

# FAA Regional Air Service Demand Study

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3-36-0000-002-03  
(Phase I)  
3-36-0000-04-05  
(Phase II)

Task B — Forecast of Passengers, Operations and  
Other Activities for Stewart International Airport

May 2007

## *New York State Department of Transportation*



**SWF -**  
Stewart International  
Airport



**HPN -**  
Westchester County  
Airport



**ISP -**  
Long Island  
MacArthur Airport

## *Delaware Valley Regional Planning Commission*



**ABE -**  
Lehigh Valley  
International Airport



**ACY -**  
Atlantic City  
International Airport

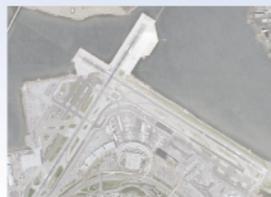


**TTN -**  
Trenton Mercer  
Airport

## *Port Authority of New York & New Jersey*



**JFK -**  
John F. Kennedy  
International Airport



**LGA -**  
LaGuardia Airport



**EWR -**  
Newark Liberty  
International Airport

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# *FAA Regional Air Service Demand Study*

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## **EXECUTIVE SUMMARY INTRODUCTION/PURPOSE**

This report presents comprehensive forecasts of aviation demand at Stewart International Airport for the years 2005 through 2015, 2020, and 2025. These forecasts were prepared as part of the Federal Aviation Administration (FAA) Regional Air Service Demand Study, which evaluated future demand at the following nine New York City-area airports:

- John F. Kennedy International Airport (JFK) - PANYNJ
- Newark Liberty International Airport (EWR) - PANYNJ
- LaGuardia Airport (LGA) - PANYNJ
- Westchester County Airport (HPN) - NYSDOT
- Long Island MacArthur Airport (ISP) - NYSDOT
- Stewart International Airport (SWF) - NYSDOT
- Atlantic City International Airport (ACY) - DVRPC
- Trenton Mercer Airport (TTN) - DVRPC
- Lehigh Valley International Airport (ABE) - DVRPC

PANYNJ = Port Authority of New York & New Jersey

NYSDOT = New York State Department of Transportation

DVRPC = Delaware Valley Regional Planning Commission

Demand for the nine-airport region as a whole was taken into consideration in developing the forecasts for the individual airports. The forecasts presented in this report represent market-driven demand for air service and are therefore considered “unconstrained.” In other words, for purposes of estimating demand, the forecasts assume facilities can be provided to meet the demand. However, because each of the airports already has facility and/or policy constraints, historical traffic was also limited, so the forecasts inherently reflect the existing constraints.

A baseline forecast was developed that represents the most likely level of activity at each of the nine airports. In addition, optimistic and pessimistic scenarios were developed to show the broad range of possible aviation activity that could be experienced over the next 20 years. It is important to explore a range of possible future growth scenarios. This will allow each airport to avoid being surprised by potential rapid growth or unexpected slowdowns in growth. These forecasts provide a full-range of information from which it will be possible to anticipate each airport’s future activity, and plan for facilities that might be needed to accommodate future air transportation demand.

Separate forecast reports were prepared for each airport. The first two sections of this report contain information pertaining to all nine airports in the study area. The remaining sections contain information that is specific to SWF.

## SUMMARY OF FINDINGS

### ANNUAL FORECASTS OF AVIATION ACTIVITY

This section contains a summary of the forecast results for the baseline forecasts and the optimistic and pessimistic scenarios for SWF. **Table 1** and **Exhibit 1** show a summary of the forecast of enplaned passengers through 2025 for the baseline case and the two scenarios. Total enplaned passengers in the base case are forecast to grow from 199,425 in 2005 to 467,200 by 2025, representing average annual growth of 4.3 percent. The base case incorporates new service announced by AirTran Airways and JetBlue Airways, and roadway access improvements around SWF to be completed by 2009, which are expected to have a stimulatory effect on passenger traffic at the Airport. A more detailed explanation of the access improvements and their expected impact on demand is presented in Section V.

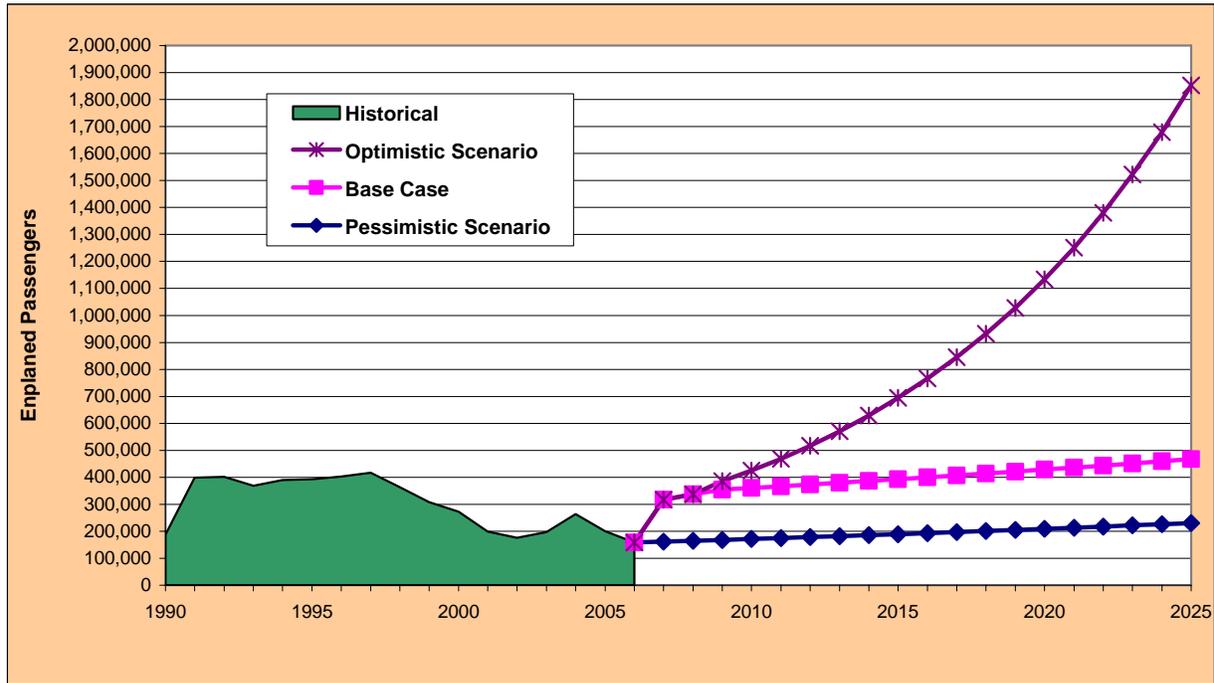
**Table 1**  
**SWF ENPLANED PASSENGER FORECAST SUMMARY**

	Calendar	<u>Base Case</u>	<u>Optimistic</u>	<u>Pessimistic</u>
	<u>Year</u>			
Actual	1995	392,830		
	2000	272,172		
	2005	199,425		
Estimate	2006	158,360	158,360	158,360
Forecast	2007	316,600	316,600	161,500
	2008	337,600	337,600	164,700
	2009	354,500	385,300	168,000
	2010	360,700	425,000	171,400
	2011	366,900	468,800	174,800
	2012	373,300	517,200	178,300
	2013	379,800	570,500	181,900
	2014	386,400	629,300	185,500
	2015	393,100	694,200	189,200
	2020	428,600	1,134,000	208,900
	2025	467,200	1,853,000	230,600
Average Annual Growth Rates				
	1995-2005	-6.6%		
	2005-2015	7.0%	13.3%	-0.5%
	2015-2025	1.7%	10.3%	2.0%
	2005-2025	4.3%	11.8%	0.7%

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Source: Landrum & Brown

**Exhibit 1**  
**SWF FORECASTS OF TOTAL ANNUAL PASSENGERS**



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 Sources: Airport Records; Landrum & Brown

Optimistic and pessimistic scenarios were developed for SWF. The optimistic scenario is not meant to represent the absolute maximum activity that is possible at the airport during the forecast period. By the same token, the pessimistic scenario does not represent a gloom and doom case. Rather, these scenarios represent realistic possibilities that could cause future activity to deviate from the baseline forecast.

The optimistic scenario assumes that SWF is able to capture a larger share of the traffic generated in the 9-county service area and from Fairfield, Westchester, Bergen, and Passaic counties that are not currently in the SWF service area. Through expanded service and lower fares, SWF would recapture leakage to surrounding airports in this scenario including Albany, Bradley, and Westchester County airports. The optimistic scenario results in 1,853,000 enplaned passengers in 2025, representing an average annual growth rate of 11.8 percent from 2005 to 2025.

The pessimistic scenario expects that access improvements at SWF will not stimulate new demand or aid in recapturing any additional passengers. The pessimistic scenario results in 230,600 enplaned passengers in 2025 (0.7 percent average annual growth from 2005 to 2025).

**Table 2** and **Exhibit 2** show historical and forecast annual aircraft operations for the base case and the optimistic and pessimistic scenarios. Annual aircraft

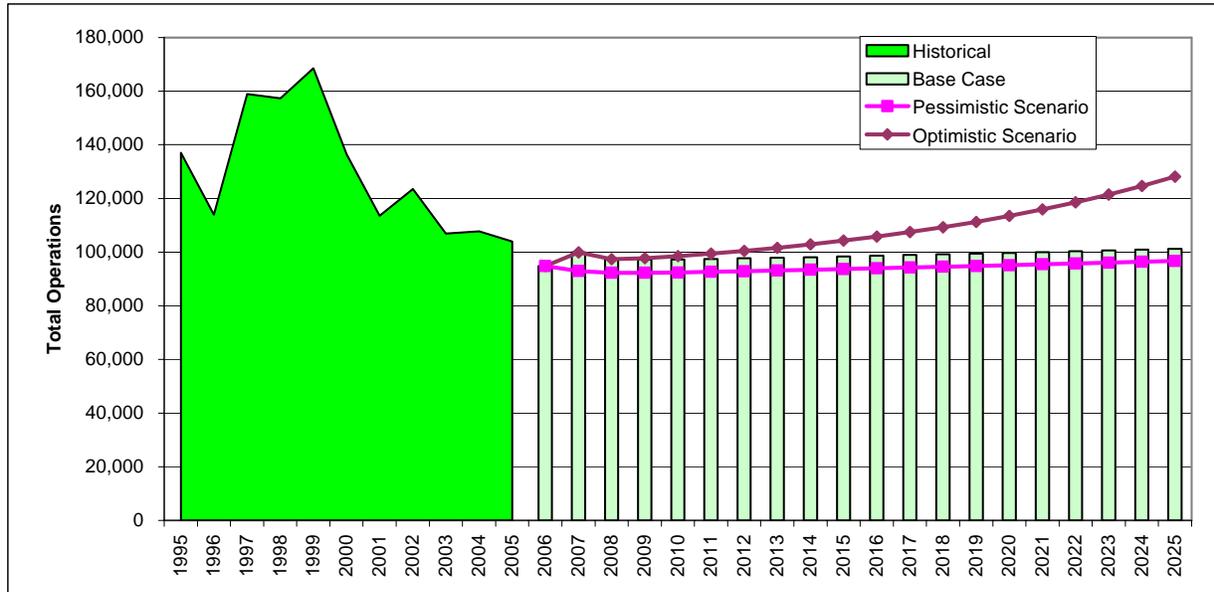
operations are forecast to decrease initially in 2006 (primarily due to the demise of Independence Air) in the base case but average growth of 0.3 percent per year thereafter. The optimistic scenario results in 128,160 aircraft operations in 2025, representing average annual growth of 1.1 percent from 2005 to 2025. The pessimistic scenario results in a decline of 0.4 percent annually from 103,960 operations in 2005 to 96,730 in 2025.

**Table 2  
SWF FORECASTS OF TOTAL AIRCRAFT OPERATIONS**

	Calendar				
	<u>Year</u>	<u>Base Case</u>	<u>Optimistic</u>	<u>Pessimistic</u>	
Actual	1995	137,042	137,042	137,042	
	1996	113,998	113,998	113,998	
	1997	158,883	158,883	158,883	
	1998	157,308	157,308	157,308	
	1999	168,603	168,603	168,603	
	2000	136,489	136,489	136,489	
	2001	113,564	113,564	113,564	
	2002	123,528	123,528	123,528	
	2003	106,970	106,970	106,970	
	2004	107,779	107,779	107,779	
	2005	103,960	103,960	103,960	
	Estimate Forecast	2006	94,810	94,810	94,810
		2007	99,850	99,850	92,950
2008		97,320	97,320	92,260	
2009		97,140	97,740	92,290	
2010		97,240	98,490	92,400	
2011		97,460	99,440	92,650	
2012		97,700	100,500	92,900	
2013		97,900	101,610	93,120	
2014		98,160	102,890	93,410	
2015		98,430	104,290	93,690	
2016		98,690	105,810	93,980	
2017		98,940	107,460	94,250	
2018		99,200	109,280	94,540	
2019		99,470	111,280	94,830	
2020		99,740	113,470	95,130	
2021		100,030	115,890	95,460	
2022		100,320	118,540	95,770	
2023	100,600	121,440	96,080		
2024	100,890	124,640	96,400		
2025	101,190	128,160	96,730		
<u>Average Annual Growth Rates</u>					
	1995-2005	-2.7%			
	2005-2015	-0.5%	0.0%	-1.0%	
	2015-2025	0.3%	2.1%	0.3%	
	2005-2025	-0.1%	1.1%	-0.4%	

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Source: Landrum & Brown

**Exhibit 2  
SWF FORECASTS OF TOTAL AIRCRAFT OPERATIONS**



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Source: Landrum & Brown.

**Table 3** presents the base, optimistic, and pessimistic air cargo tonnage forecasts for SWF. In the base case, air cargo volumes are forecast to increase from 26,131 short tons in 2005 to 47,000 short tons in 2025, an average annual growth rate of 0.5 percent. A detailed discussion of the air cargo forecasts is presented in Section VII.

**Table 3  
SWF FORECAST AIR CARGO VOLUMES (in short tons)**

	Calendar	Total Cargo (Short Tons)			
	Year	Optimistic	Base Case	Pessimistic	
Actual	1997	76,442	76,442	76,442	
	2000	35,780	35,780	35,780	
	2005	26,131	26,131	26,131	
Estimate Forecast	2006	20,200	20,200	20,200	
	2007	20,900	20,800	20,100	
	2008	21,600	21,400	20,000	
	2009	22,400	22,000	19,900	
	2010	23,200	22,700	19,800	
	2011	24,100	23,400	19,700	
	2012	25,100	24,100	19,600	
	2013	26,100	24,800	19,500	
	2014	27,100	25,500	19,400	
	2015	28,200	26,300	19,300	
	2020	34,300	30,500	18,800	
	2025	41,700	35,300	18,300	
	<u>Average Annual Growth Rates</u>				
		1997-2005	-12.6%	-12.6%	-12.6%
		2005-2015	0.8%	0.1%	-3.0%
	2015-2025	4.0%	3.0%	-0.5%	
	2005-2025	2.4%	1.5%	-1.8%	

H:\New York System Forecast\Forecasts\Enpax & Ops\Regional Airports\SWF\SWF Cargo Optimistic & Pessimistic Scenarios.xls]Table  
Sources: SWF Air Traffic Reports; U.S. DOT, Schedule T-100 and Schedule T-3; Landrum & Brown analysis.

## **2005 TERMINAL AREA FORECAST & 2003 MASTER PLAN UPDATE FORECAST COMPARISON**

**Table 4** presents a comparison of the 2005 FAA Terminal Area Forecast (TAF) and the 2003 Master Plan Update (MPU) for SWF to the SWF forecasts developed for the FAA Regional Air Service Demand Study.

By 2025, the TAF enplanement levels are 23 percent lower than the base forecast. At the time of developing the base forecast for the FAA Regional Air Service Demand Study, approximately a year of additional data was available than when the 2005 TAF was published and includes new scheduled passenger service announced in November 2006. This additional information shed light on near term enplanement volumes for calendar years 2006 and 2007 that could not reasonably have been projected in the current 2005 TAF based on the available data at that time. Based on enplanement volumes through June 2006 for SWF and airline schedule filings for the full calendar year, enplanements are likely to be down 21 percent in 2006 to approximately 158,000 enplanements. In contrast, the 2005 TAF projected 3.1 percent annual growth for SWF enplanements in 2006 reaches 201,000 enplanements. As a result, there is a 27 percent difference between 2005 TAF forecast for 2006 and the base case projection for 2006. Beyond 2006, enplanements are forecast to continue averaging annual growth of 3.1 percent in the TAF while a faster 5.9 percent average annual growth rate is projected in the base case, due to new service initiated by JetBlue and AirTran.

The 2005 TAF operations forecast is 36 percent higher than the base case forecast in 2025. The difference in the forecasts is partly explained by an expected near term drop in commercial passenger operations in 2006 which was not forecast in the 2005 TAF due to data available at that time. Additionally, the 2005 TAF forecasts 1.1 percent average annual growth in general aviation operations for SWF, which is in line with the FAA's current growth forecast for general aviation nationally. The general aviation forecasts presented herein for the base case calls for a flattening of general aviation activity over the 20-year period.

Aviation activity forecasts were also developed in 2003 for the SWF Master Plan Update (2003 MPU). Similar to the forecasts published for the FAA Regional Demand Study, a base case and two scenarios were developed. However, unlike the two SWF forecast scenarios (optimistic and pessimistic) developed for the FAA Regional Demand Study, the 2003 MPU forecast scenarios both exceeded the MPU base case. These two scenarios published in the MPU were labeled "Moderate" and "Robust". As a result, the pessimistic scenario developed for the FAA Regional Demand Study and the "Robust" scenario developed for the 2003 MPU are not comparable across studies. However, the base cases and the optimistic/moderate scenarios provide a reasonable basis for comparison across studies based on a review of the underlying assumptions.

As Table 4 shows, the 2003 MPU base forecasts are lower for enplanements and higher for aircraft operations. In 2005 and 2006, the differences in the base forecasts are explained largely by actual near term enplanement volumes which have fallen short of projected volumes in the 2003 MPU. Similar to the FAA's TAF, the decline in enplanement volumes in 2005 and the expected further decline in 2006 could not have reasonably been built into a forecast based on the available data at the time of publishing the 2003 MPU. In 2007 and beyond, the scheduled new service increases the base case enplanement forecast above both the TAF and MPU forecasts.

**Table 4  
ENPLANED PASSENGER AND ANNUAL OPERATIONS FORECASTS  
COMPARISON**

Year	Enplanements					Aircraft Operations				
	2006 Forecast	2005 TAF	Variance	2003 MPU	Variance	2006 Forecast	2005 TAF	Variance	2003 MPU	Variance
1995	392,830	401,098				137,042	147,295			
1996	403,302	427,380				113,998	117,366			
1997	416,717	434,548				158,883	147,431			
1998	363,732	376,879				157,308	157,082			
1999	307,575	309,948				168,603	161,518			
2000	272,172	285,023				136,489	150,237			
2001	198,886	217,587				113,564	114,109			
2002	175,268	169,708		181,399		123,528	127,623		123,642	
2003	197,195	193,436		202,000		106,970	109,954		116,428	
2004	263,292	237,203				107,779	103,481			
2005	199,425	195,456				103,960	112,962			
2006	158,360	201,418	27.2%			94,810	114,218	20.5%		
2007	316,600	207,574	-34.4%	229,000	-27.7%	99,850	115,491	15.7%	125,528	25.7%
2008	337,600	213,931	-36.6%			97,320	116,779	20.0%		
2009	354,500	220,493	-37.8%			97,140	118,086	21.6%		
2010	360,700	227,269	-37.0%			97,240	119,409	22.8%		
2011	366,900	234,266	-36.1%			97,460	120,748	23.9%		
2012	373,300	241,489	-35.3%	267,000	-28.5%	97,700	122,106	25.0%	136,417	39.6%
2013	379,800	248,948	-34.5%			97,900	123,481	26.1%		
2014	386,400	256,648	-33.6%			98,160	124,874	27.2%		
2015	393,100	264,600	-32.7%			98,430	126,001	28.0%		
2016	400,000	272,809	-31.8%			98,690	127,140	28.8%		
2017	407,000	281,285	-30.9%	309,000	-24.1%	98,940	128,290	29.7%	148,152	49.7%
2018	414,100	290,037	-30.0%			99,200	129,452	30.5%		
2019	421,300	299,073	-29.0%			99,470	130,624	31.3%		
2020	428,600	308,403	-28.0%			99,740	131,810	32.2%		
2021	436,100	318,036	-27.1%			100,030	133,007	33.0%		
2022	443,700	327,982	-26.1%	358,000	-19.3%	100,320	134,216	33.8%	160,183	59.7%
2023	451,400	338,252	-25.1%			100,600	135,438	34.6%		
2024	459,200	348,855	-24.0%			100,890	136,672	35.5%		
2025	467,200	359,803	-23.0%			101,190	137,918	36.3%		
<b>Average Annual Growth Rate</b>										
2005-25	4.3%	3.1%				-0.1%	1.0%			
2002-22				3.5%					1.3%	

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Sources: FAA 2005 TAF; 2003 MPU; Landrum & Brown analysis

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## I. AIRPORT SERVICE AREAS

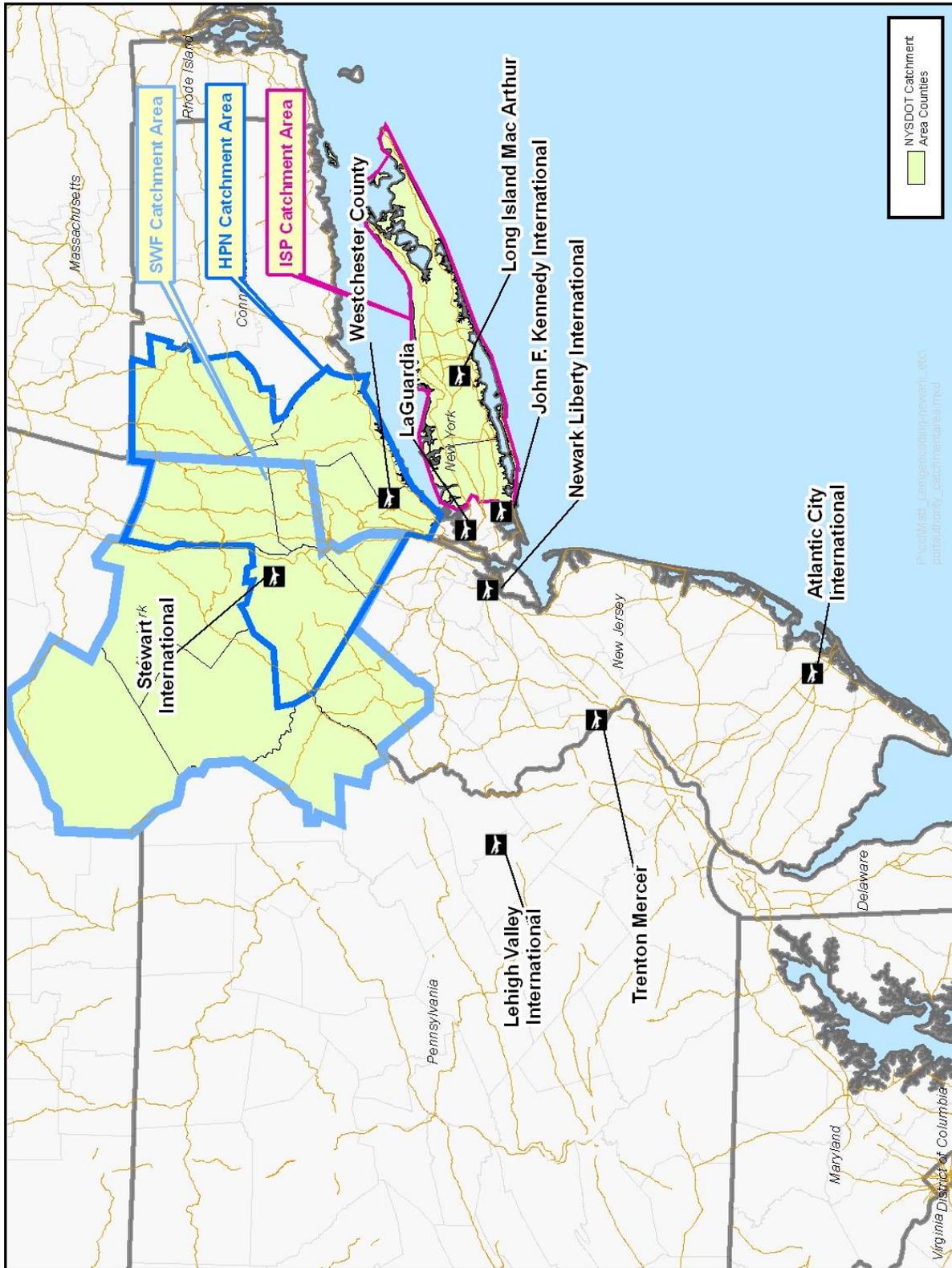
The service area (or catchment area) for the New York State Department of Transportation (NYSDOT) airports is a subset of the service area for the entire FAA, Regional Air Service Demand Study. The service areas for each of the NYSDOT airports are shown in **Exhibit I-1**. The service areas were defined using the air passenger survey conducted as part of the regional study.

### I.1 ZIP CODE ANALYSIS OF PASSENGER SURVEYS

The surveys were conducted during a three-month period beginning in June and finishing in August 2005. A total of 3,300 usable surveys were collected; 1,100 from each airport. Approximately 1,600 surveys were distributed at each airport in order to obtain 1,100 completed, usable surveys. The definition of a usable survey included the zip code for the local trip origin and minimum demographic information about each passenger. Surveys were self-administered in the gate holdrooms at each airport.

**Table I-1** shows a summary of the survey sampling plan for each of the three NYSDOT airports. The surveys were conducted between 6:00 am and midnight, seven days per week. As shown in the table, the distribution of surveys across airlines achieved the target sampling plan.

