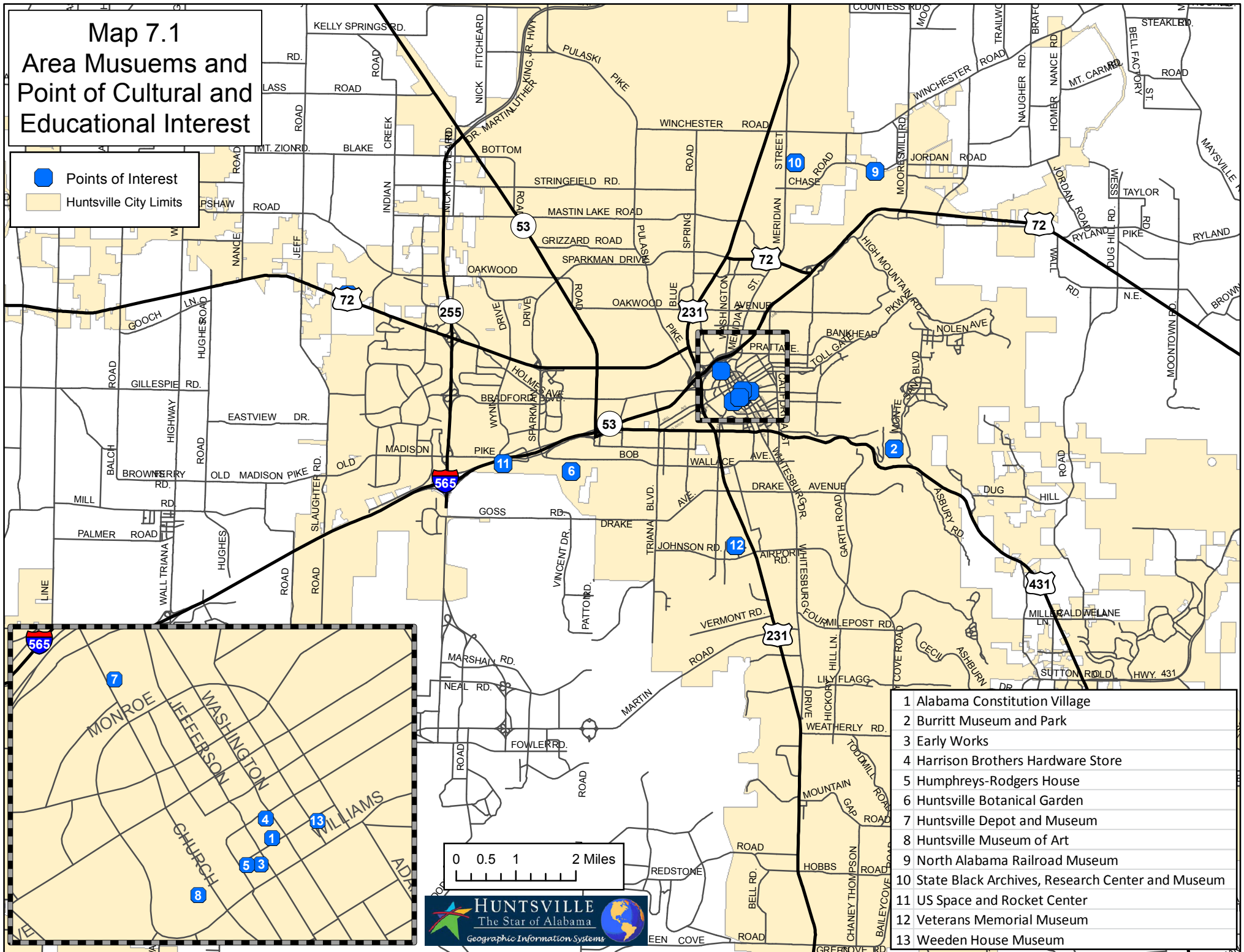
Other special events held in the Huntsville area are:

- Spring Festival of Flowers – April
- Pilgrimage/Cemetery Stroll – First week-end in May
- Blues Festival – Late May, John Hunt Park
- Historic District Strolls – Summer Saturday mornings, Downtown Huntsville
- Black Arts Festival – late June week-end, WEUP Radio
- City Fireworks Festival – July 4th, Huntsville at Joe Davis Stadium
- Old Fashioned Trade Day – Saturday after Labor Day, Downtown
- Sorghum Festival – September week-end at Burritt Museum
- Indian Festival – October week-end, Burritt Museum
- Galaxy of Lights – Thanksgiving – December 31, Botanical Gardens
- Christmas Parade – Early December, Downtown Huntsville
- Rocket City Marathon – Early December, Downtown Huntsville
- Parade of Lights – December week-end, Ditto Landing
- Historic Homes Tour – Second Saturday in December, Twickenham Historic District

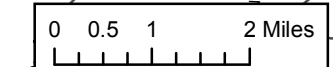
The Huntsville metro area offers many cultural and recreational activities and community events that contribute to the high quality of life in the area. These activities and events are fully supported by the community through participation and financial support. The cohesiveness of the community and the various activities and amenities available make the Huntsville-Madison County area a remarkable place to live.

