Asheville Regional Airport Master Plan Update

Chapter 2 Inventory of Facilities

One of the initial tasks in the preparation of an airport master plan is the collection of information on the condition of existing facilities and services. This inventory of data is necessary to not only evaluate the physical attributes of airside and landside infrastructure, but also to complete subsequent study tasks such as demand/capacity analyses and the determination of facility requirements. Information collected focuses on the use, size, quantity, type, area, operational intent, and other characteristics of the airside and landside components of an airport. Typical categories of information that are collected include history, physical infrastructure, regional setting, surrounding land uses, environmental features, historical aviation activity, business affairs, and socioeconomic demographics of the surrounding community.

Several sources of information were referenced to compile a comprehensive database of facilities and services at the Asheville Regional Airport (Airport). These included, but were not limited to, the previous Airport Master Plan, recent National Environmental Policy Act (NEPA) documents, the Terminal Area Plan, the Land Use Plan, and the Airport Layout Plan (ALP). In addition, historical enplanements, aircraft operations, based aircraft, aircraft fleet mix, enplaned cargo, and automobile parking data was obtained from Federal Aviation Administration (FAA) databases and Airport records. Databases from Woods & Poole Economics, Inc. provided population, employment, retail sales, and per capita income data for the 11 counties that comprise the Airport's service area. Finally, an on-site visual inspection of the Airport was conducted to complete the inventory effort and verify any data discrepancies.

Organized by the following sections, this Chapter summarizes the data that was collected on the condition of existing Airport facilities and services:

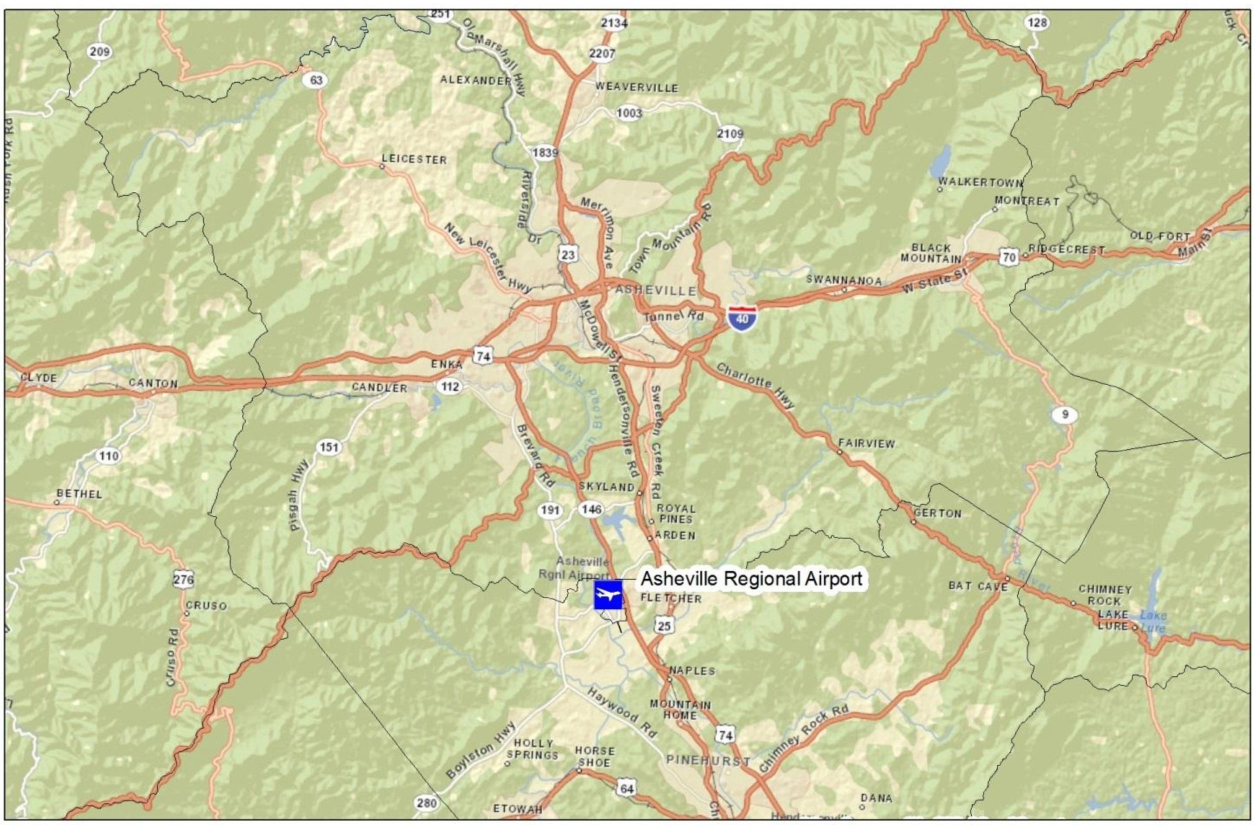
2.1 General Description and Location Information
2.2 History
2.3 Environment and Land Use
2.4 Socioeconomic Data
2.5 Airport Management Structure
2.6 Existing Facilities
2.7 Businesses and Tenants
2.8 Airspace, Air Traffic Control, and Approach/Departure Procedures
2.9 Summary

2.1 General Description and Location Information

The Asheville Regional Airport is the premier air transportation gateway for Western North Carolina. It is classified in the National Plan of Integrated Airport Systems (NPIAS) as a primary, small-hub commercial service airport that is significant to support the aviation demands of the nation's aviation system. Within the state aviation system, the North Carolina Department of Transportation (NCDOT) classifies the Airport as an Air Carrier airport. The Airport holds a Federal Aviation Regulation (FAR) Part 139 operating certificate, meeting the requirements of a Class I airport capable of serving scheduled and unscheduled operations of large and small air carrier aircraft. In addition, the Airport meets Aircraft Rescue and Fire Fighting (ARFF) Index B requirements for firefighting equipment and fire extinguishing agents.

The Airport is located in the Blue Ridge Mountains region of Western North Carolina, approximately ten miles south of downtown Asheville near the town of Fletcher (**Figure 2-1**). The property of the Airport primarily lies within Buncombe County, with a small portion located in Henderson County.

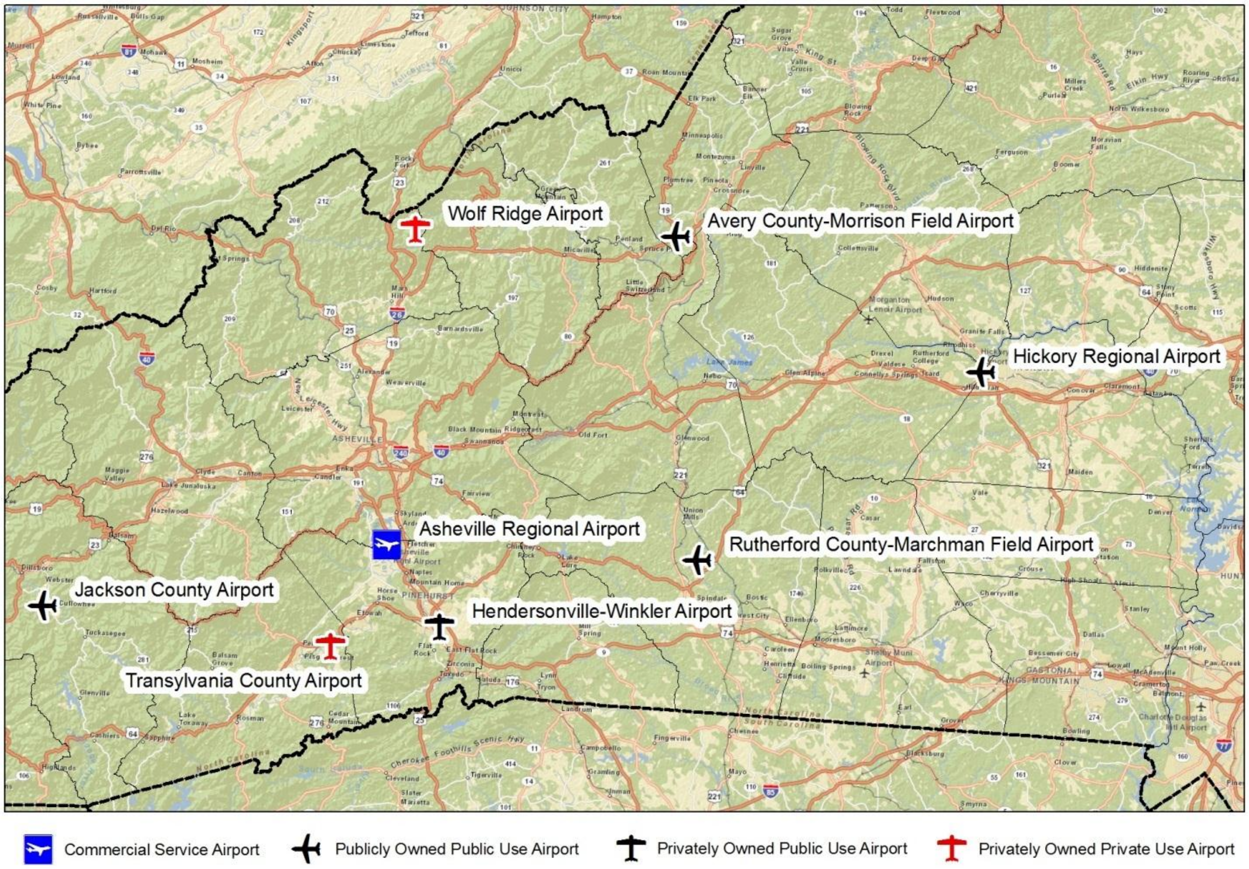
Figure 2-1: Airport Regional Map



Source: Mead & Hunt

There are four public use, publicly-owned general aviation airports that are in proximity to the Asheville Regional Airport: the Rutherford County – Marchman Field Airport near Rutherfordton located approximately 33 miles to the east; the Jackson County Airport near Sylvia located approximately 38 miles to the west; the Avery County – Morrison Field Airport near Spruce Pine located approximately 46 miles to the northeast; and the Hickory Regional Airport near Hickory located approximately 68 miles to the northeast (**Figure 2-2**). It should be noted that the privately owned public use Hendersonville-Winkler Airport is located approximately ten miles to the southeast near Hendersonville. Two privately owned, private use airports are also located near the vicinity of the Asheville Regional Airport: the Transylvania County Airport near Brevard approximately 12 miles to the southwest and the Wolf Ridge Airport near Mars Hill approximately 34 miles to the north.

Figure 2-2: Nearby Public Use General Aviation Airports



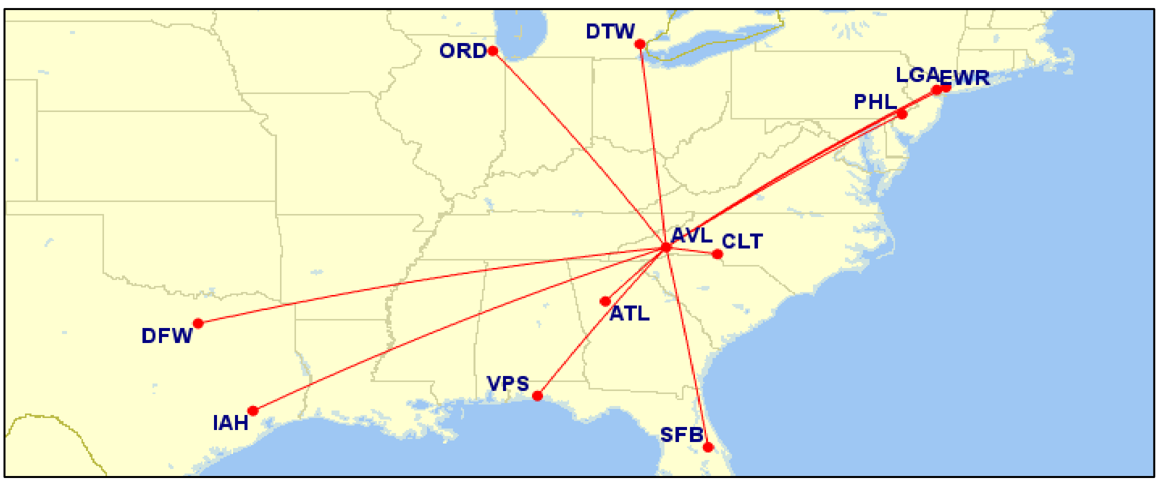
Source: Mead & Hunt, Inc.

Commercial airline service at the Airport is provided by six operators, three of which (Delta Air Lines, United Airlines, and US Airways) provide service to eight destinations daily. Two airlines, Vision Airlines and American Eagle, provide daily service seasonally to Ft. Walton Beach, Florida, and Dallas-Ft. Worth, Texas, respectively, while Allegiant offers service twice a week to the Orlando Sanford International Airport in Florida. **Table 2-1** lists each airline that offers service at the Airport, the destinations they serve, and the frequency of each arriving and departing flight; **Figure 2-3** illustrates the non-stop flights available from Asheville. It should be noted that AirTran Airways served the Asheville market with daily flights to Tampa and Orlando, Florida until service was discontinued in January 2012.

Table 2-1: Commercial Airline Service		
Airline	**Destination**	**Frequency**
allegiant	Orlando (Sanford)	Monday, Friday
American Airlines American Eagle	Dallas-Ft. Worth	Daily (April through October)
DELTA	Atlanta Detroit New York (LaGuardia)	Daily
UNITED	Chicago (O'Hare) Houston (Bush Intercontinental) Newark	Daily
U·S AIRWAYS	Charlotte Philadelphia	Daily
Vision Airlines	Ft. Walton Beach, Florida	Sunday, Thursday (April through August)

Note: Destinations and frequency of flights current as of January 2012.
Source: Asheville Regional Airport

Figure 2-3: Non-Stop Destinations from Asheville



Note: Destinations current as of January 2012.
Source: Asheville Regional Airport

Other airports offering commercial airline service that are nearest to the Asheville region include: the Greenville-Spartanburg International Airport near Greer, South Carolina located approximately 41 miles to the south; the Tri-Cities Regional Airport near Blountville, Tennessee located approximately 72 miles to the north; the McGhee Tyson Airport near Knoxville, Tennessee located approximately 85 miles to the northwest; the Charlotte Douglas International Airport near Charlotte, North Carolina located approximately 90 miles to the east; and the Piedmont Triad International Airport in Greensboro, North Carolina located approximately 152 miles to the northeast (**Figure 2-4**). The Hartsfield-Jackson Atlanta International Airport in Atlanta, Georgia located approximately 163 miles to the southwest is also occasionally used by travelers to access the Western North Carolina region.

Figure 2-4: Nearby Commercial Service Airports

Source: Mead & Hunt, Inc.

Asheville is the largest populated city in Western North Carolina, located approximately 51 miles north of Greenville, South Carolina and 99 miles west of Charlotte. It is intersected by Interstate 26 and Interstate 40 which connect it with the Tri-Cities region of Tennessee to the north; Spartanburg, South Carolina to the south; Winston-Salem, North Carolina to the east; and Knoxville, Tennessee to the west. Other significant roadways that connect the city with the surrounding region include Interstate 240, U.S. Highway 25, U.S. Highway 74-A, and the scenic Blue Ridge Parkway. Although no passenger rail service is available, the city is located along an important freight trunk line of the Norfolk Southern Railroad.

In addition to being known for its natural beauty of the surrounding Blue Ridge Mountains, Asheville is also known as a cultural and tourist center that is consistently ranked near the top of national city rankings. Most recently, it was ranked as the 24th best place in the U.S. for business and careers by Forbes.com (June 2011), top small city for art by *American Style Magazine* (May 2011), and a Best Place to Retire by TopRetirements.com (February 2011). Asheville is home to a diversified economy that is based on advanced manufacturing, technology, professions/technical services, health care, education, and tourism. Major employers include: the Buncombe County Public School system, Mission Health System, City of Asheville, The Biltmore Company, Buncombe County Government, The Grove Park Inn Resort & Spa, Ingles Markets, Inc., the Veterans Administration Medical Center-Asheville Department of Veterans Affairs, BorgWarner Turbo & Emissions Systems, CarePartners Health Services, as well as several small successful businesses. The city is home to five higher education institutions, including the University of North Carolina-Asheville, Montreat College, Warren Wilson College, Mars Hills College, and the Asheville-Buncombe Technical Community College.

2.2 History

In 1957, plans for the Asheville Regional Airport began when leaders of the community started searching for a new location for the Asheville & Hendersonville Airport that was unable to expand to accommodate larger commercial aircraft. After the passage of a bond authorizing the City of Asheville to expend up to $1.2 million for a new airport, a suitable location was identified near Fletcher adjacent to the French Broad River. On January 15, 1961, commercial flight service began at Asheville Regional Airport and the terminal building opened six months later.

1961-1980: The Airport made several airfield infrastructure improvements during this timeframe. In 1962, an instrument landing system (ILS) was installed to offer precision navigational guidance for aircraft on landing approach while in 1979 a Department of Public Safety building was constructed for Airport police and fire rescue personnel. Also in 1979, the most significant development during this 20 year time frame occurred when the Airport's operational management shifted from the City of Asheville to the newly created Greater Asheville Regional Airport Authority, comprised of appointees by the Buncombe County Commission and the Asheville City Council. In 1980, a runway extension project was completed increasing the former 6,500 foot runway to its current length of 8,001 feet. Finally, a baggage claim and boarding gate area expansion doubled the existing capacity of the terminal building.

1981-2004: Projects designed to accommodate an increase in passengers were the focus of Airport improvement efforts during these years. In 1992, the terminal building was again expanded to increase the size of the airline ticket counter lobby, baggage claim area, administrative office space, and boarding gate areas. To better manage the increase in vehicular traffic around the Airport campus, a loop service road was constructed between the terminal building and North Carolina Route 280. An additional expansion to the terminal building in 2003 increased the passenger lounge to 10,000 square feet.

2005-2010: Continued growth in passenger traffic from 2000 to 2005 resulted in the construction of an enlarged terminal apron and new Airport maintenance facility in 2006. In 2008, a consolidated rental car service facility was constructed as well as new terminal building boarding gate ramps. In addition, 2008 saw the Greater Asheville Regional Airport Authority appoint its first member from Henderson County. In 2009 and 2010, several improvements were made to the terminal building that included the construction of an additional baggage carousel, an expanded car rental desk area, increased office space, and an expanded gate holding area, new passenger boarding bridges, and an enlarged security screening area. Additional projects completed over this five-year time period include the construction of T-style and bulk hangars, installation of new airfield lighting and wildlife/security fencing, improvements to landside access roadways and public parking lots, and the addition of back-up power generators at the Public Safety and maintenance facilities. Growing aviation demand forecasted at the Airport over the next 20 years will continue to require facilities to evolve into the future.

