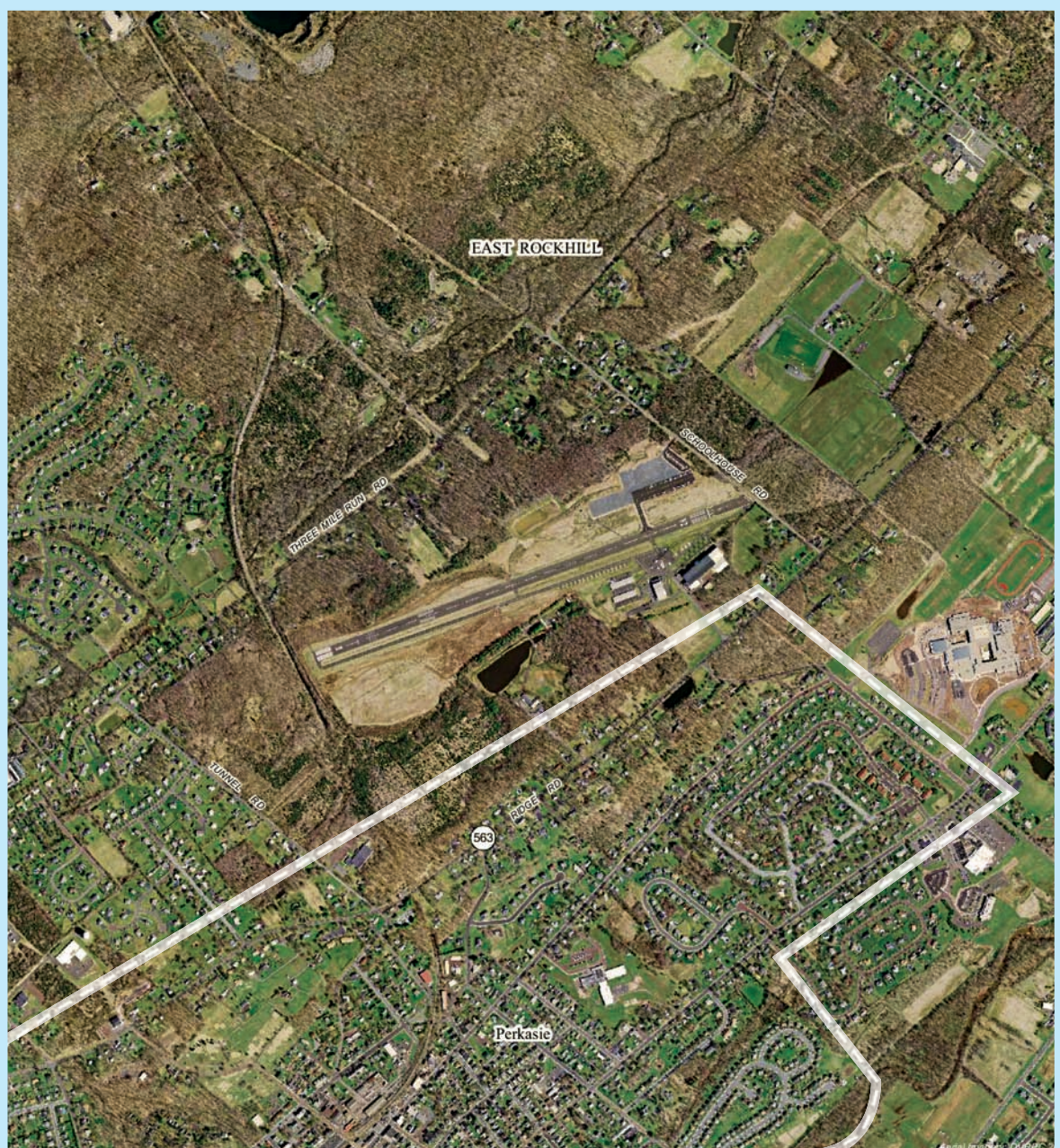


PENNRIDGE AIRPORT LAYOUT PLAN

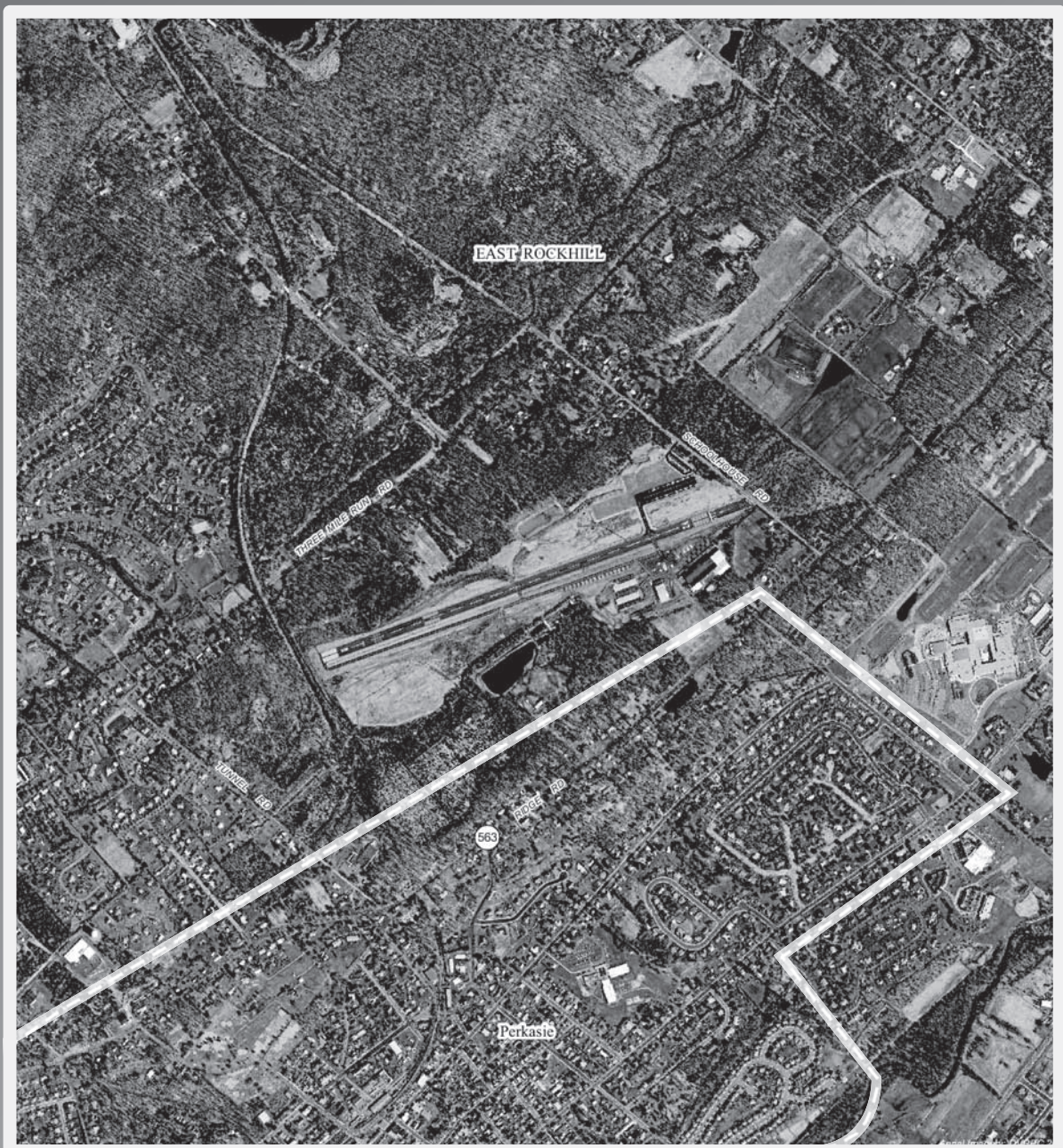
Narrative Report



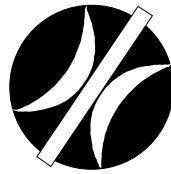
2009

PENNRIDGE AIRPORT LAYOUT PLAN

Narrative Report



The Delaware Valley Regional Planning Commission is dedicated to uniting the region's elected officials, planning professionals and the public with a common vision of making a great region even greater. Shaping the way we live, work and play, DVRPC builds consensus on improving transportation, promoting smart growth, protecting the environment and enhancing the economy. We serve a diverse region of nine counties: Bucks, Chester, Delaware, Montgomery, and Philadelphia in Pennsylvania; and Burlington, Camden, Gloucester, and Mercer in New Jersey. DVRPC is the federally designated Metropolitan Planning Organization for the Greater Philadelphia Region - leading the way to a better future.



Our logo is adapted from the official DVRPC seal, and is designed as a stylized image of the Delaware Valley. The outer ring symbolizes the region as a whole, while the diagonal bar signifies the Delaware River. The two adjoining crescents represent the Commonwealth of Pennsylvania and the State of New Jersey.

DVRPC is funded by a variety of funding sources including federal grants from the U.S. Department of Transportation's Federal Highway Administration (FHWA) and Federal Transit Administration (FTA), the Pennsylvania and New Jersey departments of transportation, as well as by DVRPC's state and local member governments. (A sentence regarding special sources of funding may be inserted here.) The authors, however, are solely responsible for its findings and conclusions, which may not represent the official views or policies of the funding agencies.

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Introduction

The most recent airport planning study for the Pennridge Airport occurred in 1994. DVRPC was funded by the FAA to update the 1994 study with an Airport Layout Plan (ALP) accompanied by a narrative report. Typically such planning documents are updated every five to ten years.

Pennridge is a privately owned public use airport in north western Bucks County, Pennsylvania with a 4,200 x 100 foot single runway. It is one of the longest and widest runways of any General Aviation (GA) facility in the DVRPC twelve county aviation region. The FAA charged DVRPC to conduct this study to focus on a regionally integrated process of project development in contrast to a consultant/sponsor managed single airport ALP. Therefore this study was based on regional needs rather than an airport sponsor's wish list of projects.

Executive Summary

This narrative ALP report includes a complete inventory of airport landside and airside facilities, describing existing conditions, recorded and analyzed during the calendar year 2007. Based on this analysis, forecasts of aviation demand were projected, concluding that the airport can expect based aircraft growth of at least 110 and up to 40,000 annual aircraft takeoff and landing operations by the end of the planning period 2030. In order to realize and accommodate the projected demand it is recommended the airport invests in hangar facilities, a new full size taxiway, upgrade runway and taxiway lighting systems, improve safety areas, improve the approach navigational instruments and keep current with obstruction mitigation. It is also recommended to gain control of surrounding land, especially in and under the Runway Protection Zone (RPZ) and FAR Part 77 regulated surfaces, through fee simple land or aviation easement acquisitions.

Pennridge Airport, although currently not a reliever airport, is one of the few airports in the Delaware Valley Region with a runway longer than 4,000 feet and capacity growth options. It is an important facility in DVRPC's Regional Airport System Plan (RASP) and is recommended for reinstatement to reliever status.

1. INVENTORY

This chapter contains the information collected at the beginning of this Airport Layout Plan (ALP) Report. It serves as the basis for the following chapters of this narrative report. An on-site field inventory and inspection results of Pennridge Airport, interviews with airport sponsors and personnel, an aerial survey, and secondary source material published on local, state, and national levels were placed in this chapter. The following topics are covered:

- Project location, airport history, and current management
- Existing facilities and services
- Based aircraft and aviation activity
- Other regional airport facilities
- Airspace considerations
- Airport service area
- Land use and zoning
- Community considerations

1.1 Project Location and Management

Pennridge Airport is a privately owned, public-use general aviation facility located near Perkasio in East Rockhill Township, Bucks County, Pennsylvania (see **Figure 1**). Flight Level Corporation owns the airport; Jean R. Curry has managed the facility for the past eight years. Flight Level Corporation also owns the Fixed Base Operator (FBO) Pennridge Airport and Pennridge Development Enterprises Inc. The airport is situated on approximately 270 acres about three miles from the nearest major arterial access, US Route 309.

1.2 Existing Facilities and Services

Pennridge Airport contains both airside and landside components. Airside components include a runway and taxiways. Landside components include buildings and hangar areas. In **Figure 2** the existing airport layout illustrates all current airport facilities. Following is a brief discussion of the existing airside and landside facilities.

Airside Facilities

Airside facilities at Pennridge Airport comprise a single runway, a partial parallel taxiway with a non-parallel extension to make it a full length taxiway, but with wing-size restrictions for the length of the extension. Please refer to **Table 1** for a quick reference on all airside facility data. Runway 08-26 is 4,215 feet long and 100 feet wide with a 360 foot

Figure 1: Airport Vicinity Map

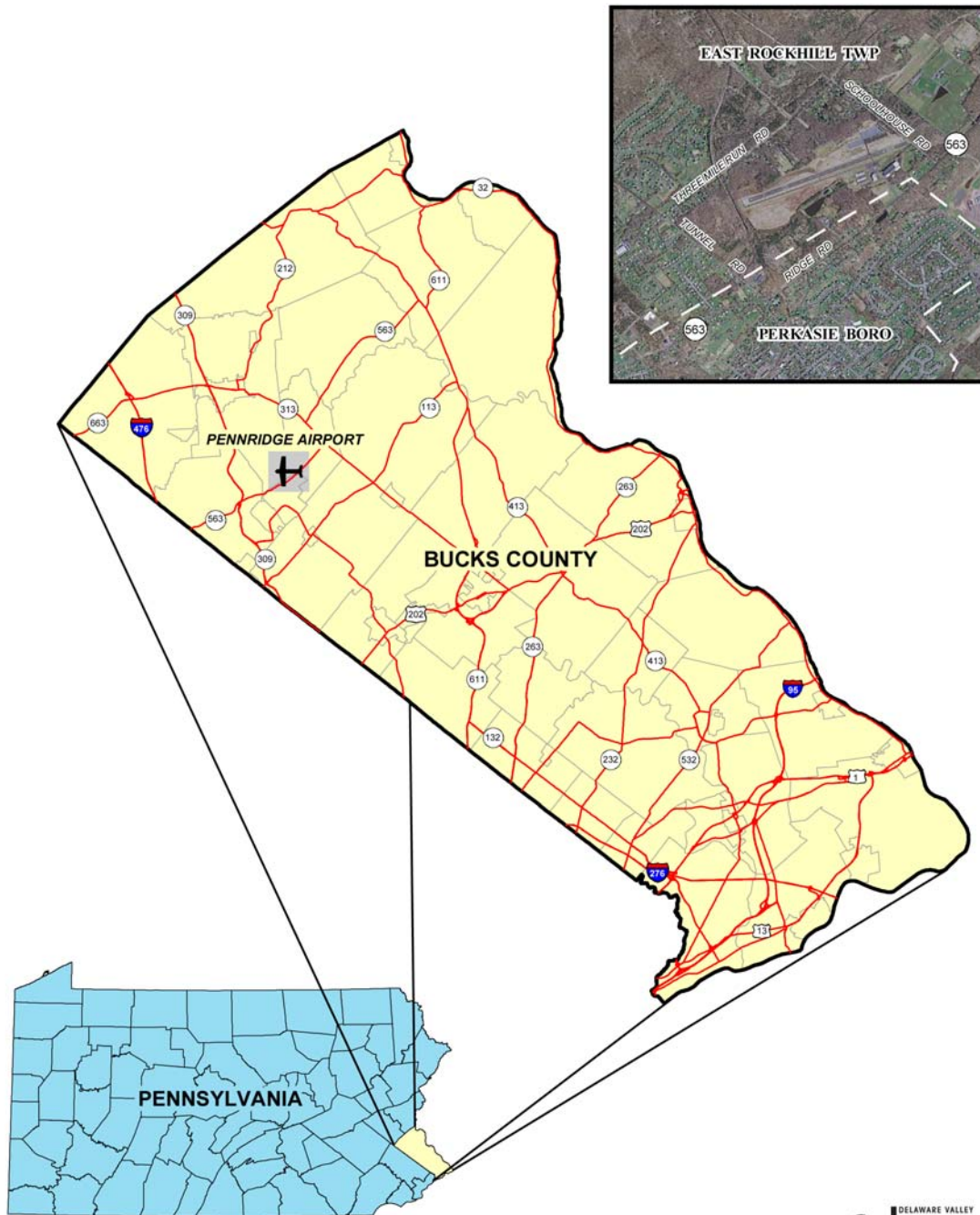




Figure 2

Pennridge Airport

Bucks County East Rockhill Township Pennsylvania

Existing Airport Layout Plan

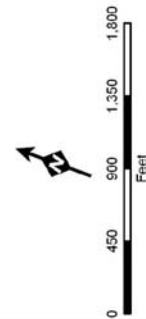
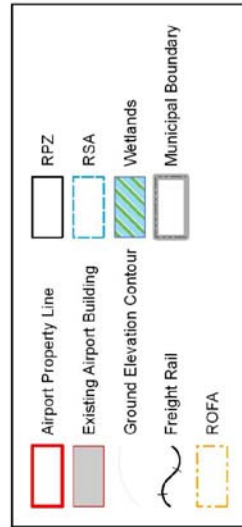


Table 1	
Pennridge Airport Airfield Facilities Data	
Facility	Existing Condition
Runway Orientation	08-26
Runway Length	4,215 feet Displaced Threshold: 360 ft. on 26
Runway Width	100 feet
Runway Surface	Bituminous
Pavement Condition	51 last inspected 04/28/2004 ¹
Runway Markings	Yes - standard
Runway Lighting	MIRL
NAVAIDS	VASI, REILs, Beacon
Electronic Landing Aids	GPS, (VOR De-commissioned)
Wind Indicator/Segmented Circle	Yes (attached to first T-hangar building)
Weather Station	AWOS
Taxiway Configuration	Partial Parallel (with limited non-parallel extension to RW 26 end)
Taxiway Width	32 feet
Taxiway Markings	Yes – non-standard
Taxiway Lighting	MITL

Source: DVRPC survey and interviews 2007-08

displaced threshold on its runway 26 end, reducing the usable landing length for that runway to 3,855 feet. Low intensity runway and taxiway lights (LIRLs and LITLs) are AC powered, and do not meet Federal Aviation Administration (FAA) standards. The design for medium intensity runway and taxiway lights and the resurfacing of the runway has been completed. The runway and taxiway surface is bituminous. Runway markings are to standard where some taxiway markings are not. A partial parallel taxiway (32 feet wide), which ties into the existing terminal apron, is connected to the runway by three access taxiways, while the third connector ties into the terminal apron. A second taxiway, with a non-standard width of 25 feet, extends from the terminal area to the approach end of runway 26. This last segment of the taxiway is restricted to aircraft with a wingspan of 37 feet or less. The remainder of the taxiway system provides access to the airfield from the hangar and apron areas. Pennridge Airport has a windsock attached to the side of the T-hangar building closest to the south side of the runway.