**Exhibit I-1  
AIRPORT SERVICE AREA DEFINITIONS**



Source: NYS DOT, 2005 Air Passenger Survey

**Table I-1  
SUMMARY OF SURVEY SAMPLING PLAN**

<u>Airport</u>	<u>Airline</u>	<u>Target</u>	<u>Actual</u>	<u>Percent of Target</u>
Long Island MacArthur	Southwest	957	893	93.3%
	Other	143	207	144.8%
	Total	1,100	1,100	100.0%
Stewart International	US Airways	400	395	98.8%
	American	280	276	98.6%
	Delta	160	161	100.6%
	Independence Air	140	141	100.7%
	Northwest	60	62	103.3%
	PanAm	50	52	104.0%
	US Air Express	10	13	130.0%
Total	1,100	1,100	100.0%	
Westchester County	Mesaba (NW)	191	131	68.6%
	Comair (DL)	188	158	84.0%
	Independence Air	167	128	76.6%
	United	139	223	160.4%
	American	139	168	120.9%
	PSA (US Air)	112	140	125.0%
	Other	89	39	43.8%
	Continental	75	113	150.7%
Total	1,100	1,100	100.0%	

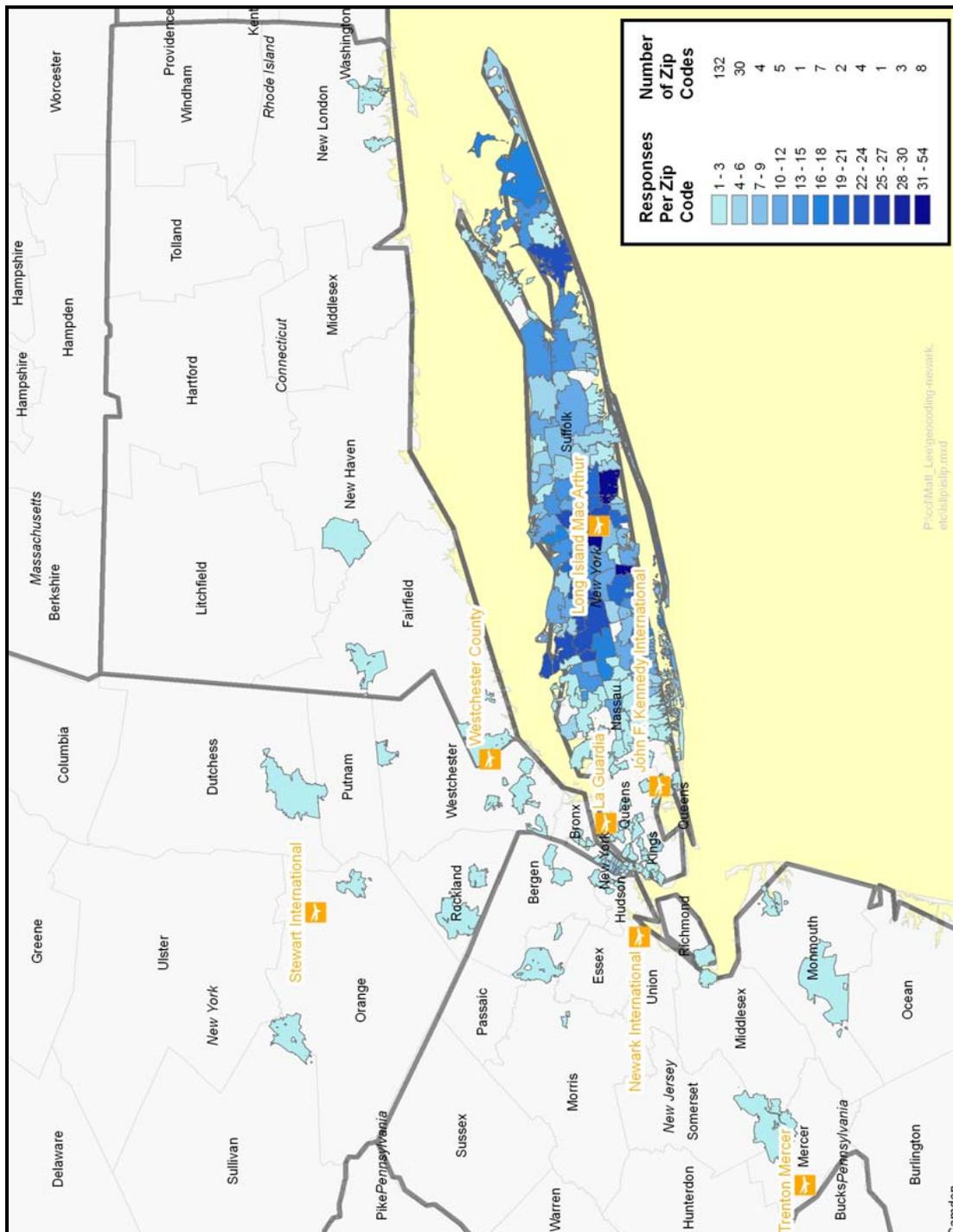
H:\New York System Forecast\Pax Survey\NYSDOT\[DOT TARGET VS ACTUAL 12-1\_b.xls]HPN  
 Source: NYSDOT, 2005 Air Passenger Survey

A key purpose of the survey was to identify the local origin of passenger trips to each airport at the zip code level. Zip codes were then assigned on a geographic basis to a county, based upon the majority of a zip code area being within that county. Survey findings were summarized on a county-by-county basis.

Other survey questions focused on airport preferences, alternative airports used, and identifying factors important for airport choice. In addition, the survey questions covered topics about trip purpose, the passenger’s place of residence, mode of ground transportation to the airport, and the ultimate destination of the trip. Basic demographic information about the passenger was also gathered. All data was tested for significance at the 95 percent confidence level plus/minus three percent.

**Exhibit I-2** shows the distribution of surveys by the zip code of passenger trip origin for ISP. Virtually all of the surveys came from Suffolk, Nassau, and New York (Manhattan) counties. About 81 percent of survey respondents were traveling for non-business reasons. Approximately 55 percent of the surveys were from visitors.

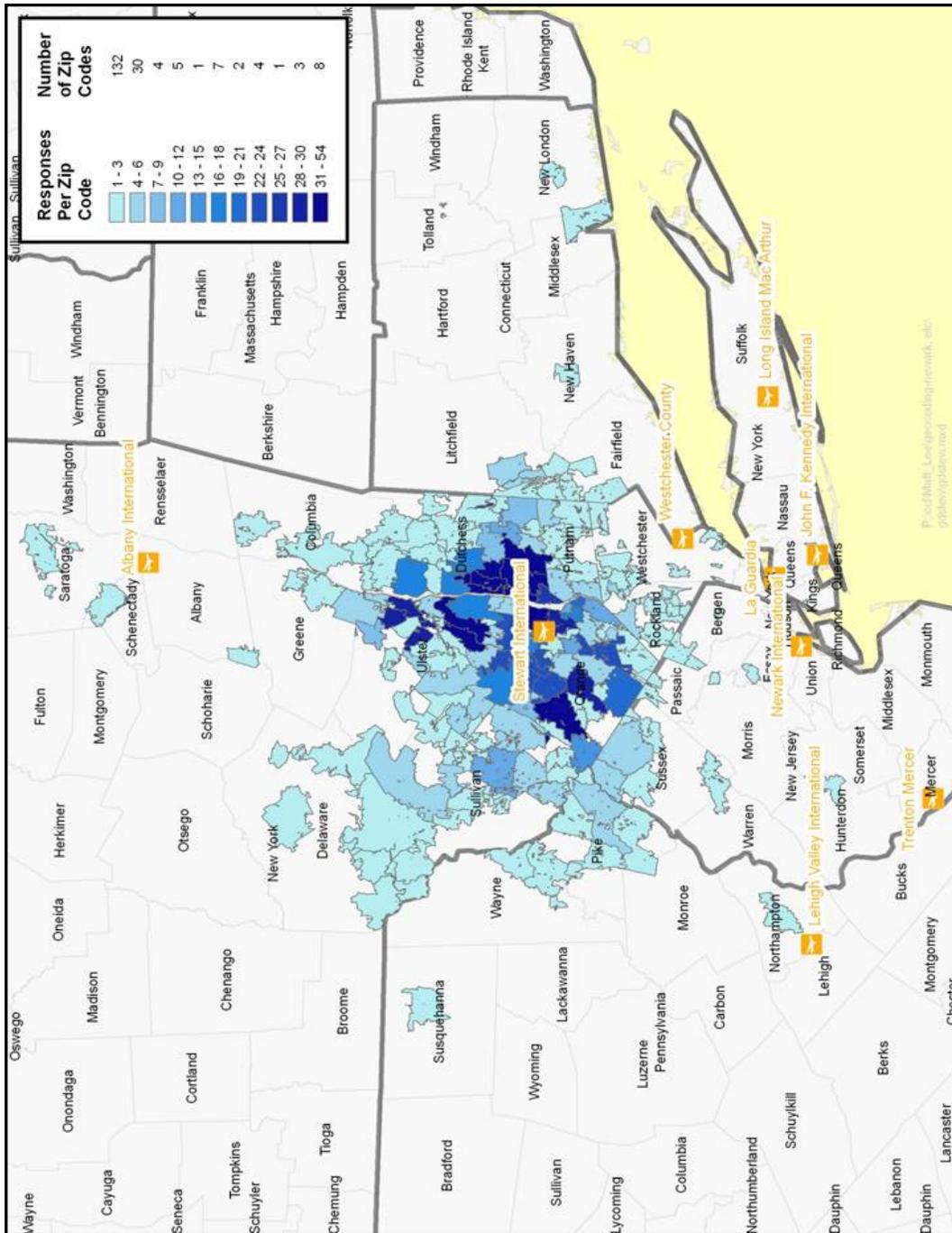
**Exhibit I-2  
DISTRIBUTION OF PASSENGER TRIP ORIGINS FOR ISP**



Source: NYS DOT, 2005 Air Passenger Survey

Exhibit I-3 shows the distribution of surveys by zip code of passenger trip origin for SWF. Not surprisingly, the vast majority of surveys came from passengers for whom SWF is the closest airport. Approximately 78 percent of survey respondents were traveling for non-business reasons. Surveys were split evenly between residents and visitors.

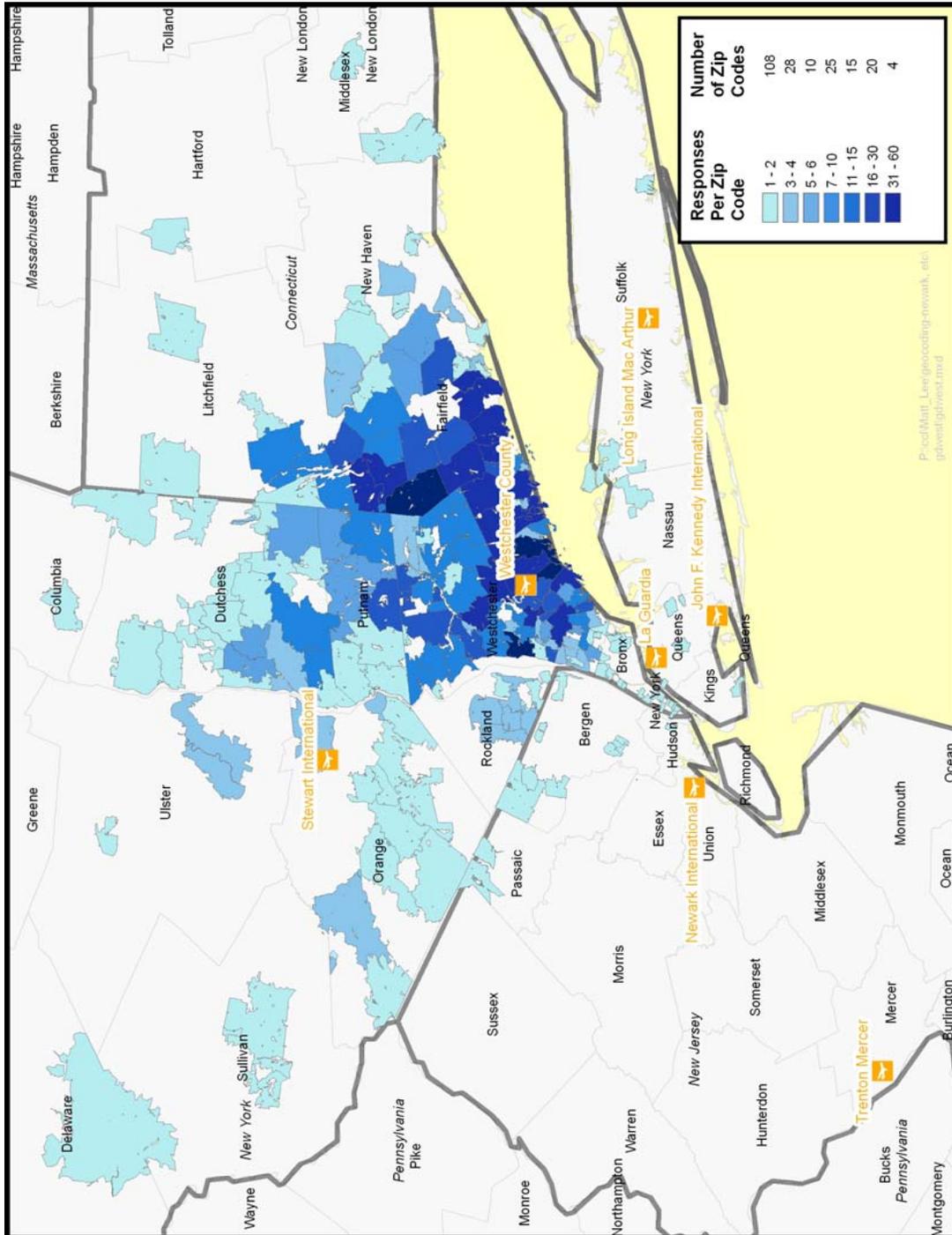
**Exhibit I-3  
DISTRIBUTION OF PASSENGER TRIP ORIGINS FOR SWF**



Source: NYS DOT, 2005 Air Passenger Survey

Exhibit I-4 shows the distribution of surveys by zip code of passenger trip origin for HPN. The majority of surveys came from Fairfield (CT) and Westchester (NY) counties. Approximately 61 percent of survey respondents were traveling for non-business reasons. Surveys were split evenly between residents and visitors.

**Exhibit I-4  
DISTRIBUTION OF PASSENGER TRIP ORIGINS FOR HPN**



Source: NYS DOT, 2005 Air Passenger Survey

## **I.2 IDENTIFICATION OF AIRPORT SERVICE AREAS**

To identify the counties which comprise the service areas for each airport, the survey responses by zip code were summarized by county to determine the number of survey responses for each county. The number of surveys responses from each county was compared to the total county population to determine a rate of survey response per 1,000 residents. An empirically established level of significance was used to determine whether a county was part of the service area.

Each zip code was assigned to a county depending upon its location. Those zip code areas that spanned county boundaries were assigned to the county which had the larger portion of a zip code's area. The number of surveys was then tallied and compared to the county's 2004 population (as described by Woods & Poole Economics). A rate of surveys per 1,000 residents was established. Using a threshold of 0.05 surveys per 1,000 residents gave the best results for defining airport service areas that were composed of contiguous counties; and were reasonably consistent with past definitions.

The purpose of this analysis was to define those counties that should be included in the socio-economic model of each airport's service area. While a county may generate a noticeable number of trips to an airport, the airport may not necessarily be an important part of that county's air travel market. Including a large county that generates a small number of trips in an airport service area model would distort the overall airport model towards the socio-economic factors of a county that generates only a small number of trips.

**Table I-2** presents the number of completed surveys by county and the per 1,000 local population ratio for ISP. Although New York County generated a significant number of surveys at ISP, when compared to the total population of the county, the number of surveys did not reach a threshold of significance. New York and Sullivan counties (shown in red) are included in the service area of one or more airports in the study.

**Table I-2  
SURVEYS PER 1,000 COUNTY POPULATION – ISP**

<u>County</u>			<u>ISP</u>	<u>Surveys per</u>
<u>Count</u>	<u>County</u>	<u>State</u>	<u>Surveys</u>	<u>1000</u>
				<u>Population</u>
1	Suffolk	NY	901	<b>0.6172</b>
2	Nassau	NY	157	<b>0.1170</b>
	<b>New York</b>	NY	67	0.0432
	Tioga	NY	1	0.0194
	<b>Sullivan</b>	NY	1	0.0133
	Ontario	NY	1	0.0098

H:\New York System Forecast\Pax Survey\[Catchment\_Area-Final\_by\_county.xls]ISP

Sources: NYSDOT, 2005 Air Passenger Survey and Landrum & Brown analysis.

**Table I-3** presents the number of completed surveys by county and the per 1,000 local population ratio for SWF. Although Westchester and Fairfield counties generated a significant number of surveys at SWF, when compared to the total population of each county, the number of surveys does not reach a threshold of significance. Susquehanna, Westchester, Litchfield, and Fairfield counties (shown in red) are included in the service area of one or more airports in the study.

**Table I-3  
SURVEYS PER 1,000 COUNTY POPULATION – SWF**

<u>County</u>			<u>SWF</u>	<u>Surveys per</u>
<u>Count</u>	<u>County</u>	<u>State</u>	<u>Surveys</u>	<u>1000</u>
				<u>Population</u>
1	Dutchess	NY	391	<b>1.3514</b>
2	Orange	NY	452	<b>1.2635</b>
3	Ulster	NY	202	<b>1.1222</b>
4	Sullivan	NY	70	<b>0.9316</b>
5	Putnam	NY	22	<b>0.2207</b>
6	Delaware	NY	10	<b>0.2097</b>
7	Pike	PA	10	<b>0.2000</b>
8	Sussex	NJ	16	<b>0.1072</b>
9	Rockland	NY	18	<b>0.0615</b>
	Columbia	NY	3	0.0474
	Wayne	PA	2	0.0391
	<b>Susquehanna</b>	PA	1	0.0236
	<b>Westchester</b>	NY	22	0.0234
	<b>Litchfield</b>	CT	4	0.0215
	Greene	NY	1	0.0205
	<b>Fairfield</b>	CT	10	0.0112

H:\New York System Forecast\Pax Survey\[Catchment\_Area-Final\_by\_county.xls]SWF  
Sources: NYSDOT, 2005 Air Passenger Survey and Landrum & Brown analysis.

**Table I-4** presents the number of completed surveys by county and the per 1,000 local population ratio for HPN. New Haven County generated a significant number of surveys at HPN. However, when compared to the total population of the county, the number of surveys does not reach a threshold of significance. Sullivan, Ulster, Delaware, and New Haven counties (shown in red) are included in the service area of one or more airports in the study.

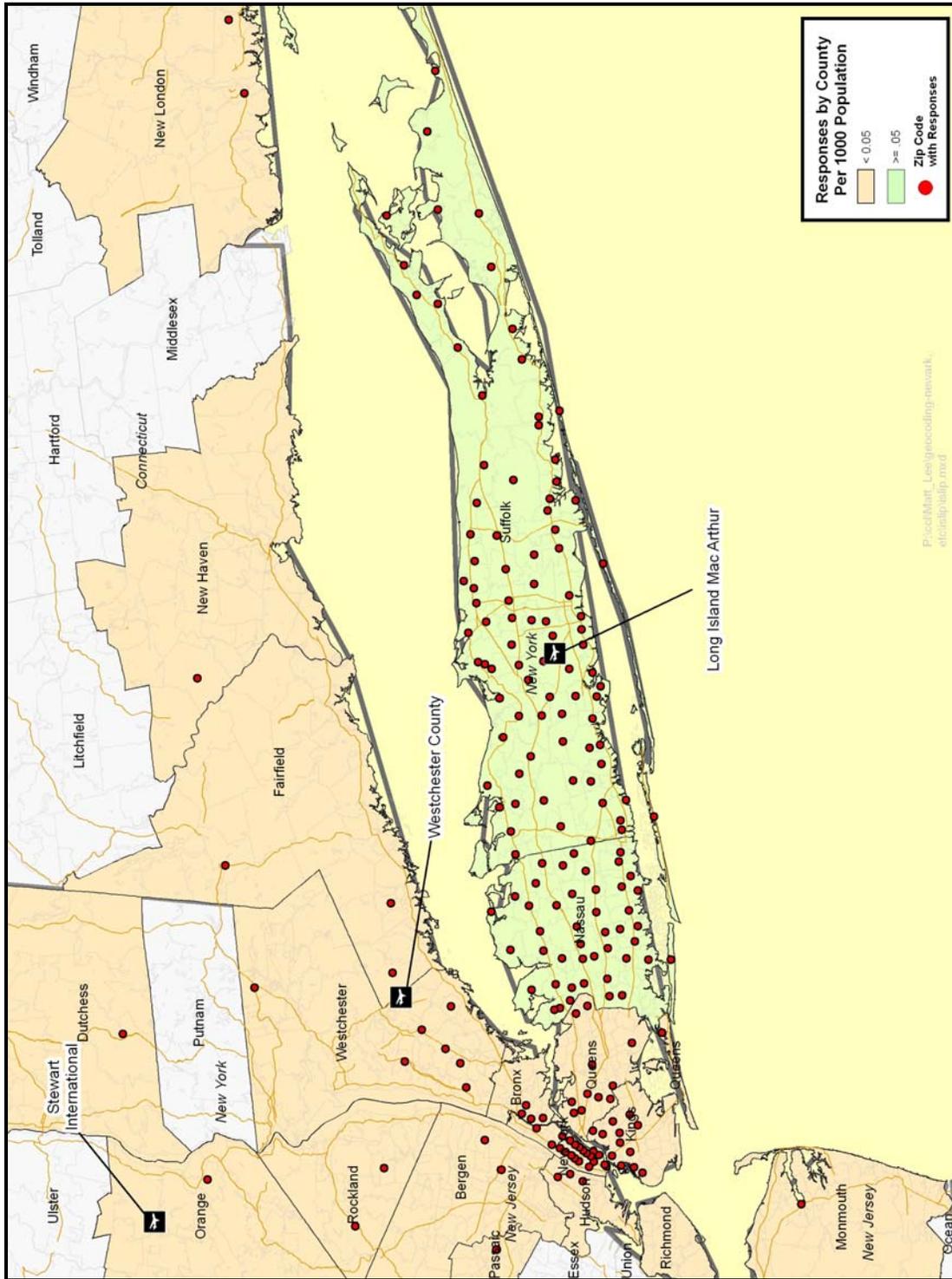
**Table I-4  
SURVEYS PER 1,000 COUNTY POPULATION – HPN**

<u>County</u>			<u>HPN</u>	<u>Surveys per</u>
<u>Count</u>	<u>County</u>	<u>State</u>	<u>Surveys</u>	<u>1000</u>
				<u>Population</u>
1	Fairfield	CT	512	<b>0.5719</b>
2	Westchester	NY	511	<b>0.5444</b>
3	Putnam	NY	36	<b>0.3612</b>
4	Dutchess	NY	51	<b>0.1763</b>
5	Rockland	NY	24	<b>0.0820</b>
6	Litchfield	CT	15	<b>0.0807</b>
7	Orange	NY	19	<b>0.0531</b>
	Sullivan	NY	3	0.0399
	Ulster	NY	5	0.0278
	Delaware	NY	1	0.0210
	Cortland	NY	1	0.0207
	New Haven	CT	17	0.0205
	Washington	NY	1	0.0163

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Sources: NYSDOT, 2005 Air Passenger Survey and Landrum & Brown analysis.

Exhibit I-5 shows the resulting service area for ISP. The ISP service area includes Nassau and Suffolk counties on Long Island.

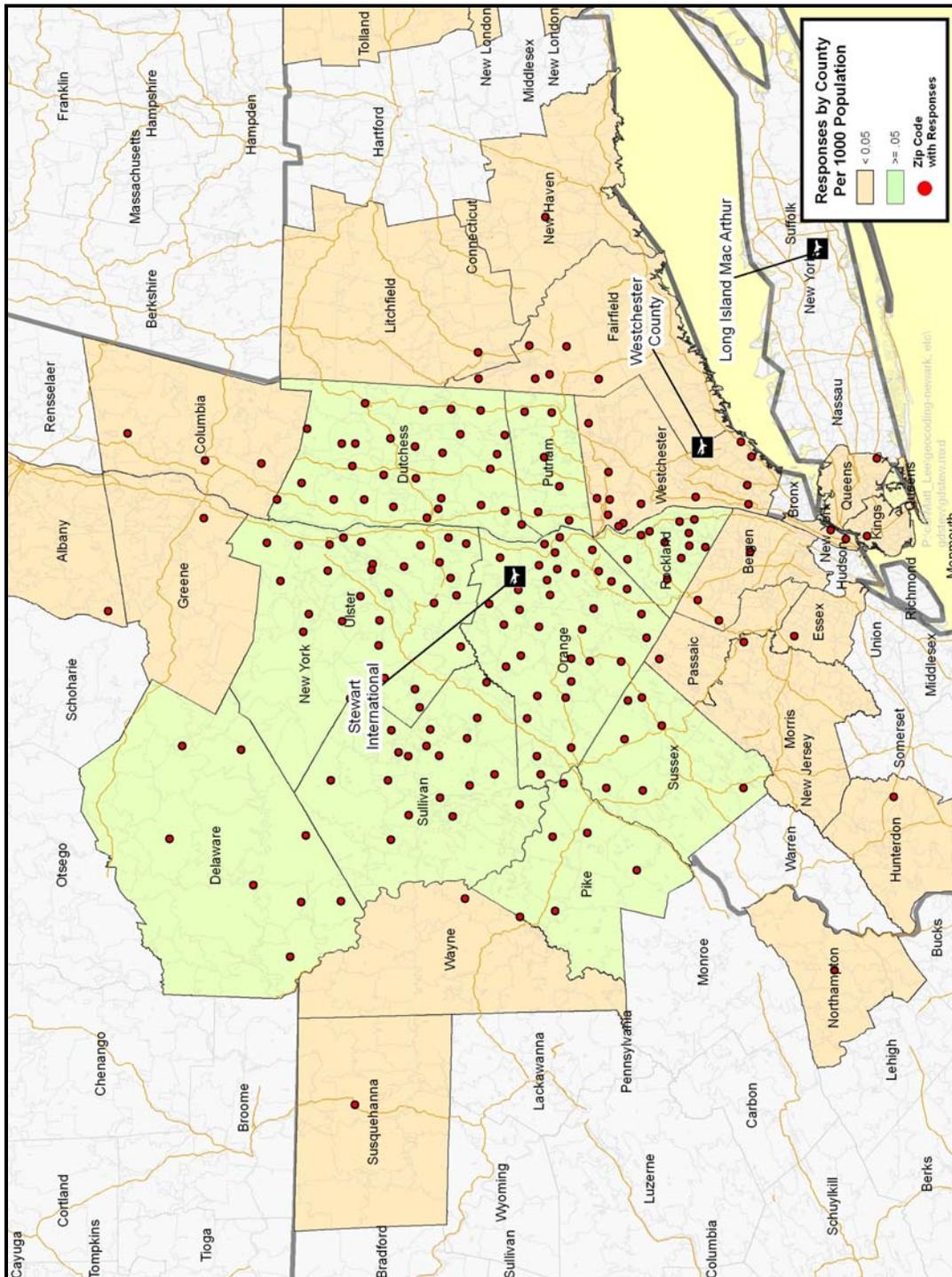
Exhibit I-5  
ISP SERVICE AREA



Source: NYSDOT 2005 Air Passenger Survey

**Exhibit I-6** shows the resulting service area for SWF. The SWF service area includes Pike County in Pennsylvania, and Delaware, Dutchess, Orange, Putnam, Rockland, Sullivan, Sussex, and Ulster counties in New York.

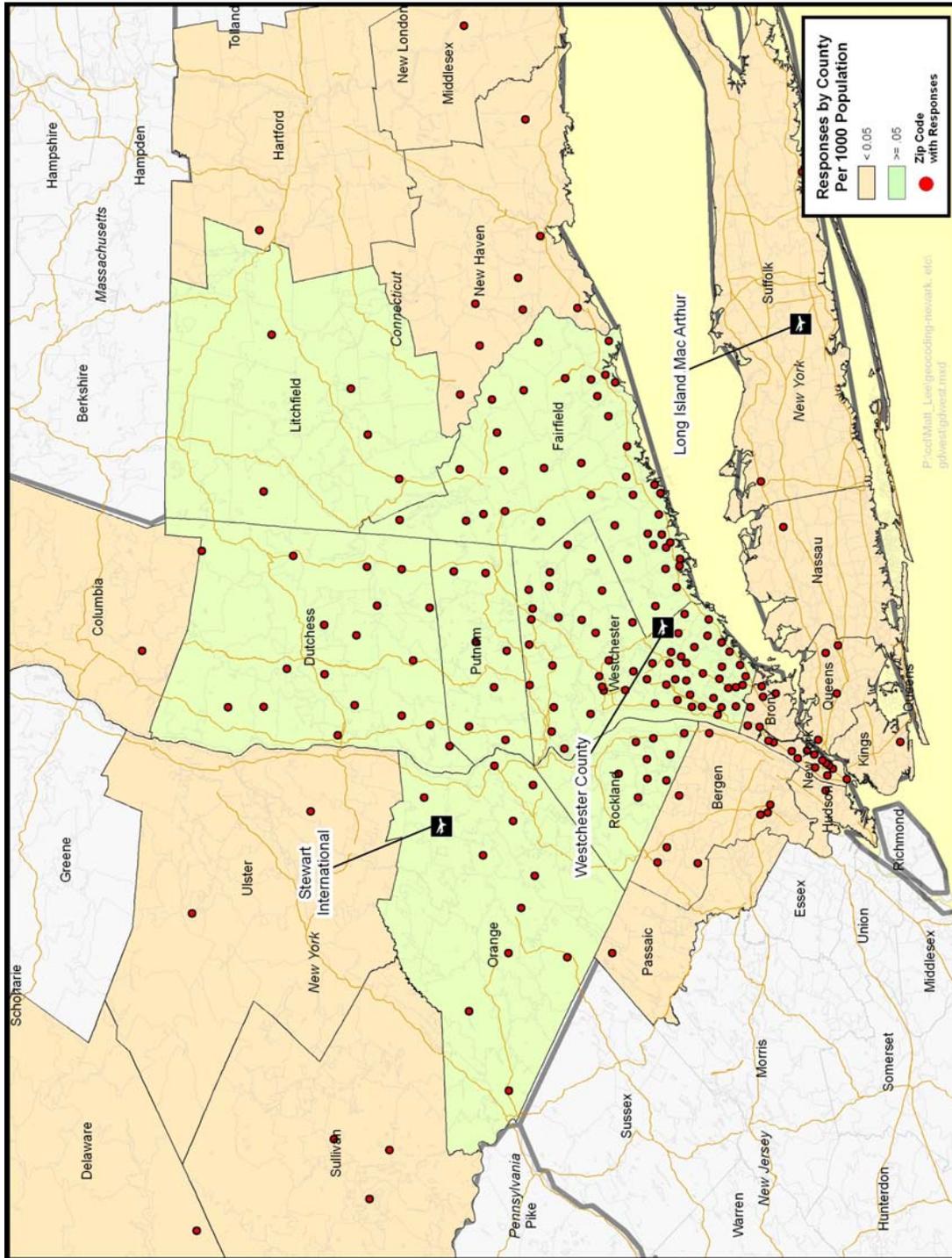
**Exhibit I-6  
SWF SERVICE AREA**



Source: NYSDOT, 2005 Passenger Survey

Exhibit I-7 shows the resulting service area for HPN. The HPN service area includes Fairfield and Litchfield counties in Connecticut, and Dutchess, Orange, Putnam, Rockland, and Westchester counties in New York.