2.3 Environment and Land Use

In order to plan for future Airport development, an understanding must first be gained of local environmental conditions and surrounding land uses. Topography, soil type, climate, and local wind conditions can all factor in determining future infrastructure needs and areas suitable for development while surrounding land uses can influence growth and expansion opportunities. As part of the inventory data collection effort, information was gathered on local environmental conditions and a review was conducted of surrounding land uses. This section summarizes the Airport's environs and adjacent land uses.

2.3.a Environment

The review of the Airport's environs focused on the topography of the surrounding landscape, the types of soil located on Airport property, historical meteorological conditions, and the average direction and intensity of local winds. Each one of these environmental elements plays an important role in how future development occurs at the Airport. A summary of each environ is presented in the following subsections.

Topography – The mountainous topography surrounding the Airport is an important physical factor that impacts future development and expansion opportunities. At an elevation of 2,165 feet above mean sea level (MSL), the airfield lies on a plateau that gradually slopes downward from north to south to an elevation of 2,111 feet above MSL. Outside of the airfield plateau, the topography again slopes downward away from the airfield to elevations of approximately 2,040 feet MSL to the north and 2,160 MSL to the south. Along the east and west of the airfield plateau, the topography of the land drops sharply approximately 35 feet outside of the boundaries of the airfield design surfaces and the terminal area. On a broader scale, the topography of the land outside the immediate boundary of the Airport, within a two to three mile radius, is comprised of small hills and valleys that are surrounded by the Blue Ridge Mountains.

Soil – A variety of loams and soil complexes comprise the soil types that are found on existing Airport property according to the United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) Web Soil Survey (http://websoilsurvey.nrcs.usda.gov). This source of soil survey information identifies that loamy and urban land complex Udorthents are the primary soil types found on existing Airport property. Urban land complex Udorthents found primarily on the airfield and on the east side of the airfield are suitable to support development such as runways, taxiways, aprons, roadways, parking lots, buildings, and other structures. The remainder of soil types identified on Airport property that are not well suited for development includes Clifton clay loams, Clifton sandy loams, Evard-Cowee complex soils, Dillard loam, Hemphill loam, Iotla loam, Tate-urban land complex soils, and Hayesville loam.

Meteorological/Climate Conditions – Asheville's latitude, elevation, and the surrounding Blue Ridge Mountains influence the local climate and meteorological conditions of the region. Though located in a humid subtropical climate much like the rest of the southeastern United States, temperatures in Asheville are often cooler as a result of its higher elevation. Summers are warm and humid with the daily maximum temperature in July averaging 83 degrees Fahrenheit and a low of 63 degrees Fahrenheit. Winters are cool with below freezing temperatures experienced occasionally as the average daily temperature in January reaches a high of 46 degrees Fahrenheit and a low of 26 degrees Fahrenheit. Precipitation totals in Asheville are modest as the region receives approximately 47 inches of rainfall and 13 inches of snowfall annually. Based on 30 year averages, sunshine is present throughout the region 59 percent of the year with approximately 97 days experiencing clear skies, 111 days with partly cloudy conditions, and151 days with overcast skies.

Wind – One of the most important environmental elements at any airport is the direction of local prevailing winds. Since operational safety is highest when aircraft land and takeoff into the wind, it is important that the orientations of an airport's runways are aligned in the same direction as local prevailing winds. FAA Advisory Circular (AC) 150/5300-13, *Airport Design*, recommends that the orientation of runways at an airport provide at least 95 percent wind coverage for types of aircraft using the airport on a regular basis. This is important since smaller aircraft are greatly impacted by crosswinds, or wind perpendicular to an aircraft's path of travel.

Based on hourly wind observation data obtained from the National Climatic Data Center (NCDC), the orientation of the Airport's single runway, Runway 16/34, provides sufficient wind coverage in a 10.5 knot crosswind 99.56 percent of the time during all weather conditions. A 10.5 knot component was used to evaluate wind coverage because this is typically the threshold upon which smaller aircraft can safely operate in crosswind conditions. Crosswind components of 13 knots, 16 knots, and 20 knots were also evaluated to measure the coverage provided in stronger winds that could impact the operations of twin-engine and jet aircraft. **Table 2-2** illustrates the wind coverage provided by Runway 16/34 during all weather conditions while **Table 2-3** and **Table 2-4** illustrate coverage provided during Visual Flight Rules (VFR) and Instrument Flight Rules (IFR) weather conditions, respectively. Based on the data, the orientation of Runway 16/34 provides sufficient wind coverage that exceeds the FAA's standards.

Table 2-2: Runway 16/34 Wind Coverage In All Weather Conditions

Crosswind (in knots)	Runway 16	Runway 34
10.5	62.07%	76.69%
	99.56%	
13	62.25%	76.83%
	99.87%	
16	62.30%	76.90%
	99.97%	
20	62.31%	76.91%
	99.99%	

Note: single runway end coverages calculated with a 3 knot tailwind
Source: National Climatic Data Center, FAA Standard Wind Analysis tool
Station: Asheville, NC
Period of Record: 2000-2009 based on 78,481 hourly observations

Table 2-3: Runway 16/34 Wind Coverage In VFR Weather Conditions		
Crosswind (in knots)	**Runway 16**	**Runway 34**
10.5	59.14%	77.22%
	99.52%	
13	59.34%	77.38%
	99.86%	
16	59.40%	77.45%
	99.97%	
20	59.41%	77.46%
	99.99%	

Note: single runway end coverages calculated with a 3 knot tailwind
Source: National Climatic Data Center, FAA Standard Wind Analysis tool
Station: Asheville, NC
Period of Record: 2000-2009 based on 69,638 hourly observations
VFR = Ceiling greater than or equal to 1,000 feet and visibility greater than or equal to 3 statute miles

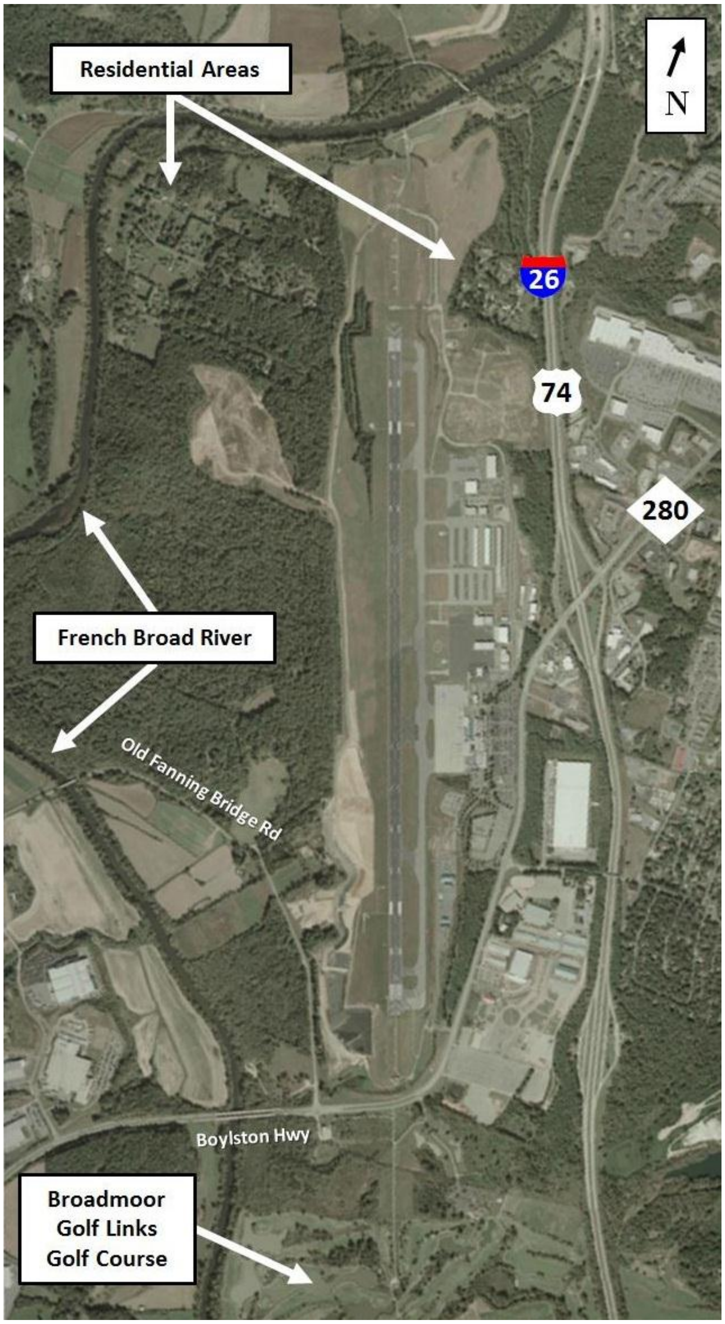
Table 2-4: Runway 16/34 Wind Coverage In IFR Weather Conditions		
Crosswind (in knots)	**Runway 16**	**Runway 34**
10.5	84.33%	68.20%
	99.91%	
13	84.35%	68.23%
	99.97%	
16	84.35%	68.26%
	99.99%	
20	84.35%	68.27%
	100.00%	

Note: single runway end coverages calculated with a 3 knot tailwind
Source: National Climatic Data Center, FAA Standard Wind Analysis tool
Station: Asheville, NC
Period of Record: 2000-2009 based on 7,053 hourly observations
IFR = Ceiling less than 1,000 feet but greater than or equal to 200 feet and/or visibility less than 3 statute miles but greater than or equal to 1/2 statue mile

2.3.b Land Use

When establishing a plan for the future development of the Airport, it is important that adjacent land uses are reviewed to identify possible constraints that may impact the ability to expand. To the north, the French Broad River borders the Airport along with residential areas located to the east and west of the approach end of Runway 16. To the south, North Carolina Route 280 lies adjacent to the Airport beyond which lies the Broadmoor Golf Links golf course. Several types of land uses are found along the eastern boundary of the Airport. To the southeast, North Carolina Route 280 borders the Airport from the approach end of Runway 34 to the main Airport entrance. Northeast of the main Airport entrance and long-term parking lots, two tracts of land owned by the Airport east of North Carolina Route 280 are bordered by a warehouse/distribution center, hotel, restaurant, and gas station. North of these two tracts of land, the eastern boundary of the Airport continues along North Carolina Route 280 until intersecting with Interstate 26. Land is largely undeveloped west of the Airport, with a forested area located between the airfield and the French Broad River. The aerial photo presented in **Figure 2-5** illustrates the land uses that are found within the immediate proximity of the Airport.

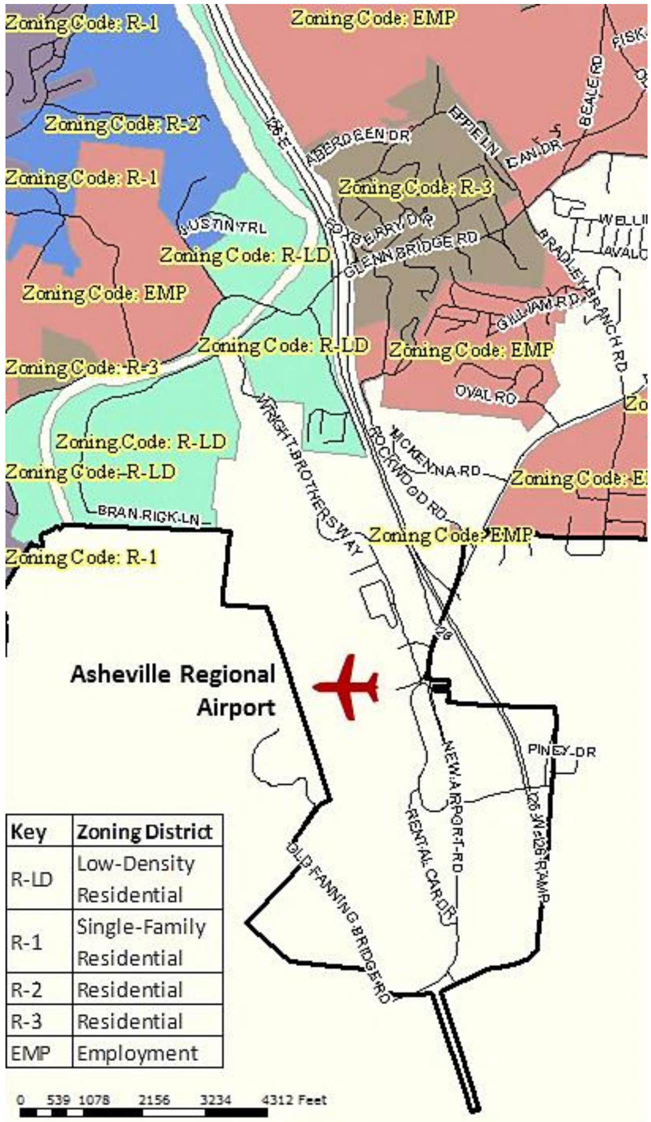
Figure 2-5: Surrounding Land Uses



Aerial Photo: Woolpert, Inc.

In addition to evaluating existing land uses, it is also important to review the boundaries and locations of adjacent zoning districts to gain an understanding of future permitted uses of land around the Airport. Since the Airport is located in both Buncombe and Henderson counties, surrounding land use zoning is divided between four entities: Buncombe County, the City of Asheville, the Town of Fletcher, and the Town of Mills River. To the north, as illustrated in **Figure 2-6**, land within Buncombe County is zoned primarily for office use, industrial use, storage, warehousing, and wholesale trade (Employment District) and various residential development that includes low-density and single family uses.

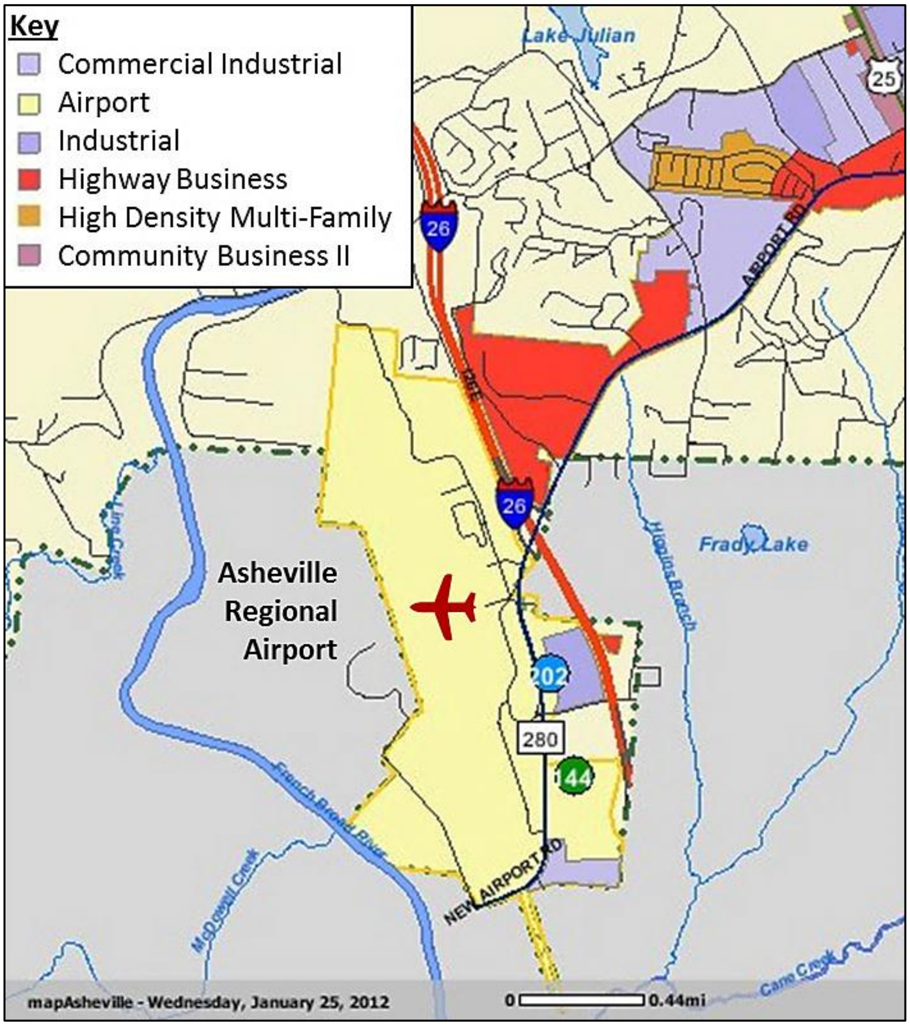
Figure 2-6: Buncombe County Zoning Districts



Source: Buncombe County GIS Department

The Airport and an area of land to the northeast lie within the City of Asheville and are subject to the City's zoning and land use controls. As illustrated in **Figure 2-7**, land immediately surrounding the immediate vicinity of the Airport is zoned for a wide range of commercial and industrial uses such as light manufacturing, wholesale, warehousing, services, offices, and automobile-oriented commercial development. In addition, a small area designated for high density multi-family housing types along with limited institutional, public, and commercial use lies north of the Airport on Airport Road. It should be noted that Airport land within the City of Asheville is zoned for aviation-related commercial/industrial and recreational uses.

