



Lehigh Valley International Airport

Allentown, Pennsylvania

Airport Master Plan Update Section 1 – Introduction

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Section 1 – Introduction

1.1 Project Understanding

The Lehigh-Northampton Airport Authority (LNAA) initiated the development of an Airport Master Plan Update for the Lehigh Valley International Airport, herein referred to as “LVIA” or “the Airport”. The Airport’s master plan was last updated in 2004. The Federal Aviation Administration (FAA) recommends updating the master plan every five to 10 years, when significant changes have occurred, such as recent land releases, changes in FAA airport design standards, or changes in airport use or demand. The master plan will be prepared in accordance with FAA requirements, including the following:

- Advisory Circular (AC) 150/5070-6B Change 2, Airport Master Plans
- AC 150/5300-13A Change 1, Airport Design
- AC 150/5300-18B, General Guidance and Specifications for Submission of Aeronautical Surveys to NGS: Field Data Collections and Geographic Information System (GIS) Standards
- FAA Standard Operating Procedure (SOP) 2.00, Review and Approval of Airport Layout Plans
- FAA SOP 3.00, Review of Exhibit A Airport Property Inventory Maps

The primary goal of the master plan is to create a flexible 25-year development plan and program that will maintain a safe, efficient, financially sound, and sustainable airport facility for the LNAA. The plan will document the extent, type, and schedule of development needed to accommodate existing needs and future aviation demand. The recommended program will satisfy aviation demand and be compatible with the environment, community development, and other transportation modes while being technically sound, practical, and economically feasible.

Another guiding factor for the development of the master plan is the list of strategic goals established by the LNAA in their 2017 Strategic Plan for the next 5 years. As part of the process, the LNAA determined their focus areas were air service, financial sustainability, customer experience, facilities, equipment, and infrastructure, operational safety and security, and organization governance, culture, and people. Keeping these areas in the forefront, the following strategic goals were developed and considered throughout the development of the master plan:

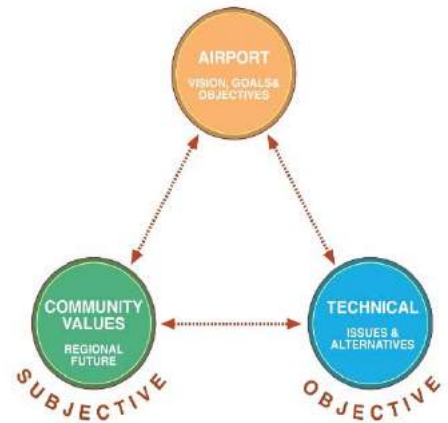
1. Develop air cargo facilities to increase LVIA’s role as part of a logistics hub in the Lehigh Valley
2. Generate additional non-aeronautical revenue on airport property suitable for lease or sale to ensure land is put to its highest and best use and generate new revenue sources
3. Develop business and general aviation facilities and services to rejuvenate the full range of aviation services and attract corporate customers to serve local business to meet their air travel needs
4. Provide for the timely and cost-effective delivery of capital improvements
5. Demonstrate industry leadership in managing our airport system, as a leader by innovation, seeking new ways to satisfy travelers, our partners, and our communities



Vision & Goal Setting

The Airport’s vision and development of goals and objectives involved a process involving the Airport, stakeholders, and facilitated by the Consulting Team. Looking at the Regional Setting Triangle, an airport is situated in a regional context within the community whose values they share. Its vision, goals, and objectives are supported by a body of technical analysis and knowledge to create a level of confidence that this plan can be implemented.

To this end, there are three major components addressing and shaping a comprehensive and integrated statement of the Airport’s vision, goals, and objectives. The first component is the Airport as an air service facility and redefining the vision for the future delivery of air services. The second component is the relationship of the Airport to the transportation and communications network. The basic purpose of an airport is, in concept, the same as for each of the other modes (roads, rails and water) of transportation - to provide both access and mobility for the region’s population and businesses.



Increasingly, the Airport’s ability to serve the regional population relates to its integration into the transit and interstate systems, while its logistics functions may involve developing relationships rail and other transportation facilities. The third component of the Airport is its role in the region’s social and economic development that includes achieving its maximum economic impact on the region’s development.

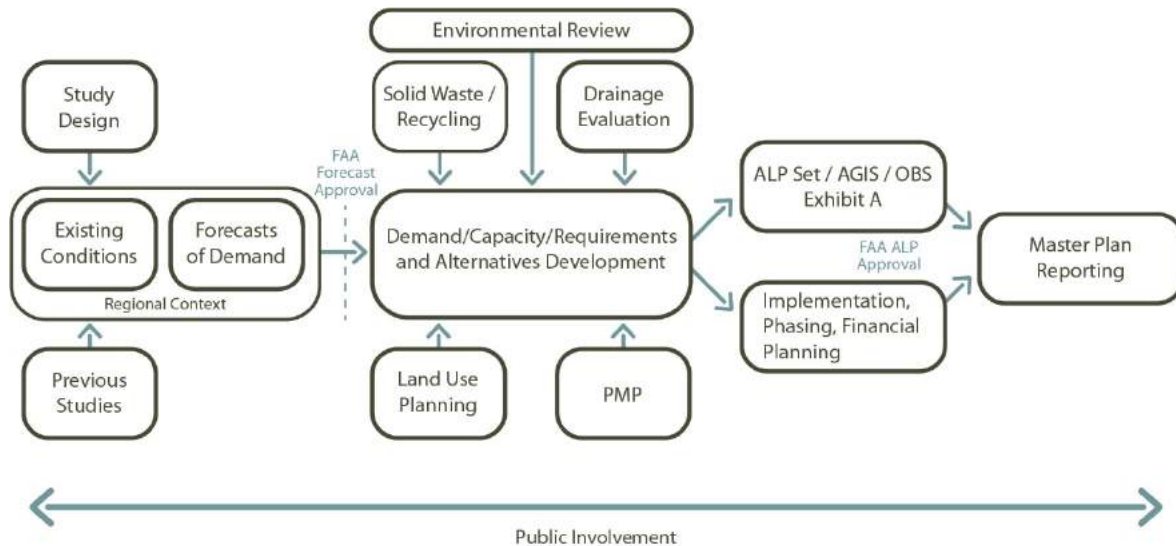
The future success of LVIA depends on building a broad base of support across a wide range of stakeholders for developing the vision and goals of the airport. This will require a vision, a set of goals and objectives, and an implementation strategy that can provide the framework and plan for the effective linking and integration of the multi-dimensional aspects that affect the demand for aviation services at LVIA.

