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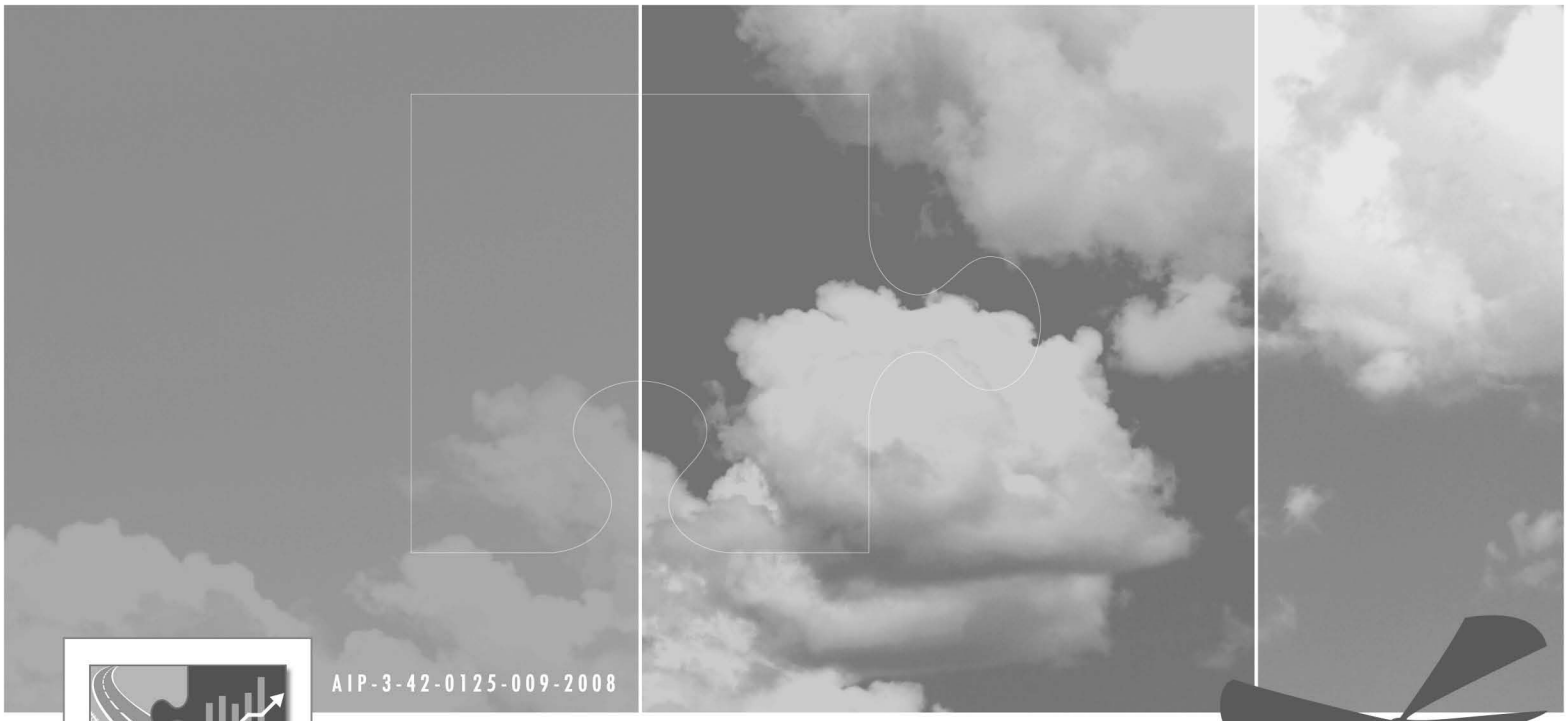
2035 REGIONAL AIRPORT SYSTEMS PLAN UPDATE

APRIL 2012

DELAWARE VALLEY dvrpc REGIONAL PLANNING COMMISSION



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DELAWARE VALLEY dvrpc REGIONAL PLANNING COMMISSION

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.

The symbol in 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. This study is funded exclusively by the Federal Aviation Administration (FAA). The authors, however, are solely responsible for the findings and conclusions herein, which may not represent the official views or policies of the funding agencies.

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EXECUTIVE SUMMARY

The Delaware Valley Regional Planning Commission (DVRPC) Office of Aviation is partially funded by the Federal Aviation Administration (FAA) for the purpose of maintaining aviation system planning activities for the twelve-county, four-state Philadelphia metropolitan aviation planning area. Part of this effort includes developing and revising, as necessary, a long-range airport system plan which will provide for adequate mobility and economic development 20 to 25 years into the future, with optimal safety at minimal cost and delay to the public.

Development of the 2035 Regional Airport System Plan

The first Regional Aviation System Plan (RASP) was adopted in 1982, and defined aviation facility needs to the Year 2000. The RASP is amended periodically because of changes in aviation demand brought on by deregulation, market forces, the sale of privately owned airports for non-aviation use, the economy, security, and other factors. DVRPC developed and adopted the Year 2030 RASP in 2005. With further drastic changes in aviation demand, capacity, programmatic and community involvement components within the aviation market, the next RASP update was completed in 2010 to reflect these changes and a horizon of 2035.

DVRPC staff, in cooperation with the DVRPC Regional Aviation Committee (RAC) which represents public and private sector aviation interests in the region, completed an inventory describing current aviation facilities, both fixed wing and rotorcraft, and usage levels of passengers, aircraft operations, and based aircraft. In 2009, annual levels of commercial flights in the region served by Philadelphia International Airport (PHL) have grown to 500,000. There are about 1.4 million non-commercial business and recreation aircraft operations per year in the region, and 2,300 based aircraft.

Aviation trends and issues were then discussed. Storage capacity in the suburbs for corporate aircraft is in short supply. Some airports do not have runways of adequate length to allow certain types of business aircraft to land or takeoff based on their insurance requirements. This is a factor that could limit corporate growth. Some suburban areas of the region are at risk of losing airport access, if privately owned public use airports are not committed to continued operation. Finally, delays at PHL should be reduced, while operating capacity is being increased with federal and local funds.

Several projection methods based on FAA and state planning activities, as well as regional trend data describing utilization of RASP airports, forecasts of 2035 passenger volumes, aircraft operations, and based aircraft were developed for the region as a whole, then subdivided by state. Forecasts were compared to capacity of area airports on the basis of market area, and available resources. Projections of commercial growth in operations and enplanements have increased since 2005. A 54 percent increase in commercial aircraft take-offs and landings are expected to 2035 at PHL and Trenton-Mercer and surrounding commercial airports. Only a 10 percent increase in non-commercial operations, at general aviation and reliever airports is expected.

After reaching regional consensus regarding growth expectations, development, and mobility issues for the regional aviation system, the RASP recommends facilities and capital improvement investments, and policy/programmatic changes, needed to successfully address identified deficiencies.

2035 RASP Facilities and Capital Costs

Three commercial airports, Philadelphia International (PHL), Trenton-Mercer and New Castle County, must be retained, with major expansion activity at PHL. Necessary business/reliever airports to be retained in the RASP include Northeast Philadelphia, Doylestown, Pottstown-Limerick, Wings, Brandywine, New Garden, Chester County, Summit, Cross Keys, South Jersey Regional, and Trenton-Robbinsville. Willow Grove, Cecil County, and Spitfire may, between now and 2035, qualify as federally funded relievers. General aviation airports also included in the RASP are Quakertown, Pottstown Municipal, Perkiomen Valley, Flying W, Red Lion, Van Sant, Pennridge, and Camden County. All airports identified as necessary to meet 2035 needs are existing facilities.

Four existing heliports are included in the RASP: Keystone, Total RF, Horsham Valley, and Sterling (Penn's Landing) Heliport. Two sites, in Trenton and Wilmington, are proposed in the RASP for heliport construction.

The RASP recommends $6.2 billion in capital improvement projects. Major investments prescribed in the RASP include increased capacity at PHL; conversion of three suburban airports to relievers; extension of five suburban runways to business length; construction of hundreds of corporate hangars spaces and additional T-hangars; and upgrading of electronic approaches at most airports, weather monitoring equipment and additional Remote Communications Outlets (RCOs) to expedite communication between pilots and air traffic control.

2035 RASP Implementation

Specific actions, other than regional capital investment, which support realization of the 2035 RASP recommendations, are also identified in this document. FAA, nationally, is undertaking modernization of enroute and terminal air traffic control. Known as Next Gen, these improvements will create more airspace capacity and increase take-offs and landings per hour at PHL and other congested airports. Ground capacity investments at PHL will be needed to match the increased levels of operations capacity created by Next Gen. Municipal zoning to protect airport operations should be implemented at several suburban municipalities. Funding programs should be made more equitable. Both privately and publicly owned airports should receive public subsidies as needed. Regional capital priorities should be better integrated into state funding programs. Regional Aviation Planning must be maintained. The financing of airport improvements will come predominantly from the region itself, although federal and state grant programs may continue at increased levels. Local bond issues and locally collected Passenger Facility Charges (PFC) at PHL will provide resources for that airport's future development. Suburban airports rely on private funds, as well as state and some federal support. State

grant programs will become more important to the region since they will represent a larger percentage of total funds received, by non-commercial airports.

Successful implementation of the 2035 RASP will result in more efficient airport service and operation, promote economic development and improve safety and mobility. Funding of the recommended improvements is a shared responsibility among private owners and governmental agencies. The existing airports in the Delaware Valley should be preserved in order to meet current and future regional aviation needs and to compete with other regions in the 21st century.

