NEW YORK STATE
AIRPORT SYSTEM PLAN (SASP)

2008 Technical Report

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New York State Airport System Plan: 2008 Update

Final Technical Report

June 2009

Prepared by:

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CHAPTER ONE
ISSUES, GOALS, & OBJECTIVES

The New York State Airport System Plan (SASP) provides the New York State Department of Transportation (NYSDOT) a foundation for the strategic planning and future development of public-use airports serving New York State. The SASP establishes a vision for the statewide system of airports required to meet New York's future air transportation and economic needs.

It is important to note that state system plans differ from airport-specific master plans. System plans examine development needs and issues for a number of airports on a macro level. In most instances, the FAA will not issue a grant to an individual airport for development based solely on such high-level system plan recommendations. Recommendations developed as part of an airport system plan must be supported in an airport-specific master plan and reflected on an FAA approved Airport Layout Plan (ALP) before they can actually be implemented. Most airport-specific development projects also require a thorough environmental investigation before they can be implemented using federal funding. The responsibility for implementing airport-specific capital development projects ultimately rests with each individual airport's sponsor/owner. While the SASP contains implementation activities that are the responsibility of NYSDOT, local action will be integral to the ultimate adoption and success of SASP recommendations.

As with NYSDOT's 1998 SASP, the SASP 2008 presents the results of a system planning process that has been aligned with the goals and objectives of the *Strategy for a New Age: New York States' Transportation Master Plan for 2030*. The SASP 2008 is useful in evaluating programming actions related to airport system and airport facility deficiencies and provides a foundation for multimodal planning efforts and future discussion on costs and funding. These planning efforts will emphasize both the connections between modes and the use of alternative modes to integrate planning and identify priorities.

- ***Connections with Other Modes of Transportation:*** Rather than viewing an airport as the beginning or ending point of a trip, an airport should be viewed as a transfer point from one mode of transportation to another. The efficient and effective movement of people and goods is dependent on an appropriately developed airport, appropriate access to the airport, and efficient transfer from surface mode to air mode. At the most demanding airports, this may entail highways that can accommodate significant traffic volumes, public transportation services, and significant passenger and cargo movements. A variety of access enhancement actions may be needed, ranging from infrastructure improvements to traffic control devices.

- ***Alternative Modes:*** The development of alternatives modes for intercity travel affects the demand for air travel. This is most evident in markets for travel in the 250 to 500 mile range where high quality rail service can provide an attractive alternative to air service.

Planning efforts will seek to identify where the investment of public funds will yield the most efficient and environmentally sustainable outcomes.

- ***Economic Development:*** Airports are transshipment points for business and foster economic development. Although the current economic downturn has impacted aviation and other segments of the transportation industry, this downturn will eventually give way to renewed economic expansion. As such, maintenance and development of New York's System of airports is essential to sustaining economic stability and growth. While FAA provides the majority of capital funding, New York State is committed to providing a matching share on necessary airport projects to support aviation access to the state's communities. Integration with ongoing local and statewide economic development efforts is key to maximizing the economic benefits of airport development.

1. INTRODUCTION

The statewide system of airports includes 70 general aviation and 18 commercial service airports for a total of 88 system airports. Additionally, five heliports are also considered part of the statewide system. Therefore, this SASP includes 93 system facilities.

The SASP is conducted in a series of separate, but related, technical steps. The first step in the System Planning process is to identify goals and objectives that drive the overall vision for the future state system of airports. Goals and objectives from previous state system planning efforts were reviewed and synthesized to help formulate this set of statewide goals and objectives.

Second, data on the historic and existing airport system are gathered via an inventory process. From this foundation of data, projections of commercial and general aviation demand are developed through 2025 to estimate the potential volume of aviation activity that can be expected through the end of the planning period.

Following the development of demand projections, the analysis considers the adequacy of existing facilities and reveals areas where airport capacity limitations may constrain system growth. This analysis gives way to the identification of facility requirements for accommodating projected growth levels. Development projects identified as part of these SASP analyses are used to guide future investment in New York's airport infrastructure on both the state and the federal levels. The adequacy of the existing system and options for resolving any noted deficiencies are reviewed and evaluated. This process culminates in the identification of a recommended development plan.

In this way, the SASP serves as a thoughtful guide to NYSDOT for the development of a prioritized statewide capital improvement plan (CIP). The SASP provides NYSDOT with a comprehensive report that documents needs and improvement projects required to support the strategic development of New York's airport system. The remainder of this chapter is devoted to describing the process that was undertaken to identify SASP goals and objectives.

2. SYSTEM ISSUES

Discussions with state and local aviation officials indicate that a number of central issues continue to impact the state's system of airports. Possible actions that could be implemented by the state to remedy these issues are the focus of the state's strategic airport plan. Key issues that have been identified include:

- ***Funding Gaps:*** Both Port Authority of New York & New Jersey and non-Port Authority airports are projected to experience significant funding gaps for needed capital improvements through the year 2030.

- ***Revenues at Non-Hub Airports:*** Non-hub airports in the state system are concerned about their ability to generate sufficient revenue to cover operating expenses. Most airports are concerned about the future of the AIP program and their ability to finance capital improvements.

- ***Impacts of Declining General Aviation Activity:*** Declining general aviation activity, residential development pressures, and funding shortfalls may either individually, or in combination, reduce the number of airports in the state system. If this occurs, will there be adequate capacity to meet future needs?

- ***Incompatible Land Uses:*** Airports in the state system are concerned about encroachment from incompatible land uses that limit their economic development potential, and possibly, their operations.

- ***Recognition of Airport Value:*** Sponsors of smaller airports in the state system believe that their airports' economic value and their ability to enhance the quality of life for their communities and the public that these airports serve are not generally recognized.

- ***Potential Loss of Airline Service:*** Many medium and small hub airports are experiencing flat or declining enplanements. The smaller commercial service airports in New York are concerned that they are experiencing declining levels of service and enplanements, and that some system airports may be at risk of losing service altogether. For example, American Airlines has suspended service to Albany (the state Capital) after decades of service, due to unprecedented fuel costs.

- ***Insufficient NAVAID System:*** The existing and future NAVAIDs system may not be sufficient to support ready access to airports during inclement weather conditions.

- ***Funding for Design Standard Upgrades:*** System airports in the state should conform, whenever possible, to FAA design standards. This may be constrained by limited federal funding of airport improvements in the future.

- ***Adequate Ground Access:*** Ground access at some of the system's airports is not adequate. When prudent and feasible, multi-modal ground access should be supported.

- ***Fuel Prices:*** The rising cost of fuel is having significant impacts on commercial and general aviation across the country. The primary impact on general aviation has been the reduction of personal/recreational flying. Business and corporate aviation activity have been less impacted due to their ability to pass air transportation costs along to their customers.

3. SYSTEM GOALS AND OBJECTIVES

Establishing a meaningful set of goals and objectives for the SASP helps ensure that subsequent technical elements are focused on the key concerns identified by NYSDOT. It is the mission of the New York State Department of Transportation to ensure [our] customers - those who live, work and travel in New York State - have a safe, efficient, balanced and environmentally sound transportation system. The goal statement for the SASP is more specific:

> To identify and develop an integrated system of commercial and general aviation facilities that will provide the maximum level of service to the state by promoting economic development while minimizing environmental impacts on local communities

The following categories describe areas of system goals and objectives:

- Safety
- Technical and Operational
- Environmental
- Social
- Economic and Financial
- Public and Jurisdictional

Each of these overall system goal categories has been further subdivided to identify and refine specific objectives. It should be noted that many of the goals, and their objectives, contain common themes and therefore overlap one another. For example, elements of promoting flexibility, ensuring safety, and maintaining fiscal responsibility can be found within several of the statewide goal categories because they are widely applicable.

3.1 Safety

Promoting safety should be the first priority of every aviation system plan. Therefore, safety is an underlying concern of many of the goals and objectives discussed in this chapter. The following system-wide objectives have been established to promote and develop a system of airports that maximizes safety for all persons associated with airport activity.

Goal: Promote safety in the planning and development of the airport system.

Objectives:

- Minimize airspace conflicts/overlaps - A good airport system is characterized by facilities which provide safety to pilots in the air and the public on the ground. To meet this objective, airspace overlaps and conflicts for airports which are in proximity to one another should be minimized to the extent possible. As part of the master planning process, the FAA conducts in-depth reviews of an airport's airspace requirements and how these requirements interface with those of existing or proposed neighboring airports. Each airport's airspace requirements vary based on their type of approach, their level and type of aircraft demand, and their radar/terminal area control capabilities. The FAA maintains strict control over airspace planning and approval, especially as it relates to new or extended runways or new airports. Any proposed airfield improvement that is eligible for federal funding undergoes detailed and rigorous FAA review before it is approved.

- Conform to FAA standards and planning guidelines - In an effort to improve safety to persons on the ground and for pilots in the air, the FAA has developed and refined a number of surfaces around an airport that should be clear of all or certain types of development. In general, FAR Part 77 surfaces are established around airports based on their type of approach (visual, non-precision, precision, or localizer performance with vertical guidance). These surfaces identify areas around airports which should be free of development which is of such a height that it penetrates the various imaginary surfaces described in Part 77. Runway safety areas (RSAs), object free areas (OFAs), and runway protection zones (RPZs) for runway ends have been established by the FAA to promote safety. These areas, which extend for varying distances off each runway end, are designed to restrict development not only from a height perspective but also from a use perspective. Within these areas, development of most types is either discouraged or restricted.

Goal: Support the development and implementation of the FAA's NextGen program, which is designed to upgrade the technology of the air traffic control system.

Objective:

- NextGen and safety - The NextGen program will make all aviation safer, as new technology tools will assist in the control and separation of aircraft while operating in New York airspace and at New York airports.

3.2 Technical and Operational

A system plan should promote the efficient operation of all individual airports, as well as the efficient operation of the entire system of airports. Airport efficiency includes the ability of

an individual airport or system of airports to accommodate aircraft operations, store aircraft, accommodate passengers and pilots, and ensure adequate access. In addition, the airport system should be able to accommodate the latest technological improvements. The SASP should be consistent with, and complimentary to, regional and local airport planning. There are two primary Technical and Operational goals that have been identified by NYSDOT for the state's system of airports.

Goal: Develop a system of general aviation facilities and services in a manner consistent with, and complementary to, municipal and authority planning as well as local community economic development programs. There are several objectives that have been identified that support this goal.

Objectives:

- Develop a system of general aviation airports and facilities that maximizes the use of existing airports and their facilities - The state has a general aviation system that contains 70 public-use, general aviation airports. This existing valuable resource should be utilized to the greatest extent possible when identifying existing and future facility needs. In addition, development of the general aviation component at commercial service airports should be facilitated where appropriate (i.e. -should not create capacity constraints).

- Determine existing airspace capacity of the airport system and identify alternatives needed to maintain adequate capacity levels throughout the planning period - One of the primary objectives of an integrated system of airports is to ensure the system has the ability to process existing and projected operational demand. As demand begins to saturate an airport's operational capacity, delays to planes both on the ground and in the air begin to increase. FAA guidelines indicate that when an airport's demand reaches 60 percent of its calculated operational capacity, planning should begin for some measure that will enhance the airport's capacity. Further, FAA guidelines indicate that when demand reaches 80 percent of capacity, the planned capacity enhancing measures should be implemented. Of particular concern are capacity related issues in the New York Metropolitan area (i.e. John F. Kennedy International (JFK) and LaGuardia (LGA)). As such, the continued development of Stewart International may help to provide capacity and thus continue the growth of the Downstate and New York City metro areas, complementing other Port Authority airports. These capacity issues may need to be addressed over the planning period.

- Identify appropriate navigational and landing aids required to maintain the safe and efficient operations of the airport system and promote their acceptance for federal grants or aid - The ability of an airport to accommodate aircraft in poor visibility conditions not only improves system capacity, but also enhances the safety and flexibly of the airport system. The FAA has established various guidelines that determine the eligibility of airports for various landing and

navigational aids. Typically, the eligibility for funding is based on the type and number of operations occurring at an airport. The ability of an airport to benefit from new technologies, such as global positioning satellite (GPS) navigation, should also be noted.

- Quantify the existing capacity of airport landside facilities (i.e., hangars, ramp, etc.) available to general aviation users and identify alternatives for expansion in coordination with individual airport goals - For an efficient and adequate airport system, not only must an airport have adequate runways and taxiways, but it must also have the ability to provide landside facilities which are commensurate with existing and forecast demand levels. From a planning perspective, it is important that each airport's maximum build-out potential be examined. Determining the ultimate number of operations, based aircraft, or enplanements that an airport can accommodate helps to determine what actions, if any, may be required to provide sufficient airside and landside capacity during the planning period.

- Evaluate the role of privately-owned airports and make feasible recommendations that encourage their long term viability - As development and financial pressures throughout the state force the closure of privately-owned airports, the role of the state in making recommendations to support and encourage the long-term viability of privately-owned airports should be considered.

- Identify service areas for existing facilities to ensure that system users are accommodated and that new or improved facilities are recommended as need or demand dictates - By developing minimum standards for geographic coverage, areas with inadequate levels of service can be identified. Existing facilities may be able to be improved to provide service.

- Develop a plan that is flexible in the event that certain recommendations cannot be implemented - Any plan that accounts for a large system of airports must be flexible. Political realities, cost considerations, environmental concerns, and a host of other factors will determine if technical and operational goals can be implemented. By ensuring flexibility in all elements of the planning process, the impact of unforeseen contingencies can be minimized.

Goal: Provide better point-to-point air transportation access to citizens by increasing the utility of key New York airport assets.

Objectives

- Upgrade runway pavement surfaces to a minimum of a "fair" rating, with the preferred rating being "good".

- Remove or lower obstructions penetrating the FAA-determined imaginary approach clearance surfaces.

- Provide Automated Weather Observation Systems (AWOS), or improved equivalent, to all key airports.

- Provide fueling facilities to all key airports.

3.3 Environmental

The FAA, in its planning guidelines, recognizes and stresses the importance of environmental considerations when planning and developing an airport system. The development of the New York SASP should take into account potential impacts to both the natural and human environment. While preserving environmental integrity, all airport development should be consistent with regional and local plans and guidelines. Compatibility issues, however, may vary from region to region.

Goal: Ensure that airport system development occurs in concert with both the natural environment and the human environment and that it is consistent with local community programs. Several objectives have been developed to accommodate this Environmental goal category.

Objectives:

- Minimize potential environmental impacts identified in FAA Order 5050.4B - Potential environmental impacts and the feasibility and acceptability of mitigation regarding airport development is extremely important in determining the viability of any future airport development project. The FAA has set guidelines for determining environmental impacts that are based on National Environmental Policy Act (NEPA) requirements. This document, FAA Order 5050.4B, provides detailed guidelines in a number of environmental categories ranging from air and water quality to noise and land use impacts.

- Develop future recommendations that are compatible with existing land use plans and desired land uses and reduce effects of transportation facilities on residential areas, while maintaining flexibility for future growth - The need to provide airport facilities which are compatible with the human environment is important. Encouraging compatible land use in each airport's environs is an essential facet in airport system planning. Land use planning can provide a mechanism for minimizing adverse noise impacts in the airport environment. In some cases, airport improvements and related access systems can create opportunities for new development, such as industrial parks, warehouse facilities, etc. This development is best controlled by land use planning and zoning.

- Plan for an energy-efficient system of airports that provides ease of air and ground access - Coordination and the exchange of ideas with other modes of transportation should be promoted and maintained.

3.4 Social

The primary purpose of New York State's system of airports is to serve people, businesses, and communities by promoting safe, efficient, and cost-effective travel. In addition, airports can provide significant health, welfare, and safety benefits by serving as the base for air care flights, police and fire patrols, search and rescue, and numerous other community-related services including recreational and community events.

Goal: Provide aviation facilities and services for all state citizens in a manner that maximizes safety, efficiency, reliability, and opportunity for use.

Objectives:

- Provide residents of the state with adequate levels of air carrier service to meet transportation and economic needs - Scheduled commercial air service is often essential for many employers and is an engine for the state's economy. A good airport system maximizes the potential for scheduled commercial air service to both top domestic and international destinations. New York's air service needs are served by 18 commercial service airports. The service available at the commercial service airports should provide each region's population with access to key markets. In addition to air service, commercial service airports should be located in proximity to the major population centers. Minimum airline geographic service areas are typically a 60-minute drive in upstate New York and up to a 90-minute drive in the downstate area. Federal programs such as Essential Air Service and Small Community Air Service Development Grant Program are intended to maintain scheduled air service. However, continuing these programs and more may be required to provide the desired level of air service.

- Provide residents of the state with the best level of general aviation service and ensure public access to airport facilities - Like commercial service activity, general aviation is an essential business tool that provides scheduling flexibility and easy access to communities throughout New York, the country, and the world. The SASP establishes minimum service area rings based on estimated drive times of approximately 30 minutes. General aviation airports should be located at a reasonable distance/drive time from all areas of the state. Additionally, general aviation access plays a crucial supporting role in bridging the gap in areas that lack air carrier service. Thus, general aviation is a critical component of the state's air transportation system.

- Ensure the adequacy of the reliever airport system - As commercial service airports become increasingly constrained and their operational capacity

approaches saturation, general aviation airports can be an important component of the transportation system. While the most recent Airport Improvement Program (AIP) bill does not provide specific funding dedicated to reliever airports, the reliever concept is still critical for operationally constrained commercial service airports. In areas where commercial service airports are approaching or have reached their critical operational to capacity ratios, adequate general aviation reliever facilities must be available.

Goal: Enhance the movement of people and goods through improvements in system reliability, cost-effective congestion mitigation, network connectivity, accessibility, and modal choice.

Objectives:

- Develop strategies that promote energy efficiencies and reductions in emissions. Encourage public transportation ridership to airports to promote energy conservation and improve air quality.

- Develop a plan and implement strategies to reduce growth in anticipated system congestion and growth in vehicle miles traveled (VMT), consistent with sound local transportation and land use planning.

- Enhance mobility on existing systems through the application of proven technologies, before expanding the system.

- Improve travel reliability for both people and goods through strategies and commitments to on-time performance and reliable travel times.

3.5 Economic and Financial

A good airport system is developed in concert with available financial resources. It is, therefore, important that the cost of various system recommendations be considered. While FAA and state funds are often available to support airport development, a local share for each development project is also typically required. Goals and objectives related to economic and financial considerations are discussed below.

Goal: Develop a state aviation system that supports local and state economic goals and plans, while providing the flexibility to accommodate new opportunities and shifts in development patterns.

Objectives:

- Establish an efficient commercial and general aviation airport system integrated with the existing transportation infrastructure that encourages continued economic development and diversification consistent with local and regional growth plans - A seamless intermodal flow of goods and persons not only improves the

effectiveness of the state's businesses, but also helps to support and attract other industries to an area.

- Accommodate existing and future air transportation needs so that the state's economic development opportunities are not constrained - By supporting aviation throughout the state, additional employment opportunities are created throughout the state's system of airports. Many aviation jobs are technical in nature and are relatively high paying. By promoting on-airport business activities such as Fixed Base Operators (FBOs) who provide operational and managerial services, repair/maintenance facilities, flight schools, and specialty aviation services, the number of aircraft operating in the airport system can be expected to increase.

Goal: Encourage economically feasible airport development that maximizes local and regional benefits and provides for an equitable allocation of costs. In order to reach this goal, the following objectives should be considered:

Objectives:

- To ensure economic feasibility, identify optimal capital investment, maintenance, and operating costs while keeping overall costs within reasonable expectations of available financial resources - When prudent, a system of user charges should be developed that maximizes the potential revenue collected by an airport. While all system airports cannot support a full range of user charges (for example, few general aviation airports charge landing fees), the fees that are in place should be equitable and set at "market value."

- Identify financial alternatives and funding sources available to implement the State Airport System Plan - Each individual airport in the state's system has developed a capital improvement plan. While many of the projects are eligible for federal funding, competition for scarce federal resources and the shrinking FAA Airport Improvement Program (AIP) funding levels makes it unlikely that every project can be adequately funded. It is, therefore, important to identify other sources that may be available to fund airport development projects. Possible sources to be explored include revolving loan funds; local, state, and federal economic development programs; public-private partnerships; bond issues; and user fees.

- Provide for adequate commercial aviation facilities to meet forecast demand - Where there is an unmet demand for commercial aviation services, it is important for the basic infrastructure to be in place to allow carriers to provide service.

Goal: Extend the service life of essential aviation facilities through public investments that promote asset preservation, the attainment of good infrastructure condition, and that ensure necessary security.

Objectives:

- Leverage all available federal aid - Meet required match for federal funds, giving priority to aviation projects that provide significant economic benefits.

- Utilize the Aviation Capital Program (AIR '99) to fund the first phase of a long term investment plan that targets runway and taxiway rehabilitation and terminal improvements. This funding is directed specifically at airport projects that are unlikely to receive federal funding such as runway and taxiway rehabilitation, general aviation fencing and surveillance system projects, safety equipment, automated weather observation stations, fuel facilities, transient aircraft hangars, and terminal improvements with related pavements.

- Give priority to removing or lowering airport runway approach obstructions in order to increase safety factors and allow greater use of existing airport runways - Update navigational and other technology related to safety and security.

- Provide transient aircraft hangars at all business use airports.

- Support general aviation airport efforts to improve security through fencing surveillance systems, and other enhancements as may be required.

- Support aviation facilities that provide the only reliable air service for a given region.

3.6 Public and Jurisdictional

The SASP should be cognizant of other existing and planned modes of transportation at the state, regional, and local levels. As previously stated, many of the airports in the state have master plans that provide detailed outlines for future facility development.

Goal: Provide for an open forum on all aspects of state aviation system planning. The key objectives identified to meet this goal are as follows:

Objectives:

- Airport development should be coordinated with other modes of transportation, as well as the FAA, metropolitan planning organizations, local sponsors, and other applicable agencies - There are numerous agencies that are involved with airport development projects. A policy of "early and often" coordination with all parties that will be involved in the planning, design, permitting, construction, and most importantly, funding elements of any project is instrumental to a successful conclusion.

- Establish and maintain an effective working relationship between the involved public agencies and the private sector to ensure that local aviation issues are

addressed in a timely and effective manner - While maintaining a close working relationship with other public agencies is critical, it is also important to have open lines of communication with the private sector to ensure that the airport system is responsive to the changing needs of the business community. Typically, these lines of communication between private businesses and the providers of aviation services are developed in a bottom-up method, with the first point of contact for the business being the airport manager; FBO operator; or in some cases, the airlines.

- Determine implementation responsibilities for both public and private sectors - Often, many of the planned improvements at airports are the financial responsibility of for-profit tenants or lessees. For example, hangars, maintenance buildings, and auto parking are often the responsibility of the FBO. Portions of terminal development are often financed by the airlines. Clearly, identifying responsible entities for various development projects greatly improves long-range planning and prioritization.

4. SUMMARY

As mentioned, the issues, goals, and objectives developed in previous system planning efforts serve as the framework for the overall goals and objectives of this SASP update. As such, the SASP goals are organized into six categories:

- Safety
- Technical and Operational
- Environmental
- Social
- Economic and Financial
- Public and Jurisdictional

In order to follow these goals and objectives with a thoughtful plan of recommendations for the statewide system, a detailed inventory of the existing system's facilities as well as a projection of future aviation demand has been developed. The following chapters present this information. A subsequent portion of the SASP presents a strategic plan. The issues, goals, and objectives discussed in this chapter are used to inform and direct this strategic plan for the improvement of New York's Airport System.

CHAPTER TWO
INVENTORY

1. INTRODUCTION

This chapter presents an inventory of facilities at the state's system of airports, as well as a brief overview of the system conditions, which affect airport use. The inventory effort gathered information about the existing conditions of each of the 93 facilities contained in this SASP Update. Data for the system of airports is described in the following sections:

- System Plan Airport Facilities
- Strategic Business Airport System
- Air Service Overview
- Land Uses
- Environmental Considerations
- Summary

2. SYSTEM PLAN AIRPORT FACILITIES

To be included in the SASP, a facility must meet criteria indicating significant importance to the state air transportation network and economy. In general, there is at least one general aviation (GA) airport within one-half hour drive of most areas in the state and a commercial service airport offering scheduled passenger service within a one hour drive of most areas in the state. In total, there are 93 SASP facilities, of which 70 are general aviation airports, 18 are commercial service airports, and five are SASP heliport facilities. Table 2-1 identifies the airports and heliports included in this SASP. Figure 2-1 shows the location of these airports throughout the state of New York.

2.1 Runway Length and Surface

Runway length, along with a range of other factors, is an indicator of the type of aircraft that can land at a facility. In general, an airport offering at least 5,000 feet of useable runway surface can accommodate business jets. Shorter runway lengths, ranging from 2,000 feet up to 5,000 feet, accommodate smaller aircraft serving business, safety, emergency, and recreational purposes. Generally, commercial service airports require runways with lengths of 6,500 feet or greater. In terms of serving corporate aviation, 5,000 feet of runway or more is generally required. All 18 commercial service airports and 17 general aviation airports have runway facilities of 5,000 feet or more in length. There are nine GA airports with runway lengths between 4,200 and 4,999 feet, which can serve various larger twin engine aircraft used for business purposes. These nine GA airports meet minimum FAA runway length requirements for a precision instrument approach. This instrumentation accommodates landings in poor weather visibility conditions. Figure 2-1 lists SASP airports by runway length.

Table 2-1 – State Aviation System Plan (SASP) Airports		
70 GENERAL AVIATION (GA) AIRPORTS		
Akron	Genesee County	Piseco Municipal
Argyle	Granville	Potsdam
Bayport Aerodrome	Great Valley	Randall Airport
Brookhaven-Calabro	Griffiss International	Republic
Buffalo Airfield	Hamburg Inc	Royalton
Buffalo-Lancaster	Hamilton Municipal	Saratoga County
Camillus	Hornell	Schenectady County
Canandaigua	Joseph Y. Resnick	Schroon Lake
Cattaraugus County Olean	Kingston-Ulster	Sidney
Chautauqua County Dunkirk	Lake Placid	Skaneateles
Columbia County	Ledgedale Airpark	Sky Acres
Cooperstown-Westville	Leroy	South Albany
Corning-Painted Post	Lt. Warren E. Eaton	Spadaro
Cortland County	Malone-Dufort	Sullivan County Int'l
Dansville Municipal	Mattituck	Syracuse Suburban
Dutchess County	Montauk	Ticonderoga
East Hampton	Niagara Falls Int'l	Tri-Cities
Elizabeth Field	North Buffalo Suburban	Warwick
Finger Lakes Regional	Oneonta Municipal	Wellsville
Floyd Bennett Memorial	Orange County	Whitford's
Francis S. Gabreski	Oswego County	Williamson-Sodus
Frankfort-Highland	Penn Yan	Wurtsboro
Freehold	Perry-Warsaw	
Fulton County	Pine Hill	
18 COMMERCIAL AIRPORTS		
Adirondack Regional	Greater Rochester Int'l	Ogdensburg Int'l
Albany Int'l	Ithaca Tompkins Regional	Plattsburgh Int'l
Buffalo Niagara Int'l	John F. Kennedy Int'l	Stewart Int'l
Chautauqua County Jamestown	LaGuardia Airport	Syracuse Hancock Int'l
Elmira Corning Regional	Long Island MacArthur	Watertown Int'l
Greater Binghamton	Massena Int'l	Westchester County
5 HELIPORTS		
Downtown/Wall Street	Haverstraw	West 30th Street
East 34th Street	Southampton	
GRAND TOTALS	**88 SASP AIRPORTS**	**5 HELIPORTS**

A total of 25 SASP facilities have runway lengths between 3,000 and 4,200 feet. These airports can serve smaller single engine piston aircraft and some larger aircraft used for light business activity. There are 24 SASP airports that have either runway lengths of less than 3,000 feet or turf-only runways. Runway data including the length, width, and orientation for the SASP airports is presented in Appendix 2-A. The primary runways at SASP commercial service airports are mostly asphalt-grooved, with the exception of four facilities which have a combination of asphalt and concrete for added load-bearing ability (Plattsburgh International, Westchester County, LaGuardia, and John F. Kennedy International). The runways at GA airports are mostly asphalt - four GA system airports have turf-only runway surfaces. Maintaining all runway surfaces is a primary objective of each airport and the FAA.

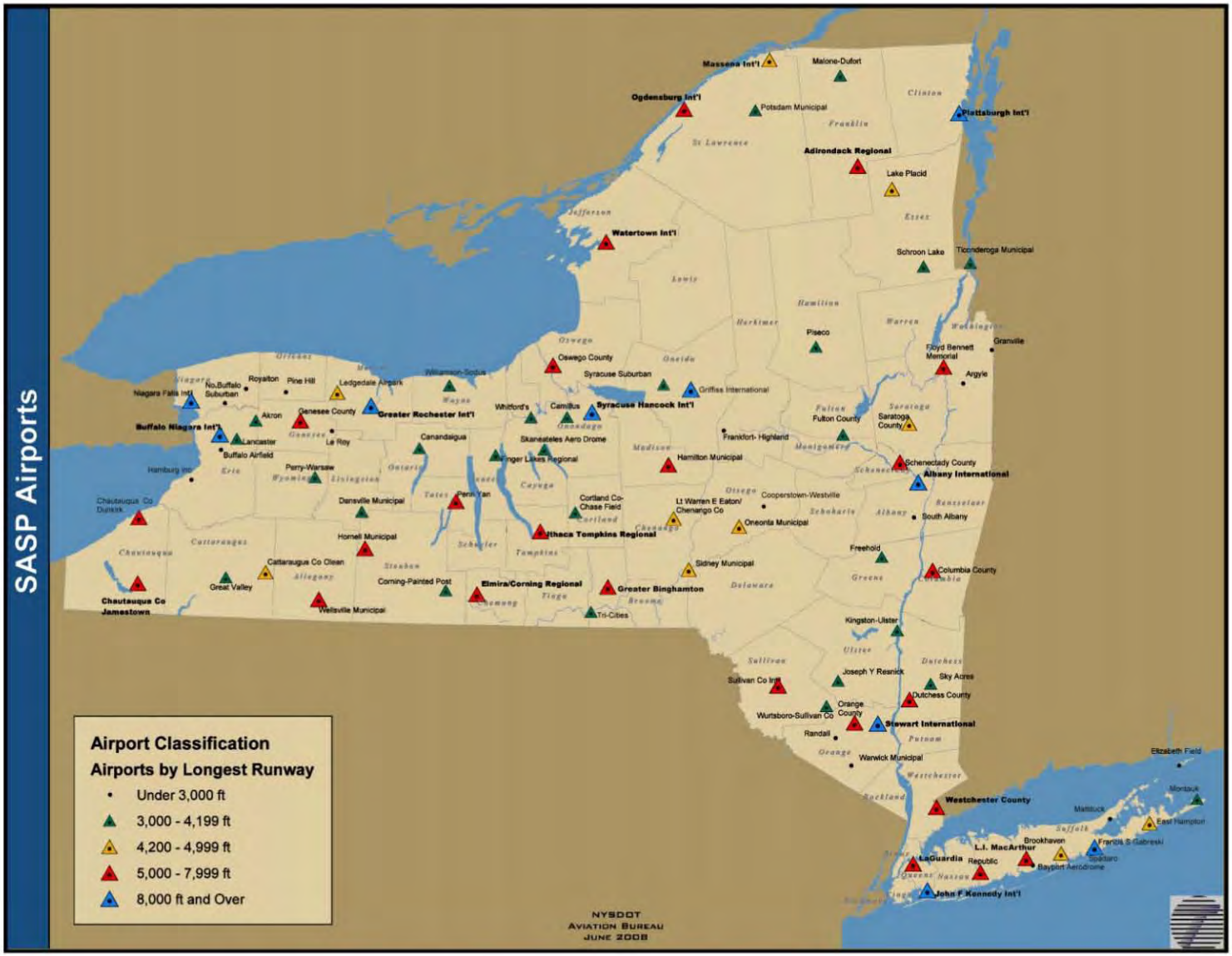


Figure 2-1 – ***SASP Airports by Runway Length***

2.2 Instrument Approach Procedures

Instrument approaches such as Instrument Landing Systems (ILS) or Global Positioning Systems (GPS) enhance safety and facilitate business activity by providing more reliable operations under poor visibility/instrument meteorological conditions. All 18 commercial service airports and 54 of the 70 GA system airports have one or more instrument approaches. Data for each SASP airport with at least one instrument approach procedure is presented by runway in Appendix 2-B.