Master Plan Process

The master plan process consists of a number of tasks and incorporates stakeholder and public involvement throughout the process. A summary of the tasks and flowchart for the master plan process is shown in **Figure 1.1.1**.

This master plan document and the corresponding Airport Layout Plan drawing set will serve as a guideline to the LNAA for development at the Airport, comply with FAA regulations to ensure eligibility for the funding of capital improvement projects, and help the LNAA realize the goals of their strategic plan.

Figure 1.1.1: Master Plan Flow Chart



Source: C&S Engineers, Inc.

1.2 Public Involvement Plan

The LNAA understands the importance of public participation in the development of a master plan. Airport development decisions often affect a broad group of organizations, neighborhoods, municipalities, and development groups and the LNAA strives to reach a broader consensus for its development recommendations in the greater community. For this master plan, public participation came from Project Advisory Group (PAG) meetings, LNAA board briefings, a regional context workshop, and public information meetings throughout the process. Interim documents and other information were also posted on the LNAA website and various social media outlets.

The PAG was established to provide technical oversight and input through each step of the master plan. Its members included LNAA staff and board members, FAA and Pennsylvania Department of Transportation (PennDOT) representatives, and various representatives from nearby townships, cities, counties, airlines, and tenants. The PAG met five times to receive updates on the master plan tasks, review interim documents, and provide their feedback.

The regional context workshop, held on December 12, 2016, helped the LNAA take a big-picture look at the airport as a key component of the larger transportation and communications network for the region and understand the Airport’s role in the region’s social and economic development. The discussion around the issues, needs, and opportunities facing the Lehigh Valley and the Airport helped to inform the development of **Section 2 – Regional Context**.



Besides the ability to review documents on the website and provide comments, the public had two opportunities to review project materials and provide their feedback on the master plan. The first public information meeting was an open-house style workshop held on April 20, 2017. That meeting provided an overview of the regional context, existing conditions inventory, and forecasts of aviation demand.

The second public meeting was also an open-house style workshop and held on May 10, 2018. In addition to providing information presented in the first public meeting, this meeting provided information related to the phasing of the preferred development concept.

Appendix B – Public Involvement Materials includes information and materials associated with the public involvement plan for the master plan including meeting presentations, marketing and advertisement notifications, meeting notes, and a summary of public comments.

1.3 Airport Background

Airport System Planning Role

Airport planning occurs at the national, state/regional, and local level. The following section identifies LVIA’s role at the national and state level based on previous reports, with the goal of the master planning process to guide planning practices at the local level.

At the national level, the Airport is included in the National Plan of Integrated Airport Systems 2017-2021 (NPIAS) produced by the U.S. Department of Transportation (DOT) Federal Aviation Administration (FAA). This planning document includes 3,332 existing and eight proposed airports significant to national air transportation and estimates \$32.5 billion in infrastructure development eligible for federal aid over the next five years to meet the needs of all segments of civil aviation. In administering the Airport Improvement Program (AIP), the FAA uses the NPIAS, which supports the FAA’s strategic goals for safety, system efficiency, and environmental compatibility by identifying the specific airport improvements that will contribute to achievement of those goals.

According to the NPIAS, LVIA is classified as a primary airport and is expected to remain so through 2021. Primary airports account for approximately 11.5% of total development over the five-year planning period

Public Workshop #1 Invitation

The graphic is a vertical rectangular poster with a dark red top section and a dark blue bottom section. In the top left corner of the red section is the LNAA logo. To its right, the text reads "Help shape the future of Lehigh Valley International Airport!". The blue section contains the main title "Master Plan Update Public Workshop (Open House Format)" in white, followed by the date and time "Thursday, April 20, 4pm-7pm". Below that, the location "Airport Terminal Departures Level (open area) 3311 Airport Rd., Allentown" and "Parking will be validated" are listed. At the bottom, a white text box contains the URL "Learn more at flylv.com/public-info/special-projects/airport-master-plan-update".

Public Workshop #2



Source: C&S Engineers, Inc.



proposed by the NPIAS, with development at the Airport estimated at approximately \$40,121,189.¹ The NPIAS also classifies airports into four categories based on an annual apportionment that is relative to the amount determined by their number of enplaned passengers. Although the Airport was designated as a small hub airport until 2012, now it is designated as a nonhub primary airport. Nonhub primary airports are commercial service airports that enplane less than 0.05% of all commercial passenger enplanements but have more than 10,000 annual enplanements. The majority of air traffic at these airports is general aviation (GA) aircraft, with an average of 95-based aircraft.² Although the Airport is forecasted to have 136-based aircraft by 2036, its classification will not change to a small hub primary airport unless it enplanes between 0.05% and 0.25% of total U.S. passenger enplanements. Since 2013, passenger enplanements at the Airport have stabilized to average 0.04% of national enplanements. This trend is expected to remain consistent through 2040, and as a result, makes it is likely that LVIA will remain a nonhub primary airport throughout the duration of the planning period.

In 2007, the Commonwealth of Pennsylvania Department of Transportation Bureau of Aviation completed a State Aviation System Plan (SASP) Update.³ The purpose of this update was to revisit the airport classifications and the state of the system for the Commonwealth of Pennsylvania in order to identify potential projects benefits and ideal funding levels.

According to the 2007 SASP, LVIA is designated as one of fifteen commercial service airports in the Commonwealth of Pennsylvania. The table on the following page identifies the criteria for amenities and services for the classification of a commercial service airport. Key performance criteria noted in the SASP for enhancing an airport's operational capacity includes primary runway length and parallel taxiway availability, in addition to available based and transient aircraft parking apron space.

¹ United States of America. U.S. Department of Transportation. Federal Aviation Administration. *National Plan of Integrated Airport Systems (NPLAS) Report Airports 2017-2021*. N.p., n.d. Web. 28 Oct. 2016.