Map 7.1 Area Museums and Point of Cultural and Educational Interest

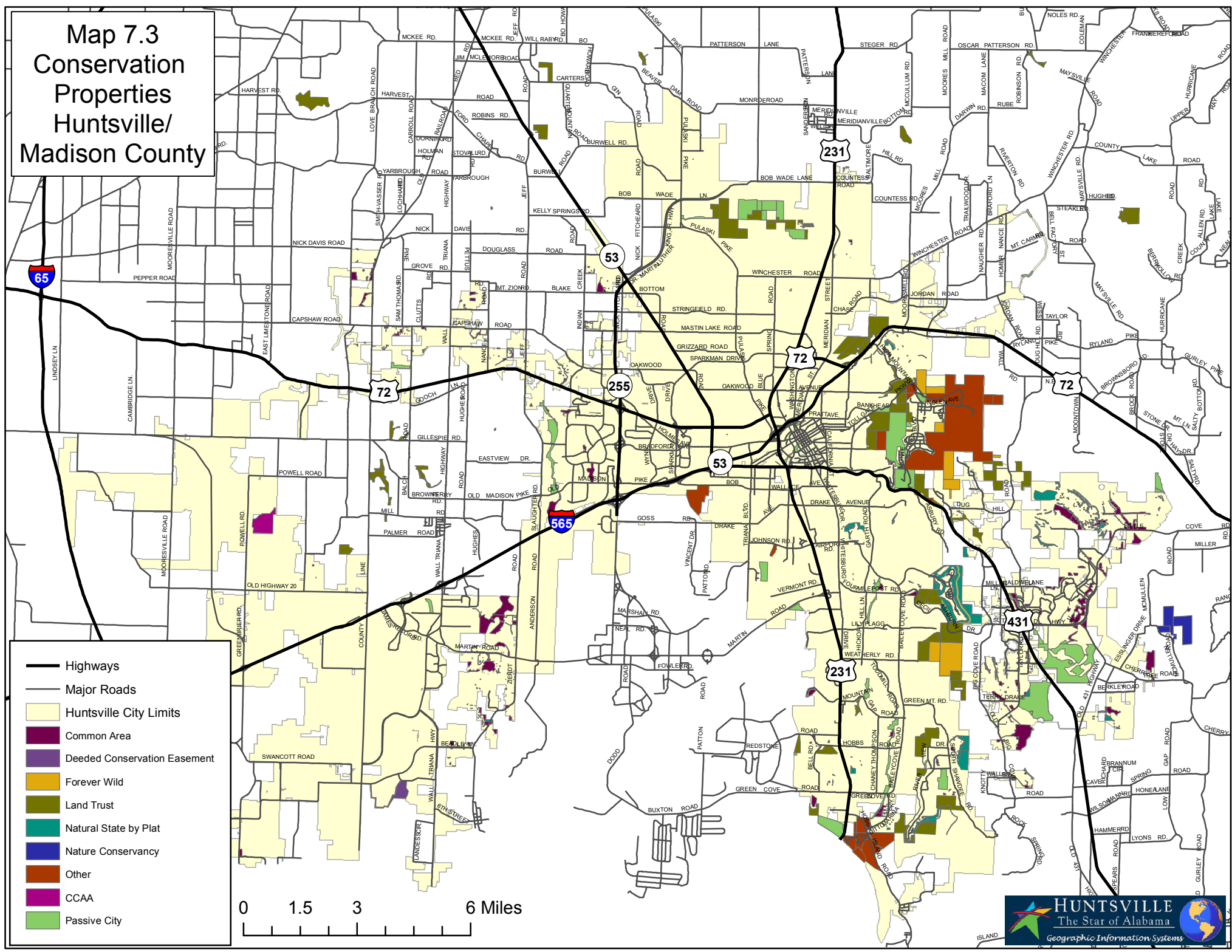
 Points of Interest
 Huntsville City Limits



- 1 Alabama Constitution Village
- 2 Burritt Museum and Park
- 3 Early Works
- 4 Harrison Brothers Hardware Store
- 5 Humphreys-Rodgers House
- 6 Huntsville Botanical Garden
- 7 Huntsville Depot and Museum
- 8 Huntsville Museum of Art
- 9 North Alabama Railroad Museum
- 10 State Black Archives, Research Center and Museum
- 11 US Space and Rocket Center
- 12 Veterans Memorial Museum
- 13 Weeden House Museum



Map 7.3 Conservation Properties Huntsville/ Madison County



7-36

CHAPTER 8 FEDERAL PRESENCE/MILITARY SUPPORT

I. Key Facts and Conclusions

The U.S. Army at Redstone Arsenal's long-standing relationship with community partners has fostered a mutual interdependence. The local community has proven through past and current commitments its support to Redstone Arsenal, the Army's mission, and the families residing within the region's boundaries. Redstone Arsenal, itself has supported community initiatives to further its purpose and fulfill its role in the community in which it resides.

This Section will focus on the support structure, unique to the City of Huntsville, which has fostered the close-knit relationship between Redstone Arsenal and community partners.

II. Regional Support Structure

A. Retirement Demographics

Approximately 150,000 military retirees (including 42 retired flag officers) and their families, call the Tennessee Valley home. Due to the high quality of life available in the area, a large number of employees at Redstone Arsenal choose to remain in or return to the area upon retirement.