All of the 35 large business airports (runway length of 5,000 feet or more), and each of the nine medium business airports (runway length between 4,200 and 4,999 feet), have instrument approach capabilities. Additionally, there are currently eight small business airports (runway length between 3,000 and 4,199 feet) that do not have published instrument approaches.

2.3 Weather Systems and Visual Glide Slope Indicators

Weather systems and visual glide slope indicators assist significantly in providing operational capabilities in inclement weather, or cloudy conditions, at SASP facilities. These weather systems also provide reliable access for business and enhance safety. The weather systems in operation at SASP airports include Automated Weather Observation Systems (AWOS), Automated Surface Observation Systems (ASOS), and Automated Terminal Information Service (ATIS) broadcasts. These weather systems offer the reliability often required for frequent transient activity and based business operations. Information for each SASP airport with a weather system and/or visual glide slope indicator(s) is presented in Appendix 2-C.

At the 35 airports which qualify as part of the large business category, three runways do not have weather systems and three runways do not have visual glide slope indicators. At the nine medium-sized business facilities, there are two airports without weather systems. Among the 25 small business access airports, there are currently eight airports with weather systems, and 14 runways with visual glide slope indicators.

2.4 Critical Aircraft and Airport Design Criteria

SASP airports are classified by the FAA based upon the approach speed and wing span of the most demanding aircraft that performs at least 500 itinerant operations per year. The Airport Reference Code (ARC) classification system provides an indication of the type and size of aircraft that may safely land at the airport. The ARC has two components. The first component, depicted by a letter, is the aircraft approach category, as defined by the critical aircraft's approach speed. The second component of the ARC, referred to as the airport's design group, is depicted by a Roman numeral, and is determined by the critical aircraft's wingspan. In this way, the ARC designation guides decisions regarding runway length and related facilities affected by aircraft approach speed, and taxiways and taxilanes, whose separation from runways are affected by aircraft wingspan.

Table 2-2 – Aircraft Classification Standards		
FAA Aircraft Approach Categories		
Approach Category	Approach Speed	Typical Aircraft Type
A	Less than 91	Beech Bonanza, Cessna 150, Cessna 172
B	91 but less than 121	King Air, Citation I & II, Falcon 50
C	121 but less than 141	Lear 25, Gulfstream III
D	141 but less than 166	Gulfstream II and IV, B-747, B-777
FAA Wingspan Design Groups		
Design Group	Wingspan (Feet)	Typical Aircraft Type
I	Less than 49	Beech Baron 58, Cessna 150, Cessna 172
II	49 but less than 79	Beech King Air C-90, Gulfstream I, Falcon 50
III	79 but less than 118	B-727, B737, DC-9
IV	118 but les than 171	A-300, B-757, B-767, L-1011, DC-10
V	171 but less than 197	B-747, B-777
VI	197 but less than 262	Lockheed C-5A

Source: Federal Aviation Administration

Importantly, the Airport Reference Code may not always remain constant for planning purposes, due to changes between existing and forecasted activity levels, and differences in runway use. In fact, crosswind runways, taxiways, and aprons at an airport may each have different ARCs than the primary runway and each other, due to actual use and facility limitations. The FAA provides guidance for determining critical aircraft and ARCs, and planning and design of airports through published Advisory Circulars. The current critical aircraft and airport reference codes for each SASP airport is presented in Appendix 2-D. Changes for future critical aircraft and ARC are projected for one commercial service airport, Watertown International, which is planned to move from B-II to C-III standards. General aviation facilities identified for a change to critical aircraft and ARCs are:

- Chautauqua County Dunkirk B-II to D-II
- Griffiss International C-III to D-V
- Lancaster B-I to B-II
- Oswego County C-II to D-II
- South Albany B-I to B-II
- Williamson-Sodus B-I to B-II

It is important to note that ARC classification ratings are a general guideline for airport planning, not limitations on which type of aircraft may use a given airport.

3. STRATEGIC BUSINESS AIRPORT SYSTEM

As stated in the opening chapter of this Plan, the SASP establishes a vision for the statewide system of airports required to meet New York's future air transportation and economic needs. These issues include but are not limited to: operating revenues and Airport Improvement Program funding shortfalls, land use/development incompatibility, waning support for smaller airports, reductions in the number of general aviation airports, and decline in enplanements at medium/small hub facilities. Another issue impacting business aviation is the emergence of the Very Light Jet.

Very Light Jets (VLJs) are turbojet aircraft, which typically weigh 10,000 pounds or less and are certificated for single pilot operations. VLJs are being built with a range of the most sophisticated avionics, including: advanced cockpit automation such as moving map GPS and multi-function displays; automated engine and systems management; and, integrated autoflight, autopilot, and flight-guidance systems[1]. VLJs are normally able to accommodate between four to seven passengers, and many are being designed to operate on runways as short as 3,000 feet. Based on their use of advanced technology and sophisticated navigation and performance characteristics, VLJs are expected to operate at airports other than major hub facilities. Users of VLJs are envisioned as those seeking convenient, point-to-point access to small and medium-sized markets, many of whose airports do not have the airport facilities to serve larger aircraft or support commercial service[2]. It is this market, along with the corporate and small business users of general aviation, which will continue to drive demand at GA facilities.

In consideration of these issues, NYSDOT has taken a strategic approach in the development of this System Plan, providing a set of standards and performance metrics for a distinct sub-system of facilities within the statewide system. Called the Strategic Business Airport System, or Key Economic Development GA System, these benchmarks provide a strategic and focused set of facilities to target for improvements which are designed to retain and enable economic development throughout the state.

3.1 Minimum Standards for Business Airport Facilities

As the aviation industry has matured, it has become increasing clear that corporate aviation operations have more significant impacts on airport revenues than recreational activity. This is due not only to the size of aircraft used, but also the requirements corporate flight departments have of airports where they operate – large general aviation users consume significant aviation services. In addition, FAR Part 135 charter operators, which provide significant benefits in terms of public access to air transport, as well as being drivers of economic development, also consume many services. Moreover, large corporate and charter operators require similar facilities at airports. Sometimes ignored are the ancillary uses and activities that corporate aviation can attract to an airport such as additional businesses and employment. This SASP endeavors to better define a system of business airport facilities that have the best opportunities to attract corporate and business activity, with associated economic spillover benefit to the state.

In order to establish this strategic business airport sub-system, a set of minimum facility standards was developed with the understanding that successful business airports can operate adequately at several different levels. The first level consists of larger general aviation airports with at least 5,000 feet of usable runway length, and offering a full complement of infrastructure and amenities that can meet a wide range of advanced business and corporate users. The second level consists of mid-sized general aviation airports that have less than 5,000 feet of paved runway, but at least 4,200 feet of usable length. This length (4,200 feet) is required by FAA standards for a

1 National Business Aviation Association, Inc., August 3, 2007.
2 *Very Light Jets Impacts on NAS Operations*, www.casa.aero/adminUploads/TheVeryLightJet_ATCA.pdf.

precision instrument approach capability. The third level of basic general aviation business airports requires at least 3,000 feet of usable runway length. These categories are further defined in the following section.

3.2 Business Airport Categories

The proposed Strategic Business Airport System is comprised of three distinct categories based on the types of facilities they have and the segment of business users they can accommodate. Advanced executive and corporate travel operators use business jets which require longer runway facilities for operational reasons (such as corporate insurance). Mid-size business and corporate aviation use light jet and larger multi-engine propeller aircraft. These users may not require 5,000 foot runways, but rather, can operate on runways with 4,200 feet or more. Smaller businesses that use air travel by single engine and light twin engine aircraft require a lower-level of facility. This type of business aviation can be served by airports with smaller runways and fewer amenities than required by larger corporate aviation clients. Table 2–3 presents minimum standards for airports in each of the three business airport categories. The recommended facilities listed for large, medium, and small business air access are intended as guidelines that support the strategic focus of this SASP.

4. AIR SERVICE OVERVIEW

The system of commercial airports in the state consists of 18 scheduled-service airports. Serving about 82 million passengers per year, New York States' commercial airports provide crucial connections for travelers from all over the world to national and international destinations. Additionally, these commercial airports provide considerable economic benefits to the cities and regions they serve, accounting for about $34 billion in direct and indirect economic impacts[3]. Airports in the statewide system range from large international gateways, such as John F. Kennedy International, to small, but vital, airports serving rural communities in the North Country.

Air service offerings vary widely throughout the state. At one end of the spectrum, large airports in major metropolitan areas serve as hubs for domestic flights as well as gateways for international flights. On the other extreme, a number of small communities are served by one airline providing two-to-three flights per day. As with the rest of the nation, all New York airports are impacted by the economy and the changing airline industry, making the retention of quality air service a constant struggle. For example, in the last few years, unprecedented increases in oil prices have caused airlines to reduce service even at the largest airports. Small communities not served by federally subsidized service remain in the most danger of losing service.

3 "The Benefits of Aviation in New York," NYS Department of Transportation, June 2003.

Table 2-3 - Minimum Standards for Strategic Business Airport System			
Business Airport Category			**Minimum Facility Standards (Each Higher Category Includes All of Lower Category Properties)**
Large	**Medium**	**Small**	
Airports with Runways > 5,000' Usable Length	**Airports with Runways ≥ 4,200' < 5,000'**	**Airports with Runways ≥ 3,000' < 4, 200'**	3,000 ft. by 60 ft. minimum usable paved runway Non-Precision or Precision Approach Automated Weather Observation System (AWOS), Automated Surface Observation System (ASOS) or better Sufficient apron areas and taxiways for all hangars Security infrastructure as needed, including fencing FBO and Airport Manager services Airport oversight by municipal and/or economic development agencies Automatic or PCL Low-Intensity Runway Lights Apron areas for 30 to 100 Tie-Downs and 1 to 50 T-Hangars Aircraft maintenance hangar to support small aircraft repair service 100 LL fuel service (10,000-gallon tank)
			4,200 ft. by 75 ft. minimum useable paved runway Parallel paved taxiway Automatic or PCL Medium-Intensity Runway Lights Some type of Visual Glide Slope Indicator 100 LL and Jet A Fuel (10,000-gallon tank each) and trucks Apron areas for 50 to 100 Tie-Downs and 20 to 50 T-Hangars Terminal building with pilots' lounges for flight planning with computer terminals and amenities Corporate hangars for 1-2 medium weight jets (approx. 10,000 sq. ft. each) Hangar space for transient aircraft Aircraft maintenance hangar to support turbine aircraft repair service Snow Removal Equipment (SRE) Building Heated hangar and/or deicing facilities for ice removal off aircraft in winter
			5,000 ft. by 75 ft. minimum usable paved runway with runway grooving Airfield Maintenance Equipment Building On-site rental car outlet or on-call service and adequate parking lot Adequate airport access roadway and interstate systems Close proximity to business district and/or industrial park

4.1 Statewide Air Service by Region and Service Type

New York State's system of airports can also be understood and grouped by region and type of service provided. The following sections provide an overview of air service by region.

Port Authority of New York & New Jersey Airports

The large airports in the New York Metropolitan Area – John F. Kennedy International and LaGuardia – along with Port Authority of New York & New Jersey owned Newark Liberty International – offer the most significant levels of service in the State, and handle the majority of passengers. Port Authority airports serve both leisure and business travelers with high traffic volumes to the West Coast as well as Florida markets.

Due to the high demand for service to New York, these airports have for some time suffered from chronic congestion issues and flight delays. In response to these issues, the Port Authority acquired the remainder of the lease for state-owned Stewart International Airport, in November 2007. Located just 55 miles north of Manhattan, the Port Authority intends to use Stewart's available capacity to help alleviate congestion in the New York Metro area through a targeted investment strategy. Table 2-4 indicates the scale of activity at Port Authority airports.

Table 2-4 Profile of Port Authority Airports*			
Airport	**No. of Airlines**	**Cities Served**	**Weekly Flights**
John F. Kennedy International	75	161	8,085
LaGuardia	12	73	7,457
Stewart International	5	7	244

Source: OAG Max Database, May 2008
** Newark, NJ not included*

Downstate Suburban Airports

Westchester County Airport and Long Island/MacArthur Airport (Islip) serve the suburban areas of the greater New York Metropolitan area, providing service to domestic destinations. While Westchester County serves mostly business passengers, JetBlue has recently added service there. Though demand for additional service exists, the airport's growth is constrained by local regulations. Until 1999, MacArthur also served mostly business passengers. In that year, Southwest initiated service there and has become the airport's largest carrier serving both leisure and business destinations. Table 2-5 indicates activity levels at downstate Suburban Airports.

Table 2-5 Profile of Downstate Suburban Airports			
Airport	**No. of Airlines**	**Cities Served**	**Weekly Flights**
Long Island/MacArthur (Islip)	3	10	484
Westchester County	9	15	785

Source: OAG Max Database, May, 2008

Upstate Hub Airports

Larger upstate cities are served by a mix of medium (Buffalo) and small hub facilities (Albany, Rochester, and Syracuse), which offer service to a variety of business and leisure destinations. Enplanements at these airports increased significantly after the introduction of low-fare service in the late 1990s and early 2000s. While all upstate hubs provide low-fare service, US Airways is still the largest carrier in terms of flight frequency. Table 2-6 indicates the scale of activity experienced by upstate hub airports.

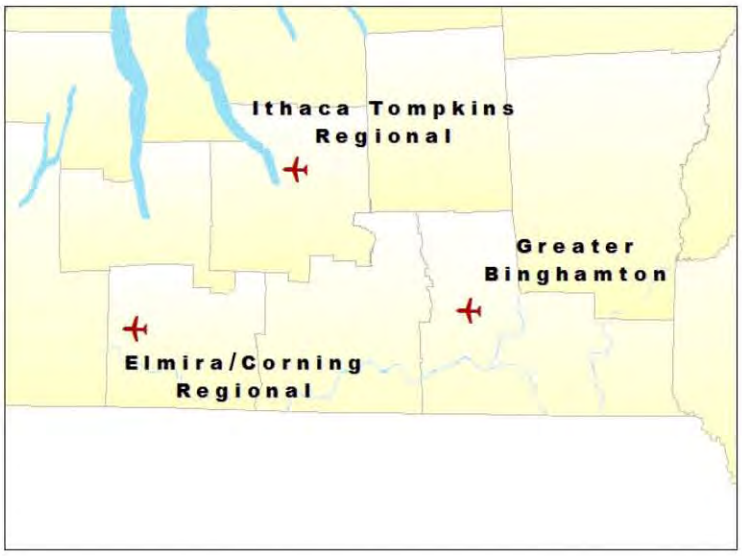
Table 2-6 Profile of Upstate Hub Airports

Airport	No. of Airlines	Cities Served	Weekly Flights
Albany International	8	17	879
Buffalo Niagara International	9	20	1,523
Greater Rochester International	9	19	1,046
Syracuse Hancock International	7	14	890

Source: OAG Max Database, May, 2008

Southern Tier Airports

Ithaca, Binghamton, and Elmira-Corning form a triangle of commercial airports in the eastern part of the Southern Tier area of New York State. These non-hub airports are served by regional service, or "feeders," to major carriers, including: US Airways, Northwest Airlines, Continental Airlines, and United Airlines. Due to their relatively small size, these communities have struggled to maintain air service levels, and enplanements have fallen in the last decade. Additionally, the introduction of low-fare service at upstate hub airports has been a challenge to these communities, as an increasing number of local air travelers drive to those cities to



take advantage of lower fares. This "leakage" has driven airlines to reduce the size of aircraft used in these routes from full-size jets to regional jets and turboprop aircraft. This indicates that providing this service is becoming less attractive. As airlines reduce service levels and look to cut less profitable routes, smaller communities like these are in danger of losing a great percentage of service. Table 2-7 indicates the air service activity at airports located in New York States' Southern Tier.

Table 2-7 Profile of Southern Tier Airports

Airport	No. of Airlines	Cities Served	Weekly Flights
Greater Binghamton	3	3	161
Elmira/Corning Regional	2	2	128
Ithaca Tompkins Regional	2	3	151

Source: OAG Max Database, May, 2008

Essential Air Service (EAS) Airports

This subgroup of airports receives subsidies in order to maintain air services. New York State airports which participate in the Essential Air Service (EAS) program include: Massena International, Ogdensburg International, Watertown International, Adirondack Regional, and Plattsburgh International in the North Country; and Chautauqua County Jamestown in the Southern Tier.

The EAS program, initiated after airline deregulation in 1978, subsidizes minimal service to a community which meets certain requirements. In early 2008, the airline which had previously served all the North Country EAS airports announced the termination of service. The federal EAS office responded by soliciting proposals from other airlines to serve all five communities. Only one airline submitted proposals to serve all five communities, and as of the end of 2008, all five communities have regained service. With only a few flights offered each day on small turboprop aircraft, however, these communities have struggled to attract passengers.

Table 2-8 indicates the levels of air service at EAS Airports.

Table 2-8 Profile of EAS Airports

Airport	No. of Airlines	Cities Served	Weekly Flights
Massena International	1	1	42
Ogdensburg International	1	1	42
Watertown International	1	1	42
Adirondack Regional	1	1	42
Plattsburgh International	1	1	42
Chautauqua County Jamestown	1	2	38

Source: OAG Max Database and www.CapeAir.com

4.2 Air Service Summary

As discussed in the preceding sections, air service in the state of New York varies significantly by region. As such, levels of service are constantly subject to change, as major airlines jockey for competitive advantage and profit amid uncertain economic times. One goal of the SASP is to contribute positively to an environment where air service at commercial service airports statewide is more stable. This is a significant challenge due to the myriad of forces at play. The strategic business airport system mentioned previously is one option for providing facilities that can support air transportation access for the state in a thoughtful and targeted way.

5. LAND USES

The compatibility of airports and their communities is a recurring issue for town planners and other local government officials. However, many of the problems involving conflicts between airports and surrounding land uses may be avoided or mitigated through local planning. This is especially true, given that the state of New York strongly advocates for "home rule" policies, which support the development of town comprehensive plans or the implementation of land use regulations at the local level. Importantly, the role of airports in their communities can often be one of an economic development catalyst, offering access to the air transportation system to businesses that rely on air travel. In such instances, airports can contribute to drawing new investment into a community, building an advantage for some communities over others in the effort to create new jobs, and can be sources of local tax revenue.

The design of an airport impacts land uses and development on and near airports due to geometric surfaces that expand beyond the physical location of the facility. These surfaces are based on a number of factors including aircraft weight, aircraft wingspan, approach category, and NAVAIDs available. For comprehensive guidelines that can be applied to all airports, this SASP Update incorporates by reference information presented in FAA *Advisory Circular AC 150/5300*-13 *Airport Design, Change 13*. Key design standards include:

- ***Runway Object Free Area (OFA)*** - The Runway OFA is a two dimensional area surrounding the runway that does not allow any objects except those fixed by function. The dimensions vary according to weight and airplane design group characteristics.

- ***Runway Protection Zone (RPZ)*** – The RPZ is a large trapezoidal area off each runway end that underlies aircraft approach and departure paths. The RPZ is intended to enhance the protection of people and property on the ground. FAA guidelines prohibit certain land uses (i.e. residential, places of public assembly, or fuel storage) within these areas. Airport control of these areas is strongly recommended and is achieved through airport property acquisition, easements, or zoning to control development and land use activities. The dimensions of the RPZ for each runway end are a function of the type of aircraft and the approach visibility minimums associated with operations on that runway. The RPZ begins 200 feet beyond the end of the area usable for takeoff and landing for all runways.

  While it is desirable to clear all objects from the area, uses such as agricultural operations and golf courses, provided they do not attract birds, are normally acceptable outside the OFA. Automobile parking, although discouraged, may be permitted provided it is located outside other critical surfaces. It is conceivable that the RPZ can extend 2,700 feet past the end of the runway. In many cases, this is beyond the boundaries of the airport property.

- ***FAA Part 77 Surfaces*** - 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*. This airspace is defined and delineated by a set of geometric surfaces referred to as "imaginary surfaces" that extend outward and upward from airport runways. These imaginary surfaces identify the maximum acceptable height of objects beneath them. Objects that penetrate these surfaces are deemed obstructions to air navigation and should be marked and lighted in accordance with FAA regulations. The height and dimensions of the imaginary surfaces are determined by the airfield elevation, the size of aircraft using the airport, and the type of approaches (instrument or visual) to the runways. The two primary purposes of FAR Part 77 are to establish standards for determining if obstructions impede navigable airspace and to set forth the requirements for notice to the FAA of certain proposed construction or alterations of existing structures.

FAR Part 77 rulings have three fundamental parts: Notice, Review, and Opinion/Ruling. There are specific criteria requiring that the FAA be notified of the construction or alteration of any

physical structure near an airport. For example, the FAA must be notified if a structure is to be constructed within 20,000 feet of an airport with a runway longer than 3,200 feet if that structure will penetrate the surface of a projected plane with a 100:1 slope. The notification process alerts the FAA to potential obstructions to navigable airspace and is not necessarily intended to designate obstructions or hazards.

The FAA then conducts a review of the proposal in order to determine if it is an obstruction to navigation and, if so, to determine if it constitutes a hazard. An obstruction does not necessarily constitute a hazard and may still receive a favorable opinion. The review compares the proposal to various types of airspace around an airport facility. Designated airspace around airports can affect land uses outside the airport from 9,000 feet up to 50,000 feet.

Once the FAA has completed their review and has determined whether the structure is a hazard or an obstruction, they will respond to the sponsor of the project and/or to the municipality with appropriate recommendations. One of the drawbacks of FAR Part 77 is that it only addresses public-use airports; the FAA does not provide comment or review on potential obstructions related to private-use airport facilities.

6. ENVIRONMENTAL CONSIDERATIONS

This section provides a summary list of the environmental factors that may influence or impact proposed development at an airport within the New York State Airport System. It should be noted that only federally funded airports are required to meet federal regulations. Non-federal airports, those not included in the National Plan for Integrated Airport Systems (NPIAS), are required to fulfill state and local municipal regulations. FAA Order 5050.4B requires the evaluation of airport development projects based on 20 environmental impact categories. These impact categories include:

- Noise
- Compatible Land Use
- Social Impacts
- Induced Socioeconomic Impacts
- Air Quality
- Water Quality
- USDOT Section 4(f) Lands
- Historical, Architectural, Archaeological, and Cultural Resources
- Biotic Communities
- Endangered and Threatened Species of Flora and Fauna
- Wetlands
- Floodplains
- Coastal Zone Management
- Coastal Barriers
- Wild and Scenic Rivers
- Farmland

- Energy Supply and Natural Resources
- Light Emissions
- Solid Waste Impacts
- Construction Impacts

The *Airport Environmental Handbook* outlines types of impacts and the thresholds that determine if an impact is considered significant. In general, airport-related development projects will fit into one of the following three categories:

- ***Categorical Exclusions*** - Projects categorically excluded are those actions that have been found, under normal circumstances, to have no potential for significant environmental impact. Such projects are therefore excluded from extensive environmental analysis, assessments, or formal statements of impact.

- ***Actions Normally Requiring an Environmental Assessment*** - Projects normally requiring an environmental assessment are actions that have been found by experience to sometimes have significant environmental impacts.

- ***Actions Normally Requiring an Environmental Impact Statement (EIS)*** - The purpose of an environmental assessment is to determine whether or not a project will have significant impacts. Based on the results reported in an environmental assessment, the FAA then prepares either a finding of no significant impact or an EIS. An EIS further investigates a project's potential environmental impacts.

According to the *Airport Environmental Handbook*, an environmental assessment is required in order to secure federal funding participation in the following types of projects:

- Development of a new runway;
- Major extension of an existing runway;
- Runway strengthening that would result in a 1.5 Ldn or greater increase in noise over any noise sensitive area located within the 65 Ldn noise contour;
- Construction or relocation of a service road that intersects a public access road that affects the capacity of such public road;
- Land acquisition in association with any of the above, land acquisition when residential units are relocated, when there are insufficient comparable replacement residential units, when there is major disruption of business activities, or acquisition that involves lands covered under U.S. Department of Transportation Section 4(f);
- Establishment of an instrument landing system (ILS) or approach lighting system; and,
- An airport development action that falls within the scope of various extraordinary circumstances as defined by the FAA. These actions include properties protected by the Historic Preservation Act; controversial environmental grounds; significant impacts on natural, ecological, cultural, or scenic resources; use of wetlands; conversion of prime farmlands; impacts to endangered species; etc.

As mentioned, based on the information and analysis presented in an environmental assessment, the FAA determines whether the proposed development is found to have no significant impact or if it is necessary to prepare an EIS.

In addition to federal environmental regulations, New York State enforces its own environmental regulations. All agencies of government at the state, county and local level within New York must comply with State Environmental Quality Review (SEQR). In this regard, construction projects or facility modifications at privately-owned airports must be reviewed subsequent to SEQR. When it enacted SEQR, the New York State Legislature stated that its intent was: ". . . to declare a state policy which will encourage productive and enjoyable harmony between man and his environment; to promote efforts which will prevent or eliminate damage to the environment and enhance human and community resources; and to enrich the understanding of the ecological systems, natural, human and community resources important to the people of the state."

SEQR establishes a process to systematically consider environmental factors early in the planning stages of actions that are directly undertaken, funded or approved by local, regional and state agencies. By incorporating environmental review early in the planning stages, projects can be modified as needed to avoid adverse impacts on the environment.

7. SUMMARY

The inventory data presented in this chapter serves as the foundation for developing a recommended plan for the State's airport system. This system plan update was based on information relative to the following topics:

- ***Facilities:*** There are 88 SASP Airports of which 70 are the General Aviation Airports and the remaining 18 are Commercial Airports. In addition, there are five SASP heliport facilities.

- ***Business Subsystem:*** A subsystem of Business Airports (or Key Economic Development GA System Airports) provides a strategic and focused set of facilities to target for improvements to retain and enable economic development throughout the state.

- ***Air Service:*** New York's system of commercial airports provide key connections to the national and international economy. This segment faces continued threats due to high fuel prices, congestion, and the limitations of current navigation technologies. Small communities are particularly vulnerable to shifts in air service levels.

- ***Land Use:*** The design of an airport impacts land uses and development on and near airports due to geometric surfaces that expand beyond the physical location of the facility.

- ***Environmental:*** FAA Order 5050.4B requires the evaluation of airport development projects based on 20 environmental impact categories. Funding for AIP projects cannot occur until all environmental work has been completed.