¹ All footnotes are on page 48.

Landside Facilities

Typical landside facilities include aircraft aprons, terminal buildings, parking lots, hangars, and various aviation and airport support facilities. A description of the existing landside facilities at Penridge Airport is provided below and summarized in **Table 2**.

Table 2 Landside Facilities	
Buildings/Facilities	Size/Capacity
Terminal Building	23 ft x 72 ft, 2 story/5 offices, 4 bathrooms kitchen, lobby, pilots lounge, utility closet
Community Hangar 1	70 ft x 160ft/11 based aircraft
T-Hangar 2	10 units
T-Hangar 3	10 units
T-Hangar 4	11 units
Community Hangar 5	100 ft x 100 ft + 20 ft x 20 ft office/storage bay attached
Four (4) Clear Span Hangars (attached) 6 - 9	Two (2) units 62ft x 58 ft One (1) unit 62 ft x 52 ft One (1) unit 60 ft x 52 ft
Terminal Apron/Transient Parking / Fueling	Yes
Fuel Facility/Capacity	Jet A & Avgas/Two above ground tanks, 10,000 gal. each (New 2005)
Transient parking and tie-downs	Yes, if available - non tie-down parking on apron
Individual Tie-downs	Approx. 42
SRE Building	End T-hangar, one bay with heat and electricity
SRE Type	Unimog 4x4 with plow
Automobile Parking 1	55 spaces (4 employee)
Automobile Parking 2 (New 2005)	43 spaces

Source: DVRPC survey and interviews 2007-08

Airport Buildings and Hangars

The airport terminal building seems to adequately accommodate facility management and users at this time. The building is 23 feet deep and 72 feet wide, and is located south of the runway. It is two stories high and provides offices, a pilot lounge with a kitchen, pilot-shop, weather-station, restrooms, and a reception area (see photos 1 - 3 below).



Photo 1 – weather station



Photo 2 – Pilot's lounge and kitchen



Photo 3 – Admin. Bldg. w/Hangar

Attached to the terminal is a large 70 by 160 foot community hangar with two bi-fold doors on the east side. The door closest to the terminal apron is 64 feet wide. A second door is 55 feet wide (**Photo 3**). On the west side of the building, a 70 foot wide sliding door provides access for larger aircraft to the hangar. Two 10-unit T-hangar buildings are to the west of the terminal and apron area (**Photo 7**). One (1) end hangar provides an open bay and is used as the SRE-building. It includes heat and electricity. In addition, a new covered aircraft storage area was developed during 2007/2008 north of the runway including 11 nested T-hangars with the option to expand to the west, one large 100 foot by 100 foot community hangar (**Photo 9**), and four clear span hangars that will be able to store three to five aircraft each.

Aircraft Aprons and Tie-downs

An approximately 6,900 square yard apron area in front of the terminal building provides room for an estimated 21 tie-downs for transient and permanent parking, but only 2,000 - 3,000 square yards are usable due to Runway Object Free Area (ROFA) restrictions (**Figure 2**). Across from the main apron, north of the runway is a newly constructed (2005) tie-down apron measuring 150 feet in width and 200 feet in length, also providing 21 tie-down spaces (**Photo 4**).



Photo 4 – 21 Tie-down spots



Photo 5 – Terminal Car Parking



Photo 6 – North Hangar Car Parking

Airport Access and Parking

The major transportation routes in the close vicinity of the airport are US Route 309 and Route 313. Access to the airport is from Route 563, Ridge Road (**Figure 1**). Car parking, with approximately 69 spaces, is near the terminal (**Photo 5**). A provision for about four employee parking spaces is included. A newly constructed additional parking lot with curbing is located

adjacent to the new tie-down apron north of the runway (**Photo 6**). A security gate provides access via Schoolhouse Road.

Airport Service and Tenants

The airport has two 10,000-gallon aboveground fuel tanks with Jet A and Avgas. The pumps were installed in 2005 without a card reader. Both tanks are located off the southwest side of the main apron (**Photo 7**). According to airport records, approximately 33,783 gallons of Avgas and 37,210 gallons of jet fuel were pumped during 2007.

The airport accommodates a variety of individual aircraft owners and pilots, and Pennridge Aviation provides aviation maintenance service. Pennridge Aviation also provides flight school lessons on four single-engine aircraft which are based on the field, and Pennridge Airport provides the FBO services. The flight school is also responsible for the rental aircraft fleet. Adventure Skydiving Center provides skydiving lessons and jump flights to trained and untrained skydivers.



Photo 7 – Sarver and Fry location



Photo 8 – Fuel Facility



Photo 9 – Community Hangar

1.3 Based Aircraft and Aviation Activity

Pennridge Airport currently houses 50 aircraft, a majority of which are single-engine propeller. The skydiving school bases one King Air twin-engine turbo prop and a Cessna 205 aircraft on the main apron. A Falcon 7X jet aircraft, owned by Flight Level Corporation, is based sporadically during the year in the new community hanger located on the north side of the runway (**Photo 9**). No rotorcrafts are based at Pennridge Airport. **Table 3** lists the current based aircraft and fleet mix as well as aviation activity, as monitored by DVRPC during 2004/05.

Table 3					
Existing Based Aircraft 2006 and Activity Estimate During 2004/05					
	Single-engine	Multi-engine*	Jet	Other	Total
Based Aircraft	42	5	1	0	48
Activity	21,585	1100	10	110	22,805
*Includes piston and turbine engine aircraft					
Source: Airport Management, and Delaware Valley Regional Planning Commission operations counting program 2004-05					

1.4 Surrounding Regional Airport Facilities

Within a 20 mile radius, 12 public-use airports were located in the Pennridge vicinity via an FAA website. Of those airports, 10 are in Pennsylvania and two are in New Jersey. **Table 4** lists the individual airports.

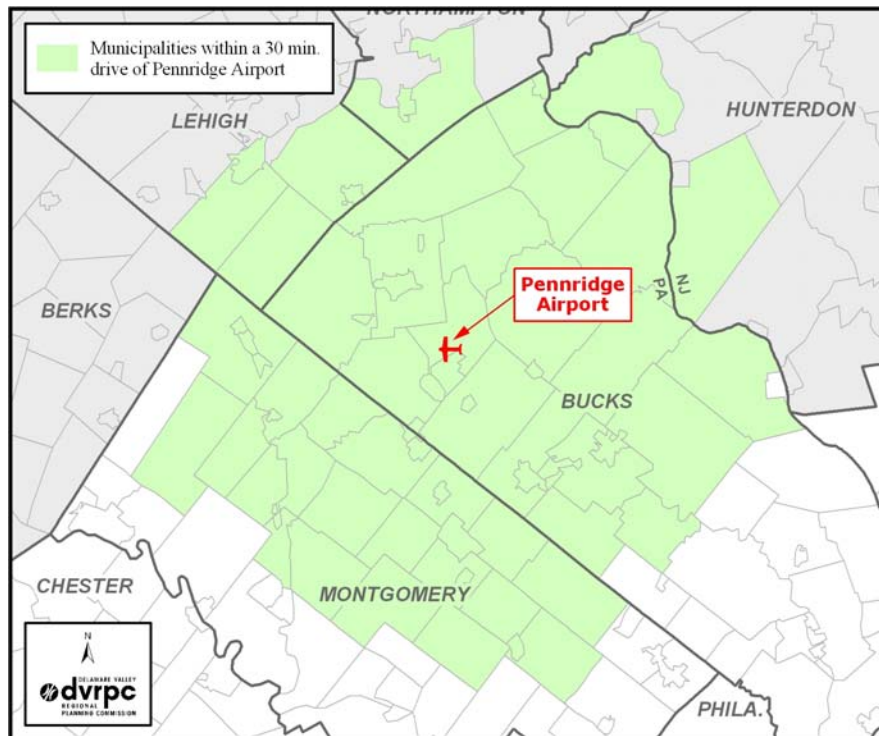
Airport	Number of Runways	Runway Length (ft.)	Surface Type	NAVAIDS & Instrument Approaches	Nautical Miles from Pennridge
UKT Quakertown	1	3,201 x 50	Paved	NDB, VOR, Beacon, VASI, Segm. Circle, Wind Cone	5
DYL Doylestown	1	3,004 x 60	Paved	REILS, VASI, SAVASI, PAPI, Beacon, RNAV (GPS), VOR, NDB	8
9N1 Vansant	2	3,058 x 120 1,340 x 200	Turf Turf	None	10
7N8 Butter Valley Golf Port	1	2,420 x 85	Turf 1,535 x 24 of which is paved	VASI (non-standard)	13
N10 Perkiomen Valley	1	2,950 x 40	Paved	Beacon, Windsock,	13
1N9 Queen City Municipal	2	3,950 x 75 3,159 x 75	Paved Paved	VOR, GPS, Beacon, Windsock	14
LOM Wings Field	1	3,700 x 75	Paved	RNAV (GPS), NDB	14
PTW Pottstown-Limerick	1	3,371 x 75	Paved	PAPI, VOR/DME, LOC, GPS	14
N85 Alexandria	2	2,550 x 60 1,810 x 100	Paved Asphalt/Turf	PAPI, VOR, GPS	17
ABE Lehigh Valley Intl.	2	7,600 x 150 5,797 x 150	Paved Paved	ILS, GPS, RNAV, REILs,	14
N40 Sky Manor	1	2,439 x 50	Paved	PAPI, Wind Indic., VOR, GPS	18
N47 Pottstown-Municipal	1	2,704 x 75	Paved	PAPI, VASI, Segmented Circle, Wind Indicator	19

Source: FAA Circle Search on www.oaava.faa.gov, 2008, and DVRPC online airport directory, 2008

1.5 Airport Service Area

The airport service area for general aviation airports is typically within a 30-minute driving time. For Pennridge the DVRPC 1997 travel time survey database (latest available version) was used. Since peak and off-peak travel do not show significant differences in this part of the region, travel time around Pennridge Airport was calculated and mapped for the off-peak period. The service area is illustrated in **Figure 3**. It includes portions of Bucks, Montgomery, Lehigh and Northampton Counties in PA and Hunterdon County in NJ. Based on 2000 census data, the Pennridge service area has a total population of 556,914 and employs 313,325 people 16 and older.²

Figure 3 – Airport Service Area



Based on DVRPC 1997 Highway Travel Time Survey

1.6 Airspace and NAVAIDS

Pennridge Airport has no FAA air traffic control tower. A 24-hour UNICOM/Common Traffic Advisory Frequency (CTAF) of 123.0 megahertz (MHz) is used for the airport. An Automatic Weather Observation Station (AWOS) provides weather information.

The airspace surrounding Pennridge Airport, see **Figure 4** is uncontrolled airspace. However, Philadelphia Approach/Departure is the controlling facility for all instrument flights to and from Pennridge Airport.

1.7 Compatible Land Use and Zoning

Land use around Pennridge Airport includes medium- to low-density residential housing, farmland, parkland, and in the immediate neighborhood of the airport along the airport access road, commercial uses. **Figure 5** illustrates land uses in the airport's vicinity as they are interpreted by DVRPC via aerial photography. The latest DVRPC 2005 land use and aerial photography is used for this report.

Figure 6 contains the zoning map for East Rockhill Township. The airport property is zoned industrial; neighboring areas to the west indicate Residential/Agricultural zoning codes; north of the airport is zoned suburban; and areas to the east indicate Residential zoning (Source: www.ordinance.com , Zoning for East Rockhill Township, PA).

1.8 Environmental Considerations

Full considerations of environmental impacts are not included in the scope of this narrative report. However, wetland locations were recorded and have been included in the map set; they are also illustrated in **Figure 5** of this report, based on: Survey of Routine Wetland Determination Delineation (December, 2003, by McFarland-Johnson, Inc.). Basic environmental issues are covered in **Chapter 4** using sources that were available to DVRPC.

The ALP recommends a taxiway extension and relocation, which will require a separate environmental assessment (EA).



Figure 5
Penridge Airport
 Bucks County East Rockhill Township Pennsylvania

2005 Land Use

Agriculture

Commercial

Community Services

Residential

Recreation

Transportation

Vacant

Water

Wooded

Rail

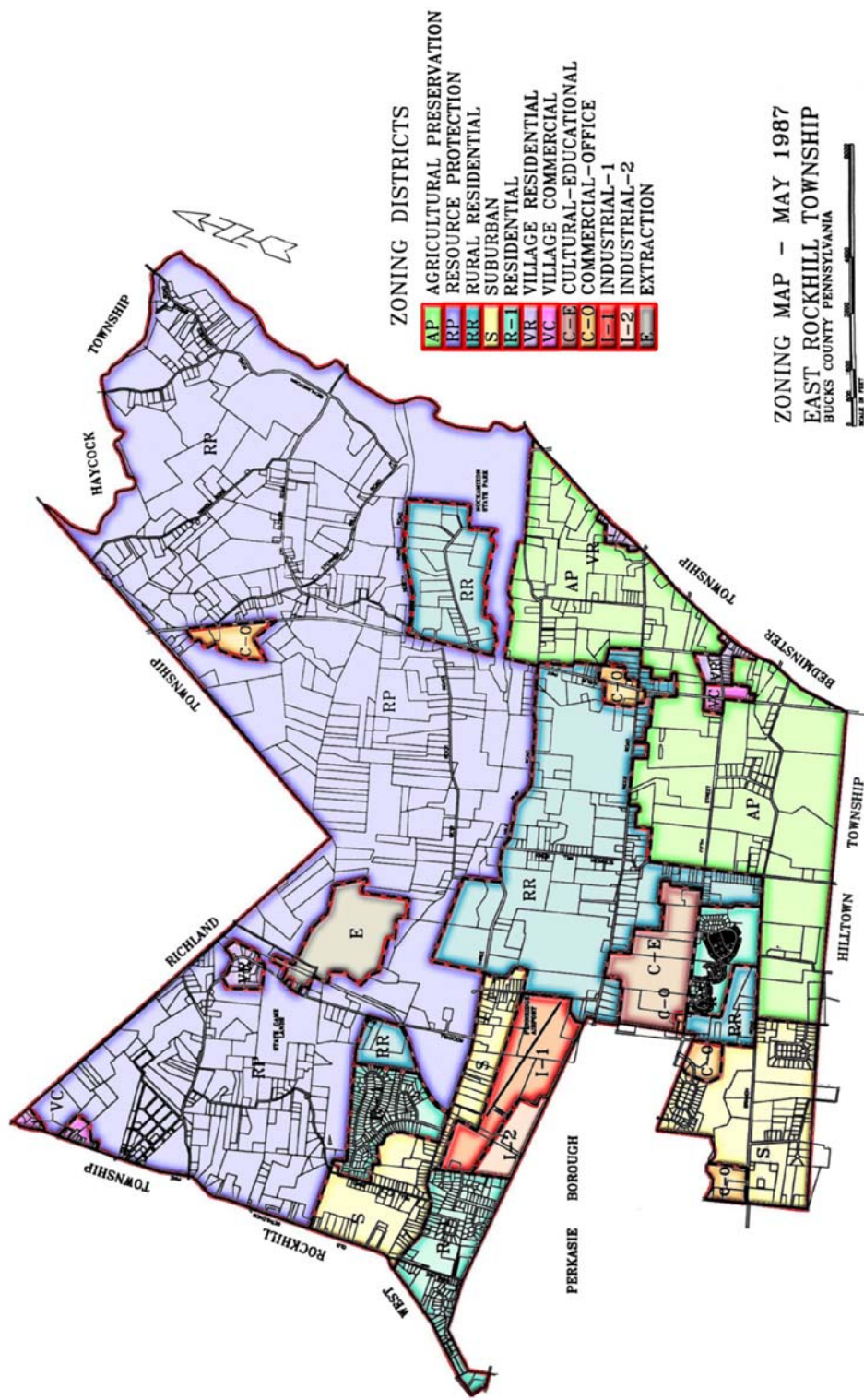
Wetlands *

0 450 900 1,350 1,800
 Feet

* Wetland location digitized from CAD drawing;
 Source: Survey of Routine Wetland Determination
 Delineation, December, 2003 by
 McFarland-Johnson, Inc.

DELAWARE VALLEY
 REGIONAL
 PLANNING COMMISSION
 JULY 2008

FIGURE 6: ER TWP ZONING MAP



Source: www.ordinance.com - Zoning for East Rockhill Township, PA, Map retrieved December 2008

LAST REVISED NOVEMBER 2000

2. FORECASTS OF AVIATION DEMAND

Aviation demand forecasts are essential to the overall planning process. Forecasts assist in identifying needed airside and landside facilities, as well as the general land envelope needed to meet identified aviation activity levels. Development of an Airport Layout Plan (ALP) for a facility requires a general understanding of recent and anticipated trends in the aviation industry as a whole. As part of the ALP Study, projections of aviation demand through 2030 were prepared for based aircraft and operations for Pennridge Airport.