I. Summary and Introduction of 2035 Regional Aviation System Plan

DVRPC is the regional planning agency responsible for aviation systems planning in the Philadelphia metropolitan area. This region includes 12 counties; Bucks, Chester, Delaware, Montgomery and Philadelphia in Pennsylvania; Burlington, Camden, Gloucester, Mercer and Salem in New Jersey; New Castle in Delaware; and Cecil County in Maryland (see Figure 1). The 2035 Regional Aviation System Plan (RASP) is an update of the 2030 RASP, designed to measure airport facilities demand, and needed enhancements, currently and in the long-term with a planning horizon of 25 years. In 2005, the 2030 RASP was adopted by the DVRPC Board, reflecting increasing development pressure on suburban airports, closure of privately owned airports, and significant increases in demand for commercial aviation. The 2030 RASP identified over $6.2 billion of projects at 29 critical facilities with the majority of funds directed to Philadelphia International Airport (PHL).

Since the last system plan was adopted, numerous events have taken place in the region, in the aviation industry, and within policy circles at the state and federal levels. These necessitate an update to the 2030 RASP. The existence of an updated RASP allows state departments of transportation and the Federal Aviation Administration, the two governmental levels primarily involved with public sector aviation infrastructure investment, to respond to and integrate regional needs and emphasis into state and national perspectives. The RASP also defines the appropriate level of investment to be directed to the DVRPC region for optimal growth, and for our aviation system to complement the national systems of general aviation, business and commercial airports.

In summary, the 2035 Regional Aviation System Plan identifies the need for 24 airports and six heliports for civilian use. Major improvements at these facilities include significant expansion for commercial capacity at New Castle, Trenton-Mercer and Philadelphia airports. In the suburbs, major recommendations include selected runway extensions to better serve business aircraft, more hangar and ramp storage, and conversion of Willow Grove Naval Air Station to a joint facility serving corporate employment and business-related private aircraft operations. Major airside expansion at PHL has been defined through its master plan and Environmental Impact Statement (EIS). Of the 30 facilities identified, 14 are eligible for federal subsidies, while others must rely on state or private investment capital.

II. Current Regional Aviation Planning Issues and Trends

Since the development and adoption of the 2035 RASP for the region in 2005, several changes have occurred, physically within the system as well as market/security and impact-related, which emphasize the need for the RASP update. Major issues are discussed below.

Economics

Aviation planning has many challenges with the start of a new recessionary business cycle, political change at the federal government (both executive and legislative branches) and with antiterrorism security requirements becoming more permanent. With worsening US economic conditions, and both general aviation (GA) and commercial operational traffic in decline, needed federal and state airport funding levels are in question. The passage of the economic stimulus bill – the American Recovery and Reinvestment Act of 2009, provides a short-term increase of Airport Improvement Program funds of $1.1 billion. However, as of summer 2010, the FAA reauthorization bill, which expired in September 2007, has not been reauthorized.

Airport Security

The continuation of antiterrorism security measures since 2001 have had a paradigm shift on both general aviation (GA) and commercial traffic operations and demand, especially in the dense northeast corridor, which has high levels of aviation congestion and delay. New proposed Homeland Security measures for GA aircraft may call for "airline" type security requirements to be imposed on non-airline aircraft weighing over 12,500 lbs. These measures would require that even a small charter operator or a corporate owner of such aircraft must accomplish the same level of scrutiny and record-keeping as scheduled airlines. The financial burdens on GA and corporate aviation from security, airspace, fuel price, and recession are threatening facility preservation. Commercial scheduled airline operators have had massive financial difficulties since 2001. These difficulties have varied from tremendous fuel price increases, mandated expensive security measures, and a downturn in passenger demand, which have manifested in bankruptcies, reorganization and mergers, and reduced passenger flights and revenue in recent years.

General Aviation Business Decline

GA operations, since 2005, have suffered from annual compounded flight operation declines of up to nine percent within the DVRPC region. Flight operation declines are attributed to rising fuel prices, airspace restrictions and controls resulting from congestion around large airports, and new airspace security requirements. Compliance has resulted in flight training, aircraft charter, and recreational operation frequencies being adversely affected. GA operations have also been negatively affected by an aging pilot population, resulting in fewer pilots qualifying annually

for their flight physicals. In addition, with flight training in decline, an aggressive recruitment and training program will be needed to meet the future demands of commercial carriers and charter operators, and to support recreational operations.

Airport Preservation

With flight operations trending downwards, the perseveration of existing airports is threatened. This is paramount to future aviation success in stimulating regional economic activity and in relieving the congestion at commercial airports. If, during this current difficult business cycle, the aviation infrastructure is not supported, the region's ability to respond to demand during the recovery may be at risk. The replacement cost and feasibility of building new airports is prohibitive, and available land is non-existent for future replacement airports which have been lost during the difficult business cycle. Current long-range planning must emphasize reduced airport expense, increased revenue, and preservation of the existing RASP.

Risks to Critical Aviation Infrastructure

Aviation infrastructure in the northeastern United States has been eroding due to inadequate increases in commercial capacity, loss of GA and reliever capacity, and accelerating restrictions on airspace. Therefore, critical regional aviation infrastructure must be indentified, preserved, and enhanced where necessary. Traditional municipal control over zoning, land use, and developmental decisions contributed to the erosion of aviation infrastructure. DVRPC recommends State and federal governments develop stronger regulations, funding program incentives, and operations standards to better protect the regional aviation infrastructure as a component of the national and international aviation system.

Where aviation will be 26 years from now was much easier to predict when the industry was in an expansionary phase, which continued from World War II until the events of September 11, 2001. With the needed imposition of heightened security requirements and other technologies, such as the internet, which offers alternatives to some business travel, the region must plan for a business environment which is in a maturing phase. The region must strengthen the infrastructure of airports and their facilities, and maintain aviation support facilities and personnel. If aviation is to meet these goals as well as the needs of Greater Philadelphia, the region must target the following subject areas.

Civilian Use of Decommissioned Military Airports

During Spring of 2005, the Base Realignment and Closure Commission introduced its list of military facilities for closure/downsizing in a reoccurring effort to reduce costs for the Department of Defense (DOD). Willow Grove NAS in Horsham, Montgomery County, was proposed for closure and operations reassignment. After testimony, the recommendation to downsize military operations by 90 percent, but keep the runway open for any National Guard and emergency preparedness needs,

was agreed upon by Pennsylvania and DOD officials. Subsequently, in late 2009, the Commonwealth abandoned its plans of a Joint Interagency Installation, returning control over redevelopment of surplus property to the Horsham Land Reuse Authority. With runway length of up to 7,500 feet and ample operating capacity and buffer zone, the facility would provide an excellent operational location for corporate aircraft moving to the region or those relocated from PHL. This facility, located in a forty-mile arc between Chester County and Philadelphia Northeast airports, would encourage corporate development, and enhance regional system capacity.

Local Jurisdictional Conflicts

All non-commercial airports in the RASP, which are presently applying for capital improvement funding to increase safety and capacity by extending runways or acquiring land, are experiencing severe opposition from neighbors and in some cases municipal and state elected officials. Airport development, as recommended in the 2030 RASP, is being delayed at South Jersey Regional, Chester County, Quakertown, Doylestown and Pottstown-Limerick. More centralized system goal-identification and leadership in implementation is needed at the state level. It is recommended that airports with the space to expand and the potential to receive grants should be preferred over those which are geographically or politically constrained, when such choices exist.

Land Use and Zoning Conflicts

Land use policies, or the lack thereof, are impacting airport operations and preservation in a number of locations. Many townships in Pennsylvania have not adopted Federal Aviation Regulation Part 77 zoning protection for airports. In New Jersey, less zoning protection exists: however, enforcement and enforceability have been challenged in specific cases. Also in recent years, the proliferation of cell towers serving cellular communications companies has adversely impacted approaches to some airports. Stronger regulation is needed by state aviation agencies to preserve system capacity, especially in urbanized areas such as the DVRPC region where competition for land use is greatest. Airport facilities should be integrated into all levels of state and municipal planning processes to ensure better compatibility of land uses adjoining public aviation facilities.

Airlines/Airports Interface Issues

With increasing commercial and corporate traffic at capacity-constrained airports such as Newark International (EWR), LaGuardia (LGA), JF Kennedy (JFK), Philadelphia International (PHL), and Baltimore-Washington International (BWI), delay in the air is inevitable and will compound delays at airside ground facilities. The placement of most corporate and GA operations at relievers on the fringes of congested airspace is desirable. As FAA modifies airspace control areas in the northeast corridor, more effective use of small commercial service airports, such as

Trenton-Mercer (TTN), Lehigh Valley (ABE), and Atlantic City (ACY), is recommended to be studied by FAA, the states and DVRPC.

The Class B airspace around hub airports, like PHL, is being modified in the northeast to more effectively separate arriving commercial aircraft from general aviation operations at smaller airports. During meeting between the FAA office responsible for the Class B Airspace redesign and local GA airport and heliport owners/operators, pilots and other stakeholders, concerns of reducing the currently available airspace for business and private aircraft users were raised as one of the main issues of the Class B redesign.

III. 2035 Policy Goals

Given the very dynamic state of aviation demand, facilities development and acceptance, and state and federal aviation policy and programs, some 2030 plan recommendations should be revised in the RASP 2035. Evolving conditions at each airport, as discussed in Chapter IV, also require plan update. The goals below have been updated reflecting recent trends.

Plan goals are proposed as guidance for the strategies, actions, and projects recommended in the 2035 RASP.