Appendix 2-A

Inventory Description of SASP Airports

Table 2-A – Inventory Description of SASP Airports					
SASP AIRPORTS	**FAA Identifier**	**RW(s)**	**Length* (ft)**	**Width (ft)**	**Surface Type**
Commercial Airports					
Adirondack Regional (Saranac Lake)	SLK	5/23	6,573	150	ASPH-GRVD
		9/27	3,998	100	ASPH
Albany International	ALB	01/19	8,500	150	ASPH-GRVD
		10/28	7,200	150	ASPH-GRVD
Buffalo Niagara International	BUF	5/23	8,828	150	ASPH-GRVD
		14/32	7,161	150	ASPH-GRVD
Chautauqua County Jamestown	JHW	7/25	5,299	100	ASPH-GRVD
		13/31	4,500	100	ASPH
Elmira/Corning Regional	ELM	6/24	7,599	150	ASPH-GRVD
		10/28	5,404	150	ASPH-GRVD
		5/23	2,017	150	TURF
Greater Binghamton	BGM	16/34	7,100	150	ASPH-GRVD
		10/28	5,002	150	ASPH-GRVD
Greater Rochester International	ROC	4/22	8,001	150	ASPH-GRVD
		10/28	5,500	150	ASPH-GRVD
		7/25	4,000	140	ASPH
Ithaca Tompkins Regional	ITH	14/32	6,601	150	ASPH-GRVD
		15/33	2,018	50	TURF
John F. Kennedy International	JFK	13R/31L	14,572	150	ASPH-CONC-GRVD
		04L/22R	11,351	150	ASPH-CONC-GRVD
		13L/31R	10,000	150	ASPH-GRVD
		04R/22L	8,400	200	ASPH-GRVD
LaGuardia	LGA	13/31	7,003	150	ASPH-CONC-GRVD
		4/22	7,001	150	ASPH-CONC-GRVD
Long Island MacArthur (Islip)	ISP	6/24	7,006	150	ASPH-GRVD
		15R/33L	5,186	150	ASPH-GRVD
		10/28	5,034	150	ASPH
		15L/33R	3,175	75	ASPH
Massena International	MSS	5/23	5,600	100	ASPH-GRVD
		9/27	4,000	100	ASPH-GRVD
Ogdensburg International	OGS	9/27	5,200	150	ASPH-GRVD
Plattsburgh International	PBG	17/35	11,758	200	CONC-GRVD
Stewart International	SWF	9/27	11,818	150	ASPH-GRVD
		16/34	6,006	150	ASPH-GRVD
Syracuse Hancock International	SYR	10/28	9,003	150	ASPH-GRVD
		15/33	7,500	150	ASPH-GRVD
Watertown International	ART	10/28	5,000	150	ASPH
		7/25	5,000	150	ASPH-GRVD

Table 2-A – Inventory Description of SASP Airports					
SASP AIRPORTS	**FAA**	**RW(s)**	**Length***	**Width**	**Surface**
	Identifier		**(ft)**	**(ft)**	**Type**
Westchester County	HPN	16/34	6,548	150	ASPH-GRVD
		11/29	4,451	150	CONC-GRVD
General Aviation Airports					
Akron	9G3	11/29	1,955	50	TURF
		7/25	3,270	75	ASPH
Albion/Pine Hill	9G6	10/28	2,659	36	ASPH
Argyle	1C3	3/21	2,400	100	TURF
Bayport Aerodrome	23N	18/36	2,740	150	TURF
Brookhaven Municipal (Shirley)	HWV	15/33	4,224	150	ASPH-CONC
		6/24	4,200	100	ASPH
Buffalo Airfield	9G0	6/24	2,668	59	ASPH
Camillus	NY2	10/28	3,970	60	ASPH
Canandaigua	D38	13/31	3,200	75	ASPH
Cattaraugus County Olean	OLE	4/22	4,800	100	ASPH-GRVD
		16/34	2,135	100	TURF
Chautauqua County Dunkirk	DKK	6/24	5,000	100	ASPH
		15/33	4,000	100	ASPH
Columbia County	1B1	3/21	5,350	100	ASPH-GRVD
Cooperstown-Westville	K23	2/20	2,337	125	TURF
Corning-Painted Post	7N1	14/32	3,270	75	ASPH
Cortland County	N03	6/24	3,400	75	ASPH
Dansville Municipal	DSV	14/32	3,500	100	ASPH
		18/36	2,443	100	ASPH
Dutchess County (Poughkeepsie)	POU	6/24	5,001	100	ASPH-GRVD
		15/33	2,743	100	ASPH-CONC
		7/25	1,358	100	TURF-DIRT
East Hampton	HTO	4/22	2,501	100	ASPH
		16/34	2,223	75	ASPH
		10/28	4,255	100	ASPH
Elizabeth Field (Fishers Island)	0B8	12/30	2,328	100	ASPH
		7/25	1,792	75	ASPH
Finger Lakes Regional (Seneca Falls)	0G7	1/19	3,786	75	ASPH
		10/28	1,850	60	TURF
Floyd Bennett Memorial (Glens Falls)	GFL	1/19	5,000	150	ASPH-GRVD
		12/30	4,000	100	ASPH
Francis S. Gabreski (Westhampton Beach)	FOK	6/24	9,000	150	ASPH-CONC
		15/33	5,000	150	ASPH
		1/19	5,000	150	ASPH-CONC
Fulton County (Johnstown)	NY0	10/28	4,000	75	ASPH
Frankfort-Highland	6B4	13/31	2,550	30	ASPH
Freehold	1I5	12/30	2,275	22	ASPH
Genesee County	GVQ	10/28	5,500	100	ASPH
Granville	B01	16/34	2,500	36	ASPH

Table 2-A – Inventory Description of SASP Airports					
SASP AIRPORTS	**FAA**	**RW(s)**	**Length***	**Width**	**Surface**
	Identifier		**(ft)**	**(ft)**	**Type**
Great Valley	N56	6/24	3,800	60	TURF
Griffiss International (Rome)	RME	15/33	11,820	200	CONC-GRVD
Hamburg Inc	4G2	1/19	2,465	30	ASPH
Hamilton Municipal	H30	17/35	5,014	75	ASPH
Haverstraw Heliport	H43	H1:	50	50	ASPH
Hornell	4G6	18/36	5,000	75	ASPH-GRVD
Joseph Y. Resnick (Ellenville)	N89	4/22	3,838	75	ASPH
Kingston-Ulster	20N	15/33	3,100	60	ASPH
Lake Placid	LKP	14/32	4,200	60	ASPH
Lancaster	BQR	8/26	3,200	75	ASPH
Ledgedale Airpark (Brockport)	7G0	10/28	4,205	75	ASPH
Leroy	5G0	10/28	2,640	60	ASPH
Lt. Warren E. Eaton (Norwich)	OIC	1/19	4,724	75	ASPH-GRVD
Malone-Dufort	MAL	05/23	4,000	100	ASPH
		14/32	3,245	75	ASPH
Mattituck	21N	1/19	2,200	60	ASPH
Montauk	MTP	6/24	3,481	75	ASPH
Niagara Falls International	IAG	10L/28R	9,829	150	ASPH-CONC-GRVD
		6/24	5,189	150	ASPH
		10R/28L	3,973	75	ASPH
North Buffalo Suburban (Lockport)	0G0	10/28	2,830	50	ASPH
Oneonta Municipal	N66	6/24	4,200	75	ASPH
Orange County (Montgomery)	MGJ	3/21	5,006	100	ASPH-CONC
		8/26	3,672	100	ASPH-CONC
Oswego County (Fulton)	FZY	15/33	5,197	100	ASPH
		6/24	3,996	100	ASPH
Penn Yan	PEO	1/19	5,500	100	ASPH
		10/28	3,561	50	ASPH
Perry-Warsaw	01G	10/28	3,500	60	ASPH
		4/22	1,830	60	TURF
Piseco Municipal	K09	4/22	3,015	60	ASPH
Potsdam	PTD	6/24	3,705	60	ASPH
Randall (Middletown)	06N	8/26	2,810	60	ASPH
Republic (Farmingdale)	FRG	14/32	6,827	150	ASPH-GRVD
		1/19	5,516	150	ASPH-GRVD
Royalton (Gasport)	9G5	7/25	2,530	35	ASPH
Saratoga County	5B2	5/23	4,700	100	ASPH-CONC-GRVD
		14/32	4,000	100	ASPH-CONC
Schenectady County	SCH	4/22	7,000	150	ASPH-GRVD
		10/28	4,840	150	ASPH-GRVD
		15/33	2,640	50	ASPH
Schroon Lake	4B7	16/34	3,000	60	ASPH

Table 2-A – Inventory Description of SASP Airports					
SASP AIRPORTS	**FAA**	**RW(s)**	**Length***	**Width**	**Surface**
	Identifier		**(ft)**	**(ft)**	**Type**
Sidney	N23	7/25	4,204	75	ASPH
Skaneateles Aerodrome	6B9	4/22	3,350	130	TURF
		10/28	3,134	58	ASPH
Sky Acres (Millbrook)	44N	17/35	3,828	60	ASPH
South Albany	4B0	1/19	2,854	60	ASPH
Spadaro (East Moriches)	12N	18/36	2,400	25	ASPH
Sullivan County International	MSV	15/33	6,300	150	ASPH-GRVD
Syracuse Suburban	6NK	15/33	2,660	43	ASPH
Ticonderoga	4B6	2/20	4,040	60	ASPH
Tri-Cities (Endicott)	CZG	3/21	3,900	75	ASPH
Warwick	N72	8/26	2,250	80	TURF
		03R/21L	2,150	28	ASPH
		03L/21R	2,100	50	TURF
Wellsville	ELZ	10/28	5,302	100	ASPH-GRVD
Whitford's (Weedsport)	B16	10/28	3,630	60	ASPH
	B17	E/W	2,800	100	TURF
Williamson Sodus	3G7	10/28	3,800	60	ASPH
Wurtsboro	N82	18/36	1,250	150	TURF
		5/23	3,592	60	ASPH
		14/32	2,101	120	TURF
		9/27	1,100	110	TURF

* usable length may be less

Source: U.S. Terminal Procedures and FAA Airport/Facility Directory

Appendix 2-B

Instrument Approach Procedures

Table 2-B - Instrument Approach Procedures			
	FAA		
	Identifier	**RW(s)**	**Instrument Approach Procedures***
Commercial Airports			
Adirondack Regional (Saranac Lake)	SLK	5/23	ILS 23, RNAV (GPS) 5, VOR/DME 5
		9/27	VOR or GPS 9
Albany International	ALB	01/19	ILS 1, ILS 19, GPS 1, GPS 19
		10/28	VOR 28, GPS 10, GPS 28
Buffalo Niagara International	BUF	5/23	ILS 23, ILS 5, **RNAV (GPS) 5, RNAV (GPS) 23**, NDB 5/23
		14/32	ILS or LOC/DME 32, **RNAV (GPS)** 14/**32**
Chautauqua County Jamestown	JHW	7/25	ILS 25, RNAV (GPS) 7, RNAV (GPS) Y RWY 25, RNAV (GPS) Z RWY 25, VOR/DME 7, VOR 25
		13/31	RNAV (GPS) 13/31
Elmira/Corning Regional	ELM	6/24	ILS 24, ILS 6, RNAV (GPS) 6/24
		10/28	RNAV (GPS) 10/28
Greater Binghamton	BGM	16/34	ILS 16, ILS 34, RNAV (GPS) 16/34
		10/28	RNAV (GPS) 28, VOR/DME 28, VOR or GPS 10
Greater Rochester International	ROC	4/22	ILS 4, ILS 22, RNAV (GPS) 4/22, VOR/DME 4, VOR 4
		10/28	ILS 28, RNAV (GPS) 10/28
		7/25	RNAV (GPS) 7/25
Ithaca Tompkins Regional	ITH	14/32	ILS 32, VOR or GPS 14/32
John F. Kennedy International	JFK	13R/31L	ILS 31L, RNAV (GPS) Y 31L, **RNAV GPS Z 31L**, VOR 31L, COPTER RNAV (GPS)
		04L/22R	ILS 4L, ILS 22R, **RNAV (GPS) 4L**, **22R**, VOR 4L/R
		13L/31R	ILS 13L, 31R, **RNAV (GPS) 31R**, VOR or GPS 13L/R
		04R/22L	ILS 4R, ILS 22L, **RNAV (GPS) 4R/22L**, VOR/DME 22L
LaGuardia	LGA	13/31	ILS 13, RNAV (GPS) - B, **RNAV (GPS) 13**, RNAV (GPS) 31, LOC 31
		4/22	ILS 22/4, **RNAV (GPS) 4/22**, LDA-A, VOR/DME-E,G,H, VOR 4, VOR F, COPTER ILS/DME 22, COPTER RNAV (GPS)
Long Island MacArthur (Islip)	ISP	6/24	ILS 6/24, NDB or GPS 6
Massena International	MSS	5/23	ILS 5, RNAV (GPS) 23/5, **RNAV (GPS) Z 5**, VOR-A
		9/27	RNAV (GPS) 9/27
Ogdensburg International	OGS	9/27	LOC 27, RNAV (GPS) 27
Plattsburgh International	PBG	17/35	ILS 17, RNAV (GPS) 17/35, VOR/DME 35

Table 2-B - Instrument Approach Procedures			
	FAA		
	Identifier	**RW(s)**	**Instrument Approach Procedures***
Stewart International	SWF	9/27	ILS 9, ILS 27, RNAV (GPS) 9/27, VOR 27
		16/34	RNAV (GPS) 16/34
Syracuse Hancock International	SYR	10/28	ILS 10, ILS 28, **RNAV (GPS) 10/28**
		15/33	**RNAV (GPS) 15/33**, VOR or TACAN 33, VOR 15
Watertown International	ART	7/25	ILS 7, RNAV (GPS) 7, VOR 7
Westchester County	HPN	16/34	ILS 16, ILS 34, RNAV (GPS) 16/34, VOR/DME-A, NDB 16
General Aviation Airports			
Akron	9G3	7/25	RNAV (GPS) RWY 7 and RWY 25
Albion/Pine Hill	9G6	10/28	RNAV (GPS) - B
Brookhaven Municipal (Shirley)	HWV	6/24	ILS 6, RNAV (GPS) 6, RNAV (GPS) 24, VOR 6
Buffalo Airfield	9G0	6/24	VOR or GPS 24
Canandaigua	D38	13/31	RNAV (GPS) 13, VOR-A
Cattaraugus County Olean	OLE	4/22	**RNAV (GPS) 4/22**, LOC 22
Chautauqua County Dunkirk	DKK	6/24	VOR 6/24, GPS 6/24
		15/33	GPS 33
Columbia County	1B1	3/21	NDB-A, GPS 3/21
Cortland County	N03	6/24	VOR or GPS - A, GPS 6/24
Dansville Municipal	DSV	14/32	RNAV (GPS)-A, RNAV (GPS) 14
		18/36	RNAV (GPS) 18
Dutchess County (Poughkeepsie)	POU	6/24	ILS 6, VOR/DME or GPS 24, VOR/DME RNAV or GPS 6, VOR/DME 6, VOR or GPS - A
		15/33	VOR or GPS - A
		7/25	VOR or GPS - A
East Hampton	HTO	4/22	VOR or GPS-A
		16/34	VOR or GPS-A
		10/28	VOR/DME RNAV or GPS 10, VOR/DME RNAV or GPS 28
Elizabeth Field (Fishers Island)	0B8	12/30	VOR or GPS - A
		7/25	VOR or GPS - A
Finger Lakes Regional (Seneca Falls)	0G7	1/19	RNAV (GPS) 1
Floyd Bennett Memorial (Glens Falls)	GFL	1/19	ILS 1, RNAV (GPS) 1/19
		12/30	RNAV (GPS) 12/30
Francis S. Gabreski (Westhampton Beach)	FOK	6/24	ILS 24, **RNAV (GPS) 6/24**, TACAN 6/24
Fulton County (Johnstown)	NY0	10/28	NDB 10/28, GPS 10/28
Genesee County	GVQ	10/28	ILS 28, VOR/DME or GPS-A
Griffiss International (Rome)	RME	15/33	ILS 15/33, VOR/DME 15/33
Hamilton Municipal	H30	17/35	VOR or GPS-A
Hornell	4G6	18/36	VOR/DME-A, GPS 18/36
Joseph Y. Resnick (Ellenville)	N89	4/22	GPS 4/22

Table 2-B - Instrument Approach Procedures			
	FAA		
	Identifier	**RW(s)**	**Instrument Approach Procedures***
Kingston-Ulster	20N	15/33	VOR or GPS-A
Lake Placid	LKP	14/32	RNAV (GPS) A, RNAV (GPS) 14
Ledgedale Airpark (Brockport)	7G0	10/28	GPS 28
Leroy	5G0	10/28	VOR or GPS-A
Lt. Warren E. Eaton (Norwich)	OIC	1/19	VOR/DME or GPS 19, VOR/DME-A, GPS 1
Malone-Dufort	MAL	05/23	VOR/DME-A, GPS 5, GPS 23
Montauk	MTP	6/24	RNAV (GPS) 24,VOR or GPS 6
Niagara Falls International	IAG	10L/28R	ILS 1 RWY 28R, ILS 28R, RNAV (GPS) 10L, TACAN 28R, NDB or GPS 28R
North Buffalo Suburban (Lockport)	0G0	10/28	RNAV (GPS) 28
Oneonta Municipal	N66	6/24	LOC 24, VOR or GPS 6
Orange County (Montgomery)	MGJ	3/21	ILS 3, RNAV (GPS) 3/21, NDB 3
		8/26	RNAV (GPS) 8/26, VOR 8
Oswego County (Fulton)	FZY	15/33	ILS 33, VOR 33
		6/24	RNAV (GPS) 24
Penn Yan	PEO	1/19	RNAV (GPS) 1, 19
		10/28	NDB 28
Potsdam	PTD	6/24	RNAV (GPS) 24, NDB 24
Randall (Middletown)	06N	8/26	RNAV (GPS) 8/26, VOR 8, NDB 26
Republic (Farmingdale)	FRG	14/32	ILS 14, GPS 14
		1/19	NDB 1, GPS 1/19
Saratoga County	5B2	5/23	RNAV (GPS) 5/23, VOR/DME-A
Schenectady County	SCH	4/22	ILS 4, NDB 22, GPS 22
		10/28	NDB 28, GPS 28
Sidney	N23	7/25	RNAV (GPS) 7/25, VOR 25
Skaneateles Aerodrome	6B9	4/22	VOR or GPS-A
Sky Acres (Millbrook)	44N	17/35	RNAV (GPS) 17/35, VOR-A
South Albany	4B0	1/19	RNAV (GPS) 1/19
Sullivan County International	MSV	15/33	ILS 15, RNAV (GPS) 33, VOR/DME 33, NDB or GPS 15
Ticonderoga	4B6	2/20	RNAV (GPS) 2, 20
Tri-Cities (Endicott)	CZG	3/21	VOR or GPS A, GPS 21
Wellsville	ELZ	10/28	**RNAV (GPS) 10/28**, LOC/DME 28, VOR-A
Whitford's (Weedsport)	B16	10/28	VOR-A, RNAV (GPS) 10/28
Williamson Sodus	3G7	10/28	RNAV (GPS) 10/28
Wurtsboro	N82	5/23	VOR/DME or GPS 5

** underlined indicates LNAV/VNAV,* ***bold underlined*** *indicates* ***LPV***

Source: *U.S. Terminal Procedures and FAA Airport/Facility Directory*

Appendix 2-C
Weather System and Visual Glide Slope

Table 2-C - Weather System and Visual Glide Slope				
	FAA		Weather System(s)	
	Identifier	RW(s)	(Not all inclusive)	Visual Glide Slope
Commercial Airports				
Adirondack Regional (Saranac Lake)	SLK	5/23	ASOS	PAPI RWY 5
		9/27	ASOS	
Albany International	ALB	01/19	ASOS/ATIS	PAPI RWY 1
		10/28	ASOS/ATIS	PAPI RWY 28
Buffalo Niagara International	BUF	5/23	ASOS/ATIS	NONE
		14/32	ASOS/ATIS	PAPI 14/32
Chautauqua County Jamestown	JHW	7/25	AWOS-3	VASI RWY 7
		13/31	AWOS-3	NONE
Elmira/Corning Regional	ELM	6/24	ASOS/ATIS	VASI 6/24
		10/28	ASOS/ATIS	PAPI 28
		5/23	ASOS/ATIS	NONE
Greater Binghamton	BGM	16/34	ASOS/ATIS	PAPI 16/34
		10/28	ASOS/ATIS	VASI 10/28
Greater Rochester International	ROC	4/22	ASOS/ATIS	VASI 22
		10/28	ASOS/ATIS	NONE
		7/25	ASOS/ATIS	NONE
Ithaca Tompkins Regional	ITH	14/32	ASOS/ATIS	VASI 14/32
		15/33	ASOS/ATIS	NONE
John F. Kennedy International	JFK	13R/31L	ASOS/ATIS	VASI 13R
		04L/22R	ASOS/ATIS	PAPI 04L
		13L/31R	ASOS/ATIS	VASI 13L
		04R/22L	ASOS/ATIS	PAPI 22L
LaGuardia	LGA	13/31	ASOS/ATIS	VASI 13/31
		4/22	ASOS/ATIS	PAPI 4, VASI 22
Long Island MacArthur (Islip)	ISP	6/24	ASOS/ATIS	VASI 6/24
		15R/33L	ASOS/ATIS	VASI 15R/33L
		10/28	ASOS/ATIS	PAPI 28
		15L/33R	ASOS/ATIS	NONE
Massena International	MSS	5/23	ASOS	PAPI 5
		9/27	ASOS	PAPI 27
Ogdensburg International	OGS	9/27	AWOS-3	VASI 9/27
Plattsburgh International	PBG	17/35	NONE	PVASI 17/35
Stewart International (Newburgh)	SWF	9/27	ATIS	VASI 9/27
		16/34	ATIS	PAPI 34
Syracuse Hancock International	SYR	10/28	ASOS/ATIS	VASI 10
		15/33	ASOS/ATIS	VASI 15, PAPI 33
Watertown International	ART	10/28	ASOS	PAPI 10/28
		7/25	ASOS	PAPI 7/25
Westchester County	HPN	16/34	ASOS/ATIS	PAPI 16, VASI 34

Table 2-C - Weather System and Visual Glide Slope				
	FAA		Weather System(s)	
	Identifier	RW(s)	(Not all inclusive)	Visual Glide Slope
		11/29	ASOS/ATIS	PAPI 11
General Aviation Airports				
Akron	9G3	7/25	NONE	PAPI 7/25
Bayport Aerodrome	23N	18/36	NONE	RWY 36 APAP (PNIR)
Brookhaven Municipal (Shirley)	HWV	15/33	ASOS	VASI 15/33
		6/24	ASOS	VASI 6
Canandaigua	D38	13/31	AWOS-3	NONE
Cattaraugus County Olean	OLE	4/22	AWOS-3	PAPI 4/22
		16/34	AWOS-3	NONE
Chautauqua County Dunkirk	DKK	6/24	ASOS	PAPI 6/24
		15/33	ASOS	PAPI 6/24
Columbia County	1B1	3/21	AWOS-3	PAPI RWY 3
Cooperstown-Westville	K23	2/20	NONE	TRCV(TRIL)
Cortland County	N03	6/24	AWOS-3	PAPI 24
Dansville Municipal	DSV	14/32	ASOS	VASI 14/32
		18/36	ASOS	NONE
Dutchess County (Poughkeepsie)	POU	6/24	ASOS/ATIS	PAPI 6/24
		15/33	ASOS/ATIS	VASI 33
		7/25	ASOS/ATIS	NONE
East Hampton	HTO	4/22	HIWAS	NONE
		16/34	HIWAS	NONE
		10/28	HIWAS	PAPI 10/28
Elizabeth Field (Fishers Island)	0B8	12/30	NONE	PAPI 12/30
		7/25	NONE	PAPI 7/25
Finger Lakes Regional (Seneca Falls)	0G7	1/19	AWOS-3	PAPI 1/19
		10/28	AWOS-3	NONE
Floyd Bennett Memorial (Glens Falls)	GFL	1/19	ASOS	VASI 1/19
		12/30	ASOS	NONE
Francis S. Gabreski (Westhampton Beach)	FOK	6/24	ASOS	PAPI 6/24
		15/33	ASOS	VASI 33, PAPI 15
		1/19	ASOS	NONE
Fulton County (Johnstown)	NY0	10/28	NONE	PAPI 10/28
Genesee County	GVQ	10/28	AWOS-3	PAPI 1-/28
Griffiss International (Rome)	RME	15/33	NONE	PAPI 15/33
Hamilton Municipal	H30	17/35	AWOS	PAPI 17/35
Hornell	4G6	18/36	AWOS-3	PAPI 36
Kingston-Ulster	20N	15/33	HIWAS	PAPI 15
Lake Placid	LKP	14/32	NONE	PAPI 14
Lancaster	BQR	8/26	NONE	PAPI 8/26
Ledgedale Airpark (Brockport)	7G0	10/28	NONE	PAPI 10/28
Leroy	5G0	10/28	NONE	PAPI 10/28

Table 2-C - Weather System and Visual Glide Slope				
	FAA		Weather System(s)	
	Identifier	RW(s)	(Not all inclusive)	Visual Glide Slope
Lt. Warren E. Eaton (Norwich)	OIC	1/19	AWOS-3	PAPI 1/19
Niagara Falls International	IAG	10L/28R	ASOS/ATIS	VASI 10L
		6/24	ASOS/ATIS	PAPI 6/24
		10R/28L	ASOS/ATIS	PAPI 10R/28L
North Buffalo Suburban (Lockport)	0G0	10/28	NONE	TRCV(TRIL) 28
Oneonta Municipal	N66	6/24	AWOS-3	VASI 6, PAPI 24
Orange County (Montgomery)	MGJ	3/21	ASOS	VASI 3, PAPI 21
		8/26	ASOS	PAPI 8/26
Oswego County (Fulton)	FZY	15/33	ASOS	VASI 33
		6/24	ASOS	NONE
Penn Yan	PEO	1/19	ASOS	PAPI 1/19
		10/28	ASOS	NONE
Piseco Municipal	K09	4/22	NONE	PAPI 4/22
Potsdam	PTD	6/24	AWOS-3	PAPI 6/24
Randall (Middletown)	06N	8/26	NONE	PAPI 8/26
Republic (Farmingdale)	FRG	14/32	ASOS/ATIS	PAPI 14/32
		1/19	ASOS/ATIS	PAPI 1/19
Saratoga County	5B2	5/23	AWOS-3	VASI 5/23
		14/32	AWOS-3	VASI 32
Schenectady County	SCH	4/22	AWOS-3	PAPI 4/22
		10/28	AWOS-3	PAPI 10/28
		15/33	AWOS-3	NONE
Sidney	N23	7/25	AWOS-3	PAPI 25
Sky Acres (Millbrook)	44N	17/35	NONE	PAPI 35
South Albany	4B0	1/19	NONE	VASI 19
Sullivan County International	MSV	15/33	AWOS-3	PAPI 15/33
Ticonderoga	4B6	2/20	NONE	PAPI 2/20
Tri-Cities (Endicott)	CZG	3/21	AWOS-3	PAPI 21
Wellsville	ELZ	10/28	ASOS	VASI 10/28
Williamson Sodus	3G7	10/28	NONE	PAPI 10/28

Source: *U.S. Terminal Procedures and FAA Airport/Facility Directory*

Appendix 2-D

Critical Aircraft & Airport Reference Code

Table 2-D - Critical Aircraft & Airport Reference Codes (ARC)				
SASP AIRPORTS	RUNWAY	CURRENT CRITICAL AIRCRAFT ARC		FUTURE ARC*
		Approach	Airplane Design	
		Category	Group	
Commercial Airports				
Adirondack Regional	5-23	C	II	
	9-27	B	II	
Albany International	1-19	D	III	
	10-28	D	III	
Buffalo Niagara International	5-23	D	IV	
	14-32	D	IV	
Chautauqua County Jamestown	7-25	D	II	
	13-31	B	II	
Elmira/Corning Regional	6-24	C	III	
	10-28	C	II	
Greater Binghamton	16-34	C	III	
	10-28	B	II	
Greater Rochester International	4-22	D	IV	
	10-28	C	III	
	7-25	B	II	
Ithaca Tompkins Regional	14-32	C	III	
John F. Kennedy International		N/A	N/A	
LaGuardia		N/A	N/A	
Long Island MacArthur	6-24	D	III	
	10-28	C	II	
	15R-33L	D	III	
	15R-33R	B	II	
Massena International	5-23	C	II	
	9-27	B	II	
Ogdensburg International	9-27	B	II	
Plattsburgh International	17-35	D	V	
Stewart International	9-27	D	VI	
	16-34	D	III	
Syracuse Hancock International	10-28	D	IV	
	15-33	D	IV	
Watertown International	10-28	B	II	C III
	7-25	B	II	C III
Westchester County	16-34	D	III	
	11-29	B	II	
General Aviation Airports				
Akron	7-25	B	II	
Argyle	3-21	A	I	

Table 2-D - Critical Aircraft & Airport Reference Codes (ARC)				
SASP AIRPORTS	RUNWAY	CURRENT CRITICAL AIRCRAFT ARC		FUTURE ARC*
		Approach	Airplane Design	
		Category	Group	
Bayport Aerodrome	18-36	A	I	
Brookhaven Municipal	6-24	B	II	
	15-33	B	II	
Buffalo Airfield	6-24	B	I	
Camillus	10-28	B	I	
Buffalo Airfield	6-24	B	I	
Camillus		B	I	
Canandaigua	13-31	B	II	
Cattaraugus County Olean	16-34	C	II	
Chautauqua County Dunkirk	6-24	B	II	D II
	15-33	B	II	D II
Columbia County	3-21	D	II	
Cooperstown-Westville	2-20	B	I	
Corning-Painted Post	14-32	B	I	
Cortland County	6-24	B	II	
Dansville Municipal	14-32	B	II	
	18-36	B	II	
Dutchess County	6-24	D	II	
	15-33	B	I	
East Hampton	10-28	C	II	
	16-34	B	I	
	4-22	B	I	
Elizabeth Field	7-25	B	II	
	12-30	B	II	
Finger Lakes Regional	18-36	B	II	
	1-19	B	II	
Floyd Bennett Memorial	1-19	C	II	
	12-30	B	I	
Frankfort-Highland	13-31	B	I	
Freehold	12-30	A	I	
Fulton County	10-28	B	II	
Genesee County	10-28	C	II	
Granville	16-34	B	I	
Great Valley	6-24	B	I	
Griffiss International	15-33	C	III	D V
Hamburg Inc	1-19	A	I	
Hamilton Municipal	17-35	B	II	
Haverstraw Heliport	H1	N/A	N/A	
Hornell	18-36	B	II	
Joseph Y. Resnick	4-22	B	II	
Kingston-Ulster	15-33	B	II	
Lake Placid	14-32	B	I	
Lancaster	8-26	B	I	B II
Ledgedale Airpark	10-28	B	II	

Table 2-D - Critical Aircraft & Airport Reference Codes (ARC)				
SASP AIRPORTS	RUNWAY	CURRENT CRITICAL AIRCRAFT ARC		FUTURE ARC*
		Approach	Airplane Design	
		Category	Group	
Leroy	10-28	B	I	
Lt. Warren E. Eaton	1-19	B	II	
Malone-Dufort	14-32	B	II	
Mattituck	1-19	A	I	
Montauk Airport	6-24	B	I	
Niagara Falls International	10L-28R	D	IV	
	6-24	C	II	
	10R-28L	B	II	
North Buffalo Suburban	10-28	B	I	
Oneonta Municipal	6-24	B	II	
Orange County	3-21	C	II	
	8-26	B	II	
Oswego County	15-33	C	II	D II
	6-24	B	II	
PennYan	1-19	C	II	
	10-28	B	I	
Perry-Warsaw	10-28	B	II	
Pine Hill	10-28	A	I	
Piseco Municipal	4-22	B	I	
Potsdam	6-24	B	II	
Randall	8-26	B	I	
Republic	14-32	D	II	
Royalton	7-25	B	I	
Saratoga County	5-23	D	II	
	14-32	B	II	
Schenectady County	4-22	C	IV	
	15-33	B	I	
	10-28	C	IV	
Schroon Lake	16-34	B	I	
Sidney	7-25	B	I	
Skaneateles Aerodrome	10-28	B	I	
Sky Acres	17-35	B	I	
South Albany	1-19	B	I	B II
Spadaro	18-36	A	I	
Sullivan County International	15-33	D	II	
Syracuse Suburban	16-34	B	I	
Ticonderoga	2-20	B	I	
Tri-Cities	3-21	B	II	
Warwick	3R-21L	B	I	
Wellsville	10-28	C	II	
Whitford's	10-28	B	I	
	W/E	A	I	
Williamson-Sodus	10-28	B	I	B II
Wurtsboro	5-23	B	I	

* Based on Master Plans

CHAPTER THREE
PROJECTIONS OF AVIATION DEMAND

The preparation of aviation activity projections for the airports included in New York's airport system is a critical step in assessing the need for, and phasing of, future development requirements. Activity projections are used to determine the role for each airport within the state system, to evaluate the ability of the existing system to accommodate projected aviation demand, and to plan future airside and landside facilities for the system. Although the national economy's recent downturn has affected aviation[1], it is believed that these impacts may simply extend the time periods associated with the forecasts described below. That is, a full economic recovery is anticipated within the planning time frame. Thus, the net impact of an economic slowdown is to push the forecast results to longer time frames. Those time frames are lengthened or shortened, based upon the duration and severity of the economic recession.