² United States of America. U.S. Department of Transportation. Federal Aviation Administration. *National Plan of Integrated Airport Systems (NPLAS) Report Airports 2017-2021, Appendix A: List of NPLAS Airports with 5-Year Forecast Activity and Development Cost*. N.p., n.d. Web. 28 Oct. 2016.

³ Commonwealth of Pennsylvania, Department of Transportation, Bureau of Aviation. *PennDOT Multi-Modal Planning & Implementation Services, State Aviation System Plan Update*. 2007



Table 1.3.1: 2007 SASP Commercial Service Airport Criteria

Amenity/ Service	Commercial Service Airport	% of Commercial Service Airports that meet classifications	Criteria met at LVIA.
Runway Length	5,000 ft.	100	Yes
Runway Width	ARC C-II (100 ft.)	100	Yes
Runway Strength	60,000 lbs. SW	73	Yes
Taxiway	Full parallel	73	Yes
NAVAIDS	200 ft. and ½ mile	73	Yes
Approach Aids	Beacon, wind cone, REILS, PAPIs, MALSR	67	Yes
Runway Edge Lights	HIRLs	100	Yes
Weather	ASOS/AWOS	100	Yes
Facilities	FBO, phone, bathroom, jet fuel, repairs, ground transportation	100	Yes
Services	Aircraft and auto parking, storage, terminal	100	Yes

Source: C&S Engineers, Inc.; Commonwealth of Pennsylvania, Department of Transportation, Bureau of Aviation. PennDOT Multi-Modal Planning & Implementation Services, State Aviation System Plan Update. 2007

NAVAIDS – navigational aids; ARC – airport reference code; REILS – runway end indicator lighting system; PAPI – precision approach path indicator; MALSR – medium intensity approach lighting system with runway alignment indicator lights; HIRL – high intensity runway lights; ASOS – automated surface observing system; AWOS – automated weather observation system; FBO – fixed based operator

Airport History

A need for an emergency landing strip for airmail pilots prompted the designation of the LVIA’s original 50-acre parcel for aviation use by the U.S. Department of Commerce Bureau of Aviation in 1927. Approximately two years later, Allentown Airport was opened under guidance from the Allentown Chamber of Commerce, operating its first scheduled airline flight on September 16, 1935 by a United Airlines Boeing 247.



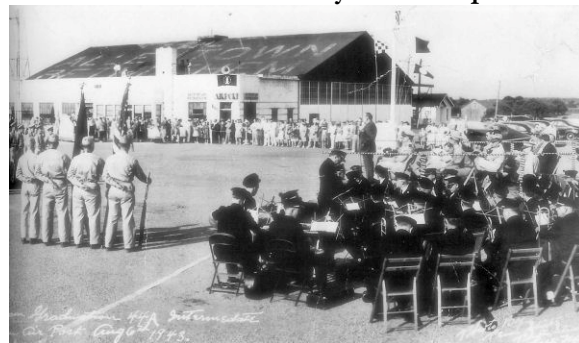
In 1937, Wilfred M. Wiley Post, Jr. formed the Lehigh Aircraft Company, which operated the Airport. One year later, the City of Bethlehem also claimed responsibility for the Airport, redesignating it as the Allentown-Bethlehem Airport. In 1938, the Airport's first terminal was built as part of the Works Project Administration program.

In 1938, the U.S. Navy began V-5 flight training at the Airport, introducing a federally supported non-profit corporation that provided volunteer emergency services and non-auxiliary missions for various governmental and private agencies. This training was conducted through the participation of Lehigh University and Muhlenberg College via Group 312 of the Civil Air Patrol. However, by 1944, the program at the Airport terminated with the relocation of all naval flight training to naval air bases. In this year, construction of a new runway at the Airport was also completed.

In 1946, the Cities of Allentown, Bethlehem, and Lehigh County formed the Lehigh Airport Authority. By 1948, they were joined by the City of Easton and Northampton County, changing the name of the Authority to the Lehigh-Northampton Airport Authority (LNAA) as it exists today. At this time, a new \$1-million, 38,000 square-foot passenger terminal was completed, servicing Colonial, United, and Trans World Airlines.

Construction on the present terminal began in 1968 and completed in 1975, with a new 33,000 square-foot terminal addition completed in 1997. In 1994, the Airport's name changed to Lehigh Valley International Airport. In 1999 and 2000, the Authority acquired Braden Airpark and Allentown Queen City Municipal Airport.

1943 Naval Pilot Training Graduation Ceremony at the Airport



Source: Wikiwand, Lehigh Valley International Airport

Allentown-Bethlehem-Easton Airport in the 1950s



Source: Lehigh Valley History, at lehighvalleyhistory.blogspot.com



In 2012, a \$15 million, 58,000 square-foot terminal addition project was completed at the Airport. In 2013, the Airport held the Lehigh Valley Airshow, for which 42,000 attended. This airshow was also held in 2014. In 2015, the Airport completed its \$24-million runway 13-31 Runway Safety Engineered Materials Arresting System Project. Finally, in 2016, the Airport made history as it was chosen as one of seven airports in the United States for the arrival of the Solar Impulse 2.