**Exhibit I-7  
HPN SERVICE AREA**



Source: NYSDOT, 2005 Air Passenger Survey

## **II. IMPACT FACTORS**

Forecasting future aviation activity by nature is not an exact science. Many factors impact future trends in aviation activity. The most influential of these “impact factors” are summarized below:

- **Low Cost Carriers** – When low cost carriers (LCCs) enter air markets, prices tend to decline and travel (especially leisure travel) increases. LCCs have significant market share at ISP and operate at all three NYSDOT airports. These forecasts assume that market share for LCCs will increase at all three airports and that the availability of facilities such as gates are not a constraint to growth.
- **Changes to Access Regulations at LGA, JFK and EWR** – Currently, hourly operations by commercial aircraft at LGA are limited to 75 per hour. While the current rule under FAR Part 93 is expected to expire at the end of 2006, the FAA is expected to make a replacement rule. Thus, the 75 operations per hour cap on commercial operations is expected to continue throughout the forecast. Similarly, operational limits imposed by FAR Part 93 at JFK will expire at the end of 2006. This forecast assumes that the FAA lets the current rule expire and will not impose new limits at JFK. While FAR Part 93 was originally designed to regulate demand at EWR, these provisions were only implemented for a short time. They have not been in effect for over 30 years. This forecast assumes that no new rule would be in effect at EWR.
- **Changes to Access Regulations at HPN** – Currently, half-hourly operations at HPN are limited to four operations by commercial passenger carriers. This previously voluntary limit was converted to legislation in September 2004. This forecast assumes that past levels of compliance with the caps on operations and passengers will continue into the future.
- **Fuel Prices** – The price of aviation fuel has risen dramatically over the past two years. Peak prices for crude oil in 2005 and 2006 were above \$70 per barrel. Higher fuel prices should result in higher fares and subsequently lower passenger demand. This forecast assumes that high fuel prices (greater than \$60 per barrel) are now a permanent part of the aviation market.
- **Airline Bankruptcies** – The past five years have witnessed dramatic changes to the overall financial health of the airline industry, with four “legacy” airlines entering bankruptcy at least once. Continued operation of an airline during bankruptcy tends to depress pricing and stimulate demand. After bankruptcy, pricing tends to stabilize (often at a higher level), which would reduce passenger travel. Of the carriers still operating under bankruptcy protection as of this writing, none are a major presence at any of the NYSDOT airports. This forecast assumes that the “legacy” airlines will weather current financial problems that thrust them into bankruptcy and will emerge as lower cost competitors. This forecast also assumes that jetBlue will successfully make the transition from being a small regional airline to a large national carrier.

- **The Effect of Economic Upturns and Downturns** – Air travel varies with the health of the economy. With the advent of low-cost carriers, more travel has become discretionary (leisure) and therefore more likely to vary with levels of disposable income. This forecast describes long-term trends and does not forecast variations due to short-term economic spurts and recessions. These short-term events produce variability around the long-term trends identified in the forecast. History has shown that air travel tends to recover after short-term economic and political events.
- **Effects of the Attacks of September 11, 2001 -- Real Decline in Short-Haul Travel** – The net effect of the attacks of September 11, 2001 was to increase real travel times for air transportation by approximately 30 minutes. This has had the net effect of reducing demand for short-haul (less than 500 miles). This forecast assumes that the travel time increase is largely permanent and that the current demand profile for short-haul travel will continue.
- **Perceived Effects of the Attacks of September 11, 2001 – Declining Yields for Long-Haul Travel** – With the decline in short-haul travel, airlines, especially low cost carriers have shifted their capacity into longer-haul flights. As a result, fares and yields for long-haul travel have declined. This forecast assumes that these changes are largely permanent, although some small market corrections will occur.
- **Perceived Effects of the Attacks of September 11, 2001 – Air cargo industry** – The volume of air cargo carried on passenger airlines has declined in response to reductions in cargo capacity available and new air cargo security rules. This forecast assumes that emerging trends for air cargo security continue. The only one of the NYSDOT study airports with significant air cargo tonnage is SWF. Almost all of the SWF cargo is carried on freighters.
- **Airline Industry Outlook** – The ability to pass on higher fuel prices as fare increases and the improvement of “legacy” carrier cost structures during bankruptcy protection will improve airline economics on a go forward basis. For this forecast, it is assumed that:
  - The industry will continue to replace smaller regional jet aircraft with larger regional jet aircraft that have lower operating costs per passenger mile.
  - More narrow-body aircraft will continue to enter the fleet
  - Narrow-body aircraft will largely be the same size as the existing fleet
  - The overall financial health of the industry will improve with increasing fares. However, real fare levels are not likely to increase to year 2000 levels
- **Effect of Airside Congestion** – Airside congestion reduces the service reliability of air transportation, making it a less attractive air transportation choice for short-haul (less than 500 miles) travel. This forecast assumes that

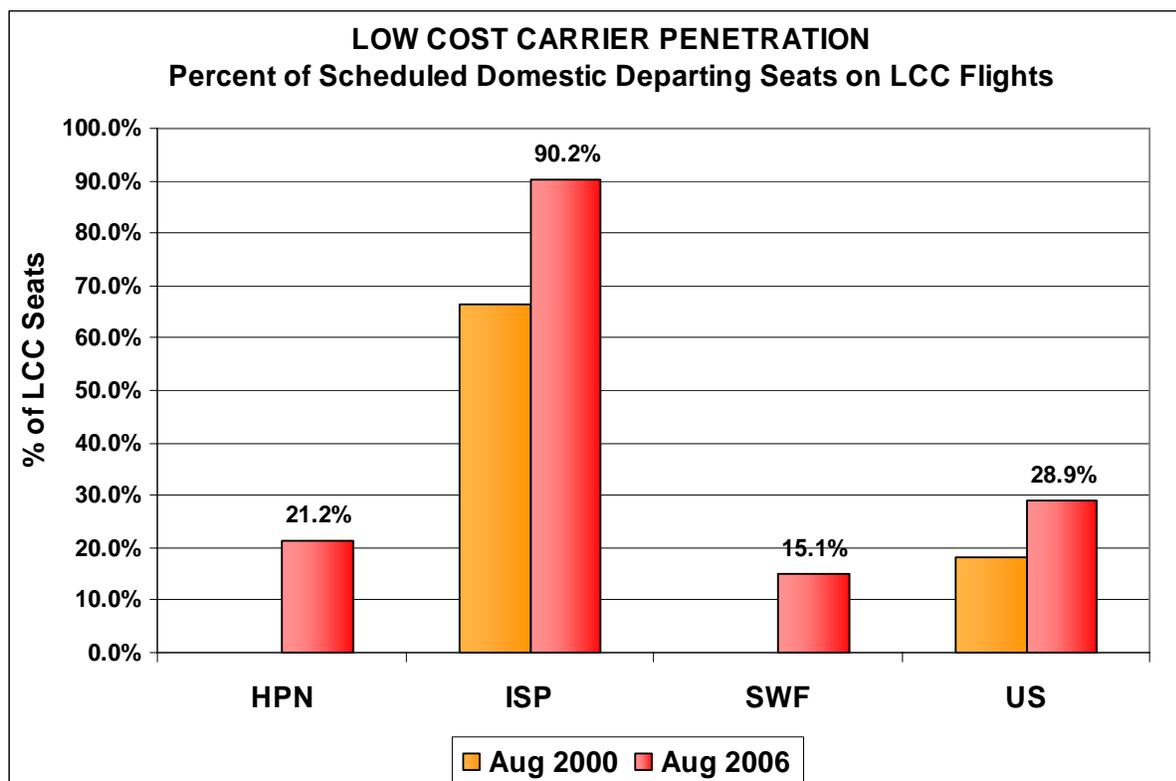
airside congestion will have no effect on air travel demand (unconstrained forecast).

- **Effect of Ground Transportation Congestion** – The passenger surveys demonstrated that travel time to the airport, especially from home, is an important factor for airport choice. Given equal air service quality and similar pricing, passengers will usually choose the closer airport. This forecast assumes an unconstrained case where levels of ground transportation congestion remain at current levels and do not change current airport choice patterns.
- **Leakage of Air Travel Demand to Other Airports** – The air passenger surveys have demonstrated that passengers do consider and use alternate airports for various trips. This forecast assumes that current propensity to use alternate airports will continue over time. The independent socio-economic variables reflect current forecasts for unequal growth on a county by county basis. The dependent variables of forecast passenger travel at each airport will naturally reflect the unique demographic characteristics of each airport's service area.

## II.1 LOW COST CARRIERS

Since deregulation of the airlines in 1978, LCCs have continuously increased their presence in the national market. As shown in **Exhibit II-1**, in August of 2006, LCCs made up nearly 29 percent of the national travel market. By contrast, LCCs comprised only 21.2 percent of the departing seats in August 2006 at HPN and 15.1 percent at SWF. ISP enjoys a well-above average LCC market share at 90.2 percent.

**Exhibit II-1  
LCC MARKET PRESENCE**



Sources: Official Airline Guide and Landrum & Brown analysis

Note: Data for U.S. LCC share in 2000 is based on the month of January.

Filepath: H:\New York System Forecast\Forecasts\Enpax & Ops\Regional Airports\[NYSDOT LCC Comp vs US Benchmark\_OAG.xls]Graphs

## II.2 CHANGES IN ACCESS REGULATIONS AT LGA, JFK AND EWR

FAR Part 93 was originally imposed in 1968 by the FAA to control airline access to LGA, JFK and EWR, as well as Washington National (DCA) and Chicago O'Hare (ORD). This rule subsequently has been modified several times, changing operational levels, the regulated hours, or types of commercial and general aviation operations effected. Shortly after its imposition, the rule was eliminated entirely at

EWR and was not replaced. In 2000, Congress passed the AIR-21 legislation which called for easing of restrictions and for the elimination of the rule entirely by the end of 2006.

In addition, AIR-21 authorized an unlimited number of new slots at LGA for operation of air service to small and non-hub communities with aircraft that have less than 70 seats. In response, airlines schedule 300 new operations to LGA and indicated intent to introduce even more new service. Flight delays dramatically increased to the point where LGA was responsible for a significant portion of delays in the entire national airspace system. The Port Authority requested that the FAA impose a limit on the number of new operations, and in response the FAA held a lottery that determined which airlines would receive 159 AIR-21 slots (chosen among the existing AIR-21 slot holders) and established a limit of 75 commercial operations per hour plus 6 slots per hour for non-scheduled and general aviation aircraft operations.

Future access regulations at LGA that replace current FAR Part 93 and AIR-21 slots are not anticipated to include limits on aircraft size. Further, they will likely eliminate any current limits on aircraft size. Thus, this forecast anticipates that airlines will have more ability to grow the size of aircraft used to serve a market in response to demand and serve all the demand it can serve while maintaining flight profitably. Thus, the continuation of a Federal constraint on aircraft traffic volume at LGA would not change the passenger demand at other regional airports.

Future growth in aircraft operations demand might trigger imposition of Federal demand management at JFK and EWR airports. Peak period aircraft delay levels at both airports are already at high levels. Further increases in demand will likely increase these delay levels further.

Current demand at EWR is over 40 percent regional jet aircraft, predominantly operated by one carrier. Over time and with growth of domestic air markets, this carrier has the diversity of domestic fleet to replace these RJ aircraft with larger narrow-body aircraft. Thus, it is reasonable to assume that the long-range forecast of passenger demand at EWR could be served within existing levels of annual operations, but with larger aircraft. Thus, a Federal constraint on aircraft traffic volume at EWR would not materially change the passenger demand at other regional airports.

Current demand at JFK is over 20 percent regional jet aircraft. In addition, virtually all domestic service is by narrow-body aircraft. International service is a mix of narrow-body, small wide-body (B767) and larger wide-body aircraft. Similar to EWR it is reasonable to assume that the long-range forecast of passenger demand could be served within existing levels of annual operations, but with larger aircraft. Thus, a Federal constraint on aircraft traffic volume at JFK would not materially change the passenger demand at other regional airports.

The changes to Federal access rules do not affect the Port Authority perimeter rule for LGA, which limits service from LGA to destinations within 1,500 miles (plus

Denver, which had service when the rule was initially imposed). With the advent of the B-757 and B-767 aircraft, the relatively short length of LGA runways no longer limited the markets that could be served from LGA using jet aircraft. The Port Authority imposed the perimeter rule to maintain the diversity of short-haul markets from LGA. Long-haul markets have equivalent access to the New York market through JFK. The 2005 passenger surveys for LGA and JFK confirm that the entirety of the LGA service area lies within the JFK service area. The Port Authority does not anticipate changing the perimeter rule and this forecast assumes that the perimeter rule will stay in place. Any potential changes to the perimeter rule only affect the distribution of activity between JFK and LGA and do not materially affect demand levels at other regional airports.

### **II.3 CHANGES IN ACCESS REGULATIONS AT HPN**

Westchester County imposed restrictions on the number of commercial flights at Westchester County Airport in September 2004 that formalized voluntary restrictions in place since 1984. County Executive Andy Spano said "It means these traditional protections for the communities around the airport will now be part of the laws of Westchester County. They will now have permanence." He added, "This is an important element of the 'Good Neighbor Policy' for the airport, which balances the needs of the flying public with the rights of people who live near the airport."

The new legislation provides the following:

- A maximum of four scheduled commercial aircraft may enplane or deplane per half hour,
- On average, there may not be more than 240 scheduled passengers per half hour (either arriving or departing),
- Continuation of the lottery allocation system for flights, to determine what airline can use the airport at what time, and
- County control of ramp operations.

These restrictions are similar to what has been in effect by contract at the airport since 1984. Over the years, the airlines agreed to periodic extensions of the restrictions. With the latest extension set to expire December 31, 2004, Spano initiated an effort to codify the restrictions, to make it less likely the restrictions can ever be successfully challenged.

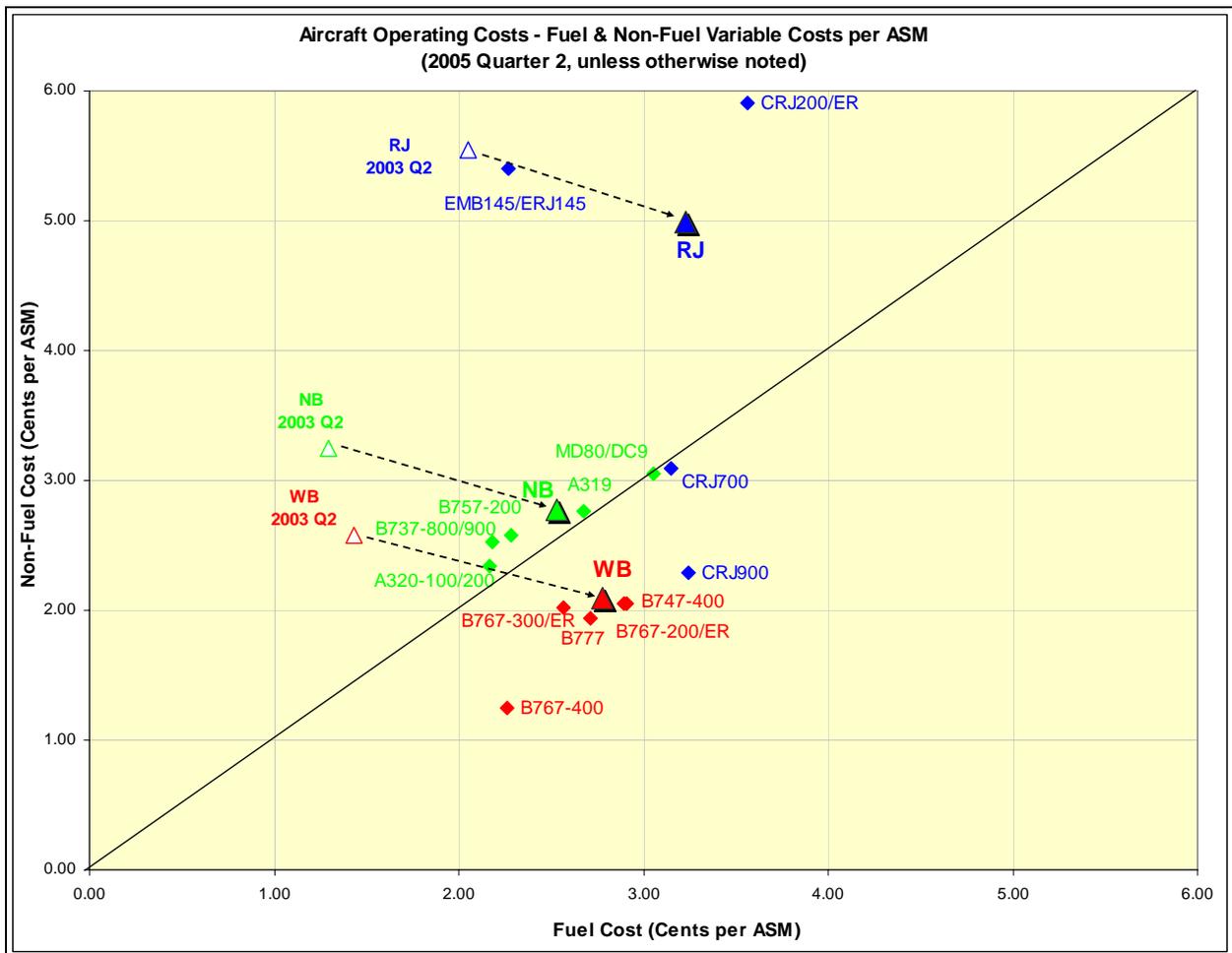
### **II.4 FUEL PRICES**

The dramatic rise of fuel prices in 2005 has changed the economics of the aviation industry. Two carriers (Delta Air Lines and Northwest Airlines) declared bankruptcy as a direct result of initial weak financial positions and subsequent increases in fuel prices. Other established airlines increased their losses. Previously profitable LCCs began posting losses as well.

Higher fuel prices increase the cost per passenger mile of providing air service. Over the past four years, airlines have faced declining revenue per passenger mile (yield), primarily as a result of increased competition from new LCCs. They had responded by cutting labor and other non-fuel costs. However, recent fuel cost increases more than offset these other cost savings.

**Exhibit II-2** compares the fleet average non-fuel (y-axis) and fuel (x-axis) costs per passenger mile for regional jet, narrow-body and wide-body aircraft types. Values for 2003 and 2005 are shown. Overall, fuel cost per passenger mile doubled from 2003 to 2005. Regional jet aircraft have fuel costs that are approximately 10 to 20 percent more per passenger mile than narrow-body aircraft. In addition, regional jet aircraft have labor costs per passenger mile that are more than 60 percent greater than those for narrow-body aircraft.

**Exhibit II-2  
COMPARISON OF FUEL AND NON-FUEL AIRCRAFT OPERATING COSTS**



Sources: US DOT Form 41 and Landrum & Brown analysis

The industry has responded relatively quickly. Northwest Airlines took advantage of bankruptcy and cancelled various flying contracts with Mesaba Airlines for smaller aircraft. Comair (Delta owned commuter carrier) has parked 30 regional jet aircraft. The Independence Air bankruptcy idled a large regional jet fleet. Further cuts in regional jet operations are likely if high fuel prices continue. Simply put, yields on regional jet markets are too low to support their operation. The industry is likely to respond with less frequent service with larger, more efficient aircraft.

This forecast assumes that high fuel prices are now a permanent part of the aviation market. This will result in airlines choosing larger, more efficient aircraft. In addition, with some recently announced capacity cuts, airlines should be able to more easily raise prices to cover increased fuel costs.

## **II.5 AIRLINE BANKRUPTCIES**

While fuel costs have driven the latest round of airline bankruptcies, other, earlier bankruptcies have had a variety of causes. Major airlines have had to use bankruptcy protection to overhaul archaic labor contracts, cut fleet size, and restructure defined benefit retirement programs. This process is not yet complete, although major carriers have cost structures that are far more similar to newer LCCs.

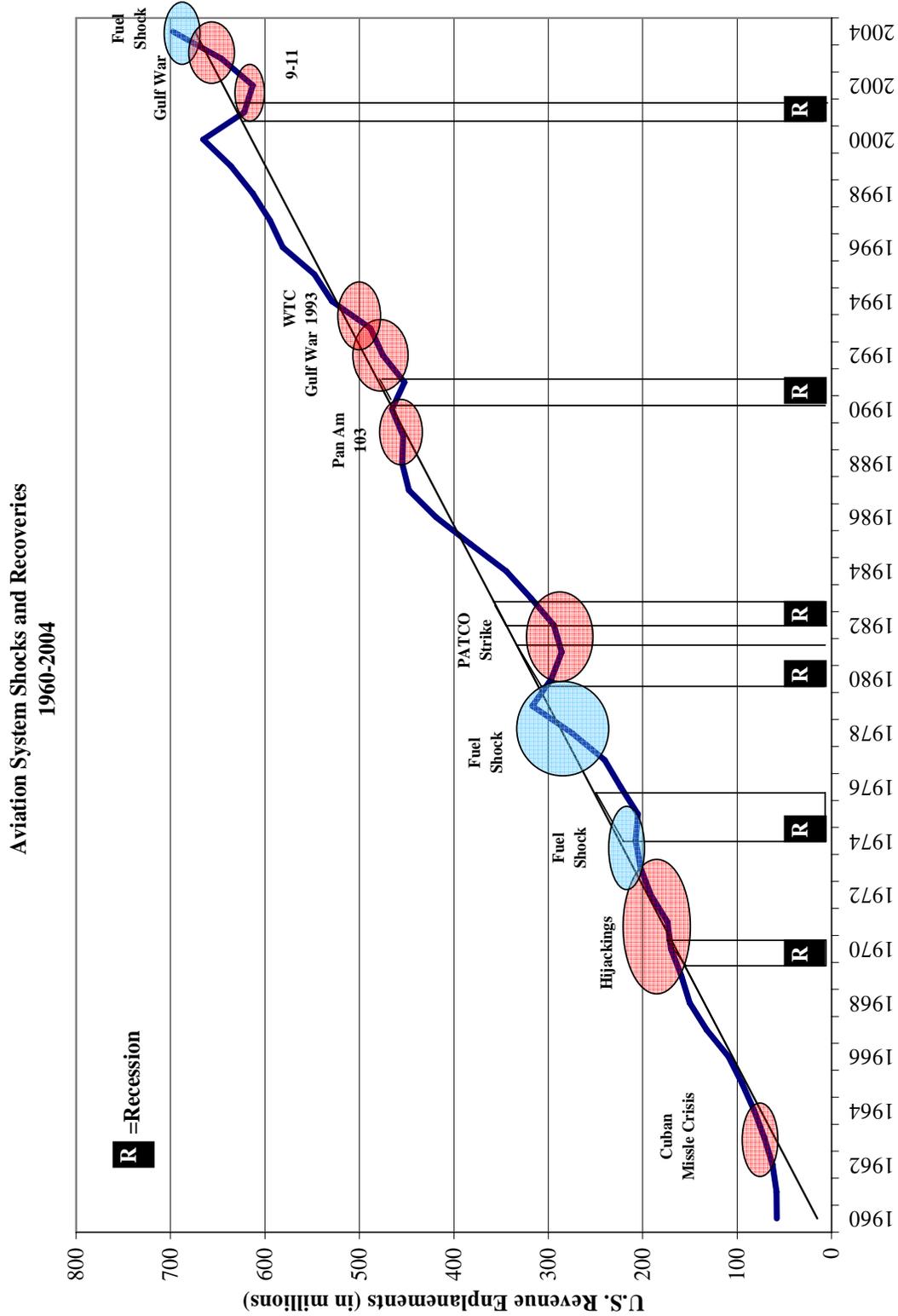
Far more start-up low cost carriers fail than succeed. Many fail because of a faulty business concept, or have bad timing with a sound business concept. Independence Air is the most recent example of bad timing, starting with an regional jet based business plan, just prior to the price of fuel increasing to the point where regional jet aircraft became unprofitable. They then entered the already highly competitive long-haul market when yields had already declined 40 percent.

Other start-up low cost carriers fail when they make the transition from being a small airline with a single mission or focus city, to being a large airline with multiple missions and focus cities. Peoples Express is perhaps the most noteworthy past example of such a failure. Midway Airlines also failed in a similar manner. Small and light management overhead cannot manage a large complex airline. JetBlue is currently making the transition from being a small start-up airline to a large network carrier. They are currently in the highest risk part of their growth, where new management systems are being implemented at a far higher cost than the simpler systems they replaced. Their key to success will be keeping unit costs low enough to sustain their price advantage over other airlines.

## **II.6 EFFECTS OF ECONOMIC UPTURNS AND DOWNTURNS**

Use of aviation for travel varies somewhat with the economy. As shown in **Exhibit II-3**, aviation travel has declined during many recessions and bounced back during subsequent economic expansions. The overall 45-year trend has been relatively constant. As more and more air travel is for discretionary (leisure) purposes, the variability of air travel with economic cycles should increase. Historically, the level of business travel (measured by passenger counts) has been relatively stable. Exhibit II-3 also shows that air travel has been relatively resilient in weathering fuel-price shocks and terrorist attacks. This forecast focuses on long-term trends. Short-term perturbations should be expected around the underlying trend.

