

Lynchburg Regional Airport Master Plan Update

March 2010

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To ensure that the interests of all stakeholders were considered, a public participation process was established. The two key elements of the process included meetings with the Lynchburg Regional Airport Commission and holding a public workshop. HNTB met with the Commission throughout the process to review technical work and to give progress reports. The nine commissioners are appointed by the Lynchburg City Council. The commission consists of city and county officials, local business owners, and general aviation users. Planners from the FAA and Virginia Department of Aviation also attended meetings when available. The public information workshop was held on June 8, 2009 toward the end of the process, to give the general public an opportunity to review and comment on the proposed development plan. Documentation of the public information workshop advertisements and sign-in sheet are contained in **Appendix F** of the document.

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Chapter One

Inventory

The purpose of this technical memorandum is to document the airports physical facilities. The inventory is based on information obtained from the airport, interviews with tenants and onsite inspection. This information is based on conditions as they existed in October 2006. **Figure 1-1** depicts the existing airport facilities.

1.1 HISTORICAL BACKGROUND OF LYNCHBURG REGIONAL AIRPORT

Much of the site on which Lynchburg Regional Airport lies was formerly occupied by the City's Prison Farm, which was in operation from 1915 until 1945. The Prison farm initially focused on growing produce such as potatoes and corn and later established dairy farming. Prisoners were also "rented" out to other city departments for the maintenance of streets, parks, and the City Cemetery.

In 1929, the City Council and the Chamber of Commerce began efforts to establish an airport for the area, and a portion of the City Prison Farm was chosen as the site for the airfield. Work was commenced by the Virginia Department of Highways, and the Airport, named after Preston Glenn, a pilot in World War I, opened in April 24, 1931 with one runway (Runway 6-24).

Initially, American Airlines began air mail and passenger service to the City; however, in 1937, American pulled out because Lynchburg, like many other small airports had inadequate facilities to handle their new fleet of aircraft. American returned to Lynchburg in 1942 after the U.S. Navy completed an extensive airport improvement program.

During World War II, the U.S. Navy designated Lynchburg as a ferry stop for new fighter aircraft on their way to Norfolk, VA. During this time the Navy paid for and built a control tower and improved the runways and lighting.

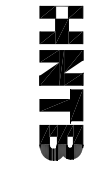
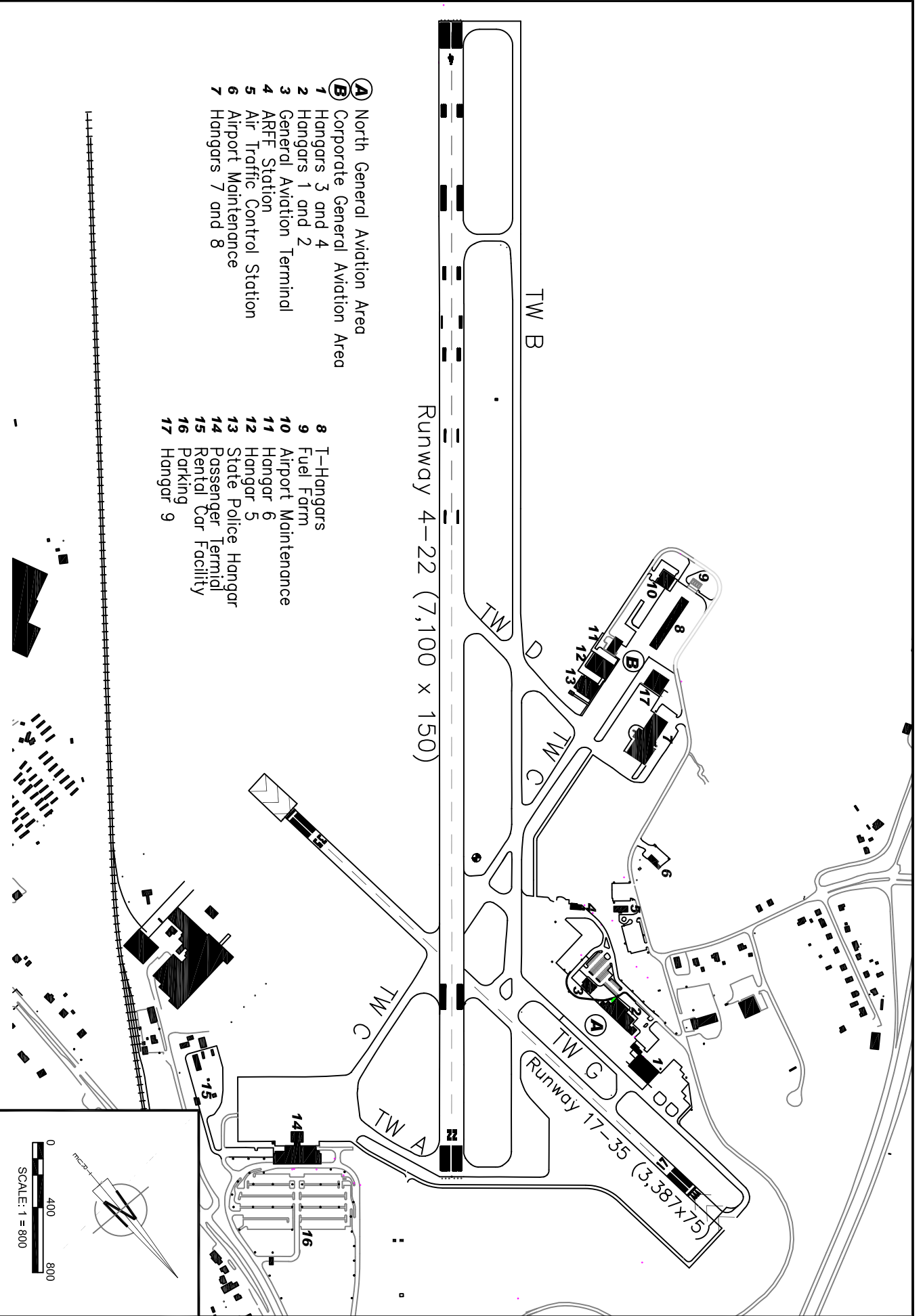
In 1948, Piedmont Airlines initiated service between Norfolk, Richmond, Lynchburg, Roanoke, Charleston, Huntington, and Cincinnati using DC-3 aircraft.