- Increased Capacity Recommendations

  - Provide increased regional commercial aviation operations capacity with increased safety and minimum delay to serve population and employment concentrations in the region within one-hour travel time for commercial airports, including ground, airspace, and access trip improvements
  - Provide adequate business and general aviation aircraft operating and storage capacity within one-half hour of population and employment centers
  - Improve select facilities, eligible for federal and state grants, regarding runway length, width, guidance systems, and apron/hangar capacity to satisfy suburban market area demand and provide sufficient non-commercial reliever capacity to ensure maximum commercial utilization of PHL
  - Change runway extension criteria to reflect the shift in the non-commercial fleet to include very light and corporate jets based at suburban airports
  - Provide and expand center city based helicopter services for commuter, medical services, and police functions at the region's major urban centers

- Airport Preservation Recommendations

  - Preserve essential aviation facilities and where necessary, transfer ownership of public use airports from private and public owners
  - In cases where private owners remain in control, provide public capital subsidies in support, or in match to private investments to ensure continued existence of the aviation facility (This may require reclassification of airports in the RASP and National Plan of Integrated Airport Systems (NPIAS))
  - Support existing or create new facilities that offer education of new aviation personnel to include: pilots, avionics technicians, mechanics, air traffic controllers, and flight safety personnel
  - Strengthen enforcement of local zoning laws where urban/suburban encroachment threatens existing airports and become more pro-active in

preventing incompatible land uses by finding more compatible alternatives

- Environmental Protection Recommendations

o Enhance airports as needed to support sustainable development and operation, which integrates environmental preservation and neighborhood concerns regarding noise impacts and pollution, with improvements to operating capacity and flexibility

- Capital Investments Recommendations

o Ensure adequate capital regional investment from federal, state, local and private sources which present the region's "fair share" of statewide and national annual allocations based on population, employment, based aircraft, operations or other appropriate criteria
o Develop existing versus building new facilities as means of reducing capital requirements
o Develop and suggest federal and state funding legislation and regulatory reforms to enhance the business viability of the general aviation airports, and expedite funding of capital improvements, safety of operations and other RASP goals

- Safety and Security Recommendations

o Improve safety incursion as identified by state form 5010 and according to FAA regulations where feasible and justifiable
o Adopt reasonable, reliable, and economic anti-terrorism measures that offer improved general aviation security without additional financial burden
o Consistently apply new security technology, coupled with practical means of implementation, such as municipal zoning and aviation risk assessments (In addition, enforcement action capabilities also need to be enhanced, and better integrated land use planning standards implemented)

- Airport Access Recommendations

o Provide and improve commercial facilities to efficiently facilitate intermodal access and transfers
o Explore options of direct high speed rail access to commercial airports
o Improve existing regional rail and bus access especially in view of regional connectivity to decrease non-high occupancy vehicle traffic to airports via highways

IV. Status of the 2030 Regional Airport Systems Plan

Since 2030 RASP adoption in 2005, some airports have undertaken development through private sources or federal/state/local funding guided by master plans. Figures 1 (page 6), 2 (page 14) and 3 (page 15), and Table 1 (page 16) describe the existing facilities in the RASP, summarize most current usage in terms of operations and based aircraft, and list status of development activity from 2005 to 2009. Airports not listed in Table 1 had no major development activity during the 2005-2009 period funded by state or federal programs.

Airports are divided into the functional categories of commercial, reliever, and general aviation. These categories define the specific role of the airport in the system, and the funding program eligibility definitions established by FAA for the Airport Improvement Program (AIP).

1. Commercial Airports

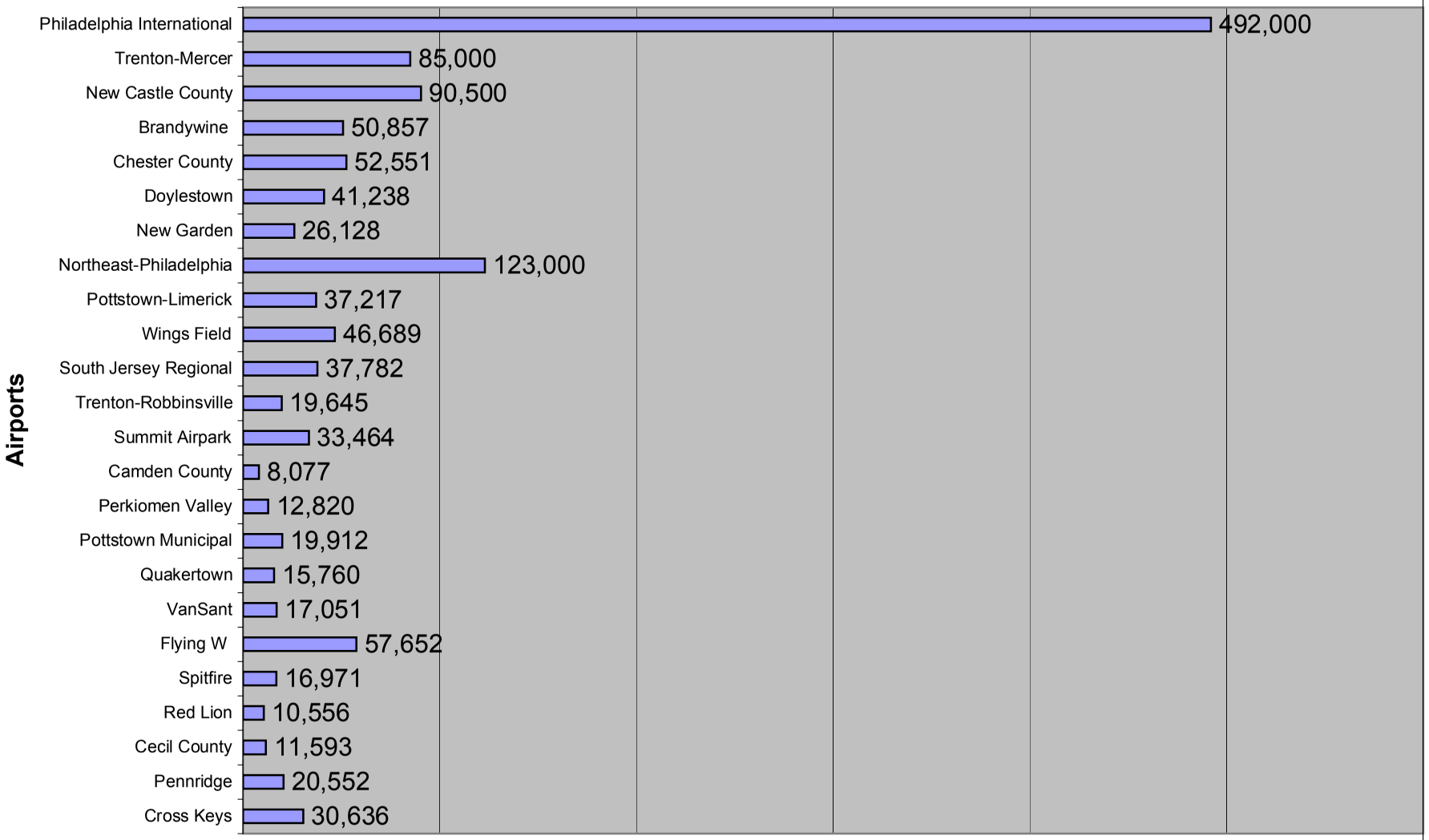
Commercial airports, predominantly PHL, serve scheduled service airlines, corporate aviation, and in the case of New Castle (ILG) and Trenton-Mercer (TTN), some military operations. These airports are publicly owned, and receive formula funds from FAA each year in relation to passenger enplanements. They are also eligible for discretionary grants from FAA, and state grants, on a project by project basis. In addition, some local funds are generated directly and from bond issues to support projects. In the DVRPC region, all three commercial airports PHL, ILG, and TTN are located centrally within the region, close to the older urban high density areas of Philadelphia, Wilmington and Trenton, along the Delaware River.

2. Reliever Airports

Reliever airports surround the central commercial airports and are located in the suburbs. This categorical name represents their role in providing a high level of capacity for operation and storage of single engine, twin, and small jet aircraft away from the commercial airports and near suburban business centers. This has the two-fold systematic benefit of 1) reducing GA-business demand at the commercial airports so the operating capacity of the taxiway-runway systems can be devoted to high passenger volume commercial aircraft; and 2) distributing operations around the region and out of the most congested central air traffic control sectors, thereby reducing delay, noise impacts, and improving safety. Reliever airports, which can be either publicly or privately owned, rely on federal and state aviation development grants, distributed on a project basis by the states or FAA. Several regional privately owned relievers have had significant owner investment in their facilities without receiving any federal, state or local grants. Facilities at reliever airports vary in size from 2,800 foot runways with visual approaches to 5,500 foot runways with precision approaches.