1. INTRODUCTION

Existing published passenger and aircraft operation forecasts provide the foundation of the projections presented in this chapter. The sources used for these projections, such as the FAA Terminal Area Forecast and airport master plans, were reviewed with regard to scheduled service enplanements, total based aircraft, and annual aircraft operations. Master plan forecasts were used in lieu of the Terminal Area Forecast when the master plan projections were reasonably recent. Modifications to base forecasts have been applied where updated information has become available. The forecasts presented in this Chapter are intended to establish a framework for assessing future demand levels and determining the level of improvements that may be warranted. The forecasts that follow are reliable for planning purposes, and are used to make recommendations at the statewide level, including a path forward for strengthening a strategic business airport system.

2. AVIATION INDUSTRY TRENDS

According to recent Forecast Highlights, FAA Aerospace Forecasts for Fiscal Years 2008 – 2025 (*Highlights)*, there continues to be wide-ranging shifts in the U.S. commercial and general aviation industries. Generally speaking, the FAA Forecast anticipates domestic capacity to increase just 0.6 percent, with mainline carrier capacity rising just 0.3 percent as low-cost carrier growth slows and network carrier capacity discipline continues[2]. *Highlights* goes on to say that regional carrier capacity, which depends on activity from network carriers, is forecast to increase 2.5 percent. Additionally, high fuel prices are dampening the near-term prospects for the general aviation industry, while the long-term outlook remains optimistic due to strong growth in business aviation demand. This demand will be met by a growing fleet of Very Light Jets (VLJs), which the FAA projects will account for 400 new units in 2009.

1 The FAA has projected a 6.2 percent decline in general aviation operations, as well as a 7.8 percent decline in domestic and international air passengers in the U.S. for 2009, followed by gradual recovery over the next several years.

2 *Forecast Highlights, FAA Aerospace Forecast Fiscal Years 2008-2025 (Highlights)*, p. 3.

Overall, even when compared to pre 9/11 levels, the number of passengers in the state has grown. This is encouraging, especially considering the after-effects of 9/11, pandemic scares, four network carrier bankruptcies, and record-high fuel prices. The record 765 million passengers in 2007 demonstrate the value and need placed on the U.S. commercial air system by those it serves. With a system that is on pace to carry one billion passengers by 2016, and international traffic growth exceeding domestic levels, the demand on the national aviation system has never been greater.

2.1 Major/National and Regional/Commuter Carrier Trends

Passenger demand growth on U.S. airlines rebounded in 2007 from a weak performance in 2006. Commercial air carrier domestic enplanements increased 3.1 percent, and international enplanements grew 5.1 percent to a record 75.5 million. According to the FAA Forecast in *Highlights*, other trends include a decline in regional carrier domestic market activity share for the first time since 1995. Low-cost carrier market share grew while their network carrier competitors remained flat. Together, regional and low-cost carriers combined for an increase of enplanement market share.

The FAA's *Highlights* goes on to cite that fuel prices continue to have negative effects on air carriers, causing many to defer deliveries of new aircraft and scale-back growth plans in order to regain profitability. Despite soaring fuel costs, 2007 continued the turnaround for the airline industry, which posted its first net profit since 2000. Additionally, both Delta and Northwest emerged from bankruptcy protection, and network carriers as a whole recorded their first annual net profit in seven years. While this demonstrates the critical and strong demand for commercial air travel, exponential increases in fuel costs in the last twelve months have eroded hopes for airline profitability in the short-to-medium term. Competitive and economic factors continue to pressure airlines to merge. In fact, planned reductions of commercial air service to many of New York State's Airports underscore the need to establish and enhance a system of business airports that can allow general aviation to fill the gap where declining levels of air carrier operations reduce air transportation choices available to the public. New York State must maintain a competitive airport system to retain commercial service where possible, as well as attracting new service when economic conditions warrant.

2.2 General Aviation Trends

The FAA Forecast indicated mixed results for general aviation (GA) products and service in 2007. In spite of increases in new aircraft shipments (4.2 percent) and manufacturer billings (15.2 percent), overall activity rose just 0.1 percent in 2007. Similar to commercial carriers, GA faces significant economic challenges due to rising fuel costs.

According to figures released by General Aviation Manufacturers Association (GAMA), U.S. manufacturers of general aviation aircraft delivered 3,279 aircraft in 2007, which was 4.2 percent higher than 2006[3]. Other GA trends reported growth in turbine categories (turbojets and turboprops), which were up 34.9 and 13.3 percent respectively, while piston categories (single and multi-engine)

[3] *Highlights,* Ibid, p.19.

were down 5 and 2.5 percent. Total billings were up 15.2 percent from 2006 to a total of $11.9 billion. General aviation operations remained at levels comparable with previous years, while the fleet is estimated to have increased 1.4 percent to a total of 225,007 aircraft. Flight hours are estimated to have increased 0.6 percent to 27.7 million in 2007. The forecasts contained in the following sections of this chapter are organized to include:

- General Aviation Activity
- Commercial Service Activity
- Military Operations
- Total Operations
- Summary

3. GENERAL AVIATION ACTIVITY

General aviation activity represents all facets of civil aviation, except activity by airlines and the military. Projections of based aircraft and general aviation operations were collected from existing forecasts for all system airports in the state of New York. Sources for these forecasts included the FAA's Terminal Area Forecasts, recent airport master plans, and airport layout plan studies. Measures of general aviation demand are focused on based aircraft and operations. These two demand components can be defined as follows:

- ***Based Aircraft:*** Based aircraft are aircraft that are permanently stored (in hangars or tied down) at an airport.
- ***Operations:*** An operation is defined as a landing or a takeoff; both a landing and a takeoff would account for two operations.

The forecast of total general aviation operations are included in Section 6 – Total Operations, while the forecast of general aviation based aircraft are discussed in this section.

The total number of based aircraft at SASP airports is forecasted to grow at a modest rate (1 percent) through 2025. New York's base year and projected based aircraft are identified in Table 3-1. A full listing of based aircraft forecasts for each SASP facility is shown in Appendix 3-A. In the forecast base year, 2005, the state recorded 5,267 based aircraft. This was down from a total of 5,665 based aircraft in 1995. This downward trend is expected to be reversed in the future as the projected number of based aircraft in the state is anticipated to increase to 6,487 by the year 2025.

Table 3-1 – Forecast of Total GA Based Aircraft

	2005	2010	2015	2020	2025
General Aviation Airports	3,671	3,909	3,990	4,080	4,180
Commercial Service Airports	1,312	1,394	1,463	1,541	1,625
Total Aircraft at All SASP Airports	**4,983**	**5,303**	**5,453**	**5,621**	**5,805**

SOURCE: *FAA Terminal Area Forecast (TAF).*

According to national fleet mix trends described in the FAA's Aerospace Forecasts, the type of aircraft based at general aviation airports continues to evolve toward turbo-prop and jet aircraft, which are more frequently used for business purposes. Recreational activity in many areas is

experiencing decline and is no longer a primary driver for facility needs. Business aviation activity, on the other hand, continues to hold steady or increase. The maturation of the general aviation industry, airport facilities, and the increased sophistication of aircraft, all point toward the need for sub-system of strategic business airports.

4. COMMERCIAL SERVICE ACTIVITY

There are currently 18 airports in New York that provide scheduled commercial passenger service. The level of commercial service varies from the Port Authority of New York & New Jersey's (PANY&NJ) airports that accommodate millions of passengers and hundreds of flights per day to smaller facilities that handle as few as two arrivals per day. Historical and projected levels of activity at each of the commercial service airports are discussed here in terms of operations enplanements. For all projections, calendar year 2005 was used as the base year.

4.1 Operations

According to the FAA's *Regional Air Service Demand Study*, which was conducted for PANY&NJ airports, total operations at John F. Kennedy International are forecast to increase from 351,701 in 2005 to 468,400 in 2025, an average annual growth rate of 1.4 percent. Total operations at LaGuardia are predicted to increase at an average annual rate of 0.2 percent from 403,525 in 2005 to 418,580 in 2025.

4.2 Enplanements and Passengers

Projections of commercial activity were prepared for the New York airports that currently have commercial service. These airports, listed by number of enplanements in descending order, and their closest urban areas are:

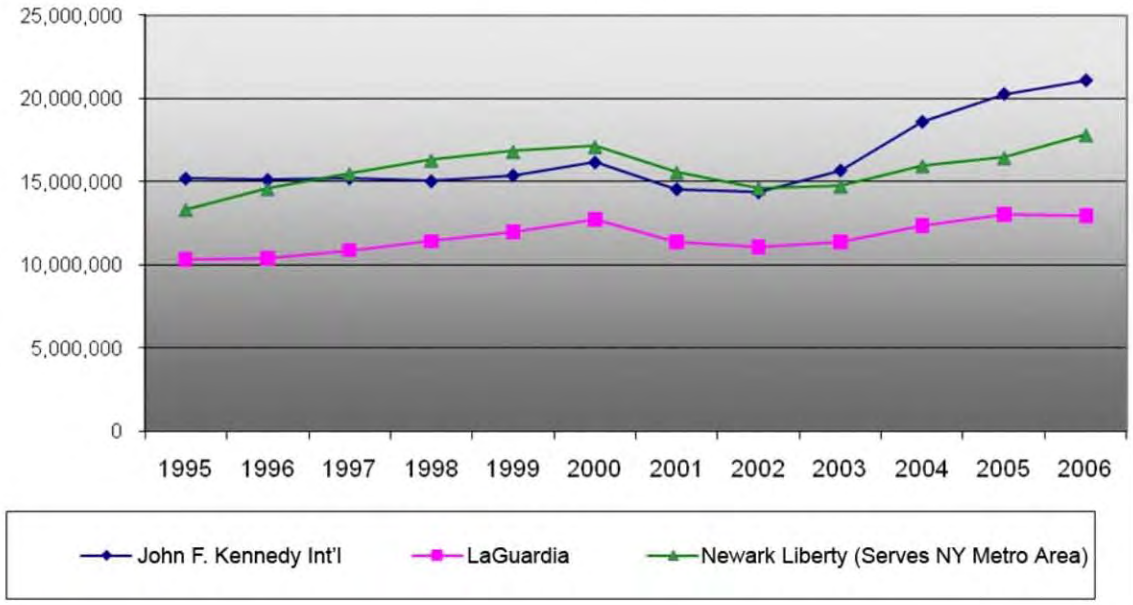
Airport	City Served
John F. Kennedy International	New York City
LaGuardia	New York City
Buffalo Niagara International	Buffalo
Albany International	Albany
Greater Rochester International	Rochester
Long Island MacArthur	Islip
Syracuse Hancock International	Syracuse
Westchester County	White Plains
Stewart International	Newburgh
Greater Binghamton	Binghamton
Elmira/Corning Regional	Elmira/Corning
Ithaca Tompkins Regional	Ithaca
Chautauqua County Jamestown	Jamestown
Watertown International	Watertown
Massena International	Massena
Adirondack Regional	Saranac Lake/Lake Placid
Ogdensburg International	Ogdensburg

Plattsburgh International Plattsburgh

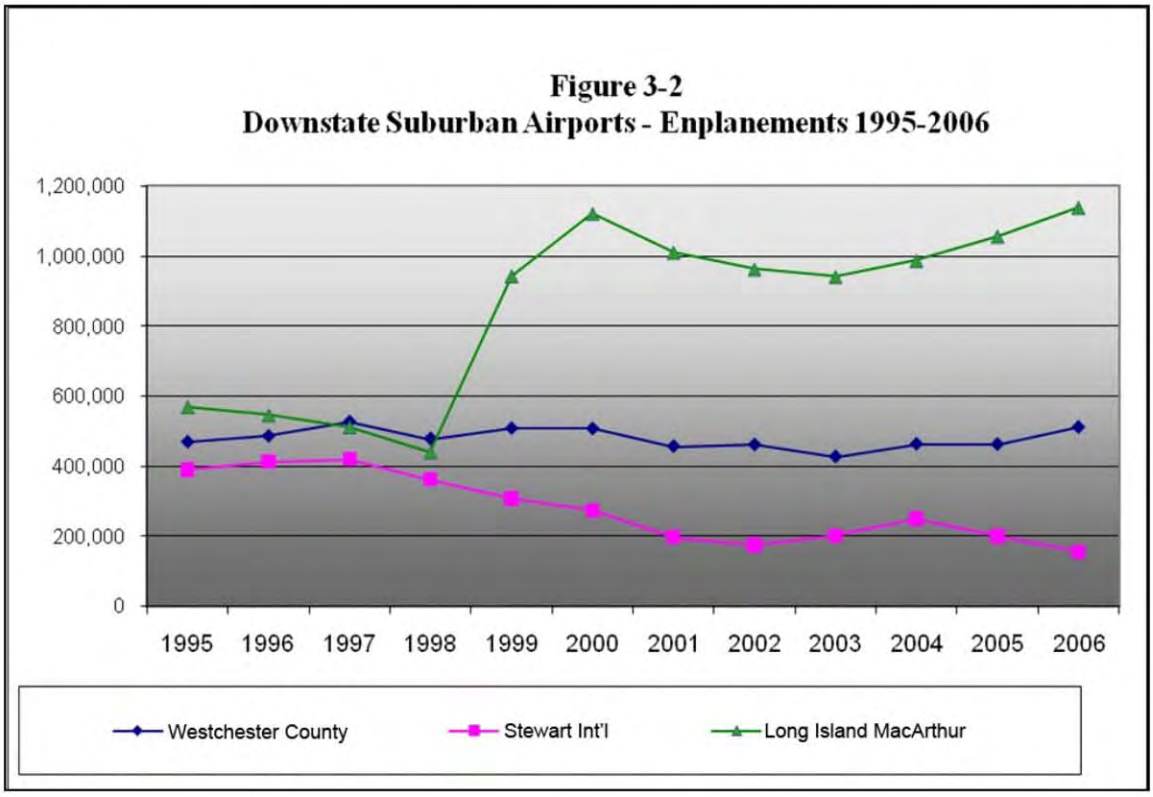
The projections of annual passenger enplanements were taken from the FAA's Terminal Area Forecasts.

Historical enplanement activity at the PANY&NJ airports has shown measured growth over the 1995-2006 period. After 9/11, there was a noticeable decline in activity that was felt across the nation. A slow recovery has been underway since 2003. The following figures illustrate enplanement trends for airports owned and operated by the PANY&NJ and other regions in New York. As indicated in Figure 3-1 below, since the decline in enplanements that began in 2000, activity bottomed-out at John F. Kennedy International, LaGuardia, and Newark Liberty International in 2002. Average annual growth since 2002 at PANY&NJ Airports has been approximately 7.5 percent.

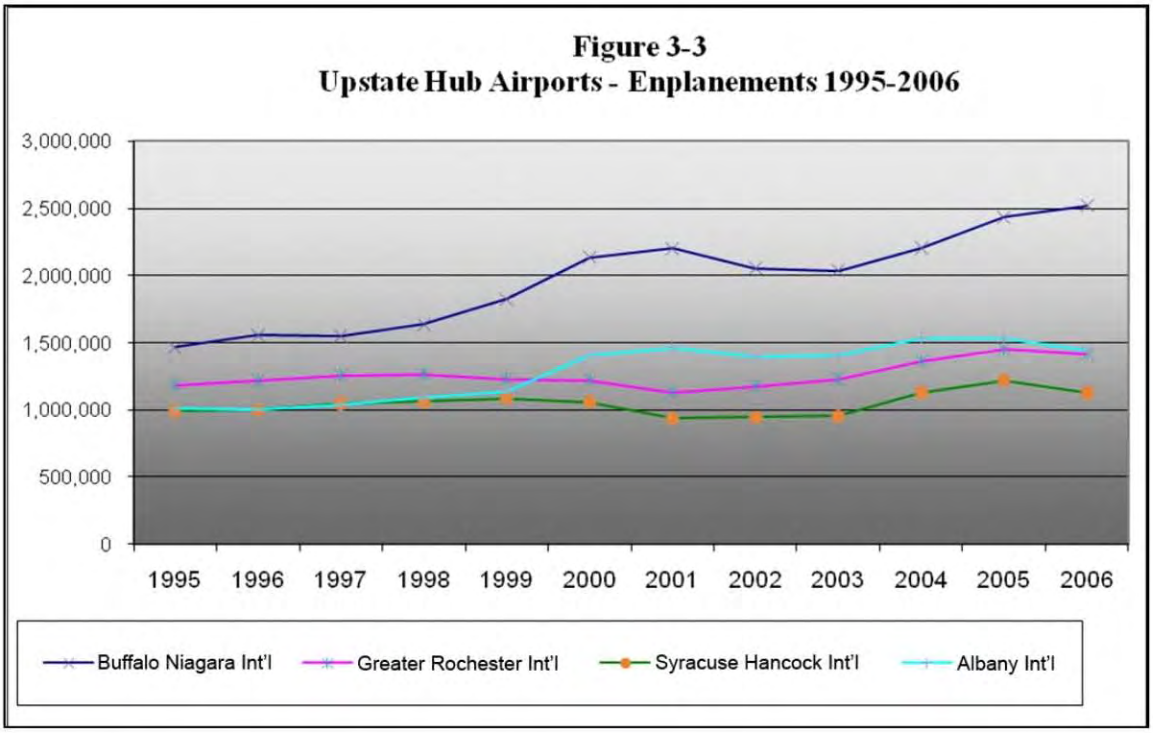
Figure 3-1
Port Authority Airports - Enplanements 1995-2006



Enplanement activity at downstate suburban airports during this same period (since 2002) has been relatively constant. As shown in Figure 3-2 below, enplanements at Stewart International increased modestly through 2004, and then turned downward through 2006. During the same period, enplanements at Westchester County increased slightly. Enplanement activity at Long Island MacArthur has experienced the same general trend, increasing steadily between 2002 and 2006, after a 37 percent spike in enplanement levels between 1998 and 2000 (entrance of Southwest Airlines). Average growth since 2002 for these airports was approximately 7.25 percent.



Enplanement activity trends at upstate hub airports are illustrated in Figure 3-3 below.

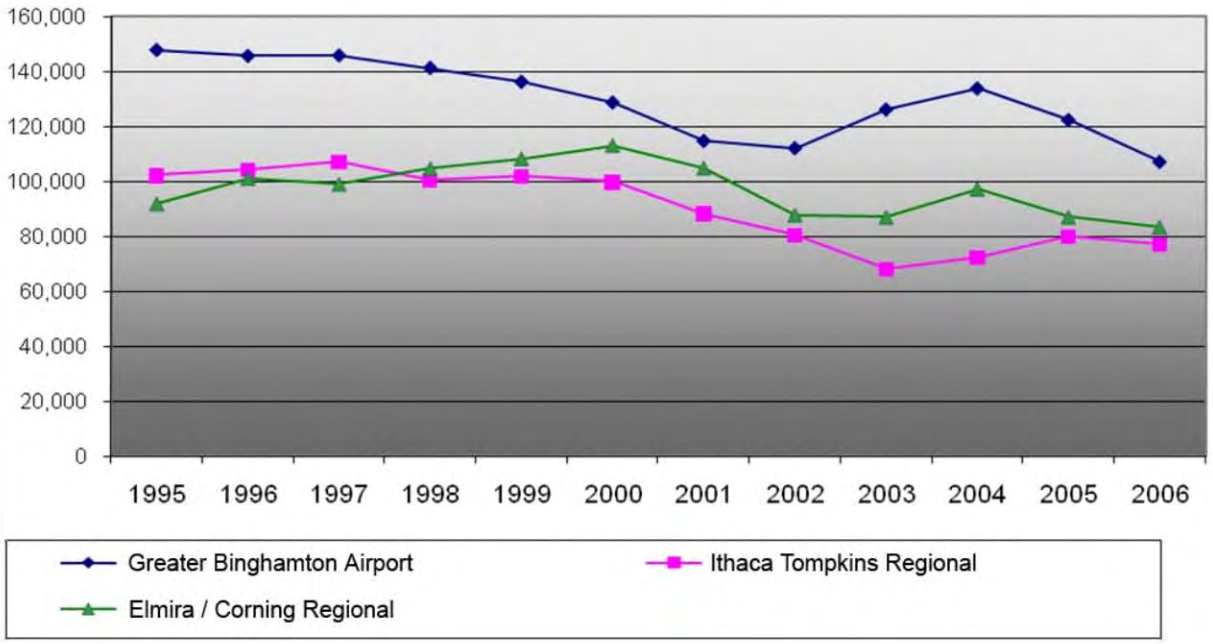


As shown, Buffalo Niagara International and Albany International have experienced a similar trend since the late 1990s. Additionally, Greater Rochester and Syracuse Hancock have followed similar

paths of activity. Average annual enplanement growth for all upstate hub airports since 2002 has been approximately 4.75 percent, with enplanement levels at Buffalo Niagara experiencing the most significant and steady growth through the period as a result of low-fare airline activity.

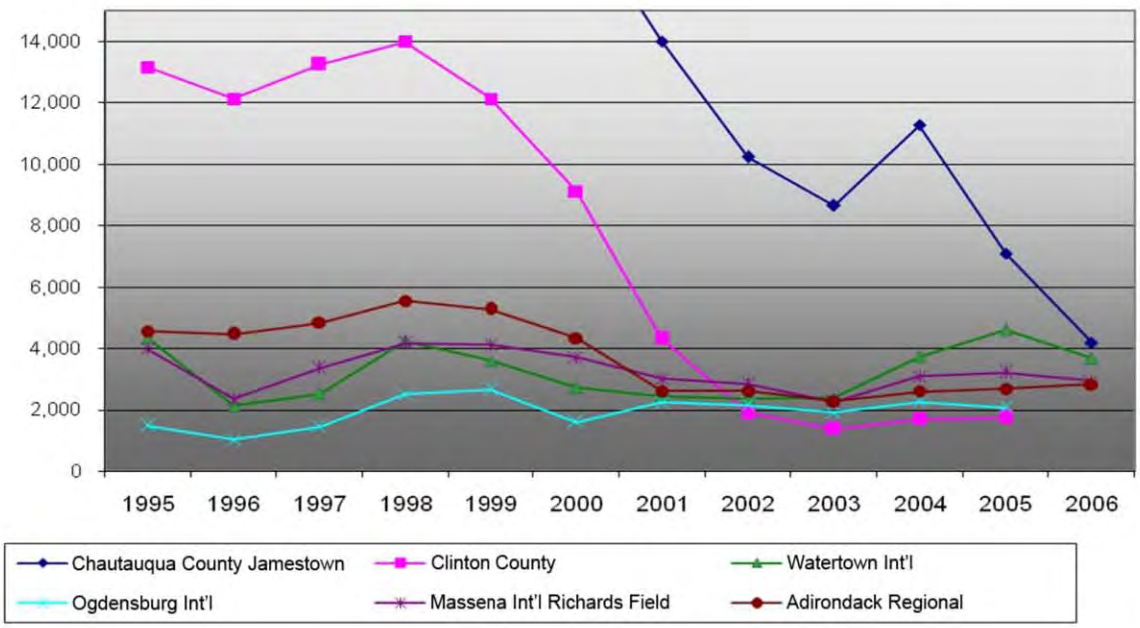
Considering enplanement activity levels discussed above, Southern Tier airports have experienced a much different trend. Enplanement activity is illustrated in Figure 3-4 below. As shown, aside from various increases in activity between 2002 and mid-2004, annual enplanements at Greater Binghamton, Ithaca Tompkins, and Elmira/Corning have declined since 1995. The average annual rate of decline during this period is approximately 1 percent.

Figure 3-4
Southern Tier Airports - Enplanements -1995-2006



Finally, enplanement activity at upstate non-primary airports (defined as airports with between 2,500 and 10,000 annual enplanements) and EAS airports is illustrated in Figure 3-5. As shown, Ogdensburg International, Watertown International, Massena International, and Adirondack Regional have all experienced similar paths of increases and decreases in annual enplanements during the period. Plattsburgh International (formerly Clinton Co.) and Chautauqua County Jamestown Municipal have shared a significant downward trend in enplanement activity since the late 1990s. The downward trend shared by all upstate non-primary airports has resulted in enplanement levels of less than 4,300 at each airport in 2006. This is most striking for Chautauqua County Jamestown Municipal, whose enplanement activity was literally "off the chart" in 2000, and Clinton County, which had approximately 14,000 enplanements in 1998. The average decline in annual operations for Chautauqua County Jamestown since 1998 has been greater than -26 percent. Enplanement activity at Clinton County declined at annual rate of -35 percent through 2003. The Clinton County Airport was closed and relocated to Plattsburgh International.

Figure 3-5
Upstate Non-Primary Airports - Enplanements 1995-2006



Generally speaking, enplanement trends in New York have begun to stabilize, since the rapid growth of the 1980s. However, the recent spike in jet fuel costs has impacted the airline industry significantly, grounding a number of airlines and creating cash flow problems at others. For the future, a volatile period can be anticipated. In this regard, more changes with major and national carriers and their regional/commuter partners can be expected, as airlines continue to cope with higher fuel prices.

This volatility is not completely reflected in the forecasts of demand shown in Table 3-2, since the projections incorporate the historical trends prior to 2006. Complete enplanement data between 1995 and 2006 is included in Appendix 3-B.

Table 3-2 - Scheduled Service Enplanement Forecast

	Actual	Forecasts			
SASP Airports	**2005**	**2010**	**2015**	**2020**	**2025**
Adirondack Regional	4,247	3,330	3,641	3,981	4,353
Albany International	1,533,301	1,489,552	1,611,367	1,745,020	1,891,790
Buffalo Niagara International	2,436,952	2,878,429	3,267,135	3,709,181	4,212,017
Chautauqua Co. Jamestown	7,086	4,245	4,245	4,245	4,245
Elmira/Corning Regional	86,925	87,427	95,571	104,476	114,210
Greater Binghamton	122,443	109,698	113,874	118,208	122,707
Greater Rochester International	1,450,181	1,390,797	1,514,668	1,651,845	1,803,918
Ithaca Tompkins Regional	79,000	82,355	85,471	88,705	92,062
John F. Kennedy International	20,336,175	24,602,169	26,715,232	27,361,345	28,023,930
LaGuardia	12,955,921	11,581,032	13,175,431	14,021,975	14,854,682
Long Island MacArthur	1,055,503	1,064,961	1,241,914	1,449,051	1,691,522
Massena International	3,022	2,394	2,455	2,517	2,581
Ogdensburg International	2,283	2,539	2,588	2,637	2,687
Plattsburgh International	1,315	405	405	405	405
Stewart International	199,000	196,354	219,064	244,425	272,747
Syracuse Hancock International	1,222,657	1,068,430	1,145,637	1,228,839	1,318,529
Watertown International	4,612	7,032	7,369	7,719	8,089
Westchester County	466,428	868,796	964,059	1,070,304	1,188,838

SOURCE: *FAA Terminal Area Forecast (TAF)*

5. MILITARY OPERATIONS

Military aircraft activity is subject to a wide range of factors, some of which include election politics, government funding, world events, and national policy. As such, the number of annual military operations at New York airports was assumed to remain constant during the planning period. A snapshot of military operations at some of the busier SASP airports are identified below, as published by the Airport Master Record, 5010 Form.

Airport Name	Military Operations
• Watertown International	14,350
• Syracuse Hancock International	11,270
• Francis S. Gabreski	11,245
• Niagara Falls International	11,148
• Schenectady County	8,250
• Stewart International	6,874

6. TOTAL OPERATIONS

The projection of operations at SASP facilities assists in determining the need for improvements to airfield capacity. Total aircraft operations are inclusive of general aviation, commercial service, and military operations. Table 3-3 presents a summary of the total number of operations for SASP airports. The complete forecast of operations for each SASP airport is included in Appendix 3-C.

Table 3-3 - Total Annual Aircraft Operations Forecast

	2005	2010	2015	2020	2025
Commercial Airports	2,045,055	1,929,964	2,037,364	2,110,416	2,187,204
General Aviation Airports	2,027,783	1,928,849	1,965,403	2,006,199	2,050,439
Heliports	1,661,627	1,661,627	1,661,627	1,661,627	1,661,627
Total Operations at All SASP Airports	**5,734,465**	**5,520,440**	**5,664,394**	**5,778,242**	**5,899,270**

SOURCE: *FAA Terminal Area Forecast (TAF).*

As indicated in Table 3-3, total operations are forecasted to increase at 0.14 percent annually over the 20-year planning period. Operations at commercial service airports are anticipated to increase at an annual rate of approximately 0.33 percent, and activity at general aviation airports are forecast to increase at an annual rate of 0.06 percent. Operations at SASP heliports are projected to remain constant.

7. AIR CARGO ACTIVITY

New York is a significant center for both domestic and international air cargo. In this regard, John F. Kennedy International Airport is one of the world's leading international air cargo centers. The airport has more than one million square feet of office and warehouse space dedicated to broker, freight forwarder and container freight station operators who do business within the NY/NJ region. In 2007, John F. Kennedy International handled a total of 2,557,000 tons of air cargo (landed weight). By comparison, the next-highest air cargo airport in New York State was Syracuse Hancock International with 190,600 tons. New York State airports that had more than 25,000 tons of air cargo landed weight in 2007 include the following:

Airport	Tons Landed Weight
John F. Kennedy International	2,556,999
Syracuse Hancock International	190,646
Greater Rochester International	168,292
Buffalo Niagara International	163,880
Albany International	104,772
Stewart International	62,995
Niagara Falls International	28,905
TOTAL AIR CARGO TONNAGE	3,276,489

For the future, air cargo activity in the U.S. is anticipated to drop below 2008 levels until 2012, when growth is anticipated to resume at an accelerated pace. Growth rates for domestic air cargo are predicted to show an average annual increase of 4.4 percent through the year 2025. Given the significance of John F. Kennedy International in New York's air cargo market, planning for future capacity is important. This would include upgrades to the aging surface access infrastructure, such as the Van Wyck Expressway that will constrict surface traffic growth and access to John F. Kennedy International in the future.