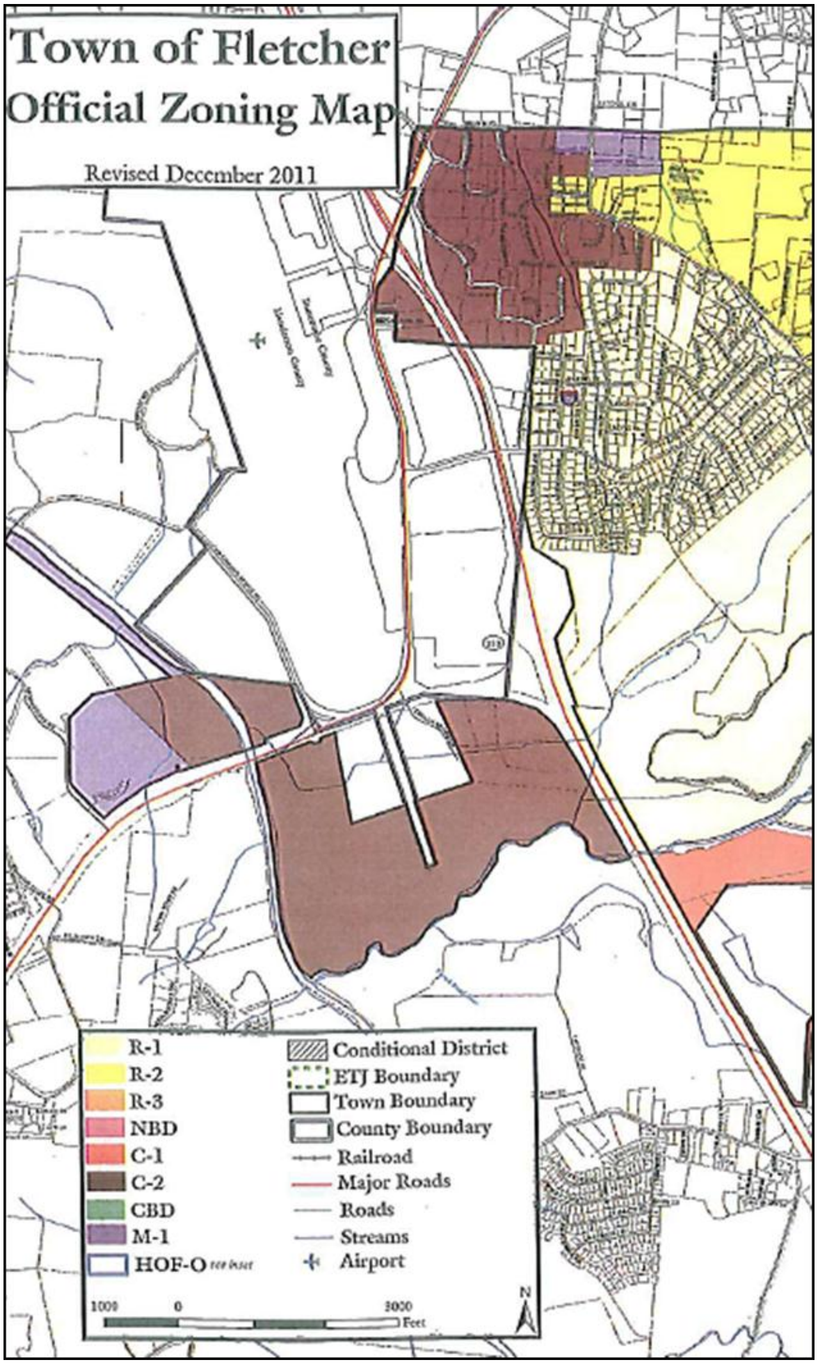
Figure 2-7: City of Asheville Zoning Districts



Source: *mapAsheville Development Mapper* (City of Asheville)

In North Carolina, land use statues grant authority to local governments to regulate the use of private land. In Henderson County, land adjacent to Airport property is regulated by the Town of Fletcher and the Town of Mills River. **Figure 2-8** illustrates the zoning districts to the south and east of the Airport located within the Town of Fletcher. Land zoned for low-density and single-family neighborhoods (R-1 & R-2) and mixed commercial, residential, and service oriented uses (C-2) are primarily found adjacent to the Airport in Fletcher. In addition, two manufacturing districts (M-1) intended for manufacturing, processing, assembling of parts, and distribution of products and services are designated in Fletcher near the proximity of the Airport.

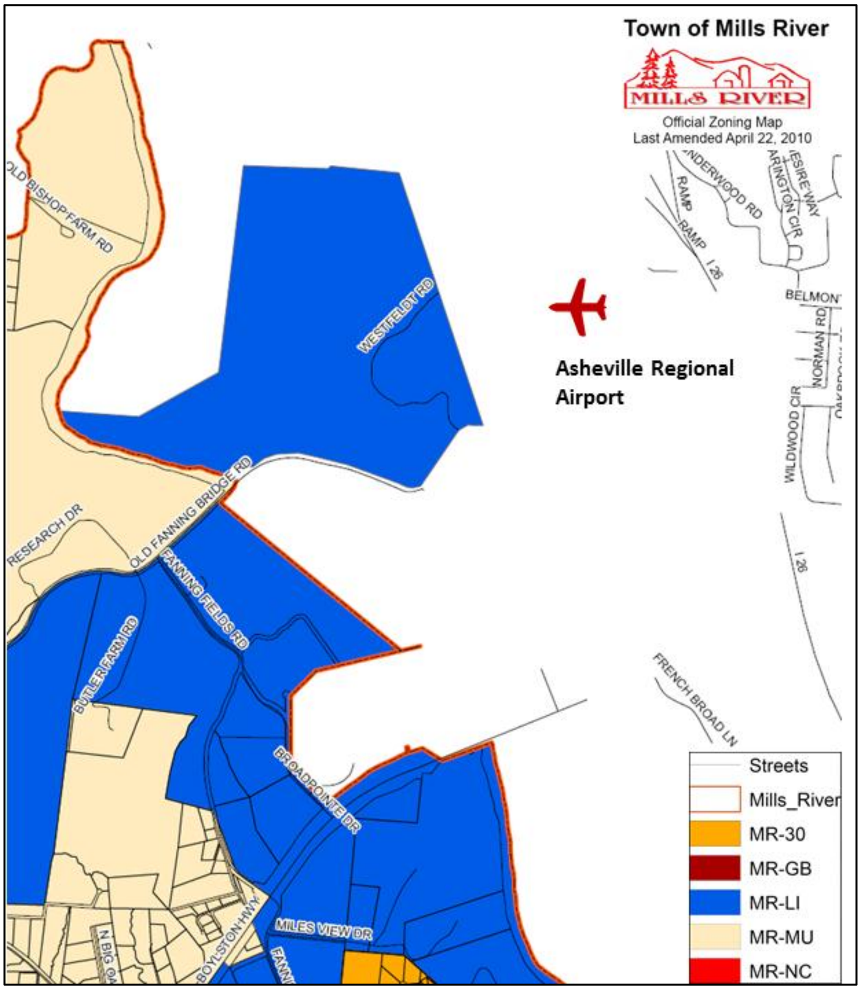
Figure 2-8: Town of Fletcher Zoning Districts



Source: Town of Fletcher Planning and Zoning Department

Land zoned west of the Airport within the Town of Mills River is primarily designated for light industrial use (MR-LI) that includes manufacturing, assembly, storage, processing, distribution, and sale of equipment. Mixed land use zoning districts (MR-MU) are also found in proximity to the Airport that are designed to permit a variety of uses that includes residential, industrial, and commercial development. **Figure 2-9** illustrates the zoning districts west of the Airport within the Town of Mills River.

Figure 2-9: Town of Mills River Zoning Districts



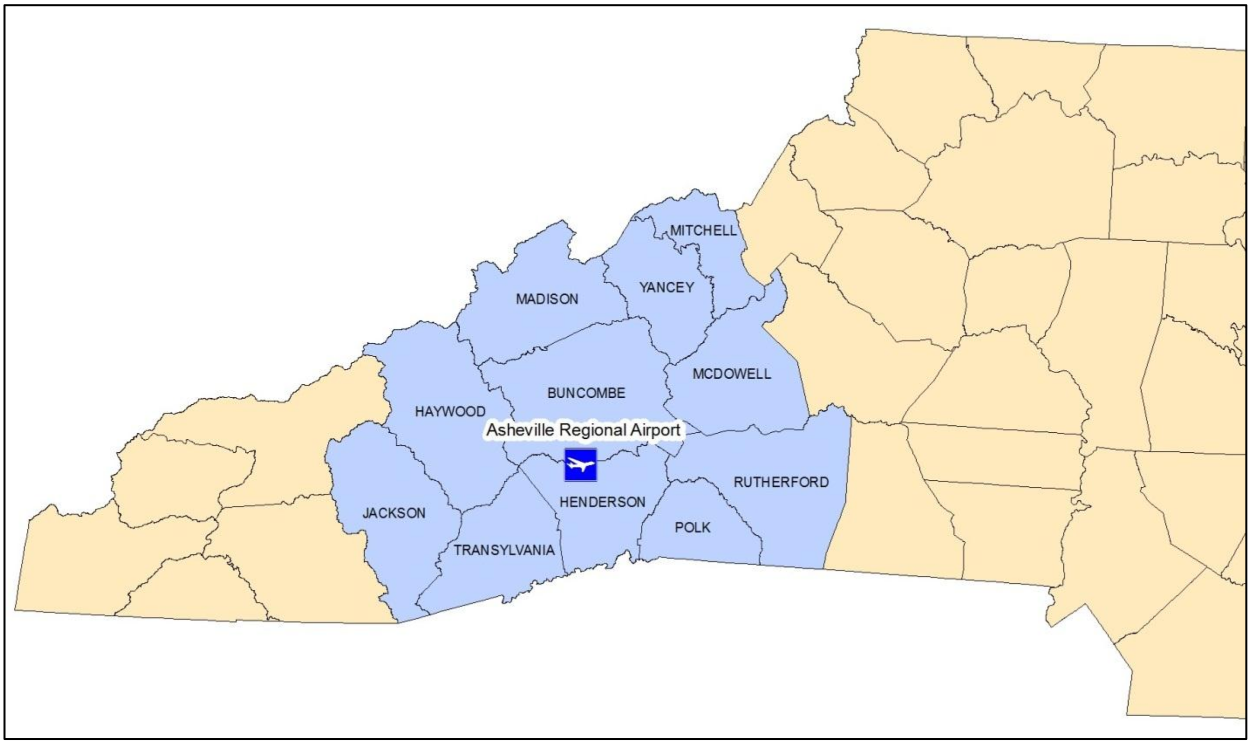
Source: Town of Mills River Official Zoning Map

It should be noted that the Asheville Regional Airport Master Land Use and Site Development Plan was prepared in January 2007 to identify land uses and opportunities for development in proximity to the Airport. This is a result of relatively flat land immediately surrounding the Airport and the accessibility of the area to both the Asheville and Hendersonville metropolitan areas. It is critical that existing zoning and land use controls are applied to promote development in the area, yet prevent incompatible land uses from impacting Airport operations.

2.4 Socioeconomic Data

In an effort to project future aviation activity at the Airport and to determine what infrastructure improvements will be needed over the next 20 years, an understanding must be gained of the socioeconomic conditions of the Airport's primary service area. Though a majority of users are located in the Asheville and Hendersonville metropolitan areas, the Airport's primary service area stretches over 11 Western North Carolina counties which are identified in **Figure 2-10**.

Figure 2-10: Airport Service Area



Source: Mead & Hunt, Inc.

According to data obtained from the U.S. Census, the population of the Airport's 11 county primary service area increased 13 percent from 651,332 in 2000 to 664,932 in 2010. A breakdown of the population change in each county from 2000 to 2010 is presented in **Table 2-5**. As illustrated in the table, the populations in ten counties have increased since 2000, with Jackson, Henderson, Buncombe counties experiencing the greatest increase in growth, respectively.

Table 2-5: Historical Population of Airport Service Area

County	2000	2010	% change
Buncombe County	206,330	238,318	15.5%
Haywood County	54,033	59,036	9.3%
Henderson County	89,173	106,740	19.7%
Jackson County	33,121	40,271	21.6%
Madison County	19,635	20,764	5.7%
McDowell County	42,151	44,996	6.7%
Mitchell County	15,687	15,579	-0.7%
Polk County	18,324	20,510	11.9%
Rutherford County	62,899	67,810	7.8%
Transylvania County	29,334	33,090	12.8%
Yancey County	17,774	17,818	0.2%
TOTAL	**588,461**	**664,932**	**13.0%**

Source: U.S. Census Bureau, 2000 & 2010 Census data

According to 2010 U.S. Census data, 36 percent of the Airport's service area population lives within Buncombe County, followed by Henderson County with 16 percent and Rutherford County with 10 percent. Demographically, 51 percent of the population is between the ages of 20 and 59 followed by persons 60 years of age and older at 26 percent and 19 years of age and under at 23 percent. **Table 2-6** illustrates the breakdown in age demographics for the 11 counties that comprise the Airport's service area.

Table 2-6: 2010 Age Demographics of Airport Service Area

County	19 & Under	%	20-29	%	30-39	%	40-49	%	50-59	%	60 & Over	%	Total	%
Buncombe County	54,628	23%	30,628	13%	31,800	13%	32,925	14%	34,647	15%	53,690	23%	**238,318**	36%
Haywood County	12,804	22%	5,663	10%	6,586	11%	8,326	14%	8,692	15%	16,965	29%	**59,036**	9%
Henderson County	23,930	22%	10,096	9%	12,232	11%	13,837	13%	15,010	14%	31,635	30%	**106,740**	16%
Jackson County	9,780	24%	7,773	19%	4,224	10%	4,516	11%	5,181	13%	8,797	22%	**40,271**	6%
Madison County	4,829	23%	2,228	11%	2,433	12%	2,851	14%	3,229	16%	5,194	25%	**20,764**	3%
McDowell County	10,798	24%	4,805	11%	5,823	13%	6,494	14%	6,670	15%	10,406	23%	**44,996**	7%
Mitchell County	3,343	21%	1,521	10%	1,716	11%	2,192	14%	2,448	16%	4,359	28%	**15,579**	2%
Polk County	4,362	21%	1,600	8%	1,869	9%	2,709	13%	3,310	16%	6,660	32%	**20,510**	3%
Rutherford County	16,931	25%	6,732	10%	7,946	12%	9,707	14%	9,976	15%	16,518	24%	**67,810**	10%
Transylvania County	6,784	21%	3,257	10%	3,114	9%	3,979	12%	4,750	14%	11,206	34%	**33,090**	5%
Yancey County	3,930	22%	1,608	9%	2,073	12%	2,414	14%	2,727	15%	5,066	28%	**17,818**	3%
TOTAL	**152,119**	23%	**75,911**	11%	**79,816**	12%	**89,950**	14%	**96,640**	15%	**170,496**	26%	**664,932**	100%

Source: U.S. Census Bureau, 2010 Census data

The mean household total personal income offers a method to summarize the economic demographics of the population within the Airport's service area. Since 2000, the mean household total income has fluctuated with some counties experiencing an increase in their average income while others have decreased. **Table 2-7** compares the mean household total personal income for each county that comprises the Airport's service area from 2000 to 2010. Data from Woods & Poole Economics, Inc. indicates that the greatest increase in average total household personal income from 2000 to 2010 occurred in Rutherford County at 4.8 percent while the greatest decrease occurred in Yancey County at minus 9.1 percent. It is interesting to note that the average of the mean household total personal income for all counties within the Airport's service area between 2000 and 2010 has remained constant.

Table 2-7: Mean Household Total Personal Income of Airport Service Area

County	2000	2010	% change
Buncombe County	$67,666	$69,676	3.0%
Haywood County	$58,185	$60,762	4.4%
Henderson County	$70,396	$69,055	-1.9%
Jackson County	$53,365	$54,083	1.3%
Madison County	$53,081	$53,447	0.7%
McDowell County	$56,204	$53,080	-5.6%
Mitchell County	$50,345	$51,231	1.8%
Polk County	$76,063	$76,792	1.0%
Rutherford County	$56,494	$59,229	4.8%
Transylvania County	$65,648	$64,781	-1.3%
Yancey County	$50,990	$46,327	-9.1%
AVERAGE	**$59,858**	**$59,860**	**0.0%**

Source: Woods & Poole Economics, Inc. (in 2004 dollars)

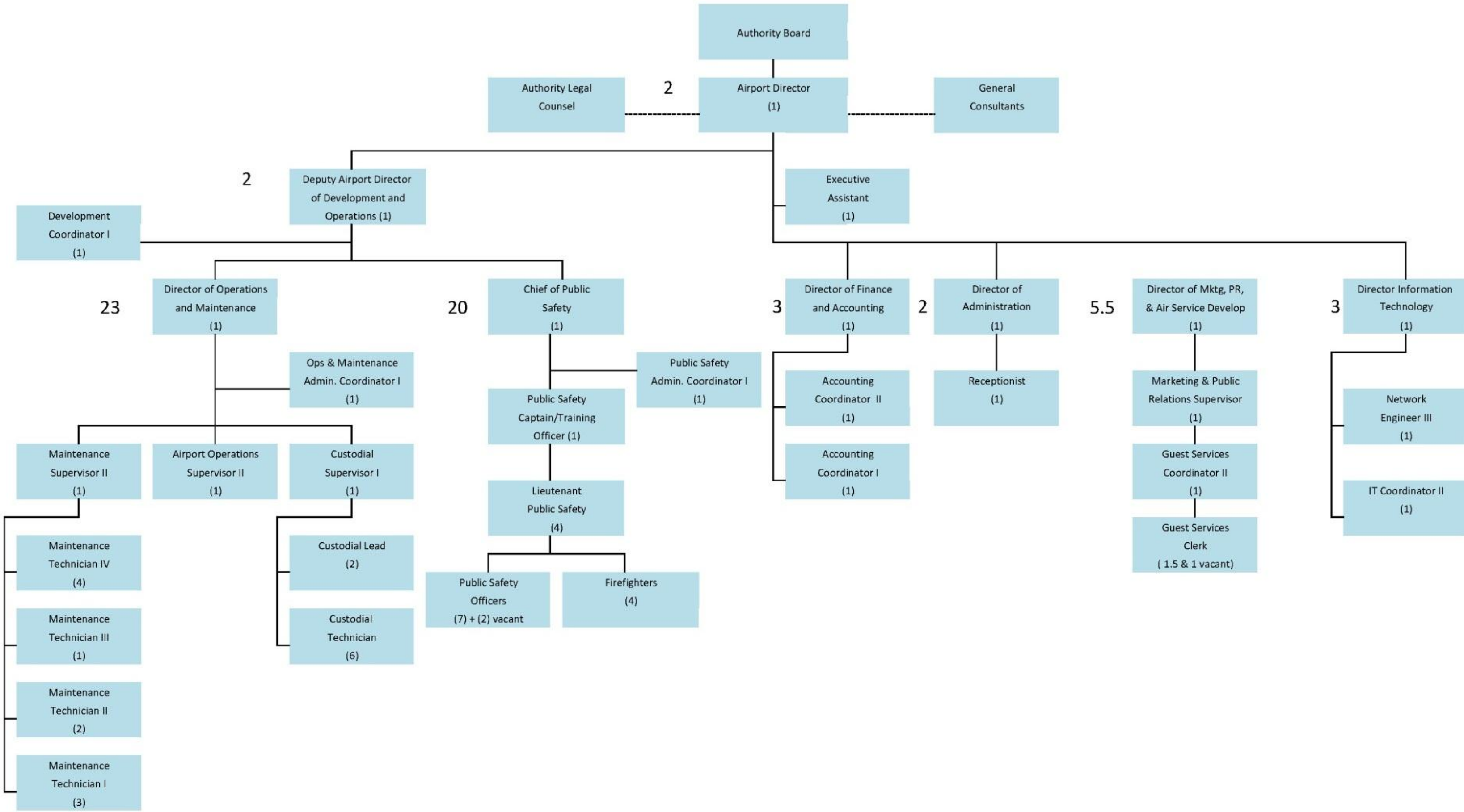
2.5 Airport Management Structure

The management of the Asheville Regional Airport is overseen by the Greater Asheville Regional Airport Authority Board, which was founded in 1979 and is charged with the maintenance, operation, and development of the Airport. The Board includes seven members, three of which are appointed by the Asheville City Council and three of which are appointed by the Buncombe County Board of Commissioners. A seventh member is selected by the six Authority Board appointees as the At-Large member.

