4. System Performance Evaluation

4.1 Overview

This chapter of the Alabama Statewide Airport System Plan (AL SASP) provides an evaluation of Alabama's airport system's current performance. The linkages of economic activity within the state and airport activity and facilities were reviewed using geographic information system (GIS) mapping applications that captured estimates of resident population within proximity of the airport system. This chapter also provides and analysis of five of the fastest growing industry sectors in the state and their proximity to commercial service and general aviation airports. Finally, this chapter also details airports that are capable in serving medium- and light-business jets and their proximity to business centers in the state. Key findings from this analysis include the following:

- Alabama's population is estimated at 4.9 million people with approximately 75 percent residing in the state's metropolitan areas. Population analyses using GIS mapping applications indicate that 71 percent of Alabama's residents are located within 60 minutes or less of one or more of Alabama's commercial service airports and 94 percent of Alabama residents are within 90 minutes.

- There are 80 system airports in Alabama which include six commercial service airports and 74 general aviation airports. Population analysis also shows that 91 percent of all Alabamans are located within a 30-minute drive time of an Alabama system airport.

- Analysis of the data indicates that since 2012 the state has averaged $5.4 billion annually in business expansion investment. This includes new business locating to the state as well as existing business expansion. Many industries rely on aviation commercial service airports and general aviation airports for the transport of personnel as well as goods. The National Business Aircraft Association (NBAA), an industry advocacy organization, recommends key characteristics for medium business jets such as runway length and width and navigational aids. Analysis in this chapter finds that 38 percent of the system airports currently meet the select NBAA medium business jet airport characteristics, while 44 percent meet NBAA light business jet airport characteristics.

4.2 Introduction

Previous chapters have outlined the study's process, established system goals, summarized existing facilities and activities, and provided forecasts of anticipated airport. This chapter identifies how Alabama's existing airport system is currently performing as well as some of the factors that have the potential to influence that performance. Specifically, this chapter presents an overview of five of Alabama's most important industries, including their locations, concentrations, and proximity to system airports; a GIS analysis over a range of measures to assess the current performance of the airport system; and a summary of the analysis results.

In terms of establishing appropriate context for this analysis, Alabama's current (2019) population is estimated at 4.9 million people with approximately 75 percent of those residents residing within the state's various metropolitan areas. Alabama's land area mass is 50,744 square miles and is over 300 miles in length from north to south. Alabama is the 30th largest state based on land mass but is the 24th highest in population. Additionally, the physical geography of Alabama is comprised of several areas. In the north and northeastern regions of Alabama, and along much of its border with Georgia, the lands are hilly and mountainous. The central, west, and southwestern areas are covered by rolling grassland plains that slope gently west into Mississippi, and south to the Gulf of Mexico. The Cumberland Plateau in the north is an elevated, somewhat flat area, dissected by the massive Tennessee River system and many small tributaries. The Piedmont Upland is dominated by several flat-topped mountains, averaging about 1000 feet above sea level, while the Piedmont Plateau in the southeast is generally less elevated land.

4.3 Alabama Industry Clusters and Economic Development Trends

Airports and economic development have been inexorably intertwined since the early 20th century when commercial air transportation first gained national and international relevance due to its potential to improve mail services and facilitate the integration of the various economic regions within countries. As the United States developed, air transportation gained increasing public acceptance as the economic benefit of the speed and efficiency of air travel was realized. As the business community gained economic advantages from air travel, the public also realized the benefits of leisure travel both nationally and globally.

Studies like this Airport System Plan and the associated Statewide Economic Impact of Airports Study provide an overview of the importance of both commercial and general aviation airports to the business community. Airports can serve as powerful economic generators with commercial service airports typically serving as the most powerful engines and general aviation airports providing a diverse range of impacts. This portion of the system plan study identifies the state's economic "hot spots," or areas where newer businesses are locating, and existing businesses are expanding. These hot spot locations are then compared to airport locations throughout the state to identify opportunities of common interest and potential mutual support between airports and those areas of economic development.

The focus of this section of the report, however, is not on the economic impact of airports on the community, but rather on the role that Alabama's commercial service and general aviation airports can play with respect to local economic prosperity. Within academia, particularly amongst economists, there is ongoing debate as to whether infrastructure (such as ports and airports) actually spur economic development or if they are only casually related. For example, a direct correlation between airport passenger traffic and economic development is not entirely clear since regional economic development is often driven by other factors that can lead to more air traffic. However, it is also possible that by generating passenger traffic, airports act as a catalyst for local business site selection and investment.
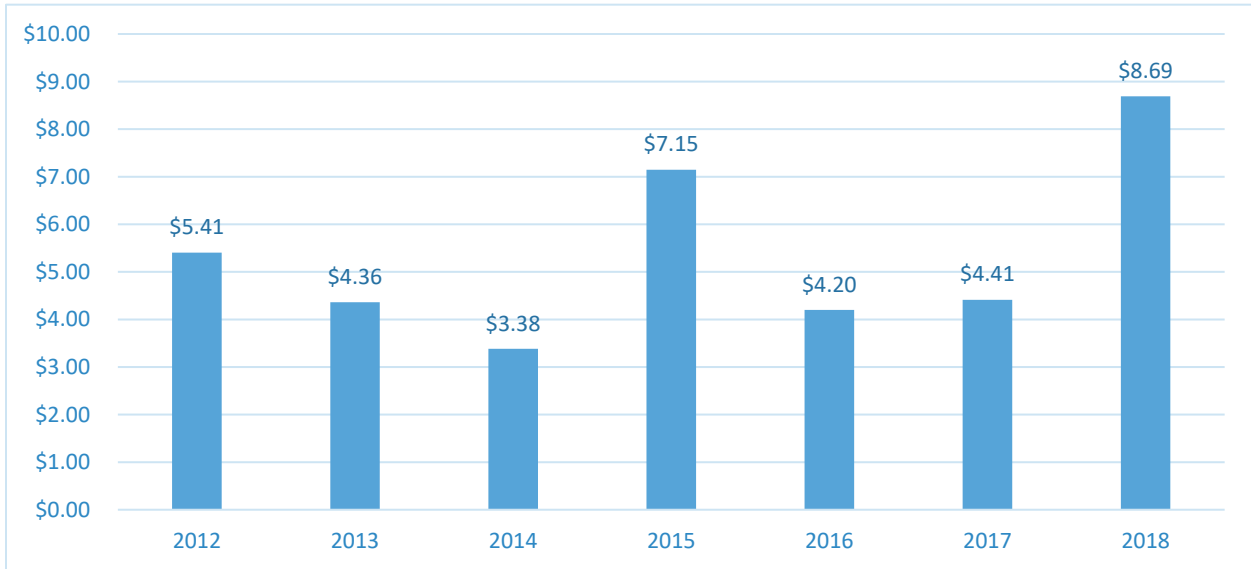
The Alabama Department of Commerce provides detailed economic information on key industries in the state that are either growing and/or have developed into mainstays for the state's economy. These industries, in addition to others that may not have yet been identified, rely on aviation in their operations to transport personnel to facilities around the United States and the world. They also rely on airports for the transport of materials in the form of air cargo to reach distant markets and customers, as well as an integral part of their manufacturing supply chain logistics. Analysis of these industries in Alabama is considered in the chapter and include the geographic location of businesses, those areas of the state that have industry clusters, as well as other economic investment hot spots. Specific industries include the following:

- Forestry Products
- Aerospace Manufacturing
- Automotive Manufacturing
- Bioscience
- Metals and Metal Fabrication

Since 2012, the Alabama Department of Commerce has annually published *The New & Expanding Industry Report*, which provides a detailed look at economic development across the state. The report features county-by-county breakdowns and rankings, along with information about foreign direct investment in the state. The most recent report is based on 2018 data and indicates that since 2012, the state has averaged $5.4 billion annually in business expansion investment. This includes new businesses locating to the state as well as existing business expansions. In terms of employment, this new investment and expansion adds approximately 17,500 new jobs annually in the state. **Figure 4-1** and **Figure 4-2** provide summaries of new investments and jobs in Alabama since 2012.
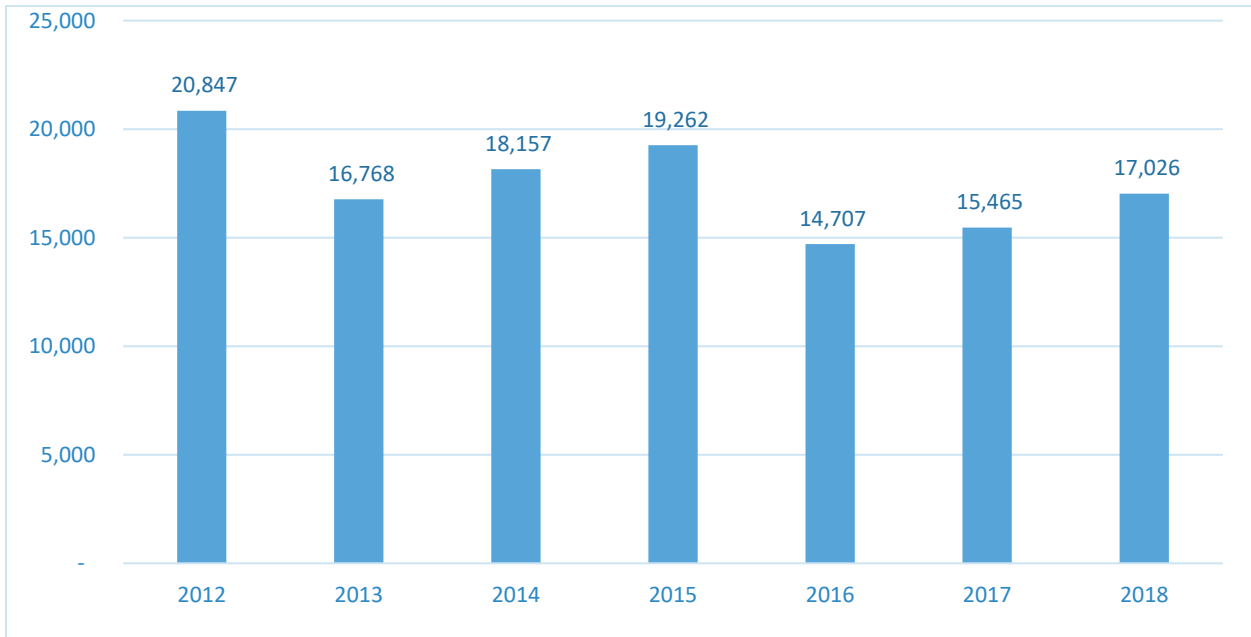
Figure 4-1: New Investments in Alabama, 2012 to 2018 in U.S. $ Billions

Source: Alabama Department of Commerce.

Figure 4-2: New Jobs in Alabama, 2012 to 2018

Source: Alabama Department of Commerce.

4.3.1   Alabama Forestry Products Industry

As of 2019, Alabama has more than 650 forest manufacturing companies that employ over 42,000 people and export over $900 million of Alabama forest products. Forest products employment in the state is primarily based on the wood product manufacturing, paper manufacturing, logging, and the household and/or institutional furniture and kitchen cabinet manufacturing sectors. Aviation directly supports Alabama's forestry products industry by providing industry personnel direct and immediate access to lumber mills, manufacturing facilities, forest stands, and other timber resources located throughout the state. Such access is particularly important for this industry where forestry operations are often located in more remote parts of the state that are not readily accessible by car. Additionally, this industry is directly supported by aerial application aircraft that quickly apply fertilizers and herbicides to tree stands, as well as aerial photography that is used to help manage resource areas.

Highlights of Alabama's forestry products sector include the following:

- There are over 42,000 people directly employed in the forestry products industry including both the wood products manufacturing and the timber harvesting sectors.
- Alabama exported approximately $910 million in forest product in 2019.
- Alabama has the second largest timberland base in the United States with over 23 million acres of timberland areas located within the state.
- Alabama is the largest producer of wood panels within the United States, as well as the second largest producer of pulp and paper.
- Overall, Alabama is the country's seventh largest producer of lumber.

Some of the most prominent employers in Alabama's forestry products sector currently include the following:

- Georgia Pacific
- International Paper[1]
- WestRock
- Kronospan
- Brown-Forman Cooperage
- Louisiana-Pacific
- Weyerhaeuser
- Zilkha Biomass Energy

Forestry sector businesses are located throughout the State of Alabama, including metropolitan areas and remote rural communities alike. **Figure 4-3** provides a graphical rendition of the location of forestry products industry clusters and their proximity to Alabama's system airports. Note that this map also incorporates the state's twelve regions as identified by the Alabama Association of Regional Councils boundaries[2]. With respect to forestry, Northwest Alabama (Region 1) has the greatest concentration of forestry products businesses, with over 70 businesses. Significant forestry products business clusters are also located in areas such as Dothan, Mobile, and the US 43 corridor south of Florence.

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[1] International Paper is in the top 150 employers in Alabama.
[2] There are twelve Regional Councils within the State of Alabama. The individual Regional Councils are referred to by several different names, such as regional commission, regional planning commission, regional planning and development commission, or regional council of governments. The generic term "Regional Council" is used to refer to all twelve.