B. Soldier Support

The City of Huntsville has a number of military-related organizations available that provide support to the area's soldiers, military retirees, and their families.

1. Association of the United States Army - Redstone Huntsville Chapter (AUSA) (www.ausaredstone.org)

The Association of the United States Army - Redstone Chapter (Number 3103), is one of the nation's largest and most active chapters, having over 2,800 members. The Chapter, which represents the Army and soldiers in the Northern Alabama-Southern Tennessee area, has numerous programs to serve the soldiers at Redstone. It has been named the Best Chapter Overall for eleven years. Many of the following programs are unique to the chapter:

- Redstone Arsenal Soldier of the Quarter/Year and NCO of the Quarter/Year
- Alabama USAR/NG Soldier and NCO of the Year
- Drill Sergeant of the Year Luncheon
- Soldiers' Breakfast
- Junior and Senior ROTC Leadership Awards
- Military Dependent Children Recognition (Scholarship)
- Advanced Planning Briefing for Industry (APBI)
- Army Birthday/Flag Day/Installation of Chapter Officers Dinner
- Tactical Missile Symposium
- Golf Tournaments
- National Annual Meeting

- Chapter Newsletter
- Resolutions Development
- DA Civilian of the Year Award Dinner
- Soldiers Sporting Event Buyout Nights
- Holiday Corporate Appreciation Reception
- Chapter Coin Program
- All Expense Paid Support for Soldier of the Quarter/Year and NCO of the Quarter/Year Attendance at the Annual Meeting.
- Chapter Hospitality Suite
- Chapter Purchases RSA Running Team Suits and Chapter Shirts for Soldiers
- Chapter acts as "Unofficial" Host for Huntsville's Mayor
- Spends about \$30,000 on Soldier Activities
- Assisted in building three houses for General Officers at RSA, all at no expense to the Army

2. Army Aviation Association of America (AAAA), (www.tvc-aaaa.org/) - Tennessee Valley Chapter

The Army Aviation Association of America (AAAA) - Tennessee Valley Chapter is one of the nation's largest and most active chapter. The chapter has been named the Top Master Chapter in the AAAA for 2 years in a row and Chapter of the Year for 6 years. The chapter represents members in the Tennessee Valley Region whose past or current duties affiliate them with the field of U.S. Army Aviation. Many local members routinely assist the National AAAA office with strategic planning and convention activities. The Tennessee Valley Chapter has provided for the following activities:

- Organizes and hosts the annual National AAAA Symposium for Product Support (the Joseph Cribbins Support Symposium) held in Huntsville each February. This conference is held in conjunction with the Worldwide Aviation Logistics Conference. Attendance comes from all over the country.
- Conducts joint activities with the AUSA, American Helicopter Society (AHS), and the National Defense Industrial Association (NDIA)
- Chapter Golf Tournament
- Joint AAAA/AHS/Society of Logistics Engineers (SOLE)Luncheon
- Teamed with AAAA National and corporate and individual sponsors to raise money to purchase overseas phone cards to soldiers fighting in Iraq.
- Chartered Tours to Regional Sites
- White Water Rafting Trip
- Spring and Fall Bass Fishing Tournaments
- Christmas Social
- Annual Paid AAAA membership and \$50 gift certificate to Redstone Arsenal Soldier of the Month, Soldier of the Year, NCO of the Month, NCO of the Year
- Order of St. Michael Award to those individuals contributing significantly to the promotion of Army Aviation
- Manage Selection Process for Military and Industry Aviation Logistics Support Awards Presented Annually at the Symposium for Product Support
- Scholarship Program – For 2012, \$73,000 was made available in scholarships

- Chapter Newsletter
- Hospitality suite and Chapter Reception at AAAA National Convention
- Provides Financial Support to Soldier/NCO of the Year Luncheon

3. North Alabama Veterans and Fraternal Coalition

The North Alabama Veterans and Fraternal Coalition is a non-profit corporation under the laws of the State of Alabama. The thirty plus member organizations include American Legion Posts, Veterans of Foreign Wars, all services support organizations such as the AUSA, other associations such as the Military Order of the Purple Heart and a wide range of fraternal organizations such as the Knights of Columbus and Shrine Temples. Its charter is to support currently serving servicemen and women, our veterans, and promoting our future servicemen and women through support of the Reserve Officer Training Corps. Activities sponsored by the Coalition include:

- Annual Veterans Day parade co-sponsored by the City of Huntsville, local industry partner, and a local TV station. It is the only Veterans Day parade in Northern Alabama.
- As part of Veterans Day Activities, co-hosts the AUSA annual dinner recognizing veterans for induction to the Madison County Hall of Heroes, the Redstone Arsenal Soldier and Non-Commissioned Officer of the year.
- Sponsors numerous individual Memorial Day ceremonies in the cities of Huntsville and Madison. Coalition members decorate all veterans' graves with American flags and conducts supporting memorial services.
- Since the first anniversary of 9-11 the Coalition has sponsored a community wide memorial service for the remembrance of those who lost their lives at this horrible historic event. Additionally, Blue Star Service Banners are presented to families whose sons or daughters are currently serving on active duty. Recognition is also given to our police and firefighters that constitute our first line of homeland defense.
- Provided critical support to local companies that collected Christmas sundry packs for soldiers serving in Iraq. Funds to ship these Soldier CARE packages by tractor-trailer for aerial shipment to the theater of operations were generated through locally generated donations.