The Airport Director, with support from the Authority Legal Counsel, General Consultants, and Airport staff, reports to the Authority Board. The Airport Director is assisted by the Director of Finance and Accounting, the Director of Administration, the Director of Marketing and Public Relations, and the Director of Information Technology who are responsible for Airport administrative tasks. These positions are also supported by coordinators, supervisors, and assistants who are responsible for more specific administrative tasks.

The Airport Director is also supported by the Deputy Airport Director of Development and Operations who oversees operations, maintenance, public safety, and the management of capital development projects at the Airport. Reporting to the Deputy Airport Director of Development and Operations are the Director of Operations and Maintenance and the Chief of Public Safety who oversee supervisors, coordinators, technicians, and officers responsible for specific Airport tasks. In all, the Airport Authority is comprised of 60 full-time employees. **Figure 2-11** illustrates the organizational structure of Greater Asheville Regional Airport Authority staff.

Figure 2-11: Airport Authority Organizational Structure



Source: Greater Asheville Regional Airport Authority

2.6 Existing Facilities

A majority of the inventory effort focused on the collection of information related to airside and landside facilities, along with the aviation support infrastructure necessary to ensure the safe and efficient operation of the Airport. This library of information that was collected offered a baseline that was used to complete subsequent study analyses in an effort to determine what will be needed over the next 20 years to meet anticipated future aviation demand. This section summarizes the data that was collected related to airside facilities (such as runways, taxiways, aprons, and navigational aids), aviation support facilities (such as the terminal building, hangars, air traffic control tower (ATCT), Aircraft Rescue and Fire Fighting (ARFF) station, and maintenance vehicle garage), and landside facilities (such as access roads, parking lots, and the rental car service facility).

2.6.a Runways

The Airport's single runway, Runway 16/34, is oriented in a northwest/southeast direction, and is 8,001 feet in length, 150 feet in width, and paved in asphalt. The runway's design meets Airport Reference Code (ARC) Category C-III standards which are designed for aircraft with approach speeds between 121 and 141 knots and wingspans between 79 and 118 feet. Additional information on the Airport Reference Code is explained in Chapter 4, Demand/Capacity and Facility Requirements Analysis. Though designed for Category C-III aircraft, a wide variety of aircraft types are capable of operating on the runway based on the weight bearing capacity of their main landing gear wheel configurations. The runway's pavement is rated to 120,000 pounds for aircraft with single wheel main landing gear configurations, 160,000 pounds for aircraft with dual wheel main landing gear configurations, and 260,000 pounds for aircraft dual tandem wheel configurations.

The strength of pavement was evaluated using the Pavement Condition Index (PCI), which is an industry standard that rates the condition of a pavement surface based on a variety of factors such as structural integrity, capacity, roughness, skid resistance/hydroplaning potential and rate of deterioration. A PCI score is based on a scale from 0 to 100 with pavements rated at 100 considered to be in excellent condition while pavements with a score of 10 or less are considered to be failing. A runway pavement evaluation conducted in 2009 found the weighted PCI of Runway 16/34 to be 50, which is below the PCI of 70 that is recommended to be maintained for primary surfaces at airports. A pavement rejuvenation project in 2011 resurfaced the runway with sealant to help preserve the useful life of the existing pavement and help slow its further deterioration. It is anticipated that the sealant will help maintain the pavement in a good to fair condition for the next five years.

A summary of the data collected for Runway 16/34 is presented in **Table 2-8**.

Table 2-8: Runway 16/34 Data	
Length	8,001 feet
Width	150 feet
Surface	Asphalt
Airport Reference Code (ARC)	C-III
Weight Bearing Capacity	Single Wheel: 120,000 pounds Dual Wheel: 160,000 pounds Dual Tandem Wheel: 260,000 pounds
Pavement Condition Index (PCI) Rating	50

Source: Airport Layout Plan

2.6.b Taxiways

Taxiways are defined pavement surfaces used for aircraft to travel safely between the runway and other airfield destinations such as aprons, hangars, and terminals. An airport's taxiway configuration should be designed to efficiently move aircraft between points on the airfield and minimize the amount of time an aircraft occupies a runway prior to takeoff or after landing. As a result of having a single runway and a linear organization of facilities, the taxiway configuration at the Airport is relatively simple and is comprised of a parallel taxiway, connector taxiways, and high speed exit taxiways. The Airport's parallel taxiway, Taxiway A, extends the entire length of Runway 16/34 and is 75 feet in width. Connector taxiways, such as Taxiway B, Taxiway F, Taxiway N, and Taxiway R, intersect the parallel taxiway or runway perpendicularly, connecting airfield destinations and the runway with the taxiway system. Finally, high speed exit taxiways such as Taxiway E, Taxiway M, and Taxiway P offer aircraft an acute angle to quickly exit the runway after landing, increasing its throughput capacity during periods of frequent aircraft operations. **Figure 2-12** illustrates the taxiway configuration at the Airport.

Figure 2-12: Airport Taxiway Configuration

Aerial Photo: Woolpert, Inc.

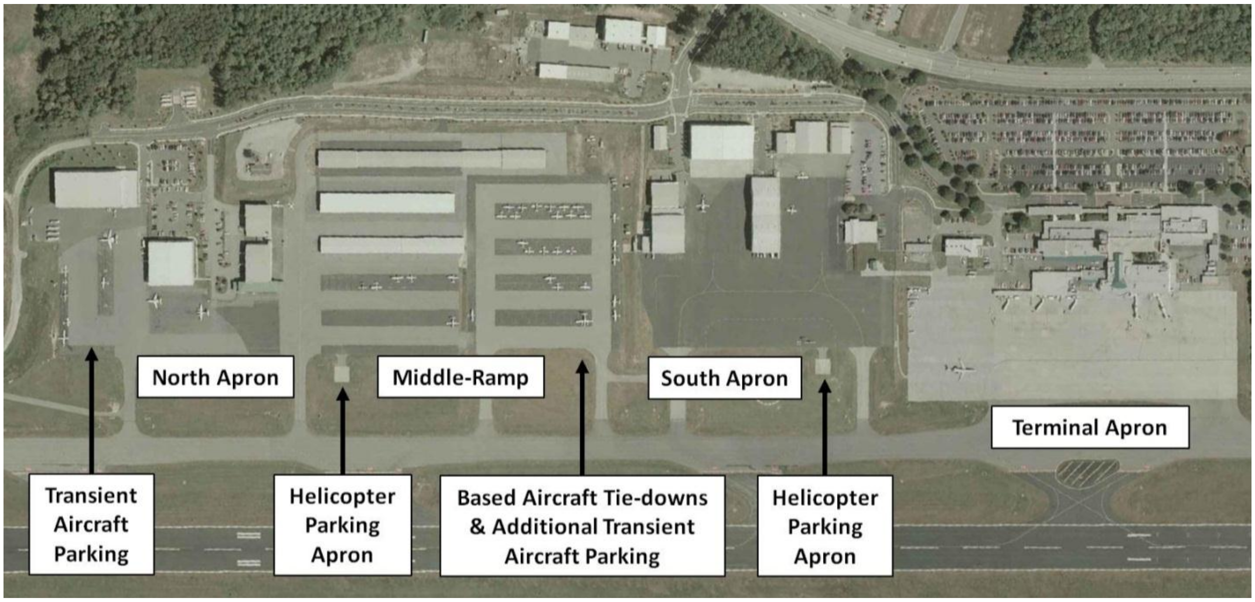
2.6.c Aprons

Aprons, also known as ramps, are large paved surfaces designed for the parking and servicing of aircraft. Aprons provide access to terminal, hangar, and fixed base operator (FBO) facilities, locations to transfer passengers and cargo from aircraft, and areas for aircraft fueling and maintenance. The size and pavement strength of an apron varies upon several factors that include the fleet mix of aircraft intended to use the surface, available space, special aircraft servicing needs, and the configurations of terminals, hangars, and FBOs. The Airport has four primary aprons that serve the main terminal building, the FBO, and the numerous corporate and private hangars based on the airfield. The terminal apron, approximately 417,100 square feet in area, is located adjacent to the main terminal building and is intended for the exclusive use of commercial airlines to transfer passengers and luggage to and from aircraft. This apron is also intended for the commercial airlines to service, fuel, and deice aircraft. The north apron offers parking locations for transient aircraft as well as access to the Landmark Aviation FBO. The south apron, approximately 357,400 square feet in area, is located north of the terminal apron and provides access to box-style aircraft hangars that house both corporate and private aircraft. The apron area located between the north and south aprons is referred to as the middle-ramp, or mid-ramp, and offers access to the three T-hangar structures as well as tie down locations for based and itinerant aircraft.

It should be noted that two helicopter parking aprons are located adjacent to the south apron and middle ramp. Though these surfaces may be referred to as helipads in some documents, they are primarily designed for the parking and servicing of itinerant helicopters since they are located within the non-movement area of the airfield. In accordance with air traffic control (ATC) instructions, helicopters are expected to take off and land at the Airport from the parallel taxiway or runway and hover or ground taxi to and from the helicopter parking aprons.

Figure 2-13 illustrates the locations of the four apron areas and two helicopter parking locations at the Airport.

Figure 2-13: Airport Apron Locations



Aerial Photo: Woolpert, Inc.

2.6.d Navigational Aids

Navigational aids (NAVAIDs) are forms of visual and electronic equipment designed to assist pilots in identifying and navigating to an Airport. Ranging from devices that help a pilot visually identify the location of an airport to those that provide the correct glide path and angle of descent for landing on a runway, NAVAIDs are most useful in nighttime conditions or when a pilot's visibility is limited. NAVAIDs that emit electronic signals are especially useful to pilots operating properly equipped aircraft when navigating an approach to an airport in poor visibility weather conditions. While most NAVAIDs are ground-based equipment that are installed on an airfield, some are satellite-based that provide navigational signals for properly equipped aircraft. This section reviews both the ground-based and satellite-based visual and electronic NAVAID equipment available for aircraft operations at the Airport.

Visual NAVAIDs – Visual NAVAIDs are those that allow a pilot to visually identify the airfield on approach to landing, when taxiing after landing or prior to takeoff. Visual NAVAIDs range from lighting equipment to signs identifying airfield locations and devices that indicate the strength and direction of the wind. The following visual NAVAIDs are located at the Airport:

- **Rotating Beacon** – A rotating beacon is a high intensity light that rotates 360 degrees and is operated at night and in inclement weather conditions to assist pilots in identifying the location of an airport from a distance in the air. The beacon is equipped with a green and a white lens separated 180 degrees from one another that emits alternating white and green flashes indicating an airport is available for public use. The rotating beacon at the Airport is located on the top of the ATCT.

- **Wind Indicators –** Wind indicators, also known as wind socks, are orange fabric cones that indicate the strength and direction of the wind. These NAVAIDs assist pilots in making navigational corrections to adjust for surface prevailing winds moments before touchdown or prior to departure. Wind cones are required to be located approximately 1,000 feet from the end of each runway that serves air carrier aircraft and are to be lighted if an airport is open to commercial air carrier operations at night. Three lighted wind indicators are located at the Airport: one inside the segmented circle adjacent to the south ramp, one adjacent to the glide slope antenna on the approach end of Runway 16, and one adjacent to the glide slope antenna on the approach end of Runway 34.

- **Segmented Circle –** A segmented circle is a ground based marking indicating the traffic pattern, wind direction, and wind strength to pilots en route. A segmented circle features a series of white or orange markings arranged in a circle with traffic pattern indicators protruding from the circle to specify the direction of the traffic pattern. A lighted wind indicator is placed inside the segmented circle markings to indicate the direction and intensity of the wind. The segmented circle at the Airport is located adjacent to the south ramp and includes two "L" shaped traffic pattern indicators separated 180 degrees away from one another to indicate the right traffic pattern for Runway 34.

- **MALSR –** Medium Intensity Approach Lighting System with Runway Alignment Indicator Lights (MALSR) assists pilots in visually acquiring the centerline of a runway prior to its threshold. MALSRs are most beneficial to pilots when aligning an aircraft with a runway centerline moments before touchdown during inclement weather and night time conditions when visibility is limited. A typical MALSR arrangement consists of nine light bars, each with five lights that are preceded by five sequenced flashing (SF) lights. At the Airport, MALSRs are located one at each approach end of Runway 16/34.

- **VASI** – Visual Approach Slope Indicators (VASIs) are lighting systems that indicate the correct glide path to pilots when on approach to a runway. A combination of red and white lights emitted from the VASI allows pilots to identify whether they are above, below, or on path with the correct glide slope. VASIs are typically a two bar, four-light unit located adjacent to the runway near the touchdown point aiming point marking. At the Airport, a four-light unit VASI is located on the approach end of Runway 34.

- **PAPI** – Precision Approach Path Indicators (PAPIs) are a more simplified version of a VASI that also indicate the correct glide slope to pilots. Like VASIs, the correct glide path is indicated by a combination of red and white lights that identify whether a pilot is above, below, or on path with the correct glide slope. PAPIs are typically comprised of a two- or four-light unit located adjacent to the touchdown zone aiming point marking of a runway. A four-light PAPI is located at the Airport on the approach end of Runway 16.

- **Runway Edge Lighting –** Runway edge lighting serves as an important navigational tool for pilots as it helps pilots identify the edge of the runway pavement surface during night and in low visibility weather conditions. This NAVAID is used by pilots to help align an aircraft with the centerline of a runway and in judging the distance remaining after touchdown and during takeoff. Runway edge lights are white except for the last 2,000 feet of an instrument runway when edge lighting is amber in color to help pilots identify the end of the pavement surface.

  Runway edge lights are classified into three types of lighting systems: High Intensity Runway Lights (HIRL), Medium Intensity Runway Lights (MIRL), and Low Intensity Runway Lights (LIRL). HIRL systems offer the greatest illumination intensity with five light intensity settings while MIRL systems offer three light intensity settings and LIRL systems typically have a single intensity setting. Runway 16/34 at the Airport is equipped with a HIRL system that can be controlled remotely by the pilot through a series of microphone keys on the Common Traffic Advisory Frequency (CTAF) when the ATCT is closed between 11:00 p.m. and 6:30 a.m. daily.

- **Runway Centerline Lights –** Runway centerline lights are located in the pavement of a runway along its centerline to assist pilots in visually identifying the center of a runway. In addition to helping pilots position an aircraft laterally on a runway during takeoff and landing, runway centerline lights are also used as an indicator to judge the distance remaining on a runway. Runway centerline lights are white and extend the entire distance of a runway until the last 3,000 feet when red and white lights alternate. For the remaining 1,000 feet, runway centerline lights are entirely red. Runway 16/34 is equipped with runway centerline lighting in both directions.

- **Runway Touchdown Zone Lights –** Runway touchdown zone (TDZ) lighting is another in-pavement lighting system utilized by pilots when on approach to a runway to identify the location of the touchdown zone. This lighting system is especially beneficial to pilots when locating the landing zone of a runway during nighttime and low visibility conditions. Runway TDZ lights consist of two rows of traversing three bars, each with three unidirectional lights that extend down the runway from the beginning of the touchdown zone to a distance of 3,000 feet. At the Airport, Runway 34 is equipped with TDZ lighting.

- **Runway Pavement Markings –** Although not typically associated as a navigational aid, runway pavement markings offer pilots another visual NAVAID to identify the touchdown zone and centerline of a runway. Markings applied to a runway are determined by the type of instrument approach to a runway. Runways equipped for only visual approaches may only require a few essential markings such as the runway designation, centerline, and an aiming point while runways equipped for precision instrument approaches require these and threshold, touchdown zone, and side stripe markings. Since Runway 16 and Runway 34 have precision instrument approaches, precision pavement markings are applied both ends of the runway.

- **Airfield Signs –** Airfield signage is also not typically associated as an NAVAID, but serves as an important navigational element for movement of aircraft on the ground. Airfield signs vary from those that indicate the distance remaining on a runway to identifying the location of runways, taxiways, aprons, and other airfield destinations. Airfield signage at the Airport includes location signs, directional signs, and mandatory signs such as runway hold and ILS critical area signs.

- **Taxiway Edge Lighting –** Taxiway edge lighting is similar to runway edge lighting in that it helps pilots identify the edge of the taxiway surface at night time and during times of reduced visibility. Taxiway edge lights are particularly useful to pilots when attempting to locate taxiway turnoff points from a runway after landing at night and when visibility is limited. Taxiway light systems at airports that serve commercial air carriers are normally a Medium Intensity Taxiway Lights (MITL) system comprised of three illumination intensity settings. The taxiway edge lights found on the airfield at the Airport are a MITL system.

Electronic NAVAIDs – Electronic based NAVAIDs serve an important function at the Airport as they allow aircraft to operate during conditions where visibility is limited, cloud ceiling heights are low, and/or when inclement weather is present. Complementing the visual NAVAIDs, electronic NAVAIDs allow an airport to remain open and increase the rate at which aircraft can arrive and depart during conditions that limit a pilot to visually navigate an aircraft. Electronic NAVAIDs operate by transmitting electronic signals which are received by avionic equipment installed on an aircraft providing position, altitude, and speed information which allows a properly trained and certified pilot to navigate an aircraft using the instrumentation in the cockpit. Methods of providing electronic navigational information range from ground-based transmitters installed on the airfield of an airport to satellites orbiting the Earth. Electronic NAVAIDs utilized at the Airport are listed in the following subsection:

- **Instrument Landing System –** Instrument Landing Systems (ILS) are electronic NAVAIDs that provide precision vertical and horizontal position information for aircraft on approach to a runway. An ILS is comprised of two pieces of equipment: a localizer and a glide slope antenna. Localizers are positioned at the departure end of a runway and transmit a signal that allows aircraft to align with the centerline of a runway when on approach to land. Signals transmitted from glide slope antennas position aircraft vertically with the correct glide slope path as they descend for landing on a runway. An ILS is the most precise navigational guidance systems of all electronic NAVAIDs.

  There are different categories of ILSs based upon their navigational accuracy, decision height, and visibility requirements. The standard ILS, Category I, allows a properly equipped aircraft to conduct an approach to a runway when the ceiling is not lower than 200 feet and the visibility is not lower than a 1/2 mile. At the Airport, Runway 16 and Runway 34 are equipped with Category I ILSs.