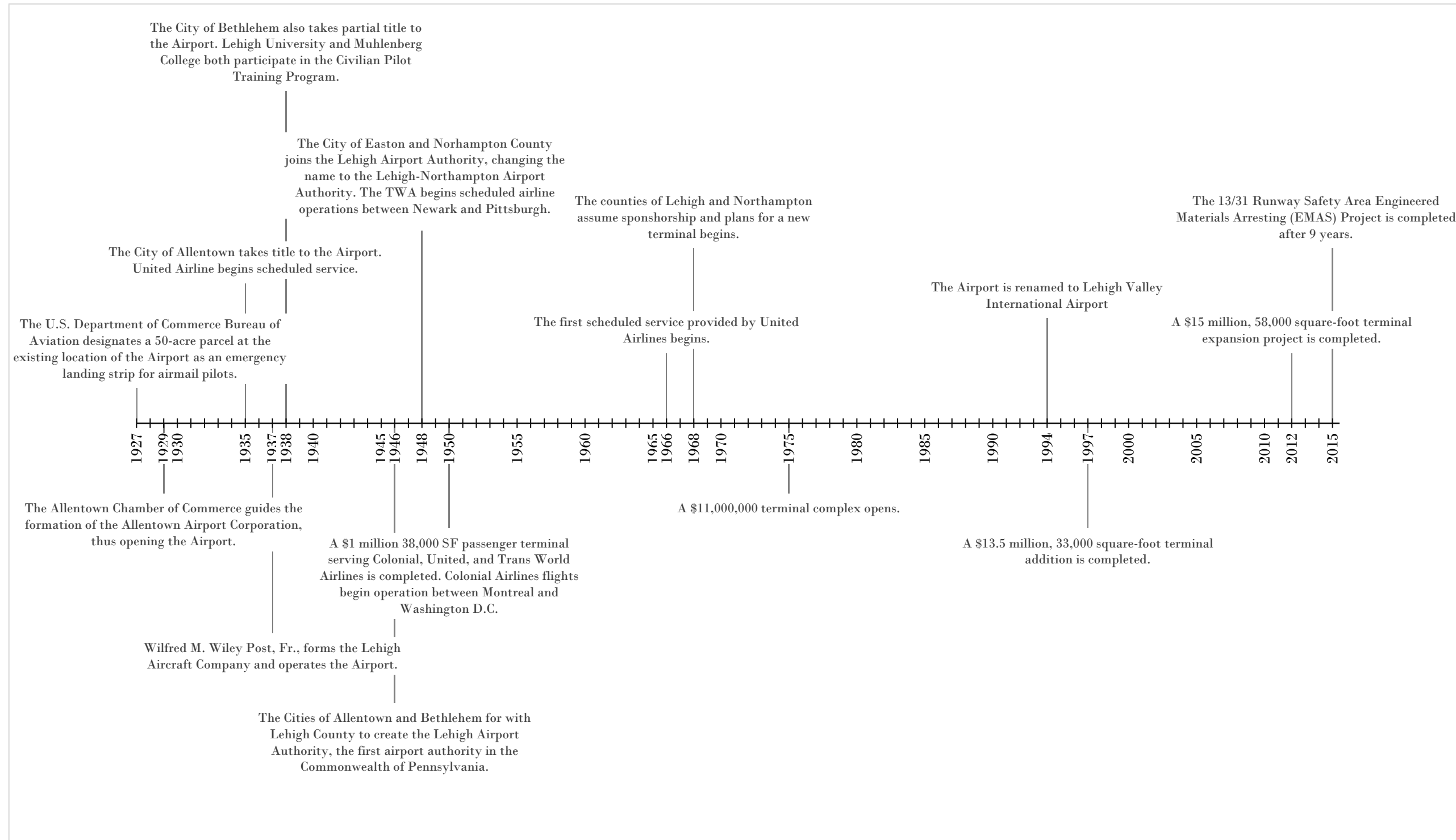
Solar Impulse 2 landing at LVIA



Source: Chris Knight, The Morning Call,
<http://www.mcall.com/news/breaking/mc-solar-impulse-open-house-allentown-airport-20160526-story.html>

On the following page, **Figure 1.3.2** graphically depicts some of the key moments in the history of the Airport.

Figure 1.3.2: Airport History Timeline



Source: C&S Engineers, Inc.; "ABE History- History of the Lehigh Valley International Airport (ABE) Lehigh Valley Airport Authority, accessible at <http://www.flylv.com/stay-connected/facts/>



Airport Setting

The Airport's geographic location is approximately 393 feet above mean sea level (MSL) at the coordinates of 40° 38' 08.5000" N and 75° 26' 25.5000" W.⁴ As seen in **Figure 1.3.3**, the Airport is primarily located in Hanover Township, Lehigh County, Pennsylvania. However, portions of airport property are also located in the Borough of Catasauqua, Allen and East Allen Townships and Hanover Township in Northampton County, Pennsylvania. The Airport's airfield is situated on 2,369 acres bound by Race Street to the north, Airport Road to the east, Postal Road to the south, and residential properties of Catasauqua to the west.

The Airport is located approximately three miles northeast of Allentown, Pennsylvania, 55 miles north of Philadelphia, Pennsylvania, 90 miles west of New York, New York, 85 miles east of Harrisburg, Pennsylvania, and 65 miles south of Wilkes-Barre, Pennsylvania. Allentown is accessible from Philadelphia via Interstate 476 (the Pennsylvania Turnpike) North, from Scranton via Interstate 476 South, from Harrisburg via Interstate 78 East, and from New York City via Interstate 78 West. The Airport can be accessed from Allentown via the Lehigh Valley Thruway/State Route 22 East, from Easton via the Lehigh Valley Thruway/State Route 22 West, and from Bethlehem via Fred B. Rooney Highway/County Route 378 North. The Airport's location is represented in **Figure 1.3.4**.

LVIA's service area includes the counties within a two-hour drive of the Airport as well as those within the Allentown Metropolitan Statistical Area (MSA). Counties within the Allentown MSA include Schuylkill, Carbon, Monroe, Warren, Northampton, Lehigh, and Berks Counties outside of the Allentown MSA but within a two-hour drive of LVIA include Wayne, Lackawanna, Luzerne, Columbia, Montour, and Northumberland. Characteristics of this service area as well as an analysis of its geographical extents is analyzed farther in **Section 2 – Regional Context**.