Figure 2

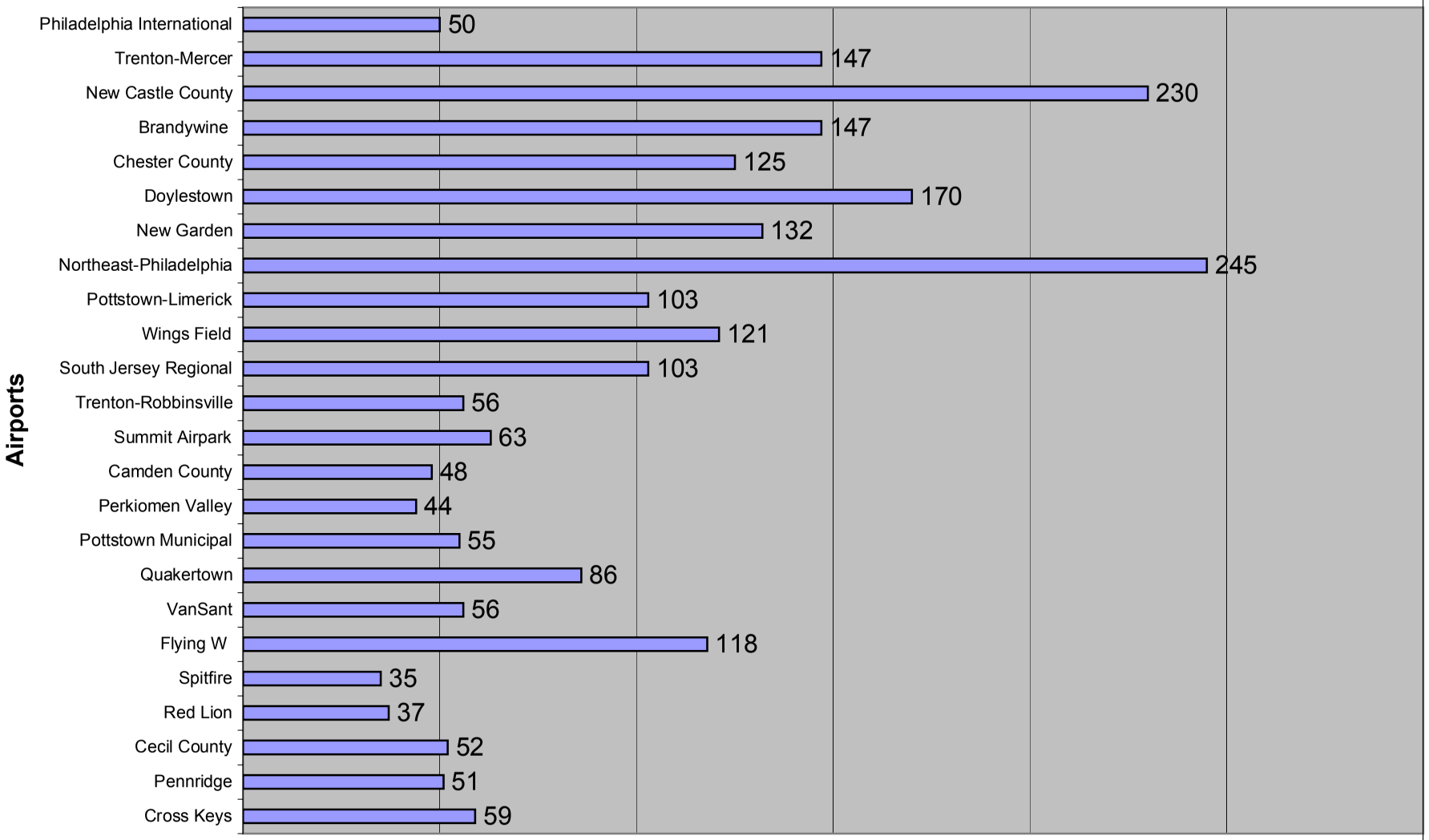
Current Total Annual Operations



Source: DVRPC Operations Counts 2007-2009

Figure 3

Current Based Aircraft



Source: DVRPC Operations Counts 2007-2009

TABLE 1
AIRPORT DEVELOPMENT ACTIVITY 2000-2005

AIRPORT	RASP PROJECT RECOMMENDED	STATUS
PHL	Runway 17-35	Completed
	Old Overseas Terminal Demolition	Completed
	Additional Domestic Gates	Completed
PNE	Expand Corporate Facilities	Completed
Trenton-Mercer	New Terminal and Landslide Car Parking	No Action
New Castle County	Terminal taxiway safety area expansion	Ongoing
Chester County	Relocation of Keystone Heliport	Completed
	Runway extension apron expansion	Ongoing
Wings Field	Hangar and apron development	Ongoing
South Jersey Regional	Runway Extension	No action
Pottstown-Limerick	Private Acquisition	Completed
Doylestown	Runway Extension	No Action
Quakertown	Taxiway Rebuild	Completed
	Runway Rebuild	Underway
New Garden	Public Acquisition	Completed
	Taxiway Extension	Underway
Spitfire	Taxiway & Apron Rebuild	Underway
	Runway Rebuild	Completed
Camden County	Public Develop Rights Acquisition	Completed
Penns Landing	Public Acquisition	No action
	Ramp Rehab	Underway
Pottstown Municipal	Hangar Construction	Underway
	Apron Expansion	Completed
VanSant	Runway Regrading	Complete
Pennridge	Runway 8-26 Rehab	Completed
	Hanger Development	Completed
Perkiomen Valley	Obstruction Removal	Phase I Completed
Brandywine	Runway Safety Area Expansion	Completed
	Runway Rehab	Completed
Cecil Co.	Runway Extension	Completed
	Taxiway Extension	Underway
	New Terminal Building	In Design
	Additional Hangar Development	Ongoing
Cross Keys	Runway Overlay	Ongoing
Willow Grove NAS	BRAC Conversion to State Emergency Preparedness facility	Abandoned by Pennsylvania

Source: DVRPC Capital Programing Records, 2000-2005

Reliever airports in the DVRPC region usually reflect higher based aircraft and operations usage or serve a critical market area in the suburbs where no other aviation capacity exists compared to non-reliever GA airports in this region.

3. General Aviation Airports

General aviation airports serve general aviation and business traffic similar to relievers but usually have a lower volume of users, smaller aircraft, or serve market areas where other capacity options exist. These airports, if recognized in the federal NPIAS and publicly owned, are also eligible for federal discretionary funds and state funding. If privately owned, they are only eligible for state based grants, assigned on a project basis in competition with other airports. These grants vary in sponsor cost from 10 to 25 percent of project cost.

4. Current Issues at Specific Facilities

a. **Philadelphia International** – Additional airside operating capacity is needed now and in the next 25 years to accommodate projected growth of enplanements. Master plan expansion, to date, has increased airline operations options, precipitating the need for continuing airside expansion. Regional economic development objectives require adequate capacity at PHL in the future. The airport expansion master plan update is being evaluated through the EIS process. Some local, state, and federal elected officials oppose expansion of PHL due to environmental impacts on nearby neighborhoods, and recommend less expansion of PHL as well as more airline use of Atlantic City (ACI), Lehigh Valley (ABE), and other non-hub airports. Other complimentary strategies include more intense use of Trenton-Mercer and New Castle County airports.

b. **Trenton-Mercer** – Planning for terminal expansion at this airport, which serves commercial and business uses, was abandoned. Neighborhood opposition in New Jersey and across the Delaware River in Pennsylvania has caused Mercer County officials to move forward with a planned terminal renovation and expansion. Subsequently the Regional Administrator of the FAA Eastern Region issued an order to withdraw the Finding of No Significant Impacts/Record of Decision (FONSI/ROD) dated February 23, 2006 on June 9, 2008. Main reason cited for the withdrawal of the FONSI/ROD from the FAA was the County's change of position to not further pursue the Terminal Replacement now or in the near future.

   On the contrary many neighbors have registered support for additional service options at Trenton, but are not as organized or vocal as their opposition was. DVRPC believes that improvements as discussed in the initial EIS and Master Plan will not increase the size of aircraft that are able to use the facility today, but more passengers could be handled through expanded airline service.

c. **New Castle County** – The 7,012 foot runway 1/19 with an Instrument Landing System (ILS) approach has had intermittent commercial activity, and is improving airside operations and terminal facilities to better situate the airport to receive commercial passenger flights again. Currently, the airport predominantly serves corporate business and accommodates regional jets, with hangar capacity for corporate clients. Situated 40 minutes from PHL and 1.25 hours from BWI in the dense northeast corridor, it is in a prime location as a non-primary commercial facility, possibly relieving the capacity shortfall at PHL. A master plan analyzing potential commercial usage is underway.

d. **Pottstown-Limerick** (Heritage Field) – This airport has the land for a westerly runway extension. Exelon Generation Corp-LLC, the airport's historic owner, recently sold the facility to a local businessman who intends to continue operation. However, expansion plans are unclear. Recent commercial development to the west end of the airport property may impact federal obstruction standards.

e. **Quakertown** – Planning is complete for a 600-foot extension of the runway and taxiway. Neighborhood opposition to the runway extension and higher total costs than expected has resulted in postponement of the runway extension. Airport activity has declined due to closure of the flight school, but adjacent business development has the potential to expand.

f. **South Jersey Regional** – Master planning concluded that there is a need for a runway extension. Strong neighbor and municipal opposition has been registered to any expansion. Most of the land needed for the runway extension is available to the airport. NJDOT purchased the airport from a private owner and is operating it at the existing runway length.

g. **Cross Keys** – This airport is the only public-use airport in Gloucester County. Publicly supported capital improvements have been held up by lack of consensus by private owners on development plans and sponsor commitment. Though its reliever status was taken away by FAA, it is retained in the RASP as a reliever, since no other airport has storage potential for 100 aircraft in the county.

h. **New Garden** – New Garden Township has acquired this airport from the private owner. PennDOT and FAA are participating financially in major projects, including extension of the taxiway. Public ownership will precipitate the need for AIP funding to bring the airport up to FAA design standards.

i. **Chester County and Doylestown** – These major reliever airports in Chester and Bucks County, respectively, have recently acquired land for aircraft storage needed to accommodate increased basing demand and runway

extensions for both airports. The plans for runway extensions to provide more operating flexibility have been contested by residents fearing more and bigger planes. The Chester County plan would permit larger corporate jets while Doylestown would continue to base single and twin engine prop planes and very small jets.

j. **Pennridge** – The airport sponsor is willing to continue development of this facility to provide increased storage and better operational capacity for corporate twin/small jet aircraft in Bucks County. As one of the few airports in the Delaware Valley Region with runway length of more than 4000 feet this sponsor is seeking to gain reliever status to be eligible for federal grants. DVRPC is in support of the airport to be included into the NPIAS as one of the regional GA airports with the capability to support such activity.

k. **Spitfire** – This privately owned general aviation airport is the only significant aviation facility in Salem County. It has recently had major rehab investment from New Jersey Department of Transportation and has the land potential for increased numbers of hangars and an extended runway. The owner has indicated his willingness to seek federal funding eligibility and expand capacity to qualify as a reliever airport.

l. **Cecil County** – This airport is in the process of extending its runway to 5,000 feet and providing more storage capacity and services. Since Cecil County is the only public-use airport in the county and is expanding to target business aircraft usage in a growing community, it is recognized as a potential reliever airport in the RASP, to be considered by the FAA for reliever status once minimum federal criteria for eligibility is reached.

m. **Willow Grove NAS** – The facility has been downsized by the military, and only the Pennsylvania Air National Guard installation will remain, eliminating military air traffic. The Department of Defense (DOD), along with federal legislators and the state of Pennsylvania, agreed to keep the facility and runway as a major emergency preparedness resource, serving the northeast U.S. However, in late 2009, Pennsylvania withdrew its plans to develop the base due to lack of funding support from the DOD. Reuse decisions now fall to the Horsham Township Land Reuse Authority. DVRPC's RASP recommends retaining the runway and developing corporate offices with private use of the runway by tenants and itinerant corporate traffic.