Figure 4-3: Forestry Products Industry and Proximity to Alabama System Airports
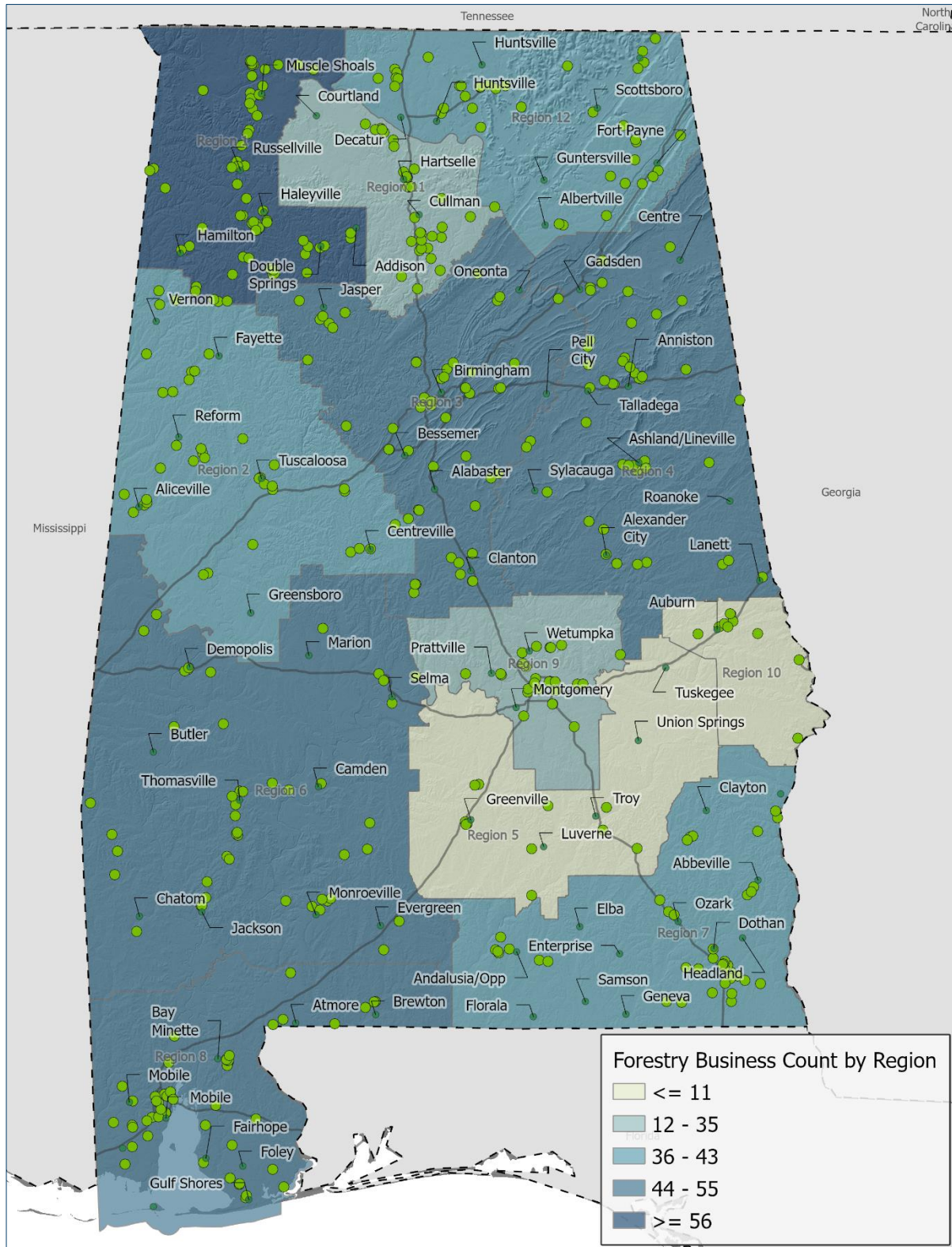
Source: Alabama Department of Commerce, Jviation.

4.3.2   Alabama Aerospace Manufacturing

Alabama is home to over 300 aerospace companies that directly employ over 61,000 people and export nearly $2.4 billion in aerospace equipment and parts annually. These companies represent more than 30 different countries that have invested in the state, with the most prominent United States aerospace firms including Boeing, Lockheed Martin, GE Aviation, Raytheon, and GKN Aerospace. Alabama's most prominent international firm is Airbus, whose $600 million manufacturing facility serves as the hub of an aerospace industry cluster at Mobile Downtown Airport that produces the A320 family of commercial passenger jets. According to the Alabama Department of Commerce, aerospace manufacturing alone accounts for over 13,000 jobs in the state.

Highlights of Alabama's aerospace manufacturing sector include:

- More than 300 aerospace companies
- 100+ years of aerospace and aviation history
- 61,000+ directly employed in aerospace and defense
- Aerospace manufacturing employed 13,200 people in 2019
- 4,660 aerospace engineers (Top 5 in the United States)
- Home to businesses from 30 countries
- Second largest research and technology park in the U.S. (Cummings Research Park)
- Nearly $2.4 billion in aerospace equipment and parts exported in 2018
- More than $8.4 billion in Department of Defense contracts in FY 2015

Alabama universities which offer degrees in Aerospace Engineering include:

- Auburn University
- University of Alabama
- Tuskegee University
- University of Alabama at Huntsville

Aerospace manufacturers rely heavily on aviation to support their operations. In addition to corporate general aviation aircraft activities that provide industry leaders with direct and immediate access to companies, daily air cargo operations serve as an integral part of the manufacturing process. For example, Boeing 747 freighter aircraft at Huntsville International Airport are used to transport vital aircraft components for assembly in addition to delivering parts for aircraft repair to airlines and aircraft maintenance facilities around the world. Aerospace parts and manufacturing in the state include those for both civilian and U.S. Department of Defense aircraft. Defense contractors often fly on commercial aircraft to visit manufacturers, suppliers, and government agencies based in Alabama. Military aircraft requiring servicing and maintenance often fly to maintenance facilities located at several of Alabama's airports.

Aerospace manufacturing sector businesses tend to be concentrated in several areas in the state. **Figure 4-4** identifies the location of aerospace manufacturing clusters and their proximity to Alabama's system airports. Unsurprisingly, the northernmost area of Alabama (Region 12) which has a long history in aerospace has by far the most significant concentration of aerospace manufacturing plants, particularly focused on areas of space travel, rocketry, and defense. The South Alabama region near Mobile (Region 8) also has multiple aerospace manufacturers, largely centered on Airbus manufacturing operations.

Figure 4-4: Location of Aerospace Manufacturing and Proximity to Alabama System Airports
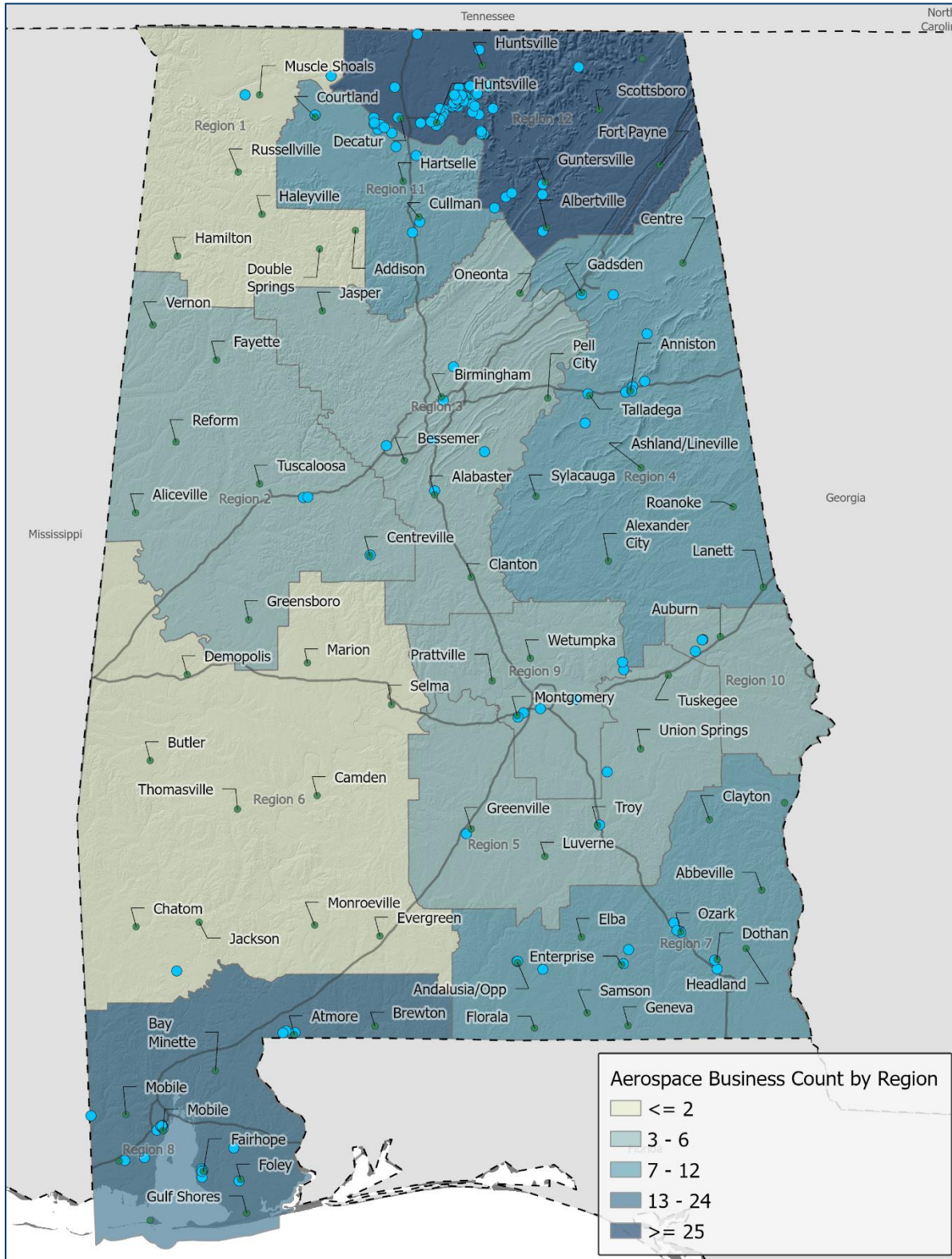
Source: Alabama Department of Commerce, Jviation.

4.3.3   Alabama Automotive Manufacturing Industry

The Alabama Department of Commerce data indicates employment in Alabama's automotive manufacturing sector now exceeds 40,000 people. It is estimated that 26,000 of these jobs are in Alabama's growing automotive supplier network, which now includes 150 major companies. The automotive manufacturing industry in Alabama consists of automobile and light-duty motor vehicle manufacturing, light truck and utility vehicle manufacturing, motor vehicle body and trailer manufacturing, and motor vehicle parts manufacturing. In addition to the 90 automotive suppliers located in the state, Alabama is home to three major automobile producers: Mercedes-Benz U.S. International (MBUSI), Honda Manufacturing of Alabama (HMA), and Hyundai Motor Manufacturing Alabama (HMMA). The state is also home to two major engine producers (International Diesel of Alabama, and Toyota Motor Manufacturing, Alabama, Inc.) in addition to other major auto-related plants, including Siemens Electronics, Michelin, and Eaton Corporation.

Highlights of Alabama's automotive sector include:

- Nearly 1 million cars and light trucks were produced in 2018
- Over 40,000 direct automotive manufacturing jobs
- More than 150 Tier 1 and 2 automotive suppliers in the state
- Toyota, Honda, and Hyundai produced about 1.6 million automotive engines in 2018
- Exports of Alabama-made vehicles and parts totaled $7.5 billion in 2018
- Alabama produced 11 different passenger vehicle models in 2019
- Transportation equipment is Alabama's number one export category
- Alabama is the number three auto exporting state in the country

Aviation supports automotive manufacturing in multiple ways. General aviation aircraft (i.e., corporate jets) are used to transport executives, engineers, and middle management employees to and from assembly plants throughout the state. Automotive businesses and suppliers also use commercial airlines on a daily basis to reach automotive customers in Alabama as well as visit their network of suppliers. Automotive manufacturers rely on air cargo businesses such as FedEx Express, UPS, and DHL to transport supplies and auto parts daily. Scheduled freighter aircraft that operate at Huntsville International airport are routinely used to move automobile parts as well as assembly line components to destinations around the world.

Automotive manufacturing sector businesses are located in several clusters within Alabama. These include major metropolitan areas as well as interstate highway corridors in rural areas. Automotive production jobs in the state can be found in the rubber product manufacturing, engine, turbine, and power transmission equipment manufacturing, motor vehicle manufacturing, motor vehicle body and trailer manufacturing, and motor vehicle parts manufacturing sectors. **Figure 4-5** identifies the location of automotive manufacturing clusters and their proximity to Alabama system airports. East Alabama (Region 4) and Lee-Russell (Region 10) are the regions with the largest concentration of automotive manufacturing plants.

Figure 4-5: Location of Automotive Manufacturing and Proximity to Alabama System Airports
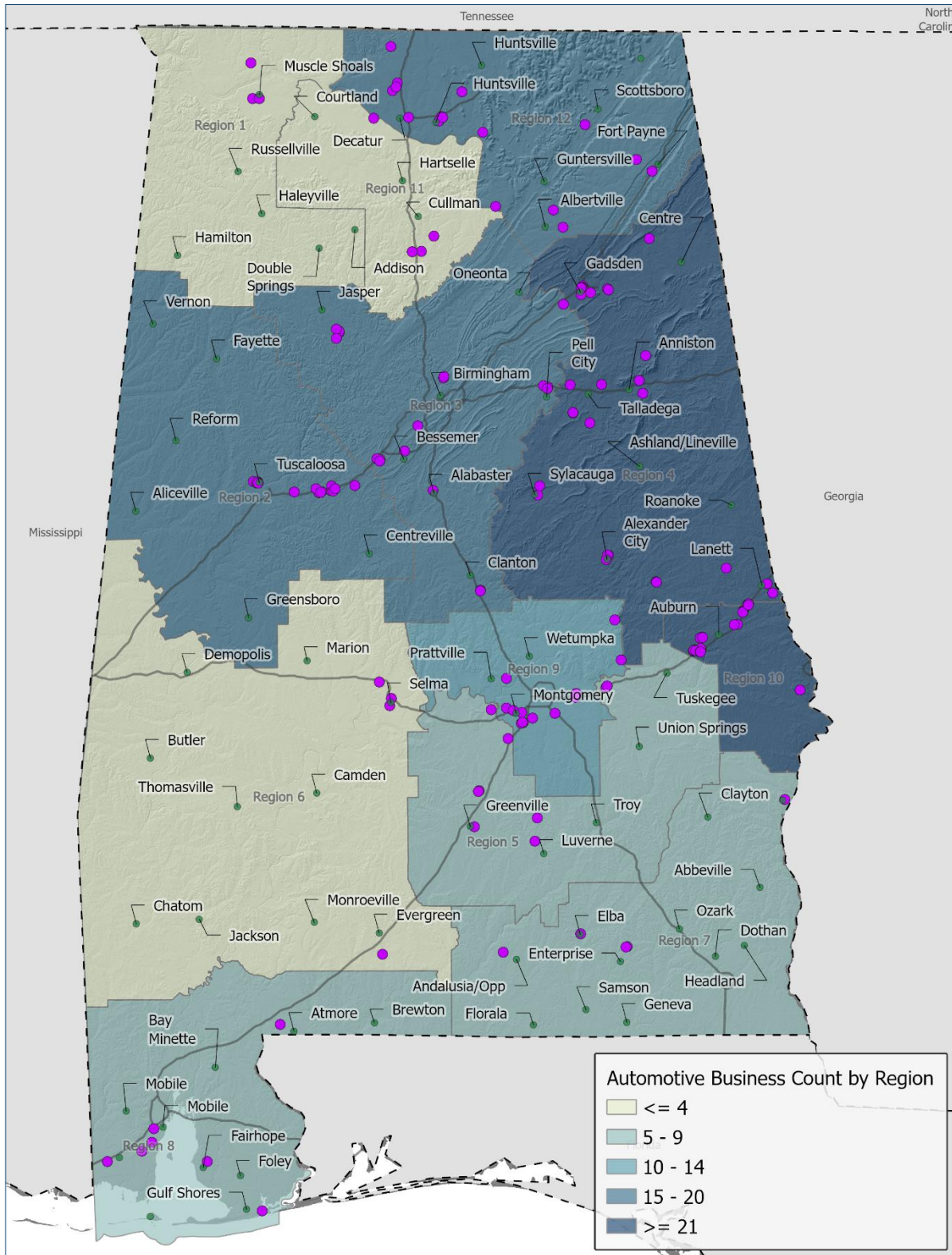
Source: Alabama Department of Commerce, Jviation.