The projections of general aviation demand for Pennridge Airport were completed in conjunction with the DVRPC Regional Airport System Plan (RASP) and PENNDOT's State Airport System Plan (SASP). For the purpose of this Airport Layout Plan, the projections have been extrapolated, based on 2004 - 2005 base-year data. The projections of aviation demand are documented in the following sections.

- Forecast Assumptions and Methodology
- Based Aircraft Projections
- Based Aircraft Fleet Mix
- General Aviation Operation Projections
- General Aviation Local/Itinerant Split
- Operational Fleet Mix
- Peak Period Demand
- Design Aircraft

Although these forecasts provide a meaningful guide to the future development of the airport, it must be recognized that there are always short-term fluctuations in an airport's activity due to a variety of factors.

2.1 Forecast Assumptions and Methodology

The projections of aviation demand developed in the DVRPC RASP have been adopted as the preferred projections for Pennridge Airport. The statewide projections were first developed on a regional basis and then relegated to individual airports based on each facility's recommended functional role in the system.

In 2005, DVRPC completed its system plan update entitled "2030 Regional Airport System Plan for the Delaware Valley Region (RASP)." For aviation planning purposes the DVRPC region covers 12 counties including Salem, Gloucester, Burlington, Camden, and Mercer Counties in

New Jersey; Bucks, Chester, Delaware, Montgomery, and Philadelphia counties in Pennsylvania; New Castle County in Delaware; and Cecil County in Maryland. The 2030 RASP was prepared to provide the airports located in these counties with a guide for development. Included within the plan were forecasts of operations for each airport within the system. **Table 5** provides a comparison of the RASP projected operations to the SASP. Comparable FAA Terminal Area Forecast (TAF) projected operations for Pennridge Airport are not available. The RASP and SASP forecast similar growth at the airport with the RASP projecting approximately 12,000 more annual operations by the end of the planning period.

Table 5			
RASP Versus SASP and TAF Projected Operations			
Year	SASP	RASP	FAA TAF
Historic 2005	22,800	22,800	N/A
Projected 2030	28,000	40,000	N/A

Source: PA State Airport Systems Plan, 2002, Delaware Valley Metro Area 2030 Regional Airport System Plan Update, 2005 (revised August 2006), FAA Terminal Area Forecast, 2008

Since 1986, DVRPC has used Continuing Airport System Planning (CASP) funding from the FAA to maintain an operations counting program at non-towered airports; the program provides reliable data for airports in the RASP area. General Aviation (GA) and reliever airports, like Pennridge, are counted every three to four years, unless special circumstances require more frequent counts. Annual operations estimates are accomplished by sampling twenty-four hour operations at each airport for two weeks out of each season, or eight weeks per year. Data is then used to project annual operations through a statistical sampling and projection model, maintained by DVRPC and yielding accurate annual operations counts with $\pm 15\%$. Based aircraft are also physically counted by survey crews during the sampling cycle.

SASP projections are based on assumed growth rates in operations and based aircraft surveyed in the regions of the Commonwealth. In the DVRPC region, growth in GA/business traffic was estimated as a subregional total including all airports in Bucks, Chester, Montgomery, and Delaware counties.

As shown in **Table 6**, the population of DVRPC’s aviation planning region is expected to reach 6.8 million by 2030, increasing at an annual rate of 0.44 percent between 2000 and 2030.

Table 6				
Population and Employment Forecasts 2030				
Population				
	2000	2030	% Change	Absolute
Philadelphia	1,517,550	1,505,000	-0.8%	(12,550)
PA Suburbs	2,333,207	2,760,585	+18.3%	427,378
NJ Suburbs	1,537,760	1,783,754	+13.6%	245,994
Wilmapco Regional	652,167	789,086	+20.9%	136,917
Regional Total	6,040,686	6,838,423	+13.2%	797,739
Employment				
	2000	2030	% Change	Absolute
Philadelphia	741,347	763,176	+2.99%	21,779
PA Suburbs	1,236,606	1,568,535	+22.8%	331,939
NJ Suburbs	728,691	879,551	+20.7%	150,860
Wilmapco Regional	348,230	399,805	+11.6%	54,675
Regional Total	3,051,924	3,611,177	+18.3%	559,253

Source: DVRPC 2030 Long Range Plan, Population and Employment Forecasts 2005

To develop the preferred based aircraft projections the regional employment and population growth was applied to the 2005 level of based aircraft and operations. As shown in **Table 7**, an additional 481 non-commercial aircraft are projected to be based in the region in 2030. Within the same timeframe, an increase of 238,290 non-commercial aircraft operations and 265,000 additional commercial aircraft operations are forecasted.

Table 7				
Current Operations and Based A/C / 2030 Forecasts				
	2005		2030	
	Operations	Based Aircraft	Operations	Based Aircraft
Commercial Airports Total				
Region	510,000	N/A	775,000	N/A
GA/Reliever Airports				
PA Sub	450,950	1,361	563,690	1,630
NJ Sub	330,400	632	413,000	750
Wilmapco Sub	171,800	431	214,750	517
Noncommercial Total				
Region	953,150	2,424	1,191,440	2,905

Source: DVRPC, Delaware Valley Metro Area 2030 Regional Airport Systems Plan Update, 2005 (revised August 2006)

In the very recent past and the short term outlook, operations and based aircraft levels have shown stagnation or slight losses in parts of the region. Although currently more aircraft (GA, corporation, etc.) are based at the region's GA and reliever airports, fewer operations per aircraft are occurring. This situation is influenced by increased general aviation costs including fuel, insurance, and aircraft prices. Flying along the East Coast has also become more restrictive due

to security concerns, increased restrictions impacting urban centers, large gatherings, and air traffic control operations areas. Despite the short term indicators eluded to above, to project 2030 operations and based aircraft, DVRPC used the same growth rate for GA operations developed in the 2025 plan and applied it to the 2005 base of operations, as well as aircraft population by geographic areas within the Pennsylvania suburbs, New Jersey suburbs, and Wilmapco area. Although the total number of GA aircraft operating and based in the region has leveled out, or in portions of the region, slightly decreased over the last five years, there is an anticipated slow increase in corporate and air taxi-type small jets (VLJ). This is expected to accelerate in the next 25 years when commercially affordable VLJs are being assimilated into the market. Not only will existing turboprop operators shift to small jets such as Citations and Lear jets, but new charter and corporate operations will initiate service as prices become more affordable compared to commercial aviation. This process of fleet mix change is evident from the increased jet demand in the suburbs, and the efforts by numerous airports there to extend runways to accommodate small jets and other corporate aircraft in the full range of weather and load conditions. These airports, not all of which will be successful in extending runways due to neighbor opposition and land use conflicts, include Doylestown, Quakertown, Chester County, and Pottstown Limerick. This demand trend will be compounded by the population and employment trends from 2000 - 2030 as shown in **Table 6**. The most significant growth in population and employment is in the Pennsylvania suburbs of the region followed by the New Jersey suburbs, suggesting increased personal and corporate aviation demand away from Philadelphia.

Pennridge Airport, with a runway length of 4,200 feet, already has sufficient operating capacity to accommodate new VLJ aircraft, existing small corporate jets such as the Cessna Citation Series, and even an occasional operation by the Flight Level Corporation's Falcon Jet. Therefore, it is reasonable to expect that, although growth in based recreational aircraft and operations may not be large, fleet mix will change to include a larger percentage of upscale air taxi and corporate private small jets. This trend will be complemented by the airport's initiative to increase hangar space which is necessary for the owners of expensive private business aircraft. Also, no other airports in Pennridge's market area have been successful in extending their runways to accommodate the growth trend in small jets, thereby making Pennridge a logical choice. Several area airports including Wings and Doylestown are approaching or exceeding hangars and tie-down capacity. Pennridge could receive based aircraft transfers from throughout the Bucks/Montgomery County area. With these favorable trends, DVRPC believes it is reasonable to project long-term growth in based aircraft to 110, thereby requalifying the facility to compete for FAA Airport Improvement Program (AIP) grants as a reliever in the future.

2.2 Pennridge Airport Forecasts

The forecasts developed for Pennridge are discussed in the following sections of this chapter.

Based Aircraft Projections

The term “general aviation” represents all facets of civil aviation, except activity by certified air carriers, commuters, and military aircraft. Based aircraft are defined as the total number of active general aviation aircraft that are either hangared or tied down at an airport. **Table 8** shows the forecast-based aircraft for Pennridge. Based aircraft are anticipated to increase from 50 in 2005 to 110 in 2030. This projection is consistent with the forecast developed as part of the SASP. This projected increase is based largely on the forecasted population growth for the Market Service Area (MSA) 5-Southwest region, but varies from the recommended role of Pennridge Airport in the statewide airport system.

Table 8		
GA Based Aircraft Projections		
Historic	SASP	RASP
2005	50	50
Projected		
2010		75
2030	56	110 with shift from Doylestown and Wings 110 possible.

Source: PA State Airport Systems Plan, 2002, Delaware Valley Metro Area 2030 Regional Airport Systems Plan Update, 2005 (revised August 2006)

Based Aircraft Fleet Mix

The forecast mix of based aircraft at an airport typically reflects the airport's current fleet mix, the airport's future role, and anticipated general aviation trends as outlined by the FAA. Nationally, the FAA anticipates that the active general aviation aircraft fleet will increase at an average annual rate of 0.9 percent over the forecast period. The FAA's projected average annual growth for each portion of the U.S. fleet includes the following:

- Single-engine aircraft (e.g., Cessna 172) increasing slightly (0.74 percent annually)
- Experimental aircraft growing by 1.2 percent annually
- Multi-engine piston (e.g., Beech Baron) aircraft remaining flat (no growth)
- Multi-engine turbine (e.g., Beech King Air) aircraft growing at 1.2 percent annually
- Business jets (e.g., Cessna Citation) growing at 4.3 percent annually

The forecast for this ALP study was developed considering the type of based aircraft that have been historically located at Pennridge, as well as the future role the airport may play in the Delaware Valley Region. Current data provided by airport management indicated that there are 51 single-engines, five multi-engines, and one jet engine based at the airport. By the end of the planning period, the number of single-engine aircraft is anticipated to increase to 65. Multi-engine aircraft will actually increase to 15 and small jet aircraft will increase to 30. These forecasts are due to the fact that those airports in the Delaware Valley Region seeking runway extensions in the last three to four years all failed to gain political support to date. Pennridge is an airport with a 4,215 foot runway and therefore has the potential to be used by a wide variety of aircraft. It will have to provide the appropriate increased storage capacities to reach the forecasted based aircraft projections. **Table 9** presents the mix of based aircraft at the airport throughout the planning period.

Table 9 Based Aircraft Fleet Mix					
Year	Single-Engine Piston	Multi- Engine	Rotorcraft	Small Jet	Total
Historic					
2007	52	5	0	1	58
Projected					
2012	61	6	0	8	75

Source: DVRPC, based aircraft survey and forecast 2007-08

Operations Projections

The projection of operational demand at an airport is critical in determining the need for airside development. Further, projections of operational demand identify and address any airport infrastructure design/capacity restrictions that may arise as a result of forecast demand. **Table 10** presents the projection of general aviation operations at Pennridge for the years 2005, 2010, and 2030. This projection was developed in conjunction with the Pennsylvania (or DVRPC RASP) SASP. As discussed previously, this projection is based on anticipated regional socioeconomic growth and the recommended functional role of the airport as part of the Delaware Valley regional airport system.

Table 10	
GA Operations Projections	
Year	Operation Counts
2005	22,800
2010	28,100
2030	40,000

Source: DVRPC, based aircraft survey and forecast 2007-08

General Aviation Local/Itinerant Split

Local operations are performed by aircraft that:

- Operate in the local traffic pattern or within sight of an airport;
- Are departing for or arriving from flight in a local practice area located within a 20-mile radius of the airport; or
- Are conducting simulated instrument approaches or low passes at an airport.

Itinerant operations are all other operations. This analysis assumes that 65 percent of Pennridge’s operations will be local and 35 percent itinerant throughout the planning period. **Table 11** depicts the local/itinerant split expected to occur at the airport.

Table 11
GA Operations - Local/Itinerant Split

Year	Local	Itinerant	Total
Historic			
2005	14,820	7,980	22,800
Projected			
2010	18,265	9,835	28,100
2030	26,000	14,000	40,000

Source: DVRPC, aircraft operations survey and forecast 2007-08

Operational Fleet Mix

The estimated historical and projected operational fleet mix for the airport is depicted in **Table 12**. The existing fleet mix was derived from data presented by airport management in 2005. The future fleet mix was derived from the existing fleet mix, the airport's anticipated role in the system, the projected fleet mix trends presented in the FAA Aerospace Forecast 2001-2012, and the fleet mix represented in the SASP. Currently, the airport is used primarily by single-engine aircraft (75 percent), followed by multi-engine aircraft (10 percent), rotorcraft (less than one percent), and jet aircraft (1.75 percent). Single-engine operations are expected to decline to 67 percent of the total operations throughout other planning periods, while multi-engine aircraft will stagnate at around 10 percent of the total operations, and jet engine traffic will grow to almost 24 percent of the total operation by the end of the forecast period.

Table 12					
General Operational Fleet Mix					
Year	Single-Engine Piston	Multi-Engine	Rotorcraft	Jet	Total
Historic					
2005	20,070	2,280	50	400	22,800
Projected					
2010	22,700	2,350	50	3,000	28,100
2030	26,000	4,950	50	9,000	40,000

Source: DVRPC, aircraft fleet mix survey and forecast 2007-08

Peak Period Demand

Peak period operations indicate the amount of airport demand that could occur during times of peak activity (see **Table 13**). Peak period operations can be used to determine the size of terminal/administration buildings, apron spaces, pilot lounge area, holding areas for passengers, and automobile parking lot size. In this analysis, three specific peak periods were estimated, including peak month, average day (during the peak month), and peak hour operations. Standard planning assumptions were used to derive the peak periods. Definitions for these demand periods are as follows:

- *Peak Month Operations* - The month during which the most aircraft operations occur. Standard forecasting practices assume a 10 to 20 percent increase over the other months during the year. Total operations are divided by 12, and then multiplied by 10 percent to calculate the peak month operations.
- *Average Day Operations* - Aircraft activity that can be expected on a typical day during the peak month. Dividing the peak month operations by 30 derives average day operations.

- *Peak Hour Operations* - The hour during which most activity occurs within the average day. The total peak hour operations generally equate to 20 percent of the average day total operations.

Table 13 GA Operations Peak Period Forecast				
Year	Annual	Peak Month	Average Day	Peak Hour
Historic				
2005	22,800	2,090	70	14
Projected				
2010	28,100	2,576	86	17
2030	40,000	3,666	122	24

Source: DVRPC, aircraft operations survey and forecast 2007-08

2.3 Design Aircraft

A design or critical aircraft is defined as the most demanding aircraft currently flying, or projected to fly, 500 annual operations within the planning period. The design aircraft is used to determine the Airport Reference Code (ARC), which provides standards and guidelines for facility layout. The ARC has two components that relate an airport's design to its critical aircraft. The first component is the aircraft approach category which is depicted by a letter (e.g., "A") and is determined by the approach speed of the critical aircraft (see **Table 14**). Generally, aircraft approach speed applies to the design and development of runways and runway-related facilities.

Table 14		
Aircraft Approach Category Classification		
Approach Category	Approach Speed (Knots)	Typical Aircraft
A	Less than 91	Cessna 172
B	91 but less than 121	Cessna Citation III
C	121 but less than 141	Canadair Regional Jet
D	141 but less than 166	Boeing 747
E	166 or greater	Airbus 380

Source: FAA Advisory Circular 150/5300-13 "Airport Design", 09/09/1989

The second component, depicted by Roman numeral, is the airplane design group. This is determined by the design aircraft's wingspan (see **Table 15**). Airplane wingspan relates primarily to separation criteria involving runways, taxiways, and taxi lanes.

As such, for planning purposes, the design aircraft would be a Beach King Air 200 with an ARC of B-II. Based upon the projected based and forecast fleet mix, the design aircraft will be B-II over the course of the planning period.

Table 15		
Aircraft Wingspan Classification		
Airplane Design Group	Wingspan (feet)	Typical Aircraft
I	Less than 49	Cessna 172, Piper Cheyenne, Cessna 401, Cessna 414
II	49 but less than 79	Falcon 50, Beech King Air 200, Citation III, Gulfstream III
III	79 but less than 118	B-727, B-737, DC-9
IV	118 but less than 171	A-300, B-757, B-767, L1011, DC-10
V	171 but less than 214	B-747
VI	214 but less than 262	Airbus 380

Source: FAA Advisory Circular 150/5300-13 "Airport Design", 09/09/1989

3. FACILITY REQUIREMENTS AND RECOMMENDATIONS

This chapter identifies the airfield and landside facility requirements necessary to accommodate existing and forecast demand in accordance with FAA design criteria and safety standards. The facility requirements are based upon the aviation demand forecasts presented in Chapter 2, the guidelines provided in FAA Advisory Circular 150/400-13, *Airport Design*. The major components of this chapter are listed below:

1. Airfield Facilities
 - Runways
 - Taxiways
 - Airfield Lighting and Instrumentation
 - Airfield Design Standards
 - Airspace Obstruction (FAR Part 77)

2. Landside Facilities
 - Hangar Areas
 - Aircraft Aprons (Parking and Tiedown)
 - FBO Maintenance Areas
 - Administration/Operations Building
 - Ground Access and Parking
 - Fueling Facilities

3. Land Acquisition

4. Facility Requirements Summary

3.1 Airfield Facilities

Airfield facilities include runways, taxiways, airfield instrumentation, and lighting. The largest aircraft types anticipated to regularly use Pennridge throughout the planning period are small and twin-engine general aviation aircraft such as the Cessna Citation II and King Air 200.³ The ultimate airfield design will be based upon accommodating this class of design aircraft in accordance with the standards for Airport Reference Code (ARC) B-II. As indicated in the previous chapter, Pennridge is currently designed as a basic service facility in the Pennsylvania SASP. Such airports are intended to support smaller corporate aircraft and the operations of general aviation aircraft by private pilots for business and pleasure. It is intended to support the Pennsylvania aviation system with a variety of uses such as business, pleasure and training

flights. It also provides operational and storage capacity for single- and multi-engine piston aircraft according to the Pennsylvania SASP.