5. 2035 Proposed Regional Aviation Facilities

In response to the state aviation planning objectives, issues, and airport status, the 2035 RASP proposes the following facilities to serve the region into the future. Justification for these facilities and improvements will be developed in Chapters VI and VII.

Commercial Airports
Philadelphia International (PHL)
New Castle County (ILG)
Trenton Mercer (TTN)

Reliever Airports
Willow Grove NAS (NXX)
Brandywine (OQN)
Chester County (MQS)
Doylestown (DYL)
Northeast Philadelphia (PNE)
South Jersey Regional (VAY)
Summit (EVY)
Pottstown Limerick (PTW)
Wings (LOM)
Trenton-Robbinsville (N87)
New Garden (N57)
*Cecil County (58M)
*Cross Keys (17N)
*Spitfire Aerodrome (7N7)

General Aviation
Perkiomen Valley (N10)
Pottstown Municipal (N47)
Quakertown (UKT)
Van Sant (9N1)
Camden County (19N)
Flying W (N14)
Red Lion (N73)
Pennridge (CKZ)

Heliports
Penn's Landing (P72)
Keystone (N02)
Horsham Valley (N48)
Total RF (00A)
Trenton (proposed)
Wilmington (proposed)

*DVRPC recommended reliever airports by 2035 if minimum FAA standards are met

V. 2035 Regional Aviation Demand Forecasts

The 2035 aviation activity levels are based on the most recently adopted population and employment forecasts within the DVRPC twelve-county aviation region. In addition to the population and employment forecasts, the historic results of DVRPC's aircraft operation counting program, describing annual aircraft operations at each RASP airport over the past 20 years, were compared and used as the base numbers for 2035 forecast. These trends were contrasted with FAA annual forecasts of aviation issues in Pennsylvania and New Jersey, and master plan projections for PHL, to establish qualitative operations demand projections.

1. Regional Population and Employment Forecasts

Table 2 shows the completed DVRPC 2035 population and employment forecasts for major segments in the Delaware Valley region. Three counties, Salem in New Jersey, New Castle in Delaware, and Cecil in Maryland, were added to the DVRPC totals. Population and employment forecasts were prepared by Wilmington Metropolitan Area Planning Commission (WILMAPCO).

2. 2035 Operations and Based Aircraft Estimates

Table 3 shows current counts and forecasts based on regional and national trends as well as commercial airports master plans. Current operations and based aircraft at GA/Reliever airports totals are 463,776 and 1,335 for Pennsylvania; 294,119 and 586 for New Jersey; and 179,857 and 416 for WILMAPCO, respectively.

Table 2
Population Forecasts 2035

	2005	2035	% Change	Absolute
Philadelphia	1,483,851	1,480,023	.0 %	(3,828)
PA Suburbs	2,433,981	2,829,374	+16.2 %	395,393
NJ Suburbs	1,801,219	1,839,237	+14.8 %	238,018
Wilmapco Regional	679,340	808,414	+19.0 %	129,074
Regional Total	6,198,391	6,957,048	+12.2 %	758,657

Employment Forecasts 2035

	2005	2035	% Change	Absolute
Philadelphia	728,054	736,268	+1.3 %	8,214
PA Suburbs	1,275,048	1,508,306	+23.7 %	233,258
NJ Suburbs	774,073	902,550	+16.6 %	128,479
Wilmapco Regional	365,641	404,398	+10.1 %	38,757
Regional Total	3,142,816	3,551,524	+13.0 %	408,708

Table 3
Current Operations and Based Aircraft/2035 Forecasts

	2009 Operations	2009 Based Aircraft	2035 Operations	2035 Based Aircraft
PHL Total	492,000	N/A	760,000	N/A
GA/Relievers				
PA Sub	436,776	1,335	512,982	1,468
NJ Sub	294,119	603	323,530	663
Wilmapco Sub	179,857	345	197,842	380
Non-Commercial Total	937,752	2,283	1,034,354	2,511

Source: DVRPC Operations Counts, PHL Tower Counts 2007-2008

3. Discussion

Current Operations and based aircraft for 2009, compared to 2005, yield the conclusion that the region is home base for approximately 2,300 general aviation and corporate aircraft with approximately 938,000 operations per year or 400 operations per based aircraft. These levels of activity represent a four percent reduction in based aircraft and two percent reduction in take-off and landings from year 2005. Several factors are in effect that reduce GA aviation activity in the short-term and that will contribute to slower growth in non-commercial activity to the year 2035. The cost of general aviation airplane ownership, storage, maintenance, and fuel has increased in recent years as compared to disposable income. The ranks of active pilots have decreased as older pilots retire and are not physically able to fly; new pilots/flight school graduates do not exceed retiring pilots. Since 1980, the number of operating airports in the region has declined by nearly 30 percent due to owner sale and real estate pressures, taking flight schools at these airports out of business. Currently, many airports are experiencing financial stress due to less business, as the result of higher fuel prices and the economic slowdown, forcing closures of Fixed-Based Operator (FBO) shops serving aircraft and flight schools. This effectively reduces operations at regional airports.

It is expected that the recent proposal by FAA to expand and lower the Class B airspace around PHL will have a negative impact on 18 of 23 general aviation airports in the regional system (also see pg. 9). In a number of meetings at DVRPC between airport operators and the responsible FAA office for the Class B airspace redesign determined that lowering the operating ceilings and limiting approach minima in some cases will have the most significant impacts on the individual airports and the system at large. If these changes are enforced without special accommodations to the affected airports, such as “cut outs” to provide

sufficient ceilings to ensure safe and effective future approach and take-off ceilings, the Class B redesign around PHL will discourage recreational flights and induce some aircraft to base further from the urban center of Philadelphia. Suburban development continues in the region, both commercial and residential, resulting in additional pressure on airports from airspace, intrusions, increased noise sensitivity complaints, and property price increases, thus pushing the sale of private airports for non-aviation development. Although current suburban development encroachment has eased due to the economic downturn, this downturn will reverse within the next twenty-five years, further stressing airport operations and existence. Recent proposed mandates by the Transportation Security Administration (TSA) directed toward general aviation airports and charter/corporate aircraft operators, are another governmental reaction to the terrorist attacks of 9/11/01. Responding to these mandates will take additional staff time and capital investment, thereby decreasing the profitability of airports and aviation operators. These factors have combined to discourage aviation operators, facilities, and pilots from investing, basing aviation businesses, and flying in the region.

Regional demographics and forecasts of population and employment growth are key indicators of demand for aviation facilities. Table 2 (page 21) summarizes DVRPC population and employment forecasts to the year 2035 from a base year of 2005. Population and employment are expected to grow regionally by 12 percent and 13 percent respectively during that period. These rates are reductions of eight percent and 26 percent in the rate of growth in population and employment, as reflected in the economic downturn.

FAA forecasts from 2009-2035 indicate an expected growth rate of one percent annually for general aviation and about three percent annually for commercial aviation. Extending these rates out to 2035, yields a 25 percent total growth of activity for general aviation and an 82.5 percent total growth of activity for commercial aviation. Given 12 percent and 14 percent forecasted population and employment in the region for the period, and the negative factors affecting general aviation, the FAA forecast of 25 percent growth for GA appears overstated and this report will utilize a 10 percent regional growth estimate, reflecting local conditions. Regarding PHL and commercial demand, the airport master plan and Capacity Enhancement Program call for an operations increase limited to 54 percent by the physical limitations of the airside expansion. Overflow of demand of 28.5 percent at PHL, based on FAA projections, could be diverted to other commercial airports with available capacity including ILG, ABE, and ACY.

VI. Systems Definition and Alternative Solutions

In the previous chapters, the current status of the RASP facilities was presented, as well as issues impacting facilities and air transport generally and locally. Secondly, population, employment, and airport traffic data were used to provide a framework for estimation of future GA, business and commercial demand. Traditional criteria used by DVRPC since 1980 to develop RASP recommendations will be analyzed in comparison to the current RASP conditions and future expectations, and to identify current/future deficiencies and capital/management strategies for eliminating or minimizing these deficiencies. Criteria used includes: 1) market area coverage, 2) commercial capacity, 3) GA/business capacity, 4) helicopter capacity, 5) storage capacity, 6) airspace and safety issues, 7) policy, regulatory, and program issues.