4.3.4   Alabama Bioscience Industry

Bioscience is a diverse and rapidly expanding industry focused on sustaining, restoring, and improving the quality of life for humans, plants, and animals through development of biological solutions ranging from life-saving therapies and procedures, to healthier foods and cutting-edge research. With a track record for breakthrough discoveries, the bioscience industry in Alabama has an annual economic impact estimated at $7.3 billion according to the Alabama Department of Commerce. Additionally, nearly 18,000 Alabamans are employed in life science or biotechnology jobs with an average annual salary over $67,000. Medical discoveries in Alabama include multiple FDA-approved drugs used in cancer treatment as well as advances in the treatment of AIDS, polio, and mosquito-borne viruses. Leading research facilities focus on the human genome for thousands of academic, clinical, and commercial clients nationwide. **Figure 4-6** identifies the location of the biosciences clusters within the state and their proximity to Alabama system airports. Most jobs in the biosciences in the state lie in the following sectors:

- Pharmaceutical and Medicine Manufacturing
- Scientific Research and Development Services
- Medical and Diagnostic Laboratories
- Pesticide, Fertilizer, and Other Agricultural Chemical Manufacturing

Like in other industries, general aviation aircraft are frequently used to transport executives, engineers, and middle management employees to and from facilities throughout the state. Note that pharmaceutical and medical device manufacturing is expanding across the state and is an industry sector that is heavily reliant upon air cargo services. For example, medical devices are often transported by overnight shippers such as FedEx and UPS for early morning surgeries at Ohio's Cleveland Clinic or Mayo Clinic in Minnesota. These industries also rely on aviation for medical staff and researcher's commercial airline travel.

Highlights of the bioscience sector in Alabama include:

- 54 medical device companies
- $7.3 billion annual economic impact
- NIH Funding totaled $350 million in 2018
- 17,870 people are employed in bioscience

Figure 4-6 graphically presents the location of bioscience clusters and their proximity to Alabama system airports.

Figure 4-6: Location of Bioscience Cluster and Proximity to Alabama System Airports
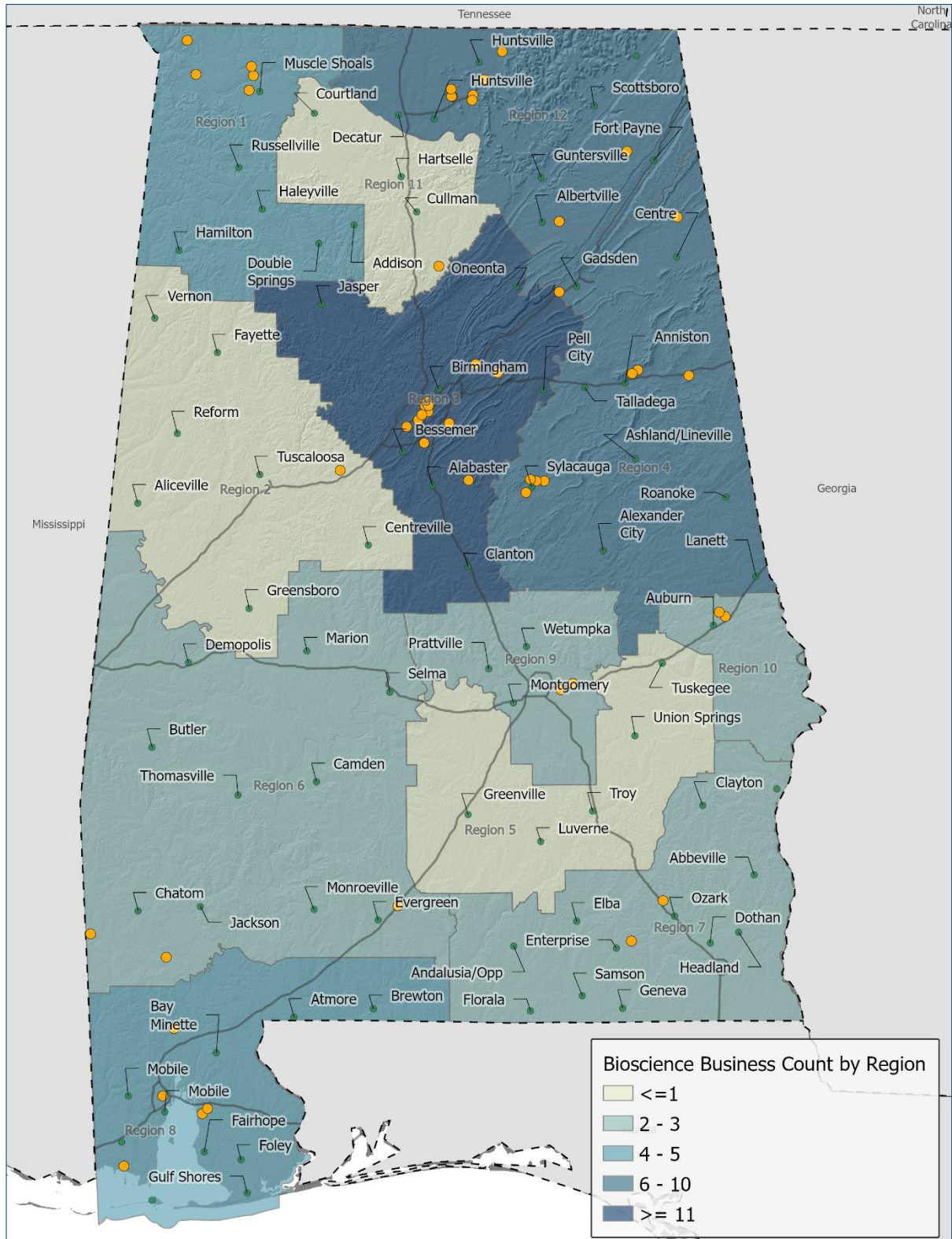
Source: Alabama Department of Commerce, Jviation.

4.3.5 Alabama Metals and Metal Fabrication

More than 1,100 primary metal manufacturing companies call Alabama home, including the largest companies in steel, water and sewer pipe, specialty metals, and composites. The Alabama Department of Commerce reports nearly 45,000 Alabama residents are employed in the primary and fabricated metal manufacturing industry, and that industry totals within the state approached $1.6 billion in primary metal manufactured goods exports in 2018, while fabricated metal manufacturing exports topped $380 million. **Figure 4-7** on the next page presents the location of the metals industry clusters throughout the state and their proximity to Alabama system airports.

Highlights of Alabama's metals industry sector include:

- Primary metal manufacturing exports from Alabama were valued at nearly $1.6 billion in 2018
- The primary metal manufacturing industry accounted for 17,800 Alabama jobs in May 2019
- Fabricated metal manufacturing exports from Alabama were valued at $382 million in 2018
- The fabricated metal product manufacturing industry accounts for over 27,000 jobs
- 1,100 primary metal companies in Alabama
- Alabama is the home of three of the nation's seven major pipe-makers
- 44,900 employed in primary and fabricated metal manufacturing

4.3.6 Alabama Combined Industry Cluster Analysis

Alabama has experienced remarkable growth across multiple industries over the past three decades. Major industries in Alabama include auto manufacturing, aerospace and defense, biosciences, steel and chemical manufacturing, forestry, food processing, and automobile and tire manufacturing. Alabama's expanding automotive manufacturing industry has powered much of the state's economic growth for the past 30 years, while Boeing, Lockheed Martin, Raytheon, and Teledyne Brown are among 280 aerospace and defense-related companies in Alabama. An Airbus A320 family aircraft assembly plant in Mobile recently located to the state. Redstone Arsenal, a U.S. Army post in Huntsville, is a major employer. Forestry products are a major contributor to the economy and support many jobs in rural communities.

Figure 4-8 illustrates the combined economic activity for the metals, aerospace, forestry, automotive, and biosciences in the state. A graphic heat map represents these combined industry clusters by color and reflects the density of businesses across these sectors. The brighter the color, the greater the density of industry. Alabama's airports are also shown on the map to demonstrate which general aviation and commercial service airports are best positioned to support these industry clusters Unsurprisingly, the greatest density of businesses lies within the major metropolitan areas such as Huntsville, Birmingham, Mobile, Montgomery, Florence, Auburn, and Dothan. As depicted on the map, the Huntsville metropolitan area has the greatest density of the state's primary industries. Each of these metropolitan areas has immediate access to a commercial service airport except for Auburn (although Columbus Airport 40 miles to the east in Georgia does have commercial passenger service). Additionally, many of these metro areas have one or two supporting general aviation airports. It is also noteworthy to recognize that business locations are also concentrated along interstate and limited access highway corridors in proximity to the state's MSAs. For example, several businesses have located on the Interstate 20 and 59 corridors in the Birmingham area. This again only serves to emphasize the overriding importance immediate proximity to transportation resources has for industry. Whether in the air, on the rails, or on the road, industry depends on efficient transportation.
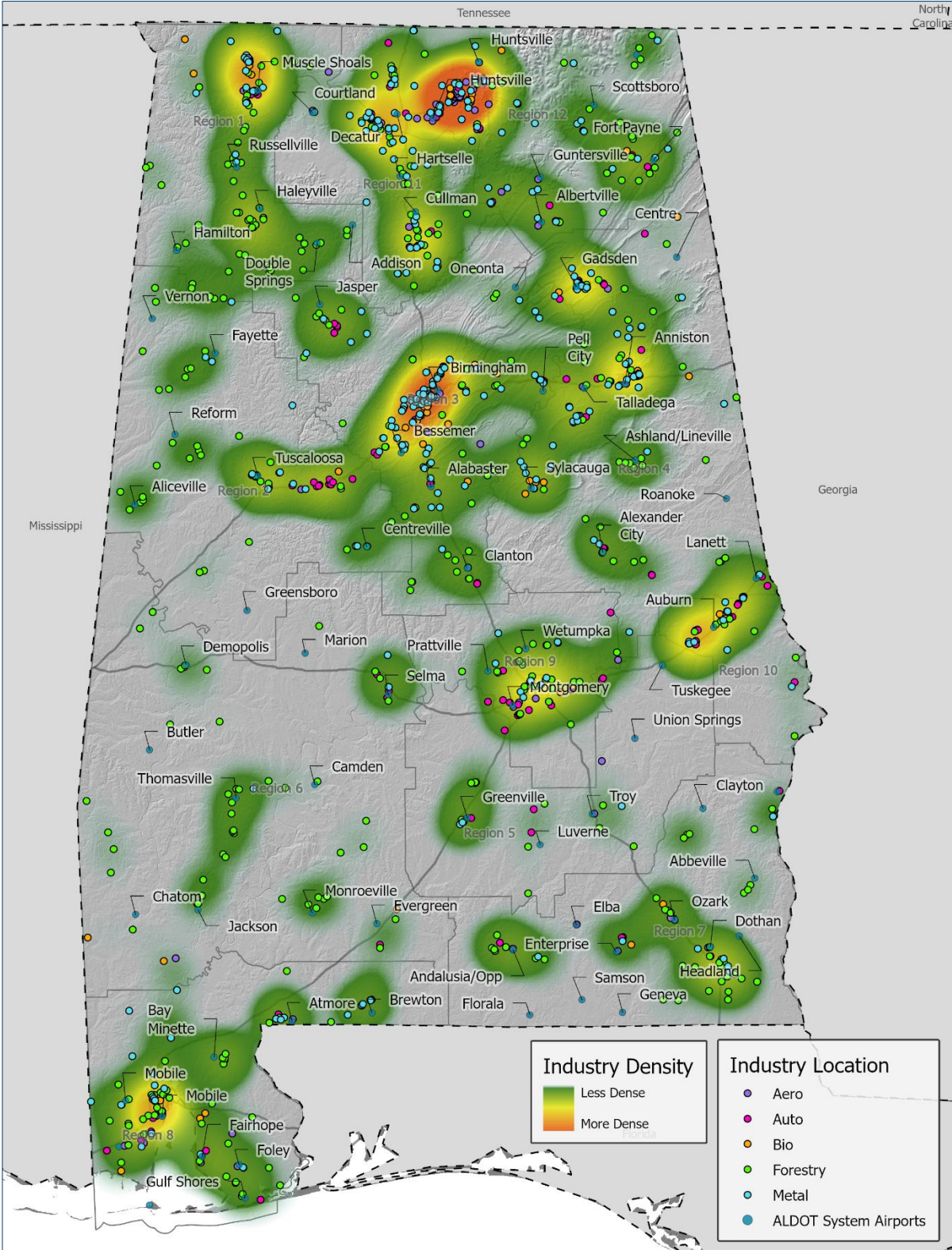
Figure 4-7: Location of Metals and Metals Fabrication and Proximity to Alabama System Airports
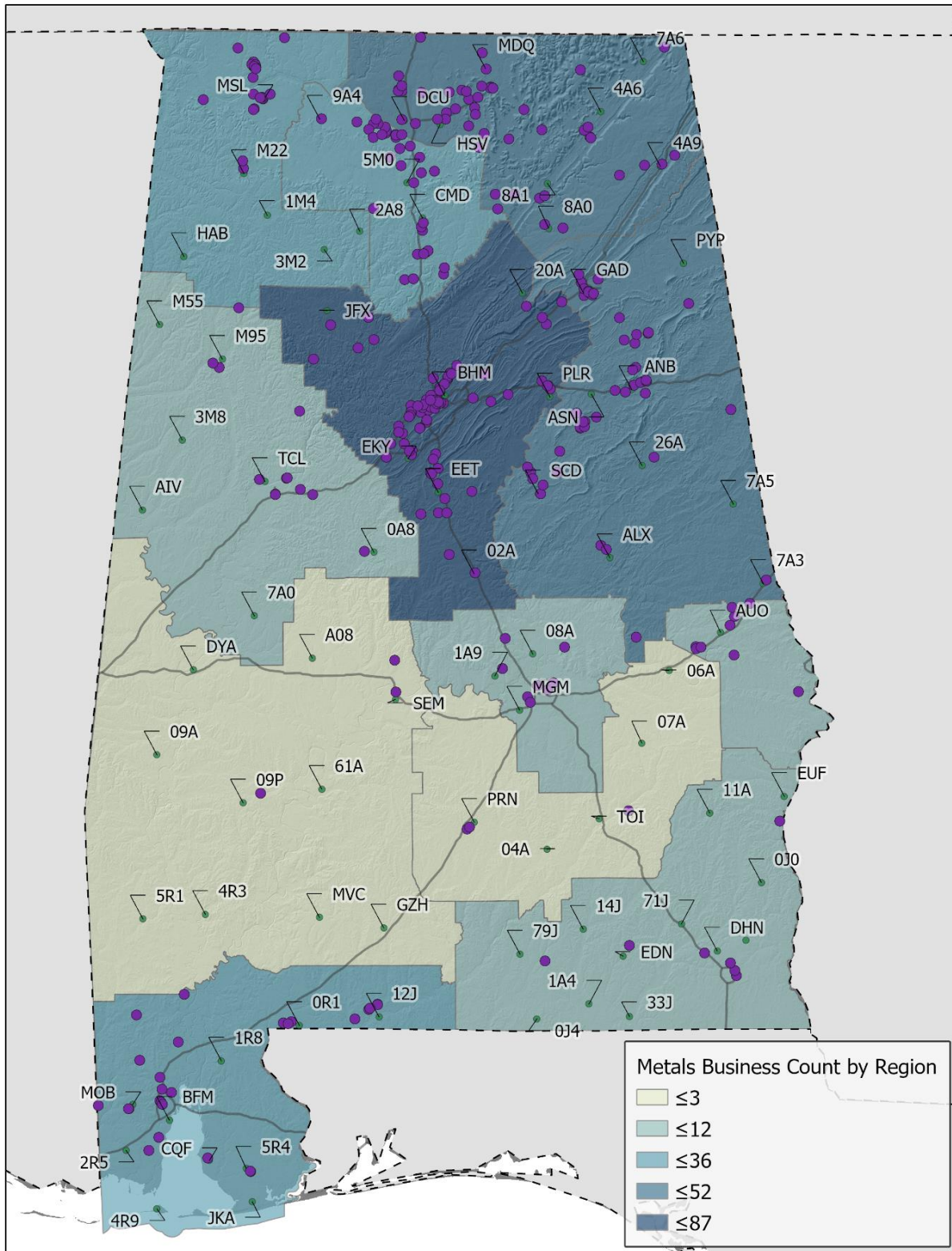
Source: Alabama Department of Commerce, Jviation.