8. SUMMARY

The results of the forecast analysis presented here indicate that the business segment of aviation demand will be the prime engine for continued aviation activity growth at general aviation and small commercial service airports in the state of New York. National trends point toward continued decreases in personal or recreational flying while business flying will continue to grow. Thus, the state's subsystem of business airports will likely carry the majority of future growth in aviation demand – at least until fuel prices subside. Therefore, from a strategic standpoint, it is important to focus attention on business aviation and its role in sustaining the aviation system.

The projections provided in this chapter are considered planning estimates and are based on information from available sources. As such, these projections were developed for use at the system planning level, rather than as the basis for specific airport planning purposes. Comprehensive airport development plans, such as master plans, should continue to provide guidance for actual airport development. Such plans are the most appropriate means for guiding airport-specific development, as they are developed from an examination of each airport's local conditions and operating environment.

Appendix 3-A
Total Based Aircraft Forecast

Table 3-A - Total Based Aircraft Forecast					
	2005	**2010**	**2015**	**2020**	**2025**
Commercial Airports					
Adirondack Regional	40	19	19	19	19
Albany International	98	102	113	125	138
Buffalo Niagara International	46	37	40	42	43
Chautauqua County Jamestown	25	19	18	17	16
Elmira Corning Regional	58	72	78	85	92
Greater Binghamton	21	26	29	31	32
Greater Rochester International	71	94	94	94	94
Ithaca Tompkins Regional	60	64	67	71	77
John F. Kennedy International	0	0	0	0	0
LaGuardia	0	0	0	0	0
Long Island MacArthur	256	313	345	384	426
Massena International	16	17	18	19	20
Ogdensburg International	6	9	9	9	9
Plattsburgh International	0	30	30	30	30
Stewart International	79	77	81	85	91
Syracuse Hancock International	100	96	96	96	96
Watertown International	47	26	26	26	26
Westchester County	389	393	400	408	416
TOTAL for Commercial Airports	**1,312**	**1,394**	**1,463**	**1,541**	**1,625**
General Aviation Airports					
Akron	52	62	62	62	62
Argyle	N/A	N/A	N/A	N/A	N/A
Bayport Aerodrome	61	61	61	61	61
Brookhaven Municipal	217	290	290	290	290
Buffalo Airfield	45	55	55	55	55
Buffalo-Lancaster	36	44	44	44	44
Camillus	N/A	N/A	N/A	N/A	N/A
Canandaigua	54	54	54	54	54
Cattaraugus County Olean	16	16	16	16	16
Chautauqua County Dunkirk	34	34	34	34	34
Columbia County	35	35	35	35	35
Cooperstown-Westville	N/A	N/A	N/A	N/A	N/A
Corning-Painted Post	30	20	20	20	20
Cortland County	29	29	29	29	29
Dansville Municipal	33	33	33	33	33
Dutchess County	184	206	220	235	251
East Hampton	132	132	132	132	132
Elizabeth Field	2	2	2	2	2
Finger Lakes Regional	27	27	27	27	27
Floyd Bennett Memorial	56	54	54	54	54
Francis S. Gabreski	100	107	107	107	107
Frankfort Highland	6	6	6	6	6
Freehold	42	41	40	38	37
Fulton County	35	35	34	32	31
Genesee County	63	66	66	66	66
Granville	29	29	29	29	29
Great Valley	N/A	N/A	N/A	N/A	N/A

Table 3-A - Total Based Aircraft Forecast					
	2005	**2010**	**2015**	**2020**	**2025**
Griffiss International	2	85	85	85	85
Hamburg	N/A	N/A	N/A	N/A	N/A
Hamilton	37	42	42	42	42
Haverstraw Heliport	N/A	N/A	N/A	N/A	N/A
Hornell	23	23	23	23	23
Joseph Resnick	14	15	16	18	20
Kingston-Ulster	32	32	32	32	32
Lake Placid	23	23	23	23	23
Ledgedale Airpark	62	62	62	62	62
Le Roy	16	32	32	32	32
Lt. Warren E. Eaton	16	16	16	16	16
Malone-Dufort	18	19	20	21	22
Mattituck	N/A	N/A	N/A	N/A	N/A
Montauk	30	30	30	30	30
Niagara Falls International	84	67	69	71	73
North Buffalo Suburban	69	31	31	31	31
Oneonta Municipal	27	29	33	37	42
Orange County	243	239	261	283	308
Oswego County	64	76	75	74	73
Penn Yan	52	48	48	48	48
Perry-Warsaw	23	23	23	23	23
Pine Hill	N/A	N/A	N/A	N/A	N/A
Piseco Municipal	8	8	8	8	8
Potsdam	14	13	12	9	7
Randall	41	42	42	42	42
Republic	537	569	610	655	702
Royalton	47	47	47	47	47
Saratoga County	69	69	69	69	69
Schenectady County	157	157	157	157	157
Schroon Lake	1	1	1	1	1
Sidney	33	33	33	33	33
Skaneateles Aerodrome	18	20	20	20	20
Sky Acres	95	97	98	100	102
South Albany	51	51	51	51	51
Spadaro	50	50	50	50	50
Sullivan County International	67	55	53	54	54
Syracuse Suburban	0	0	0	0	0
Ticonderoga	10	10	10	10	10
Tri-Cities	75	79	84	89	95
Warwick	57	59	64	70	75
Wellsville	19	21	21	21	21
Whitfords	25	32	27	24	21
Williamson-Sodus	45	70	70	70	70
Wurtsboro	99	96	92	88	85
TOTAL for General Aviation Airports	**3,671**	**3,909**	**3,990**	**4,080**	**4,180**
TOTAL	**4,983**	**5,303**	**5,453**	**5,621**	**5,805**

SOURCE: *FAA Terminal Area Forecast (TAF)*

Appendix 3-B

SASP Airports Annual Enplanements: 1995-2006

Table 3-B-1 - SASP Airports Annual Enplanements 1995-2000						
	1995	**1996**	**1997**	**1998**	**1999**	**2000**
PANYNJ						
John F. Kennedy Int'l	15,189,894	15,113,286	15,199,099	15,031,100	15,375,183	16,155,437
% Change		*-1%*	*1%*	*-1%*	*2%*	*5%*
LaGuardia	10,299,701	10,409,524	10,861,757	11,404,082	11,968,030	12,697,208
% Change		*1%*	*4%*	*5%*	*5%*	*6%*
SUBTOTAL	**25,489,595**	**25,522,810**	**26,060,856**	**26,435,182**	**27,343,213**	**28,852,645**
% Change		*0%*	*2%*	*1%*	*3%*	*6%*
Downstate Suburban						
Westchester County	469,004	485,994	526,737	478,285	508,011	507,145
% Change		*4%*	*8%*	*-9%*	*6%*	*0%*
Stewart Int'l	388,907	412,931	418,673	362,932	307,685	274,126
% Change		*6%*	*1%*	*-13%*	*-15%*	*-11%*
Long Island MacArthur	567,873	544,702	510,225	438,118	942,379	1,120,686
% Change		*-4%*	*-6%*	*-14%*	*115%*	*19%*
SUBTOTAL	**1,425,784**	**1,443,627**	**1,455,635**	**1,279,335**	**1,758,075**	**1,901,957**
% Change		*1%*	*1%*	*-12%*	*37%*	*8%*
DOWNSTATE SUBTOTAL	**26,915,379**	**26,966,437**	**27,516,491**	**27,714,517**	**29,101,288**	**30,754,602**
% Change		*0%*	*2%*	*1%*	*5%*	*6%*
Upstate Hub						
Buffalo Niagara Int'l	1,470,928	1,557,236	1,553,700	1,640,878	1,827,466	2,140,002
% Change		*6%*	*0%*	*6%*	*11%*	*17%*
Greater Rochester Int'l	1,185,077	1,216,651	1,255,255	1,266,294	1,227,154	1,218,403
% Change		*3%*	*3%*	*1%*	*-3%*	*-1%*
Syracuse Hancock Int'l	993,413	999,141	1,046,387	1,063,497	1,088,456	1,060,746
% Change		*1%*	*5%*	*2%*	*2%*	*-3%*
Albany Int'l	1,009,790	999,712	1,035,249	1,089,109	1,140,518	1,407,092
% Change		*-1%*	*4%*	*5%*	*5%*	*23%*
SUBTOTAL	**4,659,208**	**4,772,740**	**4,890,591**	**5,059,778**	**5,283,594**	**5,826,243**
% Change		*2%*	*2%*	*3%*	*4%*	*10%*

Table 3-B-1 - SASP Airports Annual Enplanements 1995-2000						
	1995	**1996**	**1997**	**1998**	**1999**	**2000**
Other Upstate Primary						
Greater Binghamton	147,794	145,673	145,861	141,330	136,305	128,827
% Change		*-1%*	*0%*	*-3%*	*-4%*	*-5%*
Ithaca Tompkins Regional	102,141	104,304	107,090	100,451	101,945	99,861
% Change		*2%*	*3%*	*-6%*	*1%*	*-2%*
Elmira/Corning Regional	91,815	100,938	98,841	104,550	108,124	112,866
% Change		*10%*	*-2%*	*6%*	*3%*	*4%*
SUBTOTAL	**341,750**	**350,915**	**351,792**	**346,331**	**346,374**	**341,554**
% Change		*3%*	*0%*	*-2%*	*0%*	*-1%*
Upstate Non-Primary						
Chautauqua County Jamestown	27,732	26,378	28,509	23,726	20,827	18,298
% Change		*-5%*	*8%*	*-17%*	*-12%*	*-12%*
Clinton County	13,172	12,131	13,253	14,000	12,138	9,126
% Change		*-8%*	*9%*	*6%*	*-13%*	*-25%*
Watertown Int'l	4,348	2,132	2,509	4,245	3,598	2,710
% Change		*-51%*	*18%*	*69%*	*-15%*	*-25%*
Ogdensburg Int'l	1,483	1,024	1,446	2,492	2,659	1,590
% Change		*-31%*	*41%*	*72%*	*7%*	*-40%*
Massena Int'l	3,993	2,344	3,364	4,171	4,110	3,715
% Change		*-41%*	*44%*	*24%*	*-1%*	*-10%*
Adirondack Regional	4,557	4,461	4,841	5,554	5,272	4,342
% Change		*-2%*	*9%*	*15%*	*-5%*	*-18%*
SUBTOTAL	**55,285**	**48,470**	**53,922**	**54,188**	**48,604**	**39,781**
% Change		*-12%*	*11%*	*0%*	*-10%*	*-18%*
UPSTATE SUBTOTAL	**5,056,243**	**5,172,125**	**5,296,305**	**5,460,297**	**5,678,572**	**6,207,578**
% Change		*2%*	*2%*	*3%*	*4%*	*9%*
STATEWIDE TOTAL	**31,971,622**	**32,138,562**	**32,812,796**	**33,174,814**	**34,779,860**	**36,962,180**
% Change		*1%*	*2%*	*1%*	*5%*	*6%*

Table 3-B-2 - SASP Airports Annual Enplanements 2001-2006						
	2001	**2002**	**2003**	**2004**	**2005**	**2006**
Port Authority/NY						
John F. Kennedy Int'l	14,553,815	14,369,331	15,676,352	18,586,863	20,260,359	21,071,501
% Change	*-10%*	*-1%*	*9%*	*19%*	*9%*	*4%*
LaGuardia	11,352,248	11,068,411	11,367,309	12,312,561	13,014,314	12,925,697
% Change	*-11%*	*-3%*	*3%*	*8%*	*6%*	*-1%*
SUBTOTAL	**25,906,063**	**25,437,742**	**27,043,661**	**30,899,424**	**33,274,673**	**33,997,198**
% Change	*-10%*	*-2%*	*6%*	*14%*	*8%*	*2%*
Downstate Suburban						
Westchester County	456,296	461,229	426,864	462,981	462,256	511,559
% Change	*-10%*	*1%*	*-7%*	*8%*	*0%*	*11%*
Stewart Int'l	197,872	175,877	201,851	250,006	199,741	156,638
% Change	*-28%*	*-11%*	*15%*	*24%*	*-20%*	*-22%*
Long Island MacArthur	1,009,919	961,573	939,880	986,103	1,055,832	1,138,061
% Change	*-10%*	*-5%*	*-2%*	*5%*	*7%*	*8%*
SUBTOTAL	**1,664,087**	**1,598,679**	**1,568,595**	**1,699,090**	**1,717,829**	**1,806,258**
% Change	*-13%*	*-4%*	*-2%*	*8%*	*1%*	*5%*
DOWNSTATE SUBTOTAL	**27,570,150**	**27,036,421**	**28,612,256**	**32,598,514**	**34,992,502**	**35,803,456**
% Change	*-10%*	*-2%*	*6%*	*14%*	*7%*	*2%*
Upstate Hub						
Buffalo Niagara Int'l	2,204,087	2,059,223	2,039,475	2,206,385	2,436,952	2,522,123
% Change	*3%*	*-7%*	*-1%*	*8%*	*10%*	*3%*
Greater Rochester Int'l	1,132,597	1,176,010	1,233,378	1,364,869	1,450,181	1,417,039
% Change	*-7%*	*4%*	*5%*	*11%*	*6%*	*-2%*
Syracuse Hancock Int'l	936,450	944,139	954,229	1,130,236	1,222,657	1,128,483
% Change	*-12%*	*1%*	*1%*	*18%*	*8%*	*-8%*
Albany Int'l	1,463,632	1,400,655	1,405,611	1,536,263	1,533,301	1,443,360
% Change	*4%*	*-4%*	*0%*	*9%*	*0%*	*-6%*
SUBTOTAL	**5,736,766**	**5,580,027**	**5,632,693**	**6,237,753**	**6,643,091**	**6,511,005**
% Change	*-2%*	*-3%*	*1%*	*11%*	*6%*	*-2%*
Other Upstate Primary						
Greater Binghamton	114,907	112,276	126,252	133,894	122,443	107,314
% Change	*-11%*	*-2%*	*12%*	*6%*	*-9%*	*-12%*
Ithaca Tompkins Regional	88,299	80,406	68,262	72,383	79,953	77,221
% Change	*-12%*	*-9%*	*-15%*	*6%*	*10%*	*-3%*
Elmira/Corning Regional	104,717	87,723	86,931	97,122	86,925	83,328
% Change	*-7%*	*-16%*	*-1%*	*12%*	*-10%*	*-4%*
SUBTOTAL	**307,923**	**280,405**	**281,445**	**303,399**	**289,321**	**267,863**
% Change	*-10%*	*-9%*	*0%*	*8%*	*-5%*	*-7%*

Table 3-B-2 - SASP Airports Annual Enplanements 2001-2006						
	2001	**2002**	**2003**	**2004**	**2005**	**2006**
Upstate Non-Primary						
Chautauqua Co Jamestown	14,004	10,237	8,661	11,276	7,086	4,180
% Change	*-23%*	*-27%*	*-15%*	*30%*	*-37%*	*-41%*
Clinton County	4,310	1,905	1,370	1,712	1,747	
% Change	*-53%*	*-56%*	*-28%*	*25%*	*2%*	
Watertown Int'l	2,449	2,361	2,381	3,728	4,612	3,672
% Change	*-10%*	*-4%*	*1%*	*57%*	*24%*	*-20%*
Ogdensburg Int'l	2,242	2,153	1,901	2,261	2,078	
% Change	*41%*	*-4%*	*-12%*	*19%*	*-8%*	
Massena Int'l	3,019	2,846	2,256	3,083	3,218	2,946
% Change	*-19%*	*-6%*	*-21%*	*37%*	*4%*	*-8%*
Adirondack Regional	2,613	2,608	2,269	2,597	2,682	2,835
% Change	*-40%*	*0%*	*-13%*	*14%*	*3%*	*6%*
SUBTOTAL	**28,637**	**22,110**	**18,838**	**24,657**	**21,423**	**13,633**
% Change	*-28%*	*-23%*	*-15%*	*31%*	*-13%*	*-36%*
UPSTATE SUBTOTAL	**6,073,326**	**5,882,542**	**5,932,976**	**6,565,809**	**6,953,835**	**6,792,501**
% Change	*-2%*	*-3%*	*1%*	*11%*	*6%*	*-2%*
STATEWIDE TOTAL	**33,643,476**	**32,918,963**	**34,545,232**	**39,164,323**	**41,946,337**	**42,595,957**
% Change	*-9%*	*-2%*	*5%*	*13%*	*7%*	*2%*

Appendix 3-C

Total Annual Aircraft Operations Forecast

Table 3-C - Total Annual Aircraft Operations Forecast					
	2005	**2010**	**2015**	**2020**	**2025**
Commercial Service Airports					
Adirondack Regional	42,673	8,100	8,100	8,100	8,100
Albany International	123,650	97,494	103,854	110,547	117,741
Buffalo Niagara International	136,964	138,441	149,971	163,531	178,386
Chautauqua County Jamestown	37,525	33,574	33,574	33,574	33,574
Elmira Corning Regional	43,655	37,305	38,864	40,478	42,198
Greater Binghamton	28,037	21,394	22,082	22,931	23,838
Greater Rochester International	137,752	106,904	113,587	120,706	128,426
Ithaca Tompkins Regional	52,621	47,000	49,556	52,283	55,179
John F. Kennedy International	360,007	460,966	487,731	487,731	487,731
LaGuardia	408,991	373,371	388,249	390,286	390,286
Long Island MacArthur	176,791	177,059	191,574	208,181	226,406
Massena International	9,335	9,335	9,335	9,335	9,335
Ogdensburg International	2,750	2,750	2,750	2,750	2,750
Plattsburgh International	454	454	454	454	454
Stewart International	112,962	74,997	78,280	82,200	86,350
Syracuse Hancock International	124,561	101,557	105,977	110,362	114,978
Watertown International	51,000	52,016	52,016	52,016	52,016
Westchester County	195,327	187,247	201,410	214,951	229,456
TOTAL Commercial Airports	**2,045,055**	**1,929,964**	**2,037,364**	**2,110,416**	**2,187,204**
General Aviation Airports					
Akron	50,900	50,900	50,900	50,900	50,900
Argyle	N/A	N/A	N/A	N/A	N/A
Bayport	10,250	10,250	10,250	10,250	10,250
Brookhaven Municipal	135,100	135,100	135,100	135,100	135,100
Buffalo Airfield	55,000	55,000	55,000	55,000	55,000
Buffalo-Lancaster	30,000	30,000	30,000	30,000	30,000
Camillus	N/A	N/A	N/A	N/A	N/A
Canandaigua	21,600	21,600	21,600	21,600	21,600
Cattaraugus County Olean	25,550	25,550	25,550	25,550	25,550
Chautauqua County Dunkirk	21,600	21,600	21,600	21,600	21,600
Columbia County	19,200	19,200	19,200	19,200	19,200
Cooperstown-Westville	9,025	9,025	9,025	9,025	9,025
Corning-Painted Post	N/A	N/A	N/A	N/A	N/A
Cortland County	16,989	16,989	16,989	16,989	16,989
Dansville Municipal	48,050	48,050	48,050	48,050	48,050
Dutchess County	126,688	86,424	91,035	95,445	100,106
East Hampton	54,250	54,250	54,250	54,250	54,250
Elizabeth Field	2,125	2,125	2,125	2,125	2,125
Finger Lakes Regional	8,465	8,465	8,465	8,465	8,465
Floyd Bennett Memorial	37,325	37,500	37,500	37,500	37,500
Francis S. Gabreski	93,280	90,798	97,215	104,167	111,698
Frankfort-Highland	11,880	11,880	11,880	11,880	11,880
Freehold	2,420	2,420	2,420	2,420	2,420
Fulton County	9,700	9,700	9,700	9,700	9,700
Genesee County	90,760	90,760	90,760	90,760	90,760
Granville	22,500	22,500	22,500	22,500	22,500

Table 3-C - Total Annual Aircraft Operations Forecast					
	2005	**2010**	**2015**	**2020**	**2025**
Great Valley	N/A	N/A	N/A	N/A	N/A
Griffiss International	2,628	46,757	46,757	46,757	46,757
Hamburg Inc	N/A	N/A	N/A	N/A	N/A
Hamilton Municipal	3,260	17,310	17,310	17,310	17,310
Hornell	19,902	19,902	19,902	19,902	19,902
Joseph Resnick	5,784	5,784	5,784	5,784	5,784
Kingston-Ulster	8,000	8,000	8,000	8,000	8,000
Lake Placid	20,000	20,000	20,000	20,000	20,000
Ledgedale	16,100	16,100	16,100	16,100	16,100
Le Roy	10,150	14,268	14,268	14,268	14,268
Lt. Warren E. Eaton	17,300	17,300	17,300	17,300	17,300
Malone-Dufort	8,700	8,700	8,700	8,700	8,700
Mattituck	N/A	N/A	N/A	N/A	N/A
Montauk	30,361	30,361	30,361	30,361	30,361
Niagara Falls International	47,247	32,153	33,250	34,356	35,522
North Buffalo Suburban	59,100	3,600	3,600	3,600	3,600
Oneonta	21,600	21,600	21,600	21,600	21,600
Orange County	131,433	144,210	158,322	173,901	191,105
Oswego County	20,350	20,550	20,550	20,550	20,550
Penn Yan	21,200	21,200	21,200	21,200	21,200
Perry-Warsaw	14,500	14,500	14,500	14,500	14,500
Pine Hill	N/A	N/A	N/A	N/A	N/A
Piseco Municipal	3,150	3,150	3,150	3,150	3,150
Potsdam	6,000	6,000	6,000	6,000	6,000
Randall	22,500	22,500	22,500	22,500	22,500
Republic	203,909	169,922	179,242	190,769	203,092
Royalton	6,050	6,050	6,050	6,050	6,050
Saratoga County	38,550	38,550	38,550	38,550	38,550
Schenectady County	70,000	70,000	70,000	70,000	70,000
Schroon Lake	800	800	800	800	800
Sidney	7,800	7,800	7,800	7,800	7,800
Skaneateles	9,108	9,108	9,108	9,108	9,108
Sky Acres	48,300	48,300	48,300	48,300	48,300
South Albany	24,100	24,100	24,100	24,100	24,100
Spadaro	6,100	6,100	6,100	6,100	6,100
Sullivan County International	33,203	35,545	35,545	35,545	35,545
Ticonderoga	11,000	11,000	11,000	11,000	11,000
Tri-Cities	48,200	18,797	19,789	21,006	22,356
Warwick	5,000	5,000	5,000	5,000	5,000
Wellsville	19,100	19,100	19,100	19,100	19,100
Whitfords	6,100	6,100	6,100	6,100	6,100
Williamson-Sodus	26,536	26,536	26,536	26,536	26,536
Wurtsboro	70,000	70,000	70,000	70,000	70,000
TOTAL General Aviation Airports	**2,027,783**	**1,928,849**	**1,965,403**	**2,006,199**	**2,050,439**
Heliports					
Downtown/Wall Street	1,583,088	1,583,088	1,583,088	1,583,088	1,583,088
East 34th Street	59,662	59,662	59,662	59,662	59,662
Haverstraw Heliport	N/A	N/A	N/A	N/A	N/A

Table 3-C - Total Annual Aircraft Operations Forecast					
	2005	**2010**	**2015**	**2020**	**2025**
Southampton	N/A	N/A	N/A	N/A	N/A
West 30th Street	18,877	18,877	18,877	18,877	18,877
TOTAL Heliports	**1,661,627**	**1,661,627**	**1,661,627**	**1,661,627**	**1,661,627**

SOURCE: *FAA Terminal Area Forecast (TAF)*

CHAPTER FOUR
DEMAND/CAPACITY ANALYSIS

1. INTRODUCTION

For an aviation system to properly service existing and forecasted levels of activity, it must have the ability to efficiently process the demand of its users. This chapter reviews the ability of the New York statewide system of airports to accommodate the number of projected aircraft operations during the planning period by gathering estimates of operational capacity. By definition, operational capacity is determined by the amount of delay incurred. Therefore, the determination of capacity is a measure of acceptable levels of delay. As demand approaches 100 percent of estimated capacity, the delay incurred by an aircraft increases and the quality of service deteriorates.

To understand the ability of the New York State system of airports to process demand, available data pertaining to airport capacity were compared to forecast levels of demand. Results of this comparison, or demand/capacity analysis, offered insight into improvements that would enhance system-wide capacity. Such improvements are necessary to ensure that delays remain at acceptable levels within New York's airport system. To adequately address these topics, this chapter is organized to address the following topics:

- Defining Airside Capacity
- Airfield Capacity Adequacy Analysis
- Capacity Enhancement Strategies
- Summary

2. DEFINING AIRSIDE CAPACITY

Airport capacity can be expressed in several ways. One measure of capacity is Annual Service Volume (ASV), which offers an estimate of the number of annual aircraft operations that can take place at an airport. This number can then be used to estimate the operational delay experienced by aircraft using the airfield. Another method for determining capacity at an airport is estimating enplanement capacity. This measure is a combination of operational and passenger factors, such as aircraft fleet mix, aircraft load factors, ASV, and landside passenger processing capacity. For the purposes of this Plan, capacity estimates determined from both methods were gathered to develop a reasonable picture of capacity issues in the system through 2025.

2.1 Annual Service Volume

It is important to note that it is possible for airports to operate at operational levels in excess of their ASVs. However, ASV is widely used as a reference point for the general planning of capacity-related improvements. Detailed airfield capacity analysis, which is often part of an airport master plan, should be conducted for airports where operations are approaching their estimated ASVs. Table 4-1, derived from FAA data, shows the typical relationship between the ratio of annual

demand at an airport to its calculated ASV and the average annual aircraft delay per operation based on the various demand/capacity ratios:

Table 4-1 – Relationship of ASV to Potential Delay

Ratio of Annual Demand to ASV	Average Aircraft Delay (min/op)	Peak Delay Range for Individual Aircraft (min)
0.1	0	0.0 - 0.5
0.2	0.1	0.5 - 1.0
0.3	0.2	1.0 - 2.0
0.4	0.3	1.5 - 3.0
0.5	0.4	2.0 - 4.0
0.6	0.5	2.5 - 5.0
0.7	0.7	3.5 - 7.0
0.8	0.9	4.5 - 9.0
0.9	1.4	7.0 - 14.0
1.0	2.8	13.0 - 26.0
1.1	5.4	27.0 - 54.0

As shown in this table, when annual demand equals the calculated ASV (ratio of 1.0), average annual aircraft delay averages 2.8 minutes per operation. The actual delay at any given time depends on a number of conditions and can vary by a factor of five or more. As shown in the preceding table, once an airport exceeds 80 percent of its operational capacity (a demand to ASV ratio of 0.8), average delays per operation begin to increase rapidly and peak delay can vary widely.

There are a number of factors that are considered in the ASV for an airport. These factors include:

- Airfield Layout and Configurations
- Weather Conditions
- Aircraft Fleet Mix
- Airspace Structure, Hierarchy, and Satellite Airport Proximity

The ways in which these factors influence airfield capacity is described in the following sections.

Airfield Layout and Configuration

Airfield layout and configuration affects the ability of the airport to efficiently accommodate aircraft operations. There are several airport geometrical designs which improve operational capacity. For example, runways with full-length parallel taxiways are more efficient than runways with partial length or no parallel taxiways because departing aircraft can taxi to the threshold with another aircraft on a final approach. Full-length parallel taxiways permit a more rapid exit of aircraft from the runway, reducing the amount of time pilots must spend "back-taxiing" on the runway to the threshold for departure or to an exit taxiway. The number of taxiway exits on the runway, and their width, also affects operational capacity.

The spacing between the primary runway and its parallel taxiway are also important considerations. Additionally, airports with intersecting runways may have a lower annual operational capacity than airports with nonintersecting runways, as intersecting runways require more separation to be provided between aircraft using both runways at the same time. Airports with appropriately spaced, parallel runways are the most efficient since they may allow aircraft to land and take-off simultaneously.

Weather Conditions

Weather conditions can impact the capacity of an airport by closing the airport for operations or by slowing down the number of operations that can occur. Weather conditions, widely understood as either visual meteorological conditions (VMC) or instrument meteorological conditions (IMC), affect minimum standards that can be used by pilots during flight, departure, or final approach. With all other conditions being equal, fewer aircraft operations occur during IMC weather. Airports with non-precision and precision instrument approaches have a higher operational capacity than those without these capabilities since aircraft can operate during periods of decreased visibility.

Winds also impact the operational capacity at an airport. When winds are not directly aligned with the runway, pilots are required to calculate a crosswind component to determine if a runway is usable.

Aircraft Fleet Mix

The aircraft fleet mix is an important factor in determining an airport's operational capacity. Since requirements for aircraft are based on their approach speed and size, capacity decreases as the number and diversity of approach speeds increases. The greater the difference in size and speed of the aircraft in the fleet, the greater the space required between aircraft and, therefore, the lower the operational capacity.

2.2 Airspace Structure, Hierarchy, and Satellite Airport Proximity

As previously noted, ASV is one general indication of potential delay at an airport. For such busy airports as John F. Kennedy International and LaGuardia Airport, other specific operating procedures and conditions must be considered. This is because the calculation of ASV at such airports is extremely complex due to real operational constraints to their capacity. The Port Authority of New York & New Jersey (PANY&NJ) provided enplanement capacity data for both John F. Kennedy International and LaGuardia, which is used for planning at these airports.

The data provided by PANY&NJ measures operational capacity in terms of peak hour operations for John F. Kennedy International and LaGuardia Airport. As the case at many commercial service airports, John F. Kennedy International and LaGuardia operate under significant peak period demand patterns. Recognizing the unique conditions at these airports and the specific knowledge and experience of the PANY&NJ as the managing agency of these facilities, the SASP reports the capacities as determined and published by the PANY&NJ.