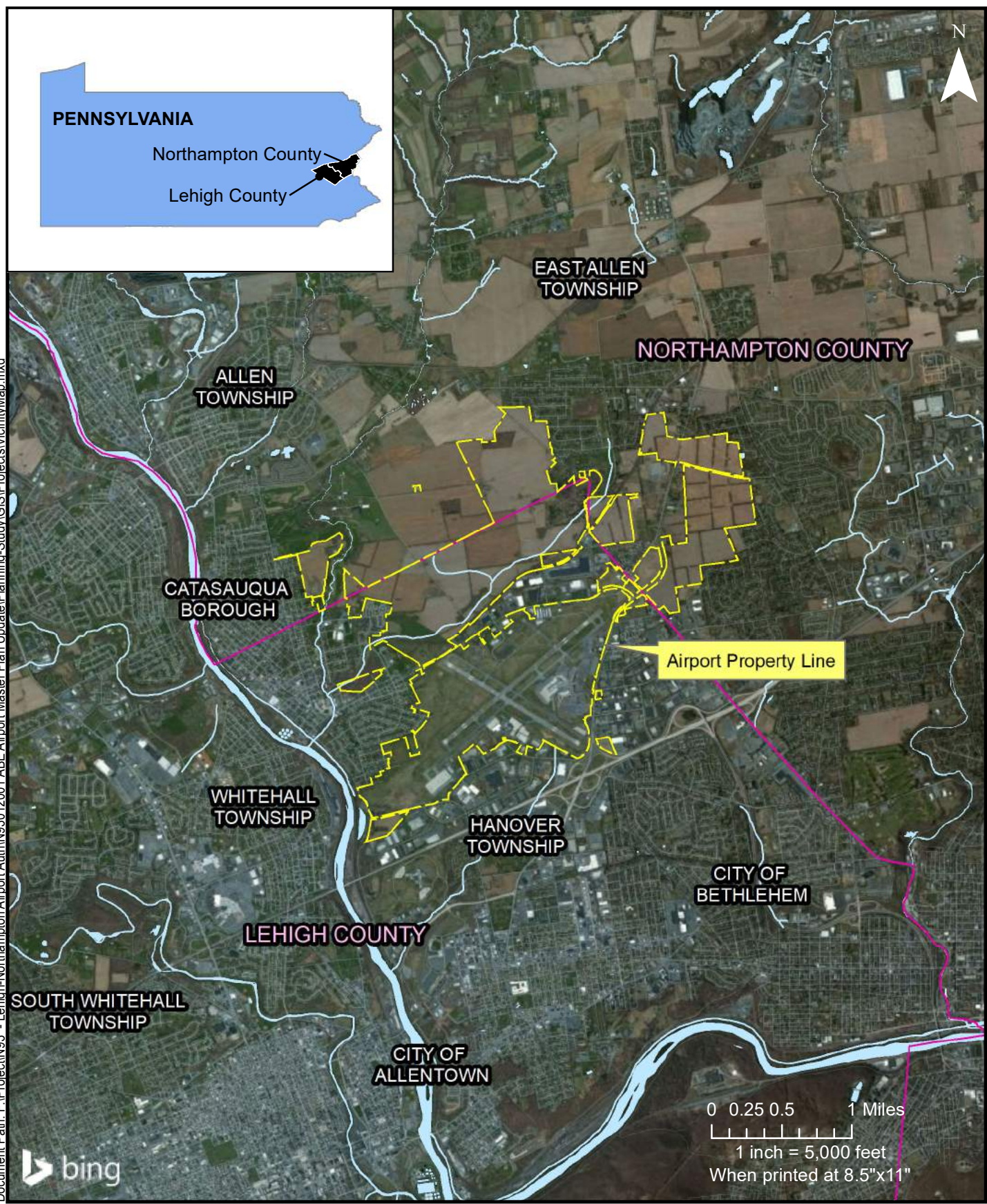
Airport Site

The Airport includes the following categories of components:

- **Airfield** – The airfield includes two runways (one southwest/northeast runway (6-24) and one northwest/southeast crosswind runway, (13-31). The airfield also contains 18 taxiways, aprons, safety-related protection zones, and associated navigational aids (NAVAIDs).
- **Passenger Terminal Complex** – The passenger terminal complex consists of one landside and one satellite terminal, connected by an underground tunnel. These terminals accommodate facilities for baggage claim, ticketing, rental car counters, security screening functions, and ground transportation facilities including terminal access/egress roadways and surface parking lots.
- **Rental Car Facilities** – Rental car storage and return, and associated quick turnaround (QTA) facilities are located east of the passenger terminal complex on airport property.
- **GA Facilities** – GA facilities are located at various access points throughout the airfield. The Airport's fixed base operator (FBO) is located south of Runway 31 and is accessible landside via Hayden Circle.
- **Air and Ground Cargo Facilities** – The air cargo ramp is located south-west of Runway 6, servicing FedEx, ABX Air, Air Transport International (ATI), and Atlas Air. Ground transportation facilities are located adjacent to this ramp. Air General provides warehouse cargo services for ABX Air, ATI, and Atlas Air; located on Postal Road.

⁴ Airport IQ 5010, Airport Master Records and Reports for Lehigh Valley International Airport, accessed 10/24/16 at <http://www.gcr1.com/5010web/airport.cfm?Site=ABE&CFID=470213&CFTOKEN=72644774>

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Sources: County Subdivisions, Counties, Water & Streets from the US Census Bureau 2016 TIGER files; Base Map: Bing Maps Aerial; Created by C&S Engineers, Inc.