Runways

The runway requirements for Pennridge were determined for the runway orientation, length, width, strength, and surface type.

Runway Orientation

The ideal orientation of a runway is a function of wind velocity and direction, and the ability of aircraft to operate under crosswind conditions. As a general rule, the primary runway at an airport should be oriented as closely and practically as possible in the direction of the prevailing winds. This enables aircraft to take off and land in the direction of the wind, thus improving safety. The most ideal runway alignment will provide the highest wind coverage percentage. The desired wind coverage for a runway such as 08-26 at Pennridge Airport has been set by the FAA at 95 percent, and assumes that small aircraft can handle crosswinds of no greater than 10.5 knots (12 mph). This is the crosswind component.

Based upon wind information recorded at Philadelphia International Airport (the closest recording station) the current northeast-southwest orientation of Runway 8-26 provides 93.66 percent wind coverage at 13 knots and 88.62 percent at 10.5 knots. Although the crosswind component is below the FAA recommended 95 percent, a runway reorientation is currently not feasible and therefore not recommended.

Runway Length

Runway length requirements are based upon the most demanding aircraft group anticipated to utilize the runway on a regular basis. The FAA categorizes the general aviation aircraft groups by weight (i.e., under or over 12,500 lbs. Maximum Gross Takeoff Weight), and number of passengers. The aircraft group for Pennridge includes all aircraft up to 26,000 lbs. with dual wheels that have less than ten passenger seats. Existing runway strength actually exceeds the airport's recommended 26,000 lbs. dual wheel weight limit. The airport will allow heavier aircraft to operate with prior approval by management. However, these heavier aircraft, if allowed to land with prior approval, are not expected to impact the current length of the runway. Runway length requirements also depend on a number of physical and meteorological factors, as listed below.

1.	Airport Elevation:	568 feet
2.	Mean Maximum Temperature:	86° F (hottest month-July)
3.	Wind:	Calm (worst case)
4.	Runway Gradient:	1.1 percent

It was determined that the current length of Runway 8-26 at 4,215 feet is adequate, and will accommodate approximately 97 percent of the aircraft in the operating fleet. Due to the nonstandard RSA at the runway 08 end, new markings for a 290 foot displaced threshold are recommended.

Runway Width, Surface Type, and Strength

The current width of Runway 08-26 is 100 feet. This width exceeds the minimum FAA design standard for ARC B-II airports, and the SASP recommendation for Basic Service airports. **Table 16** presents a list of desired design standards.

To provide for year-round use, a paved runway surface (asphalt or concrete) is required in order to provide for proper drainage in all weather conditions, to enable effective snow plowing, and to provide consistent surface friction for aircraft braking. A paved surface also assists pilots in locating the airport and permits standard runway markings. The runway surface type at Pennridge is asphalt. The airport’s twelve-year Capital Improvement Plan FY 08 project for runway pavement rehab was completed and financed solely by the airport in October 2008.

Based upon the design aircraft fleet and taxiway strength, Pennridge Airport meets the minimum 12,500 lbs. single-wheel standard for a B-II ARC, and will be adequate throughout the planning period. As mentioned above, the runway strength actually exceeds the standard weight requirement; heavier aircraft are permitted to land and take-off with prior approval by management.

Taxiways

A taxiway system provides safe access to and from the runway(s) and landside areas. For paved runways that accommodate more than 20,000 annual operations, a full parallel taxiway should be provided. A full parallel taxiway improves safety by enabling aircraft to quickly exit the runway and alleviates delays and possible runway incursions that could occur when aircraft must back-taxi on the runway. The airport’s current full parallel taxiway does not meet standards for ARC B-II. The minimum required taxiway width for a B-II facility taxiway is 35 feet. The taxiway system should have the same pavement strength as the runway, and should possess at least one exit taxiway.

If paved aprons are provided, a connector taxiway is also necessary. Relocation of the taxiway to the north side of the runway is recommended since a standard runway-taxiway separation cannot be achieved on the south side of the runway due to non-airport property impairment.

Airfield Lighting and Instrumentation

Instrumentation and lighting at an airport is a prime concern of airport users. Proper instrumentation and lighting is a necessity for the safe operation of aircraft during nighttime hours and periods of poor visibility. Pennridge has airfield lighting and a non-precision instrument approach. The airport has straight-in GPS approaches to Runway 8 and Runway 26. The airfield lighting at the airport consists of Low Intensity Runway and Taxiway Lights (LIRL/LITL). Additionally, Visual Approach Slope Indicators (VASIs) are provided on Runways 8 and 26. An upgrade to Medium Intensity Runway/Taxiway Lights (MIRL/MITL), Precision Approach Path Indicators (PAPIs), and new Runway End Identity Lights (REIL) are scheduled for state fiscal year 2008/09.

Airfield Design Standards

The airfield design standards and regulations considered here include the Runway Safety Areas (RSA), Runway Object Free Areas (ROFA), and Runway Protection Zones (RPZ). The dimensions of each area are described below, and are listed in **Table 16**. All of these areas are two dimensional ground surfaces, established to protect the safety of aircraft operations as well as people on the ground.

Runway Safety Area (RSA) – A defined surface surrounding a runway prepared for reducing the risk of damage to airplanes in the event of an undershoot, overshoot, or excursion from the runway. This area must also support snow removal equipment, aircraft rescue, and fire fighting equipment. The RSA should be free of objects except for those located in the area because of their function.

Runway Object Free Area (OFA) – A ground area surrounding the RSA and runway that should be clear of objects, except for those located in the area for aeronautical purposes.

Runway Protection Zone (RPZ) – Trapezoidal areas located beyond the runway ends that should be controlled by the airport for the protection of people and property on the ground. This is achieved through airport property acquisition, easements, or zoning to control development and land use activities.

As illustrated in Chapter 1 Page 3 (Existing ALP Drawing), there are several nonstandard design features at Pennridge Airport. Part of the area requirements for the OFA and RSA are not located on airport property and contain trees which pose obstructions.

Airspace Obstructions (FAR Part 77 Surface)

To protect the safety of aircraft operations, the FAA defines and regulates the airspace surrounding airports in Federal Aviation Regulation (FAR) Part 77, *Objects Affecting Navigable Airspace*. The airspace is defined and delineated by a set of geometric surfaces referred to as “imaginary surfaces” which extend outward and upward from airport runways. These “imaginary surfaces” identify the maximum acceptable height of objects beneath and within their boundaries. The height and dimensions of the imaginary surfaces are determined by the airfield elevation, the size of the aircraft using the facility, and the type of approaches to the runways.

Primary Surface - A surface longitudinally centered on the runway, and extending 200 feet beyond each runway end. The width of the primary surface for Runway 8-26 is currently 250 feet, which meets FAA standards. The elevation of any point of the primary surface is the same as the elevation of the nearest point on the runway centerline. If a straight-in nonprecision approach (e.g., GPS procedure) is published, the primary surface width increases to 500 feet.

Horizontal Surface - A horizontal plane 150 feet above the airport elevation. With an airport elevation of 568 feet above mean sea level (MSL), the horizontal surface for Pennridge is located at 718 feet above MSL. The perimeter boundary of the horizontal surface is created by drawing a 10,000-foot radial arc centered on the corners of the primary surface, connected by lines tangent to the arcs.

Conical Surface - A surface extending outward and upward from the periphery of the horizontal surface at a slope of 20:1 for a horizontal distance of 4,000 feet.

Approach Surface - Surface longitudinally centered on the extended runway centerline, extended outward and upward from the primary surface. The dimensions and slope of the existing approach surfaces at Pennridge Airport are shown in **Table 17**.

Table 16
Airport Design Standards

Design Function	Existing Condition	Design Criteria
	Runway 8-26	Runway 8-26
Wind Coverage	88.62% at 10.5 knots	95%
Runway Length (small aircraft with <10 passenger seats>)	4,215 feet	4,000 feet
Runway Width	100 feet	60 feet
Runway Strength	26,000 +pounds dual wheel	12,500 lbs
Runway Taxiway Offset	150 feet	240 feet
Runway – Aircraft Parking Offset	130 - 250 feet	250
Taxi Width	20 - 32 feet	35 feet
<u>Runway Safety Areas (RSA):</u> Width Length Beyond Runway End	150 feet RW 8-10ft (no DT)	150 feet 300 feet
<u>Object Free Area (OFA):</u> Width Length Beyond Runway End	500 feet (contains trees off airport property)	500 feet 300 feet
<u>Runway Protection Zone (RPZ):</u> Inner Width Outer Width Length	500 feet 700 feet 1,000 feet	500 feet 700 feet 1,000 feet

Source: DVRPC field survey and interviews 2007-08

Table 17				
Approach Surfaces				
EXISTING				
Runway 8 (Nonprecision)	Inner Width 500 ft	Outer Width 3,500 ft	Length 10,000 ft	Slope 34:1
Runway 26 (Nonprecision)	500 ft	3,500 ft	10,000 ft	34:1

Source: DVRPC field survey and interviews 2007-08

Transitional Surface - A surface extending outward and upward at right angles from the sides of the primary and approach surfaces at a slope of 7:1. The transitional surfaces terminate at the overlying horizontal surface.

When an object penetrates an imaginary surface, it is considered an obstruction to air navigation. Obstructions may include manmade objects, objects of natural growth, and terrain. At Pennridge, trees obstruct the Primary, Approach, and Transitional Surfaces as well as the Obstacle Free Zone (OFZ) and Threshold Siting Surfaces on both ends of the runway. Obstruction removals were ongoing during ALP development, and mitigated some of the obstacles illustrated on the inner portion of the Approach Surface Drawing (ALP Drawing Set, Sheet No.: ALP-05, not attached to this report*). In addition the ALP calls for the acquisition of property and easements to further remedy the OFZ and Threshold Siting Surfaces from remaining obstructions.

3.2 Landside Facilities

This section describes the guidelines and methodologies used to develop landside facility requirements for Pennridge Airport. As previously stated, the facility recommendations are based on industry standard planning ratios, FAA guidelines, and guidelines contained in the Pennsylvania SASP. The following categories were examined in this analysis:

1. Hangar Areas
2. Aircraft Aprons (Parking and Tie-down)
3. FBO Maintenance Areas
4. Administration/Operations Building
5. Ground Access and Parking
6. Fueling Facilities

* A full ALP Drawing Set is available for viewing at the airport, East Rockhill Township and DVRPC offices.

Hangar Areas

Hangar requirements for a general aviation facility is a function of the number of based aircraft, the type and relative value of aircraft to be accommodated, owner preferences, hangar rental cost, and area climate.

Requirements for hangar space are determined by industry planning standards and through discussions with the airport owner/manager, accounting for the relative value of each type of aircraft based at the airport. Hangar space requirements for Pennridge were calculated using the assumptions in **Table 18**.

Aircraft Type	Desired Type of Storage	Requirement
Turbo-Jet/Turboprop	100%	2,000 sf
Multi-Engine Aircraft	25% Conventional Hangar	1,600 sf
	75% T-Hangar	1,200 sf
Single-Engine Aircraft	50% T-Hangar	1,050 sf
	10% Conventional Hangar	1,050 sf
	40% Apron Tiedown	300 sf

Source: FAA ALP table template and DVRPC field survey and interviews 2007-08

These assumptions were applied to the based aircraft forecasts in **Table 9** to determine the actual hangar area requirements for each hangar type. Tie-down space was allocated as part of the airport apron area and is addressed under the **Apron Area** paragraph below.

As shown in **Table 19**, there is currently a surplus of existing Conventional Hangar storage space at Pennridge Airport. This is mainly due to the fact that four conventional hangars (with over 3,000 square feet each) were just completed but not yet occupied. In addition, a 10,400 square foot Conventional Hangar was built for the private use of one jet engine. No additional Conventional Hangar space is needed now or in the future, based on the forecast numbers from chapter two. However, to accommodate the forecast-based aircraft levels, four new 10 - 15 bay T-hangar buildings will be required by the end of the planning period.

Apron Areas

Transient aircraft include visiting corporate and private general aviation aircraft as well as aircraft using maintenance service. Transient aircraft parking is needed on a short-term basis, typically from a few hours to several nights. The size of the apron required to meet future

transient aircraft demand was estimated from the forecast number of itinerant operations using the following procedure.

1. From the general aviation demand forecast, calculate the average number of daily itinerant landings.
2. Assume a busy day is 10 percent busier than the average day.
3. Assume that 50 percent of the itinerant landings are by transient aircraft needing apron parking (the remaining percent are returning based aircraft).
4. Calculate the transient ramp requirements using a factor of 360 square yards per aircraft.

Location/Aircraft	Current		2030	
	Aircraft	Area	Aircraft	Area
Conventional Hangar				
Multi-Engine/Small Jet	3	1,600 sf	12	17,600 sf
Single-Engine	6	6,300 sf	6	6,300 sf
Rotorcraft	0	0 sf	0	0 sf
Total Conventional Hangar	9	18,300 sf	18	34,300 sf
Existing Availability	22	39,132 sf	22	39,132 sf
Surplus (Deficit)	14	20,832 sf	4	4,832 sf
T-Hangar				
Multi-Engine/Small Jet	1	1,050 sf	34	40,800 sf
Single-Engine	29	28,350 sf	33	34,650 sf
Other	0	0 sf	0	0 sf
Total T-Hangar	30	29,400 sf	67	75,450 sf
Existing Availability	31	32,738 sf	31	32,550 sf
Surplus (Deficit)	1	1,050 sf	(36)	42,900 sf
Apron Tiedown				
Apron Tiedown (paved)	19	5,700 sy	26	7,800 sy
Existing Availability	25	7,500 sy	25	7,500 sy
Surplus	6	1,800 sy	(1)	(300 sy)
Total Based Aircraft	58	N/A	111	N/A

Source: DVRPC field survey and interviews 2007-08

Applying the approach to the general aviation itinerant operation forecast yields the apron demand for 2030 shown in **Table 20**. Ten transient parking positions requiring 3,600 square yards of apron area are needed to accommodate future demand.

Table 20		
Transient Aircraft Apron Requirements		
	Current	2030
Annual Itinerant Operations	7,980	14,000
Busy Day Itinerant Landings	12	21
Transient Tiedowns Required	6	10
Transient Apron Area Required	2,160 sy	3,600 sy

Source: DVRPC field survey and interviews 2007-08

A summary of the general aviation tiedown requirements is provided in **Table 21**. The existing terminal apron provides approximately 6,900 square yards of total area, but only about 1080 square yards are useable for transient parking due to ROFA/Primary Surface restrictions. Three additional spaces of approximately 300 square yards each on the tiedown apron north of runway 26 are made available for transient parking use by the airport. This provides a current total of 1,980 square yards of itinerant parking and a total 7,380 square yards for existing tiedown space. In conclusion, four additional transient (360sy each) and three regular (300sy each) tiedown parking spaces are required by the end of the planning period.

Table 21				
GA Tiedown Requirements				
(SUMMARY)				
	Current		2030	
	Position	Area (sy)	Position	Area (sy)
Based Aircraft	18	5,400	21	6,300
Transient Aircraft	6	2,160	10	3,600
Total	24	7,560	31	9,900
Existing	24	7,380	24	7,380
Surplus (Deficit)	0	(180)	(7)	(2,520)

Source: DVRPC field survey and interviews 2007-08

FBO/Maintenance Areas

Practices concerning Fixed Base Operators (FBO) and maintenance facilities vary. At many general aviation airports, the FBO is also the owner and manager of the airport.

Consequently, FBO office space may be located in an administration/operations building and/or adjacent to the aircraft maintenance/flight school space. At Pennridge, Pennridge Airport, Inc. manages the airport and the FBO service. Pennridge Development Enterprises, Inc. owns the airport.

FBO and aircraft maintenance area requirements differ according to the service provided. Therefore, no firm guidelines are available. However, a frequently used criterion is to compute FBO/maintenance area at 10 percent of the total conventional aircraft hangar area or 5,000 square feet, whichever is greater. As illustrated in **Table 19**, a total of 34,300 square feet of conventional hangar space is required by the year 2030. Thus, based on the 10 percent FBO/maintenance area guideline, a 5,000 square foot FBO area is recommended for Pennridge Airport by the year 2030. Since the airport currently has about 3,500 square feet of maintenance hangar space, 1,500 square feet of additional area is needed (see **Table 24**).

Administration/Operations Building

A general aviation administration building provides space for management offices, pilot lounge areas, restrooms, retail space, flight planning, and other needs of pilots, passengers, and employees. At Pennridge Airport, there is a 3,377 square foot general aviation building that provides all of the above services.

The particular method used to determine the minimum required space for the administration/operations building depends on the airport sponsor's preferences. An accepted approach for calculating building size requirements involves operational peaking characteristics. The method uses peak-hour pilots and passengers to determine the necessary building size, as follows:

1. Determine the number of peak-hour itinerant operations
2. Multiple by 1.5 pilots/passengers per peak-hour itinerant operation
3. Multiply by 50 square feet per pilot/passenger to determine the minimum building size (use 1,000 square feet if calculation results in a smaller area).