1. Market Coverage

a) Ground travel time to the region's three commercial airports, Philadelphia International, Trenton-Mercer, and New Castle County is one hour or less from all population centers in the region. Modeled travel times have remained relatively constant to slightly higher, since development of the 2030 RASP, so that access criteria are satisfied with current and 2035 RASP facilities locations. When access to commercial service airports bordering the region (Lehigh Valley International and Atlantic City International) is included, coverage access times from the north, west and southwest quadrants of the region to scheduled service airports are improved.

b) In the Pennsylvania suburbs, only Northeast Philadelphia and Chester County provide adequate runway length (7,000' and 5,400') to operate larger corporate jets in most Instrument Flight Rules (IFR) weather conditions and full load scenarios, due to their full instrument approaches and runway lengths. At a distance of 45 miles from each other, on-half hour access time is not met for most users in central Bucks and Montgomery counties. The use of Willow Grove NAS for corporate operations would provide needed access for underserved corporate flights in the center of the Pennsylvania Philadelphia suburban crescent. For twin propeller aircraft and smaller jets, the existing 10 public use GA and reliever airports provide adequate market area coverage in the four suburban Pennsylvania counties. In South Jersey no adequate corporate jet length runway exists, although the seven public use airports provide adequate ground access for single engine and twin users. The extension of the runway at South Jersey Regional (to 5,000 feet) would provide for needed jet operations. Spitfire Airport in Salem County also has available land to extend its runway.

c) The guarantee of continued facility operation of airports in critical market areas is an issue that must be addressed. Of the 21 public use GA/reliever airports in the current RASP, where 85 percent of regional aircraft are based, 13 airports, or 62 percent are privately owned. Several airports in the RASP

which provide sole aviation system access in their market areas are privately owned and could close. These include; Perkiomen Valley in Montgomery County; Cecil County in Cecil County; Cross Keys in Gloucester County; Trenton-Robbinsville in Mercer County; Summit in New Castle County; and Pennridge in Bucks County.

Recently PENNDOT, with FAA and local sponsors, has publicly acquired New Garden Airport. NJDOT has stabilized South Jersey, Spitfire, Cross Keys, and Camden County airports with public acquisition, development rights purchase or public grants. In future years, the four airports not obligated (Perkiomen Valley, Summit, Pennridge, and Cross Keys) must be locked in, if it is determined that they are critical to serve future demand and to insure coverage in those parts of the suburbs. FAA/State capital grants, public acquisition, or purchase of development rights would provide the needed security.

2. Commercial Capacity

PHL provides 95 percent of the commercial flights in the region. Projections by FAA of traffic increases to 2035 indicate at least 55 percent more in operation demand. PHL capacity enhancement plans may provide up to 30 percent increases if all proposed projects are completed. Given citizen opposition, capital requirements, and operating difficulties in staging, this seems unlikely. Additional commercial capacity to avoid significant airspace congestion and delay must be developed. More significant commercial service to Atlantic City, Lehigh Valley, Trenton-Mercer and New Castle County in the southern quadrant of the region can effectively provide more capacity regionally without requiring construction of new airports. However, DVRPC recommends airlines be incentivized to introduce or increase service at competitive fares at these non-hub airports.

3. GA/Business Capacity

Given that several of the GA airports in the region with full parallel taxiways and sufficient ramp configurations have operating capacity of 120,000 operations per year and the average usage level of 35-40,000, the region will have adequate suburban GA operating capacity to 2035. This assumes a modest 10 percent increase in operations and continued existence of all airports now in use. The capacity to handle corporate jets, whose number is projected to have doubled in the last five years while satisfying ground-access time criteria, is not as clear cut. Additional hangar and ramp space must be provided for based jets, and additional runway length in South Jersey and corporate use of Willow Grove will be required.

Also three privately owned airports, Cecil County, Spitfire in Salem County, New Jersey, and Cross Keys in Gloucester County, New Jersey, have expanded

facilities and operations or have the potential, and are the only public-use facilities for corporate flights in their respective counties. It is recommended that either public acquisition of these facilities or federal reliever status (assuming sufficient based aircraft and operations) occur to provide guaranteed business quality and necessary capacity to these counties.

4. Helicopter Capacity

Helicopter activity in the region has been reduced by 9/11/01-related security concerns. Recent Class B airspace modifications will further restrict operating airspace for heliports, especially near PHL in Central Philadelphia. Penn's Landing Heliport (Sterling Helicopter) no longer runs sightseeing operations or business shuttles to NYC due to air space restrictions. The Penn's Landing facility serving Philadelphia and Camden still is under capacity with periodic ramp and parking delays. Outlying sites for helicopter activity include Total RF in Bensalem and Keystone Helicopter at Chester County Airport. These installations provide FBO, maintenance, avionics and fleet service but generally not passenger transport. Significant helicopter operations exist at RASP airports where basing and service are provided. As is demonstrated by Sterling's business, a market exists for helicopter facilities to serve major business centers in the region. The RASP will continue to recommend creation of public heliport facilities in Trenton and Wilmington, and expansion of facilities in Philadelphia. To date, no FAA funding support has been used to develop heliport facilities in the region.

5. Storage Capacity

Currently, approximately 50 percent of the based aircraft in the region are housed in hangars. While there are grant programs available that are eligible to fund Hangar construction, many hangar development projects in the region have been funded privately. Hangar construction has not kept pace with based-aircraft totals in the region. However, recently, the slowdown in aviation business and high fuel costs has resulted in fewer based-aircraft and operations, freeing up significant hangar space. With the expected evolution of the small jet fleet in the region, hangars will become more critical to stimulating corporate aircraft basing and the related economic benefit. Continued hangar development and related land acquisition, at reliever airports, is a high priority activity in the 2035 RASP.

6. Airspace and Safety Issues

Throughout the region, corporate and general aviation air traffic is increasingly delayed due to increasing ground and approach aircraft at PHL. Proposed runway extensions, possible Willow Grove civilian use, and storage enhancements in the suburbs are critical to the continued separation of commercial and non-commercial traffic in the region. Also preserving all recommended RASP airports allows operation demand to be spread optimally in

the suburbs, therefore not burdening any one community with transfer demand from closed airports. Recent (2005-2010) modifications to regional controlled airspace include: the northeast corridor airspace redesign which modified departure routes out of PHL by fanning out compass headings over more communities in Pennsylvania and New Jersey; and modifications to Class B airspace designed to protect aircraft arriving and departing PHL by better separating commercial traffic from local general aviation operations and transient traffic through the region. The effect of the Class B changes potentially increase the current airspace restrictions at those GA airports located within 30 miles of PHL by lowering altitudes where aircraft can operate without entering Class B controlled airspace. Consequently recreational pilots, sky diving clubs, and glider schools, will have incentive to move further into the suburbs and out from under the new Class B area. This situation emphasizes the importance of preserving airports in the outer reaches of the region.

As recommended in the 2030 RASP, installation of Global Positioning Systems (GPS) approaches and Remote Terminal Outlet (RTO) transmitters improves both the accuracy and options for airport approach guidance and communication from suburban airports to regional air traffic control (RTC) at PHL. Satellite-based approaches to reliever and GA airports may require additional obstruction removal, land acquisition, and/or easements to satisfy lower minimums. Circling approaches, where they exist at small GA airports, should be replaced. AWOS on field weather monitoring equipment is being installed by NJDOT/DVRPC at selected airports in New Jersey, including Cross Keys, Trenton-Robbinsville, Spitfire, and Flying W in the DVRPC region. This type of equipment, which increases the flexibility and safety of operations is recommended for installation at reliever and larger GA airports in the RASP. These NAVAID type improvements must continue, along with the capacity expansion recommended in the 2030 RASP, for the region to continue to improve operational safety.

7. Policy, Licensing, and Programmatic Deficiencies

Regional airports must adhere to regulations of different governmental bodies. Several aspects of programs and procedures designed to develop and regulate public use airports in this region are actually hindering such development or placing a disproportionately severe burden on some airports. Several process-related deficiencies continue to be identified by the CASP process, or were reported by sponsor airports. Specific complaints/concerns are:

- Many airport sponsors feel a lack of enforcement is exercised when it comes to their State zoning laws that call for the protection of FAR Part 77 surfaces or similar state airport zoning regulations.
- Licensing procedures, which prevent or financially discourage change of private ownership of airports

- Federal and state funding eligibility criteria, which have more negative impacts on regions with a high percentage of privately owned public use airports, like the DVRPC region
- Need to strengthen the linkage between regionally identified deficiencies in the RASP and recommended state and federal projects, which are the outcome of the grant distribution decision process
- Proliferation of land uses not compatible with airport operations and which are not controlled by zoning, impacting the airport's operating space.

VII. 2035 Regional Airport System Plan Recommendations

In previous chapters, the 2009 aviation system and infrastructure of the RASP have been described. Issues that relate to infrastructure, economic and marketplace policy, operating procedures, and legislation have been identified. Regional forecasts of aviation activity, including airport operations and based aircraft were developed. The projections were then compared to the region's own aviation trend experience, and also matched against demographic projections of population and employment growth. Now these variables and deficiencies are used to identify future capital and policy recommendations to ensure a safe and efficient aviation system that meets 2035 demand.