4. Madison County Veteran's Memorial Foundation
(www.huntsvilleveteransmemorial.org/)

The Madison County Veteran's Memorial Foundation is a group of local military and community leaders that seek to develop, fund, facilitate, build, and maintain a suitable memorial to honor the veterans who have served the United States by giving their time and, some ultimately, their lives in military service of their country. This Memorial serves to:

- Inspire Visitors
- Provide an Incentive to Serve
- Educate Visitors, Especially the Young
- Recognize 20th Century Veterans of Madison County
- Recognize the Madison County Recipients of the Congressional Medal of Honor

The Memorial is located in downtown Huntsville between Jefferson Street and Washington Street, near I-565.

C. Technical Support

Technical resources are available to Redstone Arsenal, the defense industry, and other technological industry sectors through the Huntsville Area Technical and Professional Societies (HATS) (www.hats.org/). Founded in 1969, the organization acts as an umbrella agency to various organizations representing well over 18,000 individuals. The purpose of HATS is to coordinate the professional, educational, and civic activities of its member organizations and to promote common goals. There are only two other organizations like it in the United States. In addition to its other activities, HATS organizes an annual conference with four rotating symposium tracts covering the areas of technology, defense, space, education, business, and small business.

HATS supports its member organizations through:

- Information Dissemination
- Website Announcements and Hosting for Member Organizations
- Information Request Clearinghouse for Inquiries about Technical Professional Organizations and Activities
- Bringing Technical Professional Concerns to the Attention of Community and Business Leaders
- Incubating Business-Technical Professional Liaisons
- Use of Central Office Facility by Members for Meetings, Programs, and Deliveries
- Discounts on Printing, Website Design, Mail Preparation, and Mailing Costs
- Complimentary Management and Leadership Development Seminars
- Participation in TEAMS Week
- Listing in Annual H.A.T.S. Membership Directory
- Professional-of-the-Year recognitions
- Promotion and Sponsorship of Member Organizations' Goals and Activities
- Coordination and Storage of Joint Communications and Public Relations Materials for all Members
- Endorsement and Publication of Member Goals and Activities
- Interface with Huntsville-Madison County Chamber of Commerce
- Coordinated participation in area science and engineering events

Members of HATS comprising the defense and aerospace sector total over 20. Member societies representing this sector are:

- Armed Forces Communications and Electronics Association (AFCEA)
- American Helicopter Society (AHS)
- American Institute of Chemical Engineers, North Alabama Section (AIChE)
- Association for Operations Management, Tennessee Valley Chapter (APICS)
- Alabama Solar Association (ASA)
- American Society of Heating, Refrigerating, and Air Conditioning Engineers, North Alabama Chapter (ASHRAE)
- Army Space and Missile Defense Association (ASMDA)
- American Society of Mechanical Engineers, North Alabama Section (ASME)
- Alabama Society of Professional Engineers (NSPE)
- American Society of Quality, Huntsville Section (ASQ)

- IEEE Huntsville Section (IEEE)
- International Council on Systems Engineering Huntsville Chapter (INCOSE)
- International Test & Evaluation Association (ITEA)
- National Contract Management Association Huntsville Chapter (NCMA)
- National Society of Black Engineers, North Alabama Alumni Extension (NSBE NAAE)
- Project Management Institute, North Alabama Chapter (PMI)
- Society of Cost Estimating and Analysis, Greater Alabama Chapter (SCEA)
- Society of Logistics Engineers (SOLE)
- Society of Reliability Engineers, Huntsville Chapter (SRE)
- System Safety Society, Tennessee Valley Chapter (SSS)
- Society for Technical Communication, Huntsville, North Alabama Chapter (STC)
- Von Braun Astronomical Society (VBAS)

Associate members that support defense and aerospace are:

- Association for Career and Technical Education
- Air Force Association, Tennessee Valley Chapter
- Association of the US Army, Redstone-Huntsville Chapter
- Calhoun Community College
- Huntsville-Madison County Chamber of Commerce
- Huntsville, Alabama L5 Society
- National Defense Industrial Association, Tennessee Valley Chapter
- National Space Club of Huntsville
- North Alabama International Trade Association (NAITA)
- Tennessee Valley Authority

In addition to support provided to the active duty and retired soldier and their families, and technical support provided through member organizations of HATS, the Huntsville community has come together to rally support for Redstone Arsenal's continued presence in North Alabama.

D. Community Support

1. BRAC 2005

The Tennessee Valley BRAC Committee was formed under the direction of the Huntsville-Madison County Chamber of Commerce to protect the future of Redstone Arsenal. The committee was also active during the 1995 BRAC review. Given the fact that Redstone Arsenal is responsible for almost 50% of the economy in the Huntsville community and, because of its economic impact, the elected officials representing the City of Huntsville worked hard and provided financial support to protect the presence of Redstone Arsenal in the community. BRAC 2005 resulted in an increase of over 4,600 military and government civilian personnel with an average salary of \$80,000.