Using the above methodology, the administration/operations building requirements were calculated (see **Table 22**).

Table 22		
Administration/Operations Building Requirements		
	Current	2030
Annual Itinerant Operations	7,980	14,000
Busy-Day Itinerant Operations	33	57
Peak-Hour Itinerant Operations	5	9
Minimum Building Size Required	375 sf (1,000 sf min.)	675 sf (1,000 sf min.)

Source: DVRPC field survey and interviews, 2007-08

Based on the planning criteria listed above, the existing general aviation building at Pennridge will be adequate throughout the planning period.

Ground Access and Parking

The number of auto spaces required at a general aviation airport is primarily dependent upon the level of peak activity at the facility. Itinerant and peak-hour pilots and passengers were previously derived for the administration/operations calculation. Only itinerant operations are used in the parking area analysis because local activity often involves the same aircraft conducting multiple operations (e.g., touch-and-go operations). It is assumed that total auto parking requirements are equal to twice the number of peak-hour pilots/passengers using the airport to account for employees and nonflying visitors. A planning standard of 35 square yards per vehicle space is applied. The results of this procedure are depicted in **Table 23**. It is typically reasonable to provide a minimum of 10 vehicle spaces. As shown, auto parking space at Pennridge is adequate to accommodate current and future requirements. However, due to planned future hangar development, the existing airport's visitor parking lot will be relocated closer to the access road entrance of the airport.

Airport-related vehicular traffic is not expected to be significant. By the end of the planning period, peak hour vehicular traffic is not anticipated to exceed six vehicles. Thus, proper configuration of the airport access road is more important than its capacity. Under normal conditions a standard two-lane, bi-directional road that intersects a collector or arterial highway will be capable of handling a traffic flow volume of 200 vehicles per hour and is recommended at Pennridge Airport.

Table 23
Automobile Parking Requirements

	Existing Facilities	Current Requirement	2021 Requirements
Peak-Hour Itinerant Operations	---	5	9
Peak-Hour Pilots and Passengers	---	4	7
Auto Parking Spaces	100	4 (10 minimum)	6 (10 minimum)
Auto Parking Area	1,500 sy	350 sy	350 sy

Source: DVRPC field survey and interviews 2007-08

Fueling Facilities

An aviation fuel facility should be designed to enable the installation of on-airport tanks as needed. At minimum, one 5,000-gallon tank should be provided for 100 Low Lead aviation fuel. Refueling of the tanks should occur no more than once every two to four weeks, depending on the size of the tanks and the amount of fuel per case. At Pennridge Airport there is one above-ground 10,000 gallon tank for the storage of 100 Low Lead fuel, and one above-ground tank of 10,000 gallon for Jet A fuel.

In addition to providing adequate fuel storage capacity, airport management must ensure that their aviation fuel facility is in compliance with state and federal regulations. Underground storage tanks and ancillary equipment (i.e., piping, fittings, valves, and pumps) are regulated by the Commonwealth of Pennsylvania for compliance with applicable federal regulations.

3.3 Land Acquisition

Ideally, an airport should own the area within the RPZs, OFAs, Primary, and Transitional Surfaces to properly control the placement of airport buildings, structures, landside facilities, and other adjacent development. Control over these areas is desirable to protect aircraft landings and takeoffs. The dimensions of these areas are outlined in previous sections and include a total area of over 100 acres. For the current airfield layout, the airport owns or controls most of the RPZ area, most parts of the Primary Surface, some parts of the Transitional Surfaces, and most portions of the OFA and OFZ. Any runway improvement project would require assessing this situation and pursuing voluntary acquisition of certain properties to gain complete control of these surfaces. Even without a runway upgrade, land acquisition is desirable (where available) to control future development. The Smola property, parcel No. 12-009-150 of 3.47 acres was acquired in 2008 and will free the above-mentioned surfaces from existing objects/obstructions.

Sufficient area should also be available to accommodate fixed based operations, aircraft parking aprons, hangar area, administration/operations buildings, auto parking lots, access roads, and utilities. These landside areas are dependent upon runway and taxiway configurations, the number and size of based aircraft, and the airport's ground access system.

3.4 Facility Requirements Summary

The preceding sections have identified the facility requirements for Penridge Airport. **Table 24** compares the existing facilities to the ultimate requirements and identifies deficits that may arise over the planning period.

Table 24			
Airport Facility Requirements System			
Item Facility	Existing Facility or Capacity	Ultimate Requirement	Deficit
AIRFIELD			
Primary Runway Length	4,215 feet	3,640 feet – 100% 3,070 feet – 95% 2,510 feet – 75%	None
Primary Runway Width	100 feet	60 feet	None
Runway Safety Area (RSA)	Nonstandard	150 x 300	RW 08– 290 ft
Objects Free Area (OFA)	Nonstandard	150 feet x 240 feet	Contains Objects
Object Free Zone (OFZ)	250 feet wide	250 feet wide	Contains objects
Threshold Siting Surface	20:1	20:1	Contains objects
Runway – Taxiway Offset	150 feet	240 feet	90 feet
Lighting	MIRL	MIRL	MIRL
Visual Aids	Rotating beacon VASI	Rotating beacon	None
Instrumentation	GPS	GPS	None
Land Acquisition	270 acres (acquired)	370 acres	100 acres
LANDSIDE			
Conventional Hangar	39,132 sf	34,300 sf	None
T-Hangars	31 unit	80 unit	49
Based Aircraft Tiedowns	25	25	0
Transient Aircraft Tiedown	6	10	4
FBO Maintenance Area	3,500 sf	5,000 sf	1,500 sf
Admin./Oper. Building	3,377 sf	1,000 sf	None
Fuel Storage (Capacity)	10,000 100 Avgas (tank) 10,000 Jet A (tank)	10,000 Avgas	None
Auto Parking	100	40	None

Source: FAA ALP table template and DVRPC field survey and interviews 2007-08

3.5 Facility Requirement Recommendations

In this chapter, Facility Requirements are presented in a summary format outlining the continued development of Pennridge Airport based on the existing and forecasted aviation demand as well as Regional Aviation Development anticipated by DVRPC.

The following recommendations intend to optimize the airport's operational efficiency, effectiveness, flexibility, and safety from a regional point of view.

Summary

- Pennridge ALP, AIP-06; FAA Review Comments 2008-AEA-184-NRA, see **Appendix C**.
- For the following recommendations also see **Figure 7**.
- Remove existing taxiway from south side of runway.
- Construct new 35 foot full parallel taxiway north of runway, with four connectors including one leading to hangars and tiedown apron.
- Improve RSA on northwest side of runway during new taxiway construction.
- Install medium intensity runway and taxiway lighting (MIRL/MITL), threshold lighting on both ends of the runway and install PAPIs for the runway 08 end.
- Gain control of RSA, ROFA, and RPZ improvements with land and aviation easement acquisitions.
- New markings for displaced threshold 290 feet from runway end 08 (current RSA length beyond runway is 10 feet).
- Retain and mark at least four itinerant parking spaces outside RSA on main terminal apron.
- Add a minimum of 40 T-Hangars on south side of airport along airport access road.
- Remove existing 50-spot car parking area southwest of terminal with new parking lot closer to airport access road serving terminal building and new T-Hangars.
- Propose reliever status reinstatement based on 100+ total based aircraft forecast for Pennridge Airport.
- Obstruction mitigation schedule: Smola property has been purchased during the course of this study. Obstructions on above property will be removed. East Rockhill Township has been contacted in regard to obstructions in the RPZ on runway end 26. Township refuses to mitigate obstructions at their own cost; offered to purchase aviation easement or mitigate obstructions with adequate tree replacement in different, non-obstructing location. No other obstruction removal projects are scheduled or identified on the airport's 12-year plan.



Figure 7
Pennridge Airport
 Bucks County East Rockhill Township Pennsylvania

Proposed Airport Layout Plan

	Threshold Lights		Proposed Taxiway
	Proposed Runway		RW/OB/RPZ
	VASI		Existing Airport Building
	VOR		Field Farm
	DTH		Municipal Boundary
	Fence		Pavement Removed
	CFZ		Acquire Airport Easement
	TSA		Proposed Airport Building
	TOFA		Proposed Taxiway
	Taxiway Centerline		ROFA
	Freight Rail		RPZ
	GA Non-Commercial Acquisition		ROA
	Fence		Wildlands

DELAWARE VALLEY
dvrpc
 REGIONAL
 PLANNING COMMISSION
 June 2009

4. ENVIRONMENTAL CONSIDERATIONS

As indicated in Chapter 3, new development is anticipated at Pennridge Airport. Before DVRPC can initiate development recommendations, environmental constraints must be assessed as available information allows. A brief environmental review within the framework of this narrative report was conducted for the following sections:

- Cultural/Historic Resources
- Floodplain Areas
- Wetlands
- Farmlands
- Soils
- Socioeconomics
- Parklands
- National /State Forest or State Game Lands
- Solid and Hazardous Waste

Cultural/Historical Resources

Source: PA Historical Museum Commission, (PAHMC) website. Partnered with PennDOT.

North Pennsylvania Railroad, built 1853, 1857. This active rail line is located approximately 150 to 180 feet east of runway 08 end and runs in a north - south direction. This is the only structure near (within one-half mile radius of the airport) or on airport property that is considered to be a historical site, according to the Federal Register.

Floodplain Areas

Source: FEMA

No floodplain areas are recorded directly on airport property. A 100-year floodplain with slim 500-year floodplain areas along its outskirts is recorded north of Three Mile Run Road, which is located north of the airport. No impacts on airport property and future projects are expected.

Wetlands

Source: US Fish and Wildlife Service and a survey of Routine Wetland Determination Delineation on airport property, December, 2003 by McFarland-Johnson, Inc.

No wetlands are recorded on airport property according to the US Fish and Wildlife Service source. However, in a 2003 routine wetland determination delineation, developed and mapped by McFarland-Johnson, Inc., wetland areas were located approximately 300 feet northwest of the runway end 26, potentially impacting the proposed taxiway relocation as illustrated on ALP-Sheet 07 of the map set. Further study and mitigation is recommended once this project will be under design. A rather small wetland area, immediately north of the proposed taxiway, is located at about the halfway point of the runway. A third wetland area is located within the RPZ past the runway end 08, potentially, impacting future obstruction mitigation projects in that area.

Farmlands and Soils

Source: US Department of Agriculture, Natural Resource Conservation Service.

See **Table 25** and **Figure 8** below.

Socioeconomics

DVRPC ALP, McFarland-Johnson, Inc., 1995 Pennridge Airport Masterplan.

Under most circumstances the socioeconomic impacts are associated with relocation and disruption of residences and businesses. The airport ALP recommends acquisition of five full and partial properties of a total 15.95 acres for avigation easements and a simple fee acquisition of 4.64 acres of one full and one partial private property for obstruction mitigation and taxiway relocation.

The implementation of the ALP recommendations is expected to have positive impacts on the overall public benefit and regional economic growth. The potential socioeconomic benefits include improved air access for business, personal/recreational flying, and flight instructions.

Section 4 (f)

The U.S. Department of Transportation Act of 1966 established a provision, known as Section 4(f), to protect certain tracts of land from development. Section 4(f) lands, defined by the Act, include parks or recreational areas publicly owned or open to the public, wildlife or waterfowl refuges, or any significant historic sites. The following resources were reviewed to determine whether Section 4(f) lands are present within the airport development limits.

Parklands

Municipal-owned parkland is located west of the runway 26 end under the RPZ and approach surface. Acquisition of avigation easement for portions located under the RPZ

and the approach surface is recommended. Negotiations with the municipality are encouraged.

National/State Forest or State Game Lands

No registered lands were located within and around the airport development area.

Wildlife/Waterfowl Refuge

N/A – no source available to DVRPC

Historic Resources

See Cultural/Historical Resources above.

Solid and Hazardous Waste

No landfills or hazardous waste sites are recorded on and around the immediate area of the airport property.



Figure 8
Pennridge Airport
East Rockhill Township
Bucks County Pennsylvania

Soils

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February 2009

AbA	AbB	AbC	AmB	Bo	BwB	UgB	Water	WFD			
ReB	RIA	RIB	TpB	UqB	UfuB	CwA	CwB	KIB	LmB	MmB	ReA
CwA	CwB	LmB	MmB	ReA	UgB	Water	WFD				

0 450 900 1,350 1,800
Feet

Table 25: Soils Map Key

Soil Symbol	Soil Kind	Soil Name	Farmland Classification	Soil erodibility
CwB	Consociatio	Croton silt loam, 3 to 8 percent slopes	Not prime farmland	Potentially highly erodible land
AbC	Consociatio	Abbottstown silt loam, 8 to 15 percent slopes	Farmland of statewide importance	Highly erodible land
Bo	Complex	Bowmansville-Knauers silt loams	Not prime farmland	Not highly erodible land
AmB	Consociatio	Arnwell silt loam, 3 to 8 percent slopes	Farmland of statewide importance	Potentially highly erodible land
UdB	Consociatio	Udorthents, shale and sandstone	Not prime farmland	Potentially highly erodible land
RIA	Consociatio	Reaville channery silt loam, 0 to 3 percent slopes	Farmland of statewide importance	Not highly erodible land
RIB	Consociatio	Reaville channery silt loam, 3 to 8 percent slopes	Farmland of statewide importance	Potentially highly erodible land
WfD	Complex	Weikert-Culleoka complex, 15 to 25 percent slopes	Not prime farmland	Highly erodible land
TpB	Complex	Towhee-Glenville silt loams, 0 to 8 percent slopes, extremely stony	Not prime farmland	Potentially highly erodible land
AbB	Consociatio	Abbottstown silt loam, 3 to 8 percent slopes	Farmland of statewide importance	Potentially highly erodible land
BwB	Consociatio	Buckingham silt loam, 3 to 8 percent slopes	Farmland of statewide importance	Potentially highly erodible land
CwB	Consociatio	Croton silt loam, 3 to 8 percent slopes	Not prime farmland	Potentially highly erodible land
AmB	Consociatio	Arnwell silt loam, 3 to 8 percent slopes	Farmland of statewide importance	Potentially highly erodible land
TpB	Complex	Towhee-Glenville silt loams, 0 to 8 percent slopes, extremely stony	Not prime farmland	Potentially highly erodible land
ReA	Consociatio	Readington silt loam, 0 to 3 percent slopes	All areas are prime farmland	Not highly erodible land
ReB	Consociatio	Readington silt loam, 3 to 8 percent slopes	Farmland of statewide importance	Potentially highly erodible land
UdB	Consociatio	Udorthents, shale and sandstone	Not prime farmland	Potentially highly erodible land
UgB	Complex	Urban land-Abbottstown complex, 0 to 8 percent slopes	Not prime farmland	Potentially highly erodible land
KIB	Consociatio	Klinesville very channery silt loam, 3 to 8 percent slopes	Farmland of statewide importance	Potentially highly erodible land
AbA	Consociatio	Abbottstown silt loam, 0 to 3 percent slopes	Farmland of statewide importance	Not highly erodible land
UgB	Complex	Urban land-Abbottstown complex, 0 to 8 percent slopes	Not prime farmland	Potentially highly erodible land
UfuB	Consociatio	Urban land, 0 to 8 percent slopes	Not prime farmland	Potentially highly erodible land
LmB	Consociatio	Lehigh channery silt loam, 3 to 8 percent slopes	All areas are prime farmland	Potentially highly erodible land
AbC	Consociatio	Abbottstown silt loam, 8 to 15 percent slopes	Farmland of statewide importance	Highly erodible land
CwB	Consociatio	Croton silt loam, 3 to 8 percent slopes	Not prime farmland	Potentially highly erodible land
RIB	Consociatio	Reaville channery silt loam, 3 to 8 percent slopes	Farmland of statewide importance	Potentially highly erodible land
UgB	Complex	Urban land-Abbottstown complex, 0 to 8 percent slopes	Not prime farmland	Potentially highly erodible land
CwB	Consociatio	Croton silt loam, 3 to 8 percent slopes	Not prime farmland	Potentially highly erodible land
W	Consociatio	Water	Not prime farmland	Not highly erodible land
CwB	Consociatio	Croton silt loam, 3 to 8 percent slopes	Not prime farmland	Potentially highly erodible land
W	Consociatio	Water	Not prime farmland	Not highly erodible land
AbB	Consociatio	Abbottstown silt loam, 3 to 8 percent slopes	Farmland of statewide importance	Potentially highly erodible land
AmB	Consociatio	Arnwell silt loam, 3 to 8 percent slopes	Farmland of statewide importance	Potentially highly erodible land
ReB	Consociatio	Readington silt loam, 3 to 8 percent slopes	Farmland of statewide importance	Potentially highly erodible land
RIB	Consociatio	Reaville channery silt loam, 3 to 8 percent slopes	Farmland of statewide importance	Potentially highly erodible land

¹ Source: PENNDOT, 2004 Airport Pavement Inventory Report (Table 1, page 4)

² Source: 2000 U.S. Census Data (within text, page 9)

³ Regular use considered by FAA is conducting a minimum of 500 total annual takeoffs and landings, equal to approximately five landings per week. (within text, page27)

Appendix A

AGENDA

1. Introduction - Background of Study
2. Interview, questions for the sponsor (+ Relevant items from the inventory checklist - attached)
 - a. Previous planning documents
 - b. Ownership situation
 - c. Obligation, assurances
 - d. Total funding received from state and feds
3. Discuss Township position, expectations on current and possible future airport developments
4. Sponsor goals and objectives for future airport development

Also:

- List outside impacts on airport development (e.g. Hangar waiting list, neighbor complaints, etc)
- Compatible land use issues
- VLJ potential
- Other relevant impacts

5. DVRPC regional goals and objectives for the airport
6. Discuss DVRPC scheduled milestones for ALP
7. Potential members for the ALP advisory committee

Should represent:

- State official (BOA)
- County planner/zoning officer
- Local Township planner/zoning officer (East & West Rockhill, Perkasio)
- Local/based Pilot representative
- FBO
- Neighborhood representative
- Local Department of Commerce
- Interested local business owners or business neighbors

AIP – 06 :

ALP - Pennridge Airport

Sponsor Scoping Meeting Minutes from 4-18-06

In attendance:

Jean Curry (Pennridge Airport)
Marsha Hochstatt (McFarland & Johnson)
Jim Fels (FAA, Harrisburg ADO)
Roger Moog (DVRPC)
Reiner Pelzer (DVRPC)

1. Mr. Moog provided a brief introduction on the study background. DVRPC received a grant from the FAA to undertake two ALP Update studies including Pennridge airport. Although Pennridge is not currently in the NPIAS, the airport represents an important cornerstone in DVRPC's Regional System Plan. The reliever designation was lost about three years ago due to changes in FAA policy regarding reliever entry criteria. Yet, Pennridge has the fourth longest runway of the non-commercial airports in the region.