1. 2035 RASP Objectives and Deficiency Targets

The objectives for the recommended system-wide improvements generally can be stated as expanding passenger capacity at PHL and smaller commercial airports, while preserving locational options and improving storage, capacity, and safety features for business and general aviation facilities. The latter are necessary to reduce congestion at PHL and stimulate economic vitality in the region. Specifically, this plan addresses the following system-wide deficiencies, while incorporating operators, governmental agencies, and impacted citizen groups:

- Delays and shortage of commercial and freight operating capacity at PHL
- Insufficient hangar and ramp storage region-wide to accommodate the aviation demand needed to support economic growth in the suburbs
- Lack of sufficient runway length, at suburban airports, to accommodate corporate aircraft serving specific suburban areas and airports
- Shortage of heliport capacity to serve regional demand located through the region
- Major policy, legislative enforcement and programming process deficiencies resulting in less airport development potential or airport closure
- Need to improve reliever facilities to meet and provide lower GPS approach minimum, where possible, and provide improved weather and navigational information

2. 2035 Recommended RASP Facilities and Improvements

Table 4 shows the airports and heliports included in the 2035 RASP and the proposed major expansion and improvements to satisfy demand identified, and service expectations in 2035

TABLE 4
RASP RECOMMENDED CAPITAL IMPROVEMENT BY FACILITY

FACILITY	RECOMMENDED CAPITAL IMPROVEMENTS	COST (MILLIONS OF DOLLARS)
Commercial Airports		
Philadelphia	Airside capacity enhancements, Possible parallel runway	$2,500.0 million
	Terminal and landside improvement	$3,500.0
	Sub-total	**$6,000.0 million**
Trenton-Mercer	Terminal Improvement, Car parking, Aircraft storage	$20.0 million
New Castle County	Terminal Improvements, Car parking, taxiway improvements	$40.0
	Sub-total	**$60.0 million**
Reliever Airports		
Brandywine	20 Hangar spaces, Addition T-Hangars, AWOS Land acquisition to control obstructions	$ 4.0 million
Chester County	Land acquisition, runway extension, new parking apron 20 Hangar spaces, 20 T-Hangars	10.3
Doylestown	Runway extension to 3,800 ft., 26 Hangar spaces, 20 T-Hangars, Ramp addition	7.8
New Garden	10 T-Hangars, 25 Ramp spaces, AWOS Complete taxiway extension to full length	3.0
Northeast Philadelphia	10 Hangar spaces, 16 T-Hangars, AWOS	4.0
Pottstown-Limerick	Runway extension to 4,400', AWOS 30 Hangar spaces	6.5
Willow Grove	Conversion to corporate employment center with runway Access	10.0
Wings	20 T-Hangars, helicopter apron, AWOS, 10 replacement Hangar spaces	2.0
S. Jersey Regional	Runway extension to 5,500', 30 Hangar spaces, 30 T-Hangars	8.5
Trenton-Robbinsville	20 Hangar spaces, 15 T-Hangars, AWOS	2.1
Summit	New runway 5, 500', 18 Hangar spaces, 40 T-Hangars, AWOS	6.0
*Cross Keys	Public acquisition, or reinstitute reliever status, Land acquisition Runway extension of 600-1000', 20 Hangar spaces, 40 T-Hangars	12.5
*Spitfire Aerodrome	20 T-Hangars, Runway, Terminal taxiway expansion Public acquisition or reliever status classification	3.0
*Cecil County	20 T-Hangars, maintenance hangar, corporate hangar, terminal Building, parallel taxiway, runway extension, public acquisition or Reliever classification	5.6
	Subtotal	**$ 85.3 million**

Source: DVRPC Airports Current Master Plans. RASP 2035 Priority Capital Recommendations
*DVRPC recommended reliever airports by 2035 if FAA minimum standards are met

TABLE 4 (continued)
RASP RECOMMENDED CAPITAL IMPROVEMENT BY FACILITY

FACILITY	RECOMMENDED CAPITAL IMPROVEMENTS	COST (MILLIONS OF DOLLARS)
General Aviation Airports		
Pennridge	Runway extension up to 5,000' after year 2020, 10 Hangar spaces, 10 T-Hangars	$ 5.0 million
Perkiomen Valley	20 T-Hangars, Runway widening, Obstruction removal	2.5
Pottstown Municipal	20 T-Hangars, Expand apron, Corporate hangars	5.4
Quakertown	10 T-Hangars, 10 Ramp spaces, Runway extension to 3,800'	4.3
Van Sant	20 T-Hangars	0.6
Camden County	20 Hangar spaces, 30 T-Hangars	2.5
Flying W	20 Hangar spaces, 30 T-Hangars	2.5
Red Lion	30 T-Hangars	0.9
	Subtotal	**$ 23.7 million**
Heliports		
2 Existing Heliports	Ramp and Hangar Expansion	8.0 million
2 New Heliports	Land Acquisition, Ramp and Hangar	4.0
	Subtotal	**$ 12.0 million**
All Airports	Pavement Maintenance, RTO Installation, Runway Safety Area Analysis, Obstruction Removal for GPS Approaches	$ 50.0 million
	Subtotal	**$ 50.0 million**
	Grand Total of All Airports Except PHL	**$ 231.0 million**
	PHL	**$6000.0 million**

Source: DVRPC Airports Current Master Plans. RASP 2035 Priority Capital Recommendations

VIII. IMPLEMENTATION OF 2035 RASP RECOMMENDATIONS

1. Capital Cost and Subsidies

Table 5 summarizes the recommended improvements to the RASP facilities by type of improvement. Traditional federal and state funding sources, the Airport improvement Program (AIP), Passenger Facility Charges (PFC), state aviation development and safety funds, bond issues and state capital budgets and transportation trust funds, historically provide about $30 million per year to the region. Over 25 years, assuming consistent funding availability, the region may expect $500 to $750 million in capital subsidies. Not all projects will be developed and only some will receive public investment while others will rely on private/owner resources. Since the adoption of the Air-21 and subsequent authorizing legislation by Congress in 1999, AIP levels have risen to approximately $3.2 billion annually.

TABLE 5
2035 RASP CAPITAL COST BY IMPROVEMENT CATEGORY

TYPE OF IMPROVEMENTS	COST (Millions of Dollars)
PHL Airside Capacity and Landside Improvements	$6000.0 million
Other Commercial Airports Landside Expansion	60.0
7 Runway/Taxiway Extensions or Rebuilt, Suburbs	42.0
5 Adjacent Land Acquisitions, Suburbs	16.7
234 Corporate Hangar Spaces, System-wide	20.8
441 T-Hangars, System-wide	11.5
100 Aircraft Ramp Spaces	1.0
3 Airport Acquisition or Federal Classification Change	6.0
System-wide Preventative Maintenance, Safety Area Expansion	50.0
Heliport Improvements	8.0
2 Heliports	4.0
1 Military Airport Conversion	10.0
TOTAL	$6231.0 million

Source: Summary of Table 4

2. Project Priority

The projects summarized in Table 5 represent constrained capital needs which will be funded to some degree through federal, state, local and private sources. Airside and landside capacity improvements at commercial airports should be first priority, since the largest segment of the regional population using aviation is impacted.

The second priority is runway extensions for reliever airports and the conversion of Willow Grove to allow controlled business use. Satisfying regional business demand at suburban facilities will reduce traffic demand at PHL, and thereby increase useable commercial capacity. Reliever airports with business-length runways divert air traffic demand to the suburbs so that congestion and delay can be minimized in the region and country.

The third priority is preserving endangered reliever/GA airports, uniquely serving suburban market areas since suburban business development and mobility can be inhibited without corporate access to the aviation system. The fourth priority is acquisition of surrounding land for storage capacity, runway safety area protection, and obstruction control and encroachment prevention, at reliever classified airports. Without sufficient capacity these suburban airports cannot relieve PHL. In order to further distinguish priority investments among general aviation and reliever airports, Table 6 compares the level of average take-offs and landings versus based aircraft at each listed airport. The higher the ratio in the column, the more activity or potential activity at the airport. This corresponds to higher use of based aircraft and higher frequency of itinerant aircraft operations, indicating more business activity of based aircraft and higher use of the airport by non-based aircraft for FBO, charter, fuel or other business uses.

Finally, numerous complementary investments in support systems such as pavement maintenance, obstruction removal, AWOS, ATC improvements via GPS, and RTO's must occur in a parallel sequence with high priority investments, so that new or improved facilities can be incorporated into the system with a maximum of safety and project usability.

Storage improvements and general aviation airports require private investment and are critical to retaining and increasing the aviation activity in the region. Without these improvements, based aircraft and operations traffic will be assimilated by other reliever and publicly owned GA airports to the limit of their storage capacity. More planes at fewer airports mean more noise, including an increased fear to neighbors, which contributes to greater opposition to operational developments and expansions. Some aircraft and aviation activity may relocate outside the region if more privately owned airports close. Historically, due to funding constraints the states have not been able to satisfy more than 30 percent of capital requests per year from the non-reliever privately owned airports in the DVRPC region.

DVRPC suggests that the regional ACIP recommendations be reinstituted by FAA and integrated into states funding programs with DVRPC providing prioritization of regional projects, including a target allocation level set as a regional portion of the states' grants program to better meet the capital needs of the regional airports.

3. Regulatory and Programming Strategies

a. Regional-States Capital Programming Linkage

Most project grant decisions at non-commercial airports rest with state aviation offices. One strategy recommended by DVRPC is to reflect regional capital project priorities in state grant selections on an annual basis. A portion of the state and federal development funds could be reserved for the region on the basis of total operations or based aircraft at GA/reliever airports in proportion to the states' totals. This portion could then be distributed to eligible airports and projects by the state, with DVRPC staff coordination and Board review, to reflect DVRPC oversight of regional aviation grant adequacy. This would provide local feedback to the states regarding funding priorities. Through the capital programming process, grants recommended by the DVRPC Board to the state aviation departments would directly link regional planning and state planning/grant distribution as well as provide the basis for any future funding negotiation, either regarding project selection or regional share of statewide development resources.

b. Enforcement of Part 77 Airport Zoning Controls at the Municipal Level

Both New Jersey and Pennsylvania have laws requiring municipalities to protect and preserve operating airspace around airports from intrusion by buildings, trees, etc. The Pennsylvania law defines these protected airspaces as they are identified in the Federal Aviation Regulation Part 77. New Jersey's legislatively protected areas are smaller, thereby offering less protection. Both states' laws should be modified to trigger penalties for non-compliance to local jurisdictions and land owners that impact navigable airspace, particularly if a hazard is identified through an airspace study and not mitigated. State law requiring deed restriction/notification to a buyer regarding a property's proximity to airports with specified operating characteristics should be enacted to reduce local sentiment against airports. Compatible land use measures and planning regarding airports and other uses, with enforcement measures, must be introduced into municipal planning codes in each state.

In Delaware, a state law allows the Delaware Department of Transportation (DELDOT) to identify and remove obstructions to the part 77 surfaces around airports. Some airports, in municipalities or in unincorporated areas of the three counties, have land use ordinances controlling development around airports. Also, the state controls development around airports, through the building permitting process.