2. BRAC 1995 - St. Louis

BRAC 1995 resulted in the relocation of ATCOM and the Program Office for Aviation to Redstone Arsenal. This move significantly and positively impacted

the Tennessee Valley Region. Approximately 60% of civilian employees (1,700 people) moved from St. Louis to the greater Huntsville area. The percentage of employees that moved to the greater Huntsville area from St. Louis was the highest percentage in the history of BRAC.

Upon this relocation, the City of Huntsville, in conjunction with Madison County, provided assistance to Redstone's newest employees through the opening of a one-stop relocation or processing center. The center was centrally located at Parkway Place Mall, and remained open for 3 months. The center was staffed with city and county employees, and allowed newcomers to Huntsville and Madison County to enroll their children in public schools, register to vote, apply for utility and local phone services, apply for drivers' licenses and animal control licenses, and sign up for city-sponsored sports in one location. The one-stop processing center eased the stress of relocating to an unfamiliar city, and provided essential municipal and county services to transitioning employees.

Past support to retain Redstone Arsenal during the 1995 BRAC Round, and to provide assistance to transitioning employees was widely embraced by City municipal leaders.

E. Defense Contractor Base

Huntsville's defense sector grew up with Redstone Arsenal as the installation's missions evolved. The Huntsville community possesses a tremendous aggregation of companies and military facilities that are able to meet the increasingly sophisticated and complex demands of today's military forces. Many of the scientific and engineering resources that have developed in Huntsville cannot be easily or readily replicated.

According to a recent study conducted concerning the defense sector in the Tennessee Valley Region, 61% of major sub-contractors or suppliers to local DoD prime contractors are located in the greater Huntsville area. These subcontractors primarily supply parts and accessories or technical services to prime contractors located in the Huntsville metropolitan area. Local defense contractors employ approximately 12,388 persons on defense contracts and sub-contracts. An Alabama Aerospace Industry Survey recently conducted identified 96 Huntsville area firms that had defense contracts or sub-contracts during 2002. The seven largest of the 96 firms employed 51% of all private defense workers. Even though this is the case, 65 of the 96 firms surveyed had fewer than 100 employees, and the average firm had 129 workers.

The defense contracting base in the Huntsville community is quite extensive, well entrenched, and in tune with the current and future needs of Redstone.

A large number of these defense contractors are strategically located within five minutes of Redstone Arsenal, at Cummings Research Park in the City of Huntsville.

F. Cummings Research Park (<http://www.huntsvillealabamausa.com>)

Cummings Research Park has the distinction of being the 2nd largest research park in the United States and the 4th largest in the world. Its tenants include more than 300 companies representing 40 different technology fields, 22 of the Fortune 500 companies, local and high-tech enterprises, U.S. Space Defense Agencies, a technology business

incubator, technology-oriented high schools, and competitive higher education institutions. Cummings Research Park is actively marketing sites for future tenants. Space is available for defense contractors to grow or to locate to the area. This growth may be required if Redstone Arsenal's mission expands in the Tennessee Valley Region. Additionally a major development within the park, Bridge Street, provides core amenities to a target market around Cummings Research Park. The development includes upscale retail, entertainment, residential, a Westin Hotel and conference center amenities, and over 400,000 square feet of Class –A Office Space for future tenants.

G. Redstone Gateway

Redstone Gateway is a state of the art office and mixed-use park developed in partnership with private developers and with the U.S. Army and Redstone Arsenal. The 468-acre, master-planned project is located adjacent to Interstate 565 at Gate 9, the main gate into Redstone Arsenal. The park is the premier location for those seeking immediate access to their customers at Redstone Arsenal. Redstone Gateway features both secured and unsecured Class A office buildings as well as retail and hospitality amenities to support the office park and Redstone Arsenal's employees and visitors. The park, which will ultimately contain 4.6 million square feet of space, is being built in three phases over the next 15 to 20 years. Three Class A office buildings have been fully leased to The Boeing Company. One single story flex office building has been fully leased to DRS Technologies, with a second building currently under construction.

III. Shared Services

There are many mutually shared services between the Huntsville area community and Redstone Arsenal. Most of these were addressed earlier in this report, but are highlighted again.

A. Solid Waste Disposal Authority

The Solid Waste Disposal Authority (SWDA) was formed by the City of Huntsville in 1985, as a non-profit, public corporation whose purpose was to finance, construct, and operate the waste disposal facilities and programs for the community. The SWDA elected to implement an Integrated Waste Management System, which includes waste reduction/recycling, waste-to-energy and landfilling. In 1988, construction began on the Huntsville Waste-to-Energy facility, and combustor operations began in 1990.

The Huntsville Waste-to-Energy facility meets at least three key objectives for the community:

- The plant burns 600 tones of municipal solid waste per day, significantly reducing the volume of garbage to be landfilled
- It supplies energy in the form of steam to the nearby Redstone Arsenal, eliminating the Arsenal's dependence on its older, less efficient steam facility
- The plant burns sewage sludge from Huntsville's waste water treatment plant as fuel, providing a practical means of sludge disposal

B. Roads

Tremendous investments have been made in the past by federal, state, and local officials to insure roads leading onto post at Redstone Arsenal, and that roads within the Arsenal

boundaries are safe and meet the mobility needs of Arsenal commuters. Approximately 48,000 persons drive on post every day.