Operational capacity at John F. Kennedy International and LaGuardia is limited by two factors: airside facilities and an FAA policy for High Density Traffic Airports (HDTA). Airside facilities at both airports are generally regarded, by PANY&NJ airport planners, to be at maximum development potential. Other constraints which affect the operational capacity LaGuardia and John F. Kennedy International is their proximity to each other. For example, some departures out of John F. Kennedy International can interrupt operations at LaGuardia Airport; thereby reducing the latter's capacity. The PANY&NJ has a capacity enhancement task force at each airport. This task force meets monthly to seek ways to improve operational capacity.

3. AIRFIELD CAPACITY ADEQUACY

The FAA recommends that individual airports should begin planning for additional airfield capacity when actual annual operations reach 60 percent of ASV. Additionally, FAA recommends that capacity-enhancing improvements should be identified and implemented when actual annual operations reach 80 percent of ASV. Projections of total annual operations at each system airport were compared to published airfield operational capacity figures to identify facilities projected to exceed 60 percent of airfield capacity during the twenty year planning period.

3.1 Non-PANY&NJ Airport Capacity Findings

NYSDOT information indicates that nine airports are forecasted to exceed 60 percent of annual capacity by 2025. Table 4-2 presents the results of the capacity analysis.

Table 4-2 - Airports Forecast to Reach or Exceed 60 Percent of ASV

SASP Airports	Airfield Capacity	2025 Percent Capacity
Albany International	319,000	61%
Buffalo Niagara International	194,000	106%
Dutchess County	232,100	69%
Greater Rochester International	266,000	62%
Long Island MacArthur	303,000	74%
Orange County	168,000	113%
Republic	270,000	76%
Syracuse Hancock International	268,000	67%
Westchester County	210,000	112%

SOURCE: *NYSDOT*

Geographically, it appears that all airports where activity levels are forecast to reach 60 percent of airfield capacity by 2025 are served by other general aviation airports which can provide additional system capacity. Three airports are expected to exceed 100 percent of ASV.

3.2 Airside Capacity Needs at PANY&NJ Airports

As reported in the FAA Regional Air Service Study (FRASS), John F. Kennedy International will need two fully airspace-independent parallel runways, plus a third runway to accommodate peak

flow conditions by 2025. While John F. Kennedy International currently has these three runways, operation of them independent of LaGuardia interference is not yet possible.

In order for LaGuardia to maintain existing levels of service without adding runway delays, the FRASS states that the Airport will need to accomplish several benchmarks. These include:

- Regain the two operations per hour capacity lost since 2004
- Regain the 2 percent of capacity lost to wake-turbulence separations for Boeing 757 and heavy jet (and smaller propeller and jet aircraft)
- Increase taxiway capacity to accommodated departure queues on all runway operations for more than 30 aircraft.

Table 4-3 presents forecast levels of capacity for PANY&NJ Airports.

Table 4-3 – PANY&NJ Airports Forecast Capacity

SASP Airports	Enplanement Capacity	2025 Percent of Enplanement Capacity
John F. Kennedy International	45,000,000	130%
LaGuardia	33,000,000	103%

SOURCE: *NYSDOT and PANY&NJ*

John F. Kennedy International is predicted to reach almost 60.0 million passengers by 2025 (exceeding its airfield capacity for passengers by 30 percent). Enplanement activity is forecast to be nearly 103 percent of capacity at LaGuardia by 2025, if no changes are made. Operational capacity in terms of hourly airfield arrivals and departures are forecast to experience significant delays at both John F. Kennedy International and LaGuardia by the year 2025.

Stewart International Airport was recently incorporated into the PANY&NJ system of airports. According to the FRASS, airside facilities at Stewart International have available capacity to accommodate baseline and optimistic operational forecasts. Stewart International has an ASV of 249,000 operations and is anticipated to be at 67 percent of its airfield capacity by 2025.

4. PLANNED FACILITY UPGRADES

Another measure of runway capacity involves the ability of an airport to accommodate large aircraft. Statewide growth in aviation demand has led to planning for the expansion of some runways in the system. Improvements will likely include overall length and strength of runway surfaces, which will add capacity for larger aircraft fleet mixes. An analysis was completed by NYSDOT that identified airports with planned runway upgrades (presented in Appendix 2E). These upgrades are listed below in terms of changes to Airport Reference Codes (ARC), which affect design standards for each airport.

Airport	ARC Change
• Watertown International	B-II to C-III
• Chautauqua County Dunkirk	B-II to D-II
• Griffiss International	C-III to D-V
• Lancaster	B-I to B-II
• Oswego County	C-II to D-II
• South Albany	B-I to B-II
• Williamson-Sodus	B-I to B-II

5. SUMMARY

There are nine non-PANY&NJ airports in the New York State Airport System that are projected to be operating in excess of 60 percent of their available annual capacity by 2025. Three airports, Buffalo Niagara International, Orange County, and Westchester County are projected to reach operational levels in excess of 100 percent of their capacity in 2025. As mentioned, the FAA recommends that an airport begin to plan for capacity enhancement when it reaches 60 percent of its available operating capacity. Further, FAA recommends that these plans be implemented when the airport reaches 80 percent of its capacity.

John F. Kennedy International is predicted to reach almost 60.0 million passengers by 2025 (which exceeds its airfield capacity for passengers by 30 percent). Enplanement activity is forecasted to be nearly 103 percent of capacity at LaGuardia by 2025, if no changes are made. Considering FAA guidance for capacity enhancing projects, both airports should be planning and designing capacity improvements in preparation for such high levels of activity. Stewart International Airport is anticipated to reach 67 percent of its airfield capacity by the year 2025.

In addition to these airfield capacity constrained airports, there are six airports that have planned runway expansion upgrades to accommodate larger aircraft. These airports include Watertown International, Chautauqua County Dunkirk, Lancaster, Oswego County, South Albany, and Williamson-Sodus.

CHAPTER FIVE
CAPITAL IMPROVEMENTS

1. INTRODUCTION

Currently, the system of airports in New York State may be categorized as mature. The level of capital asset conditions range from fairly good to poor. Both the Federal Aviation Administration (FAA) and state funded programs provide capital project funding, with the FAA supplying a far larger amount annually than does the state.

The federal government generally provides 95 percent capital project funding for eligible airport capital projects through the FAA Airport Improvement Program (AIP). FAA's AIP share may change to 90 percent if a current pending bill becomes law. AIP grants to New York totaled $106.2 million in 2005. The state subsequently provides matching funds to the airport owner to cover one half of the non-federal share, except for PANY&NJ airports which receive no support from the New York State Department of Transportation (NYSDOT). State matching grants totaled $4.4 million in 2005.

In the recently completed 2007-08 state fiscal year (SFY), the state budget has additionally made provision to convert unused AIP appropriation to 100 percent state funded Airport Improvement and Revitalization (AIR '99) program to permit use of those funds for airport safety and infrastructure projects. The excess AIP match appropriation for the year was almost $4 million. This money will fund projects starting in SFY 2008-09. In addition, the state is in the third year and final year of the Rebuild and Renew New York Transportation Bond Act, which is providing $76.4 million for airport capital projects over five years or about $15 million annually. State funded airport grants after 2009 are dependent on budget funding of the AIR '99 program.

2. BACKGROUND AND METHODOLGY

There are 93 airports included in the SASP Update. Among SASP airports, approximately 75 are eligible for federal funding and the remainder are eligible for state bond or Legislative member multimodal funding only. Airports are segregated into two categories: the first is "Primary," with 10,000 or more enplanements (boardings) per year. These Primary airports represent the vast majority of public investments and aviation activity. The second category of airport is "Non-Primary and GA" including small commercial service airports (with mostly general aviation activity) and General Aviation airports (GA) with no scheduled air service or under 2,500 annual airline enplanements.

2.1 Asset Classification

New York State airport assets have been divided into three groups, based upon their contribution to the overall system and their relative investment values. The classifications and asset descriptions include the following:

- Core Assets
  - Runway and Taxiway Pavement and Lighting
  - Runway Development
  - Instrument Approach/Navigational Aids Development

- Key Support Assets
  - Taxiway and Apron Development
  - Safety Approach Acquisition/Obstruction Removal
  - Environmental Projects including Noise Remediation
  - Terminals
  - Maintenance

- Infrastructure
  - Fencing

2.2 Sustainable Asset Preservation and Normal Replacement

Airport Capital Improvement Plans (ACIPs) are the primary source of base and projection data. Five year ACIPs are provided for each federal fund-eligible airport. Five year totals by asset are used for the base year 2010. There are a number of airports that are eligible for state bond funds, but not eligible for AIP funding. These bond-only eligible airport projects are added to the ACIP eligible projects to arrive at a grand total five year base needs. All airport ACIPs have been included in the NYSDOT Aviation Bureau's database. Appendix 5-A presents a summary of these ACIPs by airport.

The Aviation Bureau receives airport master plans for most larger system airports (all 18 commercial air service airports and 16 larger GA airports), which account for significant capital expenditures. These master plans identify capital needs over a 20 year period. Major airport projects from these master plans were identified for notation. Capital improvement growth rates were identified from the master plans by category of airport. These growth rates by type of airport and by asset classification were applied to airport ACIP projects and capital needs totaled in five year increments providing an overall needs analyses product.

Needs were identified by showing the available federal and state funding for the existing and forecast period. Shortfalls or excesses in funding were identified by comparing the need to the existing and future available funding. It was assumed that Federal Aviation Administration funding for airports would not contain significant increases.

3. ACIP NEEDS ASSESSMENT FOR NON-PORT AUTHORITY AIRPORTS

Using the methodology described in the previous section, the funding needs for capital improvement projects were identified. The following tables present the input and analysis data used to determine current and forecast funding needs for capital improvement projects for SASP airports. Table 5-1 is based on a six year analysis of AIP funding for New York State airports and was used to

obtain average historical AIP funding levels for Primary and Non-Primary airports.

Table 5-1 - New York State AIP Funding History 2001-2006 ($Millions)				
Year	Total	Primary	Port Authority	Non-Primary
2006	$142.0	$102.0	$55.8	$40.0
2005	$137.1	$97.7	$64.6	$39.4
2004	$138.5	$97.3	$58.7	$40.2
2003	$170.5	$139.5	$59.6	$31.0
2002	$155.0	$118.4	$60.6	$36.6
2001	$131.9	$91.0	$53.0	$40.8
AVG.	**$145.8**	**$107.7**	**$58.7**	**$38.0**

Source: FAA
Note: Total column includes Primary and Non-Primary
Primary in above table includes Port Authority airports (John F. Kennedy International and LaGuardia)
Stewart International Airport is included in Primary category since data was compiled pre-lease agreement with PANY&NJ

In Table 5-2, ACIP information for the 2005-2009 period was used to derive a five year needs assessment for non-Port Authority Primary and Non-Primary airports, by project category. The 2005-2009 period was selected after a review of all plans in the database, since that period would require the least adjustments. ACIP funding includes federal, state, and local shares.

Table 5-2 - Five Year ACIP Totals: 2005-2009 ($Millions)				
	Primary Airports		Non-Primary Airports	
Project Category	AIP Eligible	Total	AIP Eligible	Total
1. Pavement/Lighting Rehabilitation	$63.1	$68.6	$87.2	$93.1
2. Runway Development, Widening	$24.8	$32.3	$51.8	$55.8
3. Taxiway and Apron Development	$90.7	$182.3	$75.4	$81.2
4. Land Acquisition/Obstruction Removal/Safety Area	$18.5	$27.0	$53.0	$56.1
5. FAR Part 139/Security	$29.9	$30.7	$1.8	$1.9
6. Environmental/Drainage/Glycol Collection	$38.5	$53.5	$5.0	$4.8
7. Noise Abatement	$31.8	$33.5	$0.0	$0.0
8. Terminals/Hangars/Fuel Farms	$81.6	$371.6	$53.2	$87.0
9. Instrument Approach/NAVAIDS	$13.0	$13.7	$19.2	$20.4
10. Maintenance Equipment and Storage	$16.2	$52.2	$22.8	$25.9
11. Non-FAR Fencing/Access/Parking	$7.1	$42.5	$14.4	$15.4
TOTALS	**$415.2**	**$907.9**	**$383.8**	**$441.6**

Note: Primary Airports exclude John F. Kennedy International and LaGuardia

As shown in the above table, the five year ACIP needs at Primary and Non-Primary airports is anticipated to outpace the expected funding between 2005 and 2009, based on the historical AIP

averages as follows:

	ACIP Need	Expected AIP Funding	Five Year AIP Deficit
• 2005-2009 Primary Airports*	$415.2M	$293.5M	$121.7M
• 2005-2009 Non-Primary Airports	$383.3M	$190.0M	$193.3M

* Note: Primary Airports exclude John F. Kennedy International and LaGuardia

In Table 5-3, the ACIP needs for each five year period during 2010-2030 were compared to the historical five year AIP funding levels (held constant), to determine the expected AIP funding deficit.

Table 5-3 – Non-PANY&NJ Airport Needs vs. Expected Funding 2010-2030 ($Millions)

Year	ACIP Need $M	Expected AIP Funding $M	Five Year AIP Deficit $M
2010-2015			
Primary Airports	$383.7	$293.5	$90.2
Non-Primary Airports	$345.0	$190.0	$155.0
2016-2020			
Primary Airports	$408.2	$293.5	$114.7
Non-Primary Airports	$210.6	$190.0	$20.6
2021-2025			
Primary Airports	$524.4	$293.5	$230.9
Non-Primary Airports	$259.1	$190.0	$69.1
2026-2030			
Primary Airports	$655.5	$293.5	$362.0
Non-Primary Airports	$214.6	$190.0	$24.6
20-YEAR GRAND TOTALS	**$3,001.1**	**$1,934.0**	**$1,067.1**

Source: NYSDOT

Anticipated capital needs exceed available funding by more than $1 billion by the end of the 20-year planning period for Primary and Non-Primary airports. Increases in federal and state funding are necessary to expand airports to keep up with demand; to enhance safety; to promote mobility by air; to support the economic development and sustainability of communities; and to mitigate the environmental effects of some airport activity. Figure 5-1 illustrates shortfalls expected in the FAA's Airport Improvement Program (AIP) funding based on historical funding data, airport capital improvement plans (ACIP), and airport master plans.

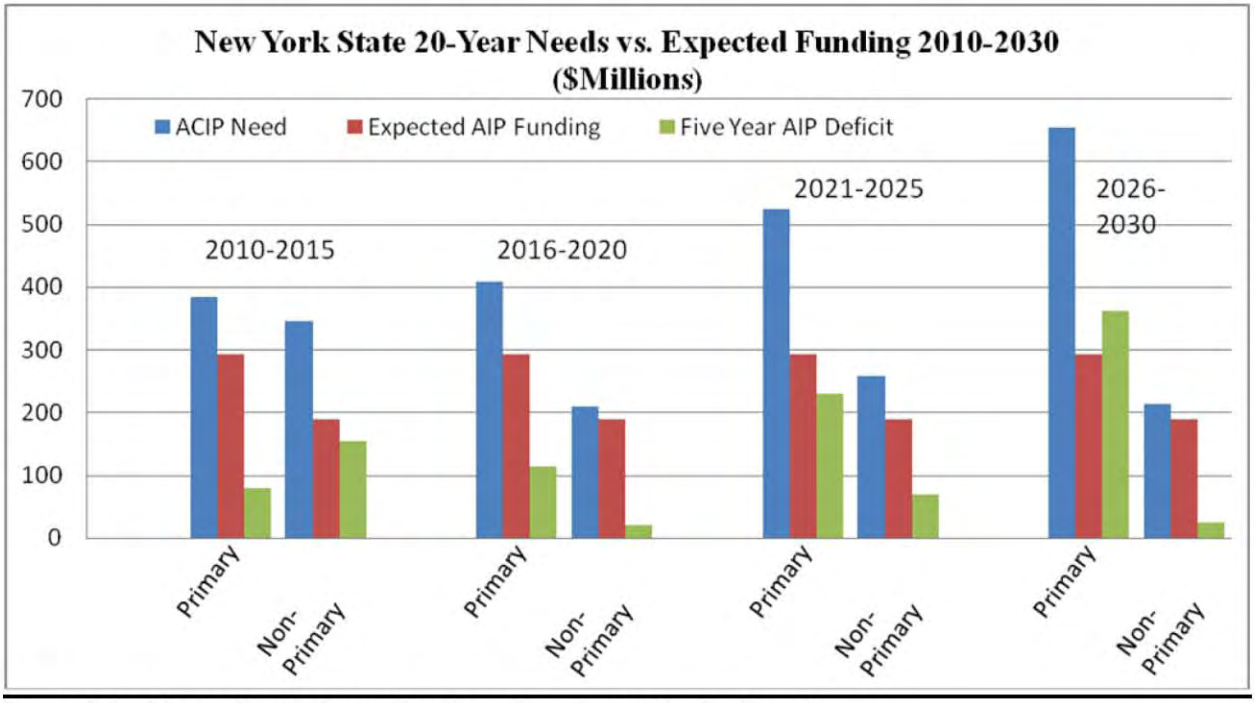


Figure 5-1 - ***20-year Needs Versus Funding – Non-Port Authority Airports***

3.1 Primary Airport Needs

Base data taken from the 2005-2009 ACIP analysis, and the five year base figures were extrapolated to the future five year planning periods using multipliers that were derived from an analysis of airport master plan information. In total, Primary Airports will require $797.8 million more in funding than is projected to be available. The significantly higher needs during the second half of the 2010-2030 period (see Figure 5-2) are mostly due to projects associated with the long term growth in passengers and aircraft activity. These projects will include new demands for terminal area development. Capital projects for PANY&NJ projects will add significantly to the need for increased AIP funding. A snapshot of significant projects for the planning period at PANY&NJ facilities are shown in Table 5-4.

Table 5-4 – Major PANY&NJ Airport Projects

AIRPORT	PROJECTS
John F. Kennedy International	**Terminal Projects**
	Lobby Area – Terminals 4 and 8
	Security Screening Checkpoint Lanes and Area
	Checked Baggage Screening Area
	Secure Area Concessions and Circulation
	Restrooms – Terminals 1, 3, 7, and 8
	International Baggage Claim – Terminals 7 and 8
	Domestic Baggage Claim – Terminal 7
	Border Control and Customs Counters – Terminals 2 and 3

Table 5-4 – Major PANY&NJ Airport Projects	
AIRPORT	**PROJECTS**
	Landside Projects
	Van Wyck Expressway Ramps
	Eastbound Nassau Expressway Ramps
	John F. Kennedy Expressway Ramps
LaGuardia	**Terminal Projects**
	Lobby Area
	Security Screening Checkpoint Lanes and Area
	Checked Baggage Screening Area
	Secure Area Concessions and Circulation
	Restrooms
	Landside Projects
	Grand Central Parkway Ramps to East Terminal
	Arrival Curbs
Stewart International	**Terminal Projects**
	Additional Gate
	Terminal Curb Frontage and Access Road
	Security Checkpoint and Checked Baggage Screening
	Landside Projects
	Automobile Parking

Source: FAA Regional Air Service Demand Study, 2007

The expected funding for several project types, including but not limited to terminals, access/parking, and taxiway/apron development, include significant non-AIP shares. The non-AIP share at primary airports is often funded using FAA-approved Passenger Facility Charges (PFC), which are fees that airlines collect from passengers and transmit to the airports. However, PFCs are dependent on a myriad of local factors and are not reliable as a long-term contributor to non-AIP share funding. Finding AIP deficit funding sources continues to be a significant challenge to meeting SASP airport needs over the planning period.

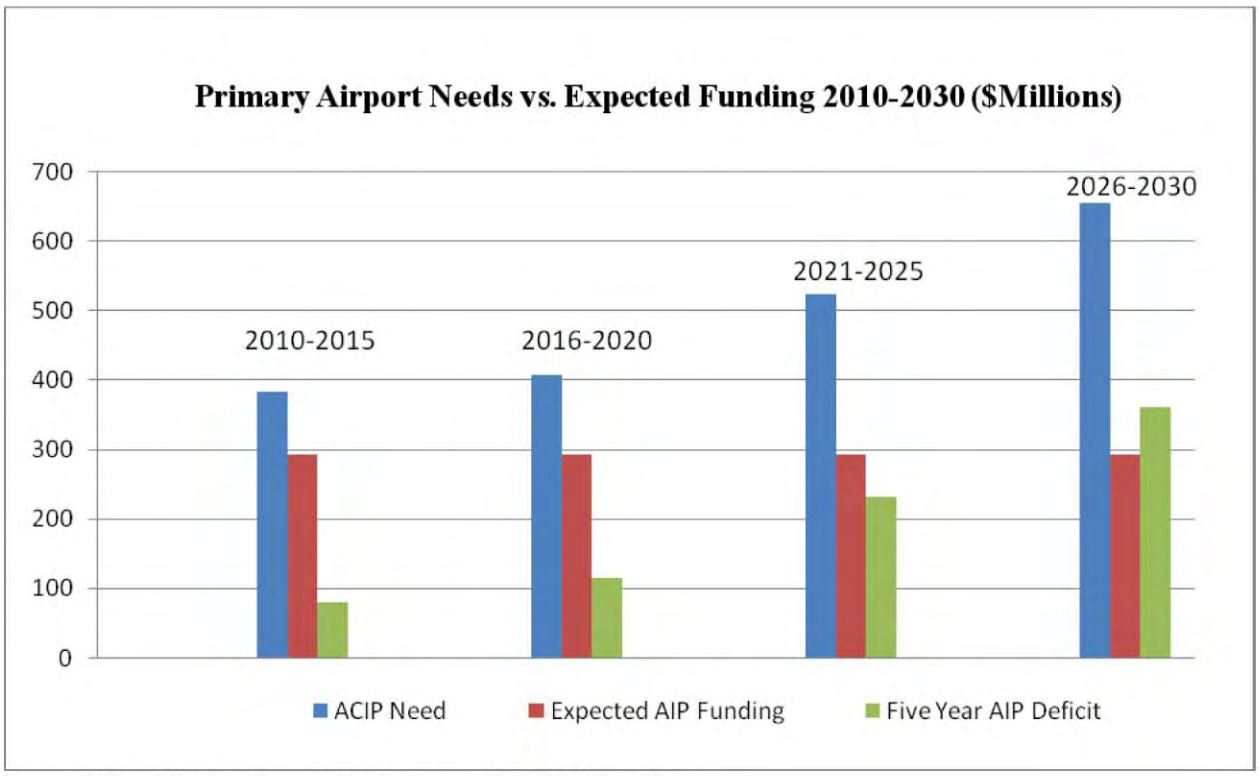


Figure 5-2 – ***Primary Airport Needs versus Expected Funding***

3.2 Non-Primary Airport Needs

Base data taken from 2005-2009 ACIP analysis, and the five year base figures were extrapolated to the future five year planning periods using multipliers that were derived from an analysis of airport master plan information. In total, Non-Primary Airports will require $269.3 million more in funding than is projected to be available. The initial five year period is expected to contain the single largest funding requirement of the twenty year period (see Figure 5-3). Terminal, hangar and fuel farm requirements at Non-Primary Airports are one of the major needs categories, where FAA funding for those projects is difficult to obtain and is relatively small. A considerable share of the total cost for these project types would come from state grants (for which there is currently no dedicated source of funds) and/or private sources.

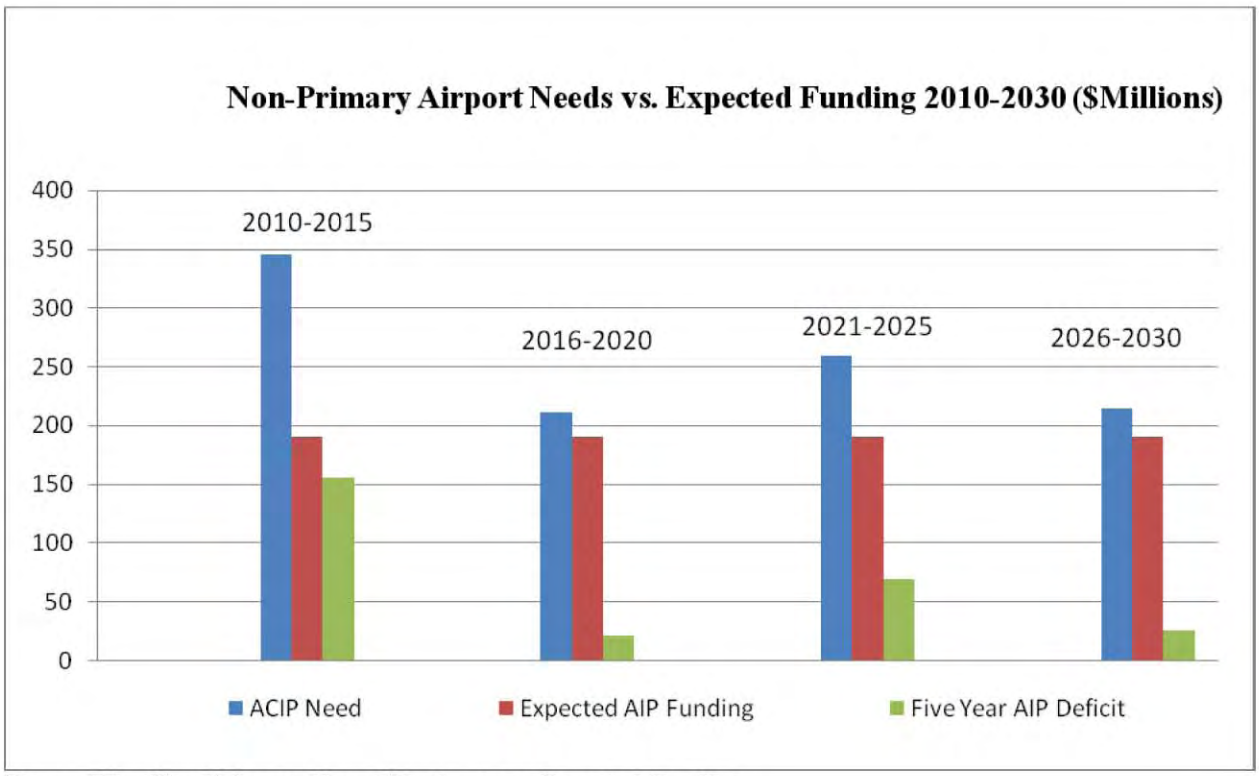


Figure 5-3 – ***Non-Primary Airport Needs versus Expected Funding***

Existing airport master plans for the largest primary airports were reviewed for major replacement projects, making note of time frame, total cost, and anticipated AIP share for the forecast period. Table 5-5 presents these projects, indicating some of the most significant shortfalls for major proposed projects that are widely accepted as necessary to maintain the statewide system.

Table 5-5 – Major Proposed Airport Projects 2010-2030 ($Millions)

Airport	Project	Time Frame	Total Cost	AIP Share
Albany Int'l	Terminal Concourse "A" Construction	2010-2016	$11	$7
Buffalo Niagara Int'l	Runway and Taxiway Extension	2010-2016	$8	$6
Elmira/Corning Regional	Runway 6-24 Rehabilitation	2010-2016	$2	$2
Greater Binghamton	New Hangar	2010-2016	$2	$0
Greater Rochester Int'l	Air Cargo Building	2010-2015	$6	$0
Greater Rochester Int'l	New Parking Garage	2010-2015	$10	$0
Greater Rochester Int'l	Parallel Taxiway for Runway 4-22	2010-2015	$5	$5
Schenectady County	Taxiway Extension	2010-2015	$8	$7
Syracuse Hancock Int'l	New Parallel Runway 10L-28R	2021-2030	$53	$50
Syracuse Hancock Int'l	Cross Field Taxiway and Entrance Road Tunnel	2021-2030	$7	$6
Syracuse Hancock Int'l	Terminal Building Expansion	2021-2030	$287	$116
Watertown Int'l	Runway 7-25 Extension	2016-2025	$12	$11
GRAND TOTAL			**$411**	**$210**

Source: Individual airport master plans.

As indicated, an estimated shortfall of $201 million in AIP funding is anticipated through 2030 for these projects alone. This means that such airside and landside capacity-enhancing projects as a new parallel runway and expansion of the terminal at Syracuse Hancock International or the new parking garage at Greater Rochester International will likely be pushed further out in the future.

4. PORT AUTHORITY AIRPORT NEEDS

The *PANY&NJ Strategic Plan*, published in 2007, estimated expected needs and funding levels for the facilities the Port Authority owns and manages. The Plan sets forth a number of campaigns, which address aviation facilities, access, and security needs. Under *Campaign 1, Transportation for a Competitive Service Export Economy*, the Plan endeavors to ensure a high quality of air transportation services, airport access, and inter-regional transit to support the increasingly critical role of global trade in business services in retaining and enhancing the region's competitive position. Highlights of this campaign related to airports and air transportation are:

- The total cost of *Strategy 1: Increase Air Travel Capacity and Quality*, is $3.6 billion. This estimate represents the total cost for runways, taxiways, terminals, hotels and parking garages. The PANY&NJ provided $1.1 billion, which leaves a gap of $2.5 billion. The Port Authority is advancing the Central Terminal Building and Terminals 2 & 3 (Delta) at John F. Kennedy International. These projects are estimated at about $7.5 billion. Therefore, the gap in the 2007-2016 period for Terminal Redevelopment is approximately $5.5 billion, and terminal redevelopment investment in the Port Authority's New York airports during the 2017-2030 could reach $5 billion.

- Aeronautical investment in John F. Kennedy International and LaGuardia Airport is primarily funded. Existing runways and taxiways are in a state of good repair and are part of the Port Authority's ongoing pavement management program. Approximately $800 million will be spent in the 2007-2016 period, with an investment of $1.5 billion in the 2017-2030. This investment will be funded through a combination of flight fees (PFCs), and federal funds - mainly AIP.

- Landside investments in John F. Kennedy International and LaGuardia Airport account for $200 million in the 2007-2016 period. In the 2017-2030 period, approximately $500 million has been estimated to keep the roadways in a state of good repair, in addition to $1 billion to replace the AirTrain, and a potential $3 billion to provide rail access to LaGuardia and Stewart International. Landside investments would be funded through airport revenues; the rail access programs would require new funding.

- The New York City airports have about $5 billion invested in facilities in 2007, which is assumed to increase to $7.5 billion in 2017. The 2017-2030 period need to maintain facilities in a state of good repair is estimated at approximately $400 million per year.