Exhibit II-3  
 AVIATION INDUSTRY SHOCKS AND RECOVERIES



Source: Landrum & Brown analysis

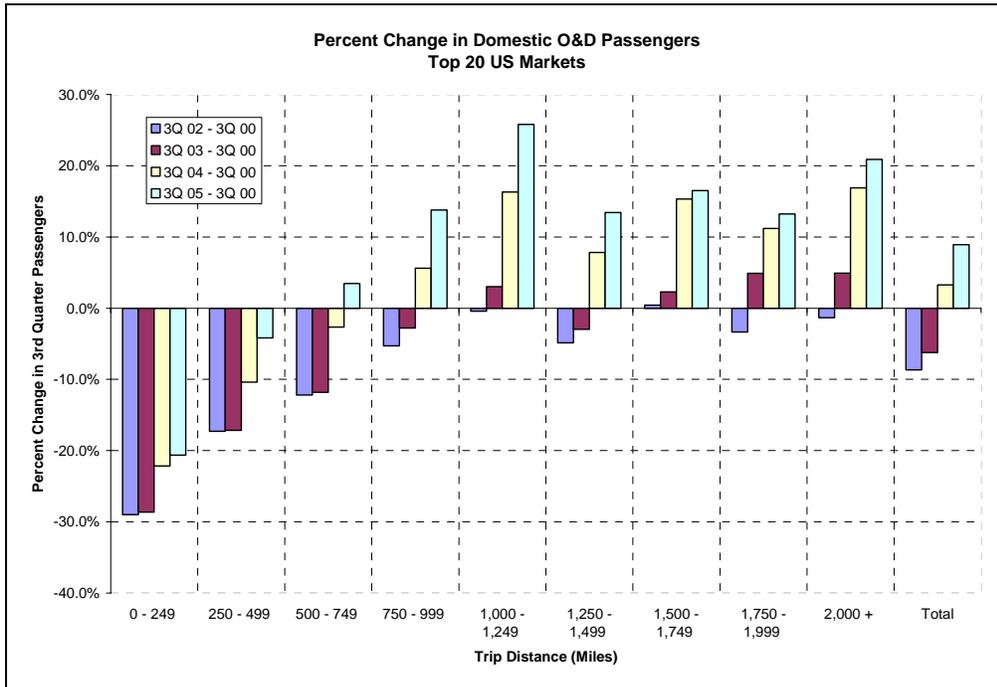
## **II.7 EFFECTS OF THE ATTACKS OF SEPTEMBER 11, 2001 -- REAL DECLINE IN SHORT-HAUL TRAVEL**

The initial thoughts that fear of travel would drive passengers away from air travel have proven to be largely unfounded. However, changes to security procedures have changed travel habits since they have increased the perceived time required to travel through the airport by approximately 30 minutes. Post 9-11 security has added a considerable hassle factor to air travel which has caused an increasing number of potential air travelers to seek alternatives. The decision to drive rather than fly has disproportionately affected travel in short-haul markets, as driving becomes an increasingly viable alternative the shorter the trip length. On longer trips, the 30 minute time increase is far less noticeable since other modes do not provide a comparable travel time option. Non-hub airports have been particularly affected as the majority of flights from these airports historically have been 500 miles or less, connecting the airports to a legacy carriers' hub airport. A total of 41 non-hub airports in the continental U.S. lost all scheduled passenger service between April 2000 and April 2006.

**Exhibit II-4** shows the change in demand by travel distance from the top 20 U.S. markets compared to the 3<sup>rd</sup> quarter 2000. Initially (4<sup>th</sup> Quarter 2001), all markets declined. However by 2004, only the decline in short-haul travel, especially travel of less than 500 miles remained. By 3<sup>rd</sup> quarter 2005, travel longer than 500 rebounded to levels above those shown in 2000.

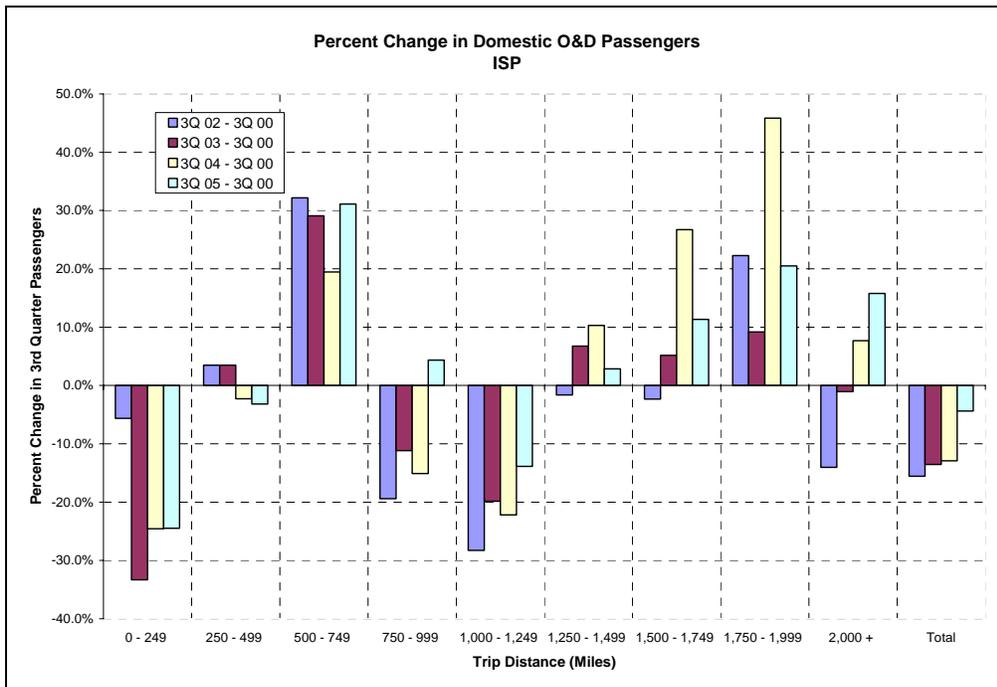
**Exhibits II-5** through **II-7** show the comparative change in travel demand by mileage band for ISP, SWF, and HPN, respectively.

**Exhibit II-4**  
**ANNUAL CHANGE IN TRAVEL BY LENGTH OF TRIP – TOP 20 U.S. MARKETS**



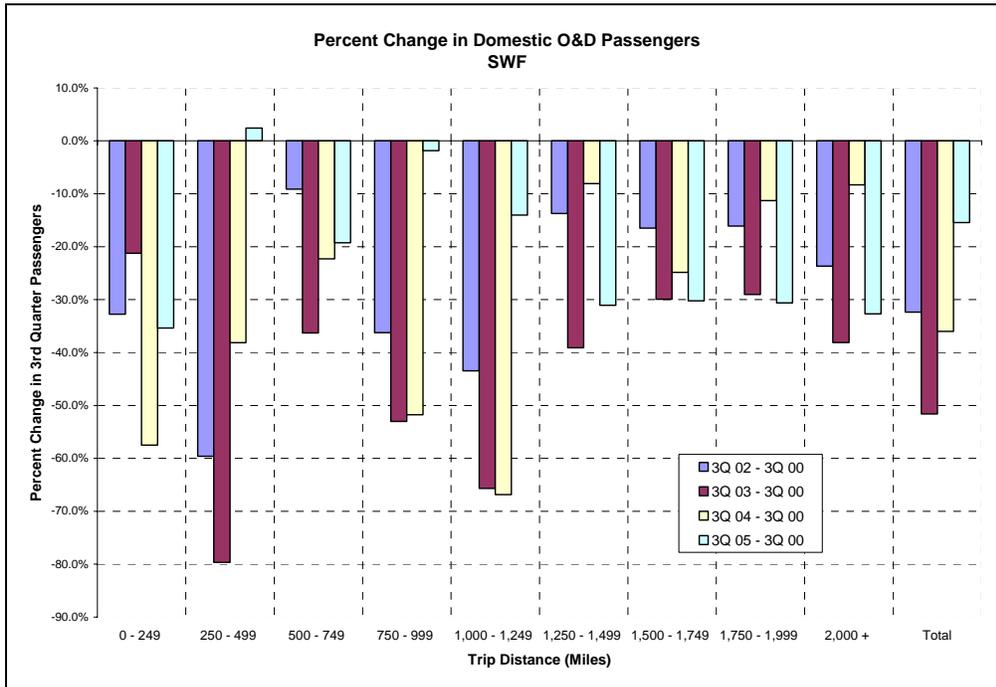
Sources: US DOT T-100 Data and Landrum & Brown analysis

**Exhibit II-5**  
**ANNUAL CHANGE IN TRAVEL BY LENGTH OF TRIP - ISP**



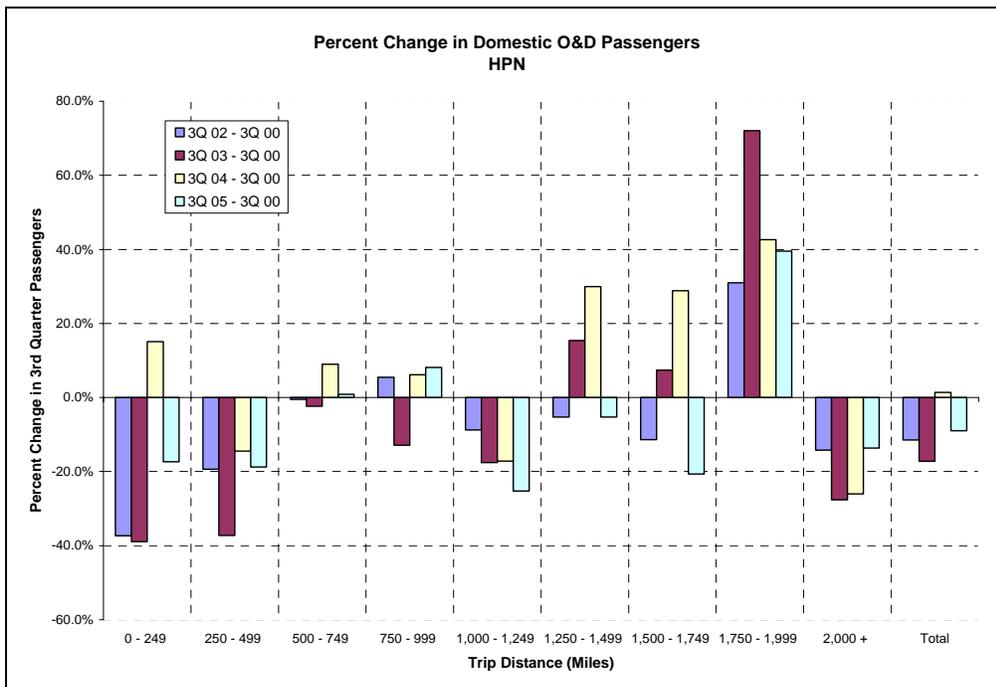
Sources: US DOT T-100 Data and Landrum & Brown analysis

**Exhibit II-6**  
**ANNUAL CHANGE IN TRAVEL BY LENGTH OF TRIP - SWF**



Sources: US DOT T-100 Data and Landrum & Brown analysis

**Exhibit II-7**  
**ANNUAL CHANGE IN TRAVEL BY LENGTH OF TRIP - HPN**

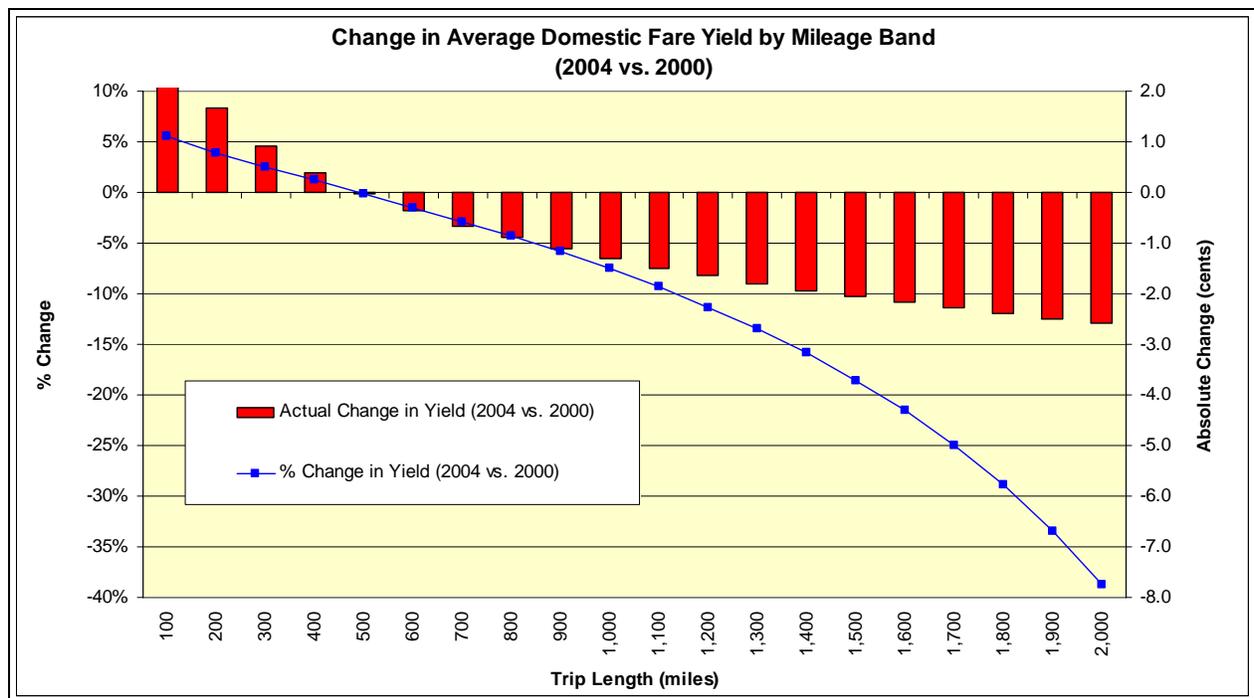


Sources: US DOT T-100 Data and Landrum & Brown analysis

## II.8 PERCEIVED EFFECTS OF THE ATTACKS OF SEPTEMBER 11, 2001 - DECLINING YIELDS FOR LONG-HAUL TRAVEL

With the decline in short-haul travel, airlines, especially low cost carriers have shifted their capacity into longer-haul flights. In addition, the start-up of JetBlue at New York's Kennedy focused on long-haul flights. These two factors have caused yields to decline on long-haul flights. As shown in **Exhibit II-8**, yields for long-haul flights have declined by as much as 40 percent in the past five years.

**Exhibit II-8**  
**YIELD TRENDS BY LENGTH OF HAUL**



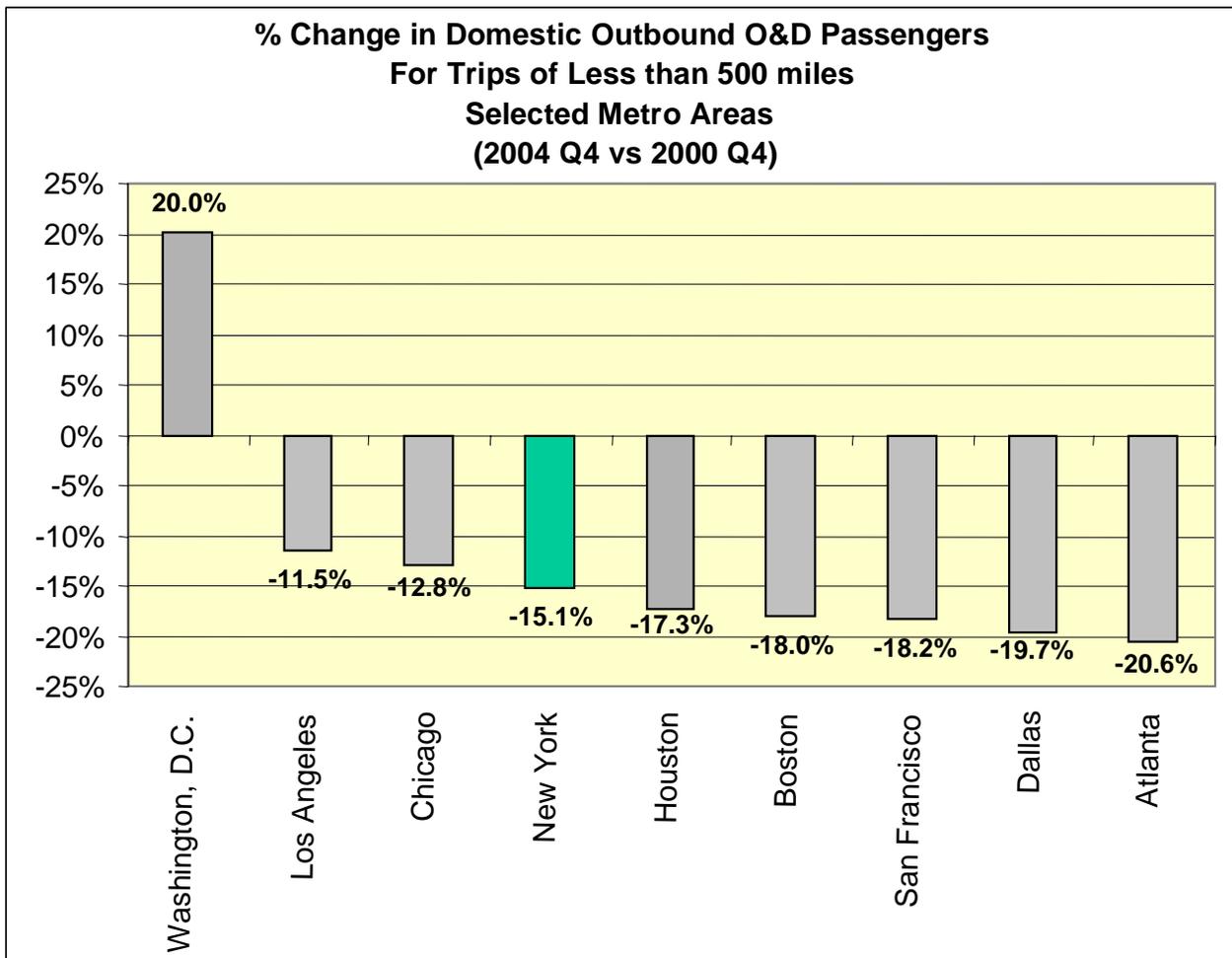
Sources: US DOT T-100 and Landrum & Brown analysis

Given the prior focus of major airlines on long-haul flying, this decline in yields has been a major factor in defining their current financial condition. While travel has increased in markets of greater than 1,000 miles, revenue per passenger mile has declined.

The current conditions indicate that the industry has significant over-capacity for long-haul service. JetBlue has indicated that future expansion from the New York region with their EMB-190 aircraft will be in short- and medium-haul point-to-point markets. This will increase competitive pressure on shorter-haul market fares. The major portion of JetBlue's expansion plans will focus on areas outside of New York.

**Exhibit II-9** confirms that the decline in short-haul travel was fairly uniform, except where demand was stimulated by very low air fares and large increases in service at Washington DC. Thus, the long-term decline in air travel has occurred because of economic factors rather than because of fear of flying. On short-haul travel, the time savings is less; therefore a lower price is needed to produce a similar amount of travel. The economics of air travel are still about paying more to travel faster and save time. The more time saved, the more the trip is worth.

**Exhibit II-9  
ANNUAL CHANGE IN TRAVEL BY MAJOR MARKETS**



Sources: US DOT T-100 Data and Landrum & Brown Analysis

## **II.9 PERCEIVED EFFECTS OF THE ATTACKS OF SEPTEMBER 11, 2001 – AIR CARGO INDUSTRY**

A general economic downturn that began in 2000 adversely affected air cargo in terms of growth rates, and in some markets, total volumes. After September 11, 2001 cargo activity was immediately impacted. As a result, given the already weakened fiscal position of so many air cargo businesses, the financial stability of the entire air cargo industry was compromised. Critical impacts included:

- Increased use of trucks
- Escalation of insurance costs
- Consolidation among smaller firms
- Failure of many small cargo airlines and smaller support firms
- Higher security costs
- Longer processing time because of security
- Increased available freighter capacity, driving down rates

Since 2001, the industry has generally demonstrated modest growth. Patterns however, have been difficult to establish given the changes that have occurred and are continuing to occur. The shifting of the mail contract to FedEx in August 2001 has altered reporting of air cargo and mail volumes and changed the industry's understanding of how much cargo is actually moved. For purposes of this forecast, the definition of air cargo includes all mail.

The passenger airlines have decreased the number of flights they operate and have reduced the size of aircraft on many remaining flights. This has reduced the aircraft belly capacity available for cargo, which has consequently forced the diversion of cargo to trucks and dedicated freighter/integrator aircraft. Additionally, because of the more stringent application of the "known shipper rule"<sup>1</sup>, passenger carriers are either reluctant to, or constrained from, accepting some freight. As a result more freight flows through to freight forwarders who make use of multiple modes of cargo shipment.

This forecast assumes that the structural changes to the air cargo industry are permanent and that emerging trends for air cargo security will continue. As the passenger airlines grow, larger aircraft will enter the mix, thereby increasing capacity available for belly cargo. These industry changes will have little impact at the NYSDOT airports since major changes in the passenger carrier fleets are not expected, and SWF's air cargo is almost exclusively transported via freighters today.

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<sup>1</sup> The "known shipper rule" allows shippers that have an established business history with air carriers or freight forwarders to ship cargo on planes.

## **II.10 AIRLINE INDUSTRY OUTLOOK**

Two major airlines have emerged from bankruptcy protection in 2006. The remaining two carriers are unlikely to emerge from bankruptcy until 2007. However, it is expected that they will continue to fly so long as they do not sustain any labor actions. If either carrier has a labor action, it would stop flying and it is unlikely that it would resume. One or more airline mergers might be an outcome, similar to the merger between US Airways and America West.

High fuel costs are likely to continue driving smaller regional jet aircraft out of competitive markets where the cost of providing service would exceed revenue. Larger regional jet aircraft have higher labor productivity and will continue to enter the market. Major airlines are likely to lease these larger aircraft from independent providers. However, they may use their own crews to operate them (like US Airways). Small regional jet and prop aircraft will likely continue in markets (especially short-haul) where yields are sufficiently high to cover the high costs of providing service.

For this forecast, it is assumed that:

- The industry will continue to replace smaller regional jet aircraft with larger regional jet aircraft that have lower operating costs per passenger mile.
- More narrow-body aircraft will continue to enter the fleet
- Narrow-body aircraft will largely be the same size as the existing fleet
- The overall financial health of the industry will improve with increasing fares. However, fare levels are not likely to increase to year 2000 levels

## **II.11 EFFECT OF AIRSIDE CONGESTION**

Increasing airside congestion at many large hub airports will likely only have a limited effect on demand. As congestion increases, airlines have responded by increasing the travel time in the schedule. While this increases airline costs, it tends to hide the extent of the congestion problem since airlines strive to maintain an 85 percent or better on-time performance. In addition, airlines will also increase time between flights so that delays on one flight have only a limited effect on the next flight.

By increasing the amount of time the flight takes, the airline tends to make the short-haul flight (less than 500 miles) less attractive when compared to the travel time of alternative travel modes, such as rail or driving. This has already been demonstrated by the approximately half hour increase in travel time that resulted from changed security procedures after September 11, 2001. This is equivalent to a half-hour delay on every flight. As described in Section II.7, The market response to this half-hour increased travel time was a decline in short-haul flights and virtually no change in demand for long-haul flights.

The major difference between travel time increases that result from increasing airside congestion and travel time increases that result from security are that the time increases are unequal between airports. Small regional airports are not likely to see airside congestion while many large hub airports such as EWR, LGA, and JFK, have airside congestion today and could have increased airside congestion in the future. The increases in travel time due to security requirements are similar for all airports.

Thus, increases in airside congestion could change passenger demand at the smaller regional airports if:

- 1. In trips less than 500 miles to an un-congested airport, where comparable (competing) air service already exists at the smaller airport.** Competing service exists at ISP (to BWI, CLE, and CVG), at HPN (to CLE, CVG, DTW, IAD, and PIT), and at SWF (DTW). These markets could see introduction of larger aircraft on current trips in response to increasing airside congestion at EWR, LGA and JFK as long as service pricing is comparable. This assumes that the longer ground travel time is less than the increase in total travel time to the large hub airport.
- 2. In trips where the origin of the passenger trip was substantially closer to the smaller airport and the where competing connecting service already exists through an un-congested hub airport.** Passenger demand that originates from within 30 minutes of ISP, HPN, or SWF and is longer than 60 minutes from EWR, LGA and JFK could be recaptured by these airports, if comparably timed connecting air service through an un-congested airline hub such as BWI, CLE, CVG, DTW, and IAD is available. The thirty minute difference in ground travel time only partially offsets the shorter travel time difference available on non-stop service from EWR, LGA or JFK. However, the improved service reliability provided by ISP, HPN, and SWF combined with the high reliability of an un-congested airline hub may make the connecting service more attractive, if service pricing is comparable.

## **II.12 EFFECT OF REGIONAL GROUND TRANSPORTATION CONGESTION**

The passenger surveys have demonstrated that travel time to the airport, especially from home, is an important factor for airport choice. Given equal air service quality and similar pricing, passengers will choose the closer airport. Some passengers will choose the closer airport, even when the air trip is longer or costs more.

As ground transportation congestion increases it has the net effect of increasing the length of the trip made by air travel, thereby reducing the net travel time savings gained by using air transportation. In short-haul travel, where alternative modes of transportation exist (such as by car or by rail), air travel may lose some demand to other modes of transportation. In long-haul travel, where air travel is frequently

the only mode of choice, air travel will still be used. Thus, increased levels of ground transportation congestion will reduce demand for short-haul travel, but will not change demand for long-haul travel.

The net effect increased ground transportation congestion will be to increase the travel time to the airport. From more distant locations, the increased congestion will become a factor in airport choice. To the extent that ground transportation congestion increases unequally among the airports, airport choice decisions will change. However, airport choice will only change if comparable air service (destination and price) is available at the closer airport.

Thus, increases in ground transportation congestion could change passenger demand at the smaller regional airports in a manner similar to the changes that would result from air side congestion:

- 1. In trips less than 500 miles to an un-congested airport, where comparable (competing) air service already exists at the smaller airport.**
- 2. In trips where the origin of the passenger trip was substantially closer to the smaller airport and the where competing connecting service already exists through an un-congested hub airport.**

In the past, airlines tended to specialize at one or more of a region's airports rather than providing service to all of them. The domestic legacy airlines are now serving all three of the Port Authority of New York and New Jersey (PANY&NJ) airports and some of the other regional airports as well. It is not clear whether the airlines are changing service patterns within the system of airports in response to ground transportation issues or primarily for competitive reasons. Often it takes a new entrant airline to establish service within a regional airport system to prompt incumbent carriers to expand their service.

Current ground transportation congestion near SWF is expected to be eased by approved roadway projects which will result in increased demand being served from SWF. Accordingly, the forecasts for passenger activity at SWF show accelerated growth rates in 2010 when the direct connection to I-84, and the I-84/New York State Thruway interchange are completed.

Improving the regional ground transportation system serving an airport has the effect of extending the service area for the airport. Improvements to the roadway network provide the largest increase in service area since virtually all passengers using SWF arrive by some type of private car (including taxi, limo, or rental car). Point-to-point rail service only increases access to areas that are easily accessible to stations. Further, rail service must be conveniently timed with flight arrivals (including delayed arrivals) and departures and have airport station facilities that promote an easy transfer between rail and air. If park-and-ride concepts are used at out-lying stations, security must be provided for over-night parking and rates must be comparable or less than airport rates.

Generally, the survey has found that the great majority of passengers use airports that are within 60 minutes of their local trip origins. Thus, rail access must provide a maximum of an approximately sixty minute travel time to the airport from the furthest station (allowing for some travel time to the station).

## **II.13 LEAKAGE OF DEMAND TO OTHER AIRPORTS**

“Leakage” of demand occurs when passengers use an airport other than the airport most convenient (usually closest) to their trip origin. Passengers choose to use a more distant airport because the more distant airport has superior (better timed or more frequent) air service, or more or less equivalent air service at a sufficiently lower price to induce a longer ground transportation trip.

The air passenger survey for the FAA Regional Air Service Demand Study assessed leakage through a series of questions that asked about airport preferences, alternative airports considered for the trip, and reasons for choosing an airport for a particular trip. The air passenger surveys have demonstrated that passengers do consider and use alternate airports for various trips.

**Table II-1** shows that the majority of the users of the three NYSDOT airports expressed a preference for using the three airports. A significant percentage of these passengers began their trip from a point that was closer to another airport: ISP – 58 percent; SWF – 41 percent; and HPN – 42 percent.