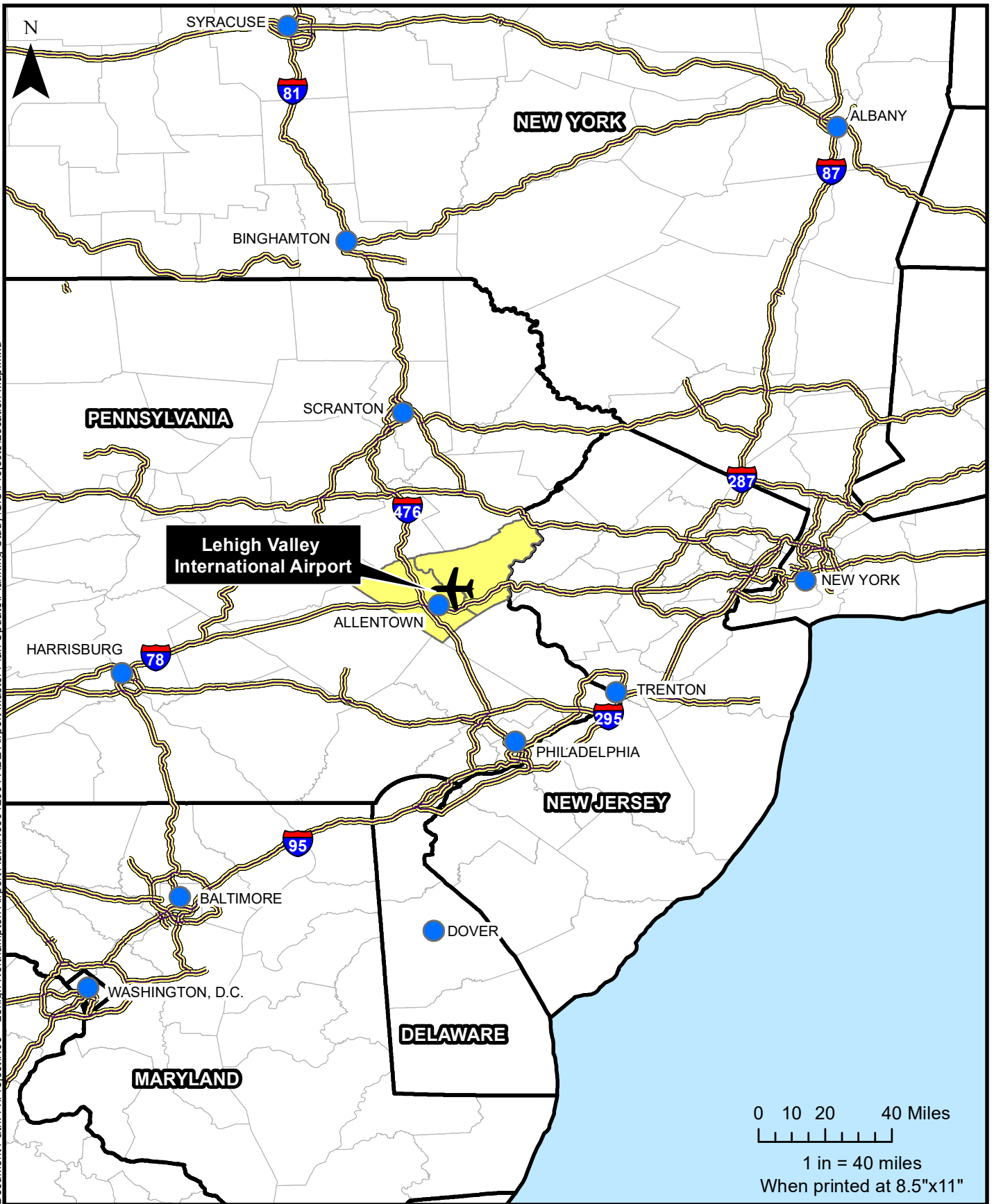


Vicinity Map

Lehigh Valley International Airport
Master Plan Update

Figure 1.3.3

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Sources: Streets and Counties from the US Census Bureau 2016 TIGER files. Created by C&S Engineers, Inc.



Location Map

Lehigh Valley International Airport
Master Plan Update
Figure 1.3.4



- **Support Facilities** – The Airport has multiple support facilities located throughout the site. Facilities include those relating to aircraft maintenance, ground service equipment, fuel farms, Aircraft Rescue and Firefighting (ARFF), Airport Police, and the FAA Air Traffic Control Tower (ATCT).

Figure 1.3.5 illustrates the Airport Site.

Surrounding Airports

To provide context of the Airport’s role within the regional setting, there are 45 privately owned, private-use airports, and 13 public-use airports currently operational within a 25-nautical mile (NM) radius of the Airport, as shown on **Figure 1.3.6**. Descriptions of the 13 public-use airports are included in **Table 1.3.2**. Perkiomen Valley Airport at 27 NM from LVIA and Blairstown Airport and Stroudsburg-Pocono Airport at 28 NM are two public-use airports located just outside the radius. Other nearby public-use airports include Wilkes-Barre/Scranton International Airport at 43 NM, Philadelphia International Airport at 48 NM, and Newark Liberty International Airport at 58 NM.

Table 1.3.2: Surrounding Public-Use Airports

Airport Name (Location Identifier)	Location	Distance from LVIA	NPIAS Airport Classification	Ownership/Use
Allentown Queen City Municipal (KXLL)	Allentown, PA	5 NM SW	GA	Public/ Public
Braden Airpark (N43)	Easton, PA	10 NM NE	N/A	Public/ Public
Slatington Airport (69N)	Slatington, PA	10 NM NW	N/A	Private/ Public
Quakertown Airport (KUKT)	Quakertown, PA	13 NM SE	GA	Public/ Public
Flying M Aerodrome Airport (P91)	Germansville, PA	13 NM NW	N/A	Private/ Public
Beltsville Airport (14N)	Lehigh, PA	15 NM NW	N/A	Private/ Public
Butter Valley Golf Port Airport (7N8)	Bally, PA	16 NM S	N/A	Private/ Public
Jake Arner Memorial Airport (22N)	Lehigh, PA	17 NM NW	GA	Public/ Public
Pennridge Airport (CKZ)	Perkasie, PA	17 NM SE	N/A	Private/ Public
Vansant Airport (9N1)	Erwinna, PA	19 NM SE	N/A	Public/ Public
Alexandria Airport (N85)	Pittstown, NJ	20 NM east	N/A	Private/ Public
Sky Manor Airport (N40)	Pittstown, NJ	22 NM east	N/A	Private/ Public
Heritage Field Airport (PTW)	Pottstown, PA	25 NM south	Reliever	Private/ Public