Joint federal, state, and local commitments have funded road improvements in the City of Huntsville in excess of \$1.187 billion from 1990 to the present. Present federal funding commitments for municipal road improvements during fiscal years 2016-2019 total over \$464.5 million. These funding commitments are outlined in the federally required **Transportation Improvement Program**, adopted by the local Metropolitan Planning Organization.

In the past, federal and state monies paid over \$16.6 million road widening project within Redstone Arsenal boundaries on Martin Road from Redstone Arsenal's Gate 1 to Memorial Parkway and from Patton Road to the Main Gate East. Recently, the City of Huntsville paid \$12 million for the construction of improvements on Martin Road from Gate 7 (Zierdt Road) to Rideout Road on Redstone Arsenal.

Future road improvement projects have been identified in the Huntsville area Metropolitan Planning Organization's **Long Range Transportation Plan** to provide direct access to Redstone Arsenal. Plans are in place to widen Martin Road from Zierdt Road to Laracy Drive, to widen Zierdt Road from I-565 to Beadle Lane, and to construct another interchange at I-565 and a new corridor: Resolute Way. These improvements will alleviate congestion on these corridors, and will provide easier access to employees and visitors using Gate 7 and Gate 9.

C. Electrical Service

The Tennessee Valley Authority is the supplier of electrical service on Redstone Arsenal. The Tennessee Valley Authority provides highly dependable service to its customers, and has a current reliability rating of 99.999%.

D. Natural Gas and Water Services

Natural gas is provided on post by Huntsville Utilities. While Huntsville Utilities provides water to Redstone Arsenal on an "as needed" basis, they do have the ability to provide full service to the installation.

E. Emergency Medical Services

Huntsville Emergency Medical Services, Inc. (HEMSI) is the primary provider of 24 hour emergency medical services at Redstone Arsenal. HEMSI has an ambulance on site at NASA's Marshall Space Flight Center.

F. Cross Training for Emergency Personnel

Emergency responders from the City of Huntsville, Huntsville International Airport Public Safety Department, and Redstone Arsenal participate in community and on-post emergency training exercises. Additionally, these emergency workers cross train with each other's response equipment, and attend training classes together. These jointly conducted preparedness activities ensure that the community's emergency responders, both on-post and off-post, are prepared to mobilize and provide public safety functions in a timely and efficient manner to the community as a whole and to residents and

employees of Redstone Arsenal. These training and exercise activities also prepare responders to more effectively deliver mutual aid in times of community emergency. Refer to **Chapter 3: City of Huntsville Infrastructure and Environment** and **Chapter 6: City of Huntsville Public Safety and Emergency Response**, for more information.

G. Mutual Aid for Community/On-Post Emergencies

The City of Huntsville, Redstone Arsenal, and NASA's Marshall Space Flight Center complex have formally signed reciprocal agreements for the delivery of mutual aid. In case of an emergency on-post, immediate response is necessary to minimize loss of life and property. When community emergencies occur, emergency response cannot wait. With this in mind, mutual aid agreements among all entities were put into place. Local government will provide assistance and support upon request during times of emergency on-post to the Redstone Arsenal community. Likewise, the Redstone Arsenal community will provide assistance and support to area local governments upon request. Both the Huntsville Fire & Rescue Department and the Huntsville International Airport have separate mutual aid agreements with Redstone Arsenal. This is primarily for fire suppression support. By training together in community exercises and cross training with each other's equipment, each group is prepared to respond to the other's jurisdiction using their own resources, and as necessary the available resources available on hand from other jurisdictions. Refer to **Chapter 3: City of Huntsville Infrastructure and Environment** and **Chapter 6: Public Safety and Emergency Response**, for more information.

IV. Large Conferences/Training

The City of Huntsville, through the von Braun Center and other community facilities, has the resources available to host large conferences and training symposiums. Many defense-related training and conferences are held annually in Huntsville. According to the Huntsville-Madison County Convention and Visitors Bureau, government-related conferences had an economic impact of approximately \$83 million on the local community during fiscal year 2015.

The von Braun Center has accommodated both large and highly secure defense-related conferences. Upon request, the von Braun Center staff can provide a highly secure environment. The City of Huntsville Police Department has provided, and can continue to provide supplemental security at these events, with manpower and K-9 reinforcements. Following is a sampling of conferences routinely held in the Huntsville area:

A. Tactical Missiles Conference

The Tactical Missiles Conference is conducted in association with the Program Executive Office - Tactical Missiles and the Redstone-Huntsville Chapter of the Association of the U.S. Army. It is noted for being a high quality, high impact, and short duration conference that caters to the busy schedules of senior officers and industry executives. The one-day unclassified event provides key personnel in the tactical missile community the opportunity to hear the latest developments, and discuss current issues of interest.

B. Space and Missile Defense Conference and Exhibition

The Space and Missile Defense Conference and Exhibition promotes the exchange of ideas between government and industry researchers, developers, testers, and users to ensure that missile defense systems and components are feasible, affordable, and effective against national security threats. The conference has been held in Huntsville for over six years, and is sponsored by the:

- U.S. Army Space and Missile Defense Association (ASMDA)
- National Defense Industrial Association (NDIA), Tennessee Valley Chapter
- Air Defense Artillery Association

The key participant is the U.S Army Space and Missile Defense Command.