Figure 4-8: Combined Industry Cluster Heat Map and Proximity to Alabama System Airports

Source: Alabama Department of Commerce, Jviation.

4.4   Accessibility to Alabama System Airports

An important aspect of the Alabama Statewide Airport System Plan is an evaluation of the system's current performance. This evaluation is supported using several predetermined system performance measures based on those characteristics that are reflective of a high functioning airport system that meets statewide transportation and economic needs and objectives. For the AL SASP, the following system performance measures were considered:

- 60-minute accessibility to Alabama system airports or public airports in nearby states with scheduled airline service.
- 90-minute accessibility to Alabama system airports or public airports.
- 30-minute accessibility to any Alabama system airport.
- 45-minute accessibility to Alabama system airports or public airports in nearby states meeting NBAA business airport characteristics for Medium Business Jets.
- 30-minute accessibility to Alabama system airports or public airports in nearby states meeting NBAA business airport characteristics for Light Business Jets.
- 30-minute accessibility to Alabama system airports or public airports in nearby states with precision-like approach (Instrument Landing System (ILS) or localizer performance with vertical guidance (LPV))
- 30-minute accessibility to Alabama system airports or public airports in nearby states with any published approach.
- 30-mile radius from each Alabama airport

Using these performance measures, a GIS mapping effort was undertaken to determine current accessibility to airports exhibiting these factors. The drive time service areas consider posted speed limits and normal driving conditions/congestion. The results of the mapping analysis are discussed in the following sections and include both population and geographic coverages.

Note that this type of analysis is useful for community decision makers and airport stakeholders when considering how to best develop their airports to meet the needs of area businesses and their community. Alabama businesses improve their efficiency by utilizing general aviation, commercial aviation, and air cargo/air freight resources. Companies benefit when their employees have reduced travel times to reach both domestic and international destinations, and these are most often realized through commercial service airports that offer non-stop and connecting flights. Additionally, use of general aviation resources enables employees to fly directly to locations not served by commercial airlines. This directly benefits companies by enabling employees to fly on their own timetable and avoid additional travel time for security and airline connections.

The economic benefits associated with businesses that operate at Alabama airports or use general aviation aircraft is discussed in detail in the companion Alabama 2020 Airport Economic Impact Study. For all employers who use general aviation as a business tool, their employees benefit from added efficiency. Many businesses have customers or suppliers who visit them using general aviation. It is also common for Alabama's businesses, manufacturers, and the state's tourism and agricultural industries to use general aviation.

4.4.1   60-Minute Accessibility to an Airport with Scheduled Airline Service

There are six airports in Alabama currently served by scheduled commercial airline service:

- Birmingham   Birmingham-Shuttlesworth International   BHM
- Dothan   Dothan Regional   DHN
- Huntsville   Huntsville International-Carl T Jones Field HSV
- Mobile   Mobile Regional   MOB
- Montgomery   Montgomery Regional (Dannelly Field)   MGM
- Muscle Shoals   Northwest Alabama Regional   MSL

For this system performance measure, a 60-minute drive time was established as a representative average travel time most people would be willing to experience to travel to an airport that provides commercial air service. It is worth noting that depending on the level of service and comparative fares, travelers may be willing to drive more than 60 minutes to reach a commercial service airport. Out-of-state airports compete with Alabama passenger traffic as well.

Current accessibility to Alabama's commercial airports, as well as in neighboring states, is shown on **Figure 4-9.** When 60-minute drive time service areas are considered, 71 percent of Alabama's residents are located within 60 minutes or less of one or more of Alabama's commercial service airports. Geographically, these drive times cover 39 percent of Alabama's land area. **Table 4-1** displays the population coverage of each commercial service airport in Alabama. Birmingham-Shuttlesworth International and Huntsville International-Carl T Jones Field provide accessibility to over 50 percent of Alabama's population.

Table 4-1: Alabama Commercial Service Airports Population within 60-Minute Drive

Associated City	Airport Name	FAA ID	Population Coverage[3]
Birmingham	Birmingham-Shuttlesworth International	BHM	1,537,720
Dothan	Dothan Regional	DHN	429,307
Huntsville	Huntsville International-Carl T Jones Field	HSV	1,040,634
Mobile	Mobile Regional	MOB	818,147
Montgomery	Montgomery Regional (Dannelly Field)	MGM	600,447
Muscle Shoals	Northwest Alabama Regional	MSL	619,502

Source: U.S. Census Data; Jviation.

For the AL SASP, the role that airports in bordering states play in meeting Alabama's aviation needs was also considered for all performance measures. These airports, which include the commercial service airports of Pensacola Regional Airport (PNS), Columbus Airport (CSG), Chattanooga Metropolitan Airport (CHA), Tupelo Regional Airport (TUP), Golden Triangle Regional Airport (GTR), Meridian Regional Airport (MEI), and Gulfport Biloxi Regional Airport (GPT), provide additional coverage and levels of service to Alabama residents and businesses. When those airports are also considered, the percent of Alabama population that lies within 60 minutes of a commercial service airport increases from 71 percent to 78 percent, and geographic coverage of the state increases from 39 percent to 49 percent. Note that there are overlaps in 60-minute drive service areas with notable interstate overlaps being Gulfport Biloxi (GPT) overlapping Mobile Regional to the west while Pensacola Regional (PNS) overlaps to the east.

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[3] Includes some overlapping areas and population

Figure 4-9: 60-Minute Accessibility to Commercial Airports in Alabama and Nearby States

Source: Jviation.

4.4.2 90-Minute Accessibility to a Commercial Service Airport

As suggested in the previous section, depending on the level of service, aircraft gauge, airline schedules, and air fares, travelers may be willing to travel more than 60 minutes to a commercial air service airport. Thus, when considering this potential, current accessibility to Alabama's commercial airports, as well as in neighboring states, is also shown for 90-minute drive time service areas on **Figure 4-10**. Analysis indicates 94 percent of Alabama's residents are within 90 minutes or less of one or more of Alabama's commercial service airports. Geographically, these drive times cover 75 percent of Alabama's area. **Table 4-2** displays the population coverage of each commercial service airport in Alabama. **Figure 4-10** illustrates the significant areas of service area overlap with commercial service airports within Alabama as well as outside the state.

As previously mentioned, the role that airports in bordering states play in meeting Alabama's aviation needs was also considered for all performance measures. When 90-minute drive time service areas are considered, approximately 98 percent of Alabama's residents are located within 90 minutes of a commercial service airport. Geographically, the 90-minute drive time boundaries associated with these airports cover 90 percent of Alabama's total land area. While a portion of Alabama residents are likely to drive to out-of-state commercial service airports, it can be reasonably assumed that Alabama airports (e.g., Huntsville International (HSV), Mobile Regional (MOB), etc.) would likewise attract residents from other adjacent states.

Table 4-2: Alabama Commercial Service Airports Population within 90-Minute Drive

Associated City	Airport Name	FAA ID	Population Coverage[4]
Birmingham	Birmingham-Shuttlesworth International	BHM	2,281,357
Dothan	Dothan Regional	DHN	864,685
Huntsville	Huntsville International-Carl T Jones Field	HSV	1,927,543
Mobile	Mobile Regional	MOB	1,676,662
Montgomery	Montgomery Regional (Dannelly Field)	MGM	1,322,886
Muscle Shoals	Northwest Alabama Regional	MSL	1,604,026

Source: U.S. Census Data; Jviation.

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[4] Includes population in adjacent states as well as overlapping service areas within Alabama

Figure 4-10: 90-Minute Accessibility to Commercial Airports in Alabama and in Nearby States
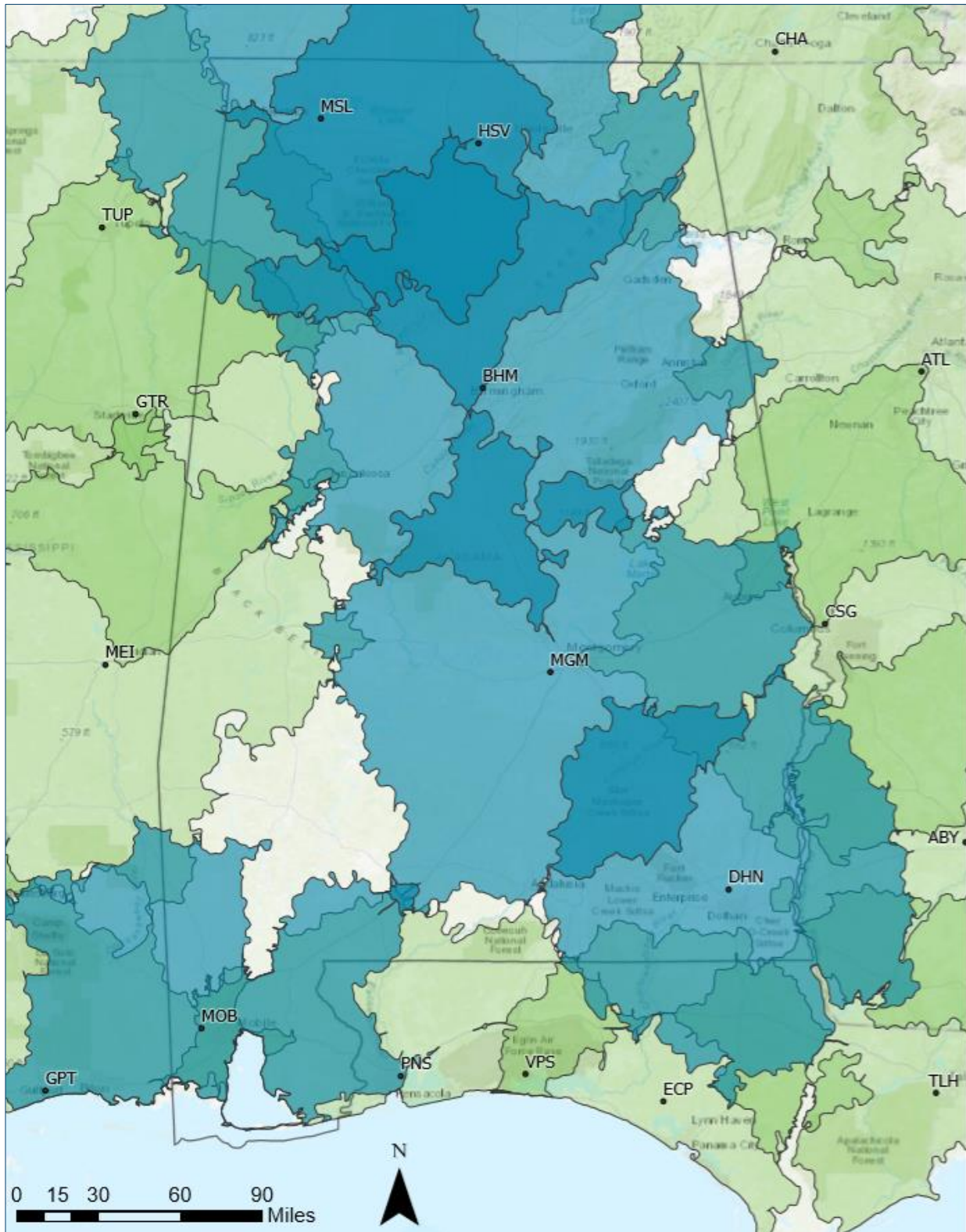
Source: Jviation.

4.4.3 30-Minute Drive Time Accessibility to an Alabama System Airport

Another important performance measure considers accessibility to any Alabama system airport given a 30-minute drive time. This measure demonstrates the overall nature of Alabama's aviation system by measuring the ability of people to access an airport within a relatively short drive time. This is a particularly relevant metric for general aviation airports.

As detailed below in **Table 4-3** and illustrated in **Figure 4-11**, 91 percent of all Alabamans are located within a 30-minute drive time of a Alabama system airport. In terms of geographic coverage, the 30-minute drive time associated with these airports covers approximately 71 percent of Alabama's total land area. Birmingham-Shuttlesworth International and Huntsville International-Carl T Jones Field airports have the highest residential population within 30-minutes of all Alabama airports with 585,915 and 401,930 residents, respectively. Jeremiah Denton Airport on Dauphin Island has the fewest residents within a 30-minute drive of the airport with just under 10,000 residents. When including 30-minute drive times associated with airports outside of Alabama in adjacent states, 93 percent of Alabama residents are located within 30 minutes of an airports.