DVRPC was chosen to conduct this study for their ability to best include regional perspective, and provide an objective view on possible airport and adjacent developments. DVRPC participation will hopefully better integrate airport expectations with regional objectives and provide a product at a lower cost to the FAA.

2. Specific questions were directed toward the sponsor to get a better feel for the owner's intentions in regard to airport developments.

Ownership situation:

Official owner: Flight Level Corp.
Real Estate is owned by: Pennridge Development Enterprises, Inc.

Flight Level Corp. Owns: a. Pennridge Airport, Inc.
 b. Pennridge Development Enterprises, Inc.

Flight School: Pennridge Aviation

Previous Master Plan: Started in 1992, completed in 1995.

Airport Owned VOR Status: Decommissioned by FAA, no longer operating.

The sponsor ensured the airports commitment to development goals set in 12 year plan.

About \$1 million in state grants have been accepted for design and construction grants for tree clearing (obs. removal) a new apron and vehicle parking lot. The airport currently pursues permits for the erection of T-Hangars (14).

-
3. In regard to the township's position, it was reported by the sponsor that East Rockhill prefers to preserve open space. Relations with East and West Rockhill have improved over the past 5 years. Yet, a major expansion including a road closure is unlikely to be supported by the municipality. However, closure of Schoolhouse Rd. is supported by the immediate neighbors as a way to lessen traffic thru their neighborhood. **None** of the surrounding townships have adopted airport hazard zoning ordinances. The local chamber of commerce promotes the existence and utilization of the airport for business development in the area.
 4. The sponsor's representative reiterated it's commitment to the airport development as it is depicted in their latest twelve-year plan. Main and foremost goal is to regain reliever status. Current aircraft parking apron and hangar projects are geared to boost based aircraft to over 100 for compliance with reliever criteria. Mr. Fels said Pennridge's proximity to Quakertown and Doylestown, their, private ownership, existing non-standard conditions, and site constraints, may hold up re-designation as a reliever airport even with 100 based aircraft. The sponsor also stated the airports commitment to safety improvements. Currently they are receiving fill material from other township projects, to be used to widen and extend current RSA along runway 08 end.

During apron construction, at the apron taxiway tie-in to the runway, deterioration of the runway surface was noticed. DVRPC will check 2004 BOA PCI records for the airport to determine possible extend of a runway rehab project.

FAA standards are **not** met in regard to current runway and taxiway separation. In order to gain proper separation it is desired to move the taxiway to the north side of the runway. The RSA issue will remain at the 08 end. The airport is restricted by a roadway (Schoolhouse Road) on the 26 end and an active railroad (SEPTA) on the 08 end. Residents along Schoolhouse Road would welcome its closure for a possible runway extension or RSA improvement. At least one township supervisor has indicated his opposition to such plans. The surrounding airport land is zoned industrial, the only such zoning in the entire Township.

5. DVRPC recommended Pennridge as a reliever airport in the original RASP to the fact that it has one of the 3 longest runways of non-towered airports in the RASP. The airport is located fairly close to Rt. 309 and has potential development opportunities even without a runway extension. Approaches appear to be clear. Pennridge is regarded by DVRPC RASP as a business airport that needs development to satisfy regional demand. The airport has accepted a state design and construction grant for Hangar Site Prep and Obstruction Removal for a total of about \$ 1 million. It is the intention to remediate the airports deficiencies including: hangars, apron parking, safety and standard needs, RSA improvements, taxiway relocation, lighting improvements, and pavement condition, before ultimately considering the need for a runway extension to 5000'.
6. Due to time constraints the list of scheduled milestones was not discussed in detailed but remarked that 2 – 3 ALP advisory committee meetings would be satisfactory for this process.
7. A list of possible ALP advisory committee members was compiled. Mrs. Curry will contact Mr. Pelzer after her return from vacation with contact information for some individuals. A first advisory committee meeting is planned for the end of May.

SOME FIELD VIEW OBSERVATIONS:

1. Approach obstructions were not measured.
2. On RW26 several arborvitae? or cedar? trees have grown up above the perimeter fence that could exceed the Approach Surface and/or PAPI obstacle clearance surface and should be checked.
3. On RW26 there is a displaced threshold, reason unknown.
4. Located around a quarter mile off RW26 and just north of centerline is a publicly owned park its location and ownership should be confirmed for possible DOT Sect 4f impacts.
5. The airport property appears quite constrained along the south side of the RW26 TDZ by an existing building, now being turned into a Pod Storage Warehouse.
6. Inadequate TW OFA exists along the TW connecting the apron to the RW26 end. This has been mitigated by a sign limiting wingspans to 37' or less¹. SHOULD THIS BE LISTED IN THE REMARKS SECTION OF THE AF/D?.
7. The RW Holding Position marking offset at the RW 26 entrance taxiway coming from the south apron area was measured with a wheel. The 90° offset from RW Centerline was about 103 feet (if I remember correctly-comment Reiner).
8. Numerous parked aircraft were located in front of two existing Tee Hangars that were home of two maintenance operations. Tail heights in front of the northerly hangar should be checked for airspace impacts. Taxi lane obstructions should be monitored in front of the southerly hangar since there is no pavement loop around the west end of the tee hangars (it dead ends).
9. Auto parking lot appeared to be in fair condition. It was about 33% - 40% full.
10. Just prior to the field view, a Falcon 10 arrived. A King Air Jump plane was there all day.
11. Near midfield there are forests, and water impoundments on both sides of the property. One is a stocked fish pond at the Rod & Gun Club, the other appears to be a detention pond possibly for airport runoff. THE CURRENT REMARKS SECTION OF THE A/FD says: **“Occasional Wild Turkeys On Runway.”** Recent habitat control efforts (if any) should be documented in the upcoming ALP inventory.
12. The airport has a full length parallel taxiway only for aircraft <37' wingspan. It is at a variable offset and requires a traverse thru the apron area.
13. The RW 8 holding position setback was not measured, but due to the 100' width of the runway it looks very close.
14. Due to the 100' width of the runway it was difficult to tell if the RSA was wide enough, but it is doubtful. Inadequate property width exists north of the RW08 TDZ, and trees on adjacent property appear to be within the RSA/ROFA/Transition Surface. (by eyeball only)
15. The RW 08 RSA definitely does not extend enough beyond the end of the runway. Based on the existing RW end, the RR appears to traverse the RSA and is located in a deep cut.
16. The ditch along the south side of the runway (between the RW & T/W) daylight just past (about 30' +/-) the end of RW8 at the end of runway embankment. Although there was no rain for several days there was **water coming out of** the lower half of the RW 08 embankment and into the ditch about 40' past the end of culvert. This should be monitored and stopped before a spring creates a wetland at the toe of the RW embankment.
17. The AWOS had a fence around it.
18. RW8 REILS and VASI's appear to be on non-frangible mounts to accommodate future embankment. Their proximity to the RSA should be checked.

¹ SIGN READS: “WARNING NARROW TAXIWAY” Do Not Use Taxiway If Wingspan Is Over 37 Feet. Back Taxi to RWY 26”.

Airport Inventory Checklist Pennridge (N70)

3-42-0125-006-2005

AIRPORT INFORMATION	Data Field		
Airport	Pennridge		
Year Built	1959		
Associated City	Perkasie		
Identifier	N70		
Sponsor/Owner/Licensee	Pennridge Development Enterprises, Inc/ Dillsbury Corporation/ ???		
Public owned or Private	Private		
NPIAS Y/N	No		
Part 139 Y/N	No		
Previous Master Plan or ALP Y/N	Yes		
Elevation (MSL)	568		
AIRSIDE FACILITIES			
Runways	08/26	4215 100	
Length		4215	
Width		100	
Surface	Bituminous		
Condition	deteriorating, in need of rehab		
PCI and Date	51, last inspected April 2004		
Strength: S, D, DT	D - 26,000lbs (Source: Airport Master Record)		
RW Lights	MIRLS (Note: lights are AC Powered/House Current/ Not FAA Standard)		
Taxiways	A		
Type	Yes - Partial		
Parallel Exit Bypass Connector and Access			
RW end 8, Center RW, Terminal Apron, New Parking Apron across from Terminal Apron, RW end 26 connecting to Terminal Apron at Fuel Station			
Width	32'		
Surface	Bituminous		
Condition	Fair, some alligator cracking between 08 end and Terminal Apron, less than fair between 26 end and Terminal apron, major L&T cracking, weathering and raveling.		
PCI and Date	69 - between Rw 26 end and ramp		
	53 - access to additional old tie-downs between ramp and 26 Tw		
	56 - between Rw 08 end and ramp		
Lighting	MITL (see Rw lights)		
Hold Lines	Yes		
Signs	No		
Lead-in-Fillets	Yes		
Design Standards	ARC B-II		
Safety Areas	Not Standard (note: Rw 26 RSA is mitigated by displaced threshold)		
Obstacle Free Zones			
Object Free Area			
Separations			
Runway Protection Zone	RW Centerline to Parallel TW Centerline = 133'		
BRL	OK		
RVZ	N/A		
Line of Sight	OK		
Gradient	RW 08 = 1.1%, RW 26 = -1.1%		
Modification to Standards	No		
RSA Determination	None		

Date:

3-42-0125-006-2005

Airport Inventory Checklist Pennridge (N70)

Check Congressional Mandates (AIP Act 47101) by: Primary RW Secondary RW Other	N/A				
Visual Nav aids					
Visual Glide Slope Indicators	SAVASI (Simplified Abbreviated Slope Indicator) - 4degree glideslope				
PAPI	Yes				
VASI	Yes (Daylight hours only, manual by request)				
Runway End Indicator Lights (REILs)	Yes				
Beacon	No				
Segmented Circle	No				
Signage	No				
Approach Lighting	None				
ODALS					
SSALS					
MALS					
MALS-R					
ALSF					
Electronic Landing Aids					
ILS	VOR for Rw 08				
Localizer	No				
GPS	No				
Type of Approach	Yes				
Precision	No				
LPV	No				
Non-Precision	RNAV (GPS) RW 08, RNAV (GPS) RW 26				
Circling	NDB or GPS-A				
Visual					
Minimums	1 mile				
Restrictions (Day-Only)	No				
Air Traffic Control					
Unicom	Yes				
Control Tower	No				
TRACON					
Automated Weather Reporting System					
AWOS, ASOS, RVR	AWOS				
Perimeter Fencing	Partial				
Gate Locations	One each east and west of main terminal. New access gate to new parking lot and feeddown ramp north of RW 26 end				
Type	Card access system				
Vehicle Service Roads					
Equipment Shelters and Electrical Vault	In Terminal				
Obstruction Lights Existing	Yes - Lights on Terminal Hangar Building, lights on T-Hangar closest to RW. Light on airport property but marking manufacturing building east of terminal off of airport property.				

Airport Inventory Checklist Pennridge (N70)

ARFF	No. ARFF services provided by Perkasie Fire Dept., approx. 1 mile from airport.	
Building Size	N/A	
Number of Bays	N/A	
Types of Equipment/ARFF Index	N/A	
Staff	N/A	
SRE & Maintenance		
Building Size (SRE vs. Maintenance)		
Number of Bays		
Types of Equipment	4x4 Unimog with plow	
Fuel Facilities	Yes	
Type of Fuel	Jet A and Avgas	
Number of Tanks	2	
Type of Tanks AST/UST	AST	
Capacity	10,000 gal. ea.	
Year Installed	2005	
Distribution Truck/Pump	Pump	
Card Reader Y/N	No	
Delivery Access	Yes	
Military	No	
Branch		
Mission		
Aircraft		
Facilities		
Collect Base Master Plan		
Visit requires prior coordination		
Ancillary Facilities		
Office Park	2-3 business buildings along entrance road.	
Lodging	No	
Flight Kitchen	No	
Aviation School	No	
Sewage Treatment Plant	No, but small plant approx. 1/2 mile southwest of airport property	
Other	None	
Obstruction and Security Lighting (check for all buildings)	Yes	
Utilities	Public water and sewer	
SURROUNDING LAND USE (WINDSHIELD SURVEY)		
Identify Potential Incompatible Uses		
Hazard Zoning Enacted (collect zoning ordinance)	Yes, East Rockhill	
Locate Tall Structures	Trees,	
Landfills	None	

Airport Inventory Checklist Pennridge (N70)

Date: 3-42-0125-006-2005

SERVICES					
Fuel				100LL (AST Pump), Jet A (Truck)	
Air Taxi					
Aircraft Rental/Sales				Keith Overhaul (?)	
Flight Instruction				Yes - Keith Overhaul (?)	
Airframe and Powerplant Maintenance				Aircraft maintenance and restoration, (Sarver Air, Pennridge Aircraft Maintenance)	
Avionics Shop					
Parts Sales					
Air Cargo					
Airlines				No	
Freight Forwarders				No	
USPS				No	
US Customs				No	
Public Telephone				?	
Restaurant				No	
Vending				Yes	
Car Rental				No	
Sky Diving				Yes	
Deicing				No	
Ground Power Unit					
Aerial Application					
EAA				No	
Civil Air Patrol				No	
Other & Unique Aviation Uses				?	
BASED AIRCRAFT					
Number of Airplanes				50	
Identify Design and Unique Aircraft Data					
Flight Schedule					
Leases					
Financial Data					
Conduct Traffic					

Appendix B

PART 16

AIRPORT AREA PROTECTION STANDARDS

§27-1600. Purpose.

This Part is adopted pursuant to the authority conferred by the Airport Zoning Act of 1984, P.L. 164, 74 Pa.C.S. §5911 et seq., as amended and the Municipalities Planning Code of 1968, P.L. 805, 53 P.S. §10101 et seq., as amended. It is hereby found that an obstruction has the potential for endangering the lives and property of users of the Pennridge Airport, located in East Rockhill Township, and property or occupants of land in its vicinity; that an obstruction may reduce the size of areas valuable for the landing, takeoff and maneuvering of aircraft; thus, tending to destroy or impair the utility of Pennridge Airport and the public investment therein. Accordingly, it is declared:

- a. The creation or establishment of an obstruction has the potential of being a public nuisance and may injure the region served by Pennridge Airport.
- b. It is necessary in the interest of the public health, public safety and general welfare of persons using Pennridge Airport that the creation or establishment of obstructions that are a hazard to air navigation be prevented.

It is further declared that the prevention of the creation or establishment of hazards to air navigation, elimination, removal, alteration or mitigation of hazards to air navigation, or making and lighting of obstructions are public purposes for which a political subdivision may raise and expend public funds and acquire land or interests in land.

(Ord. 5/26/1987, §1400)

§27-1601. Definitions.

- a. AIRPORT — Pennridge Airport.
- b. AIRPORT ELEVATION — the highest point of the airport's useable landing area measured in feet from sea level which is 580 feet above mean sea level.
- c. AIRPORT HAZARD — any structure or object, natural or manmade, or use of land which obstructs the airspace required for flight of aircraft in landing or taking off at an airport or is otherwise hazardous to the landing or taking off of aircraft.
- d. AIRPORT HAZARD AREA — an area of land or water upon which an airport hazard might be established if not prevented as provided in this chapter.
- e. APPROACH SURFACE — a surface longitudinally centered on the extended runway centerline extending outward and upward from the end of the primary

ZONING

- surface and at the same slope as the approach height limitation slope set forth in §27-1603. In plan, the perimeter of the approach surface coincides with the perimeter of the approach zone.
- f. APPROACH, TRANSITIONAL, HORIZONTAL and CONICAL ZONES — these zones as set forth in §27-1602.
 - g. CONICAL SURFACE — a surface extending outward and upward from the periphery of the horizontal surface at a slope of 20 to one for a horizontal distance of 4,000 feet.
 - h. HAZARD TO AIR NAVIGATION — an obstruction determined to have a substantial adverse effect on the safe and efficient utilization of the navigable airspace.
 - i. HEIGHT — for the purpose of determining the height limits in all zones set forth in this Part and shown on the airport zone map; the datum shall be mean sea level elevation unless otherwise specified.
 - j. HORIZONTAL SURFACE — a horizontal plane 150 feet above the established airport elevation, the perimeter of which, in plan, coincides with the perimeter of the horizontal zone.
 - k. LARGER THAN UTILITY RUNWAY — a runway that is constructed or and intended to be used by propeller driven aircraft of greater than 12,500 pounds maximum gross weight and jet powered aircraft.
 - l. NONPRECISION INSTRUMENT RUNWAY — a runway having an existing instrument approach procedure utilizing air navigation facilities with only horizontal guidance or area type navigation equipment for which a straight-in nonprecision instrument approach procedure has been approved or planned.
 - m. OBSTRUCTION — any structure, growth or other object, including a mobile object, which exceeds a limiting height set forth in §27-1603.
 - n. PRIMARY SURFACE — a surface longitudinally centered on a runway. When the runway has a specially prepared hard surface, the primary surface extends 200 feet beyond each end of that runway; for military runways or when the runway has no specially prepared hard surface, or planned hard surface, the primary surface ends at each end of that runway. The width of the primary surface is set forth in §27-1602. The elevation of any point on the primary surface is the same as the elevation of the nearest point on the runway centerline.
 - o. RUNWAY — a defined area on an airport prepared for landing and takeoff of aircraft along its length.
 - p. STRUCTURE — for the purpose of this Part, an object including a mobile object, constructed or installed by man including but without limitation buildings, tow-

ers, cranes, smokestacks, earth formation and overhead transmission lines in addition to those objects defined in §27-252.