C. Joseph Cribbins Product Support Symposium

This symposium has been held for over 30 years, and is sponsored by the Army Aviation Association of America (AAAA) and the United States Army Aviation and Missile Command (AMCOM). The conference is geared toward members of industry and the aviation logistics and acquisition communities. The purpose of the symposium is the stimulate dialogue among industry executives, senior government officials, and military leaders concerning the future of aviation logistics.

D. The AUSA Global Force Symposium

The AUSA Global Force Symposium and Exposition combines the interests and ideas of warfighters and senior Army leaders with the spirit of entrepreneurial and commercial leaders of the Defense Industrial Base and their Small Business partners. The symposium also involves academia participation. This partnership with leading industry and academic institutions provides for a professional leadership development forum that allows participants to learn, network, and move the US Army forward.

E. National Space Club – Werner von Braun Symposium

This event is organized by the American Astronautical Society in conjunction with UAH, NASA and the Huntsville National Space Club. The symposium draws together experts in the field, who then have the opportunity to exchange information and together envision the future of space exploration.

F. Surface to Air Missile Symposium

This symposium is hosted by Redstone Arsenal and is for those involved in the design, development, testing, evaluation and employment of electronic warfare systems, techniques and tactics for protection of U.S. and allied aircraft.

G. Utility Helicopter Users Conference

This conference brings together helicopter users and program managers and industry representatives to share information and in-the-field experiences concerning present needs and the development of future aircraft.

H. US Army's Missile Symposium

The US Army Missile Symposium provides an open forum to promote discussions and provide the latest information associated with current and future Army missile programs in a collaborative government and industry environment. In addition, the forum allows industry leaders the opportunity to assess their programs in light of the Army's latest initiatives and the PEO's program directions with an eye toward win/win collaboration with their government customers.

V. Federal Government Presence

Many federal government agencies and entities have a presence in the Huntsville area, and several located off-post and independent of the U.S. Army's mission, serve Redstone Arsenal. An assessment and review of the extent of the federal presence in the area, beyond the U.S. Army's presence, is explored.

A. NASA's Marshall Space Flight Center (MSFC)

NASA's Marshall Space Flight Center (MSFC) is one of Redstone Arsenal's major tenants, occupying almost 1,800 acres of the installation. The Arsenal gives support to the Center through the provision of security, utilities, as well as infrastructure operations and maintenance. MSFC's Huntsville operation receives a major share in the NASA annual budget, and employs approximately 6,500 personnel.

The MSFC's key objectives are:

- Developing new generations of safe, reliable, reusable launch vehicles, and spacecraft powered by innovative, cutting-edge propulsion technologies
- Providing world-class propulsion systems for America's current space fleet
- Providing hardware and support for science operations aboard the International Space Station
- Supporting NASA's science and research efforts, and delivering practical applications of NASA space research and technologies to Earth
- Educating America's youth about the wonders of space exploration and encouraging them to pursue rewarding careers that could help pioneer humanity's future in space
- Providing technical and organizational support across the field centers, test facilities, and laboratories that make up NASA.

B. Wheeler National Wildlife Refuge

The Wheeler National Wildlife Refuge is a 35,000 acre nature preserve and recreational facility, located in North Alabama. A portion of the refuge is located on Redstone Arsenal. The refuge was established in 1938 as a wintering area for ducks, geese, and other migratory birds. It is one of over 540 refuges in the National Wildlife Refuge System administered by the U.S. Fish and Wildlife Service.

C. Huntsville Weather Forecast Office - National Weather Service

The Huntsville Weather Forecast Office of the National Weather Service provides support to 11 counties in North Alabama and 3 counties in Southern Tennessee. In

addition to forecasting duties and the issuing of special weather statements, the staff is involved in special projects, outreach activities, and storm surveys.

The Weather Service Forecast Office in Huntsville is co-located with the National Space Science and Technology Center, which enables it to participate in a range of meteorological and hydrometeorological research. The office is the only one in the United States to share space with a NASA research facility.

D. Tennessee Valley Authority

The Tennessee Valley Authority (TVA) is the distributor of dependable electrical power in the Tennessee Valley Region. Its latest notable achievement was its high reliability rating of 99.999%. TVA maintains two offices in the City of Huntsville that handle customer service and marketing as well as electric transmission operational functions.

E. U.S. Customs Service

The U.S. Customs Service operates out of the Huntsville International Airport, Foreign Trade Zone 83. The office provides for entry documentation, clearing of imported merchandise, examinations, payment of duties, and immigration and agriculture servicing.

F. Federal Bureau of Investigation

The Federal Bureau of Investigation has wide jurisdiction and responsibility for the investigation of federal criminal violations. The FBI serves the Huntsville area and other communities in north Alabama with two full squads of Special Agents in Huntsville who are dedicated to fulfilling the FBI's mission. With the Field Office located in Birmingham, the FBI's special attention to the northern part of the state is staffed in two Resident Agencies, one in Huntsville and the other in Florence.