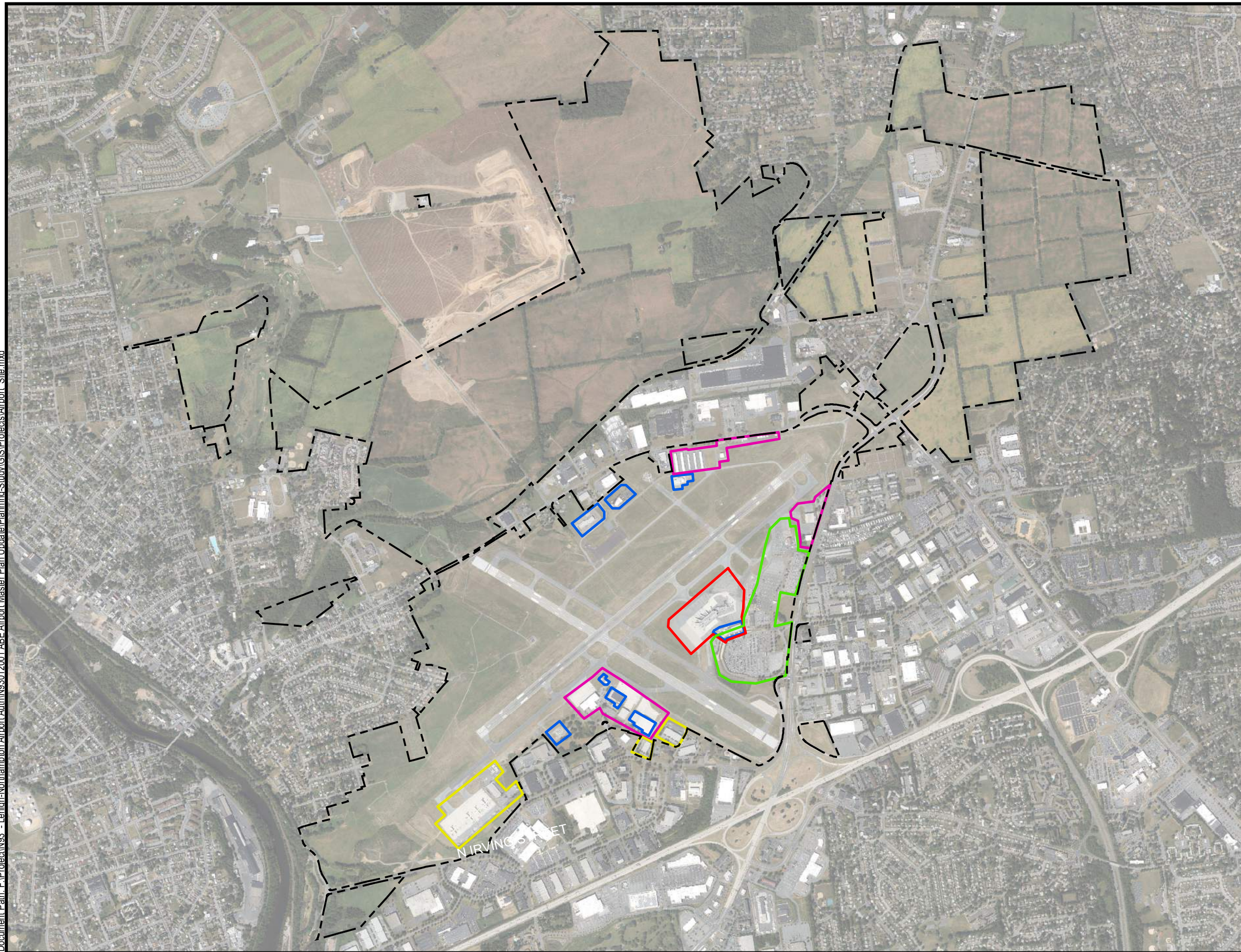
Source: C&S Engineers, Inc., and 5010 Master Records and AirNav.com for instrument approaches

Ownership and Operations

LVIA is a publicly owned airport under the stewardship of the LNAA, a Municipal Authority of the Commonwealth of Pennsylvania. The Authority, originally formed in 1946 as the Lehigh Airport Authority, was organized under the Municipal Authorities Act, 53 PA. C. S., and is the oldest airport authority in the Commonwealth. The LNAA as it exists today consists of the cities of Allentown, Bethlehem, and Easton, Lehigh County, and Northampton County. Other Airports acquired under control of the Authority include Braden Airpark in Forks Township, Northampton County, in 1999 and Queen City Municipal Airport in Allentown, Lehigh County, in 2000.⁵

⁵ “Financial Statement” Lehigh Northampton Airport Authority, December 31, 2015. Accessible at <http://www.flylvvia.com/public-info/2016-documents/2016-operating-budget/>

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Legend

- Airport Property Line
- Yellow box Air and Ground Cargo
- Pink box General Aviation
- Green box Landside
- Blue box Support
- Red box Terminal

N

0 500 1,000 2,000 Feet

1 inch = 1,700 feet
When printed at 11" x 17"