- q. **TRANSITIONAL SURFACES** — these surfaces extend outward at 90° angles to the runway centerline and the runway centerline extended at a slope of seven feet horizontally for each foot vertically from the sides of the primary and approach surfaces to where they intersect the horizontal and conical surfaces. Transitional surfaces for those portions of the precision approach surface which project through and beyond the limits of the conical surface, extend a distance of 5,000 feet measured horizontally from the edge of the approach surface and at 90° to the extended runway centerline.
- r. **TREE** — any object of natural growth.

(Ord. 5/26/1987, §1401)

§27-1602. Airport Zones.

In order to carry out the provisions of this chapter, there are hereby created and established certain zones which include all of the land lying beneath the approach surfaces, transitional surfaces, horizontal surfaces and conical surfaces as they apply to Pennridge Airport. Such zones are shown on the Pennridge Airport Zoning Map which is attached to this chapter and made a part hereof. An area located in more than one of the following zones is considered to be only in the zone with the more restrictive height limitation. The various zones are hereby established and defined as follows:

- a. **Runway Larger than Utility Visual Approach Zone.** The inner edge of this approach zone coincides with the width of the primary surface and is 500 feet wide. The approach zone expands outward uniformly to a width of 1,500 feet at a horizontal distance of 5,000 feet from the primary surface. Its centerline is the continuation of the centerline of the runway.
- b. **Transitional Zones.** The transitional zones are the areas beneath the transitional surfaces.
- c. **Horizontal Zone.** The horizontal zone is established by swinging arcs of 5,000 feet radii for all runways designated utility or visual and 10,000 feet for all others from the center of each end of the primary surface of each runway and connecting the adjacent arcs by drawing lines tangent to those arcs. The horizontal zone does not include the approach and transitional zones.
- d. **Conical Zone.** The conical zone is established as the area that commences at the periphery of the horizontal zone and extends outward therefrom a horizontal distance of 4,000 feet.

(Ord. 5/26/1987, §1402)

ZONING

§27-1603. Airport Zone Height Limitations.

Except as otherwise provided in this chapter, no structure shall be erected, altered, or maintained and no tree shall be allowed to grow in any zone created by this chapter to a height in excess of the applicable height herein established for such zone. Such applicable height limitations are hereby established for each of the zones in question as follows:

- a. Runway Larger Than Utility Visual Approach Zone. Slopes 20 feet outward for each foot upward beginning at the end of and at the same elevation as the primary surface and extending to a horizontal distance of 5,000 feet along the extended runway centerline.
- b. Transitional Zones. Slope seven feet outward for each foot upward beginning at the sides of and at the same elevation as the primary surface and the approach surface and extending to a height of 150 feet above the airport elevation which 580 feet above mean sea level. In addition to the foregoing, there are established height limits sloping seven feet outward for each foot upward beginning at the sides of and the same elevation as the approach surface and extending to where they intersect the conical surface.
- c. Horizontal Zone. Established at 150 feet above the airport elevation or at a height of 580 feet above mean sea level.
- d. Conical Zone. Slopes 20 feet outward for each foot upward beginning at the periphery of the horizontal zone and at 150 feet above the airport elevation and extending to a height of 350 feet above the airport elevation.
- e. Excepted Height Limitations. Nothing in this chapter shall be construed as prohibiting the construction or maintenance of any structure or growth of any tree to a height up to 35 feet above the surface of the land.

(Ord. 5/26/1987, §1403)

§27-1604. Use Restriction.

Notwithstanding any other provisions of this chapter, no use may be made of land or water within any zone established by this chapter in such a manner as to create electrical interference with navigational signals or radio communication between the airport and aircraft, make it difficult for pilots to distinguish between airport lights and others, result in glare in the eyes of the pilots using the airport, impair visibility in the vicinity of the airport, create bird strike hazards, or otherwise in any way endanger or interfere with the landing, takeoff or maneuvering of aircraft intending to use the airport.

(Ord. 5/26/1987, §1404)

§27-1605. Nonconforming Uses or Structures.

- a. Regulations not Retroactive. The regulations prescribed in this Part shall not be construed to require the removal, lowering, or other change or alteration of any nonconforming structure or otherwise interfere with the continuance of a nonconforming structure. Nothing contained herein shall require any change in the construction, alteration, or intended use of any nonconforming structure, the construction or alteration of which was begun prior to the effective date of this chapter and is diligently prosecuted.
- b. Marking and Lighting. Notwithstanding the preceding provision of this section, the owner of any existing nonconforming structure is hereby required to permit the installation, operation and maintenance thereon of such markers and lights as shall be deemed necessary by the Zoning Officer of East Rockhill Township pursuant to guidelines and regulations adopted by the Federal Aviation Administration of the United States Department of Transportation to indicate to the operators of aircraft in the vicinity of the airport the presence of such airport obstruction. Such markers and lights shall be installed, operated and maintained at the expense of the owners of Pennridge Airport.

(Ord. 5/26/1987, §1405)

§27-1606. Permits.

- a. Except as specifically provided in subsections (1),(2), and (3) hereunder, no material change shall be made in the use of land; no new structure or use shall be erected or otherwise established; and no new tree shall be planted in any zone hereby created unless a permit therefore shall have been applied for and granted. Each application for a permit shall indicate the purpose for which the permit is desired with sufficient particularity to permit it to be determined whether the resulting use, structure or tree would conform to the regulations herein prescribed. If such determination is in the affirmative, the permit shall be granted. No permit for a use inconsistent with the provisions of this chapter shall be granted unless a variance has been approved in accordance with §27-1606(d).
 - (1) In the area lying within the limits of the horizontal zone and conical zone, no permit shall be required for any tree or structure less than 75 feet of vertical height above the ground except when, because of terrain, land contour or topographical features such tree or structure would extend above the height limits prescribed for such zones.
 - (2) In areas lying within the limits of the approach zones but at a horizontal distance of not less than 4,200 feet from each end of the runway no permit shall be required for any tree or structure less than 75 feet of vertical height above the ground except when such tree or structure because of terrain,

ZONING

land contour or topographic features would extend above the height limit prescribed for such approach zones.

- (3) In the areas lying within the limits of the transitional zones beyond the perimeter of the horizontal no permit shall be required for any tree or structure less than 75 feet of vertical height above the ground except when such tree or structure because of terrain, land contour or topographic features would extend above the height limit prescribed for such transitional zones.
 - (4) Nothing contained in any of the foregoing exceptions shall be construed as permitting or intending to permit any construction, or alteration of any structure or growth of any tree in excess of any height limits established by this Part except as set forth in §27-1603.
- b. Existing Uses. No permit shall be granted that would allow the establishment or creation of an obstruction or permit a nonconforming use to become a greater hazard to air navigation than it was on the effective date of this chapter or any amendments thereto or than it is when the application for a permit is made. Before any nonconforming structure may be replaced, substantially altered or rebuilt or nonconforming tree allowed to grow higher or replanted, a permit must be secured authorizing the replacement or change.
 - c. Nonconforming Uses Abandoned or Destroyed. Whenever the Zoning Officer of East Rockhill Township determines that a nonconforming use has been abandoned or more than 80% torn down, physically deteriorated or decayed no permit shall be granted that would allow such structure or tree to exceed the applicable height limit or otherwise deviate from the zoning regulations.
 - d. Variances. Any person desiring to erect any structure, or increase the height of any structure, or permit the growth of any tree or otherwise use his property in violation of the regulations prescribed in this chapter must apply to the Zoning Hearing Board of East Rockhill Township for a variance from such regulations. The application for variance shall be accompanied by a determination from the Federal Aviation Administration as to the effect of the proposal on the operation of air navigation facilities and the safe, efficient use of navigable airspace. Such variances may be allowed where it is duly found that a literal application or enforcement of the regulations will result in unnecessary hardship and the relief granted will not be contrary to the public interest, will not create an airport hazard, will do substantial justice and will be in accordance with the spirit of this chapter. Additionally, no application for variance to the requirements of this chapter may be considered by the Zoning Hearing Board unless a copy of the application has been furnished to the owner or manager of Pennridge Airport for comments as to the aeronautical effects of the variance. If the owner or manager of Pennridge Airport does not respond to the application within 15 days after receipt, the Zoning Hearing Board may act on its own to grant or deny said application.
 - e. Obstruction Marking and Lighting. Any permit or variance granted may, if such action is deemed advisable to effectuate the purpose of this chapter and unrea-

sonable under the circumstances be so conditioned as to require the owner of the structure or tree in question to install, operate and maintain, at the owner's expense, such markings and lights as may be necessary. If deemed proper by the Zoning Hearing Board this condition may be modified to require the owner to permit Pennridge Airport, at its own expense, to install, operate and maintain the necessary markings and lights.

- f. Notwithstanding any other provision of law, either the Zoning Officer or the Zoning Hearing Board who may decide to grant a permit or variance under this chapter shall notify the Pennsylvania Department of Transportation of its decision. This notice shall be in writing and shall be sent so as to reach the Department of Transportation at least 10 days before the date upon which the decision is to issue. Nothing in this subsection shall be construed as impairing the rights of any person to judicial review as provided under Part 24, "Appeals and Amendments of this chapter."

(Ord. 5/26/1987, §1406)

LEGAL NOTICE

Notice is hereby given that the East Rockhill Township Board of Supervisors will hold a public hearing on June 17, 2008 at 7:00 p.m. to receive public comment and to consider the adoption of an ordinance, of which this notice is a summary, amending Chapter 27 of the Township of East Rockhill Code of Ordinances, Zoning, and revising Part 16, Airport Area Protection Standards, by amending the Pennridge Airport Zoning Map and revising the Approach Slope Zone, the Elevation Basis and Excepted Height Limitations; revising Part 19, Natural Resource Protection Standards, Site Capacity Calculations, Open Space Standards and Buffers, by amending Section 27-1901(b) and deleting Recreation Land Requirements under Site Capacity Calculations and amending Section 27-1904 by deleting the fee in lieu of Recreation Land; amending Section 27-1905 by revising the Buffer Yard Class for Municipal Buildings and the permitted plantings within all Buffers; and, amending Section 304 and 602 of Chapter 27 by permitting police department buildings as Municipal Buildings and revising the Dimensional Regulations relating to same. The Board's public hearing on this ordinance is scheduled for June 17, 2008, at 7:00 p.m., at the East Rockhill Township Building, 1622 Ridge Road, Perkasio, PA 18944. Copies of the full text of the ordinance are available at the Township office, the Bucks County Law Library, and the office of this newspaper during normal business hours. All interested parties are invited to attend this public hearing and meeting.

EAST ROCKHILL TOWNSHIP
BOARD OF SUPERVISORS
John B. Rice, Esquire
GRIM, BIEHN & THATCHER
104 S. Sixth Street
P.O. Box 215
Perkasie, PA 18944

ORDINANCE NO. _____

AN ORDINANCE OF THE TOWNSHIP OF EAST ROCKHILL, BUCKS COUNTY, PENNSYLVANIA, AMENDING ITS CODE OF ORDINANCES, CHAPTER 27, ZONING ORDINANCE; PART 16, AIRPORT AREA PROTECTION STANDARDS, BY AMENDING THE PENNRIDGE AIRPORT ZONING MAP AND REVISING THE APPROACH SLOPE ZONE, THE ELEVATION BASIS AND EXCEPTED HEIGHT LIMITATIONS; AND, PART 19, NATURAL RESOURCE PROTECTION STANDARDS, SITE CAPACITY CALCULATIONS, OPEN SPACE STANDARDS AND BUFFERS, BY AMENDING SECTION 27-1901(b) AND DELETING THE RECREATION LAND REQUIREMENT UNDER SITE CAPACITY CALCULATIONS AND AMENDING SECTION 27-1904 BY DELETING THE FEE IN LIEU OF RECREATION LAND PROVISION; AND BY AMENDING CHAPTER 27, ZONING, SECTION 27-1905 RELATING TO BUFFER REQUIREMENTS; AND BY FURTHER AMENDING CHAPTER 27, SECTIONS 304 AND 602 RELATING TO MUNICIPAL BUILDINGS AND THE DIMENSIONAL REGULATIONS RELATING TO SAME.

WHEREAS, The Township of East Rockhill (“Township”) is empowered to ensure the public safety, welfare and health pursuant to the Second Class Township Code, 53 P.S. §65101 et seq.;

WHEREAS, The Township of East Rockhill is authorized by the Airport Zoning Act, 74 Pa. C.S. §5911 et seq., as amended, to enact zoning ordinance regulations for airports;

WHEREAS, The Township is also empowered to enact zoning ordinances to regulate the use of land and the size and height of structures on land pursuant to the Municipalities Planning Code, 53 P.S. § 10601, et. seq.; and,

WHEREAS, The East Rockhill Township Board of Supervisors, upon the recommendation of the East Rockhill Township Planning Commission and the Bucks County Planning Commission, and pursuant to Pennsylvania law, hereby enacts and ordains the following Zoning Ordinance Amendment amending Chapter 27, Part 16, Airport Area Protection Standards, of the East Rockhill Township Code of Ordinances by amending the Pennridge Airport Zoning Map, the approach slope zone, the elevation basis and the excepted height limitations; and further amending Part 19, Natural Resource Protection Standards, Site Capacity Calculations, Open Space Standards and Buffers, by amending Section 27-1901(b) and deleting the recreation land requirement under site capacity calculations and amending Section 27-1904 by deleting the fee in lieu of recreation land provision; and amending Chapter 27, Zoning, Section 27-1905 relating to buffer requirements; and by further amending Sections 27-304 and 270-602 relating to Municipal Buildings and the dimensional requirements relating to same as follows:

ARTICLE I.

Section 27-304, Use Regulations, subsection C7, Municipal Building, is hereby revised and amended to read as follows:

C7 Municipal Building. East Rockhill Township and Penridge Regional Police Department municipal buildings including administration buildings, police barracks, recreation buildings, libraries or road maintenance facilities.

- a. The buffer requirements of §27-1905 of this chapter must be met.
- b. Parking. One off-street parking space for every employee plus one space for every five seats in meeting areas. Parking areas must be adequately screened when situated within 50 feet of land zoned for or in residential use.

ARTICLE II.

Section 27-602, Area and Dimensional Requirements, subsection (b) is hereby revised and amended to read as follows:

- b. Unless a greater area or dimensional regulation is stated in §27-304, (“Use Regulations” for a specific use, all uses in the Rural Residential District shall meet the following requirements.

Use	Minimum Lot Area (Acres)	Minimum Lot Width (Feet)	Maximum Bldg.Cov. (Percent)	Maximum Imperv. Surface Ratio (Percent)	Minimum Yards		
					Front (ft)	Side (ft)	Rear (ft)
BI	1.8	150	10		50	30	50
C7	2.0	200	10	50	25	40	50
Other Permitted Uses	2.0	200	10	20	75	40	75

ARTICLE III.

Section 27-1601, Definitions, subsection (b), Airport Elevation, is hereby revised and amended to read as follows:

-
- b. AIRPORT ELEVATION – the highest point of the airport’s useable landing area measured in feet from sea level which is 567 feet above mean sea level.

ARTICLE IV.

Section 27-1603, Airport Zone Height Limitations, subsection (a) is hereby revised and amended to read as follows:

- a. Runway Larger than Utility Visual Approach Zone. Slopes 34 feet outward for each foot upward beginning at the end of and at the same elevation as the primary surface and extending to a horizontal distance of 5,000 feet along the extended runway centerline.

ARTICLE V.

Section 27-1603, Airport Zone Height Limitations, subsection (b) is hereby revised and amended to read as follows:

- b. Transitional Zones. Slope seven feet outward for each foot upward beginning at the sides of and at the same elevation as the primary surface and the approach surface and extending to a height of 150 feet above the airport elevation which is 567 feet above mean sea level. In addition to the foregoing, there are established height limits sloping seven feet outward for each foot upward beginning at the sides of and the same elevation as the approach surface and extending to where they intersect the conical surface.

ARTICLE VI.

Section 27-1603, Airport Zone Height Limitations, subsection (c) is hereby revised and amended to read as follows:

- c. Horizontal Zone. Established at 150 feet above the airport elevation or at a height of 717 feet above mean sea level.

ARTICLE VII.

Section 27-1603, Airport Zone Height Limitations, subsection (e) is hereby revised and amended to read as follows:

- e. Excepted Height Limitations. Except for the limitations set forth in this section, nothing in this chapter shall be construed as prohibiting the construction or

maintenance of any structure or growth of any tree to a height up to 35 feet above the surface of the land.

ARTICLE VIII.

The Pennridge Airport Zoning Map is hereby revised and amended to be consistent with the amendments herein and a copy of same is attached hereto and marked as Exhibit "A".

ARTICLE IX.