Maryland has no laws requiring local airport zoning. However, developers and local governments are required to notify the Maryland Department of

Transportation concerning development near airports, regarding obstructions and incompatible land use, after which the state will recommend restrictions as necessary.

TABLE 6
Total Annual Airport Operations
Business Analysis

Airport	Operations[1]	Based Aircraft	Avg Ops Per Aircraft	Ratio :1
Philadelphia Int'l	492,000	50	9,840	196.80
Trenton-Mercer	85,000	147	578	3.93
New Castle	90,500	230	393	1.71
Brandywine	50,857	147	346	2.35
Chester County	52,551	125	420	3.36
Doylestown	41,238	170	243	1.43
New Garden	26,128	132	198	1.50
Northeast Phila.	123,000	245	502	2.05
Pottstown-Limerick	37,217	103	361	3.51
Wings Field	46,689	121	386	3.19
S. Jersey Regional	37,782	103	367	3.56
Trenton-Robbinsville	19,645	56	351	6.26
Summit Airpark	8,077	48	168	3.51
Perkiomen Valley	12,820	44	291	6.62
Pottstown Municipal	19,912	55	362	6.58
Quakertown	15,760	86	183	2.13
Van Sant	17,051	56	304	5.44
Flying W	57,652	118	489	4.14
Spitfire	16,971	35	485	13.85
Red Lion	10,556	37	285	7.71
Cecil County	11,593	52	223	4.29
Pennridge	20,552	51	403	7.90
Cross Keys	30,636	59	519	8.80
Totals – Tower & AVG	**667,500**	**427**	**1,563**	
Totals – GA & AVG	**690,151**	**1,906**	**362**	
Total Ops & Aircraft	**1,357,651**	**2,333**		

Source: DVRPC Operations Counts 2007-2009

[1] Operations totals for non-towered airports are the most recent output from the FAA funded DVRPC operations counting program. Commercial airports operations counts are provided by ATC towers (take offs and landings only).

c. Licensing/Relicensing Procedures and Funding

DVRPC is aware that the recommendations below will require major changes to the regulatory framework and aviation law. Staff feels these issues are burdensome enough to the individual airports and the regional and national airport system to be addressed here. States' guidelines should be eased regarding sale of privately owned public-use airports. Requiring all waivered conditions to be corrected to FAA design standards puts an unreasonable burden on buyers and sellers. Since these airports have operated safely for many years, in most cases, with waivered conditions, only those features that affect safety should be corrected; these project costs should be eligible for state funding and classified as high priority, using state and regional selection criteria.

2035 RASP recommends that the FAA and states, with DVRPC participation, do the following:

- Acknowledge and adhere to regional aviation development recommendations, and give priority to waiver-correcting projects at private airports, that are successfully changing ownership and preserving the aviation capacity of the existing facilities

- Give priority to safety and capacity projects at privately owned airports that have significant private investment. These facilities are providing public capacity to the states and regional systems without relying on public funds for the majority of capital improvement costs. Private airport owners must have their equity protected, in the event of airport sale, via modification to FAA AIP grant assurances

- Give priority to projects at reliever airports serving business/GA demand in metropolitan regions. These airports help spread GA/business traffic away from commercial airports and airspace, which are already congested. Since not all regions are similar in airport ownership (public or private) and commercial congestion situation, reliever status and AIP block grant eligibility should be determined by RASP/SASP criteria, not FAA national criteria

- Maintain formal linkage between states' capital funding programs, with DVRPC input, to be consistent with Federal Highway Administration (FHWA) and Federal Transit Administration (FTA) mechanisms for metropolitan planning agencies. Reserve funds dedicated on a needs/activity basis in light of the heavy GA activity and congested airspace of this region within the Northeast Corridor.

- Use the forum of the SASP updates, Pennsylvania Aviation Advisory Committee, and the New Jersey Aviation Association to bring regional

issues to the broader state administrative level. This will allow communication and coordination of aviation plans between regions with a northeast corridor, "super-regional" planning perspective.

d. Future Research Needs

Given the projected growth in demand at PHL (even in light of diversions to small commercial airports including ABE, TTN, and ACY), traffic congestion and delayed access trips to the airport must be considered in a long-term perspective. Supplemental analysis of landside access issues to PHL and other commercial airports serving the region is recommended, with coordination from state highway, transit and rail operators.

Given the growing demand at PHL and limited operating capacity expansion capabilities, the 2035 RASP recommends increased service and passenger usage of nearby non-hub commercial service airports, ACY, ABE, TTN, and ILG. Additional research is needed to identity potential markets, demand, and capacity issues at non-hub commercial airports serving the PHL market. Strategies and programmatic/legislative measures should be researched and developed to incentivize airlines to schedule more off-peak flights and divert selected peak-period flights away from PHL, the hub airport.

PUBLIC ABSTRACT

Publication Title:	Delaware Valley Metro Area, 2035 Regional Airport Systems Plan Update
Publication Number:	09076
Date Published:	April 2012
Geographic Area Covered:	12 County Delaware Valley Aviation Region

Key Words: Aviation, Airports, Heliports, Based Aircraft, Aircraft Operations, Traffic Demand Projections, Commercial Airports, Reliever Airports, General Aviation Airports, Air Space Congestion, Airport Improvement Program, Airport Zoning, Funding Eligibility, Runway Extensions, Storage Capacity, Airside Capacity, Aviation Legislation.

Abstract: This report describes the 2035 Regional Airport System for the 12 county, four state Delaware Valley Region. The plan includes three commercial airports, 12 reliever/business airports, 9 general aviation airports, four existing heliports and two proposed heliport sites. Cost of recommended improvements to all plan facilities by 2025 is estimated at $6.2 billion. Specific policy, capital project, and programmatic recommendations are made to the States and the FAA to direct necessary development. This Plan supersedes the 2030 Regional Airport System Plan adopted in 2005.

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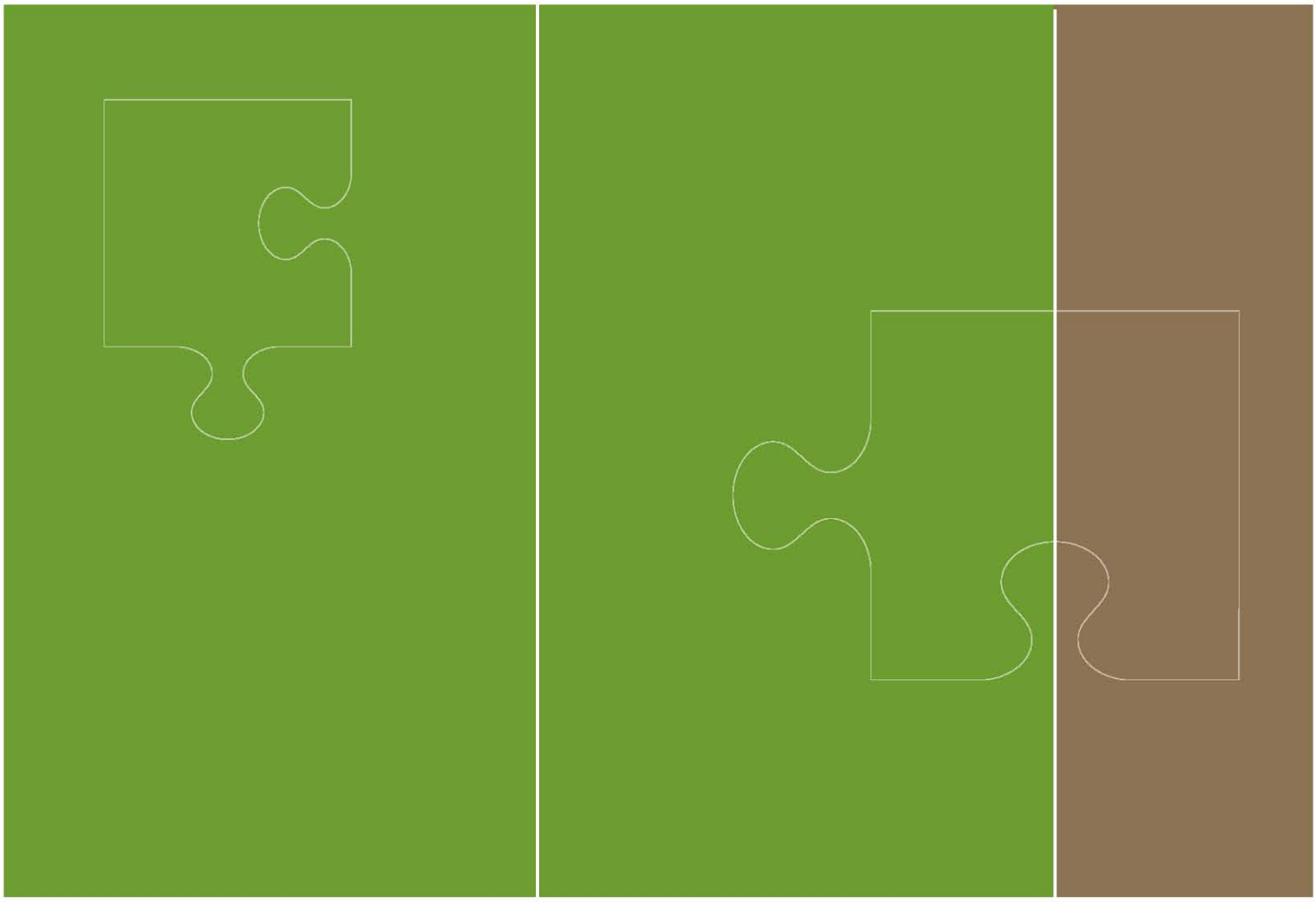

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