Table 4-3: Accessibility to an Alabama System Airports

Associated City	Airport Name	FAA ID	Total Population in Airport 30-Minute Service Area
Abbeville	Abbeville Municipal	0J0	30,469
Addison	Addison Municipal	2A8	49,992
Alabaster	Shelby County	EET	303,632
Albertville	Albertville Regional-Thomas J Brumlik Field	8A0	127,329
Alexander City	Thomas C Russell Field	ALX	56,516
Aliceville	George Downer	AIV	10,197
Andalusia	South Alabama Regional at Bill Benton Field	79J	38,799
Anniston	Anniston Regional	ANB	130,499
Ashland/Lineville	Ashland/Lineville	26A	16,677
Atmore	Atmore Municipal	0R1	26,197
Auburn	Auburn University Regional	AUO	170,573
Bay Minette	Bay Minette Municipal	1R8	46,516
Bessemer	Bessemer	EKY	400,511
Birmingham	Birmingham-Shuttlesworth International	BHM	585,915
Brewton	Brewton Municipal	12J	19,531
Butler	Butler-Choctaw County	09A	11,771
Camden	Camden Municipal	61A	10,098
Centre	Centre-Piedmont-Cherokee County Regional	PYP	36,907
Centreville	Bibb County	0A8	33,962
Chatom	Roy Wilcox	5R1	17,187
Clanton	Chilton County	02A	63,386
Clayton	Clayton Municipal	11A	14,368

Associated City	Airport Name	FAA ID	Total Population in Airport 30-Minute Service Area
Courtland	Courtland	9A4	104,076
Cullman	Cullman Regional-Folsom Field	CMD	125,701
Dauphin Island	Jeremiah Denton	4R9	9,796
Decatur	Pryor Field Regional	DCU	376,415
Demopolis	Demopolis Regional	DYA	22,978
Dothan	Dothan Regional	DHN	115,632
Double Springs	Double Springs-Winston County	3M2	38,698
Elba	Carl Folsom	14J	54,903
Enterprise	Enterprise Municipal	EDN	85,999
Eufaula	Weedon Field	EUF	20,243
Evergreen	Evergreen Regional - Middleton Field	GZH	31,108
Fairhope	H L Sonny Callahan	CQF	119,384
Fayette	Richard Arthur Field	M95	28,398
Florala	Florala Municipal	0J4	22,651
Foley	Foley Municipal	5R4	105,933
Fort Payne	Isbell Field	4A9	69,508
Gadsden	Northeast Alabama Regional Airport	GAD	113,603
Geneva	Geneva Municipal	33J	48,852
Greensboro	Greensboro Municipal	7A0	18,264
Greenville	Mac Crenshaw Memorial Airport	PRN	23,933
Gulf Shores	Jack Edwards National	JKA	51,666
Guntersville	Guntersville Municipal - Joe Starnes Field	8A1	129,344
Haleyville	Posey Field	1M4	43,778
Hamilton	Marion County-Rankin Fite	HAB	34,272
Hartselle	Hartselle-Morgan County Regional	5M0	171,689
Headland	Headland Municipal	0J6	114,108
Huntsville	Huntsville International-Carl T Jones Field	HSV	401,930
Huntsville	Huntsville Executive Airport Tom Sharp Jr Field	MDQ	329,252
Jackson	Jackson Municipal	4R3	13,734
Jasper	Walker County-Bevill Field	JFX	69,235
Lanett	Lanett Municipal	7A3	92,198
Luverne	Frank Sikes	04A	17,001
Marion	Vaiden Field	A08	34,439

Associated City	Airport Name	FAA ID	Total Population in Airport 30-Minute Service Area
Mobile	Mobile Downtown	BFM	374,549
Mobile	Mobile Regional	MOB	340,791
Monroeville	Monroe County Airport	MVC	23,588
Montgomery	Montgomery Regional (Dannelly Field)	MGM	292,450
Muscle Shoals	Northwest Alabama Regional	MSL	143,584
Oneonta	Robbins Field	20A	76,634
Ozark	Ozark Airport - Blackwell Field	71J	131,452
Pell City	St Clair County	PLR	111,955
Prattville	Prattville - Grouby Field	1A9	201,674
Reform	North Pickens	3M8	24,101
Roanoke	Roanoke Municipal	7A5	25,831
Russellville	Bill Pugh Field	M22	71,303
Samson	Logan Field	1A4	27,896
Scottsboro	Scottsboro Municipal-Word Field	4A6	57,039
Selma	Craig Field	SEM	40,763
St Elmo	St Elmo	2R5	302,377
Stevenson	Stevenson	7A6	33,909
Sylacauga	Merkel Field Sylacauga Municipal	SCD	61,384
Talladega	Talladega Municipal	ASN	135,502
Troy	Troy Municipal Airport At N Kenneth Campbell Field	TOI	40,145
Tuscaloosa	Tuscaloosa Regional	TCL	175,561
Tuskegee	Moton Field Municipal	06A	128,393
Union Springs	Franklin Field	07A	24,116
Vernon	Lamar County	M55	25,973
Wetumpka	Wetumpka Municipal	08A	275,500

Source: U.S. Census Data; Jviation.
Note: Due to coverage overlap, percentages do not total to 100%.

Figure 4-11: 30-Minute Accessibility to Any Alabama System Airport
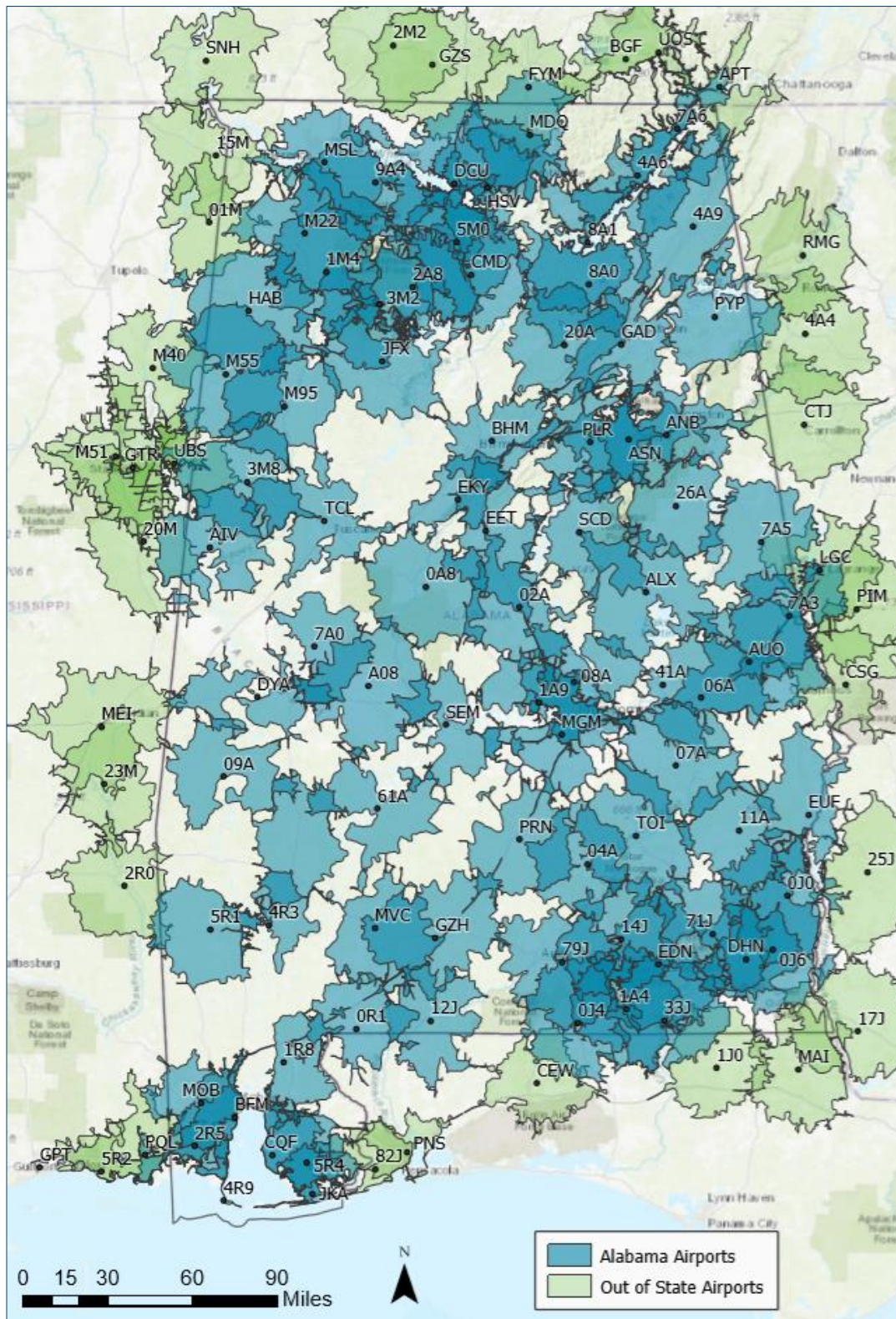
Source: Jviation.

4.4.4   Accessibility to Airports with NBAA Business Airport Characteristics

As discussed in **Chapter 3, Forecast**, business aviation is the fastest growing segment of the general aviation industry. Alabama actively recruits employers in all business sectors as indicated earlier in this chapter and many employers rely on general aviation to meet their transportation needs.

General aviation is an important business tool that enables companies to improve their efficiency and profitability. Using general aviation enables companies to expand their market areas and enhances efficiency by enabling travelers to fly directly to cities that do not have scheduled commercial airline service, potentially reducing travel time from days to hours. Customers and suppliers around the world also use general aviation to reach businesses that are based in Alabama. Proximity to a business class general aviation airport is one factor that is often important to attracting and retaining jobs.

For this performance measure, information on business airport characteristics obtained from NBAA was considered. NBAA's members include major corporations throughout the United States who use general aviation aircraft to support their travel needs and to improve their efficiency. NBAA seeks input from their members and publishes information on business airport characteristics that are considered desirable. The following reflect business airport characteristics deemed by NBAA to be most advantageous for serving various categories of business class aircraft. These were used to measure system performance and accessibility for this study.

NBAA Characteristics of Airports focused on serving Medium Sized Business Jets

- Minimum runway dimensions of 5,000 feet by 100 feet
- Accommodates aircraft up to 50,000 pounds
- Approach supported by vertical guidance
- Visual Glideslope Indicator (VGSI)
- Medium Intensity Runway Lighting (MIRL)
- On-site weather reporting equipment
- FBO services/aircraft maintenance
- Jet fuel

Bombardier Challenger (medium business jet)

NBAA Characteristics of Airports focused on serving Light Business Jets

- Minimum runway dimensions of 4,000 feet by 75 feet
- Accommodates aircraft up to 25,000 pounds
- Approach supported by vertical guidance
- VGSI
- MIRL
- On-site weather reporting equipment
- FBO services/aircraft maintenance
- Jet fuel

Cessna Citation Mustang (light business jet)

The next step in the evaluation was to identify all Alabama airports currently exhibiting the identified NBAA medium and light business jet airport characteristics, as well as to identify any nearby airports in neighboring states with these characteristics. A GIS analysis was conducted to establish 30-minute drive time service areas for light business jet airports, and 45-minute drive times for medium business jet airports. Note that any airport

that exhibits the more stringent runway dimensions of a medium business jet airport would also meet light business jet airport characteristics.

Figure 4-12 shows the percentage of Alabama airports currently meeting this measure; 38 percent of the system airports currently meet the select NBAA medium business jet airport characteristics, while 44 percent meet NBAA light business jet airport characteristics.

Figure 4-12: Percentage of Alabama Airports with Selected NBAA Medium or Light Jet Characteristics
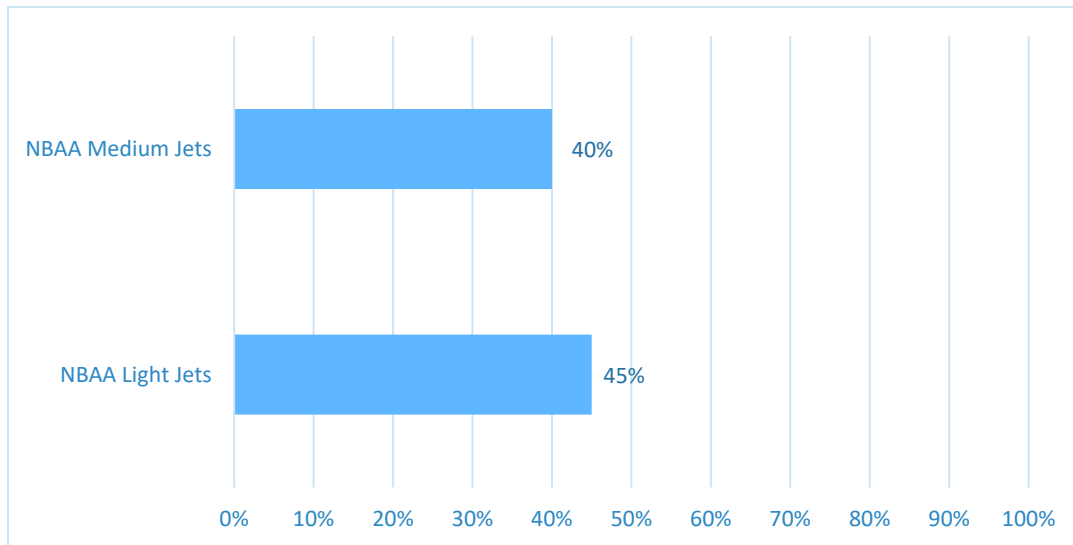
Source: ALDOT Aeronautics Bureau, NBAA, FAA NFDC, Jviation

Table 4-4 and **Table 4-5** identify those Alabama airports that currently meet NBAA medium- and light-jet criteria. Identifying the system airports that meet these criteria and the amount of population that they serve is important for this analysis since these airports provide an enhanced level of facilities and service that specifically support business aviation operators throughout the state. Collectively, these airports have crucial NBAA business aviation characteristics and provide valuable connectivity for the state's business aviation users.