Section 27-1901, Application of Natural Protection Standards, subsection (b) is hereby revised to read as follows:

- b. The following site capacity calculations shall be submitted with applications for Use B2 Detached Dwelling Cluster Subdivision, Use B3 Performance Standard Development or Use B4 Mobile Home Park. Through these calculations, the net buildable site area, the maximum number of lots or dwelling units, the maximum amount of impervious surfaces and the required open space will be determined for the specific site. The required open space shall be the minimum open space as related to the minimum open space ratio specified in §27-304, "Use Regulations," or the calculated resource protection land, whichever is the greater amount. Areas identified as resource protection land shall be included in the required open space for these uses.

(1) Base Site Area. Calculate the base site area. From the total site area, subtract future road rights-of-way, existing utility rights-of-way, land which is not contiguous or which is separated from the parcel by a road, railroad or major stream or land shown on previous subdivision or land development plans as reserved for open space.

$$\begin{array}{r} \text{Total Site Area} \quad ____ \text{ acres} \\ - \quad ____ \text{ acres} \\ \text{Base Site Area} = ____ \text{ acres} \end{array}$$

(2) Land with Resource Restrictions and Resource Protection Land. Calculate the land with resource restrictions and the resource protection land. In the event that two or more resources overlap, only the resource with the highest open space ratio shall be used in the calculations.

Resource	Resource Protection Ratio	Acres of Land in Resource	Resource Protection Land (Acres x Open Space Resource Protection Ratio)
Floodplains	1.00		

Resource	Resource Protection Ratio	Acres of Land in Resource	Resource Protection Land (Acres x Open Space Resource Protection Ratio)
Floodplain Soils	1.00		
Lakes or Ponds	1.00		
Wetlands	1.00		
Steep Slopes: (26% or more)	0.80		
(15% to 25%)	0.70		
Woodlands:			
RP, RR, S	0.80		
R-1, C-O, E, I	0.60		
Lake or Pond			
Shorelines	0.80		
Wetlands Margin	0.80		
Land with Resource Restrictions		_____	_____
Total Resource Protection Land:			_____

(3) Standard Minimum Open Space. Calculate the standard minimum open space.

$$\begin{array}{rcl}
 \text{Base Site Area} & & \text{_____ acres} \\
 \text{Multiply by Minimum Open Space} & \times & \text{_____ (§27-304)} \\
 \text{Standard Minimum Open Space} & = & \text{_____ acres}
 \end{array}$$

(4) Determine Required Open Space. The required open space is the resource protection land or the standard minimum open space, whichever is greater. _____ acres

(5) Net Buildable Site Area. Calculate the net buildable site area.

$$\begin{array}{rcl}
 \text{Base Site Area} & & \text{_____ acres} \\
 \text{Subtract Required Open Space} & - & \text{_____ acres} \\
 \text{Net Buildable Site Area} & = & \text{_____ acres}
 \end{array}$$

(6) Number of Dwelling Units/Lots. Calculate the maximum number of dwelling units.

$$\begin{array}{rcl}
 \text{Base Site Area} & & \text{_____ acres} \\
 \text{Multiply by Maximum Density} & \times & \text{_____} \\
 & & \text{ (§27-304)}
 \end{array}$$

ARTICLE XIII.

Table 1, Determination of Buffer Yard Class (27 Attachment 2-1), is further revised and amended so that when a C7, Municipal Building Use, borders and/or is adjacent to a Primary Street, Collector Highway and/or Arterial Highway, the Buffer Class shall be Class "A".

ARTICLE XIV.

Table 2, Planting Options (27 Attachment 3-1), is revised and amended to read as follows:

27 Attachment 3

Township of East Rockhill

**Table 2
Planting Options**

The options below indicate the amount of plant material that is required per linear foot of property line. Plantings shall be placed within the minimum width of the buffer area. The Planning Commission may permit staggering or grouping of plant materials if a satisfactory buffer is achieved.

<u>CLASS</u>	<u>WIDTH</u>	<u>OPTIONS</u>	<u>(choice of one within class category)</u>
A	25 ft.	(1)	1 medium to large deciduous tree per 40 feet
B	35 ft.	(1)	1 medium to large deciduous tree per 40 feet plus 1 small deciduous tree per 60 feet plus 1 evergreen tree per 60 feet
		(2)	1 medium to large deciduous tree per 40 feet plus 1 hedge on boundary (3 feet centers)
		(3)	1 medium to large deciduous tree per 40 feet plus 1 evergreen tree per 30 feet
C	40 ft.	(1)	1 evergreen tree per 30 feet plus 1 hedge on boundary (3 feet centers)
		(2)	1 evergreen tree per 25 feet plus 1 berm 4 feet high
		(3)	1 evergreen tree per 25 feet plus

-
- | | | | |
|---|--------|-----|--|
| | | | 1 shrub (1) per 8 feet |
| | | (4) | 1 evergreen tree per 20 feet plus |
| | | | 1 shrub (2) per 4 feet |
| D | 25 ft. | (1) | 1 hedgerow on lot line (3 feet centers) |
| | | (2) | 6 feet cedar or spruce fencing on lot line |

ARTICLE XV

Repealer. All ordinances or parts of ordinances that are inconsistent herewith are hereby repealed.

ARTICLE XVI

Severability. If any section, paragraph, sub-section, clause or provision of this Ordinance shall be declared invalid or unconstitutional by a court of competent jurisdiction, such decision shall not affect the validity of this Ordinance as a whole or any part thereof other than that portion specifically declared invalid.

ARTICLE XVII

Effective Date. This Ordinance shall become effective five (5) days after final enactment.

ENACTED AND ORDAINED this day of , A.D., 2008.

EAST ROCKHILL TOWNSHIP
BOARD OF SUPERVISORS

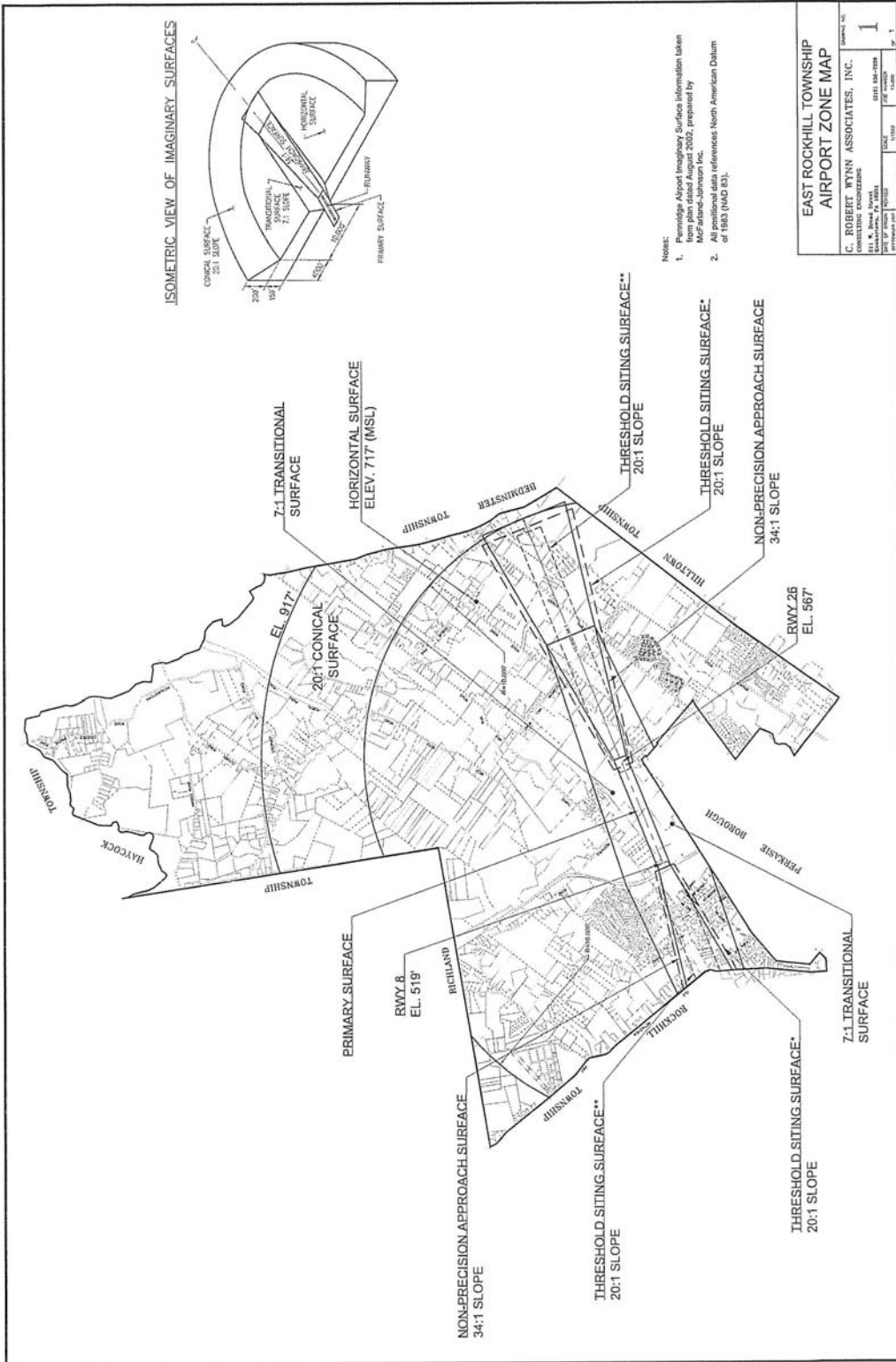
David R. Nyman

Gary W. Volovnik

John R. Cressman

Attest:

Anne Klepfer, Township Manager



Notes:
 1. Pennridge Airport Imaginary Surface information taken from the Airport Zoning Ordinance, prepared by MCF Federal-Johnson Inc.
 2. All positional data references North American Datum of 1983 (NAD 83).

EAST ROCKHILL TOWNSHIP AIRPORT ZONE MAP		DATE: 11/13/08	SCALE: 1" = 100'	PROJECT NO: 08-001
C. ROBERT WYNN ASSOCIATES, INC. 1000 N. 10TH STREET PHILADELPHIA, PA 19107		DATE: 11/13/08	SCALE: 1" = 100'	PROJECT NO: 08-001
PREPARED BY: C. ROBERT WYNN		DATE: 11/13/08	SCALE: 1" = 100'	PROJECT NO: 08-001
CHECKED BY: C. ROBERT WYNN		DATE: 11/13/08	SCALE: 1" = 100'	PROJECT NO: 08-001
APPROVED BY: C. ROBERT WYNN		DATE: 11/13/08	SCALE: 1" = 100'	PROJECT NO: 08-001
DRAWN BY: C. ROBERT WYNN		DATE: 11/13/08	SCALE: 1" = 100'	PROJECT NO: 08-001
PROJECT NO: 08-001		DATE: 11/13/08	SCALE: 1" = 100'	PROJECT NO: 08-001
SHEET NO: 1		DATE: 11/13/08	SCALE: 1" = 100'	PROJECT NO: 08-001

Appendix C

Jim Fels
Lead Planner
FAA Harrisburg ADO
3905 Hartzdale Drive, Suite 508
Camp Hill, PA 17011

July 12, 2007

Re.: 2 Pack ALP - 3-42-0125-006-2005

Dear Mr. Fels:

Attached please find 2 copies of the Pennridge Airport DRAFT ALP drawing set for your review. The obstruction data table will be added to sheet ALP – 05 Inner Portion of the Approach Surface drawing upon my return from vacation, August 20th. The obstruction data is available, but needs to be checked and updated.

Following your review and the inclusion of your comments, DVRPC will present the draft findings to the sponsor. This procedure was chosen due to the unique approach by having an MPO perform ALP tasks in order to analyze airport development possibilities from a regional view. The narrative report preparation is underway and will be completed during your review of the drawing set.

The second ALP drawing set for Perkiomen Valley Airport will be completed upon my return to the office. During my absence I can be reached via email. I will check my work email periodically, but alternately please cc my home email reiner.pelzer@verizon.net. I will also check my voice messages as often as possible. If you have immediate need to discuss your questions or comments in my absence please feel free to contact Roger Moog at 215.238.2884.

Thank you for the opportunity to work with you on this project. It has been and continues to be a tremendous learning experience, in particular for me as well as DVRPC.

With warm regards,

Reiner Pelzer
Sr. Aviation Planner, DVRPC

Jim Fels
FAA Harrisburg ADO
3905 Hartzdale Drive, Suite 508
Camp Hill, PA 17011

March 13, 2008

Re.: 3-42-0125-006-2005, 2 Pack ALP, Pennridge Drawing Set

Dear Mr. Fels:

Attached please find six copies of the ALP draft drawing set for Pennridge Airport for FAA review. Please, contact me upon receipt of the drawings. A draft report of chapters 1-3 shall follow shortly.

Warm regards,

Reiner Pelzer
DVRPC



U.S. Department
Of Transportation

**Federal Aviation
Administration**
DEC - 8 2008

Mr. Reiner Pelzer, Aviation Planner
DVRPC - 8th Floor
190 N. Independence Mall West
Philadelphia, PA 19106-1572

*Harrisburg Airports District Office
3905 Hartzdale Drive, Ste. 508
Camp Hill, PA 17011
(717) 730-2830 phone
(717) 730-2838 FAX*

Re: Pennridge ALP; AIP-06; FAA Review Comments 2008-AEA-184-NRA

Dear Mr. Pelzer:

The FAA coordination of the Pennridge ALP (N70) done by DVRPC as part of AIP-06 has been completed. In addition to the redline comments previously transmitted to you in person September 6, 2007, please add the following comments.

1. As a part of this review, the Traffic Pattern Airspace (TPA) was analyzed for conflicts with nearby airports. The development proposed on the drawing has no impact on the current Traffic Pattern Airspace (TPA). However, the current TPA for N70 overlaps with 3 private use airports (Tate/5PS9, Navarro/3PA1*, and Gold Mine Field/97PN). This is not an optimum situation, especially if the plan to make N70 a reliever airport in the future is adopted. Reliever status will not immediately increase air traffic at this airport, but could in the long term. We have confirmed that two of these three private airports are still active*. There is no way to fully deconflict the traffic patterns. Some limited things can be done to improve the situation, but significant TPA overlap will still exist, and therefore, a less than desirable situation would continue. We suggest all airport owners meet to discuss the situation and file any changes to the TPA with the FAA on FAA Form 7480-1. Donna O'Neil with the FAA Obstruction Evaluation Service (816-329-2525) and/or George Wadsworth the FAA Allentown FSDO Manager (610-234-2888) are available to assist in this discussion.
2. All four airports (N70, 3PA1*, 97PN, and 5PS9) shall actively use the same CTAF.
3. The results of our study indicated TPA overlap could be mitigated with the following non-standard traffic patterns at the adjacent airports as follows: 3PA1* = right traffic to Runway 20, 97PN= right traffic to Runway 18, 5PS9 = right traffic to Runway 27. Even with these changes all TPAs will still overlap but this would move the traffic at the 3 private airports farther from the busier N70. Pennridge (N70) should establish a non-standard right traffic pattern to Runway 8 if 5PS9 remains an active airport. These actions would come close to deconflicting Pennridge (N70) with the three private airports. The 3 private airports would still have a significant conflict with each other, but that is currently the case anyway and reinforces the importance of all 4 airports using the same CTAF.

Pennridge Airport ALP Review – 08-AEA-184-NRA

Page 2

4. Although there is no restriction to use declared distances at general aviation (GA) airports designed for aircraft with piston propeller engines, declared distances may not be understood or applied by pilots. We recommend use of other means to provide or improve the non-standard Runway Safety Area/Runway Object Free Areas at GA airports. Perhaps a compromise on the Schoolhouse Rd relocation could be explored with the Township to provide a standard Runway 26 Safety Area that would benefit both parties.

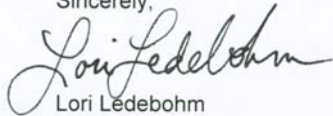
5. For impact to existing or for establishment of future instrument procedures, the projects shown on the ALP that involve construction are conditionally approved for planning purposes only. All construction projects are subject to final FAA approval via separate aeronautical study. Review of this proposal is not considered a request for instrument procedure development. The FAA Flight Procedures Office must be notified at least 18 months prior to the desired date for procedures meeting the needs of new runways, runway extension(s), displacements or additional navigational equipment installed at the airport. Obstacle survey meeting the appropriate vertically guided standards of AC150/5300-16, -17, -18 must be completed before ILS or RNAV(GPS) LPV procedures can be developed. Removal of existing and prevention of new 20:1 visual surface penetrations should be considered for removal otherwise nighttime approach minimums will not be developed. Airports should have the appropriate runway/taxiway markings consistent with the future type of approaches requested/ utilized.

6. The Approach Surface Drawing shows numerous penetrations to both the 20:1 visual surface and the 34:1 approach surface. It appears that a major effort to obtain land rights and removal of those obstructions is underway. We encourage that effort and hope that further threshold displacements will not be required as the Runway length is limited already.

Once the changes to the document have been made, please send us eight sets of drawings to sign plus however many you desire for your files.

If you have any questions or comments regarding this project, please feel free to contact me.

Sincerely,



Lori Ledebohm
Planner

*After Comment #1 was made, evidence was found that Navarro Field (3PA1) was closed.

cc: Jean Curry

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Publication No.: 09056
Date Published: June 2009
Geographic Area Covered: Bucks County in Pennsylvania, East Rockhill Township and Perkasie Borough, Pennridge Airport

Key Words: Airport Layout Plan, Runway Safety Zone, Runway Protection Zone, Inventory, Forecast, Facility Requirements, Facility Recommendations, Aircraft operations, itinerant operations, based aircraft, runway length, Hangars, Taxiway relocation, Avigation Easement, Property Acquisition.

Abstract: This Airport Layout Plan represents the basic planning document for future developments at the Pennridge Airport over the next 10 to 15 years. Major Improvements include possible relocation of the taxiway to comply with FAA standards, hangar development, and land acquisitions to improve airport safety.

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