Major capital improvements were made to the Airport in the early 1960s, including the construction of a new terminal building, control tower, general aviation hangars and offices, improved taxiways, ramps, and runways (including the lengthening of Runway 3-21 to 5,800 feet).

Since that time, several corporate hangars have been constructed, along with an aircraft maintenance facility. In addition, construction was begun in 1989 for a 38,000 square foot airport terminal building to serve the growing demand of air service to the community.

- (A) North General Aviation Area
- (B) Corporate General Aviation Area
- 1 Hangars 3 and 4
- 2 Hangars 1 and 2
- 3 General Aviation Terminal
- 4 ARFF Station
- 5 Air Traffic Control Station
- 6 Airport Maintenance
- 7 Hangars 7 and 8

- 8 T-Hangars
- 9 Fuel Farm
- 10 Airport Maintenance
- 11 Hangar 6
- 12 Hangar 5
- 13 State Police Hangar
- 14 Passenger Terminal
- 15 Rental Car Facility
- 16 Parking
- 17 Hangar 9



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EXISTING AIRPORT LAYOUT
LYNCHBURG REGIONAL AIRPORT
LYNCHBURG, VIRGINIA

DATE:
Aug 12, 2009
FIGURE:
1-1

The Airport continues to grow and modernize in the 21st Century. A new GA terminal was built in 2002, in August 2007, Runway 4-22 was extended from 5,799 feet to a length of 7,100 feet, and in 2006 a t-hangar building and adjoining jet pod were constructed. Most recently, in October 2008, a new 13,200 square-foot corporate hangar opened.

1.1.1 Access

Primary ground access to the Airport is provided via US 29, just south of the US Route 460 interchange. This connects to Airport Drive which serves the commercial terminal and SR 648 which serves the general aviation side of the airport. US 460 provide secondary access to the general aviation area.

1.1.2 Parking

Parking for the commercial terminal is provided immediately adjacent the terminal building. The parking area is accessed from Airport Drive and includes 95 hourly, 313 daily and 70 employee spaces.

1.1.3 Terminal

The Air Carrier Terminal Building opened in February 1992. The terminal contains approximately 38,000 square feet of floor space on two levels. Approximately 29,300 square feet are on the main level which primarily supports airport administration, ticketing, hold rooms, bag claim, security, car rental, restrooms and public circulation and waiting area. The lower level is approximately 8,600 square feet and primarily supports airline offices, hold rooms, restrooms and circulation/public space. **Appendix A** contains a Technical Memorandum for the Inventory of the Passenger Terminal Conditions and Issues based on interviews and survey of existing conditions.