**Table II-1  
PREFERRED AIRPORTS**

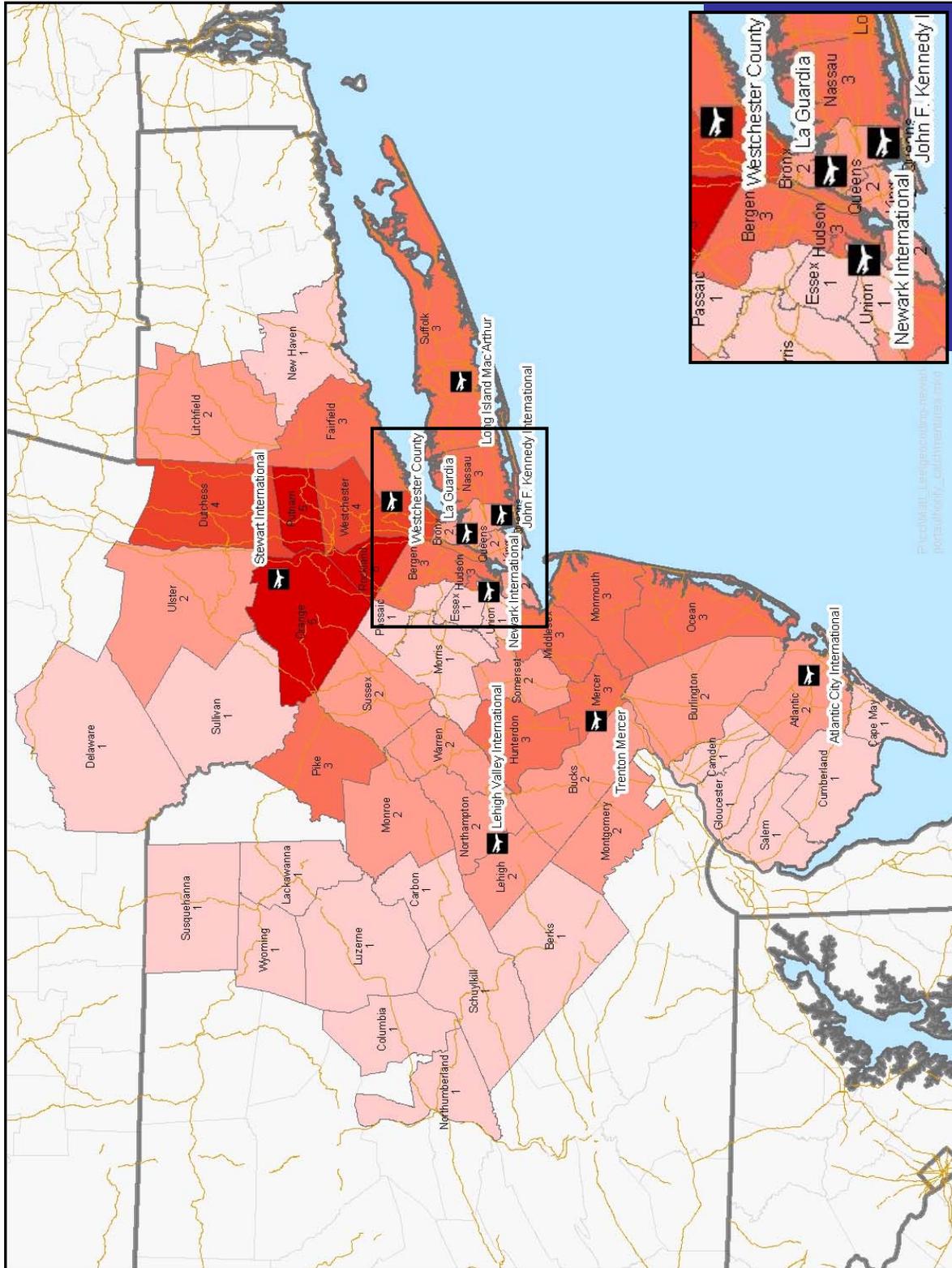
Airport Preferred	AIRPORT REPORTING		
	HPN	ISP	SWF
HPN	71%	1%	1%
ISP	N/A	71%	N/A
SWF	4%	1%	80%
LGA	16%	12%	5%
JFK	4%	9%	3%
EWR	3%	4%	8%

Source: NYSDOT 2005 Air Passenger Survey

**Exhibit II-10** shows the number of airports used by travelers from each county in the combined service area for the FAA Regional Air Service Demand Study (all 9 airports). Rockland, Orange and Putnam Counties in New York State are served by five different airports. Passaic, Essex, Morris and Union Counties in New Jersey are served only by EWR.

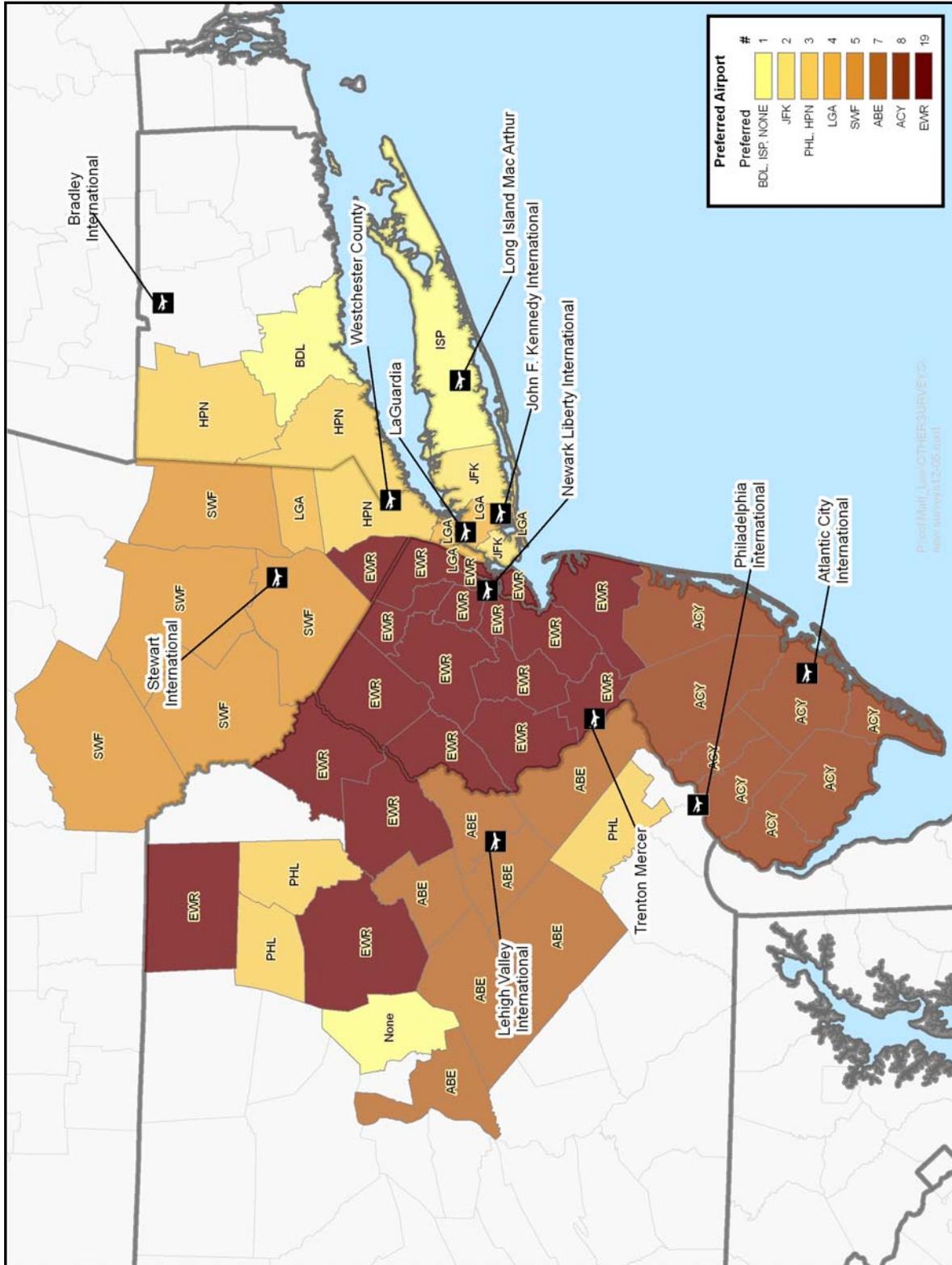
**Exhibit II-11** shows the most preferred airport for each county in the expanded study area (all 9 airports). Local barriers to transportation such as the Hudson River clearly shape the service areas for each airport.

Exhibit II-10  
 NUMBER OF AIRPORTS SERVING COUNTIES



Sources: PANYNJ/NYS DOT/DVRPC 2005 Air Passenger Surveys

Exhibit II-11  
 PREFERRED AIRPORT BY COUNTY



Sources: 2005 PANYNJ/NYS DOT/DVRPC Air Passenger Surveys

**Table II-2** shows that of the passengers that considered another airport other than the one that they flew from, the largest commercial service airports in the region (LGA, JFK, and EWR) were most often considered.

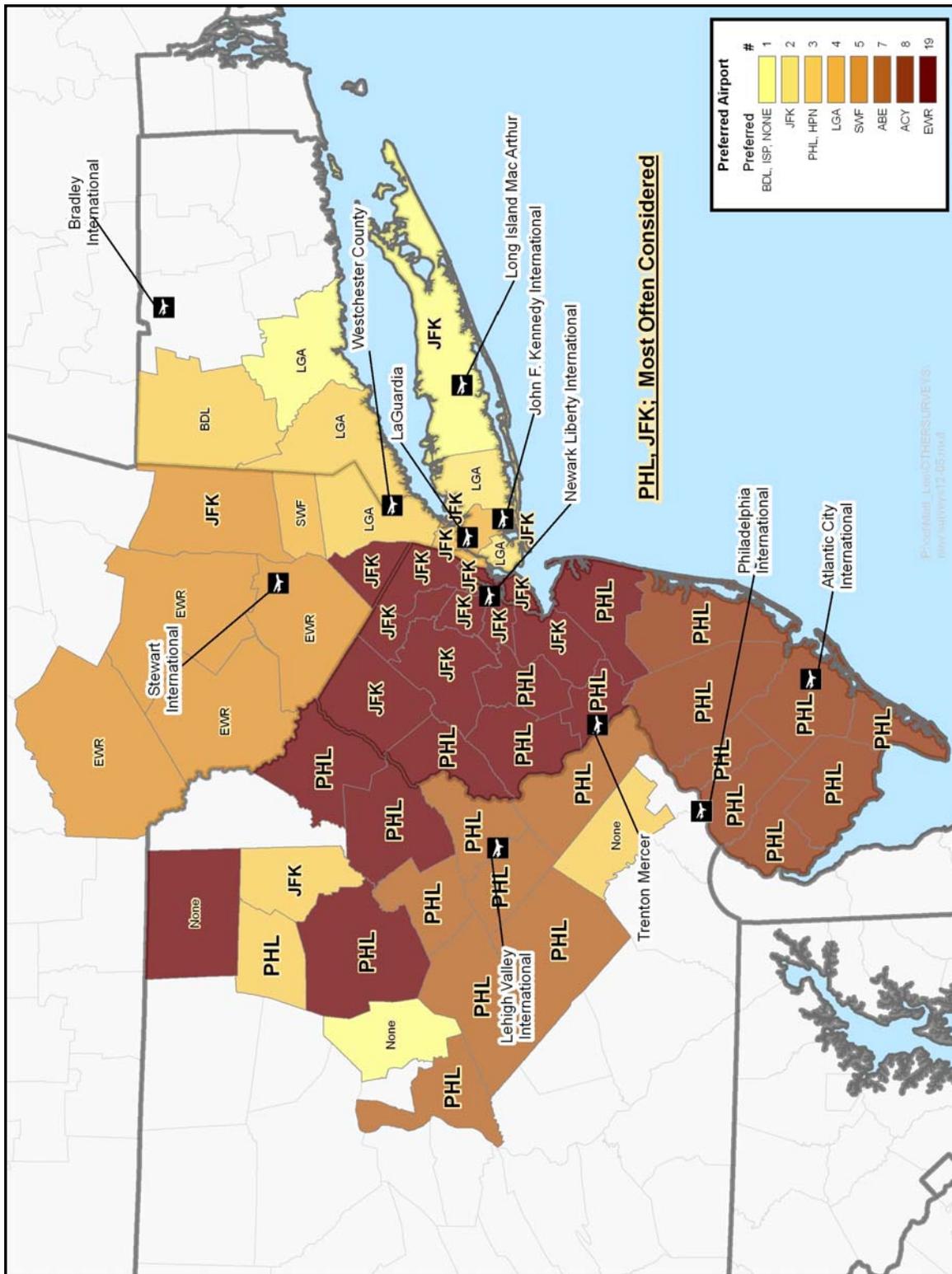
**Table II-2  
OTHER AIRPORTS CONSIDERED WHEN PLANNING TRIP**

Airport Considered	AIRPORT REPORTING		
	HPN	ISP	SWF
LGA	54%	47%	20%
JFK	18%	44%	18%
EWR	3%	4%	30%
SWF	11%	N/A	N/A
BDL	10%	N/A	N/A
HPN	N/A	N/A	7%

Source: NYSDOT 2005 Air Passenger Survey

**Exhibit II-12** shows both the preferred airport (as colors) and the most frequently cited considered airport for the entire study area (all 9 airports). The physical barriers to transportation still shape airport choice. Areas on the west side of the Hudson River in New York State consider EWR, but prefer SWF. Areas on the east side of the Hudson River in Connecticut prefer SWF, HPN or Bradley International Airport (BDL), but will consider JFK and LGA. However, exceptions occur when an airport offers unique or lower priced air services such as that offered at JFK. Northern New Jersey passengers consider JFK. The recent expansion of low fare service offerings at Philadelphia International Airport (PHL) appears to have an influence on airport choice for central, southern and western New Jersey. Comparing the alternative airports considered by passengers to current service areas indicates that EWR is more vulnerable to a loss of passenger volume to either JFK or PHL. By contrast, JFK and LGA are more likely to lose passengers to each other.

Exhibit II-12  
 OTHER AIRPORTS CONSIDERED WHEN PLANNING AIR TRAVEL



Sources: PANYNJ/NYS DOT/DVRPC 2005 Air Passenger Surveys  
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### III. REGIONAL AND LOCAL SOCIOECONOMIC TRENDS

Air transportation demand at SWF depends on the combination of trends in the airline industry, national and international economic conditions, and the socioeconomic conditions within the airport catchment area as defined by the passenger survey. This section summarizes recent trends and future forecasts of population, employment, income, per capita personal income (PCPI), and Gross Regional Product (GRP). **Table III-1** presents the socioeconomic variables for the SWF catchment area.

Historical and forecast population, employment, income, and PCPI were obtained from Woods and Poole Economics, Inc. of Washington, D.C. GRP data was provided by Regional Economic Models, Incorporated (REMI). All economic variables were converted to constant dollars to eliminate any distortions resulting from inflation.

**Table III-1**  
**SWF SOCIOECONOMIC VARIABLES**

Calendar Year	Population (thousands)	Per Capita Personal Income (\$1996)	Personal Income (\$1996, millions)	Employment (thousands)	Gross Regional Product (GRP) (\$2005, millions)
1985	1,290	\$22,969	\$29,622	567	\$32,553
1990	1,362	\$25,103	\$34,201	623	\$38,329
1995	1,427	\$25,114	\$35,839	615	\$39,569
2000	1,499	\$29,903	\$44,815	684	\$45,774
2005	1,586	\$30,534	\$48,436	735	\$48,595
2010	1,671	\$31,873	\$53,274	775	\$63,290
2015	1,762	\$33,310	\$58,678	816	\$75,115
2020	1,855	\$34,901	\$64,735	857	\$84,204
2025	1,952	\$36,641	\$71,537	898	\$95,570
AAG:					
1985-1995	1.0%	0.9%	1.9%	0.8%	2.0%
1995-2005	1.1%	2.0%	3.1%	1.8%	2.1%
1985-2005	1.0%	1.4%	2.5%	1.3%	2.0%
2005-2025	1.0%	0.9%	2.0%	1.0%	3.4%

Sources: Woods & Poole Economics, Inc; REMI.

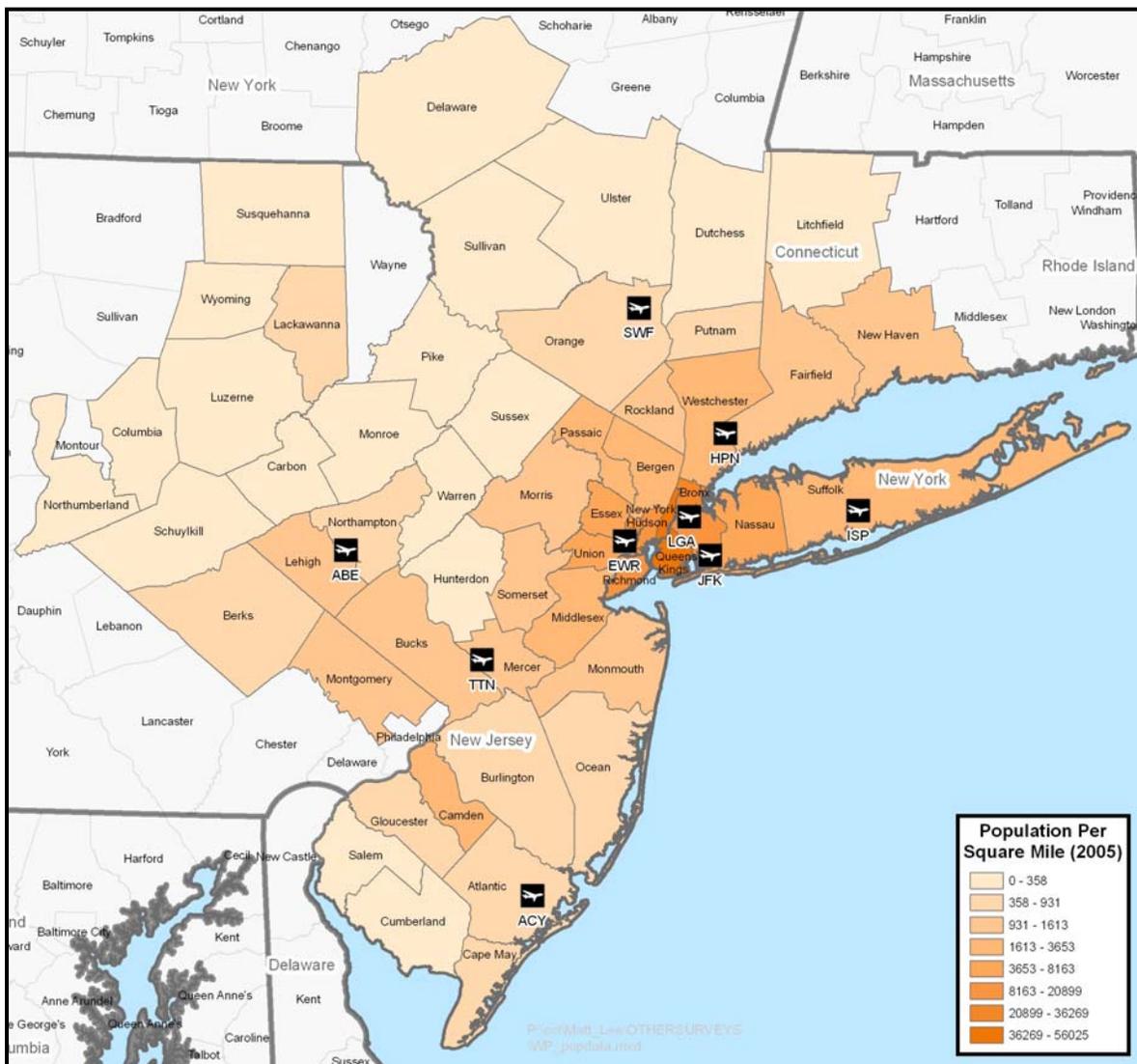
Note: AAG=Average Annual Compound Growth Rate.

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### **III.1 POPULATION**

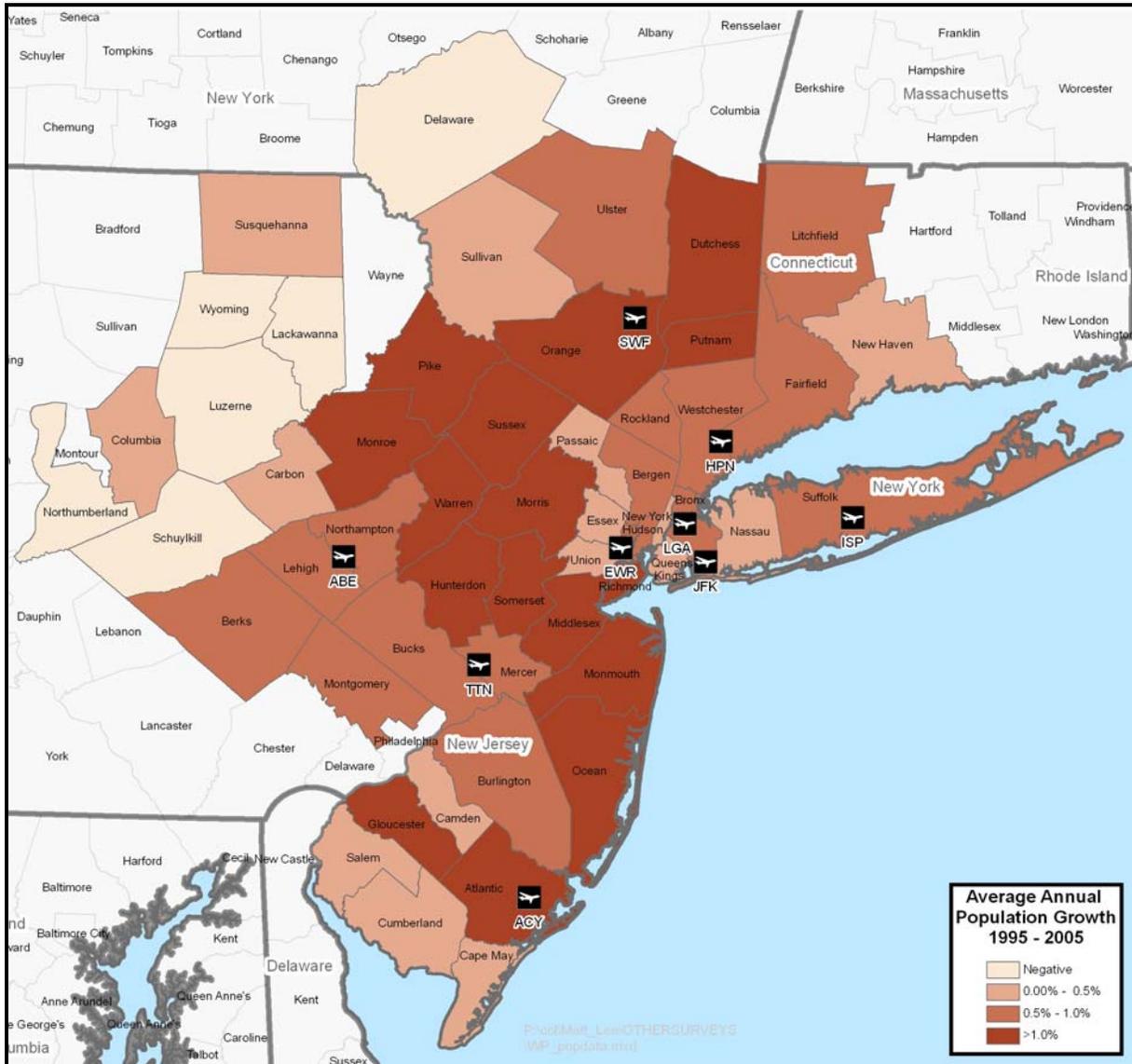
The SWF catchment area is made up of nine counties: Delaware, Dutchess, Orange, Pike, Putnam, Rockland, Sullivan, Sussex, and Ulster. In 2005, an estimated 1.6 million people lived in the SWF catchment area. The population of the SWF catchment averaged growth of one percent per year between 1985 and 2005 and is projected to grow at the same rate over the next twenty years. **Exhibits III-1 and III-2** summarize 2005 population counts and historical growth in the SWF catchment area, along with data for the 54 county study area. It is worth noting that four of the SWF catchment area counties (Orange, Pike, Putnam, and Sussex) are projected to be among the fastest growing counties in the 54 county study area (see **Exhibit III-3**).

**Exhibit III-1  
POPULATION DENSITY (2005)**



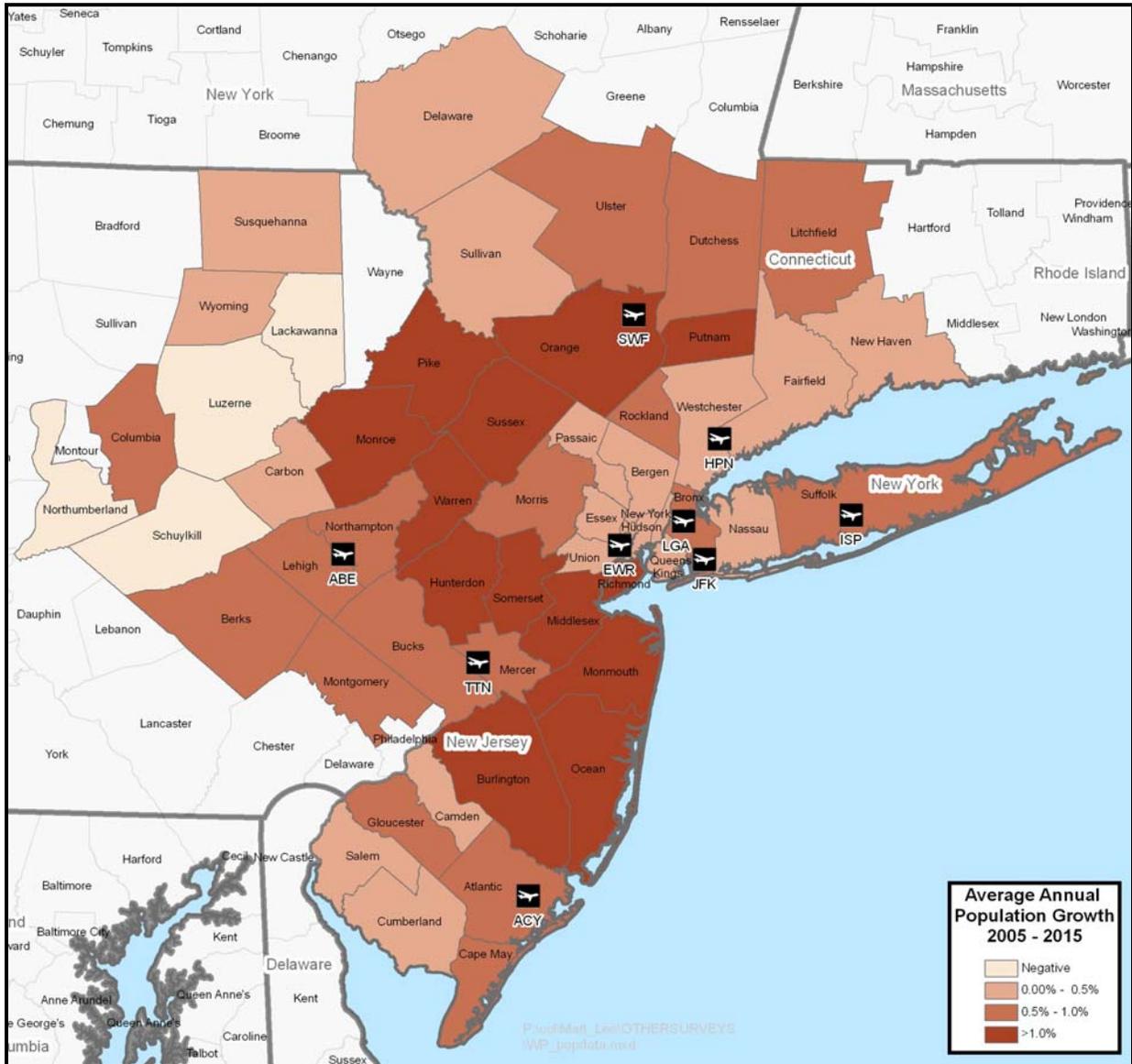
Sources: Woods & Poole Economics and Landrum & Brown analysis.

Exhibit III-2  
HISTORICAL POPULATION GROWTH (1995-2005)



Sources: Woods & Poole Economics and Landrum & Brown analysis.