Lehigh Valley International Airport
Master Plan Update

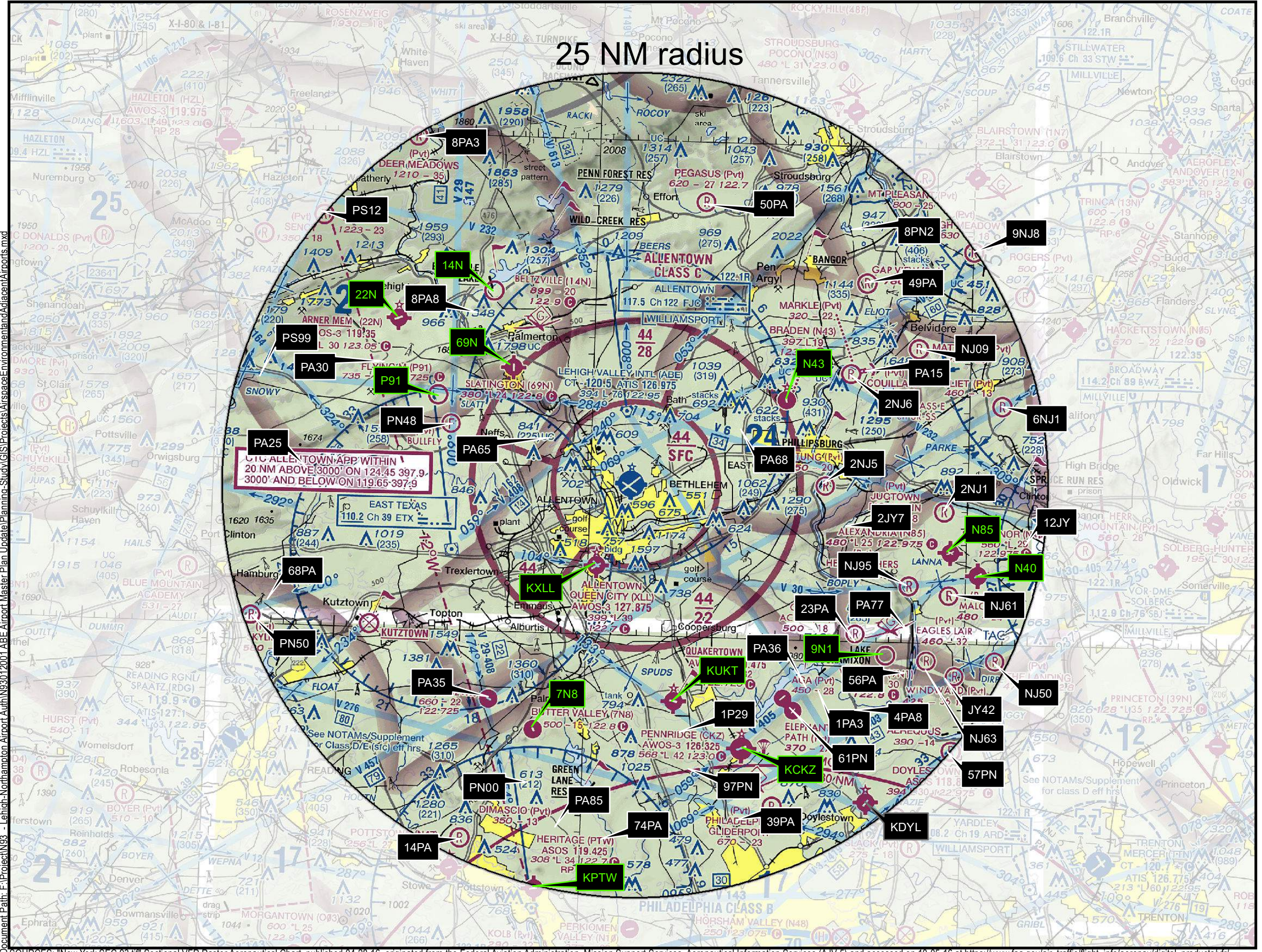
Airport Site

SOURCES: Aerial Imagery from Quantum Spatial taken 09/12/16 CREATED BY: C&S Engineers, Inc.

Figure 1.3.5

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25 NM radius



Key

AIRPORTS		AIRPORT DATA	
	Public Use Airport		Private Use Airport
	Communication Box		Obstruction
	Radio Aid to Navigation		Miscellaneous
	Topographic Information		Other symbols

1 inch = 6 nautical miles
 When printed at 11" x 17"



Lehigh Valley International Airport
 Master Plan Update
**Airspace Environment &
 Adjacent Airports**

SOURCES: "New York SEC 93.tif" Sectional VFR Raster Aeronautical Chart, published 04-28-16, originated from the Federal Aviation Administration, Mission Support Services, Aeronautical Information Services (AV-5) and accessed on 10-05-16 at https://www.faa.gov/air_traffic/flight_info/aeronav/digital_products/vfr/.
 ICAO ID and distance from ABE obtained from SkyVector Aeronautical Charts. CREATED BY: C&S Engineers

Figure 1.3.6



Lehigh Valley Aviation Services is the FBO at the Airport and is located in Hangar 7, accessible landside via Hayden Circle or airside via Taxiway J. The FBO provides de-icing, full service fueling of Jet A and Avgas, ground handling, quick-turn services, on-site maintenance, and potable water service.

In 2015, the Authority released 260 acres of airport property to the Rockefeller Group Development Corporation (RDG) for the development of a FedEx Ground Distribution Center. A need for the sale of this property was identified to pay off the judgement resulting from the litigation regarding the Authority's purchase of this land and 345 additional acres in 1990 in pursuit for the development of a parallel runway. The sale of this property did not inhibit the Airport's development plans. This release of property generated approximately \$8 million in revenue.⁶

A number of tenants own and lease facilities at the Airport. Tenants provide a variety of services such as aircraft maintenance, pilot training, air charter service, avionics services, aircraft inspections, and ground handling. Current tenants include:

- Ace Pilot Training, Inc.
- Lehigh Carbon Community College (LCCC)
- LV Avionics
- MedEscort International, Inc.
- Paragon Jets
- Saker Aviation Services
- Scott Richard Aviation/Aircraft Maintenance
- Air Products
- DV Integrations
- Inflight Training Solutions, Inc.
- Lehigh Valley Flying Club
- New World Aviation, Inc.
- Dumont Aircraft Charter
- East Coast Jets
- JET-A
- LR Services
- Flight Management Services LLC
- LV Avionics
- New World Aviation
- FedEx Express
- Air General

⁶ "Financial Statement" Lehigh Northampton Airport Authority, December 31, 2015. Accessible at <http://www.flylv.com/public-info/2016-documents/2016-operating-budget/>



A number of tenants occupy space in the terminal to provide airline ticketing, concession services, and rental car counters. Current airlines, rental car companies, and vendors leasing terminal space include:

- Airlines:
 - Allegiant Air
 - American Airlines
 - Delta Airlines (ExpressJet, Endeavor Airlines, and Delta Mainline)
 - United Express (United Shuttle, Trans States Airlines, and Express Jet)
- Car Rental Companies:
 - Hertz
 - National
 - Alamo
 - Budget
 - Avis
 - Enterprise
 - Dollar Rent A Car
 - Thrifty Car Rental
- First Class Concessions:
 - The Lehigh Valley Café
 - PA Pub Café & Spirits
 - Java Joint
 - Spirit of Lehigh News & Gifts

Airport Benefits

Airports provide an economic benefit to their communities through direct and indirect impacts, in addition to serving as a vital community asset. Direct impacts include those related to on-airport businesses and government agencies and those attributed to visitor spending and tourism. Indirect impacts mainly include the re-circulation of employees spending their earnings locally and the on-airport businesses purchasing goods and services locally. In addition, all airports in the state of Pennsylvania are used for air ambulance service, law enforcement, natural resource management, education, and community events. These benefits are presented in **Section 2 – Regional Context**.

1.4 Introduction Conclusion

From the basic background information presented and discussed above and discussions with the LNAA, an approach was prepared to guide the master planning effort. The remaining sections, figures, and appendices of this report provide the information, analyses and methods, and recommendations the LNAA believes were required to complete this master plan update and shape the decisions for long-range development as well as fulfill its vision and purpose for the greater Lehigh Valley community.