- **Global Positioning System (GPS) –** The Global Positioning System (GPS) is a satellite based navigational system that allows aircraft equipped with GPS receivers to accurately determine their location, altitude, direction of travel, and velocity. GPS offers aircraft the ability to conduct non-precision instrument approaches to runways without the use of ground based navigational equipment. With the installation of ground based GPS equipment, aircraft can receive more precise navigational information to conduct a near precision Localizer Performance with Vertical Guidance (LPV) instrument approach. Aircraft are able to conduct LPV GPS approaches at the Airport to both Runway 16 and Runway 34.

2.6.e Weather Equipment

Since aircraft operations are directly impacted by the weather, equipment is installed at an airport to accurately record and timely disseminate local airfield weather conditions. Two forms of weather reporting equipment are often installed at airports to accomplish this task: Airport Surface Observation System (ASOS) and Airport Weather Observation System (AWOS). The main elements of each weather observation system are relatively identical; however, build-in redundancy is included for components installed in ASOS units. Airports with ATCTs often install ASOS units that include instrumentation and sensors to measure wind speed and direction, temperature, dew point, barometric pressure, cloud ceiling height, visibility, and precipitation. Installation of a Runway Visual Range (RVR) component allow ASOS units to measure, in feet, the visibility below 1/2 mile which is particularly useful to pilots operating in Instrument Flight Rules (IFR) weather conditions. An ASOS unit with RVR capabilities is located at the Airport east of Taxiway A and north of the rental car service facility.

Surrounding the Airport, seven Low Level Wind Shear Alert System (LLWAS) sensor towers have been installed to notify pilots and ATC officials when this weather phenomenon is present. Wind shears are sudden changes in velocity or direction that are usually associated with warm or cold fronts, low level jet streams, and mountainous terrain. A strong wind shear can quickly alter the airspeed and path of travel of an aircraft that may result in a dangerous loss of lift. To warn pilots when these dangerous wind conditions are present, the seven wind shear indicators are located around the Airport.

Also installed at the Airport is a SCAN Web internet-based weather system that provides a snapshot of real-time weather information collected from ASOS instrumentation and in-pavement runway sensors. The system displays weather information such as air temperature, ground temperature, dew point, relative humidity, precipitation, wind speed, wind direction, and visibility for designated locations across the airfield. SCAN Web is particularly useful during snow and ice removal operations as in-pavement sensors on Runway 16/34 can measure the temperature of the pavement and help determine when precipitation may begin to freeze. This information helps Airport maintenance staff determine when to expect snow accumulation on the runway and when to apply deicing and anti-icing agents. The SCAN Web system at the Airport can be accessed by approved personnel through a secure web address on any internet browsing software.

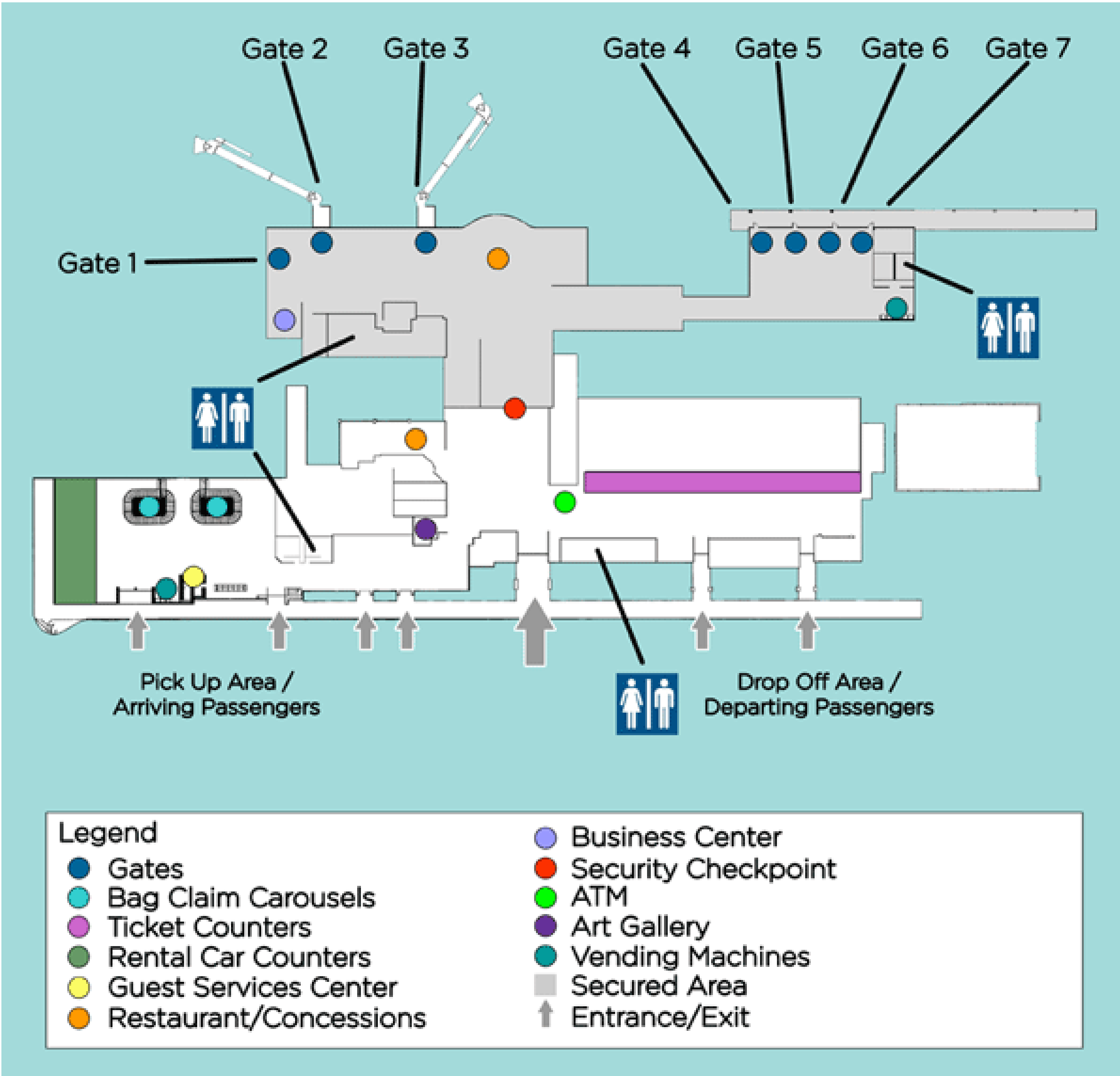
2.6.f Terminal Building

The main terminal building at the Airport is a seven gate facility equipped with five passenger boarding bridges, two baggage claim devices, and a single security checkpoint. Airline ticket counters are located in the north wing of the terminal on the public side of the security screening checkpoint while the baggage claims, rental car counters, and a guest services desk are located in the south wing. Prior to entering the security checkpoint, a concession stand is located next to the exit lane offering magazines, newspapers, snacks, and other travel items for purchase. On the secured side of the screening checkpoint, the Blue Ridge Trading + Tavern provides passengers with a full-service restaurant and bar while the gift shop sells reading materials, travel essentials, merchandise, and souvenirs. A business center located post screening near Boarding Gate 1 offers travelers a quiet area to complete work and other tasks. **Figure 2-14** illustrates the floor plan of the terminal building and its features.

Inside the terminal, artwork from Western North Carolina artists is displayed on a rotating basis. Sculptors and painters are encouraged to apply with the Airport to have their work displayed throughout the terminal and within the art gallery located near the security screening checkpoint. In addition to displaying art work, a piano purchased by the Airport in the terminal is available for musicians from pianists to folk ensembles to use if they apply with the Airport.

It should also be noted that the Airport's control tower is located on the top of the terminal building complex. Further discussion about the ATCT is presented in Section 2.8 of this Chapter.

Figure 2-14: Terminal Building Layout



Source: Asheville Regional Airport

2.6.g Fixed Base Operator

Fixed Base Operators (FBOs) are aviation-related businesses that provide services for pilots, aircraft, and passengers that range from aircraft fueling, ground servicing, aircraft maintenance and repair, in-flight catering, flight training, and aircraft rental. FBOs also serve as a terminal for passengers boarding general aviation aircraft and may include a passenger lobby, restrooms, vending machines, and rental car agencies. Accommodations for pilots to rest and prepare for their next flight such as pilot lounges, flight planning rooms, weather computers, and pilot shops may also be included in an FBO.

Landmark Aviation operates the only FBO at the Airport which is located on the north ramp and provides Jet A and 100LL aviation fuel, and aircraft ground handling services. Landmark Aviation also provides hangar storage for itinerant and based aircraft, concierge services, a passenger lobby, pilot lounge, conference room, and flight planning services. In addition, Landmark Aviation also oversees the leasing of several private general aviation hangars and tie-down spaces on both the north and south ramps.

Figure 2-15 illustrates Landmark Aviation's FBO terminal facility and its main hangar.

Figure 2-15: Landmark Aviation Facility

Source: Mead & Hunt, Inc.

2.6.h Hangars

Hangars are enclosed structures for the parking, servicing, and maintenance of aircraft and are designed for the protection of aircraft from environmental elements such as wind, rain, snow, ice, dust, and shelter-seeking small animals and birds. Most aircraft hangar structures are either box-style or T-style designs. Box-style hangars have a rectangular or box-shaped building footprint that range in size from structures that can house one or two single-engine aircraft to those capable of accommodating multiple jet aircraft. T-style hangars, also known as T-hangars, are in essence a series of small, interconnected single-engine aircraft hangars with footprints in the shape of a "T". Box-style hangars are most often constructed for multi-engine and jet aircraft while T-hangars are a popular covered storage option for multi- and single-engine aircraft.

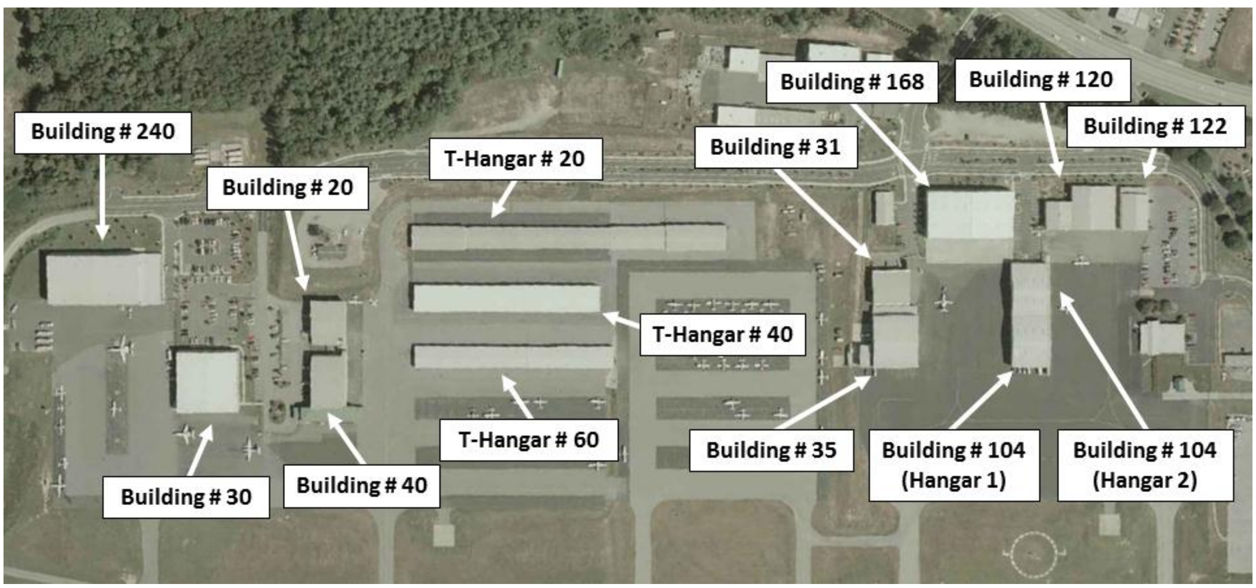
Several box-style hangars are located on both the north and south ramps at the Airport while three T-style hangar structures are found on the north ramp. **Table 2-9** lists the hangars found at the Airport while **Figure 2-16** identifies their location.

Table 2-9: Airport Hangars

Address	Building Number	Description	Hangar Type	Approx. Sq. Feet
20 Lindbergh Lane	20	Hangar with office	Box Style	8,480
168 Wright Brothers Way	168	Bulk hangar	Box Style	28,648
122 Wright Brothers Way	122	Hangar	Box Style	6,091
104 Wright Brothers Way	104	Hangar 1	Box Style	10,920
104 Wright Brothers Way	104	Hangar 2	Box Style	10,920
120 Wright Brothers Way	120	Hangar with office	Box Style	14,430
30 Lindbergh Lane	30	Bulk hangar	Box Style	19,600
35 Aviation Way	35	Hangar/office building	Box Style	14,727
31 Aviation Way	31	Hangar	Box Style	7,127
240 Wright Brothers Way	240	FBO office building & hangar	Box Style	31,980
40 Lindbergh Lane	40	FBO office building & hangar	Box Style	15,220
20 T-Hangar Row	T-Hangar 20	T-hangar	T-Style	22,827
40 T-Hangar Row	T-Hangar 40	T-hangar	T-Style	26,488
60 T-Hangar Row	T-Hangar 60	T-hangar	T-Style	39,368

Source: Asheville Regional Airport

Figure 2-16: Airport Hangar Locations



Aerial Photo: Woolpert, Inc.

2.6.i Fuel Facilities

Two fuel farm facilities designated for the storage of aircraft fuels are located on the Airport adjacent to the Landmark Aviation facility on Wright Brothers Way and east of the approach end of Runway 16 adjacent to the airfield perimeter access road. Each fuel farm is operated by Landmark Aviation and combined have a total capacity of 80,000 gallons of Jet A and 24,000 gallons of 100 low lead (100LL) fuels. Each fuel farm has above ground tanks and is constructed with secondary containment walls with dykes to control fuel in the event of an accidental leakage. Jet A and 100LL is available 24 hours per day, seven days per week through Landmark Aviation's full service staff or through a self-service 100LL pump.

In addition to the two aviation fuel farms, three other fueling facilities for non-aviation related purposes are located at the Airport. A fuel farm with a capacity of 1,800 gallons of diesel fuel and 1,800 gallons of unleaded gasoline is located within the airfield maintenance facility that is utilized by the Airport to refuel vehicles, tractors, snow removal equipment, and ARFF vehicles. A second non-aviation related fuel farm is located at the rental car maintenance facility at the south end of the Airport and is utilized by the rental car agencies for the refueling of rental vehicles. This fuel farm has five above ground, double-walled 5,000 gallon unleaded gasoline tanks that have a total capacity of 25,000 gallons. The third non-aviation fuel farm is located on the south side of the terminal building complex and consists of a single 8,000 gallon double-walled diesel fuel tank. This tank supplies diesel to the several emergency power generators located adjacent to the terminal that provide electricity to airfield lighting and other essential electrical components in the event of a power failure.

2.6.j Air Cargo Facilities

US Airways operates an air cargo processing facility for small packages in a building located adjacent to the ARFF building on the north side on the main terminal apron. Customers that have established shipping accounts with US Airways are able to drop off and pick up freight at the facility during standard business hours Monday through Friday for transport aboard the US Airways commercial passenger jets and small single- and twin-engine general aviation aircraft. The building has a total of eight roll up doors, four facing airside and four facing landside.

It should be noted that the Airport is utilizing coal-combustion by products (CCBs) for an engineered fill project on the west side of the airfield adjacent to the approach end of Runway 34 to create additional areas for future development. While a future use for this area has not yet been officially determined, it is anticipated that additional air cargo facilities may be constructed at this location. Given the close proximity of a FedEx Freight processing facility southwest of the airfield, continued efforts to prepare this area for future development may attract additional air cargo and freight processing facilities.

2.6.k Airport Maintenance Facility and Equipment

The Airport's maintenance facility for vehicles, equipment, and personnel is located landside near the intersection of Aviation Way and Wright Brothers Way. The three-building facility features storage and service areas for equipment, vehicle bays, workspaces, and personnel areas for Airport maintenance staff. The maintenance bay facility includes multiple bays for equipment servicing and includes a vehicle lift, overhead crane, and retractable pressurized air, electrical, and vehicle fluid hose reels. A personnel area adjacent to the maintenance bay facility provides staff with workspaces, offices, restrooms/showers, lockers, a kitchen, lounge, and sleeping quarters for staff use. Two additional multiple bay facilities provide covered storage for snow removal equipment, tractors, vehicles, mowers, supplies, and snow removal raw material storage.

Several vehicles and self-propelled machines are utilized by the Airport's maintenance department to maintain and keep the airfield operational. In addition to pickup trucks, tractors, mowers, fork lifts, and front end loaders, the Airport's maintenance vehicle inventory also includes rotary cutters, sweepers, and tandem axle snowplow trucks. **Table 2-10** lists the inventory of maintenance vehicles and other pieces of self-propelled equipment at the Airport.

Table 2-10: Airport Maintenance Vehicles

Equipment Description	#	Equipment Description	#
Ford F-250/350/550 4x4 trucks	9	Volvo BL70 backhoe	1
John Deere/Kubota/Int'l/Ford tractors	4	Sweepster/Tennant Sentinel sweepers	3
Caterpillar forklift	1	Kubota/Walker mower	2
Volvo L90C/Clark loaders	2	Kodiak snow blower	1
Ford/Volvo tandem axle trucks	4	Ford Freestar minivan	1
Ford Expedition 2x4 SUV	2	Ventrac 4200 personal tractor	1

Source: Asheville Regional Airport

2.6.l Aircraft Rescue and Fire Fighting (ARFF) and Public Safety Facility and Equipment

The 5,800 square foot Department of Public Safety (DPS) building located adjacent to the terminal building houses the Airport's Aircraft Rescue and Fire Fighting (ARFF) equipment, Airport Police operations, and the Airport's Communication Center, as well as provides offices, living quarters, and work areas for Public Safety officers. The vehicle bay of the DPS building provides heated, covered storage for up to four ARFF trucks in addition to storage room for Aqueous Film Forming Foam (AFFF), medical supplies, and firefighting equipment. Adjacent to the vehicle bay are the personnel quarters that contain offices, a dispatch center, locker room, kitchen, day room, training room, and storage space for DPS officers who are responsible for both ARFF and police duties at the Airport.

It should be noted that at the time of this master plan study the Airport was planning to construct a new ARFF and Public Safety facility to replace the existing DPS building that is limited in space for the storage of equipment, supplies, and vehicles. In particular, the vehicle bays of the existing facility do not meet size requirements for next generation ARFF vehicles that the Airport needs to purchase to replace outdated equipment. Also, the planned location of the new facility on a site north of the existing DPS building on the south apron would provide a clear path to the airfield for responding emergency vehicles. Currently, ARFF vehicles responding from the existing DPS building are sometimes forced to navigate around parked commercial airline aircraft as a result of its location in close proximity to the terminal. Having a dedicated clear route to the airfield would help decrease airfield emergency response times and prevent potential collisions with ARFF vehicles and parked aircraft. As a result of the planning undertaken by the Airport for this new facility prior to the initiation of this study, an extensive analysis was not conducted for a new ARFF/DPS building.