**Exhibit III-3  
FORECAST POPULATION GROWTH (2005-2015)**



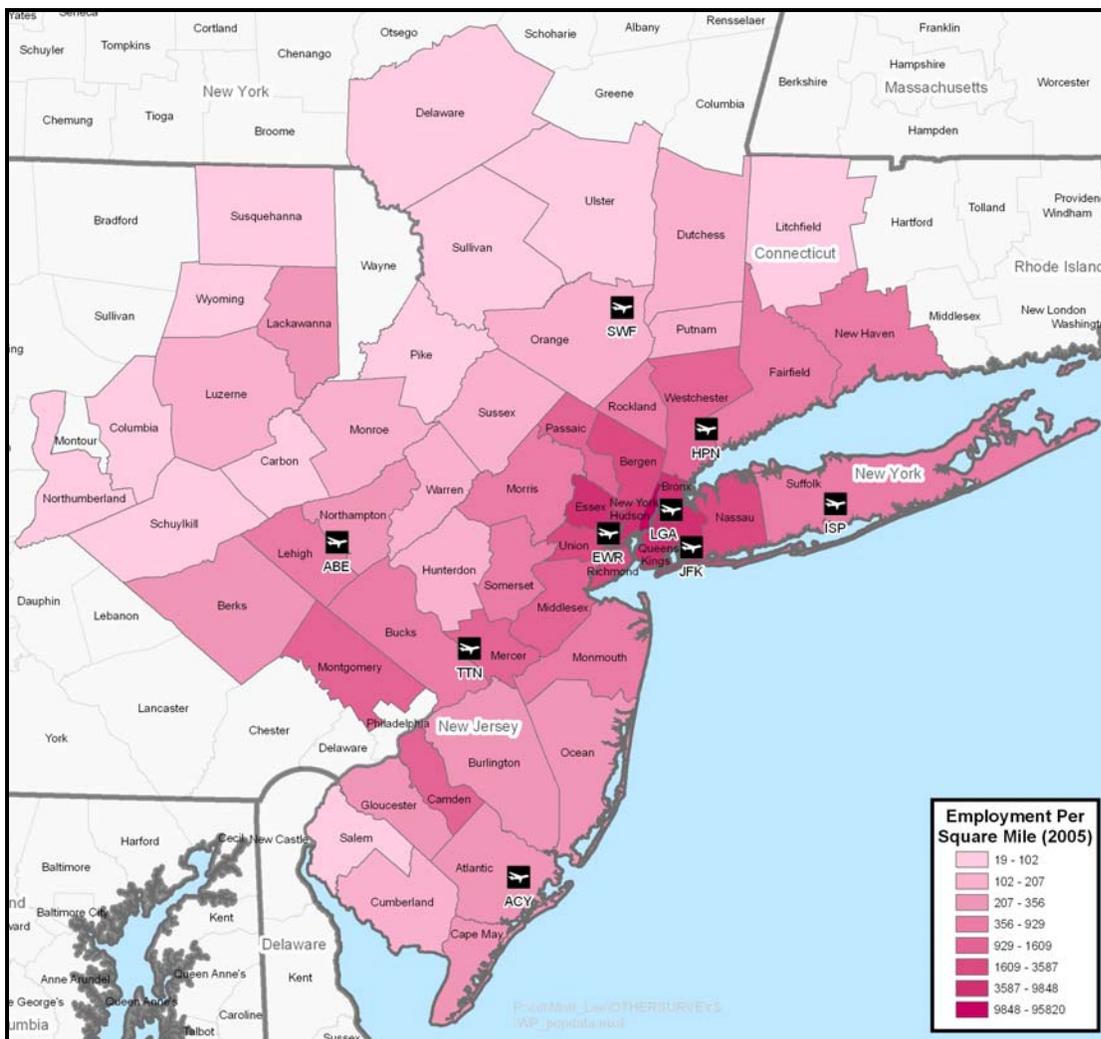
Sources: Woods & Poole Economics and Landrum & Brown analysis.

### III.2 EMPLOYMENT

Over the past twenty years, employment in the SWF catchment area averaged growth of 1.3 percent per year, reaching 735,000 jobs by 2005. Employment growth over the next twenty years is expected to average one percent annually, consistent with historical rates.

**Exhibit III-4** summarizes 2005 employment per square mile ratios by county in the SWF catchment area and the 54 county study area. Rockland County has the highest concentration of jobs in the nine county catchment area.<sup>1</sup>

#### **Exhibit III-4 EMPLOYMENT DENSITY (2005)**



Sources: Woods & Poole Economics and Landrum & Brown analysis.

<sup>1</sup> Rockland County is also in Westchester County Airport's defined catchment area.

### **III.3 PERSONAL INCOME**

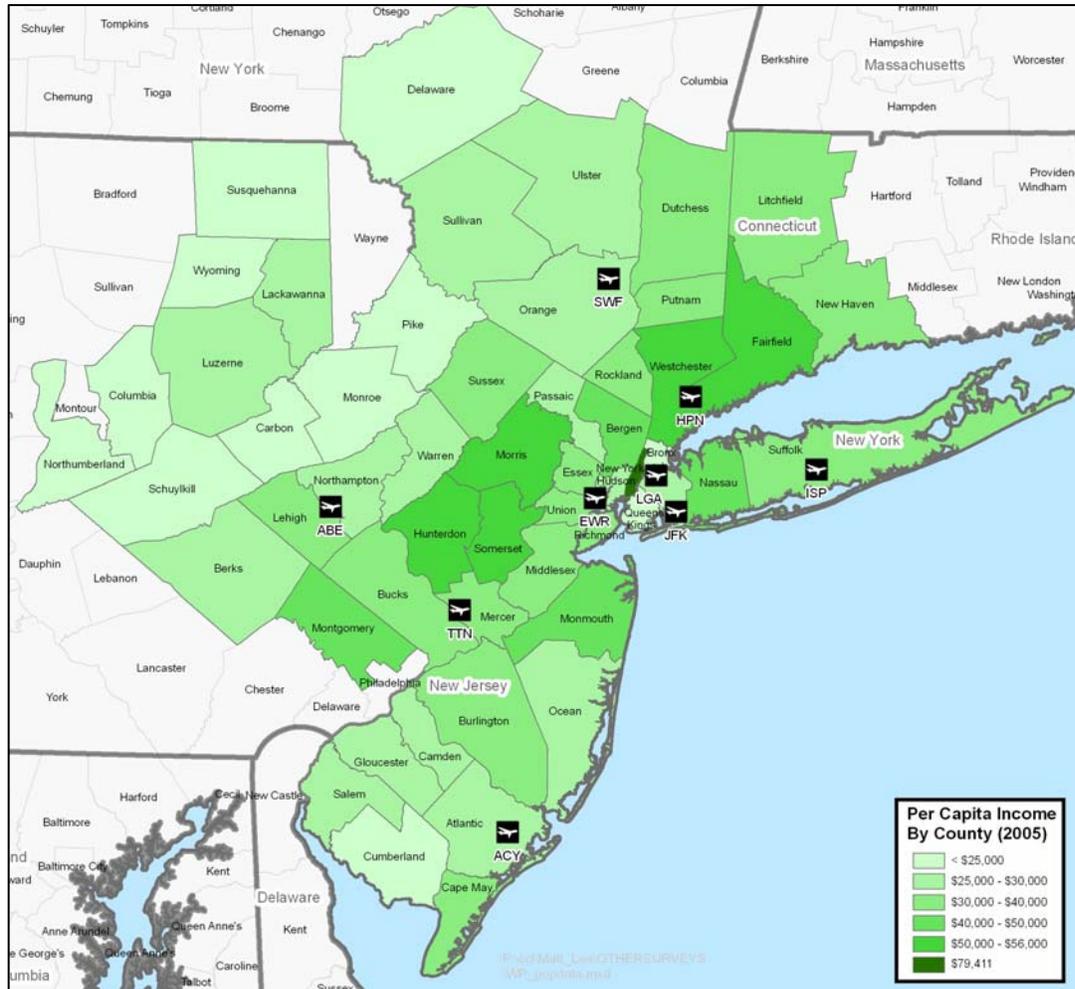
Personal income for the SWF air service area grew at a rate of 2.5 percent per year from 1985 to 2005. For the forecast period, personal income for the SWF catchment area is expected to increase at an average rate of two percent annually.

### **III.4 PER CAPITA PERSONAL INCOME (PCPI)**

Inflation adjusted PCPI for the SWF catchment area was \$30,534 in 2005 which was 17 percent below the 54-county study area average (\$36,770). Between 2005 and 2025, PCPI for the SWF catchment area is expected to average growth of 0.9 percent per year, which is lower than the historical 20-year average annual growth rate (1.4 percent per year).

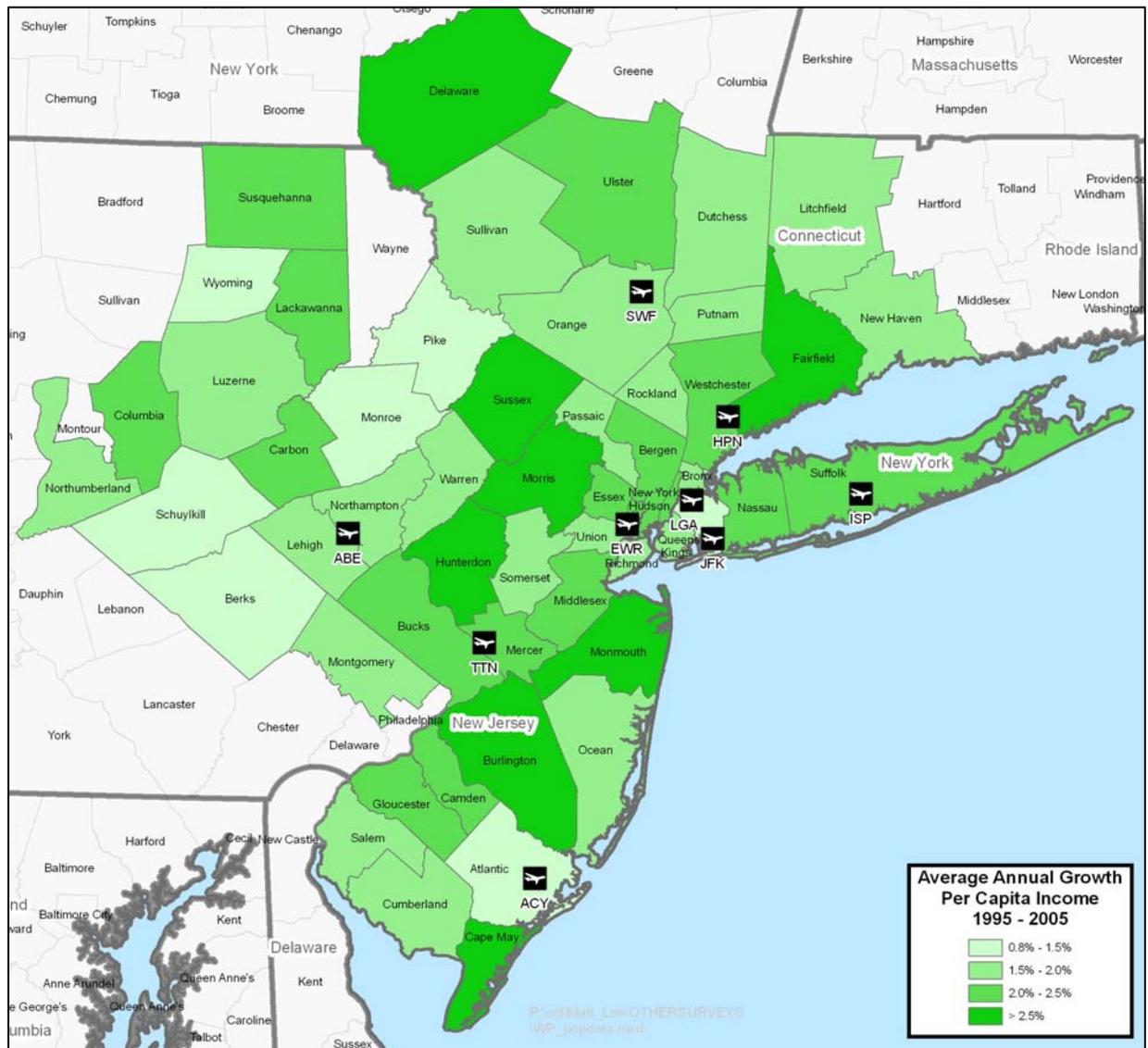
**Exhibits III-5** through **III-8** summarize 2005 PCPI and historical and forecast growth in PCPI by county in the New York region. Year 2005 PCPI levels are the highest in New York and Westchester counties in New York state, Fairfield County in Connecticut, and Morris, Hunterdon, and Somerset counties in New Jersey. Fairfield county in Connecticut, Carbon county in Pennsylvania, Kings and Richmond Counties in New York State, and Bergen, Middlesex, and Hudson counties in New Jersey are projected to be the fastest growing counties in the region between 2005 and 2015.

**Exhibit III-5  
PER CAPITA PERSONAL INCOME (2005)**



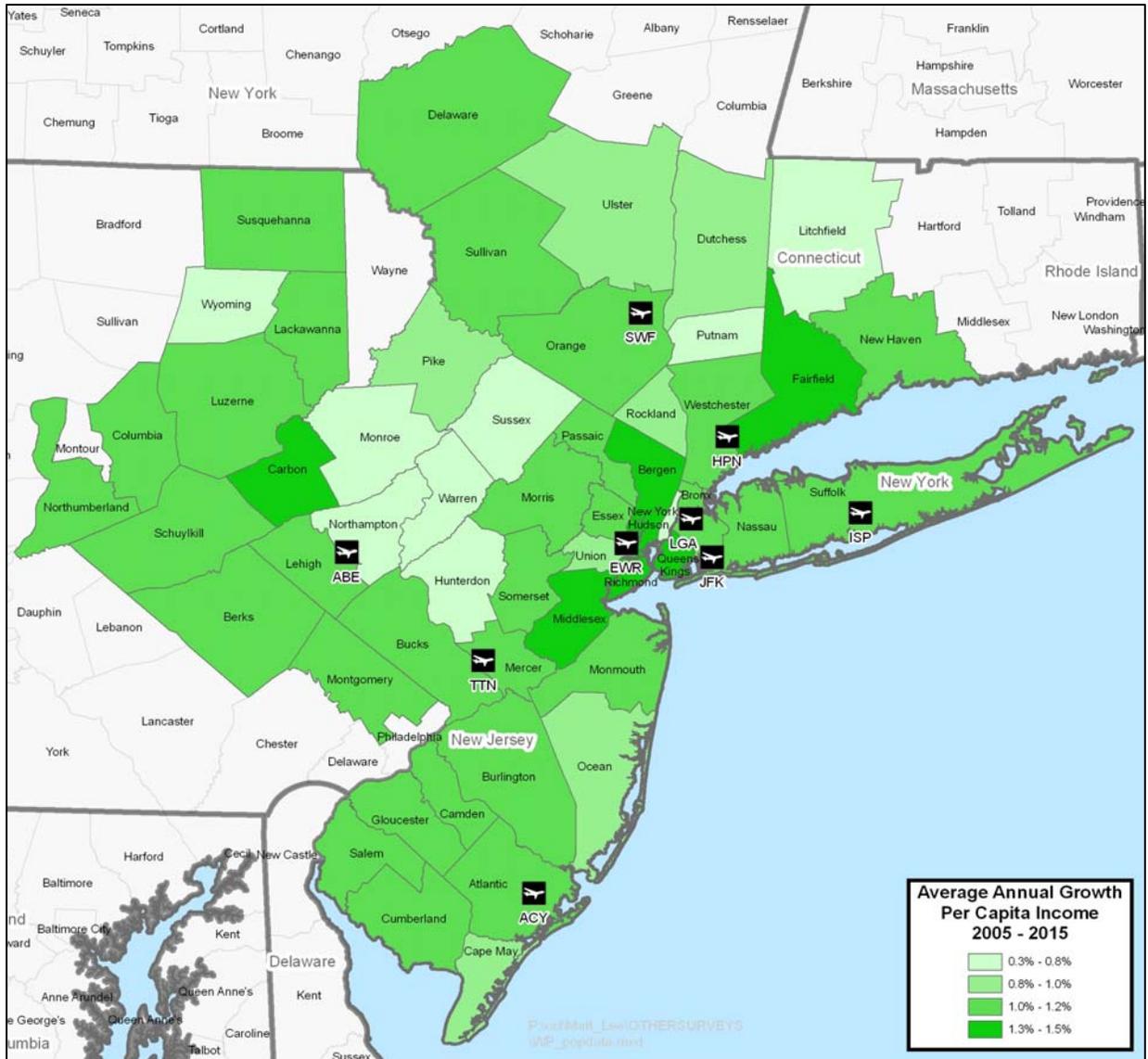
Sources: Woods & Poole Economics and Landrum & Brown analysis.

**Exhibit III-6  
HISTORICAL PCPI GROWTH (1995-2005)**



Sources: Woods & Poole Economics and Landrum & Brown analysis.

**Exhibit III-7  
FORECAST PCPI GROWTH (2005-2015)**



Sources: Woods & Poole Economics and Landrum & Brown analysis.

**III.5 REGIONAL GROSS DOMESTIC PRODUCT (GRP)**

GRP for the SWF air service area grew at a rate of 2.0 percent per year from 1985 to 2005. Over the same period, the U.S. economy grew at a faster rate, averaging growth of 3.1 percent per year. Over the forecast period, GRP for the SWF catchment area is expected to grow at 3.4 percent per year, on average.

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## **IV. PAST TRENDS IN AVIATION ACTIVITY**

This section summarizes recent historical aviation activity at SWF. It shows how the airport's traffic has evolved and will serve as the starting point for the development of comprehensive forecasts. A review of recent trends also identifies those factors, which have, or in the future might, influence future traffic volumes.

### **IV.1 SUMMARY OF HISTORICAL ENPLANED PASSENGERS**

As shown in **Exhibit IV-1** and **Table IV-1** there has been no consistent pattern in enplanement volumes at SWF over the past 15 years. In 2005, almost 200,000 enplanements were reported by airlines operating at SWF, somewhat higher than the 188,000 enplanements reported in 1990. Indeed, 1990 marked the first year of commercial passenger service at SWF with American offering service to Chicago and Raleigh-Durham; American Eagle providing service to New York-Kennedy; and United Express offering flights to Boston and Washington-Dulles. By 1991, both Delta and US Airways had also added service at SWF and traffic more than doubled to 399,000 enplanements. The carrier base continued to expand over the next five years with the introduction of service by AirTran, Carnival, and Midway, however enplanements remained relatively static in the 400,000 range between 1992 and 1997.

In 1998, a period of declining enplanement volumes began at SWF which continued through 2002. While difficult to actually quantify, a number of reasons have been proffered for the decline in enplanement volumes at SWF between 1998 and 2000, which, in contrast, was a period of rapid growth in air travel demand nationally. As part of an FAA pilot program, SWF, assisted by NYSDOT and the Empire State Development Corporation, was in the process of privatizing the airport during this period. As a result, airport management's strategic focus shifted away from air service maintenance and development. Moreover, after six years of relatively flat enplanement volumes, legacy airlines reallocated some of their mainline aircraft resources on more profitable routes and transitioned service at SWF to less appealing turboprop or regional jet aircraft. Another factor was Southwest Airlines which began service at Albany International Airport in 2000.<sup>1</sup> The traffic declines experienced at SWF in 2001 and 2002 were primarily due to events that affected all U.S. airports such as a national economic recession, the 9-11 terrorist attacks and their aftermath, Severe Acute Respiratory Syndrome (SARS), and the 1990 Iraq War.

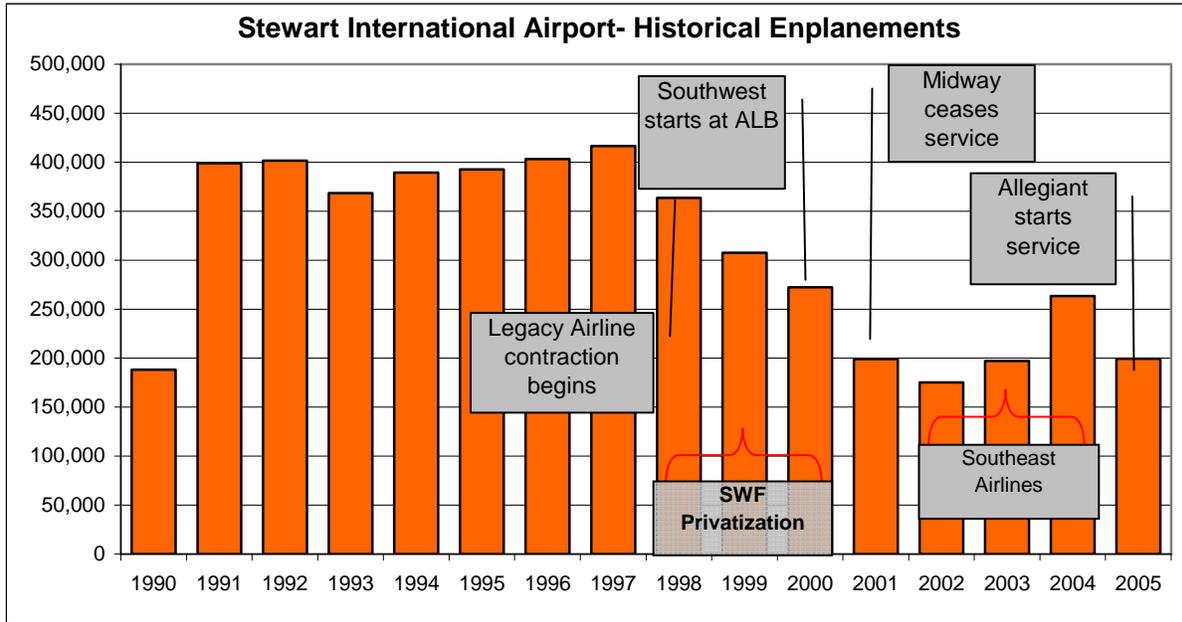
After five consecutive years of traffic declines, enplanement volumes returned to a positive trend in 2003 and 2004, largely as a result of Southeast Airlines initiating discount service at SWF to St. Petersburg-Clearwater, Ft. Lauderdale, and Orlando. However, Southeast, like many other airlines, was not immune to the financial crisis pervading the industry and ceased operations completely in November 2004.

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<sup>1</sup> Albany International Airport is located approximately 90 miles north of SWF.

Without the presence of Southeast Airlines in 2005, enplanements volumes dipped to just below 200,000 passengers.

**Exhibit IV-1  
SWF ENPLANED PASSENGER TRENDS**



Source: Airport Records.

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As shown in Table IV-1, charter carriers (primarily Southeast) accounted for 36.5 percent and 41.1 percent of total enplanements in 2003 and 2004, respectively. However, by 2005, charter carriers accounted for less than 2 percent of enplanements at SWF. Over the forecast period, it is assumed that charter airlines will not account for a significant volume of enplanements at SWF; as a result charter activity is not broken out in further detail in the report. It should be noted that some of the Florida air service provided by Southeast and other charter carriers is, since November 2005, provided by Allegiant Airlines which is certified as a “scheduled air carrier”. To the customer there is little difference in the two airlines, both publish schedules online and offer direct booking options. However, unlike Southeast, Allegiant publishes its schedule in the *Official Airline Guide* and is not required as a “scheduled” certificated air carrier to escrow revenue from advanced ticket purchases until that passenger has traveled.

**Table IV-1**  
**SWF HISTORICAL ENPLANEMENT TRENDS**

Calendar Year	Air Carrier				Commuter		Total	
	Scheduled Carriers		Charter Carriers		Enpax.	% of Tot.	Enpax.	% of Tot.
	Enpax.	% of Tot.	Enpax.	% of Tot.				
1990	180,303	95.8%	273	0.1%	7,649	4.1%	188,226	100.0%
1991	359,341	90.0%	1,040	0.3%	38,704	9.7%	399,085	100.0%
1992	326,251	81.2%	1,423	0.4%	73,986	18.4%	401,660	100.0%
1993	308,696	83.8%	1,741	0.5%	58,152	15.8%	368,590	100.0%
1994	344,013	88.3%	3,571	0.9%	42,052	10.8%	389,636	100.0%
1995	332,768	84.7%	19,818	5.0%	40,243	10.2%	392,830	100.0%
1996	350,085	86.8%	16,472	4.1%	36,745	9.1%	403,302	100.0%
1997	358,026	85.9%	13,103	3.1%	45,588	10.9%	416,717	100.0%
1998	243,879	67.0%	1,956	0.5%	117,897	32.4%	363,732	100.0%
1999	115,663	37.6%	1,594	0.5%	190,318	61.9%	307,575	100.0%
2000	85,276	31.3%	1,823	0.7%	185,073	68.0%	272,172	100.0%
2001	69,131	34.8%	530	0.3%	129,226	65.0%	198,886	100.0%
2002	40,947	23.4%	6,485	3.7%	127,836	72.9%	175,268	100.0%
2003	1,058	0.5%	72,050	36.5%	124,087	62.9%	197,195	100.0%
2004	5,782	2.2%	108,255	41.1%	149,255	56.7%	263,292	100.0%
2005	8,445	4.2%	3,361	1.7%	187,619	94.1%	199,425	100.0%
AAG:								
1990-1998	3.8%		27.9%		40.8%		8.6%	
1998-2005	-38.1%		8.0%		6.9%		-8.2%	
1990-2005	-18.5%		18.2%		23.8%		0.4%	

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Sources: Airport Records; DOT, Schedule T-100 and T-3; Landrum & Brown analysis.

## IV.2 SUMMARY OF HISTORICAL AIRCRAFT OPERATIONS

For purposes of developing the operations forecast, SWF historical aircraft operations were segmented into four principal categories of aircraft operations: (1) commercial passenger; (2) all-cargo/freighter; (3) non-commercial air taxi and general aviation; and (4) military. **Table IV-2** details all historical aircraft operations at SWF, thereafter this section focuses on historical trends in commercial passenger service at SWF. The operations history and forecast for the other four components of aircraft operations are discussed in Section VIII.

**Table IV-2  
SWF HISTORICAL AIRCRAFT OPERATIONS**

Calendar Year	Passenger		Total	All-Cargo	General		Total
	Air Carrier	Commuter	Passenger		Aviation	Military	
1995	10,950	11,165	22,115	2,700	95,889	16,338	137,042
1996	11,380	10,274	21,654	2,200	79,090	11,054	113,998
1997	10,164	10,449	20,613	6,209	118,180	13,881	158,883
1998	6,496	14,540	21,036	3,085	120,835	12,352	157,308
1999	3,604	18,717	22,321	3,445	131,511	11,326	168,603
2000	2,892	14,143	17,035	3,058	106,278	10,118	136,489
2001	2,742	11,652	14,394	2,445	88,854	7,871	113,564
2002	1,654	10,168	11,822	1,969	100,225	9,512	123,528
2003	1,476	8,674	10,150	2,195	87,052	7,573	106,970
2004	2,110	9,917	12,027	2,162	86,343	7,247	107,779
2005	260	11,343	11,603	1,985	82,361	8,011	103,960
Average Annual Growth Rates							
1995-2000	-23.4%	4.8%	-5.1%	2.5%	2.1%	-9.1%	-0.1%
2000-2005	-38.2%	-4.3%	-7.4%	-8.3%	-5.0%	-4.6%	-5.3%
1995-2005	-31.2%	0.2%	-6.2%	-3.0%	-1.5%	-6.9%	-2.7%

Sources: FAA, Terminal Area Forecast; DOT, Schedule T-100; *Official Airline Guide*; Landrum & Brown, Inc.

Note: General aviation includes non-commercial air taxi activity.

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Historically, commercial passenger operations have accounted for between 9 and 19 percent of total operations at SWF. In 2005, a total of 11,600 passenger operations were reported at the airport, which were approximately half the 22,100 passenger operations reported 10 years earlier.