The terminal is supported by 16,000 square yards of apron that can support a wide range of aircraft sizes and types.

1.1.4 Airfield

The primary airfield elements include runways, taxiways and NAVAIDS. Each of these elements is described below.

Runways – The Airport is served by a primary runway, Runway 4-22 and a secondary crosswind runway, Runway 17-35. **Table 1-1** below lists the physical characteristics for each runway.

Table 1-1
Runway Characteristics

	Runway 4-22	Runway 17-35
Airport Reference Code	C-III	B-II
Length (ft.)	7,100 (1)	3,387
Width (ft.)	150	75
Pavement Type	asphalt	asphalt
Approaches	RWY 4 50:1 RWY 22 34:1	RWY 17 20:1 RWY 35 20:1
Displacement	N/A	RWY 17 300' RWY 35 300'
Pavement Strength (lbs.)		
Single wheel	90,000	25,000
Double wheel	108,000	35,000
Double tandem	170,000	55,000
Effective Gradient (in %)	0.65	0.62
Runway End Elevation (MSL)	RWY 4 - 894' RWY 22 - 938'	RWY 17 - 918' RWY 35 - 918'
Marking	Precision	Visual
Lighting	HIRL	MIRL
Runway Safety Area	500' x 8,800'	150' x 3,987'
Runway Object Free Area	800' x 8,800'	500' x 3,987'

Notes: (1) Includes runway extension.

Taxiways

The following is a summary of the taxiways that serve the Runway 4-22 and 17-35 system.

Taxiway A – connects the terminal apron to the Runway 22 threshold.

Taxiway B – a full length parallel taxiway that serves the primary runway, Runway 4-22.

Taxiway B1 – serves as an exit taxiway for Runway 4-22, located near the approach end of Runway 4.

Taxiway C – extends from the southwest corner of the terminal apron and extends to the south general aviation area.

Taxiway D – serves as an exit taxiway for Runway 4-22. It is located slightly south of the midpoint of the runway and extends to Taxiway C in the south general aviation area.

Taxiway E – serves as an exit taxiway for Runway 4-22. It is located in the proximity of the intersection of Taxiway C and the runway and extends to Taxiway B.

Taxiway G – is a partial parallel taxiway that serves Runway 17-35 and the north general aviation area. It extends from the Runway 17 end south to Taxiway B.

Taxiway H – serves as an exit taxiway for Runway 17-35. It connects to Taxiway G approximately 700 feet from Runway 17 threshold.

Taxiway I – serves as an exit taxiway for Runway 17-35. It is located near the midpoint of the runway just north of the Runway 4-22 intersection and extends to Taxiway B and G intersection.

All taxiways are 50 feet in width and are provided with medium intensity lights.

NAVAIDS

The following summarizes the Airport's visual approach aids and electronic equipment that serves the precision and non-precision instrument approaches. The approach procedure charts for each published approach can be found in **Appendix B**.

Visual Approach Aids

- Runway 4 – Precision Approach Path Indicator (PAPI), Medium Intensity Approach Lighting System with Runway Alignment Indicator Lights (MALSR)
- Runway 22 – PAPI, Runway End Identifier Lights (REIL).
- Runway 17 – PAPI, REIL
- Runway 35 – PAPI, REIL

Electronic NAVAIDS

- Runway 4 – Localizer, Glide Slope Antenna
- Non-Directional Beacon, located off-airport
- VORTAC, located off-airport

Published Approaches

- Runway 4 – ILS, VOR and GPS
- Runway 22 – GPS, VOR/DME

1.1.5 General Aviation

There are two general aviation (GA) areas located on the west side of the airport. The North General Aviation area fronts Taxiway G and includes a GA terminal and a full-service Fixed Base Operator (FBO). The South GA area is served by Taxiway C and includes a full-service FBO, Corporate Hangars and a T-hangar complex. The facilities within these areas are summarized below. **Table 1-2** provides a summary of the GA facilities.

1.1.6 North General Aviation Area

GA Terminal

Building – This single-story building is 4,464 square feet and includes a lobby/atrium, conference room, pilot lounge, flight planning room, vending area, office, line service office and restrooms. The terminal is public use (except FBO offices) and operated by Virginia Aviation.

South Ramp – Approximately 3,200 square yards of transient apron is immediately adjacent the terminal building. A second larger apron area, referred to as the south ramp, is immediately south of the terminal building. This 10,000 square yard apron served the old terminal building which has since been removed.