ARFF services at the Airport are provided by three vehicles that meet Index B requirements as outlined in FAR Part 139; an E-One Crash Truck, an Oshkosh Crash Truck, and an Oshkosh Striker 1500. At all times, two of these vehicles comprise the active duty fleet at the Airport while the third is maintained as a reserve vehicle in the event additional vehicles are needed for an emergency. A fourth fire truck, a Walters 4x4 Crash Truck, will be taken out of service in 2012 and replaced with a 2012 Rosenbauer Rapid Intervention Vehicle which is on order. In addition to these vehicles, a Polaris Ranger all-terrain vehicle (ATV) is used to access locations on the Airport that may be difficult to reach with the larger trucks.

Since DPS also provides law enforcement at the Airport, two police package Ford Expedition vehicles are provided for officers to complete routine patrols, traffic stops, and respond to emergency situations. In addition to these vehicles, a Ford F-350 pickup truck is used for inspecting airfield conditions and taking surface friction readings during snow removal operations.

2.6.m Airfield Electrical Vault & Generator

It is critical that a constant supply of power is provided to airfield lighting and navigational equipment in order to maintain a continually operational airfield. Two airfield electrical elements necessary to complete this task are an airfield electrical vault and a power generator. Airfield electrical vaults are structures designed to house transformers, relays, lighting panels, constant current regulators (CCRs), and other electrical components required to power airfield electrical infrastructure. Airfield generators are self-generating auxiliary sources of power intended to provide emergency electricity in the event of an off-Airport public utility power outage.

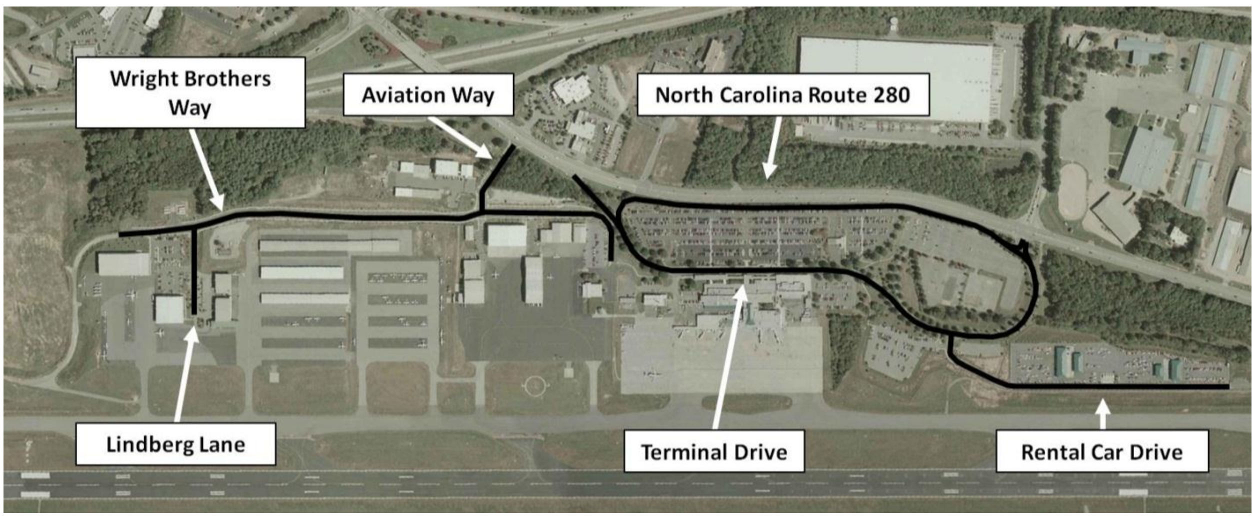
Since airfield electrical vaults and generators are connected to the same circuit, each will often be located in close proximity to one another to provide a centralized location for maintenance and accessibility. At the Airport, the airfield electrical vault and generator are located airside adjacent to one another next to the baggage return wing of the terminal building. A degree of redundancy has been built into the equipment installed in the vault to ensure the airfield receives power in the event any of the electrical components fail. In combination with the diesel powered generator, constant, uninterrupted power can be provided to airfield lighting and navigational equipment allowing the Airport to remain operational during night, in low visibility weather conditions, and in the event of a power failure.

2.6.n Airport Access Roads

Three entrances provide access to the Airport from North Carolina Route 280. To the north, Aviation Way provides access to the Airport's general aviation area while Terminal Drive provides access to the terminal building and commercial passenger parking. An additional Airport entrance for southbound traffic on North Carolina Route 280 provides access to Terminal Drive and the terminal area. Terminal Drive, the main Airport entrance, is a circular roadway that allows traffic to loop from North Carolina Route 280 to the terminal building, long- and short-term parking lots, and the rental car ready/return lot. South of the rental car ready/return lot on Terminal Drive, Rental Car Drive provides gated access to the consolidated rental car service center.

The northern entrance to the Airport provided by Aviation Way intersects Wright Brothers Way which provides access to the various aeronautical and non-aeronautical businesses that comprise general aviation area of the Airport. Near Landmark Aviation, Lindbergh Lane intersects Wright Brothers Way to provide additional access to the FBO as well as Belle Air Maintenance Facility and Hangar #30. All Airport access roads are considered to be in good condition with recent improvements occurring on Terminal Drive (resurfacing) and Wright Brothers Way (resurfacing and widening). **Figure 2-17** illustrates the access roads at the Airport.

Figure 2-17: Airport Access Roads



Aerial Photo: Woolpert, Inc.

2.6.0 Automobile Parking

At the Airport, there are over 2,500 parking spaces for commercial airline passengers, terminal building tenant employees, and rental car vehicles divided between ten different lots. The public long-term parking lot, located adjacent to the terminal building, has the largest parking capacity with 752 available spaces. Within the long-term lot is a designated short-term lot that provides an additional 192 public parking spaces. An overflow lot, located south of the long-term lot, adds an additional 520 parking spaces totaling the Airport's public parking capacity for commercial airline passengers at 1,465 vehicles. In addition to these lots, a cell phone waiting lot located south of the employee parking lot provides an additional 48 spaces for public parking that are designated only for vehicles waiting to pick up arriving passengers.

South of the terminal building near the baggage claim entrance is a rental car ready/return lot that has a parking capacity of 107 vehicles. In combination with the consolidated rental car service center that has a capacity of 578 vehicles, a total of 685 parking spaces at the Airport are available for rental vehicles. Parking for employees at the Airport is available at two lots south of the rental car ready/return lot that have a combined capacity of 327 vehicles while parking for Greater Asheville Regional Airport Authority employees is available at two lots north of the terminal building that have a combined capacity of 34 vehicles. DPS and Maintenance employees park in separate lots located within the north employee parking lot (six parking spaces) and at the Maintenance facility (18 parking spaces). Though the DPS facility has a parking lot, all spaces are reserved for either DPS vehicles or visitors. **Table 2-11** summarizes the total number of allocated parking spaces at the Airport.

Table 2-11: Airport Allocated Parking Spaces

Parking Lot	Number of Parking Spaces
Long-Term Lot	752
Short-Term Lot	193
Overflow Lot (Long-Term)	520
Cell Phone Waiting Lot	48
Rental Car Ready/Return Lot	107
Consolidated Rental Car Service Center Lot	578
South Employee Parking Lot	240
North Employee Parking Lot	87
Authority Employee Parking Lots	34
DPS Employee Parking Lot	6
Maintenance Employee Parking Lot	18
TOTAL	**2,583**

Note: Parking spaces in Airport tenant lots not included in this tabulation
Source: Asheville Regional Airport

2.6.p Consolidated Rental Car Facility

The Airport's consolidated rental car facility, constructed in 2008, is located south of the terminal parking area on Rental Car Drive and provides the rental car agencies a centralized location to quickly service vehicles in between rentals. The consolidated rental car facility is comprised of two multiple bay vehicle service buildings and two service islands. Each vehicle service building is equipped with service bays that feature car washing equipment, vehicle lifts, and overhead retractable hose reels that provide pressurized air and vehicle fluids. Adjacent to each building is a covered service island that contains gasoline pumps and vacuums to fuel and clean vehicles.

2.7 Businesses and Tenants

There are several businesses, organizations, and governmental entities that engage in both aviation and non-aviation related activities at the Airport. Each of these entities is considered to be a tenant of the Airport since they lease office space, buildings, ticket counters, storage areas, and/or service space from the Authority. In the terminal building, Allegiant Air, United Airlines, Delta Air Lines, and US Airways have ticket counters, offices, and baggage makeup areas for their airline operations. The Paradies Shops, operators of the Blue Ridge Trading + Tavern restaurant and the gift shop lease restaurant, concession, and storage areas in the terminal for their operations. In addition to these businesses, two governmental agencies responsible for the safety and security of aviation also lease office space in the terminal building. The Transportation Security Administration (TSA) leases offices for administrative officials and Transportation Security Officers (TSOs) while the FAA leases office and work space for its ATC operations.

Rental car agencies based at the Airport lease space in both the terminal building and the consolidated rental car facility for their operations. Avis, Budget, Enterprise, Hertz, and National/Alamo lease ticket counter and office space in the terminal to conduct business transactions while offices and storage areas at the consolidated rental car facility are leased for service employees, supplies, and materials. Also involved in ground transportation-related activities at the Airport is Standard Parking, which has offices in the parking lot toll booth plaza and is responsible for the management and revenue control of the Short- and Long-Term parking lots.

Other tenants at the Airport include the FBO operator Landmark Aviation, Belle Aircraft Maintenance, and WNC Aviation, which conducts flight instruction and provides rental aircraft. Two other governmental entities, the U.S. Forestry Service and the Civil Air Patrol (CAP), lease buildings at the Airport for aerial firefighting and auxiliary services for the U.S. Air Force, respectively. Finally, Advantage West, a regional economic development commission, leases a building near the US Airways cargo facility as its center of operations.

2.8 Airspace, Air Traffic Control, and Approach/Departure Procedures

In addition to the collection of data on physical infrastructure elements, information was also gathered on the surrounding airspace, ATC, and approach/departure procedures at the Airport. Evaluation of this information from subsequent study tasks has helped to identify the adequacy of existing airspace design and procedures to support Airport operations for the next 20 years. Elements that comprise the makeup of airspace surrounding the Airport are presented in the following sections.

2.8.a Airspace

All airspace over the United States is classified into one of six different categories by the FAA based on criteria such as level of activity, type of ATC, and requirements for IFR and VFR flight. Special restrictions, conditions, and operating rules apply to each classification of airspace. The following lists the different classes of airspace and describes the operational criteria associated with each.

Class A – Class A airspace is located between the altitudes of 18,000 feet and 60,000 feet MSL and lies over the entire United States. Aircraft operating in Class A airspace must do so under IFR and file a flight plan with an FAA Flight Service Station (FSS). All aircraft operating in this airspace must receive approval from ATC prior to entering and must remain in constant radio communication.

Class B – Class B airspace is located between ground level and an altitude of 10,000 feet MSL and occurs generally around airports with high levels of air traffic. The horizontal dimension of Class B airspace varies based on the specific needs of an Airport, such as the orientation of runways, surrounding land uses, and arrival and departure procedures. Aircraft operating in this class of airspace must receive clearance from ATC prior to entering and remain in constant radio communication.

Class C – Class C airspace is located between ground level and an altitude of 4,000 feet MSL and is assigned around airports with a control tower, radar approach control, and have a significant number of IFR operations. The horizontal dimension of Class C airspace varies based upon the specific needs of an Airport but is generally two-tiered in shape with a with an inner radius of five miles around an airport from ground level to an altitude of 1,200 feet MSL and an outer radius of ten miles from an altitude of 1,200 feet MSL to 4,000 feet MSL. Permission and constant radio communication from ATC is required for aircraft to operate in Class C airspace.

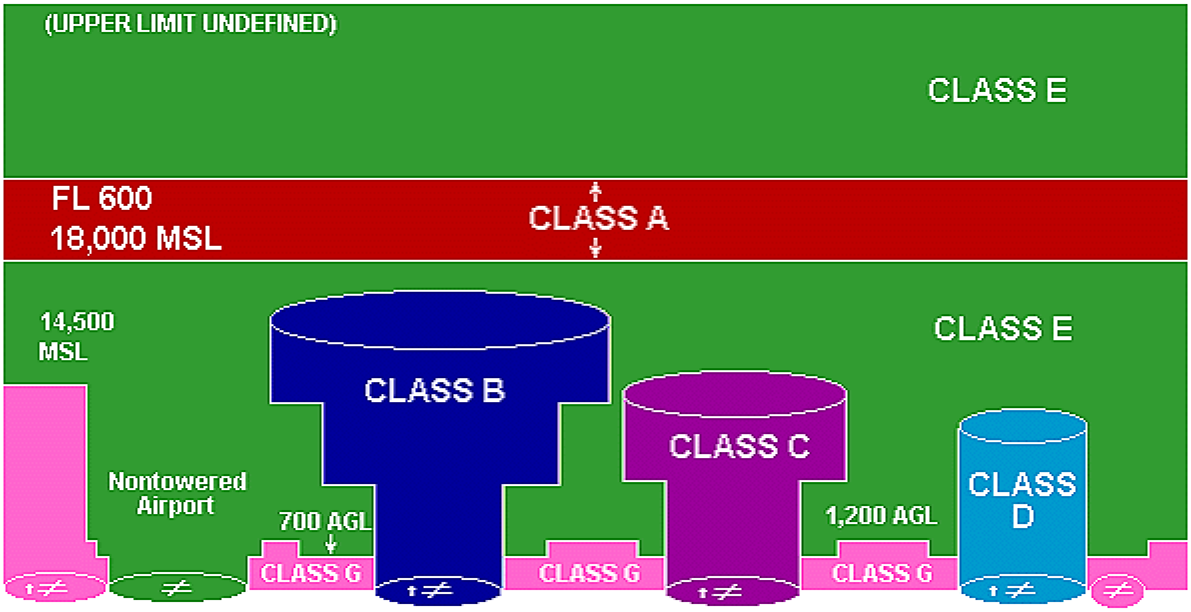
Class D – Class D airspace is located between ground level and an altitude of 2,500 feet MSL and is classified around airports that have an ATCT, but may not have radar approach control in the ATCT. The horizontal dimension of Class D airspace varies based upon specific airport needs such as type of arriving and departing aircraft, level of IFR/VFR activity, and aircraft approach and departure routes. Aircraft must request permission from ATC and remain in constant radio communication to operate in this airspace.

Class E – Class E airspace is all airspace from ground level to 18,000 feet MSL and from 60,000 feet MSL to the upper operational ceiling of aircraft that is not classified as A, B, C, D, or G. While aircraft operating under IFR are required to be in constant communication with ATC in Class E airspace, those operating VFR are not required to contact ATC.

Class G – Class G airspace is located between ground level up to an altitude of 14,500 feet MSL, though it is generally assigned to an altitude of 1,200 feet about ground level (AGL). This class of airspace is not provided ATC services and can be found around large, remote areas.

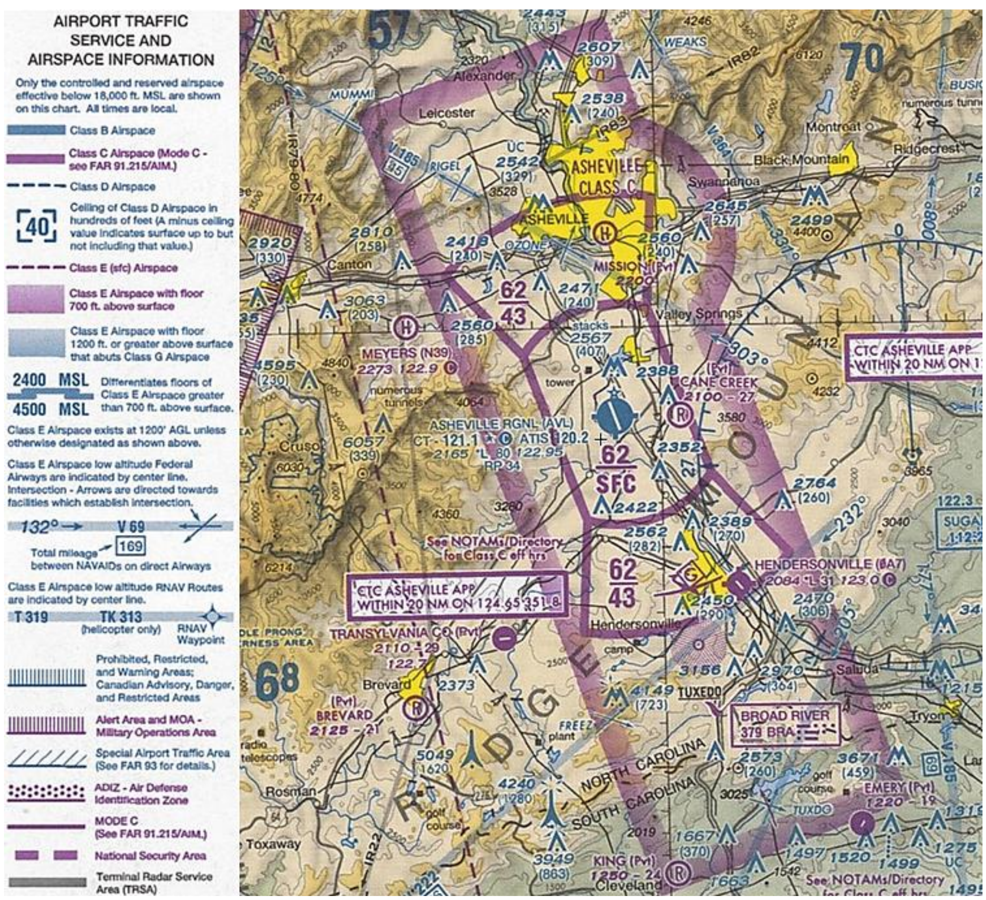
Airspace around the Airport is classified as Class C and is linear shaped based upon the arrival and departure paths of aircraft to and from Runway 16/34. Aircraft must receive permission to enter the airspace and be in constant radio communication with both airport control tower and radar approach air traffic controllers. **Figure 2-18** illustrates the six classifications of airspace while **Figure 2-19** illustrates the airspace around the Airport from the FAA Airspace Sectional Chart.