Table 4-4: Airports Meeting NBAA Medium Jet Criteria (45-Minute Drive Time)

City	Airport Name	FAA ID	Total Population	Percent of Total State Population
Albertville	Albertville Regional-Thomas J Brumlik Field	8A0	127,329	2.6%
Alexander City	Thomas C Russell Field	ALX	197,153	4.1%
Andalusia	South Alabama Regional at Bill Benton Field	79J	38,799	0.8%
Anniston	Anniston Regional	ANB	130,499	2.7%
Auburn	Auburn University Regional	AUO	170,573	3.5%
Bessemer	Bessemer	EKY	400,511	8.2%
Birmingham	Birmingham-Shuttlesworth International	BHM	585,915	12.0%
Brewton	Brewton Municipal	12J	19,531	0.4%
Cullman	Cullman Regional-Folsom Field	CMD	125,701	2.6%
Decatur	Pryor Field Regional	DCU	376,415	7.7%
Demopolis	Demopolis Regional	DYA	22,978	0.5%

Dothan	Dothan Regional	DHN	115,632	2.4%
Enterprise	Enterprise Municipal	EDN	85,999	1.8%
Eufaula	Weedon Field	EUF	98,073	2.0%
Fairhope	H L Sonny Callahan	CQF	119,384	2.4%
Fort Payne	Isbell Field	4A9	69,508	1.4%
Gadsden	Northeast Alabama Regional Airport	GAD	113,603	2.3%
Gulf Shores	Jack Edwards National	JKA	51,666	1.1%
Haleyville	Posey Field	1M4	43,778	0.9%
Huntsville	Huntsville Executive Airport Tom Sharp Jr Field	MDQ	329,252	6.7%
Huntsville	Huntsville International-Carl T Jones Field	HSV	401,930	8.2%
Jasper	Walker County-Bevill Field	JFX	69,235	1.4%
Mobile	Mobile Downtown	BFM	374,549	7.7%
Mobile	Mobile Regional	MOB	340,791	7.0%
Montgomery	Montgomery Regional (Dannelly Field)	MGM	292,450	6.0%
Muscle Shoals	Northwest Alabama Regional	MSL	143,584	2.9%
Prattville	Prattville - Grouby Field	1A9	201,674	4.1%
Selma	Craig Field	SEM	40,763	0.8%
Sylacauga	Merkel Field Sylacauga Municipal	SCD	61,384	1.3%
Talladega	Talladega Municipal	ASN	135,502	2.8%
Troy	Troy Municipal Airport At N Kenneth Campbell Field	TOI	40,145	0.8%
Tuscaloosa	Tuscaloosa Regional	TCL	175,561	3.6%

Source: ALDOT Aeronautics Bureau, FAA NFDC, Jviation
Note: ALX effectively meets NBAA medium jet criteria (it meets all criteria with the exception of four feet of runway width). Due to coverage overlap, percentages do not total to 100%.

Table 4-5: Airports Meeting NBAA Light Jet Criteria (30-Minute Drive Time)

City	Airport Name	FAA ID	Total Population	Percent of Total State Population
Alabaster	Shelby County	EET	303,632	6.2%
Albertville	Albertville Regional-Thomas J Brumlik Field	8A0	127,329	2.6%
Alexander City	Thomas C Russell Field	ALX	57,332	1.2%
Andalusia	South Alabama Regional at Bill Benton Field	79J	38,799	0.8%
Anniston	Anniston Regional	ANB	130,499	2.7%
Auburn	Auburn University Regional	AUO	170,573	3.5%
Bessemer	Bessemer	EKY	400,511	8.2%
Birmingham	Birmingham-Shuttlesworth International	BHM	585,915	12.0%
Brewton	Brewton Municipal	12J	19,531	0.4%
Cullman	Cullman Regional-Folsom Field	CMD	125,701	2.6%
Decatur	Pryor Field Regional	DCU	376,415	7.7%
Demopolis	Demopolis Regional	DYA	22,978	0.5%

| City	Airport Name	FAA ID	Total Population	Percent of Total State Population
Dothan	Dothan Regional	DHN	115,632	2.4%
Enterprise	Enterprise Municipal	EDN	85,999	1.8%
Eufaula	Weedon Field	EUF	24,099	0.5%
Fairhope	H L Sonny Callahan	CQF	119,384	2.4%
Fort Payne	Isbell Field	4A9	69,508	1.4%
Gadsden	Northeast Alabama Regional Airport	GAD	113,603	2.3%
Greenville	Mac Crenshaw Memorial Airport	PRN	23,933	0.5%
Gulf Shores	Jack Edwards National	JKA	51,666	1.1%
Haleyville	Posey Field	1M4	43,778	0.9%
Huntsville	Huntsville Executive Airport Tom Sharp Jr Field	MDQ	329,252	6.7%
Huntsville	Huntsville International-Carl T Jones Field	HSV	401,930	8.2%
Jasper	Walker County-Bevill Field	JFX	69,235	1.4%
Mobile	Mobile Downtown	BFM	374,549	7.7%
Mobile	Mobile Regional	MOB	340,791	7.0%
Montgomery	Montgomery Regional (Dannelly Field)	MGM	292,450	6.0%
Muscle Shoals	Northwest Alabama Regional	MSL	143,584	2.9%
Pell City	St Clair County	PLR	111,955	2.3%
Prattville	Prattville - Grouby Field	1A9	201,674	4.1%
Scottsboro	Scottsboro Municipal-Word Field	4A6	57,039	1.2%
Selma	Craig Field	SEM	40,763	0.8%
Sylacauga	Merkel Field Sylacauga Municipal	SCD	61,384	1.3%
Talladega	Talladega Municipal	ASN	135,502	2.8%
Troy	Troy Municipal Airport At N Kenneth Campbell Field	TOI	40,145	0.8%
Tuscaloosa	Tuscaloosa Regional	TCL	175,561	3.6%

Source: ALDOT Aeronautics Bureau, FAA NFDC, Jviation
Note: ALX effectively meets NBAA medium jet criteria (it meets all criteria with the exception of four feet of runway width). Due to coverage overlap, percentages do not total to 100%.

As **Figure 4-13** shows, current population coverage considering a 45-minute drive time to a Alabama airport meeting NBAA medium business jet airport characteristics is reported at 93 percent. Airports from nearby states that meet these criteria were also considered, including Mississippi, Tennessee, Georgia, and the Florida panhandle. When these are included, population coverage increases slightly to 94 percent.

Figure 4-14 below shows current statewide accessibility to an Alabama airport meeting acceptable characteristic for an NBAA business airport serving light business jets. Current accessibility (considering a 30-minute drive time) to an Alabama airport meeting NBAA business airport characteristic for light business jets is reported at 80 percent for all Alabama residents. Airports from adjacent states that met these criteria were also considered. Combined accessibility provided by both Alabama and nearby airports results in current population accessibility to an airport exhibiting NBAA business airport characteristics for light business jets increases from 80 percent to 81 percent.
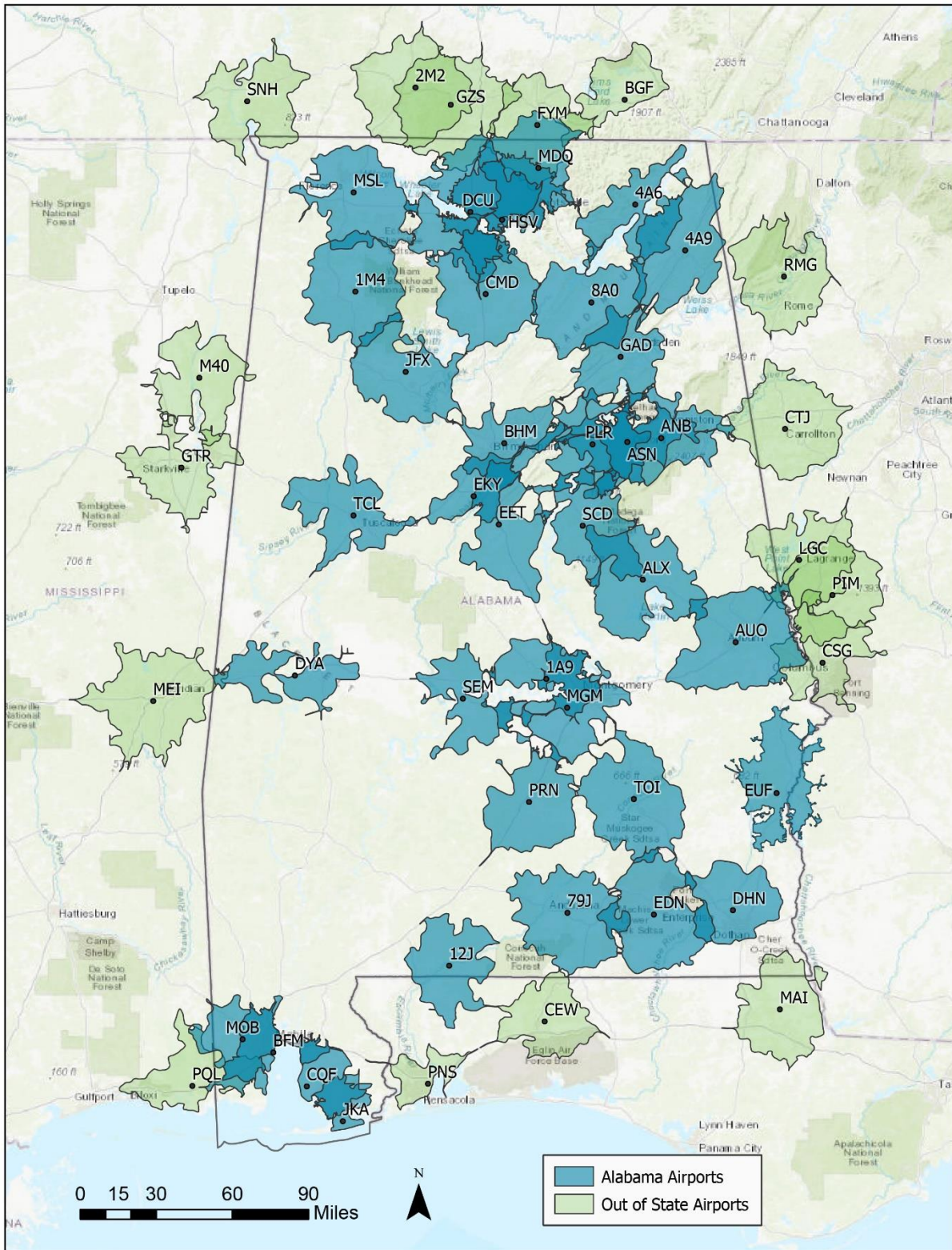
Figure 4-13: 45-Minute Accessibility to Alabama or Nearby Airports Meeting NBAA Medium Jet Characteristics
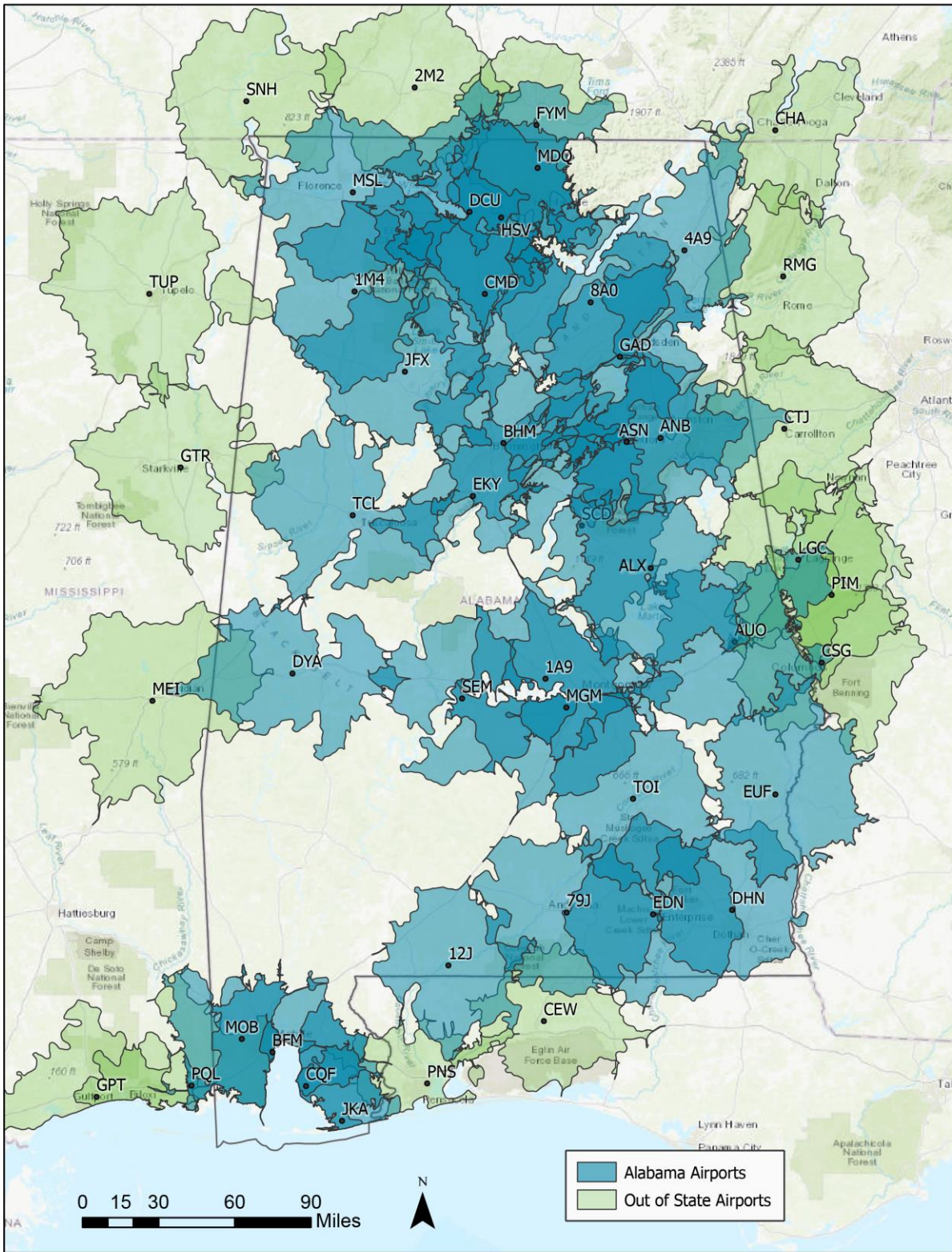
Source: Jviation, FAA NFDC, NBAA.

Figure 4-14: 30-Minute Accessibility to Alabama or Nearby Airports Meeting NBAA Light Jet Characteristics
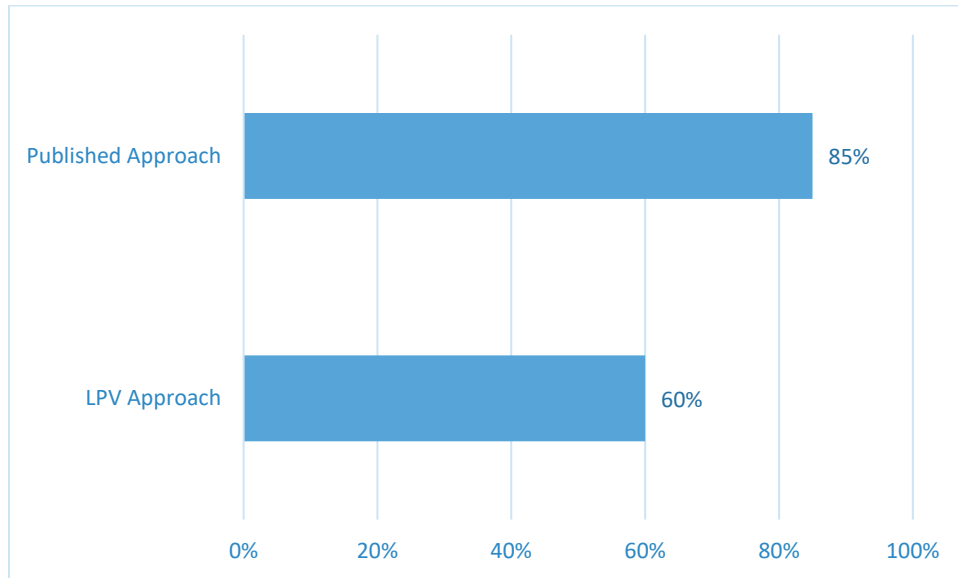

Source: Jviation, FAA NFDC, NBAA.