FBO (Virginia Aviation is a full-service FBO providing aircraft maintenance, aircraft sales, fueling service, flight training, avionics, and aircraft rental/storage)

Hangars – There is approximately 31,600 square feet of hangar space that is used for maintenance and storage. The hangars associated with the North General Aviation Area include Hangars 1-4.

Office – There is approximately 4,798 feet of office space that is utilized for public use, administration, training and maintenance support.

Aircraft Apron/Tie-down – The aprons serving the FBO include transient parking, based aircraft tie-down and hangar apron. Approximately 11,000 square yards of apron is associated with the facilities.

1.1.7 Corporate General Aviation Area

T-Hangars – T-hangars were added to the Corporate GA Area in the summer of 2006 and are located at the west end of Taxiway C. The building includes 12 nested units and one jet pod unit located on the east side. A single taxiway provides access to each side of the T-hangars.

FBO (Falwell-Aviation is a full-service FBO providing aircraft charter service, maintenance, flight training and aircraft storage, and retail fuel services).

Hangars – Three hangars, Hangar #7, Hangar #8, and Hangar #9, totaling approximately 41,000 square feet are located at the FBO. Hangar #8 is the larger of the two hangars with 15,800 square feet of floor area. This hangar supports Falwell-Aviation's aircraft maintenance business. Hangar #7 is a 12,200 square-foot hangar that is used exclusively for aircraft storage, and Hangar #9 is a 13,200 square-foot hangar used for aircraft storage.

Office – A two-story office pod separates the two hangars. This area provided over 15,000 square feet of space that is used for administration, training and maintenance support.

Apron – Approximately 10,300 square yards of apron support the hangar facilities.

Corporate Hangars – Hangars #5, #6 and the State Police Hangar occupy the South General Aviation Area on the south side of Taxiway C. Hangar #5 is leased by Virginia Aviation and has 12,000 square feet of hangar floor space and 2,400 square feet of office space. Hangar #6, which is leased to Virginia Aviation, is 6,000 square feet. The State Police Hangar is 10,000 square feet with a 2,200 square-foot office attached to the back of the hangar.

Table 1-2
Summary of General Aviation Facilities

Facility	Hangar Bay (SF)	Office (SF)	Apron (SY)
Terminal		598	3,200
Hangar 1	10,000	1,600	3,425
Hangar 2	5,600	-	3,425
Hangar 3	6,000	1,800	-
Hangar 4	10,000	-	-
Hangar 5	12,000	2,400	-
Hangar 6	6,000	-	-
Hangar 7	12,200	15,000 (a)	5,150
Hangar 8	15,800	-	5,150
Hangar 9	13,200	-	-
South Ramp	-	-	10,000
North Ramp (GA Tie-down)	-	-	4,170
Total	100,800	23,598	34,520
T-hangars	13		

Note: (a) office pod located between Hangars 7 and 8.

1.1.8 Airport Support

Airport support includes Airport Maintenance Facilities, Airport Rescue and Fire Fighting, Air Traffic Control Tower, and the Airport Fuel Farm. These facilities are described below.

Airport Maintenance Facilities – Airport maintenance facilities are located in two areas. The primary facility is located in the Corporate Aviation Area. This 6,700 square-foot facility was constructed in 2001 primarily to house the Airport’s snow removal equipment. The second airport maintenance facility is located just west of the ATCT on the north side of Airport Road. This 3,600 square-foot facility is used for storage of field maintenance equipment. A vehicle/equipment list can be found in **Appendix C**.

Airport Rescue and Fire Fighting Facility (ARFF) – The ARFF facility is located south of the General Aviation Terminal. This 2,000 square foot facility includes two vehicle bays, an all purpose room, restroom, and equipment storage. The ARFF equipment includes one Oshkosh TB1500 response truck.

Air Traffic Control Tower (ATCT) – The ATCT is located on the south side of airport road between the north and south GA areas. The tower cab is situated on a three-story building. Much of this aging facility is currently unoccupied.

Fuel Farm – The airports fuel farm is located in the Corporate Aviation Area on the west side of the T-Hangars. This above ground facility includes 2-15,000 gallon Jet A tanks and 1-15,000 gallon 100LL tank. The fuel farm is currently leased by Virginia Aviation & Falwell Aviation.

1.1.9 Rental Car

The rental car facility is located south of the passenger terminal. This one and one-half acre site supports their ready/return car wash, fueling, and storage functions. They also control 61 spaces adjacent the south end of the passenger terminal building.