Figure 2-18: Classes of Airspace



Source: Federal Aviation Administration

Figure 2-19: Airspace Sectional Chart



Source: SkyVector.com Aeronautical Charts, 2011

2.8.b Part 77 Surfaces

FAR Part 77 was established by the FAA to protect aircraft from obstructions when operating in proximity to an airport through a set of design surfaces that protect airspace from the construction of towers, buildings, and other tall objects. Through 14 Code of Federal Regulations (CFR) Part 77, a reporting method has been established to notify the FAA of proposed construction that may be a hazard to safe air navigation. Although the FAA will make a decision if the proposed construction will impact the safe and efficient use of navigable airspace, the determination may not prevent someone from constructing or altering a structure that is a hazard since the FAA does not have authority to control land use. The five design surfaces defined in FAR Part 77 are summarized in the following sections.

Primary Surface – The primary surface is centered longitudinally on a runway centerline at the same elevation as a runway and extends 200 feet beyond each end of a paved runway. On runways with turf surfaces, the primary surface length is the same length as the runway. The width of this surface is:

- 250 feet for utility runways (designed for propeller driven aircraft of 12,500 pounds maximum gross weight or less) having only visual approaches
- 500 feet for utility runways having non-precision instrument approaches
- 500 feet for runways other than utility having only visual approaches
- 500 feet for non-precision instrument runways other than utility having visibility minimums greater than 3/4 statue mile
- 1,000 feet for non-precision instrument runways other than utility having a non-precision instrument approach with visibility minimums as low as 3/4 statue mile
- 1,000 feet for precision instrument approach runways other than utility

Since Runway 16/34 is a precision instrument runway, its primary surface is 1,000 feet in width and extends 200 feet beyond each runway end.

Approach Surface – The approach surface is centered on a runway centerline and extends longitudinally upward and outward away from the primary surface at each runway end. The inner width of the surface is the same width as the primary surface and expands uniformly to a width of:

- 1,250 feet for the end of a utility runway with only visual approaches
- 1,500 feet for the end of a runway other than utility with only visual approaches
- 2,000 feet for the end of a utility runway with a non-precision instrument approach
- 3,500 feet for the end of a non-precision instrument runway other than utility having visibility minimums greater than 3/4 statue mile
- 4,000 feet for the end of a non-precision instrument runway other than utility having a non-precision instrument approach with visibility minimums as low as 3/4 statue mile
- 16,000 feet for precision instrument runways

The horizontal distance and slope of the approach surface is:

- 5,000 feet at a slope of 20:1 for all utility and visual runways
- 10,000 feet at a slope of 34:1 for all non-precision instrument runways other than utility
- 10,000 feet at a slope of 50:1 with an additional 40,000 feet at a slope of 40:1 for all precision instrument runways

As mentioned before, both ends of Runway 16/34 have a precision instrument approach. The dimensions of the approach surface for each end of the runway are:

- Inner width: 1,000 feet
- Outer width: 16,000 feet
- Slope: 50:1 to a distance of 10,000 feet, then 40:1 slope for an additional 40,000 feet

Transitional Surface – The transitional surface is also centered on a runway centerline and extends outward and upward perpendicularly from the primary surface at a slope of 7:1 until a height of 150 feet above an airport where it meets the horizontal surface.

Horizontal Surface – The horizontal surface is a horizontal plane located 150 feet above an airport and meets the transitional and conical surfaces. The perimeter of the horizontal surface is constructed by lines of tangent from arcs generated from each runway end. The radii of the arcs are:

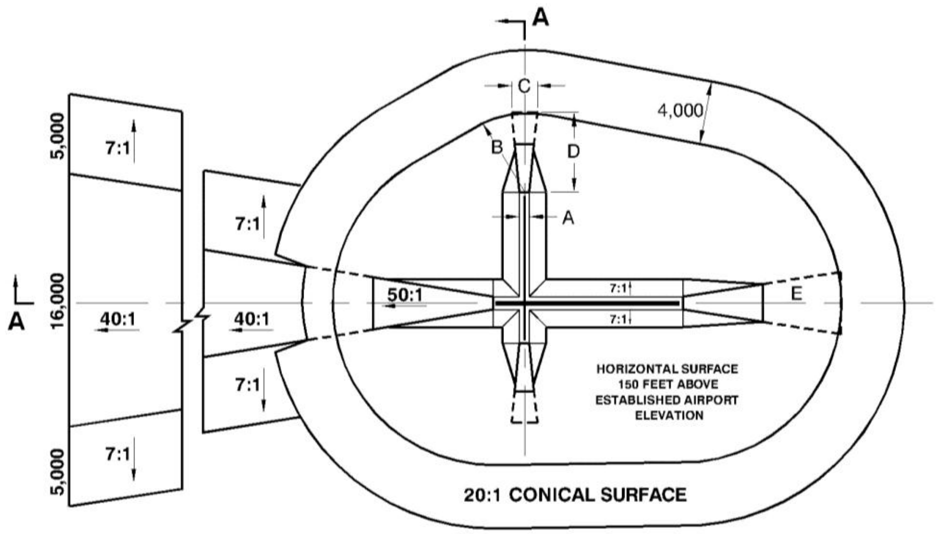
- 5,000 feet for all runways designated as utility or visual
- 10,000 feet for all other runways

In the event a 5,000 feet arc is encompassed by tangents connecting two adjacent 10,000 feet arcs, the 5,000 feet arc shall be disregarded in the design of the horizontal surface perimeter. The radii of the arcs used in the establishing the perimeter of the horizontal surface above Runway 16/34 is 10,000 feet.

Conical Surface – The conical surface extends outward and upward from the perimeter of the horizontal surface at a slope of 20:1 for a horizontal distance of 4,000 feet.

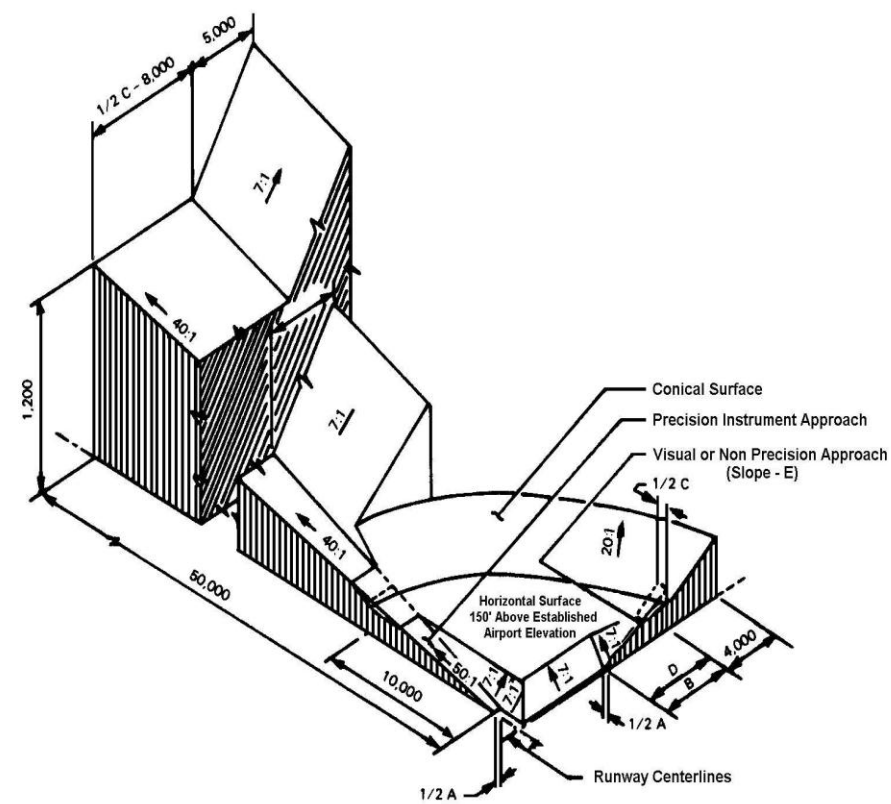
Further information on the FAR Part 77 surfaces at the Airport is provided in Chapter 4. **Figure 2-20** illustrates a plan view of the five FAR Part 77 surfaces while an isometric view is presented in **Figure 2-21**.

Figure 2-20: FAR Part 77 Surfaces – Plan View



Source: FAR Part 77

Figure 2-21: FAR Part 77 Surfaces – Isometric View



Source: FAR Part 77

2.8.c Runway Protection Zones

Another airfield design element intended to protect airspace, prevent incompatible land uses, and protect people and property on the ground within the vicinity of a runway end are runway protection zones (RPZs). RPZs are trapezoidal-shaped areas located on both the arrival and departure ends of a runway within the innermost portion of the FAR Part 77 approach surface. The dimensions of an RPZ are based on the type of aircraft expected to use a runway and its approach visibility minimums (**Table 2-12**). Airports are sought by the FAA to control the land within the RPZ to prevent the creation of hazards to landing and departing aircraft. Further information on the RPZs and their dimensions at the Airport is available in Chapter 4.

Table 2-12: Runway Protection Zone Dimensions

Visibility Minimums	Design Aircraft	Dimensions			
		Length	Inner Width	Outer Width	RPZ Acres
Visual and not lower than 1 mile	Small Aircraft Only	1,000 ft.	250 ft.	450 ft.	8.035 acres
	ARC Category A & B	1,000 ft.	500 ft.	700 ft.	13.770 acres
	ARC Category C & D	1,700 ft.	500 ft.	1,010 ft.	29.465 acres
No less than 3/4 mile	All Aircraft	1,700 ft.	1,000 ft.	1,510 ft.	48.978 acres
Lower than 3/4 mile	All Aircraft	2,500 ft.	1,000 ft.	1,750 ft.	78.914 acres

Source: FAA AC 150/5300-13, *Airport Design*

2.8.d Air Traffic Control (ATC)

ATC at the Airport and within the airspace surrounding its proximity is the responsibility of the FAA through an on-site ATCT and Terminal Radar Approach Control Facility (TRACON). The ATCT is responsible for the safe separation of aircraft on final approach, initial climb-out after departure, and both aircraft and vehicle traffic on the airfield while the TRACON facility is responsible for the safe transition of aircraft into and out of the airspace surrounding the Airport. In addition to safe aircraft separation, the ATCT and TRACON facilities also provide traffic advisories, disseminate safety alerts, and provide radar vectoring when requested by pilots. Both ATC units are located in the control tower with ATCT services provided from a cab on the top and TRACON occupying space on floors underneath. An Airport Surveillance Radar (ASR), located adjacent to the intersection of Wright Brothers Way and Lindbergh Lane, is utilized by both the ATCT and TRACON to provide radar coverage at the Airport. Display screens located in both the ATCT cab and TRACON radar control room display position information, direction of travel, speed, and altitude of aircraft detected by the ASR.

ATC services at the Airport by the ATCT and TRACON are provided from 6:30 a.m. until 11:00 p.m. local time outside of which the surrounding Class C airspace reverts to a Class E airspace requiring pilots to communicate directly with one another to coordinate their aircraft's safe separation. This coordination between pilots is accomplished through a Common Traffic Advisory Frequency (CTAF) upon which a pilot can report the position of his or her aircraft with other aircraft operating within the Airport's airspace.

Basic radar services during the closure of the ATCT and TRACON are provided by the Atlanta Air Route Traffic Control Center (Atlanta ARTCC) located in Atlanta, Georgia, which is responsible for the safe separation of aircraft in airspace surrounding the Airport.

Aircraft separation services provided by the ATCT and TRACON are divided into operational disciplines based on the air traffic separation needs for each phase of flight. The following summarizes the operational disciplines offered by ATC at the Airport:

Ground Control – Ground control is a position within the ATCT that is responsible for the movement of aircraft and vehicles on runways, taxiways, and aprons located within the aircraft movement area. In addition to providing taxiing instructions to aircraft and overseeing the safe passage of vehicles, ground control is also responsible for personnel and equipment operating within the safety area of runways and taxiways. All aircraft, vehicles, personnel, and equipment are required to:

- Request permission from ground control to enter the movement area
- Remain in constant radio communication with ground control while within the movement area
- Notify ground control upon exiting the movement area

Tower – The tower controller position is responsible for the safe separation of arriving and departing aircraft from the Airport. In addition to providing landing and takeoff clearances, the tower controller also is responsible for the separation of aircraft that transition to and from airspace controlled by TRACON.

Approach/Departure Control – Approach/departure controllers are positions within TRACON that are responsible for the separation of arriving, departing, and transient aircraft within 20 nautical miles of the Airport. Depending on the traffic volume and available staffing, the approach and departure control positions may be combined into the responsibility of a single controller.

Table 2-13 summarizes the communication frequencies utilized by ATC controllers at the Airport. In addition to ground control, tower, and approach/departure control, frequencies are also assigned for the continual broadcast of weather observations and Airport condition information through the Automatic Terminal Information Service (ATIS), emergencies, and for non-ATC related radio traffic through the universal communications frequency (UNICOM).

Table 2-13: Airport Communication Frequencies

Ground Control:	121.9 MHz
Tower:	121.1 MHz
Approach Control:	124.65 MHz & 351.8 MHz (160°-339°) 125.8 MHz & 269.575 MHz (339°-160°)
Departure Control:	124.65 MHz & 351.8 MHz (160°-339°) 125.8 MHz & 269.575 MHz (339°-160°)
CTAF:	121.1 MHz
ATIS:	120.2 MHz
Emergency:	121.5 MHz & 243.0 MHz
UNICOM:	122.95 MHz

Source: FAA Airport/Facility Directory

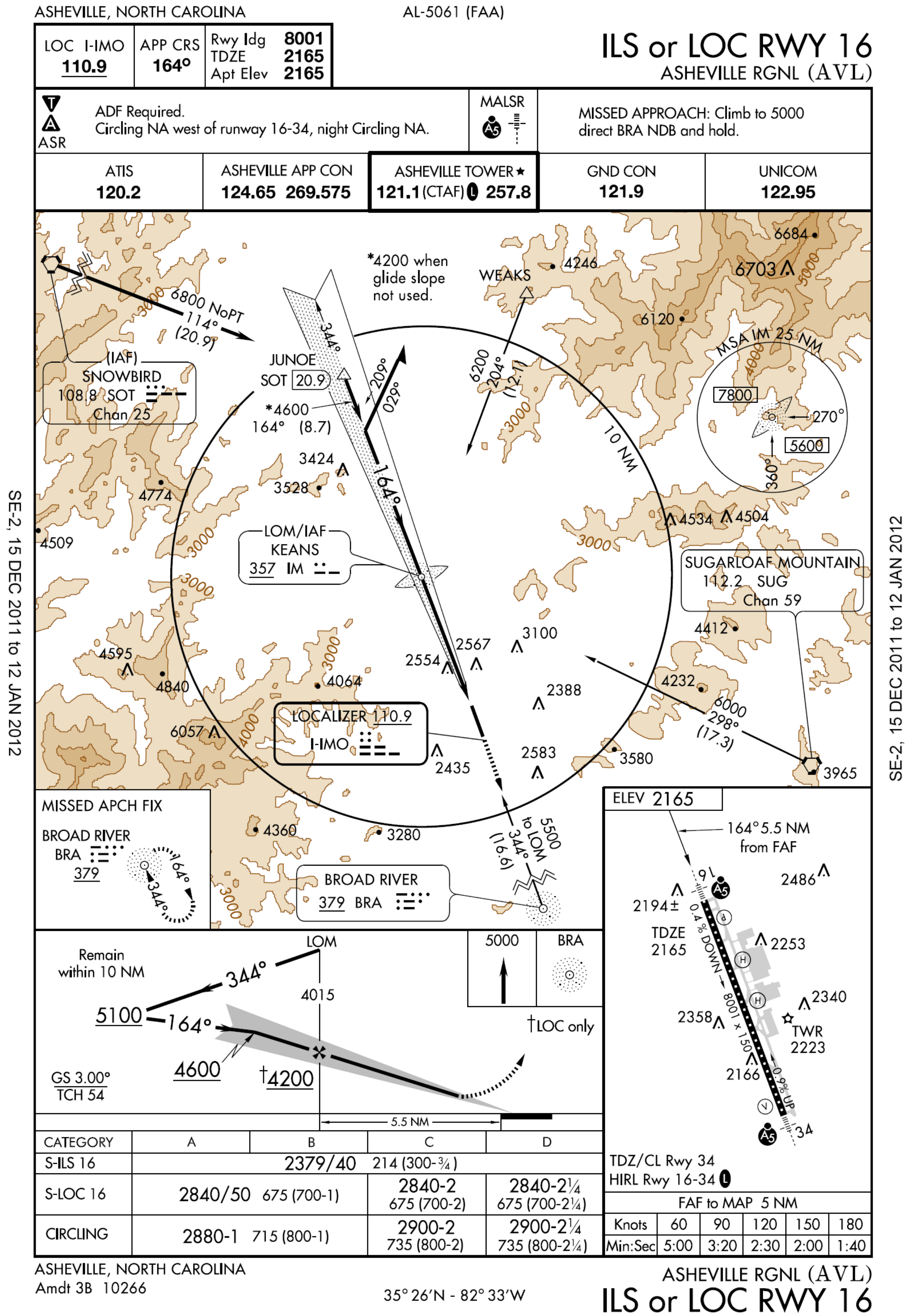
2.8.e Approach/Departure Procedures

To assist pilots in navigating through airspace prior to landing and during the initial climb after takeoff in night time, low visibility, low cloud ceilings, and inclement weather conditions, the FAA will establishes approach and departure procedures at an airport. Approach procedures outline routes and altitudes to be flown by pilots when navigating an approach to landing while departure procedures outline defined flight paths for aircraft to follow to intercept an en route airway. Departure procedures are particularly useful in managing the flow of traffic at airports with higher traffic volumes or to direct traffic away from populated areas for noise abatement purposes. Each procedure established by the FAA identifies waypoints for runway alignment or route vectoring, specific altitudes, radio frequencies, minimum visibility, and ceiling height requirements.

Approach and departure procedures are developed based upon the type of navigational equipment installed and utilized at an airport. Approach procedures are commonly established for runways that utilize precision and non-precision NAVAID equipment, such as Area Navigation (RNAV) based on GPS signals and ILS while departure procedures utilized standard en route NAVAIDs such as GPS, Very High Frequency Omnidirectional Range (VOR) equipment, and navigational instructions from ATC. At the Airport, four approach procedures and one departure procedure has been developed for departing and arriving aircraft on Runway 16/34. The following pages illustrate the published approach and departure procedures that have been established at the Airport as of December 2011:

- ILS or Localizer approach to Runway 16 (**Figure 2-22**).
- ILS or Localizer approach to Runway 34 (**Figure 2-23**).
- RNAV (GPS) approach to Runway 16 (**Figure 2-24**).
- RNAV (GPS) approach to Runway 34 (**Figure 2-25**).
- Asheville Three Departure from Runway 16/34 (**Figure 2-26** and **Figure 2-27**).