4.4.5   30-Minute Accessibility to an Airport with Approach Procedures

During periods of reduced visibility and nighttime operating conditions, airports with a published approach have increased operational capability. **Figure 4-15** shows the total system performance for this measure. As shown, 68 airports or 85 percent of all system airports had a published approach to at least one runway end.

**Figure 4-15: Percentage of Alabama Airports with a Published Approach**

Source: Jviation, ALDOT Aeronautics Bureau, FAA NFDC
Note: Data current as of May 2019.

Data gathered to support this AL SASP shows that system performance for this measure is very robust. graphically depicts current system-wide 30-minute accessibility to an airport with at least one published approach. Based on a GIS analysis, 90 percent of the state's population lies within a 30-minute service area of one or more airports with a published approach. When considering out-of-state airports, current accessibility increases slightly from 90 percent to 91 percent. A complete listing of system airports with published approaches and their respective population coverages is provided below in **Table 4-6**.

Figure 4-16: 30-Minute Current Accessibility to an Alabama or Nearby Airport with a Published Approach
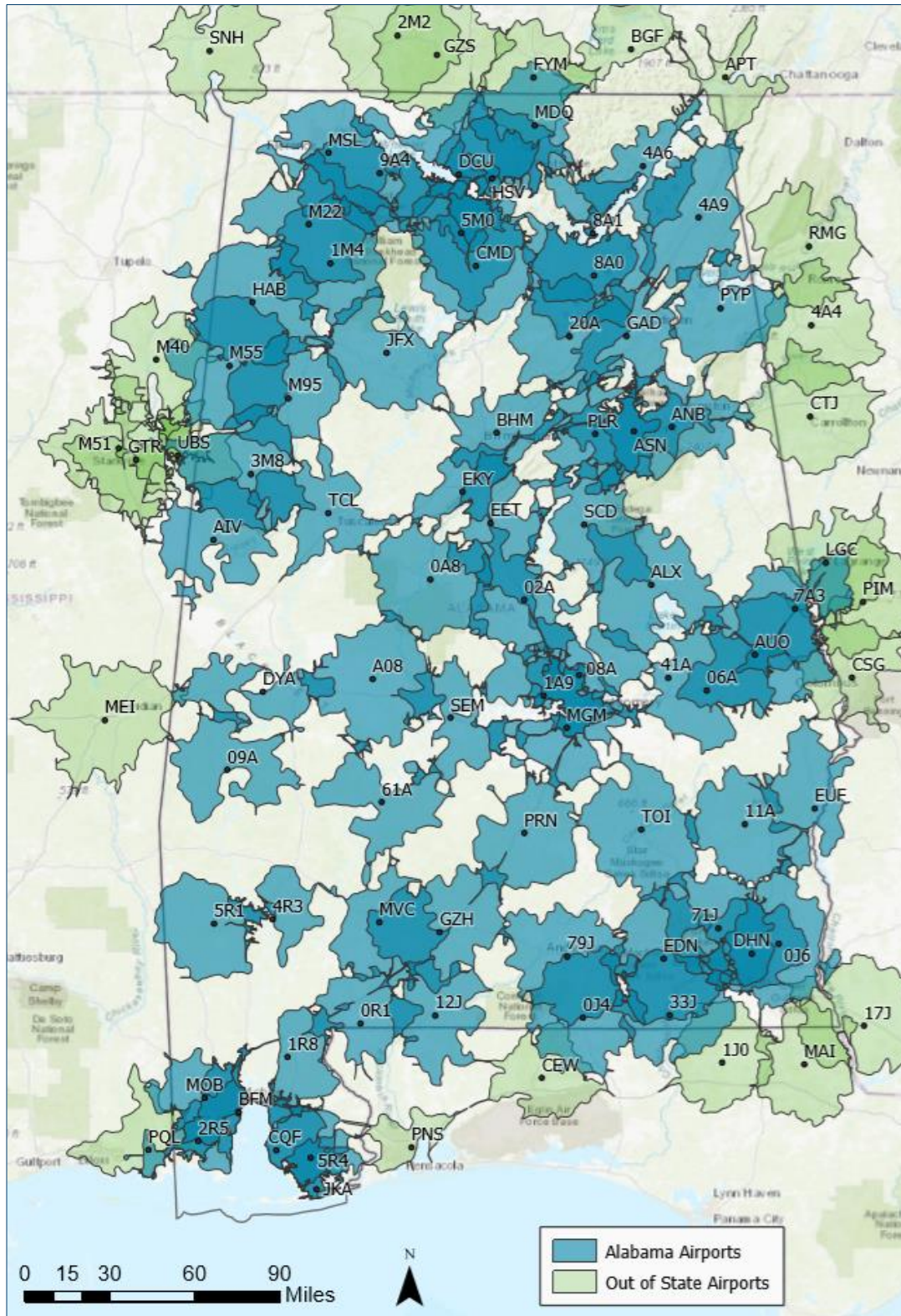
Source: Jviation, FAA NFDC.

Table 4-6: Alabama Airports with a Published Approach

City	Airport Name	FAA ID	Population	Population Coverage
Alabaster	Shelby County	EET	303,632	6.2%
Albertville	Albertville Regional-Thomas J Brumlik Field	8A0	127,329	2.6%
Alexander City	Thomas C Russell Field	ALX	56,516	1.2%
Aliceville	George Downer	AIV	10,197	0.2%
Andalusia	South Alabama Regional At Bill Benton Field	79J	38,799	0.8%
Anniston	Anniston Regional	ANB	130,499	2.7%
Atmore	Atmore Municipal	0R1	26,197	0.5%
Auburn	Auburn University Regional	AUO	170,573	3.5%
Bay Minette	Bay Minette Municipal	1R8	46,516	1.0%
Bessemer	Bessemer	EKY	400,511	8.2%
Birmingham	Birmingham-Shuttlesworth International	BHM	585,915	12.0%
Brewton	Brewton Municipal	12J	19,531	0.4%
Butler	Butler-Choctaw County	09A	11,771	0.2%
Camden	Camden Municipal	61A	10,098	0.2%
Centre	Centre-Piedmont-Cherokee County Regional	PYP	36,907	0.8%
Centreville	Bibb County	0A8	33,962	0.7%
Chatom	Roy Wilcox	5R1	17,187	0.4%
Clanton	Chilton County	02A	63,386	1.3%
Clayton	Clayton Municipal	11A	14,368	0.3%
Courtland	Courtland	9A4	104,076	2.1%
Cullman	Cullman Regional-Folsom Field	CMD	125,701	2.6%
Decatur	Pryor Field Regional	DCU	376,415	7.7%
Demopolis	Demopolis Regional	DYA	22,978	0.5%
Dothan	Dothan Regional	DHN	115,632	2.4%
Enterprise	Enterprise Municipal	EDN	85,999	1.8%
Eufaula	Weedon Field	EUF	20,243	0.4%
Evergreen	Evergreen Regional - Middleton Field	GZH	31,108	0.6%
Fairhope	H L Sonny Callahan	CQF	119,384	2.4%
Fayette	Richard Arthur Field	M95	28,398	0.6%
Florala	Florala Municipal	0J4	22,651	0.5%
Foley	Foley Municipal	5R4	105,933	2.2%
Fort Payne	Isbell Field	4A9	69,508	1.4%
Gadsden	Northeast Alabama Regional Airport	GAD	113,603	2.3%
Geneva	Geneva Municipal	33J	48,852	1.0%
Greenville	Mac Crenshaw Memorial Airport	PRN	23,933	0.5%
Gulf Shores	Jack Edwards National	JKA	51,666	1.1%
Guntersville	Guntersville Municipal - Joe Starnes Field	8A1	129,344	2.6%

City	Airport Name	FAA ID	Population	Population Coverage
Haleyville	Posey Field	1M4	43,778	0.9%
Hamilton	Marion County-Rankin Fite	HAB	34,272	0.7%
Hartselle	Hartselle-Morgan County Regional	5M0	171,689	3.5%
Headland	Headland Municipal	0J6	114,108	2.3%
Huntsville	Huntsville International-Carl T Jones Field	HSV	401,930	8.2%
Huntsville	Huntsville Executive Airport Tom Sharp Jr Field	MDQ	329,252	6.7%
Jackson	Jackson Municipal	4R3	13,734	0.3%
Jasper	Walker County-Bevill Field	JFX	69,235	1.4%
Lanett	Lanett Municipal	7A3	92,198	1.9%
Marion	Vaiden Field	A08	34,439	0.7%
Mobile	Mobile Downtown	BFM	374,549	7.7%
Mobile	Mobile Regional	MOB	340,791	7.0%
Monroeville	Monroe County Airport	MVC	23,588	0.5%
Montgomery	Montgomery Regional (Dannelly Field)	MGM	292,450	6.0%
Muscle Shoals	Northwest Alabama Regional	MSL	143,584	2.9%
Oneonta	Robbins Field	20A	76,634	1.6%
Ozark	Ozark Airport - Blackwell Field	71J	131,452	2.7%
Pell City	St Clair County	PLR	111,955	2.3%
Prattville	Prattville - Grouby Field	1A9	201,674	4.1%
Reform	North Pickens	3M8	24,101	0.5%
Russellville	Bill Pugh Field	M22	71,303	1.5%
Scottsboro	Scottsboro Municipal-Word Field	4A6	57,039	1.2%
Selma	Craig Field	SEM	40,763	0.8%
St Elmo	St Elmo	2R5	302,377	6.2%
Sylacauga	Merkel Field Sylacauga Municipal	SCD	61,384	1.3%
Talladega	Talladega Municipal	ASN	135,502	2.8%
Troy	Troy Municipal Airport At N Kenneth Campbell Field	TOI	40,145	0.8%
Tuscaloosa	Tuscaloosa Regional	TCL	175,561	3.6%
Tuskegee	Moton Field Municipal	06A	128,393	2.6%
Vernon	Lamar County	M55	25,973	0.5%
Wetumpka	Wetumpka Municipal	08A	275,500	5.6%

Source: ALDOT Aeronautics Bureau, FAA NFDC, Jviation
Note: Due to coverage overlap, percentages do not total to 100%.

4.4.6   30-Minute Accessibility to an Airport with Precision Like Approach

Since the last system plan, new instrument technology has been established that enables airports to have precision-like approaches that provide *both* lateral and vertical guidance without the ground-based equipment that was previously needed to support a precision approach. These new approaches are based on satellite GPS technology and commonly referred to as an LPV approach. New technology has enabled the Alabama airports to make gains as they relate to performance for this measure. As shown above in **Figure 4-15,** 48 airports (60 percent) in the Alabama system currently have an approach that provides vertical guidance to at least one runway end.

Using a 30-minute drive time service area for each airport, **Figure 4-17** shows the current statewide accessibility to an airport with an approach supported by vertical guidance. 84 percent of Alabama population has access to one or more airports with an approach supported by vertical guidance. **Figure 4-17** also shows additional coverage for this measure when 30-minute service areas for these out-of-state airports included. When this is considered, Alabama population coverage increases slightly to 86 percent. A complete listing of system airports with published approaches and their respective population coverages is provided below in **Table 4-7.**

Figure 4-17: 30-Minute Accessibility to a Alabama or Nearby Airport with a Vertical Guidance Approach
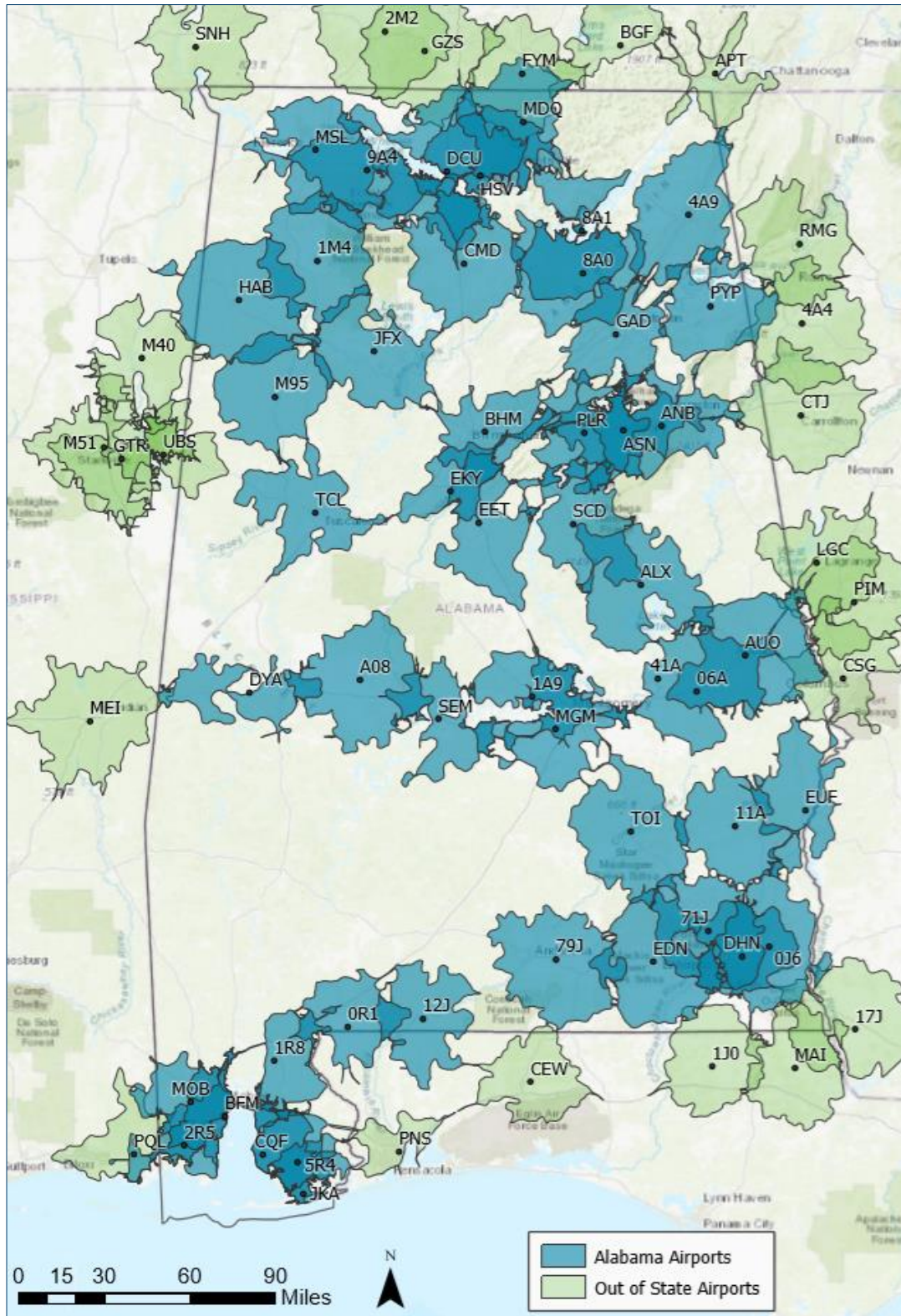
Source: Jviation; FAA NFDC.