Chapter Two

Forecasts

2.1 INTRODUCTION

This chapter contains the aviation activity Master Plan, Virginia Air Transportation System Plan, and TAF forecasts for Lynchburg Regional Airport (LYH). The forecasts presented are used to assess future planning needs for both airside and landside development. The forecast plays a critical piece in these future developments. Without the forecast, facility sizes and the sectors of the airport that are going to need the most development would be more difficult to assess. For this reason, all aspects of the airport operations are examined. These include passenger movement, cargo tonnage, and aircraft operations. The forecasts presented in this working paper assume that airfield and terminal facilities will be available to accommodate any increase in demand that may occur during the forecast period. For this reason, all forecasts are considered unconstrained.

The chapter focuses first on socioeconomic data and projections, followed by historical activity at the airport. Finally, the future years forecast for airport activity will be presented. The forecast years presented as chosen in the scope are 2011, 2016, and 2026. In section 1.2 (socioeconomic data and projections) the Lynchburg primary and secondary service areas will be defined. Then, historical and projected population, income, and employment will be explained. The subsequent section 1.3 discusses historical aviation trends and activity at LYH. Section 1.4 will address the assumptions that the forecast requires. Section 1.5 describes passenger forecasts for enplanements, operations, and fleet mix. In addition section 1.5 also addresses peaking activity for passenger enplanements and operations. Section 1.6 addresses present and future cargo activity, and also, air taxi, GA and military activity. Section 1.7 compares a summary of the base case LYH projections to the Terminal Area Forecast (TAF). These forecasts will provide guidance into future planning and improvement throughout the master plan period.

The assumptions presented are based on inputs from Lynchburg Regional Airport Air Traffic Reports, The Lynchburg Small Community Air Service Development Program proposal, Commonwealth of Virginia Records, United States Department of Transportation (USDOT) data, relevant literature, and professional experience. Due to the low amount of air traffic at LYH in relation to other larger airports, LYH operations are more sensitive to changes in assumptions presented. For instance, the addition of a single carrier to the airport would effect operations at the airport much more than at an airport of larger size. Taking this into consideration, forecasting is an inexact science. Since the projections presented are based on factors such as the performance of the local and national economy and the airline business environment, a significant difference from their projected values would affect the forecasts. Changes in

technology or air travel would affect the final years of the forecast traffic levels the most, as uncertainty becomes a larger factor.

2.2 SOCIOECONOMIC PROJECTIONS

A strong local and national economy, coupled with airfare levels, proves to be the most significant factor in determining passenger demand. Any forecast that takes into account the passenger demand and activity should take into consideration the local economic trends and projections.

The most important factor when analyzing socioeconomic factors is properly defining the catchment area. An area that is too small will not take into account a portion of the population and economic activity that will generate demand at an airport. An area too large will subsequently take into account a portion of the population and economy that have more of an impact on a different airport's demand.

For LYH, two catchment areas were defined. The primary service area is the MSA for Lynchburg, which consists of the counties Amherst, Appomattox, Bedford, and Campbell, as well as the cities of Lynchburg and Bedford. The secondary service area includes all of the primary service area as well as the counties of Prince Edward, Charlotte, Halifax, and Pittsylvania. This area was expanded to account for potential local travelers for whom LYH is the closest commercial service airport. Counties that had interstate roadway access to other airports were excluded from the secondary catchment area. Even though these counties are closer to LYH, the fact that the interstate connects them to another airport causes the competing airport to appear closer. Both service areas were analyzed further to help determine the passenger forecast. These service areas are shown in **Figure 2-1**.

Data for socioeconomic activity is available on a county and incorporated city basis as opposed to zip code. Woods and Poole Economics, Inc, a nationally recognized provider of economic data and projections, was the source of all population, income and employment projections and data with the exception of 2002 through 2004. Data for the period 2002-2004 were obtained from the Bureau of Economic Analysis. Due to the fact that Woods and Poole projections are based on 2002 data, adjustments had to be made in order to account for more recent time periods. This was accomplished by taking the Woods and Poole future year projections and multiplying them by the ratio of actual 2004 data to Woods and Poole 2004 projections.

Table 2-1 presents historical and projected population levels for the primary and secondary service areas. The population for the primary service area grew from 206,913 in 1990 to 233,876 in 2004. This represents a compounded annual growth rate of 0.9%. The secondary service area increased from 381,119 in 1990 to 411,067 in 2004. This represents a compounded annual growth rate of 0.5%. Both of these rates lagged the U.S. population's compounded annual growth rate during the same time period (1.2%).