The FBI is also instrumental in the work of the district's Joint Terrorism Task Force and the Anti-Terrorism Advisory Committee. The Huntsville annex to the district's Joint Terrorism Task Force also includes a full-time member from federal and local civilian and military investigative agencies. With its dedicated Huntsville squad, the FBI Resident Agency in Huntsville further maintains its responsibilities for national security by investigating terrorism and conducting counter intelligence.

Working closely with the United States Attorney's Office, governmental investigative services located in and around the Huntsville area, other federal law enforcement agencies, state agencies, and local law enforcement, the Federal Bureau of Investigation, through its Huntsville Resident Agency continues to manifest the highest levels of dedication and professionalism in its efforts to investigate federal criminal law violations as well as its commitment to combating terrorism and promoting national security.

The FBI additionally administers the Hazardous Devices School (HDS), a joint program managed by the FBI Bomb Data Center (BDC) and operated by the U.S. Army, Ordnance Munitions and Electronics Maintenance School, at Redstone Arsenal. The HDS mission is to train and certify all public safety bomb technicians in the United States who are assigned to nationally accredited public safety bomb squads. It is the U.S. Government's only civilian bomb disposal facility. A state-of-the-art \$28 million training facility

dedicated in 2004 is located on 450 acres on Redstone Arsenal. HDS has been in operation since 1971 and continues to train the nation's first responders on the tactics, techniques, and procedures necessary to render safe and dispose of improvised explosives devices (IED's). HDS is also the location of the National Bomb Technician Memorial honoring those bomb technician graduates that have given the ultimate sacrifice in the line of duty protecting this nation. Additionally, the FBI constructed in 2012, a new Terrorist Explosive Devices Analytical Center (TEDAC) Laboratory at Redstone Arsenal. TEDAC was formally established and given the mission of forensically and technically exploiting, for evidentiary, investigative, and intelligence purposes, IEDs used by terrorists. The facility provides dedicated forensic and technical exploitation workspace as well as processing and examination capabilities in various forensic disciplines. The facility also facilitates the exchange of personnel among TEDAC partner agencies, further strengthening TEDAC's interagency role and mission.

G. U.S. Attorney's Office

For many years, the United States Attorney's Office for the Northern District of Alabama has been serving the people of Huntsville and the surrounding area. The already high level of service to the community was enhanced even more when, in 2002, the United States Attorney's Office expanded the size of its Huntsville Office by increasing to five the number of full-time Assistant United States Attorneys in the Huntsville Office. These dedicated attorneys serve the needs of the community by working closely and well with both federal and local law enforcement agencies in the area.

The United States Attorney's Office is responsible for overseeing the investigation and prosecution of all federal criminal violations, including violent crimes and firearms violations, narcotics violations, and a wide variety of so-called white collar crimes. These white collar investigations and prosecutions include cases related to corporate fraud, financial institution fraud, health care fraud, and governmental grant and procurement fraud. In addition to some of the more commonly recognized federal law enforcement agencies, the United States Attorney's Office works with the Defense Criminal Investigative Services, the United States Army's Criminal Investigations Division, specifically the Fraud Division, and offices of the Inspectors General for NASA and the United States Air Force.

Additionally, the United States Attorney's Office also has concurrent jurisdiction over the prosecution of crimes occurring within the special jurisdiction of the United States, including Redstone Arsenal and the Tennessee Valley Authority. Many civilian matters occurring on Redstone Arsenal are specifically handled by a Special Assistant United States Attorney who works closely with and under the supervision of the Huntsville Office of the United States Attorney.

The United States Attorney's Office, along with the Federal Bureau of Investigation and other governmental agencies, plays a strong role in national security through its lead role in the Anti-Terrorism Advisory Committee and the Joint Terrorism Task Force for the Northern District of Alabama.

The United States Attorney's Office is also responsible for various civil matters, primarily those involving the United States as a party. To that end, the United States Attorney's Office also has a fully-staffed civil division which has consistently served its

client, the United States, its departments and agencies, with the highest level of legal expertise.

H. DOJ Bureau of Alcohol, Tobacco, and Firearms (ATF)

The Bureau of Alcohol, Tobacco, and Firearms has a presence at Redstone Arsenal in the National Center for Explosives Training and Research facility, which was completed during 2010. This center brings together the ATF, the Army, and other government agencies on the Arsenal so they may join forces to combat explosives-related crimes and advance explosives technology. The center includes three explosives ranges, a lab, eight classrooms, conference space and office space for ATF staff and the bureau's local, state, federal, and international law enforcement partners. Bomb techs and investigators from around the country and around the world have access to a national center that can address all their research, training, and professional development needs.

I. Other Federal Agencies

The Huntsville area is further served by the location of dedicated officers and employees from other federal law enforcement and investigative agencies. All of these agencies, working closely with the United States Attorney's Office in Huntsville, see to it that the citizens of our community are protected through the vigorous investigation of all federal law violations. Agencies with a dedicated office, dedicated employees, and presence in the Huntsville area include the Drug Enforcement Administration, the Bureau of Alcohol, Tobacco, Firearms, and Explosives, the Internal Revenue Service, and the Secret Service.

Redstone Arsenal and its surrounding communities have developed a special partnership and support for each other throughout the years. Based upon past support and current commitments, local leaders are hopeful that this mutual interdependence will continue in the future.