Table 4-7: Alabama Airports with a Precision-like Approach

City	Airport Name	FAA ID	Population	Population Coverage
Alabaster	Shelby County	EET	303,632	6.2%
Alexander City	Thomas C Russell Field	ALX	56,516	1.2%
Andalusia	South Alabama Regional At Bill Benton Field	79J	38,799	0.8%
Anniston	Anniston Regional	ANB	130,499	2.7%
Atmore	Atmore Municipal	0R1	26,197	0.5%
Auburn	Auburn University Regional	AUO	170,573	3.5%
Bay Minette	Bay Minette Municipal	1R8	46,516	1.0%
Bessemer	Bessemer	EKY	400,511	8.2%
Birmingham	Birmingham-Shuttlesworth International	BHM	585,915	12.0%
Brewton	Brewton Municipal	12J	19,531	0.4%
Camden	Camden Municipal	61A	10,098	0.2%
Centre	Centre-Piedmont-Cherokee County Regional	PYP	36,907	0.8%
Clayton	Clayton Municipal	11A	14,368	0.3%
Courtland	Courtland	9A4	104,076	2.1%
Cullman	Cullman Regional-Folsom Field	CMD	125,701	2.6%
Decatur	Pryor Field Regional	DCU	376,415	7.7%
Demopolis	Demopolis Regional	DYA	22,978	0.5%
Dothan	Dothan Regional	DHN	115,632	2.4%
Enterprise	Enterprise Municipal	EDN	85,999	1.8%
Eufaula	Weedon Field	EUF	20,243	0.4%
Fairhope	H L Sonny Callahan	CQF	119,384	2.4%
Fayette	Richard Arthur Field	M95	28,398	0.6%
Foley	Foley Municipal	5R4	105,933	2.2%
Fort Payne	Isbell Field	4A9	69,508	1.4%
Gadsden	Northeast Alabama Regional Airport	GAD	113,603	2.3%
Gulf Shores	Jack Edwards National	JKA	51,666	1.1%
Guntersville	Guntersville Municipal - Joe Starnes Field	8A1	129,344	2.6%
Haleyville	Posey Field	1M4	43,778	0.9%
Hamilton	Marion County-Rankin Fite	HAB	34,272	0.7%
Headland	Headland Municipal	0J6	114,108	2.3%
Huntsville	Huntsville International-Carl T Jones Field	HSV	401,930	8.2%
Huntsville	Huntsville Executive Airport Tom Sharp Jr Field	MDQ	329,252	6.7%
Jasper	Walker County-Bevill Field	JFX	69,235	1.4%
Marion	Vaiden Field	A08	34,439	0.7%
Mobile	Mobile Downtown	BFM	374,549	7.7%
Mobile	Mobile Regional	MOB	340,791	7.0%
Montgomery	Montgomery Regional (Dannelly Field)	MGM	292,450	6.0%

| City	Airport Name	FAA ID	Population	Population Coverage
Muscle Shoals	Northwest Alabama Regional	MSL	143,584	2.9%
Ozark	Ozark Airport - Blackwell Field	71J	131,452	2.7%
Pell City	St Clair County	PLR	111,955	2.3%
Prattville	Prattville - Grouby Field	1A9	201,674	4.1%
Selma	Craig Field	SEM	40,763	0.8%
St Elmo	St Elmo	2R5	302,377	6.2%
Sylacauga	Merkel Field Sylacauga Municipal	SCD	61,384	1.3%
Talladega	Talladega Municipal	ASN	135,502	2.8%
Troy	Troy Municipal Airport At N Kenneth Campbell Field	TOI	40,145	0.8%
Tuscaloosa	Tuscaloosa Regional	TCL	175,561	3.6%
Tuskegee	Moton Field Municipal	06A	128,393	2.6%

Source: ALDOT Aeronautics Bureau, FAA NFDC, Jviation
Note: Due to coverage overlap, percentages do not total to 100%.

4.4.7 45-Minute Accessibility to Airports with NBAA Medium Business Jet Airport Characteristics and Economic Development "Hot Spots"

As described previously in Section 4.3, airports, businesses, and economic development are inexorably linked by the fact that business communities gain significant economic advantages by the connectivity and the efficiencies afforded by aviation. Based on data provided by the Alabama Department of Commerce on key state industries (e.g., forestry products, aerospace manufacturing, automotive manufacturing, biosciences, and metals and metal fabrication), industry hot spots have been identified throughout Alabama. These industries, among others, are integrally reliant upon aviation to conduct business.

Figure 4-18 again presents those economic hot spots, but in comparison to areas of the state with 45-minute accessibility to airports (these are the airports having characteristics to serve medium business jets). The graphic heat map shows by color the density of businesses in these sectors; the brighter the colors, the more intense is the concentration of industry. Areas outside of the 45-minute accessibility to airports with the characteristics to serve medium business jets are shaded with a blue boundary. The largest area in the state without accessibility to airports with NBAA characteristics for medium business jet airports is in the southwestern portion of the state and includes Washington, Clarke, and Monroe Counties. The densest industry development in this area is along the US 43 Highway corridor where several forestry mills and forestry products manufacturers are located. A new airport has been identified for construction in Thomasville along this corridor that will help eventually fill the gap in this underserved area. Note that there are other areas of Alabama with a pronounced lack of airports with NBAA characteristics, most of these areas however are rural without much manufacturing activity.

Figure 4-18: 45-Minute Accessibility for Airports Meeting NBAA Medium Business Jets (with Hot Spots)
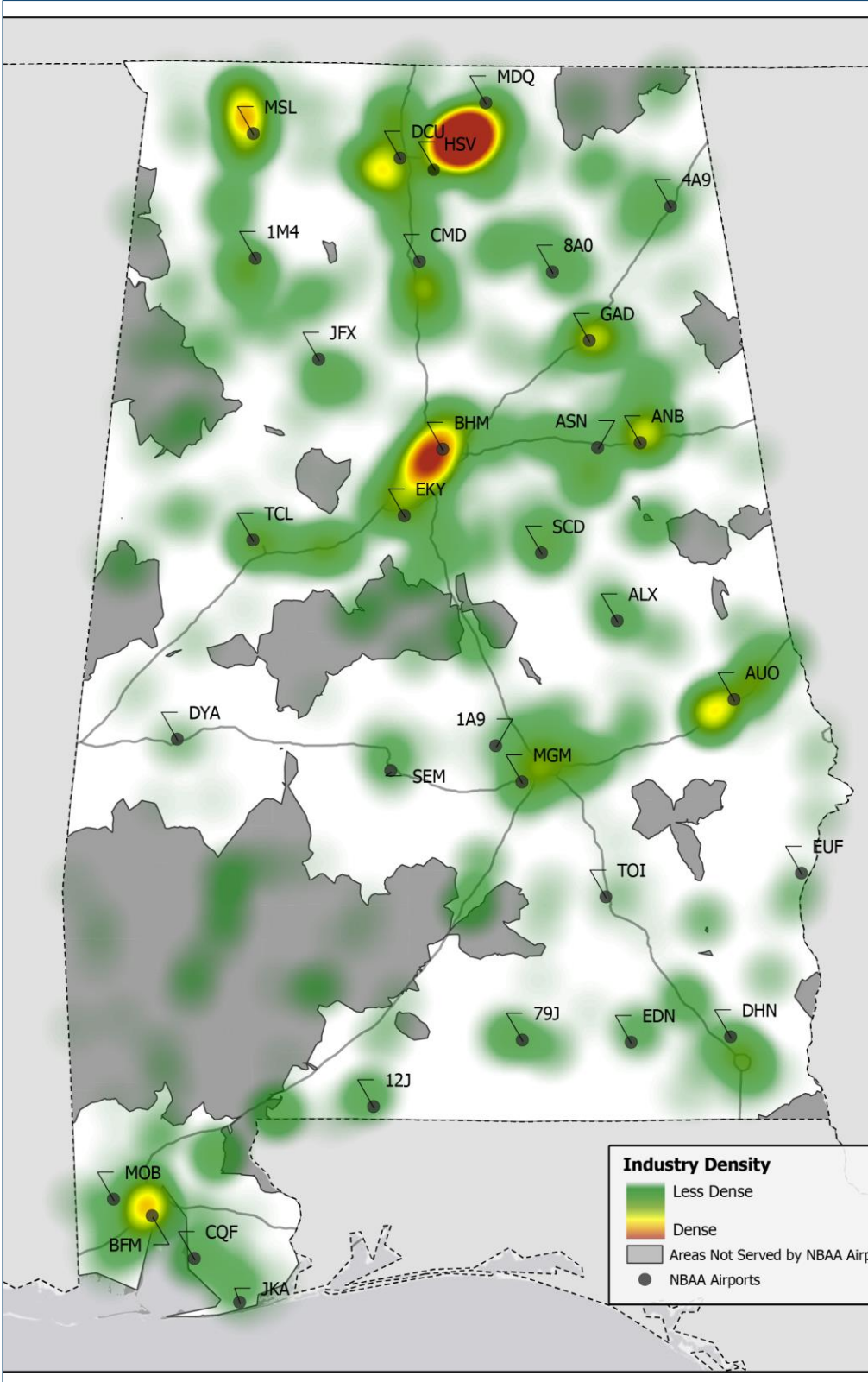
Source: Alabama Department of Commerce; Jviation

4.5   Summary of System Performance

This chapter provides important information showing how the Alabama airport system currently meets established system performance measures. The system performance evaluation demonstrates that Alabama's current accessibility for each of the established measures provides robust coverage for nearly all of the state's residents.

Table 4-8 below provides a summary of current system performance for each of the system performance measures. There are 80 system airports in Alabama, including six commercial service airports and 74 general aviation airports. For all accessibility performance measures, drive time accessibility for 30-, 60-, and 90-minute drive time analysis currently averages 88 percent of Alabama residents. Population analyses indicate that 71 percent of Alabama's residents are within 60 minutes or less of one or more of Alabama's six commercial service airports and 94 percent of Alabama's residents are within 90 minutes or less of an Alabama commercial service airport. Population analyses also show that 91 percent of all Alabamans are within a 30-minute drive time of an Alabama system airport.

It must also be recognized that there are several regional commercial service airports in Mississippi, Florida, and Georgia in relatively proximity to the Alabama borders. The 90-minute accessibility drive time coverages provided by these airports include significant portions of south-central and southeast areas of Alabama. Note that out-of-state commercial service airports will attract some fare-sensitive Alabamans; however, these airports are an average of 30 miles to the Alabama border and their service area primarily serves rural counties in the state. This analysis reveals that only marginal increases are realized in both population and land coverage from out-of-state airports. Rural areas on both sides of the state border mean that the small towns covered by these drive times do not change the population coverage in a significant way. For example, the 90-minute drive time analysis indicates that commercial service airports outside the state increase accessibility to Alabama population by four percent. With respect to geographical area land coverage, only small increases are realized since most of the airports in surrounding states are close to a 30-minute drive time from the state border, so little additional land in Alabama is covered by these airports' drive times.

Overall, the Alabama system of airports provide its residents with excellent accessibility to airports and aviation. Commercial service airports serve the state's metropolitan areas well with 71 percent of the state's residents within 60-minutes of a commercial service airport. Recommended improvements, presented in a subsequent chapter, may increase the system accessibility as it has been measured and reported in this chapter.

The next chapter identifies recommended state roles for all system airports. Following the identification of recommended airport roles, analysis identifies facility and service improvements that are needed to enable each airport to better fulfill its designated role in the state airport system. If airports are improved to meet their applicable facility and service objectives, the number of airports in Alabama with facilities and services to satisfy NBAA characteristics for business airports meeting medium or light business jet needs would increase. The final recommendations chapter of the AL SASP shows additional accessibility that could be realized in the future, assuming all airports are able to meet their assigned facility/service objectives.

Table 4-8: Current System Performance by Measure

System Performance Measure	Percent of Alabama Residents Located within an Airport Service Area	Percent of Alabama Land Area Covered by an Airport Service Area
60-Minute Accessibility to an Airport with Scheduled Commercial Airline Service		
– 60-Minute Accessibility to Alabama airports with scheduled airline service	71%	39%
– 60-Minute Accessibility to Alabama airports or public airports in nearby states with schedule airline service	78%	48%
90-Minute Accessibility to an Airport with Scheduled Commercial Airline Service		
– 90-Minute Accessibility to Alabama airports with airline service	94%	75%
– 90-Minute Accessibility to Alabama airports or airports in nearby states with airline service	98%	90%
30-Minute Accessibility to a Public Airport		
– 30-Minute Accessibility to any Alabama airport	91%	71%
– 30-Minute Accessibility to any NPIAS Alabama airport or NPIAS airport in nearby state	93%	73%
30-and 45-Minute Accessibility to Airports Exhibiting Selected NBAA Medium & Light Business Jet Airport Characteristics		
– 45-Minute Current Accessibility to Alabama Airports Meeting Acceptable NBAA Medium Business Jet Airport Characteristics	94%	73%
– 45-Minute Current Accessibility to Alabama or Nearby Airports Meeting Acceptable NBAA Medium Business Jet Airport Characteristics	95%	75%
– 30-Minute Current Accessibility to Alabama Airports Meeting Acceptable NBAA Light Business Jet Airport Characteristics	81%	43%
– 30-Minute Current Accessibility to Alabama or Nearby Airports Meeting Acceptable NBAA Light Business Jet Airport Characteristics	82%	44%
30-Minute Accessibility to an Airport with FAA Published Approach Procedures		
– 30-Minute Current Accessibility to an Alabama airport with precision like approach	84%	51%
– 30-Minute Current Accessibility to Alabama or nearby airport with precision like approach	86%	52%
– 30-Minute Current Accessibility to Alabama airport with any published approach	90%	66%
– 30-Minute Current Accessibility to Alabama airport or nearby airport with any published approach	91%	67%

Source: Jviation