These funding needs, funding levels, and project funding gaps are summarized below:

Table 5-6 – Port Authority Airport Capital Funding Needs ($Billions)			
Project/Timeframe			
2007 to 2016	Total Needed	Funded	Gap
Terminal Redevelopment	$7.5	$2.0	$5.5
Aeronautical Investment	$0.8	$0.8	$0.0
Landside Investments	$0.2	$0.2	$0.0
Stewart International	$0.5	$0.5	$0.0
2017 to 2030			
Terminal Redevelopment	$5.0	$2.0	$3.0
Aeronautical Investment	$1.5	$1.5	$0.0
Landside Investments	$0.5	$0.5	$0.0
Totals	**$16.0**	**$7.5**	**$8.5**

Source: PANY&NJ

Not included in these estimates is the roughly $4 billion to fund the AirTrain and rail access in the future.

5. SUMMARY & FINDINGS

From this assessment, the following observations can be made:

- ***Funding Shortfall:*** A shortfall in funding exists to address planned capital improvements at commercial service and general aviation airports. A greater proportion of the unfunded improvements occur at these small, non-primary airports due to less available resources such as Passenger Facility Charges, parking, and air carrier charges.

- ***Primary Airports:*** The airline airports (shown as "Primary Airports") will have increasing capital funding shortfalls from **$90 million in the first 5 years to over $360 million by 2025**. The significantly higher needs during the second half of the 2010-2030 period are primarily due to projects associated with the long term growth in passengers and aircraft activity, which should result in new demands for runway and terminal area development at airports such as Syracuse Hancock International and Stewart International requiring an additional $2 million in state match.

  - The expected funding for several project types, including but not limited to terminals, access/parking, and taxiway/apron development, include significant non-AIP shares. The non-AIP share at primary airports is often funded using FAA-approved Passenger Facility Charges, which are fees that airlines collect from passengers and transmit to the airports, but are a volatile funding source.

- ***Non-Primary Airports:*** The initial five year period is expected to contain the single-largest funding requirement of the twenty year period due to the need for long-term pavement related projects. Terminal, hangar and fuel farm requirements at non-primary airports are some of the major needs categories, where FAA funding for those projects is difficult to obtain and

relatively small. A considerable share of the total cost for these project types is expected to come from state grants and/or private sources. Non-Primary Airports are affected to a greater degree by funding shortfalls as municipal budgets supporting operations are limited. Recent Bond Act funds and the continued AIR '99 program have helped with the operating budget shortfalls by providing essential revenue-producing projects such as hangars, terminals, and fueling facilities.

Additional airport capital needs analysis findings include:

- ***Port Authority Airports:*** Port Authority airports will have increasing capacity constraints which may result in more traffic at airports such as Stewart International and may require ground transportation alternatives in the New York City region. The total funding gap for capital needs for the New York PANY&NJ airports exceeds $8.5 billion through the year 2030.

- ***Small Commercial Service Airports:*** Smaller commercial service airports will require continued federal and state support as the airline free-market continues to consolidate services at larger airline airports and reduces services to smaller communities.

- ***Significant Projects:*** Statewide, several significant airport capital projects are expected in the last five years of the planning period including: a parallel runway and terminal expansion at Syracuse Hancock International (approximately $340 million); terminal expansion at Stewart International (approximately $120 million); and runway extension at Watertown International ($12 million). This may increase the state match for that period by $0.5 million per year.

- ***Funding New Navigation Systems:*** The National Airspace System will upgrade to a more cost-effective spaced-based navigation system, transitioning away from ground-based facilities. In the long term, this will mean more efficiency and lower federal system support costs. It is currently unclear how the enormous cost of this upgrade will be funded and whether states' budgets will be affected.

- ***Airside Improvements:*** Airside improvements are necessary to rehabilitate and improve airside infrastructure, to address environmental requirements, improve safety and reliability of operations for airports, and to achieve the goal of providing facilities that meet the state's objectives for air service.

Actions, including increased federal AIP funding, to increase available capital resources are recommended to fund additional high priority projects. This is important to achieve the goals and objectives of the SASP. Aviation improvements must continue to be considered paramount in the development of the state multi-modal transportation systems. This may be done by continuing to adequately fund the state's AIR '99 program.

Appendix 5-A

Fiscal Year 2005 Airport Capital Improvement Program (ACIP)

Table 5A - FY 2005 ACIP Summary					
Summary	**Total**	**Federal Funds**	**State Funds**	**Local PFC**	**Local/ Other**
Sub-Totals Large Airports	$145,911,443	$112,205,407	$5,902,195	$3,047,737	$24,756,105
Sub-Totals Medium Airports	$37,582,316	$33,108,608	$1,003,058	$0	$3,470,650
Sub-Totals Small Airports	$34,491,201	$31,043,506	$2,007,821	$0	$1,439,873
Grand Totals	**$217,984,960**	**$176,357,521**	**$8,913,074**	**$3,047,737**	**$29,666,628**

Table 5A – FY 2005 ACIP Projects						
Facility Name	**Project**	**Total**	**Fed Funds**	**State Funds**	**Local PFC**	**Local-Other**
Large Airports						
Albany International	Taxiways Renovations	$5,000,000	$4,750,000	$130,000	$0	$120,000
Albany International	Service Access Roads	$1,200,000	$1,140,000	$30,000	$0	$30,000
Albany International	Runway 1 Lighting, CAT, and NAVAIDS	$2,400,000	$2,280,000	$60,000	$0	$60,000
Albany International	Ramp Renovations	$3,500,000	$3,330,000	$90,000	$0	$80,000
Albany International	Ramp Expansion SW Quad	$2,000,000	$1,900,000	$50,000	$0	$50,000
Albany International	Airfield, Snow Removal, ARFF	$10,000,000	$1,900,000	$50,000	$50,000	$8,000,000
Albany International	Master Plan Update/Environmental Review	$1,000,000	$950,000	$30,000	$0	$20,000
Albany International	Noise Mitigation: Property Acquisitions	$5,000,000	$4,000,000	$500,000	$0	$500,000
Albany International	Runway 1/19 Drainage Improvements	$720,000	$680,000	$20,000	$0	$20,000
Albany International	Runway 10 Obstruction Removal	$500,000	$480,000	$10,000	$0	$10,000
Albany International	Runway 1 Obstruction Removal	$600,000	$570,000	$20,000	$0	$10,000
Albany International	Runway 19 Extension to 8,500' (Phase III)	$2,000,000	$1,900,000	$50,000	$0	$50,000
Albany International	Runway 28 Water Tank Relocation (II)	$3,000,000	$2,850,000	$80,000	$0	$70,000
Albany International	Protection Zone Property Acquisition	$980,000	$930,000	$20,000	$0	$30,000
Albany International	Noise Mitigation: Run-up Facility	$2,500,000	$2,380,000	$60,000	$0	$60,000
Albany International	Runway 19 Structure Relocation	$1,000,000	$950,000	$30,000	$0	$20,000
Albany International	Apron Renovations	$2,500,000	$2,380,000	$60,000	$0	$60,000
Buffalo Niagara International	Procure Snow Removal Equipment	$413,150	$0	$0	$413,150	$0
Buffalo Niagara International	East Concourse Terminal Extension – Phase VII	$3,489,392	$2,617,044	$436,174	$0	$436,174
Buffalo Niagara International	Perimeter Road Extension (Design)	$66,000	$49,500	$8,250	$8,250	$0
Buffalo Niagara International	Procure Shuttle Busses	$220,500	$0	$0	$220,500	$0
Buffalo Niagara International	Procure Security Equipment	$24,000	$0	$0	$24,000	$0
Buffalo Niagara International	Runway 5/23 and Taxiway A Rehabilitation and Extension	$15,000,322	$11,250,242	$1,875,040	$1,875,040	$0
Elmira/Corning Regional	Relocate and Construct Rental Car Parking Lot	$375,000	$0	$0	$0	$375,000
Elmira/Corning Regional	Runway 10/28 Pavement Rehabilitation Phase I (Design)	$170,000	$161,500	$4,250	$4,250	$0

Table 5A – FY 2005 ACIP Projects						
Facility Name	**Project**	**Total**	**Fed Funds**	**State Funds**	**Local PFC**	**Local-Other**
Elmira/Corning Regional	Multi-year 41-04 Rehabilitation Taxiway D Phase II Cons.	$482,350	$458,233	$12,059	$12,058	$0
Elmira/Corning Regional	Terminal Renovations Phase I	$483,687	$222,003	$5,842	$5,842	$250,000
Elmira/Corning Regional	Extend RW 6 – Construction	$3,496,000	$3,321,200	$87,400	$87,400	$0
Elmira/Corning Regional	Rehabilitate/Overlay Public Parking Lots	$470,000	$0	$0	$0	$470,000
Elmira/Corning Regional	Extend Parallel Taxiway to RW 6 – Construction	$1,398,500	$1,328,575	$34,963	$34,962	$0
Elmira/Corning Regional	Installation of Passenger Boarding Bridge	$491,430	$341,859	$12,286	$12,285	$125,000
Greater Binghamton	Runway 16/34 Rehab - Construction	$6,000,000	$5,400,000	$300,000	$300,000	$0
Greater Rochester International	Construct Taxiway Parallel to 4/22 (Design)	$500,000	$450,000	$25,000	$0	$25,000
Greater Rochester International	Demolish Mx Building and Restore Site	$1,666,667	$1,500,000	$83,333	$0	$83,333
Greater Rochester International	Interagency Public Works Facility – Phase II	$900,000	$0	$0	$0	$900,000
Greater Rochester International	East Apron Cargo Security Facility	$5,537,778	$4,984,000	$276,889	$0	$276,889
Greater Rochester International	Update Master Plan	$500,000	$450,000	$25,000	$0	$25,000
Greater Rochester International	Parking Facility Upgrades	$750,000	$0	$0	$0	$750,000
Greater Rochester International	Acquire Heavy Equipment	$600,000	$540,000	$30,000	$0	$30,000
Greater Rochester International	Repair Terminal Apron	$1,666,667	$1,500,000	$83,333	$0	$83,333
Ithaca Tompkins Regional	Environmental Analysis – Obstruction Removal	$300,000	$285,000	$8,000	$0	$7,000
Ithaca Tompkins Regional	Extend Parallel Taxiway - Phase III	$45,000	$43,000	$1,000	$0	$1,000
Ithaca Tompkins Regional	Tow Behind Runway Friction Meter	$45,000	$43,000	$1,000	$0	$1,000
Ithaca Tompkins Regional	Extend Parallel Taxiway - Phase II (Construction)	$1,500,000	$1,425,000	$38,000	$0	$37,000
Ithaca Tompkins Regional	Transient Apron Rehabilitation - Phase II (Construction)	$400,000	$380,000	$10,000	$0	$10,000
Long Island MacArthur	Runway 10/28 Rehabilitation	$5,990,000	$5,690,500	$149,750	$0	$149,750
Long Island MacArthur	Airport Fuel Farm Access Road	$600,000	$570,000	$15,000	$0	$15,000
Long Island MacArthur	Terminal Improvements - MUFIDS	$500,000	$475,000	$12,500	$0	$12,500
Long Island MacArthur	CCTV & Bomb Blast Analysis - PH 2	$500,000	$475,000	$12,500	$0	$12,500
Long Island MacArthur	Access Road-East End of Terminal Ramp	$218,000	$207,100	$5,450	$0	$5,450
Long Island MacArthur	Two Loaders - Snow Removal	$620,000	$589,000	$15,500	$0	$15,500
Long Island MacArthur	Snow Removal Equipment Building	$1,637,000	$1,555,150	$40,925	$0	$40,925
Stewart International	Tower Hill Removal - Phase I	$2,970,000	$1,188,000	$0	$0	$1,782,000
Stewart International	Taxiway Rehabilitation - Phase II (E & B)	$1,500,000	$600,000	$0	$0	$900,000
Stewart International	Runway 16/34 Extension	$11,000,000	$4,400,000	$0	$0	$6,600,000
Stewart International	Construct NE Quad Area Apron - Phase II	$3,650,000	$2,500,000	$0	$0	$1,150,000
Syracuse Hancock International	Runway 33 Safety Area Improvements	$300,000	$285,000	$8,000	$0	$7,000

Table 5A – FY 2005 ACIP Projects						
Facility Name	**Project**	**Total**	**Fed Funds**	**State Funds**	**Local PFC**	**Local-Other**
Syracuse Hancock International	Acquire Snow Removal Equipment	$500,000	$475,000	$13,000	$0	$12,000
Syracuse Hancock International	Rehabilitate GA Apron & Taxiways Y, N	$300,000	$285,000	$8,000	$0	$7,000
Syracuse Hancock International	Noise Mitigation – School Sound Insulation	$250,000	$238,000	$6,000	$0	$6,000
Syracuse Hancock International	Noise Mitigation – School Sound Insulation	$4,110,000	$3,905,000	$103,000	$0	$102,000
Syracuse Hancock International	Passenger Terminal Security & Access Improvements	$2,500,000	$2,375,000	$63,000	$0	$62,000
Syracuse Hancock International	Rehabilitate Airfield Drainage - Phase II	$3,700,000	$3,515,000	$93,000	$0	$92,000
Westchester County	Design Security Perimeter Road	$275,000	$247,500	$13,750	$0	$13,750
Westchester County	Security Support Facilities Construction	$5,000,000	$4,500,000	$250,000	$0	$250,000
Westchester County	Construction Rehabilitation of Public Ramp	$4,500,000	$4,050,000	$225,000	$0	$225,000
Westchester County	Design/Construction Airport Checkpoint Control	$4,000,000	$3,600,000	$200,000	$0	$200,000
Westchester County	Acquisition Deicing Vehicle Equipment - Field	$400,000	$360,000	$20,000	$0	$20,000
Sub-Totals Large Airports		**$145,911,443**	**$112,205,407**	**$5,902,195**	**$3,047,737**	**$24,756,105**
Medium Airports						
Adirondack Regional	Wildlife Hazard Assessment	$31,580	$30,000	$790	$0	$790
Adirondack Regional	Plow Truck	$126,316	$120,000	$3,158	$0	$3,158
Adirondack Regional	Apron Expansion – Phase I (Construction)	$460,000	$437,000	$11,500	$0	$11,500
Adirondack Regional	Taxiways C,D,E & Ramp Rehabilitation	$127,368	$121,000	$3,184	$0	$3,184
Adirondack Regional	Runway 9/27 Rehabilitation (Design)	$157,894	$150,000	$3,947	$0	$3,947
Adirondack Regional	Access Taxiway – Phase I	$1,200,000	$1,140,000	$30,000	$0	$30,000
Chautauqua County Jamestown	Snow Removal Equipment	$300,000	$285,000	$7,000	$0	$8,000
Chautauqua County Jamestown	Apron Expansion (Design)	$200,000	$190,000	$5,000	$0	$5,000
Dutchess County	Inadvertent Entry Fence (Construction) PH II	$6,000	$5,700	$150	$0	$150
Dutchess County	SRE Holding Tank (Construction)	$80,000	$76,000	$2,000	$0	$2,000
Francis S. Gabreski	General Aviation Apron	$700,000	$630,000	$35,000	$0	$35,000
Francis S. Gabreski	Construct New Aircraft Parking Apron – 5 Acres	$1,440,000	$1,296,000	$72,000	$0	$72,000
Francis S. Gabreski	Install Taxiway N & E Edge Lights	$675,000	$607,500	$33,750	$0	$33,750
Francis S. Gabreski	Land Acquisition (Easements)	$680,000	$612,000	$34,000	$0	$34,000
Francis S. Gabreski	Rehabilitate Runway 1/19	$4,800,000	$4,320,000	$240,000	$0	$240,000
Griffiss International	Apron Rehabilitation Phase I (Design)	$200,000	$190,000	$5,000	$0	$5,000
Griffiss International	Fuel Farm Upgrades	$201,800	$191,710	$5,040	$0	$5,050
Griffiss International	Rehabilitate Hangar/Office - Phase I (Bldg. 100) Design	$200,000	$190,000	$5,000	$0	$5,000
Griffiss International	Rehabilitate Control Tower Building 504 Study & Design	$180,000	$171,000	$4,500	$0	$4,500

Table 5A – FY 2005 ACIP Projects						
Facility Name	**Project**	**Total**	**Fed Funds**	**State Funds**	**Local PFC**	**Local-Other**
Griffiss International	Runway 33 NAVAIDS Study	$150,000	$142,500	$3,750	$0	$3,750
Griffiss International	Rehabilitate Maintenance Building 220 Design	$150,000	$142,500	$3,750	$0	$3,750
Griffiss International	Purchase SRE: 2 Snowplows (NPE)	$631,580	$600,000	$15,790	$0	$15,790
Griffiss International	Rehabilitation ARFF Building (Building 45)	$384,000	$364,800	$9,600	$0	$9,600
Griffiss International	30-Bay T-Hangar Building	$1,294,000	$1,229,300	$32,350	$0	$32,350
Griffiss International	Rehabilitate Fuel Truck Storage Building (Building 47)	$391,000	$371,450	$9,770	$0	$9,780
Griffiss International	Rehabilitate Aircraft Storage Hangar (Building 221)	$1,710,000	$1,624,500	$42,750	$0	$42,750
Griffiss International	FAA Reimbursable Agreement ILS	$120,000	$114,000	$3,000	$0	$3,000
Griffiss International	Airport Pavement Management System/Signage Plan	$90,850	$86,310	$2,270	$0	$2,270
Griffiss International	Tenant Relocation Plan	$50,000	$47,500	$1,250	$0	$1,250
Massena International	Rehabilitate Terminal Apron (Construction)	$700,000	$665,000	$17,500	$0	$17,500
Massena International	Relocate ILS/Demolish Terminal Building (Design)	$150,000	$142,500	$3,750	$0	$3,750
Massena International	Replace Terminal Building – Phase V	$157,890	$150,000	$3,940	$0	$3,950
Massena International	Snow blower	$460,000	$437,000	$11,500	$0	$11,500
Niagara Falls International	Obstruction Removal Survey & Elimination	$250,000	$237,500	$6,250	$0	$6,250
Niagara Falls International	Des. RW 24 Safety Area Improvements	$800,000	$760,000	$20,000	$0	$20,000
Niagara Falls International	New Passenger Term. (Phase I - Design)	$1,040,050	$200,000	$5,000	$0	$835,050
Niagara Falls International	Procure Snow Removal Equipment	$349,000	$0	$0	$0	$349,000
Niagara Falls International	Terminal Apron Area Expansion Phase II – Design	$375,000	$356,250	$9,375	$0	$9,375
Niagara Falls International	Landside Improvements – Passenger Terminal - Phase I	$789,474	$750,000	$19,737	$0	$19,737
Ogdensburg International	Terminal Building (Design)	$79,000	$75,000	$2,000	$0	$2,000
Ogdensburg International	INSTALL GLIDE SLOPE (Design & Construction)	$650,000	$618,000	$16,000	$0	$16,000
Ogdensburg International	North Ramp & Access Road & Utility (Construction)	$901,000	$855,000	$23,000	$0	$23,000
Ogdensburg International	Runway Crack Repair (Design & Construction)	$80,000	$76,000	$2,000	$0	$2,000
Orange County	Reconstruct Apron/Taxiways around Hangars	$450,000	$0	$0	$0	$450,000
Orange County	Environmental Assess. Runway 3/21 Relocation Multi-year	$157,895	$150,000	$3,947	$0	$3,948
Orange County	Bulk Hangar Improvements	$450,000	$0	$0	$0	$450,000
Plattsburgh International	Taxiway A Rehabilitation (Design) (Apron to Runway 35)	$250,000	$238,000	$6,000	$0	$6,000
Plattsburgh International	Fuel Facility (Design & Construction)	$500,000	$475,000	$13,000	$0	$12,000
Plattsburgh International	Runway Phase III (Construction) (Add-on/Not Funded)	$3,750,000	$3,563,000	$94,000	$0	$93,000
Plattsburgh International	Terminal Building - Phase III Construction	$158,000	$150,000	$4,000	$0	$4,000
Plattsburgh International	FBO Office & Hangar Facility (Design & Construction)	$1,850,000	$1,758,000	$46,000	$0	$46,000

Table 5A – FY 2005 ACIP Projects						
Facility Name	**Project**	**Total**	**Fed Funds**	**State Funds**	**Local PFC**	**Local-Other**
Plattsburgh International	ARFF Vehicle	$700,000	$665,000	$18,000	$0	$17,000
Plattsburgh International	Tenant Relocation Plan (02-02)	$62,000	$59,000	$2,000	$0	$1,000
Plattsburgh International	Environmental Assess.- Closure of Clinton County Airport	$200,000	$190,000	$5,000	$0	$5,000
Plattsburgh International	GA Hangars/Shelters Phase I (Design & Construction)	$1,500,000	$1,425,000	$38,000	$0	$37,000
Republic	Improve Runway 1/19 RSA – Phase IV	$3,925,109	$3,532,598	$0	$0	$392,511
Watertown International	Construct Building – Sand Storage	$200,000	$180,000	$10,000	$0	$10,000
Sub-Totals Medium Airports		**$37,671,806**	**$33,193,618**	**$1,005,298**	**$0**	**$3,472,890**
Small Airports						
Bayport Aerodrome	Snow Removal Equipment Building	$73,000	$69,350	$1,825	$0	$1,825
Bayport Aerodrome	Improve Airport Access Road	$200,000	$190,000	$5,000	$0	$5,000
Buffalo Airfield	Design/Construction 10-Bay T-Hangar	$375,000	$0	$375,000	$0	$0
Buffalo Airfield	Design/Construction Apron & Taxilane Improvements	$50,000	$45,000	$2,500	$0	$2,500
Buffalo-Lancaster	Design/Construction Transient Apron & Access Taxiway L	$500,000	$450,000	$25,000	$0	$25,000
Chautauqua County Dunkirk	Environmental Assess.- Runway 24/Taxiway Extension	$100,000	$90,000	$5,000	$0	$5,000
Chautauqua County Dunkirk	Install Transponder Landing System	$1,500,000	$1,500,000	$0	$0	$0
Clinton County	Rehabilitate Taxiway E	$500,000	$450,000	$25,000	$0	$25,000
Clinton County	Runway 1/19 Rehabilitation	$2,100,000	$1,890,000	$105,000	$0	$105,000
Columbia County	Environmental Assess.- Runway 3 Obstruction Removal	$158,000	$150,100	$3,950	$0	$3,950
Columbia County	Runway 3 RSA Improvements (Design)	$50,000	$47,500	$1,250	$0	$1,250
Columbia County	Appraisals	$35,000	$33,250	$875		$875
Columbia County	Obtain Permits for Runway 3 Obstruction Removal	$10,000	$0	$0	$0	$10,000
Corning-Painted Post	Design/Construction 13-31 Parallel Taxiway	$1,200,000	$1,080,000	$60,000	$0	$60,000
Corning-Painted Post	Design/Construction Airport Access Road	$200,000	$180,000	$10,000	$0	$10,000
Cortland County	AWOS III NPE 03,04,05	$220,000	$209,000	$6,000	$0	$5,000
Dansville Municipal	8-Bay T-Hangar (Multi-Year 04-05)	$381,500	$362,430	$9,530	$0	$9,540
Dansville Municipal	T-Hangar Taxilane (Construction)	$234,000	$222,300	$5,850	$0	$5,850
East Hampton	Runway 10/28 RPZ and Approach Surface	$500,000	$450,000	$25,000	$0	$25,000
East Hampton	Taxiway Improvements & AWOS III (Construction)	$1,250,000	$1,125,000	$62,500	$0	$62,500
Elizabeth Field	Purchase SRE-Front End Loader	$100,000	$95,000	$2,500	$0	$2,500
Finger Lakes Regional	Weather Reporting System (Construction)	$240,000	$228,000	$6,000	$0	$6,000
Floyd Bennett Memorial	Construct Sand Storage Building	$50,000	$0	$0	$0	$50,000
Floyd Bennett Memorial	Sanitary Sewer Upgrades	$50,000	$0	$0	$0	$50,000

Table 5A – FY 2005 ACIP Projects						
Facility Name	**Project**	**Total**	**Fed Funds**	**State Funds**	**Local PFC**	**Local-Other**
Floyd Bennett Memorial	Runway 1 Safety Area (Design)	$160,000	$152,000	$4,000	$0	$4,000
Fulton County	Master Plan Update	$75,000	$67,500	$3,750	$0	$3,750
Genesee County	Runway 10 Protect Zone Land Acquisition Phase III	$250,000	$237,500	$6,250	$0	$6,250
Genesee County	Removal or Demolish T-Hangars (County)	$100,000	$0	$0	$0	$100,000
Genesee County	Runway 28 End, Taxiway C&D Rehabilitation (Design)	$70,000	$66,500	$1,750	$0	$1,750
Genesee County	Hangar Development - Phase I (2004 NPE)	$157,890	$150,000	$3,940	$0	$3,950
Hamilton Municipal	Design RW 17/35 Reconstruction & Extension - Phase I	$175,000	$166,250	$4,375	$0	$4,375
Hornell Municipal	Design of 2006 Improvements	$75,000	$71,250	$1,875	$0	$1,875
Joseph Y. Resnick	Environmental Assess.- Obstruction Removal	$100,000	$90,000	$5,000	$0	$5,000
Kingston-Ulster	Design & Construction Terminal Building	$222,222	$200,000	$11,111	$0	$11,111
Lake Placid	T-Hangar Expansion	$158,000	$150,000	$4,000	$0	$4,000
Lake Placid	Runway 14/32 Obstruction Removal (on Airport) DGN	$38,000	$36,000	$1,000	$0	$1,000
Lake Placid	Purchase Snow Removal Equipment – Snow blower	$158,000	$150,000	$4,000	$0	$4,000
Lake Placid	Aircraft Apron Rehabilitation (Construction)	$702,000	$667,000	$18,000	$0	$17,000
Le Roy	Design & Construction Runway Extension	$1,400,000	$1,260,000	$70,000	$0	$70,000
Ledgedale Airpark	Land Acquisition for Runway 10	$800,000	$720,000	$40,000	$0	$40,000
Ledgedale Airpark	Design & Construction Transient Apron Phase II	$350,000	$315,000	$17,500	$0	$17,500
Lt. Warren E. Eaton	AWOS Upgrade (03-04 NPE)	$105,000	$100,000	$3,000	$0	$2,000
Lt. Warren E. Eaton	Runway 19 Threshold Displacement	$116,000	$110,000	$3,000	$0	$3,000
Lt. Warren E. Eaton	Runway Crack Repair (04 NPE)	$166,667	$150,000	$8,333	$0	$8,333
Malone-Dufort	SRE Storage Building (Multi-Year)	$167,830	$159,440	$4,190	$0	$4,200
Malone-Dufort	Runway 14-32 Rehabilitation (Construction)	$250,000	$237,500	$6,250	$0	$6,250
Oneonta Municipal	Airport Perm. Security Fence: Design & Con	$300,300	$285,285	$7,507	$0	$7,508
Oneonta Municipal	Runway 6/24 Rehab. (Const.) & Obstruction Removal	$2,500,000	$2,375,000	$62,500	$0	$62,500
Oswego County	T-Hangar Development – Phase I ('04 & '05 NPE)	$350,000	$264,000	$9,000	$0	$77,000
Oswego County	Pavement Markings	$10,000	$0	$0	$0	$10,000
Oswego County	Runway Safety Area Improvements (Design)	$53,000	$50,000	$2,000	$0	$1,000
Penn Yan	Design/Reconst./Widen Runway 10/28 Install Visual Aids	$2,000,000	$1,800,000	$100,000	$0	$100,000
Penn Yan	8 -Bay T-Hangar	$325,000	$0	$325,000	$0	$0
Perry-Warsaw	Expand Transient Apron (Construction)	$300,000	$270,000	$15,000	$0	$15,000
Perry-Warsaw	Environmental Assess. - Runway 4/22 Extension	$210,000	$189,000	$10,500	$0	$10,500
Piseco	Construction SRE Building	$335,000	$318,250	$8,375	$0	$8,375

Table 5A – FY 2005 ACIP Projects						
Facility Name	**Project**	**Total**	**Fed Funds**	**State Funds**	**Local PFC**	**Local-Other**
Potsdam Municipal	Fuel Farm	$250,000	$238,000	$6,000	$0	$6,000
Potsdam Municipal	NAVAID & Weather Equipment	$405,000	$385,000	$10,000	$0	$10,000
Potsdam Municipal	Construction Apron and Taxilane (Construction)	$230,000	$219,000	$6,000	$0	$5,000
Saratoga County	Reconstruct Taxiway A	$248,000	$223,200	$12,400	$0	$12,400
Saratoga County	Reconstruct Parking Lot	$28,000	$25,200	$1,400	$0	$1,400
Schroon Lake	Obstruction Removal	$200,000	$180,000	$10,000	$0	$10,000
Schroon Lake	Construct Apron (Design)	$65,000	$61,750	$1,625	$0	$1,625
Spadaro	Runway Relocation (Preliminary Design Study)	$157,895	$150,000	$3,947	$0	$3,948
Sullivan County International	Terminal Area Site Work Improvements	$550,000	$495,000	$27,500	$0	$27,500
Sullivan County International	Terminal Apron Expansion	$750,000	$675,000	$37,500	$0	$37,500
Sidney Municipal	Construction	$730,000	$692,500	$19,250	$0	$18,250
Ticonderoga Municipal	Emergency Repairs to Surface of Runway 2/20	$202,000	$192,000	$5,000	$0	$5,000
Tri-Cities	Fuel Facility	$603,158	$573,000	$15,079	$0	$15,079
Wellsville Municipal	Aviation Fuel Dispensers	$160,000	$152,000	$4,000	$0	$4,000
Wellsville Municipal	Install Security Fence – Phase II - Construction	$811,780	$771,191	$20,295	$0	$20,294
Westport	Lighting (MIRL, GVGS2, Beacon, Apron)	$290,000	$261,000	$14,500	$0	$14,500
Whitsford's	Construction 10-Bay T-Hangar/Bury Utility Line	$631,579	$600,000	$15,789	$0	$15,790
Williamson-Sodus	Design Runway Extension to West	$170,000	$153,000	$8,500	$0	$8,500
Williamson-Sodus	Design & Construction Maintenance Hangar	$150,000	$0	$150,000	$0	$0
Sub-Totals Small Airports		**$28,888,821**	**$25,721,246**	**$1,867,771**	**$0**	**$1,299,803**

Source: NYSDOT

CHAPTER SIX
SASP UPDATE RECOMMENDATIONS

1. INTRODUCTION

The SASP Update is intended to set forth a strategic program that is able to accommodate current and future aviation needs in New York State. In particular, these recommendations point out the need to support continued funding of the aviation system and the strategic development and funding of a subsystem of business airports. Such a program is needed to preserve the air transportation system in New York State during current and future times of volatile fuel prices, a changing economy, and uncertain federal funding policies.