**Table IV-3** presents weekly scheduled passenger service for the month of August 1995, 2000, 2005, and 2006 by airline. In August 2006, an average of 80 weekly flight departures are scheduled at SWF to four destinations. SWF has historically served primarily as a spoke on the hub networks of legacy carriers. Consequently, most passengers' itineraries at SWF involve at least one connection through a legacy carrier's hub prior to reaching their final destination. This continues to be the case in 2006 with 95 percent of scheduled passenger flights destined for carrier hub airports in Philadelphia (US Airways), Chicago-O'Hare (American), and Detroit (Northwest). Allegiant, a point-to-point discount carrier, accounts for the remaining passenger flight departures at SWF and currently offers four weekly flights to Orlando-Sanford.

Air service provided by the legacy carriers at SWF is currently operated entirely by their regional affiliates with a mix of regional jet and turboprop aircraft. Allegiant operates larger MD-80 aircraft with 164 seats.

Table IV-3  
SWF AVERAGE WEEKLY COMMERCIAL PASSENGER AIR SERVICE

Airline	Flight Departures			Departing Seats			Avg. Seats per Flight			Markets Served			
	1995	2000	2005	1995	2000	2005	1995	2000	2005	1995	2000	2005	2006
<b>Total—All Airlines</b>	<b>245</b>	<b>153</b>	<b>123</b>	<b>80</b>	<b>16,783</b>	<b>8,080</b>	<b>6,557</b>	<b>4,168</b>	<b>68</b>	<b>53</b>	<b>53</b>	<b>52</b>	<b>4</b>
US Airways	76	20	40	41	4,201	744	1,699	1,873	55	37	43	46	1
American Airlines	21	28	26	21	2,856	2,436	1,294	1,050	136	87	50	50	1
Northwest Airlines	-	-	14	14	-	-	616	616	-	-	44	44	1
Allegiant Air	-	-	-	4	-	-	-	630	-	-	-	164	1
ACA/ Independence Air	-	-	21	-	-	-	1,050	-	-	-	50	-	1
AirTran Airways	6	-	-	-	699	-	-	-	119	-	-	-	-
Carnival Air Lines	4	-	-	-	476	-	-	-	124	-	-	-	-
Delta Air Lines	66	35	14	-	5,566	1,750	700	-	84	50	50	-	1
Midway Airlines	21	42	-	-	2,058	2,436	-	-	98	58	-	-	1
Pan Am Clipper Connection	-	-	8	-	-	-	1,198	-	-	-	156	-	4
United Airlines	51	28	-	-	927	714	-	-	18	26	-	-	1
<b>% of Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>
US Airways	31%	13%	33%	51%	25%	9%	26%	45%					
American Airlines	9%	18%	21%	26%	17%	30%	20%	25%					
Northwest Airlines	0%	0%	11%	18%	0%	0%	9%	15%					
Allegiant Air	0%	0%	0%	5%	0%	0%	0%	15%					
ACA/ Independence Air	0%	0%	17%	0%	0%	0%	16%	0%					
AirTran Airways	2%	0%	0%	0%	4%	0%	0%	0%					
Carnival Air Lines	2%	0%	0%	0%	3%	0%	0%	0%					
Delta Air Lines	27%	23%	11%	0%	33%	22%	11%	0%					
Midway Airlines	9%	27%	0%	0%	12%	30%	0%	0%					
Pan Am Clipper Connection	0%	0%	6%	0%	0%	0%	18%	0%					
United Airlines	21%	18%	0%	0%	6%	9%	0%	0%					

Note: Air service activity was summarized weekly to capture Allegiant operations.

Source: Official Airline Guide.

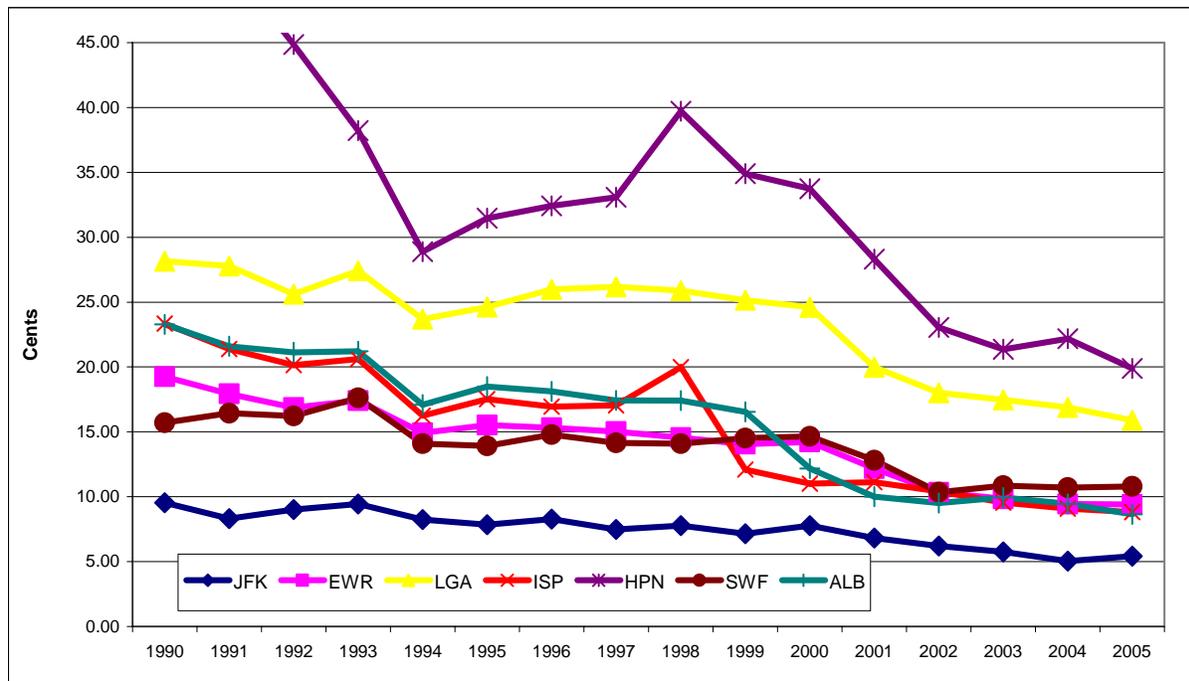
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### IV.3 AIRPORT COMPETITION

Potential travelers make air travel decisions based primarily on the following three factors: (1) availability of air service, (2) price, and (3) distance of airport from point of trip origin/destination. Potential air travelers will typically select the closest airport if all other selection factors are equal. Conversely, a better set of air service options at more competitive prices will cause travelers to select airports which are not necessarily the closest to where their trip begins or ends. Due to the proximity of many of the airports in this study, the potential for passenger leakage or capture at a given airport is relatively high.

SWF primarily competes with EWR, LGA, JFK, HPN, and ALB for passenger traffic. As **Exhibit IV-2** shows, air fares at SWF were higher, on average, in 2005 than at EWR, JFK, and ALB but lower than at LGA and HPN.

**Exhibit IV-2**  
**DISTANCE ADJUSTED FARE YIELD PER 1,000 MILE TRIP**  
 (cents per mile; in 2005 dollars)

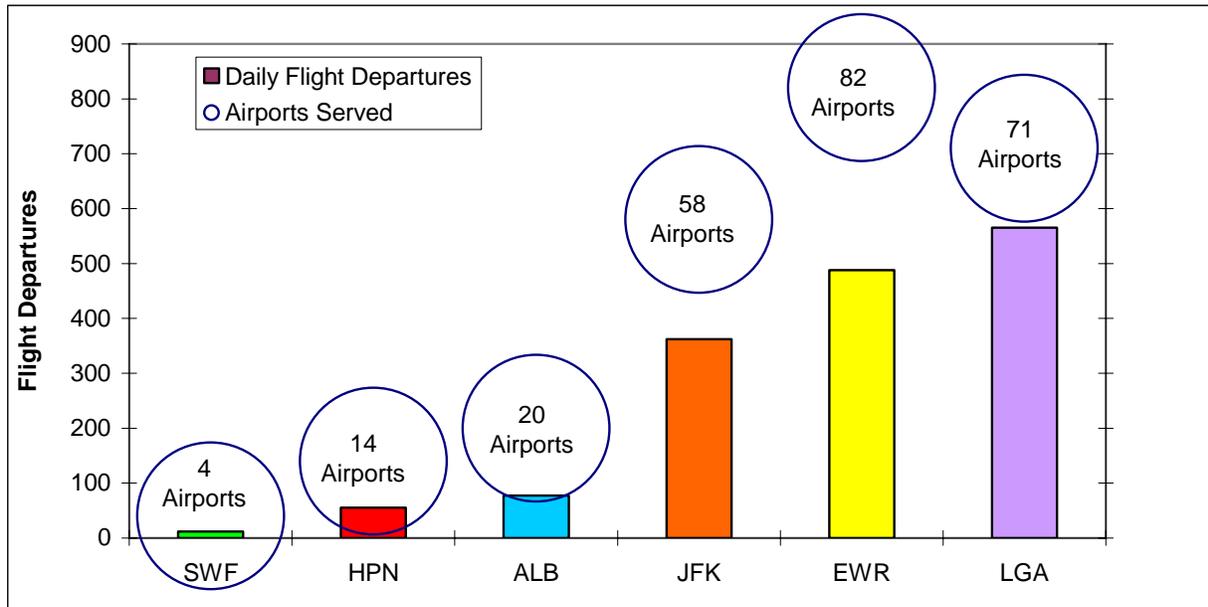


Sources: DOT, Air Passenger Origin-Destination Survey.

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**Exhibit IV-3** summarizes daily domestic frequencies and number of airports served at SWF versus select competing airports for August 10, 2006.

**Exhibit IV-3  
SERVICE AND FARE COMPARISON (August 10, 2006):  
SWF and Select Competing Airports**



Source: Official Airline Guide.

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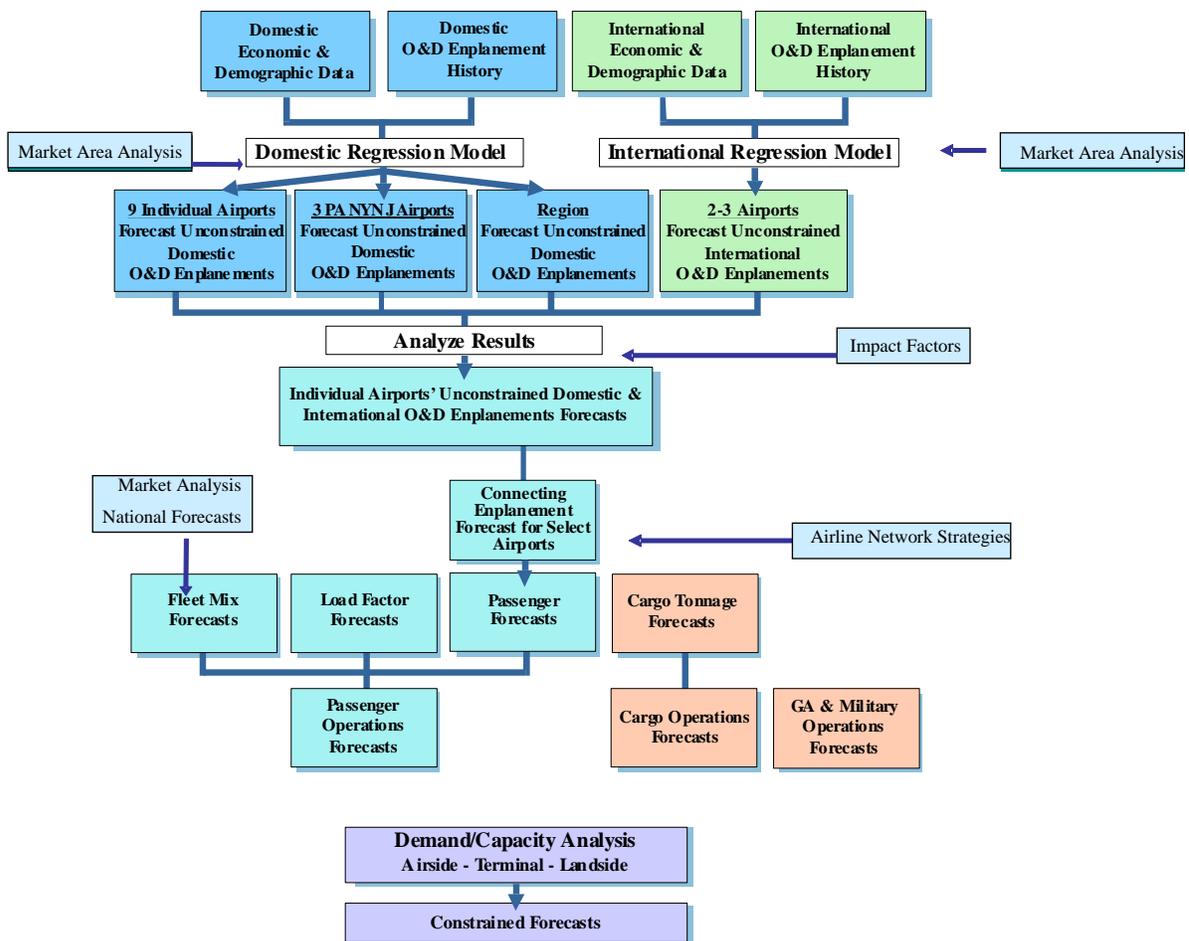
## V. FORECASTING METHODOLOGY AND ASSUMPTIONS

This section describes the methodology and assumptions used to develop the forecasts for SWF.

### V.1 METHODOLOGY

**Exhibit V-1** summarizes the overall methodology used to develop the baseline forecasts of aviation demand for all nine airports in the Regional Air Service Demand Study. Development of the forecasts for ISP, SWF, and HPN followed this overall approach, but were less dependent on regression analysis for the enplanement forecast. First, historical and forecast demographic and socioeconomic data was collected and analyzed as described in Section III. A 20-year history of traffic and yields at each airport was also reviewed and analyzed.

#### Exhibit V-1 FORECAST METHODOLOGY FLOWCHART



Source: Landrum & Brown

Historical scheduled passenger traffic was examined in light of the variables discussed in Section III. A multi-linear regression model was used to quantify the relationship between the variable being forecast (local passengers) and the independent variables. The regression model was used to project origin and destination (O&D) demand for ISP. The model was not able to generate sufficient correlation between historical traffic volumes and the independent variables for SWF and HPN. None of the NYSDOT airports has a significant level of connecting passengers.

Forecasts of operations were derived from the enplaned passenger traffic forecasts. Since carriers have a wide choice of aircraft and experience different load factor levels, many different volumes of operations can correspond to one set of passenger forecasts. The forecasts of operations were developed from information about airline fleet plans, scheduling strategies at downline hubs, current and projected load factors, and assumptions about mergers and competitive strategies.

## **V.2 SWF FORECAST ASSUMPTIONS**

An alternative approach to forecasting enplaned passengers at SWF was developed because there has been no consistent pattern in historical enplanement volumes. This makes it impossible to tie historical traffic to local socioeconomic variables. However, growth in the catchment area economy is expected to support organic growth in enplaned passengers.

In November 2006 both JetBlue Airways and AirTran Airways announced new service from Stewart. JetBlue will begin flying to Fort Lauderdale and Orlando in December 2006 and West Palm Beach in January 2007. AirTran will begin service to Atlanta, Fort Lauderdale, Orlando, and Tampa effective in January 2007. Allegiant Air announced that it will discontinue service at Stewart effective January 11, 2007.

This new service will generate competition for passengers between the new carriers due to the overlap in service to Fort Lauderdale and Orlando, and with existing connecting service through the mainline hubs. US Airways currently connects a significant percentage of Florida travelers through its Philadelphia hub.

This intense competition for Florida passengers will likely cause some shakeout in the announced schedules, but the airport should enjoy a level of enplanements in 2007 not experienced since 1999.

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## **VI. ENPLANED PASSENGER FORECASTS**

This section provides summaries of the forecasts of passenger demand at SWF. The forecast of passenger traffic is the most critical of the various aviation demand elements since most of the other activity elements, such as aircraft operations, are derived from this forecast.

Any comprehensive effort to project future airline passengers begins with a forecast of originating enplaned passengers. The level of originating passengers reflects the attractiveness of the region as a place to live, a place to visit, and as a place to work and conduct business. An accurate forecast of originating passengers is critical in order to estimate future demands for such terminal facilities as ticketing, baggage claim, automobile parking, and access roadways.

It is important to note that most enplaned passengers at SWF are domestic originating passengers. Scheduled international service is not offered at the airport. Airlines provide spoke and point-to-point service at the airport and therefore only a handful of connections are made at SWF during each year. Therefore, total enplanements are used as an accurate estimate of O&D enplanements for the airport.

Three forecasts were developed for SWF. A base case forecast was developed based on a continuation of the airport's current role, the announced new service by AirTran and JetBlue, cessation of service by Allegiant, and represents unconstrained growth. Optimistic and pessimistic enplanement forecasts were also developed to demonstrate the likely range of activity that can be expected at SWF over the 20-year planning horizon.

### **VI.1 ENPLANED PASSENGERS**

The forecast for SWF enplaned passengers, segregated into air carrier and commuter categories, is summarized in **Table VI-1** and **Exhibit VI-1**. Total enplanements at the airport are forecast to increase from just below 200,000 in 2005 to 467,200 in 2025. This growth represents an average increase of 4.3 percent annually. During the forecast period, air carrier and commuter enplanements are expected to average annual growth of 18.2 percent and -1.8 percent, respectively. The base case enplanement forecast is higher than the FAA 2005 Terminal Area Forecast (TAF) for all years after 2006. At the time of developing the base forecast for the FAA Regional Air Service Demand Study approximately a year of additional data was available than when the 2005 TAF was published. The updated data indicated that enplanements would likely decline 21 percent in 2006 rather than grow 3.1 percent as projected in the 2005 TAF for SWF. As a result, there is a 27 percent difference between 2005 TAF forecast for 2006 and the base case projection for 2006. Beyond 2006, enplanements are forecast to continue averaging annual growth of 3.1 percent in the TAF, while 5.9 percent average annual growth rate is projected in the base case. The higher average

annual growth rate presented in the base case is due to the expected growth in passenger demand at SWF due to new service offered by JetBlue and AirTran.

**Table VI-1  
SWF ENPLANED PASSENGER FORECAST**

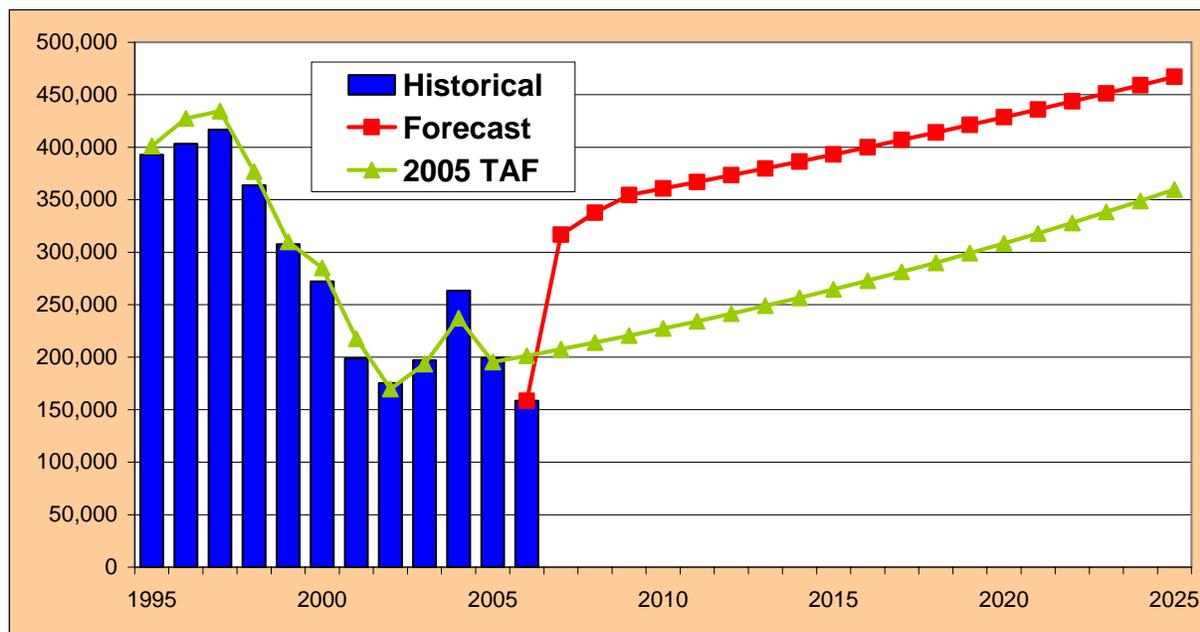
	Calendar	<u>Air Carrier</u>	<u>Commuter</u>	Total
	<u>Year</u>			<u>Enplanements</u>
Historical	1995	352,586	40,243	392,830
	2000	87,099	185,073	272,172
	2005	11,806	187,619	199,425
Estimate	2006	33,980	124,380	158,360
Forecast	2007	217,700	98,900	316,600
	2008	236,800	100,800	337,600
	2009	253,700	100,800	354,500
	2010	258,230	102,470	360,700
	2011	262,770	104,130	366,900
	2012	267,460	105,840	373,300
	2013	272,220	107,580	379,800
	2014	277,050	109,350	386,400
	2015	281,960	111,140	393,100
	2020	308,010	120,590	428,600
	2025	336,380	130,820	467,200
<b>Average Annual Growth Rates</b>				
	1995-2005	-28.8%	16.6%	-6.6%
	2005-2015	37.3%	-5.1%	7.0%
	2015-2025	1.8%	1.6%	1.7%
	2005-2025	18.2%	-1.8%	4.3%

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Sources: SWF Air Traffic Reports, U.S. DOT T100; T3 and Landrum & Brown analysis

Note: Air Carrier includes charter enplanements

**Exhibit VI-1  
 SWF ENPLANED PASSENGER FORECAST AND TAF**



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 Sources: U.S. DOT T100 and Landrum & Brown analysis

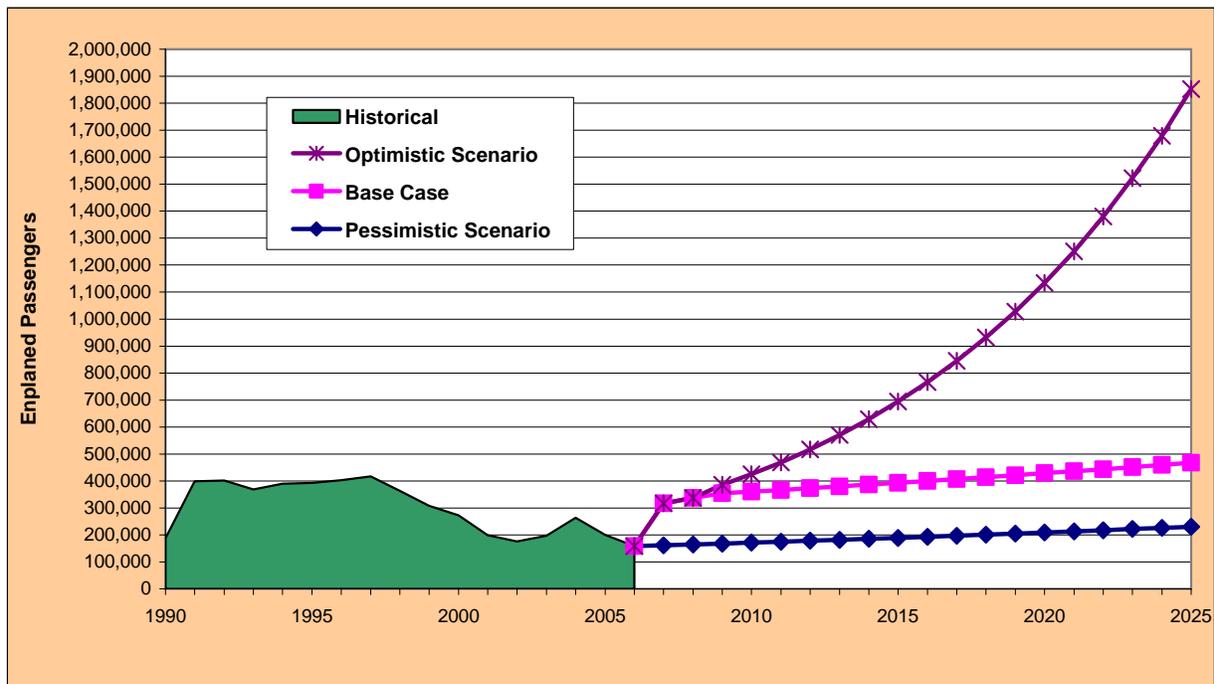
**VI.2 ENPLANED PASSENGERS – OPTIMISTIC & PESSIMISTIC SCENARIOS**

Two sensitivity scenarios were developed for the SWF enplanement forecast. The optimistic scenario was developed by assuming that SWF is able to capture a larger share of the traffic generated in its 9-county service area and from Fairfield, Westchester, Bergen, and Passaic counties that are not currently in the SWF service area. Through expanded service and lower fares, SWF would recapture leakage to surrounding airports in this scenario including Albany, Bradley, and Westchester County airports. The optimistic scenario does not assume that a proposed high-speed rail link to Manhattan is in place during the forecast period. The optimistic scenario results in 1,853,000 enplaned passengers in 2025, representing an average annual growth rate of 11.8 percent from 2005 to 2025.

The pessimistic enplanement scenario expects that access improvements at SWF will not stimulate new demand or aid in recapturing any passengers from other regional airports. Enplanements will only see organic growth related to the economic growth in the region.

**Exhibit VI-2** and **Table VI-2** summarize the base case forecast and the optimistic and pessimistic enplanement scenarios and underlying assumptions at SWF.

**Exhibit VI-2  
SWF ENPLANED PASSENGER FORECAST SCENARIOS**



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Sources: Airport Records; Landrum & Brown analysis

**Table VI-2  
SWF ENPLANED PASSENGER FORECAST SCENARIOS**

	Calendar			
	<u>Year</u>	<u>Base Case</u>	<u>Optimistic</u>	<u>Pessimistic</u>
Actual	1995	392,830		
	2000	272,172		
	2005	199,425		
Estimate	2006	158,360	158,360	158,360
Forecast	2007	316,600	316,600	161,500
	2008	337,600	337,600	164,700
	2009	354,500	385,300	168,000
	2010	360,700	425,000	171,400
	2011	366,900	468,800	174,800
	2012	373,300	517,200	178,300
	2013	379,800	570,500	181,900
	2014	386,400	629,300	185,500
	2015	393,100	694,200	189,200
		2020	428,600	1,134,000
	2025	467,200	1,853,000	230,600
Average Annual Growth Rates				
	1995-2005	-6.6%		
	2005-2015	7.0%	13.3%	-0.5%
	2015-2025	1.7%	10.3%	2.0%
	2005-2025	4.3%	11.8%	0.7%

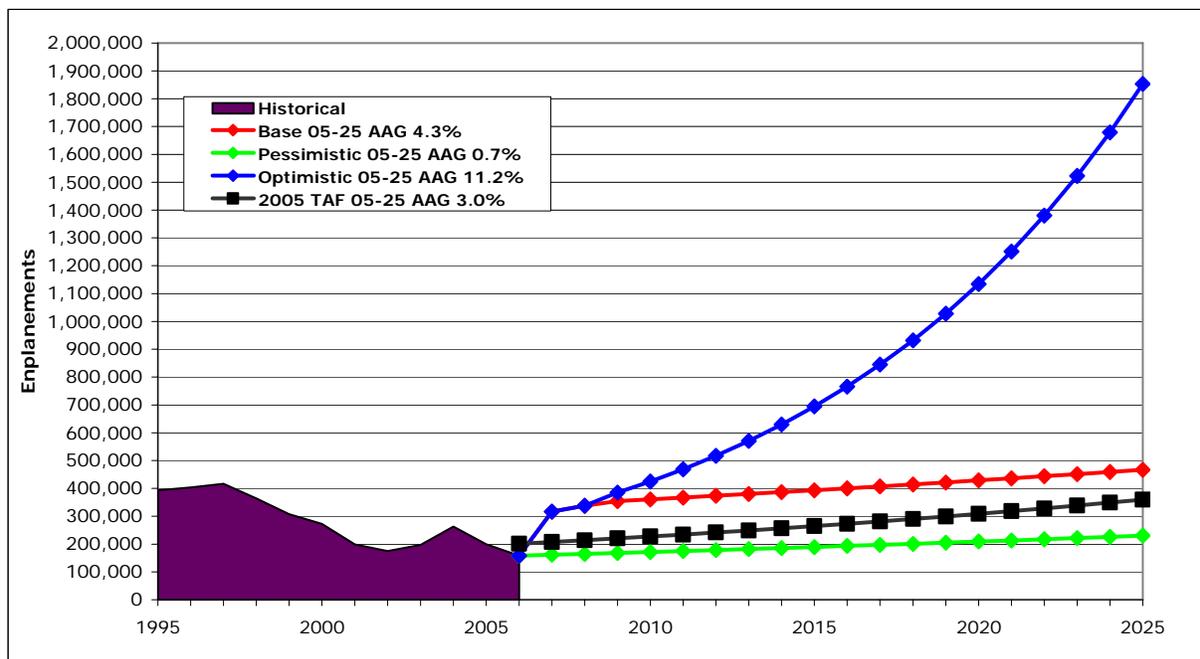
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Source: Landrum & Brown analysis

### VI.3 COMPARISON OF FORECAST TO FAA 2005 TAF

Exhibit VI-3 allows comparison of the base and optimistic and pessimistic enplaned passenger forecasts to the FAA 2005 TAF forecast for SWF. The TAF has a lower growth rate but a higher enplanement base compared to the base forecast developed for this study. By 2025, the base case forecast reaches a 29.8 percent higher enplanement level than the TAF forecast. The optimistic forecast is more than 3.6 times the TAF enplanement level in 2025. The pessimistic forecast is 35.9 percent lower than TAF enplanements in 2025. Comparisons to the 2003 Master Plan Update are presented in the Executive Summary.