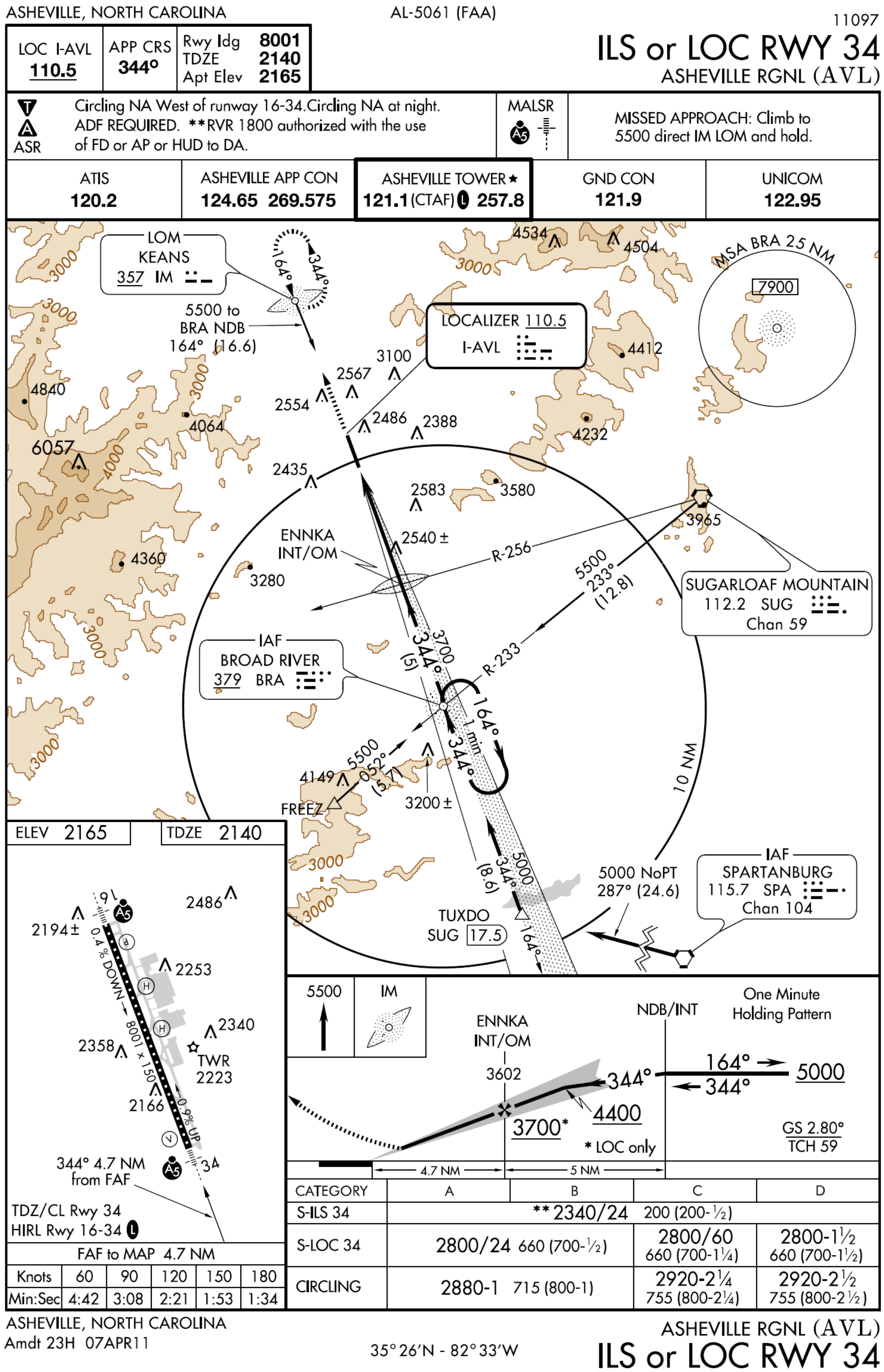
Figure 2-22: ILS or Localizer Approach to Runway 16



Source: Federal Aviation Administration

Figure 2-23: ILS or Localizer Approach to Runway 34

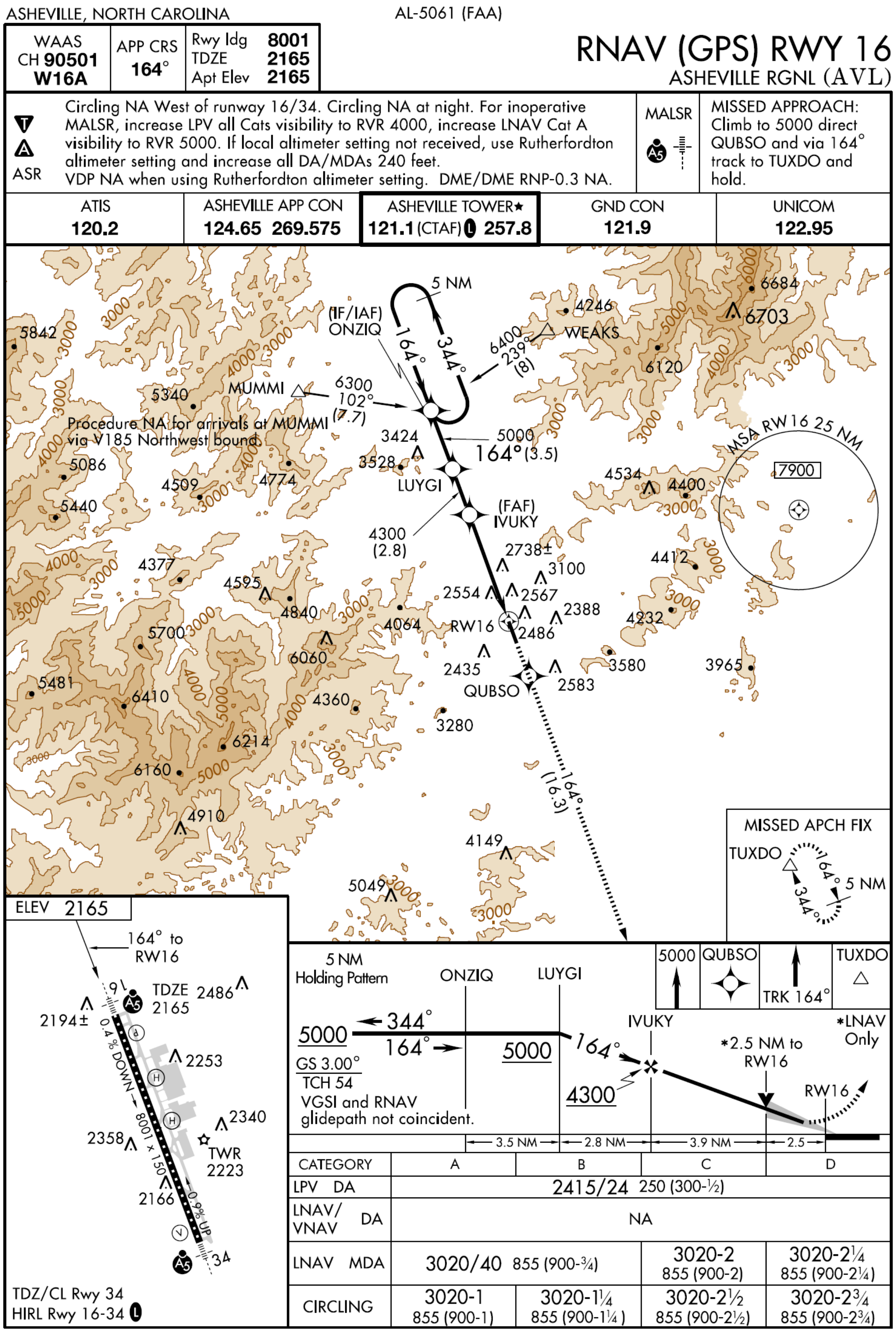
SE-2, 15 DEC 2011 to 12 JAN 2012



SE-2, 15 DEC 2011 to 12 JAN 2012

Source: Federal Aviation Administration

Figure 2-24: RNAV (GPS) Approach to Runway 16



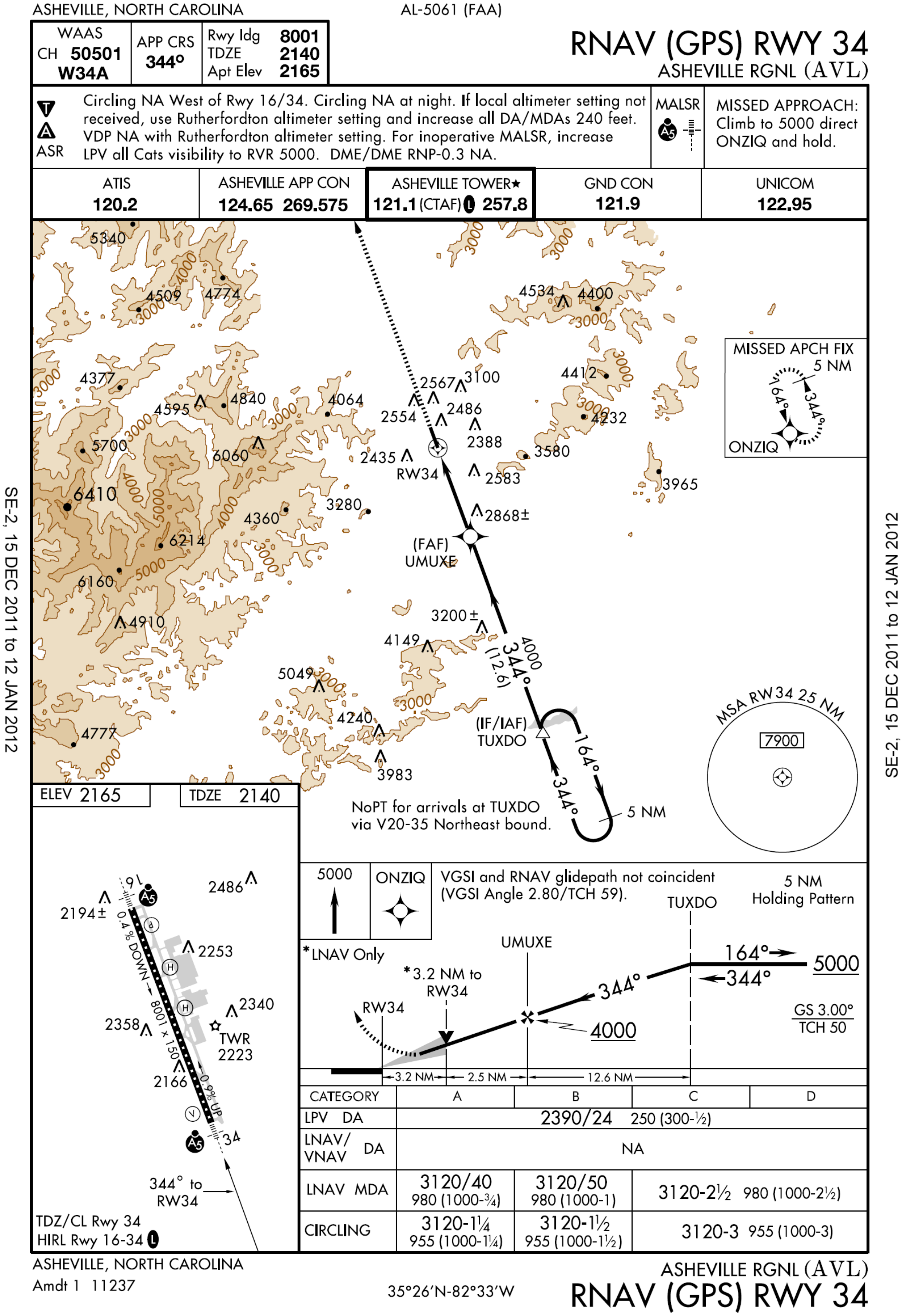
CATEGORY	A	B	C	D
LPV DA	2415/24 250 (300-½)			
LNAV/VNAV DA	NA			
LNAV MDA	3020/40 855 (900-¾)		3020-2 855 (900-2)	3020-2¼ 855 (900-2¼)
CIRCLING	3020-1 855 (900-1)	3020-1¼ 855 (900-1¼)	3020-2½ 855 (900-2½)	3020-2¾ 855 (900-2¾)

ASHEVILLE, NORTH CAROLINA
Amdt 1 08101
35°26'N - 82°33'W
ASHEVILLE RGNL (AVL)
RNAV (GPS) RWY 16

SE-2, 15 DEC 2011 to 12 JAN 2012

Source: Federal Aviation Administration

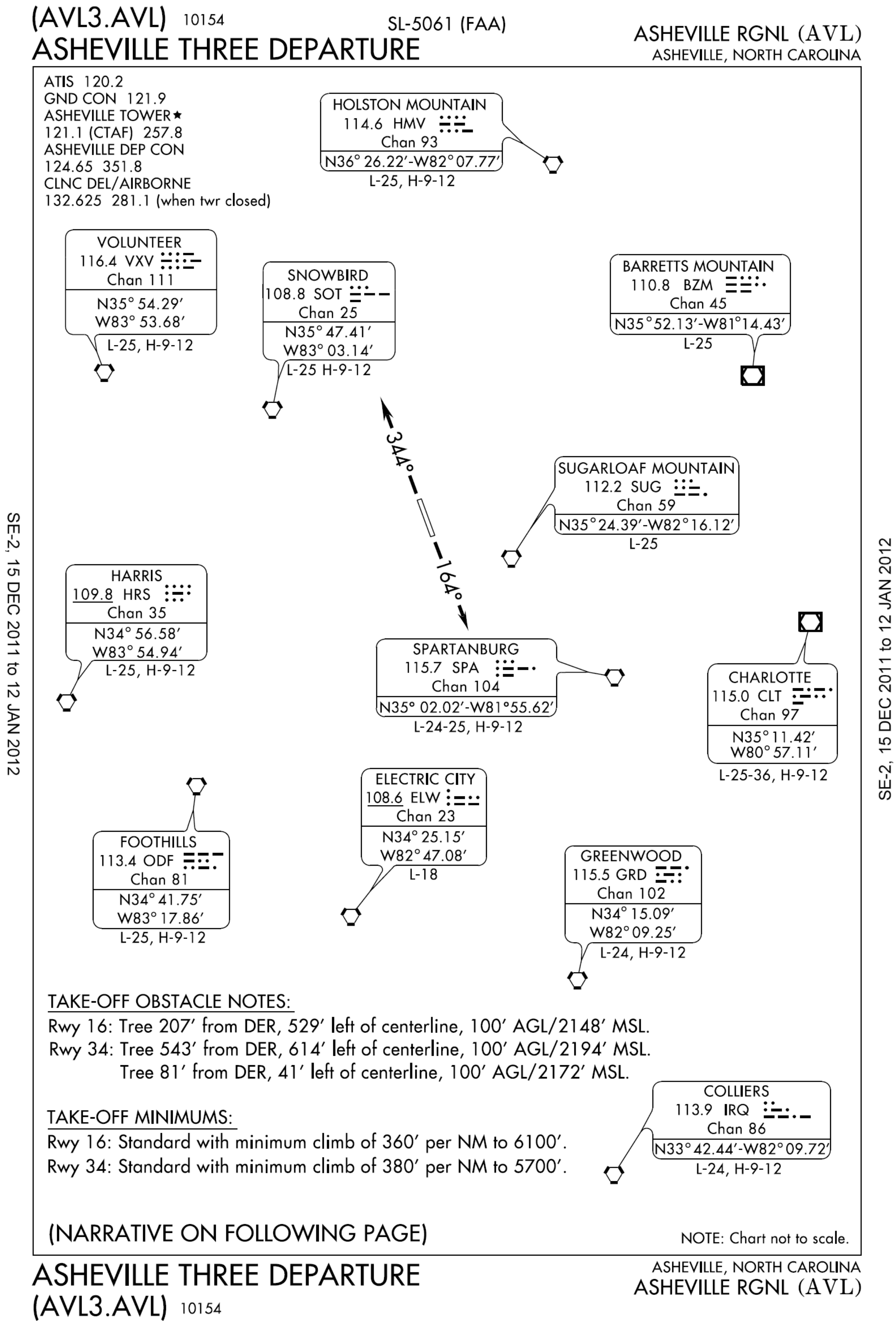
Figure 2-25: RNAV (GPS) Approach to Runway 34



CATEGORY	A	B	C	D
LPV DA	2390/24 250 (300-½)			
LNAV/VNAV DA	NA			
LNAV MDA	3120/40 980 (1000-¾)	3120/50 980 (1000-1)	3120-2½ 980 (1000-2½)	
CIRCLING	3120-1¼ 955 (1000-1¼)	3120-1½ 955 (1000-1½)	3120-3 955 (1000-3)	

Source: Federal Aviation Administration

Figure 2-26: Asheville Three Departure from Runway 16/34



Source: Federal Aviation Administration

Figure 2-27: Asheville Three Departure Narrative

(AVL3.AVL) 09127
ASHEVILLE THREE DEPARTURE

SL-5061 (FAA)

ASHEVILLE RGNL (AVL)
ASHEVILLE, NORTH CAROLINA

SE-2, 15 DEC 2011 to 12 JAN 2012

DEPARTURE ROUTE DESCRIPTION

TAKE-OFF RUNWAY 16: Climb heading 164° to 10000′ or lower filed altitude. Expect radar vectors to join filed route/fix when leaving 6100′. Thence....

TAKE-OFF RUNWAY 34: Climb heading 344° to 10000′ or lower filed altitude. Expect radar vectors to join filed route/fix when leaving 5700′. Thence....

....Aircraft filed at or above 11000′ maintain 10000′ and expect filed altitude/flight level ten minutes after departure.

SE-2, 15 DEC 2011 to 12 JAN 2012

ASHEVILLE THREE DEPARTURE
(AVL3.AVL) 09127

ASHEVILLE, NORTH CAROLINA
ASHEVILLE RGNL (AVL)

Source: Federal Aviation Administration

2.9 Summary

Information collected during the inventory effort of the master planning process provides a method to evaluate the conditions of existing Airport facilities and provide a baseline to measure how well current infrastructure will be able to accommodate future aviation demand. Through a review of the inventory information presented in this Chapter, subsequent study tasks can be conducted to determine what improvements will be necessary at the Airport to meet the air transportation requirements of Western North Carolina over the next 20 years. In comparison with future aviation demand projections and demand/capacity analyses, alternatives can be developed to identify a plan on how the Airport will address the required improvements. Ashville Regional Airport has continually evolved over its 50-year history to meet the demand of its users, and this study effort will help direct the prospective growth and expansion of existing Airport facilities to meet future aviation needs.