This update of the SASP provides the foundation and direction for the future development of public-use airports serving New York State. As such, this chapter is organized to include the following sections:

- System Issues
- Recommended State Airport System
- Recommended Air Service Enhancements
- National Airspace System and the State of New York
- Capital Needs and Projected Funding Level
- Summary

2. SYSTEM ISSUES

The SASP Update identifies a number of central issues that impact the state's system of airports. Some of these issues represent national trends that are outside the control of NYSDOT and local airport sponsors. Others can be addressed through funding initiatives or policy directives.

- ***Funding Gaps:*** Both Port Authority and non-Port Authority airports are projected to experience significant funding gaps for needed capital improvements through the year 2030.

- ***Revenues at Non-Hub Airports:*** Non-hub airports in the state system are concerned about their ability to generate sufficient revenue to cover operating expenses. Most airports are concerned about the future of the AIP program and their ability to finance capital improvements.

- ***Impacts of Declining General Aviation Activity:*** Declining general aviation activity, residential development pressures, and funding shortfalls may either individually, or in combination, reduce the number of airports in the state system. If this occurs, there may not be adequate capacity to meet future needs.

- ***Incompatible Land Uses:*** Airports in the state system are concerned about encroachment from incompatible land uses that limit their economic development potential, and possibly, their operations.

- ***Recognition of Airport Value:*** Sponsors of smaller airports in the state system believe that their airports' economic value and their ability to enhance the quality of life for their communities and the public that these airports serve are not generally recognized.

- ***Potential Loss of Airline Service:*** Many medium- and small- hub airports are experiencing flat or declining enplanements. The smaller commercial service airports in New York are concerned that they are experiencing declining levels of service and enplanements, and that some system airports may be at risk of losing service altogether. For example, American Airlines has suspended service to Albany (the state capital) after decades of service, due to unprecedented fuel costs.

- ***Insufficient NAVAID System:*** The existing and future NAVAIDs system may not be sufficient to support ready access to airports during inclement weather conditions.

- ***Funding for Design Standard Upgrades:*** System airports in the state should conform, whenever possible, to FAA design standards. This may be constrained by limited federal funding of airport improvements in the future.

- ***Adequate Ground Access:*** Ground access at some of the system's airports is not adequate. When prudent and feasible, multi-modal ground access should be supported.

- ***Fuel Prices:*** The rising cost of fuel is having significant impacts on commercial and general aviation across the country. The primary impact on general aviation has been the reduction of personal/recreational flying. Business and corporate aviation activity have been less impacted due to their ability to pass air transportation costs along to their customers.

3. RECOMMENDED STATE AIRPORT SYSTEM

The SASP establishes a vision for the statewide system of airports required to address the issues listed above. To address these issues, this System Plan focused on a number of recommended actions for funding and strategic airport development. Foremost in the planning is the need to secure adequate long term funding for the preservation of the system. Closely following that action is the need to establish a set of standards and performance metrics for a distinct sub-system of facilities within the statewide system, called a Strategic Business Airport System. Other recommendations follow the need to support airline service and connectivity to the smaller commercial service airports in the state and to maintain airspace capacity in the busier aviation corridors of the state. In addition, the SASP incorporates the recommendations and planned improvements for the PANY&NJ's New York airports. Described in the following sections are the business airport sub-system, the air service improvement strategies, and the airspace system, followed by a description of the SASP funding mechanism and its future needs.

3.1 Strategic Business Airport System

As the aviation industry has matured, it has become increasing clear that corporate aviation operations have more significant impacts on airport revenues than recreational activity. This is due not only to the size of aircraft used, but also the requirements corporate flight departments have of airports where they operate. This SASP helps to define and identify a system of business airport facilities that have the best opportunities to attract corporate and business aviation activity, while serving as adequate facilities for recreational activity, and contributing to their communities as catalysts for economic development.

In addition to these general benefits of corporate/business aviation activities for airports, there is also expected to be a significant impact to general aviation facilities as the Very Light Jet (VLJ), and the on-demand Air Taxi industry gain more momentum. While the early setbacks in this market (e.g. DayJet bankruptcy) have slowed the potential proliferation of VLJs, it is said that the business model is sound. Even without the air taxi component of demand, it is clear that the lower operating cost of VLJs and the flexibility they offer in terms of shorter runway lengths creates advantages that corporate aviation users have already begun to utilize.

In order to establish a strategic business airport sub-system, a set of minimum facility standards was developed, understanding that successful business airports can operate adequately at three different levels. The first level consists of larger general aviation airports with at least 5,000 feet of usable runway length and a full complement of infrastructure and amenities that can meet the needs of a wide range of advanced business and corporate users. The second level consists of mid-sized general aviation airports that have less than 5,000 feet of paved runway, but at least 4,200 feet of usable length. This length (4,200 feet) is that required by FAA standards for precision instrument approach capability. The third level is comprised of those facilities with 3,000 to 4,199 feet of runway length.

Runway Facilities, Instrument Approach Capability, All-Weather Operability

In addition to the 18 Commercial Service airports, there are 17 GA airports that have runway lengths of at least 5,000 feet and therefore qualify for inclusion in the large business airport sub-system. Additionally, there are nine GA airports with runways of a length between 4,200 and 4,999 feet, which can serve various larger twin engine aircraft. Finally, 25 GA facilities have a runway length between 3,000 and 4,199 feet which can accommodate some twin-engine and the larger single-engine piston aircraft as part of the small business airport category. This category of airports generally serves light business activity. Considering runway length alone, the recommended business airport sub-system consists of 51 GA airports along with the 18 commercial service airports (see Figure 6-1).

In terms of system-wide instrument approach capability, 45 of the 52 GA Business System Airports have one or more instruments approaches. All nine general aviation airports that qualify as part of the medium business airport category (with runways of a length between 4,200

Figure 6-1 – ***SASP Airports by Runway Length***

and 4,999 feet in length) have instrument approach capabilities. In the large business airport category (airports with runways of at least 5,000 feet in length), all commercial service and GA facilities have precision approach capabilities.

All-weather operability at SASP airports includes Automated Weather Observation Systems (AWOS), Automated Surface Observation Systems (ASOS), and Automated Terminal Information Service (ATIS). At the 35 general aviation airports in the large business airport category, there is just one facility that does not have weather reporting capability. In the medium business airport category, two airports do not have weather reporting systems. Among the 25 small business access airports, there are currently 17 airports without weather reporting systems, and 11 airports without visual glide slope indicators. To support an adequate sub-system of business airports, it is recommended that NYSDOT pursue automated weather systems at the one facility in the large business airport category without such technology. Additionally, the two medium business access airports and the 17 small business access airports without all-weather capability, along with the 11 small business access airports without visual glideslope indicators, should garner priority among other GA facilities in the SASP for these much-needed capacity enhancing projects.

Critical Aircraft and Airport Design

Airport upgrades for future critical aircraft and ARC are projected for one commercial service airport, Watertown International, which is planned to move from B-II to C-III standards. General aviation facilities identified for ARC upgrades of their runways are:

Airport	ARC Change
• Chautauqua County Dunkirk	B-II to D-II
• Griffiss International	C-III to D-V
• Lancaster	B-I to B-II
• Oswego County	C-II to D-II
• South Albany	B-I to B-II
• Williamson-Sodus	B-I to B-II

The changes in ARC at these facilities require the implementation of airfield configuration improvements at each facility, primarily runway-taxiway separation, to accommodate larger aircraft. Such improvements will improve system capacity to some degree and allow a number of these facilities to expand their role in accommodating larger aircraft.

Projected Demand Levels and Capacity Issues

The FAA recommends that individual airports should begin planning for additional airfield capacity when actual annual operations reach 60 percent of Annual Service Volume (ASV), that capacity-enhancing improvements should be identified and implemented when actual annual operations reach 80 percent of ASV. All of the airports where forecast activity levels reach 60 percent of airfield capacity by 2025 are in areas served by general aviation airports that can provide additional system capacity. Table 6-1 presents those airports forecast to reach or exceed 60 percent of annual service volume by 2025.

Table 6-1 - Airports Forecast to Reach or Exceed 60 Percent of ASV		
SASP Airports	**Airfield Capacity**	**2025 Percent Capacity**
Albany International	319,000	61%
Buffalo Niagara International	194,000	106%
Dutchess County	232,100	69%
Greater Rochester International	266,000	62%
Long Island MacArthur	303,000	74%
Orange County	168,000	113%
Republic	270,000	76%
Syracuse Hancock International	268,000	67%
Westchester County	210,000	112%

Source: NYSDOT

As reported in the FAA Regional Air Service Study (FRASS), John F. Kennedy International will need two fully airspace-independent parallel runways, plus a third runway to accommodate peak flow conditions by 2025. While John F. Kennedy International currently has these three runways, operation of them independent of LaGuardia interference is not yet possible. In order for LaGuardia to maintain existing levels of service without adding runway delays, the FRASS states that the Airport will need to accomplish several benchmarks. These include:

- Regain the two operations per hour capacity lost since 2004
- Regain the two percent of capacity lost to wake-turbulence separations for the Boeing 757 and heavy jets (and smaller propeller and jet aircraft)
- Increase taxiway capacity to accommodated departure queues on all runway operations for more than 30 aircraft.

Table 6-2 presents forecast levels of capacity for New York PANY&NJ airports (excluding Stewart International).

Table 6-2 – PANY&NJ Airports Forecast Capacity		
SASP Airports	**Enplanement Capacity**	**2025 Percent of Enplanement Capacity**
John F. Kennedy International	45,000,000	130%
LaGuardia Airport	33,000,000	103%

Source: NYSDOT and PANY&NJ

John F. Kennedy International is predicted to reach almost 60.0 million passengers by 2025 (which exceeds its airfield capacity for passengers by 30 percent). Enplanement activity is forecast to be nearly 103 percent of capacity at LaGuardia by 2025, if no changes are made. Operational capacity in terms of hourly airfield arrivals and departures are forecast to experience significant delays at both John F. Kennedy International and LaGuardia by the year 2025.

Stewart International Airport was recently incorporated into the PANY&NJ system of airports. According to the FRASS, airside facilities at Stewart International have available

capacity to accommodate baseline and optimistic operational forecasts. Stewart International has an ASV of 249,000 operations and is anticipated to be at 67 percent of its airfield capacity by 2025.

There are nine airports in the New York State Airport System that are projected to be operating in excess of 60 percent of their annual capacity by 2025. Three airports, Buffalo Niagara International, Orange County, and Westchester County are projected to exceed operational levels of 100 percent of their capacity in 2025. FAA guidance recommends that an airport begin to plan for capacity enhancement when it reaches 60 percent of its available operating capacity. The FAA also recommends that improvement plans be implemented when an airport reaches 80 percent of its capacity.

Land Use Compatibility and Environmental Considerations

The compatibility of SASP airports and their surrounding land uses is of significant interest for many communities throughout the State. While many of the problems involving potential conflicts between airports and surrounding stakeholders can be avoided, there is inherent value for the SASP airports and local stakeholders in the development of good land use compatibility planning. The role of airports in their communities can often be one of economic development catalyst, offering access to the air transportation system to businesses that rely on air travel. NYSDOT advocates best practices for land use compatibility and environmental planning. In this regard, communities are urged to protect both airports and surrounding land uses through height hazard zoning and designation of compatible uses adjacent to airports. This would include industrial, commercial, and open space in buffer areas near SASP airports.

Advantages of Strategic Business Airport Sub-System

The strategic Business Airport Sub-System addresses the critical issues in the following ways:

Table 6-3 – Strategies to Address Statewide Aviation System Issues

System Issue	Business Sub-System Advantage
Revenue Generation at Non-Hub Airports	The development of a business sub-system of core airports aids in directing business operations to a set of airports and attracting economic development and public/private investment to communities where non-hub airports are located. Therefore, a business airport sub-system should help generate new revenue at non-hub facilities.
Decreases in System Capacity (Loss of Airports)	The identification of business airports and expansion projects to support a business sub-system works to secure/preserve adequate system capacity for the long term. Even if some smaller SASP airports were to close, this strategy should maintain a system that can meet current and future business aviation demand levels.

Table 6-3 – Strategies to Address Statewide Aviation System Issues	
System Issue	**Business Sub-System Advantage**
Encroachment of Incompatible Land Uses	The development of a business sub-system includes those facilities which have the ability to accommodate future aviation demand. These airports should benefit from focused capital development spending, which in turn, could be used to ensure that land use conflicts be minimized over the long term.
Economic Value of Small GA Facilities	Because the business sub-system of airports includes airports with 3,000 feet of runway, the economic value of such small airports is enhanced by the ability to attract business aviation.
Decrease of Enplanements/Loss of Air Service	The identification of a business sub-system establishes a strategic focus for funding provided by the state and the FAA. Doing so should help to compensate for losses of scheduled air service by providing enhanced business/charter connectivity to smaller airline airports.
Adequacy of NAVAIDS for All-Weather Operation	The development of a business sub-system should also serve as a priority listing for state and FAA funding of NAVAID enhancement and improvement projects.
Compliance with FAA Standards	The identification of a business sub-system should also serve as a priority listing for state and FAA funding of projects to bring airports into compliance with FAA design standards.
Inadequate Ground Access	The development of a business sub-system should be incorporated into ongoing ground transportation planning. Doing so will serve to communicate state aviation funding priorities, which should align with state and local planning and funding programs for roadway or other ground transportation infrastructure improvements.
Fuel Price Increases	The development of a business airport sub-system will facilitate business aviation. This segment of aviation has been shown to be less impacted by fuel price increases than the other general aviation uses such as training and personal flying.

As indicated above, the development of a strategic business airport sub-system can address the range of issues identified at the outset of the SASP study process. What cannot be addressed by the business sub-system is the funding shortfall for capital improvement projects over the next 20 years. This issue will have to be addressed at both the federal and state level when funding legislation is renewed.

4. RECOMMENDED AIR SERVICE ENHANCEMENTS

For larger communities with established airline service, it is important to maintain current levels of available service and to improve service by attracting new providers. Pursuing policies and programs to support these efforts may be beneficial. State investment in capital improvements has resulted in service improvements at Albany International, Long Island MacArthur (Islip), and Buffalo International, where terminal improvements attracted new service by Southwest Airlines. Since the state has limited options for direct involvement in efforts to

improve air service, the most practical option is, when appropriate, supporting state and federal capital improvements and funding decisions that will help airports be more attractive to airlines.

Currently there are no state funds available that are specifically earmarked for air service initiatives. However capital programs and promotional initiatives previously have been funded through Legislature Member Items and with the initial funding of the AIR '99 program. Three communities – Massena, Ogdensburg, and Watertown – benefited from an AIR '99-funded marketing program. At the federal level, AIP funding is available for facility improvement at air carrier airports. In addition, two programs exist to help small communities develop or maintain air services: Essential Air Service (EAS) and Small Community Air Service Development Program (SCASDP). These two programs, however, continue to face financial limits and political pressure for their elimination.

4.1 Essential Air Service

Since the beginning of deregulation in 1978, airlines have been permitted to make route decisions based on their economic value (or other internal factors) to the airline. The Essential Air Service (EAS) program was instituted by deregulation legislation to ensure that small communities did not lose air service by providing subsidies (on a per passenger basis) to airlines to continue to serve what would otherwise be non-economically viable routes. Six communities in New York depend on EAS for their airline service. The state has provided study/promotional funds meant to increase enplanements and service.

4.2 Small Community Air Service Development Program

The Small Community Air Service Development Program (SCASDP) is a competitive program sponsored by the USDOT that provides grants to improve air service at small underserved communities. Seven communities in New York have received grants since 2002: Greater Binghamton, Elmira/Corning Regional, Syracuse Hancock International, Massena International, Stewart International, Ithaca Tompkins Regional, and Chautauqua County Jamestown. This program, like the EAS program, faces funding pressures and its future is in doubt as the FAA/AIP Reauthorization is debated in Congress.

At the state level, the initial funding for AIR '99 allowed for grants to implement promotional/marketing campaigns which helped small communities; however, the legal requirements associated with the current funding sources in the AIR '99 program do not permit marketing campaigns, only capital projects. Alternative funding opportunities may be explored to allow communities to fund these types of efforts. One avenue that may be explored is to utilize the unused funding remaining in the New York's Statewide Opportunities for Airport Revitalization (SOAR) program.

4.3 Air Service Improvements

While NYSDOT does not have a direct role in determining air service levels or airfares, it recognizes the importance of a healthy air service sector to the State's economy. NYSDOT, through its Aviation Bureau, will support policies and programs aimed at improving air service

levels, especially at small, underserved communities. Given the free-market economies that rule air service decisions, the state's role in improving air service is limited to direct investments in airport development, support of federal programs, and technical assistance.

5. NATIONAL AIRSPACE ISSUES AND THE STATE OF NEW YORK

With U.S. air traffic expected to triple within the next 20 years, demand is rapidly outpacing capacity. The Next-Generation Air Transportation System (NextGen) initiative has the potential to replace expensive and antiquated ground infrastructure with space-based navigation and position-reporting systems that promise to increase system-wide capacity. NextGen will significantly enhance safety and add capacity at a rate that will more closely match demand. However, insufficient funding may jeopardize efforts to deliver a system that meets future demands for air travel for both the nation and New York State over the next 20 years.

Most of the FAA's current budget pays to keep the present Air Traffic Control (ATC) system operational, but it does not provide very much for new initiatives. The federal government is spending a significant amount of money to keep the outdated "legacy" ATC system running, with an estimated $30 billion needed to just maintain the current system over the next 10 years. Finding a way to pay for needed technological improvements to the National Airspace System is critical to the future of air transportation in New York, but must be implemented as part of a nationwide system, thus requiring little state, but significant federal, investment. Long term NextGen initiatives are at risk for losing attention (funding) in light of wide-sweeping airline capacity reductions due to soaring fuel costs. However, upgrading ATC infrastructure and NextGen is essential to industry survival.

As a subset of larger airspace modernization issues nationally, the management of New York City metropolitan regional airspace has a direct bearing on the capabilities of New York's aviation infrastructure to meet user demand. The basic structure of the NY/NJ airspace has not been adequately modified to address changes in industry, including increases in air traffic levels and the use of new aircraft types, including the proliferation of regional jets. To address this, the FAA has identified the *Integrated Airspace Alternative* as the preferred alternative for the New York/New Jersey/Philadelphia Metropolitan Area Airspace Redesign Project, which is to improve the airspace structure and air traffic control system from southern Connecticut to eastern Delaware. This will result in a reduction in delays, the expeditious arrival and departure of aircraft, improved flexibility in routing aircraft, a more balanced controller workload, and an increase in the FAA's ability to meet system demands. However, reservations exist regarding the implementation of this airspace redesign plan, which include: terminal redesign, integration of the higher altitude New York Air Traffic Control Center with the lower altitude Terminal Radar Approach Control on Long Island, and noise impacts.

Inadequate funding for both NextGen technologies nationally and the consolidation of New York's Air Traffic facilities regionally may hamper potential benefits to be realized, as this remains the most significant challenge for New York Airspace over the next 20 years.

6. CAPITAL NEEDS AND PROJECTED FUNDING LEVELS

Adequate aviation services and the airport facilities to support them are critical to the state's competitiveness in the increasingly global economy. Evidence of the role that the state's system of airports plays in the market is their contribution to the economy, estimated at $35 billion annually, or 4.3 percent of the Gross State Product, according to a 2002 study.

To remain competitive in today's economy, improvements are necessary to rehabilitate and improve infrastructure, to address environmental requirements, and improve safety and reliability of operations at the state's airports. As such, federal funding is essential where state funding falls short, to provide the necessary capital improvements for the system.

6.1 Capital Needs

To assess funding needs, the SASP evaluated individual Airport Capital Improvement Programs, Airport Master Plans, Airport Layout Plans, and input from the PANY&NJ. Based on this review, it has been determined that if federal funding remains constant over the long-term, there will be a shortfall in funding to address much-needed and FAA-approved capital improvements at commercial service and general aviation airports. It is important to note that NYSDOT has focused the evaluation of state needs on capital improvement projects rather than preventative or corrective maintenance projects.

While such maintenance is required at various intervals for most airport facilities, the state recognizes that at times there are a limited number of facilities that require replacement. Such projects include those like complete runway or terminal re-building, or removal of large facilities such as the Westinghouse building at Buffalo Niagara International Airport. As a strategic policy document, this SASP recommends a priority of replacement projects over maintenance projects, which support the development of the strategic business airport sub-system. Simply put, the SASP recommends the preservation of system airport assets, such as:

- Rehabilitation of runways and appurtenant pavements to extend useful life as determined by FAA;
- Replace runways, appurtenant pavements and navigational aids at FAA determination of end of useful life;
- Rehabilitate terminals and hangars to reach acceptable conditions in order to extend useful life; and, replace terminals and hangars at end of useful life, as determined by NYSDOT inspections and airport documentation; and,
- Build additional facilities based upon FAA approval and demonstrated need using enplanement and operation data.

Capital needs for the non-PANY&NJ airports total just over $3.0 billion over the 20-year period, with significantly higher proportion of need occurring in the second half of the 2010-2030 period. This is due primarily to projects associated with the long-term growth in passengers and aircraft activity that will result in new demands for terminal area development. In addition to these needs, the New York PANY&NJ airports are projected to experience an $8.5 billion funding gap for the same period. Therefore, increased federal AIP funding is

recommended in order to meet funding requirements for high priority projects at SASP airport facilities.

6.2 Projected Funding Levels

Historically, the FAA has funded up to 95 percent of an approved capital project through the Airport Improvement Program. The New York State-authorized multi-year capital program for aviation typically funds 2.5 percent of an airport project, leaving 2.5 percent for the airport owner/municipality. Examples of AIP-funded projects include:

- Runway Rehabilitations and Extensions
- Runway Lighting
- Ramp Improvements
- Snow Removal Equipment Acquisition
- Install Perimeter Fencing
- Installation of Navigation Aids
- Obstruction Removal
- Security Patrol Road Improvements
- Terminal Apron Expansion

Many of these improvements are necessary to ensure the safety of aircraft activity and to meet Federal Aviation Administration guidelines.

6.3 Airport Improvement Program – Non-Port Authority Airports

A comparison of needs from Airport Capital Improvement Programs and expected Airport Improvement Program funding levels for the non-Port Authority airports is presented in Table 6-4 below. As indicated, five-year AIP deficits for primary airports other than the three PANY&NJ airports are anticipated to increase substantially throughout the period, from over $80 million to approximately $362 million by 2030. Conversely, five-year AIP deficits for non-primary airports fluctuate somewhat widely, from $115 million between 2010 and 2015, to $20 million by 2020, and $24.6 million by 2030.

Table 6-4 – Non-PANY&NJ 20-Year Needs vs. Expected Funding 2010-2030 ($Millions)

Year	ACIP Need	Expected AIP Funding	Five-Year AIP Deficit
2010-2015			
Primary Airports	$383.7	$293.5	$90.2
Non-Primary Airports	$345.0	$190.0	$155.0
2016-2020			
Primary Airports	$408.2	$293.5	$114.7
Non-Primary Airports	$210.6	$190.0	$20.6
2021-2025			
Primary Airports	$524.4	$293.5	$230.9

Table 6-4 – Non-PANY&NJ 20-Year Needs vs. Expected Funding 2010-2030 ($Millions)			
Year	ACIP Need	Expected AIP Funding	Five-Year AIP Deficit
Non-Primary Airports	$259.1	$190.0	$69.1
2026-2030			
Primary Airports	$655.5	$293.5	$362.0
Non-Primary Airports	$214.6	$190.0	$24.6
Total 20-Year Need	**$3,001.1**	**$1,934.0**	**$1,067.1**

Based upon this Needs Analysis, anticipated capital needs exceed available funding by over $1 billion by the end of the 20-year planning period for non-Port Authority airports. Increases in federal and state funding are necessary to expand airports to keep up with demand, enhance safety, promote mobility by air, support the economic development and sustainability of communities, and to mitigate the environmental effects of airports.

6.4 Port Authority Airport Needs

The *PANY&NJ Strategic Plan*, published in 2007, estimated expected needs and funding levels for the facilities the Port Authority owns and manages. The Plan sets forth a number of campaigns, which address aviation facilities, access, and security needs. Under *Campaign 1, Transportation for a Competitive Service Export Economy*, the Plan endeavors to ensure a high quality of air transportation services, airport access, and inter-regional transit to support the increasingly critical role of global trade in business services in retaining and enhancing the region's competitive position. Highlights of this campaign related to airports and air transportation are:

- The total cost of *Strategy 1: Increase Air Travel Capacity and Quality*, is $3.6 billion. This estimate represents the total cost for runways, taxiways, terminals, hotels and parking garages. The PANY&NJ provided $1.1 billion, which leaves a gap of $2.5 billion. The Port Authority is advancing the Central Terminal Building and Terminals 2 & 3 (Delta) at John F. Kennedy International. These projects are estimated at about $7.5 billion. Therefore, the gap in the 2007-2016 period for terminal redevelopment is approximately $5.5 billion, and terminal redevelopment investment in the New York airports during the 2017-2030 could reach $5 billions.

- Aeronautical investment in John F. Kennedy International and LaGuardia Airport is primarily funded. Existing runways and taxiways are in a state of good repair and are part of the Authority's ongoing pavement management program. Approximately $800 million will be spent in the 2007-2016 period, with an investment of $1.5 billion in the 2017-2030 period. This investment will be funded through a combination of flight fees (PFCs), and federal funds - mainly AIP.

- Landside investments in John F. Kennedy International and LaGuardia Airport account for $200 million in the 2007-2016 period. In the 2017-2030 period, approximately $500 million has been estimated to keep the roadways in a state of good repair, in addition to

$1 billion to replace AirTrain, and a potential $3 billion to provide rail access to LaGuardia and Stewart International. Landside investments would be funded through airport revenues; the rail access programs would require new funding.

- The Port Authority's New York airports have about $5 billion invested in facilities in 2007, which is assumed to increase to $7.5 billion in 2017. The 2017-2030 period need to maintain facilities in a state of good repair is estimated at approximately $400 million a year.

These funding needs, funding levels, and project funding gaps are summarized in Table 6-5.

Table 6-5 – Port Authority Airport Capital Funding Needs ($Billions)

Project/Timeframe			
2007 to 2016	Total Needed	Funded	Gap
Terminal Redevelopment	$7.5	$2.0	$5.5
Aeronautical Investment	$0.8	$0.8	$0.0
Landside Investments	$0.2	$0.2	$0.0
Stewart	$0.5	$0.5	$0.0
2017 to 2030			
Terminal Redevelopment	$5.0	$2.0	$3.0
Aeronautical Investment	$1.5	$1.5	$0.0
Landside Investments	$0.5	$0.5	$0.0
Totals	**$16.0**	**$7.5**	**$8.5**

Source: PANY&NJ

Not included in these estimates is the roughly $4 billion to fund the AirTrain and rail access in the future.

6.5 New York State Funding

AIP matching funds provide for the state share (2.5 percent of the total project cost) for federally funded Airport Improvement Program projects. In 2006, $8 million was appropriated for the state match in the budget. This is a powerful leveraging tool in the hands of the state to access federal dollars for airports. Two programs which may be utilized to funding SASP airport projects include:

- ***2005 Rebuild and Renew New York Transportation Bond Act:*** Five-year program included $76.4 million for aviation needs, divided into three programs: general aviation security, business development, and AIR '99.

- ***Multi-Modal Program (MMP):*** This program provides funding for authorized port, airport, and local highway and bridge projects that meet certain eligibility requirements, and is negotiated between the Legislature, Governor and local sponsors.

KEY FINDINGS

Overall Findings:

- ***Economic Impact:*** The state's system of airports contributes $35 billion annually to the economy providing 4.5 percent of the state's total payroll as determined in a 2002 study conducted by NYSDOT.
- ***Funding Shortfalls:*** Federal and other funding are essential to providing the necessary capital improvements for the system. However, the SASP finds that insufficient funding for short- and long-term capital projects will exist. This funding shortfall is more than $1 billion for the non-Port Authority airports and at least $8.5 billion for the Port Authority airports.
- ***Global Competitiveness:*** The maintenance and improvement of the airports' current system, especially the strategic business airport subsystem, are critical to the state's competitiveness in a global economy.

General Aviation (GA) Specific Findings:

- ***Importance of GA:*** General Aviation airports are an important element of the air transportation system, providing air transportation access to rural communities and relieving commercial service airports in metropolitan areas.
- ***Common Issues Facing GA:*** Mirroring the national trend, many general aviation and small commercial service airports have experienced reduced demand; are dependent on federal Airport Improvement Program (AIP) and state funding for capital improvements; and operate at a deficit.

Recommendations:

- ***Multimodal Solution:*** Improvements to the aviation system must continue to be adequately considered as integral to developing the state's multimodal transportation systems.
- ***Funding Needs:*** Priority airside capital improvements, such as runways, taxiways, Navigational System (NAVAIDS) and safety improvements that are eligible for FAA AIP funding should be advanced.
- ***Business Airport System:*** NYSDOT should continue to support and to lead efforts assisting airports to enhance revenues and to maintain operations at strategically located airports that are essential to the economic growth of many areas in the state.
- ***Partnering for the Future of Aviation:*** NYSDOT should continue to work with state and national organizations to ensure that adequate federal funding is available for airport capital improvements and for programs that help smaller communities, such as Essential Air Service and the Small Community Air Service Development Program.

In conclusion, the recommendations presented in this Chapter respond to the critical issues identified at the outset of the SASP development process. These recommendations represent a strategic approach to addressing system-wide facility issues, including the development of a strategic business airport sub-system and the adequate future funding of the overall system of airports. The business airport sub-system as a strategy attempts to recognize the very real limits in FAA funding over the long-term by identifying a set of airports where

opportunities for revenue and economic growth exist. This will help ensure that whatever future level of FAA funding is truly targeted toward investments that produce results.

In terms of air service enhancements, the strategic direction of this SASP seeks to support the funding of projects at facilities where airline service is a real possibility. Doing so will assist in making these facilities attractive to airlines, illustrating the state's and FAA's commitment to the public and willingness to contribute to providing levels of commercial service that accommodate demand.

Finally, the gap in capital funding that is projected for the future remains the toughest challenge facing the state's airports. Without adequate funding, New York State may lose its competitiveness in air transportation and the related impacts to business and industry. Focused work on providing existing and new capital sources for airport maintenance and development is recommended throughout the planning horizon.

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