**Exhibit VI-3**  
**SWF ENPLANED PASSENGER FORECASTS & 2005 TAF**



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 Sources: FAA 2005 TAF; Landrum & Brown analysis

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## VII. AIR CARGO VOLUME FORECASTS

This section summarizes the air cargo volume forecast for SWF.

### VII.1 HISTORICAL TRENDS IN AIR CARGO

For purposes of this report, cargo at SWF is categorized as either freighter (carried on all-cargo aircraft) or belly (transported in the belly compartment of passenger service aircraft). Air cargo is typically further segregated into international and domestic segments. However, international cargo operations constituted just two percent of total all-cargo operations in 2004. As a result, international cargo was not forecasted separately.

To obtain total cargo tonnage handled at the airport, DOT traffic reports and reports provided by SWF staff were used. DOT T-100 data was used to allocate cargo tons to belly and freighter segments. Historical cargo volume data was analyzed for the years 1997 through 2005 (see **Table VII-1**). Four all-cargo airlines (Airborne Express, FedEx, Express Net Airlines and UPS) accounted for 95 percent of total freighter operations at SWF in 2005.

**Table VII-1**  
**SWF HISTORICAL AIR CARGO TONNAGE**

Actual	Calendar	Total	Belly	Freighter	Percentage	Percentage
	Year				Belly	Freighter
	1997	76,442	1,938	74,504	2.5%	97.5%
	1998	37,739	724	37,015	1.9%	98.1%
	1999	41,760	420	41,340	1.0%	99.0%
	2000	35,780	1,108	34,672	3.1%	96.9%
	2001	21,975	630	21,345	2.9%	97.1%
	2002	14,617	996	13,621	6.8%	93.2%
	2003	20,974	1,978	18,996	9.4%	90.6%
	2004	23,091	2,134	20,957	9.2%	90.8%
	2005	26,131	110	26,021	0.4%	99.6%
<b>Average Annual Growth Rates</b>						
	1991-2005	4.4%	-35.4%	5.1%		
	1997-2005	-12.6%	-30.1%	-12.3%		

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Sources: SWF Air Traffic Reports; U.S. DOT, Schedule-T100; U.S. DOT, Schedule-T3; and Landrum & Brown analysis

Note: Air Carrier includes charter enplanements

In 1997, SWF handled 76,442 short tons of air cargo. The vast majority of (97.5 percent) was on freighter aircraft. Air cargo volumes decreased by half in 1998, but rebounded slightly in 1999 before steadily declining through 2002. Air cargo

volumes at SWF have since increased from 20,974 short tons in 2003 to 26,131 short tons in 2005. However, cargo volume estimated from the first 6 months of 2006 show an estimated decline of approximately 23% for the full year. Belly cargo volumes have fluctuated since 1997 but have consistently remained a small portion of overall cargo volumes. Belly cargo reached its highest point of the previous nine-year period in 2004 when over 2,100 short tons were shipped through SWF. However, in 2005, belly cargo volumes dropped to just 110 short tons. The SWF passenger fleet is dominated by regional jet and turboprop aircraft. These aircraft have relatively limited capacity for belly cargo.

## **VII.2 QUALITATIVE FORECAST ASSUMPTIONS**

The preceding historical analysis of aviation activity was one of the key factors in developing a set of key assumptions underlying the forecast of air cargo for SWF. However, the forecast assumptions were also based on broader industry trends, economic analysis, and review of peer forecasts such as those published by the FAA. The key assumptions underlying the air cargo forecast for SWF are laid out below:

- The U.S. economy is expected to expand over the 20 year planning horizon (2005-2025) supporting growth in domestic air cargo. The Office of Management and Budget (OMB) projects long-term growth (2004-2016) of 3.2 percent per year.
- Based on projections made by Woods & Poole Economics, Inc; employment and personal income for SWF's catchment area are projected to mirror broader national trends. Employment in the area is projected to average annual growth of 1.0 percent between 2005 and 2025 and per capita personal income (PCPI) is projected to grow at 0.9 percent per year during the same period.<sup>1</sup>
- According to projections provided by REMI, the Gross Regional Product of the Stewart catchment area is expected to average growth of 3.4 percent per year.
- The FAA is currently forecasting 3.2 percent average annual growth in domestic revenue ton miles in its national forecast published in March 2006.

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<sup>1</sup> Woods and Poole Economics, Inc. is an independent, non partisan organization that carries out research in the public interest. Woods & Poole obtains historical data from such government sources as the U.S. Department of Labor and the U.S. Department of Commerce. Economic and demographic forecast data provided by Woods & Poole was formulated using its own mathematical models of demographic and economic conditions within each U.S. county or a defined metropolitan statistical area. It is believed this data provides a realistic, independent estimate of future conditions.

### VII.3 AIR CARGO FORECAST METHODOLOGY AND RESULTS

Air cargo transported on freighters is projected to grow at 3.0 percent per year throughout the forecast period. This growth rate is somewhat lower than the increases experienced since 2001, but is in line with OMB projections for the nation.

**Table VII-2** presents the base case air cargo tonnage forecast for SWF. Air cargo volumes are forecast to increase from the estimated 20,200 short tons in 2006 to 35,300 short tons in 2025, an average annual growth rate of 3.0 percent. Due to the estimated decline in 2006, the average annual growth from 2005 to 2025 is 1.5 percent. Belly cargo volumes are expected to remain at the levels seen in 2005 – approximately 100 short tons annually.

**Table VII-2**  
**SWF BASE CASE AIR CARGO TONNAGE FORECAST**

	Calendar			
	<u>Year</u>	<u>Total</u>	<u>Belly</u>	<u>Freighter</u>
Actual	1997	76,442	1,938	74,504
	2000	35,780	1,108	34,672
	2005	26,131	110	26,021
Estimate	2006	20,200	100	20,100
Forecast	2007	20,800	100	20,700
	2008	21,400	100	21,300
	2009	22,000	100	21,900
	2010	22,700	100	22,600
	2011	23,400	100	23,300
	2012	24,100	100	24,000
	2013	24,800	100	24,700
	2014	25,500	100	25,400
	2015	26,300	100	26,200
		2020	30,500	100
	2025	35,300	100	35,200
<u>Average Annual Growth Rates</u>				
	1997-2005	-12.6%	-30.1%	-12.3%
	2005-2015	0.1%	-0.9%	0.1%
	2015-2025	3.0%	0.0%	3.0%
	2005-2025	1.5%	-0.5%	1.5%

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Sources: SWF Air Traffic Reports, U.S. DOT T100; T3 and Landrum & Brown analysis

## **VII.4 AIR CARGO OPTIMISTIC AND PESSIMISTIC FORECAST SCENARIOS**

**Table VII-3** presents the optimistic and pessimistic forecast scenarios for air cargo tonnage at SWF. A more positive economic environment could translate in to higher demand for air cargo shipments. The premise for the optimistic scenario is based on service improvements by integrators due to higher demand in the region. Integrators such as Airborne Express and UPS, which have been contracting service in recent years, would revamp service to meet the additional air cargo demand. In addition it is assumed that the planned access improvement will also have a positive impact on air cargo tonnage at SWF after 2009. Optimistic conditions are expected push the cargo growth rate at SWF to approximately 3.5 percent annually until 2010 and approximately 4 percent annually for the balance of the forecast period, which is slightly higher than the FAA's national forecast growth rate.

The high cost of fuel and generally slow recovery from the recession has caused a shift of much air cargo to be transported by truck in recent years. The pessimistic scenario assumes that the cargo volume at the airport would continue its present trend and gradually decline at approximately 0.5 percent annually during the forecast period.

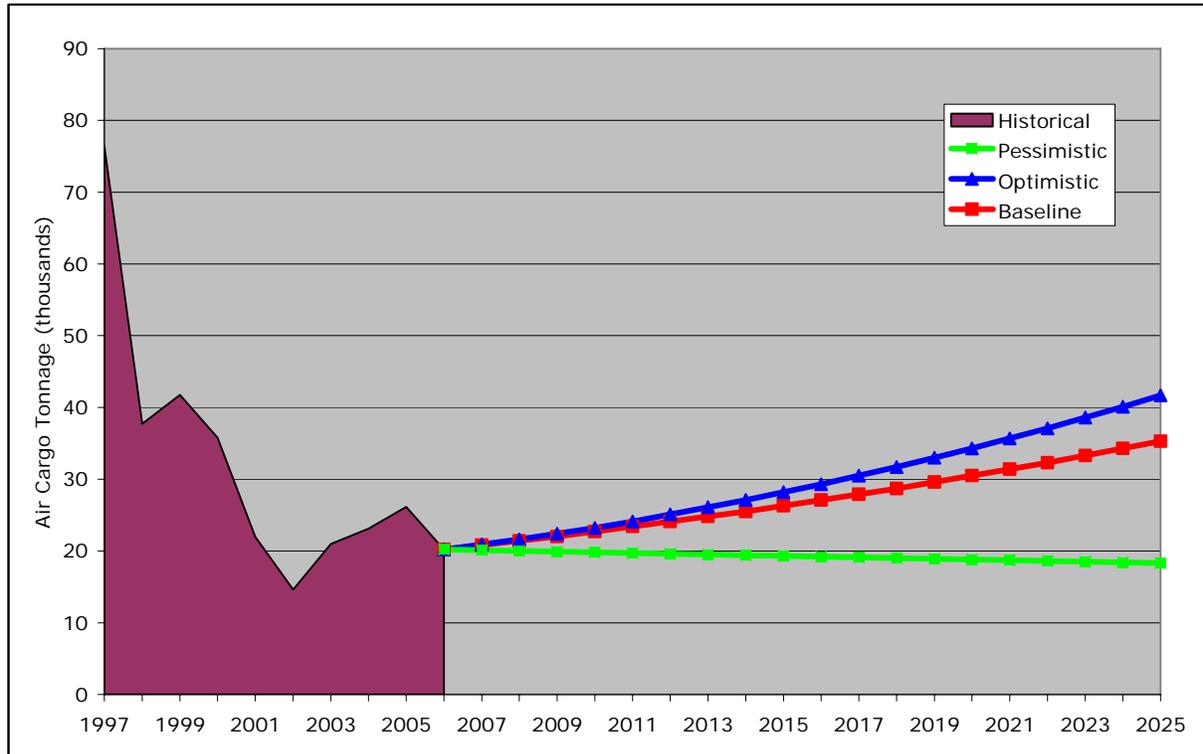
**Table VII-3  
SWF AIR CARGO TONNAGE FORECAST – OPTIMISTIC AND PESSIMISTIC  
SCENARIOS**

	Calendar Year	Total Cargo (Short Tons)		
		Optimistic	Base Case	Pessimistic
Actual	1997	76,442	76,442	76,442
	2000	35,780	35,780	35,780
	2005	26,131	26,131	26,131
Estimate	2006	20,200	20,200	20,200
Forecast	2007	20,900	20,800	20,100
	2008	21,600	21,400	20,000
	2009	22,400	22,000	19,900
	2010	23,200	22,700	19,800
	2011	24,100	23,400	19,700
	2012	25,100	24,100	19,600
	2013	26,100	24,800	19,500
	2014	27,100	25,500	19,400
	2015	28,200	26,300	19,300
	2020	34,300	30,500	18,800
	2025	41,700	35,300	18,300
	<u>Average Annual Growth Rates</u>			
	1997-2005	-12.6%	-12.6%	-12.6%
	2005-2015	0.8%	0.1%	-3.0%
	2015-2025	4.0%	3.0%	-0.5%
	2005-2025	2.4%	1.5%	-1.8%

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Sources: SWF Air Traffic Reports; U.S. DOT, Schedule T-100 and Schedule T-3; Landrum & Brown analysis.

**Exhibit VII-1** presents historical tonnage and baseline, optimistic and pessimistic forecast scenarios for air cargo at SWF.

**Exhibit VII-1  
SWF AIR CARGO TONNAGE FORECAST SCENARIOS**



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Sources: SWF Air Traffic Reports; U.S. DOT, Schedule T-100 and Schedule T-3; Landrum & Brown analysis

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## **VIII. AIRCRAFT OPERATIONS FORECAST**

The forecast of aircraft operations consists of projections of operations activity by major activity type at SWF. Aircraft operations, defined as arrivals plus departures, were forecasted separately for the five major categories of users including: (1) commercial passenger; (2) all-cargo/freighter; (3) non-commercial air taxi; (4) general aviation; and (5) military.

### **VIII.1 PASSENGER OPERATIONS**

Passenger aircraft operations were derived from the enplaned passenger forecast. The aggregate number of commercial operations at an airport depends on three factors; total passengers, average aircraft size, and average load factor (percent of seats occupied). The relationship is shown in the equation below.

$$\text{Operations} = \frac{\text{TotalPassengers}}{\text{AverageLoadFactor} * \text{AverageAircraftSize}}$$

This relationship permits literally infinite combinations of load factors, average aircraft size, and operations to accommodate a given number of passengers. In order to develop reasonable load factor and aircraft gauge assumptions, commercial passenger operations were disaggregated into the same categories of activity as in the enplaned passenger forecast (i.e. air carrier and commuter activity).

The breakout of commuter service is based on the individual carrier's mode of operation (i.e., providing regional feed to its major airline partners) and certification with the FAA. These commuter carriers typically operate turboprop and small (70 seat or smaller) jet equipment.

The fundamental approach to deriving the passenger operations forecast is identical for each of the NYSDOT airports. However, the underlying assumptions at each airport are inherently different due to numerous factors such as airline concentration, airline business models, and capacity limitations.

A number of sources were used to develop the historical passenger operations, load factor, and aircraft gauge data. The *Official Airline Guide* and U.S. Department of Transportation (US DOT) Schedule T-100 data were used to develop total departures and seats for each segment. Average Seats per Departure (ASPD) for each of the major groups of passenger activity was calculated from total departures and total departing seats. Assumptions for ASPD had to be formulated for early years where seat data was not available. Aircraft load factors were calculated for each group of passenger operations by dividing total enplaned passengers by total departing seats. To calculate total operations, the total number of departures was multiplied by a factor of two.

SWF experienced a 52 percent drop in commercial passenger operations from 22,115 in 1995 to 11,603 in 2005. This represented an average annual decline of 6.2 percent over the 10-year period.

#### Air Carrier Operations

Air carrier operations declined significantly at SWF over the past decade, decreasing from 10,950 operations in 1995 to just 260 operations in 2005. As discussed in Section IV, the legacy carriers have shifted their mainline jet service to smaller commuter aircraft at SWF and a number of operators such as Midway and Southeast ceased service throughout the United States. Allegiant Air initiated service at SWF in October 2005, but has announced its intent to discontinue service as of January 11, 2007. Recently announced service by JetBlue and/or AirTran is expected to drive air carrier service growth at the airport over the forecast period.

**Table VIII-1** shows the ASPD and load factors for SWF. Historical trends in air carrier gauge are not always useful in developing future trends as they often reflect specific fleets of airlines that no longer serve the airport. In 2005, ASPD for air carriers was 145.5 seats per flight. In 2006, ASPD is expected to be 163.2 seats, primarily reflecting Allegiant Air, which operates MD-80 aircraft, as the sole provider of air carrier air service at SWF until mid-December. It is assumed that over the forecast period, air carrier ASPD will dip to 136.9 seats in 2007, reflecting the mix of A320 and B717 aircraft operated by JetBlue and AirTran, before remaining constant at 137 seats per flight thereafter.

Historically, air carrier load factors at SWF generally reflect broader industry trends, that is, airlines are operating at higher load factors irrespective of fleet mix. Allegiant, in particular, currently operates at relatively high load factors and reported almost 90 percent loads at SWF for the first quarter of 2006. For the full year, an 85 percent air carrier load is projected. Beyond 2006, air carrier load factors are expected to grow from 45 percent in 2007 to 75 percent by 2009 and remain flat thereafter.

The result of the foregoing assumptions regarding load factor and ASPD is that air carrier operations are forecast to increase from 260 operations in 2005 to 6,550 operations in 2025, representing average annual growth of 17.5 percent.

**Table VIII-1  
SWF AIRCRAFT GAUGE AND LOAD FACTOR ASSUMPTIONS**

	Calendar Year	Air Carrier			Regional		
		ASPD	Load Factor	Enpl./ Dep.	ASPD	Load Factor	Enpl./ Dep.
Actual	1995	122.4	52.6%	64.4	21.6	33.4%	7.2
	2000	93.2	64.6%	60.2	41.3	63.3%	26.2
	2005	145.5	62.4%	90.8	46.6	70.9%	33.1
Estimate	2006	163.2	85.0%	138.7	46.1	73.0%	33.7
Forecast	2007	136.9	45.0%	61.6	45.5	73.1%	33.3
	2008	137.0	70.0%	95.9	46.1	73.2%	33.7
	2009	137.0	75.0%	102.8	46.7	73.3%	34.2
	2010	137.0	75.0%	102.8	47.2	73.4%	34.7
	2011	137.0	75.0%	102.8	47.8	73.5%	35.2
	2012	137.0	75.0%	102.8	48.4	73.6%	35.7
	2013	137.0	75.0%	102.8	49.0	73.7%	36.2
	2014	137.0	75.0%	102.8	49.7	73.8%	36.7
	2015	137.0	75.0%	102.8	50.3	73.9%	37.2
	2020	137.0	75.0%	102.8	53.5	74.5%	39.9
2025	137.0	75.0%	102.8	57.0	75.0%	42.8	
Average Annual Growth Rates							
	1995-2005	1.7%	1.7%	3.5%	8.0%	7.8%	16.5%
	2005-2015	-0.6%	1.8%	1.2%	0.8%	0.4%	1.2%
	2015-2025	0.0%	0.0%	0.0%	1.3%	0.1%	1.4%
	2005-2025	-0.3%	0.9%	0.6%	1.0%	0.3%	1.3%

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Source: Landrum & Brown analysis

Notes: ASPD = average seats per departure (gauge); load factor = average percentage of seats filled;  
Enpl / Dep = enplanements per departure

### Commuter Operations

Virtually the same number of commuter passenger operations were reported in 2005 (11,343 operations) compared with ten years earlier (11,165 operations) but below their 1999 peak (18,717 operations). OAG schedules published for 2006 indicate that commuter operations will decline 34.8 percent in 2006, due to the demise of Independence Air and the discontinuation of regional service by Delta partner Comair at SWF.

Over the previous 10-year period, ASPD for commuter carriers increased from 21.6 seats to 46.6 seats. A shift from smaller 18 to 28 seat turboprop aircraft to larger 37-seat turboprops and 44 to 50 seat regional jets accounted for this increase. The trend toward larger aircraft is expected to continue as commuter carriers look to reduce unit costs by spreading operating costs over a greater number of seats. It is also expected that more flexible scope clauses will also help regional airlines operate larger regional aircraft in the future. Due to these reasons, regional aircraft gauge is expected to increase to 57 seats by 2025.

Commuter load factors are typically lower than air carrier load factors and this has certainly been the case at SWF. In 2005, load factors on commuter flights were 71 percent, up from 33 percent ten years earlier. This upward trend in load factors is expected to continue over the forecast period, albeit at a slower rate, bringing the regional load factor up to 75 percent by 2025.

Based on the projected commuter ASPD and load factor assumptions, commuter operations are expected to be lower in 2025 than in 2005. However, the greatest decline is expected to be experienced in 2006, due to the demise of Independence Air. Commuter operations are expected to grow from 2007 to 2025, reaching 6,120 annual operations by 2025.

### Commercial Passenger Fleet Mix

Once the aggregate level operations forecasts were developed for air carrier and commuter activity, a top-down approach was employed to allocate these operations to aircraft groups and specific aircraft types. The fleet mix was developed to match the aggregate level ASPD targets for air carrier and commuter categories presented in the previous subsections. However, the fleet mix also allowed for the calibration of those assumptions and, where appropriate, modifications were made prior to finalizing the assumptions presented above.

In the air carrier segment, only narrow-body jets operated at SWF during the historical period. This is not expected to change in the foreseeable future.

Commuter operations were segmented into three primary aircraft groups: (1) large regional jet aircraft, (2) small regional jet aircraft, and (3) turboprop aircraft. Large regional jet aircraft are defined as those with a seating configuration of greater than 50 seats and less than 85 seats. Examples include the 70-seat Embraer-170 regional jet and the 70-seat Canadair-700. Small regional jets typically range from 37-seat aircraft such as the Embraer-135 to the 50-seat Canadair regional jet. Turboprop aircraft are simply defined as all commuter propeller driven (i.e., non-jet) aircraft. The size of turboprop aircraft at the airport ranges from 37-seat DHC8 Dash 8s to DHC8-300 aircraft with 50 seats.

The allocation of commercial passenger operations by aircraft type is shown in **Table VIII-2**. The primary assumptions underpinning the fleet mix forecast are:

- Narrow-body B717 and A320 aircraft will account for all air carrier operations after January 2007.
- Large regional jet aircraft are expected to initiate service at the airport between 2006 and 2010. It is assumed that the operational cost advantages of these aircraft over smaller regional jets will make these aircraft increasingly attractive to commuter airlines and their mainline partners. Therefore this segment will continue to grow during the forecast period.
- The recent cessation of production of the 50-seat Canadair regional jet by Bombardier is indicative of the changing fortunes for small regional jet

aircraft. While these aircraft are not expected to disappear from the fleet over the forecast period, their relatively high unit costs will likely mean that where routes, scope clauses, and frequency permit, small regional jet activity will be supplanted with larger regional jet aircraft. Consequently, their share of passenger operations is expected to decline from 2006 to 2025.

- Turboprop activity at SWF is expected to account for about 32 percent of commercial passenger flights in 2006. Over the forecast period, turboprop operations are expected to represent a declining share of passenger flights, as regional airlines operate more capacity with jet aircraft. Currently, Piedmont is the only airline operating turboprop service at SWF. Turboprop activity in the U.S. domestic market has declined sharply over the past five years, in large part due to consumer preference. As fuel prices have climbed in recent years, turboprop aircraft have been looked on more favorably by airlines due to operating cost advantages versus jet aircraft of a similar seat configuration. Over the long-term a significant shift back to turboprop equipment is not expected.



Summary of SWF Commercial Passenger Operations

**Table VIII-3** presents the forecast of operations for each of the primary components of passenger activity. Commercial passenger operations at SWF will decline in 2006 due to a reduction in commuter operations but then average growth of 2.5 percent per year thereafter. Commercial passenger operations are expected to reach 12,670 operations in 2025, somewhat higher than the 11,603 operations reported for the 2005 base year.

**Table VIII-3  
SWF FORECAST OF TOTAL PASSENGER OPERATIONS**

	Calendar	Passenger		Passenger
	<u>Year</u>	<u>Air Carrier</u>	<u>Commuter</u>	<u>Total</u>
Actual	1995	10,950	11,165	22,115
	2000	2,892	14,143	17,035
	2005	260	11,343	11,603
Estimate	2006	490	7,392	7,882
Forecast	2007	7,070	5,950	13,020
	2008	4,940	5,980	10,920
	2009	4,940	5,890	10,830
	2010	5,030	5,910	10,940
	2011	5,110	5,920	11,030
	2012	5,210	5,940	11,150
	2013	5,300	5,950	11,250
	2014	5,390	5,960	11,350
	2015	5,490	5,980	11,470
	2020	6,000	6,050	12,050
	2025	6,550	6,120	12,670
Average Annual Growth Rates				
	1995-2005	-31.2%	0.2%	-6.2%
	2005-2015	35.7%	-6.2%	-0.1%
	2015-2025	1.8%	0.2%	1.0%
	2005-2025	17.5%	-3.0%	0.4%

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Sources: *Official Airline Guide*; DOT, Schedule T-100, Landrum & Brown analysis.

## VIII.2 ALL-CARGO OPERATIONS FORECAST

The forecast of air cargo tonnage for all-cargo operators developed in Section VII was used to derive the operations forecast, based on assumptions of air cargo tonnage handled per flight. To obtain total cargo tonnage handled at the airport, DOT traffic reports and reports provided by SWF staff were used. DOT T-100 data was used to allocate cargo tons to belly and freighter segments and along with FAA Enhanced Traffic Management System Counts (ETMSC) data, to develop the historical all-cargo fleet mix. Additionally, aircraft orders of the main all-cargo carriers were analyzed to evaluate how all-cargo carrier fleets at the airport might evolve in the future. Ultimately, these analyses allowed for the projection of all-cargo operations by aircraft type.

As discussed in Section VII, four all-cargo airlines (Airborne Express, FedEx, Express Net Airlines and UPS) accounted for 95 percent of total freighter operations at SWF in 2005. As shown in **Tables VIII-4**, all-cargo operations are expected to remain relatively unchanged over the forecast period. The reason for lower operations growth compared to cargo tonnage growth is that the existing mix of aircraft at SWF is largely expected to be able to handle the forecast increase in air cargo volume for SWF. As a result, the all cargo fleet at the airport will predominantly be narrow-body aircraft with a relatively small number of wide-body operations (see **Table VIII-5**).

**Table VIII-4**  
**SWF ALL-CARGO OPERATIONS FORECAST**

	Calendar Year	All-Cargo Operations	
Actual	1997	6,209	
	2000	3,058	
	2005	1,985	
Estimate Forecast	2006	1,985	
	2007	1,990	
	2008	1,990	
	2009	1,990	
	2010	1,990	
	2011	2,000	
	2012	2,010	
	2013	2,010	
	2014	2,010	
	2015	2,010	
	2020	2,020	
	2025	2,040	
	<b>Average Annual Growth Rates</b>		
		1997-2005	-13.3%
		2005-2015	0.1%
	2015-2025	0.1%	
	2005-2025	0.1%	

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Sources: SWF Airport Reports; T100; Landrum & Brown analysis

Table VIII-5  
SWF ALL-CARGO FLEET FORECAST

	2003	2004	2005	2010	2015	2020	2025
<b>Total Freighter Operations</b>	<b>2,152</b>	<b>2,157</b>	<b>1,985</b>	<b>1,990</b>	<b>2,010</b>	<b>2,020</b>	<b>2,040</b>
<b>Wide Body</b>	<b>344</b>	<b>65</b>	<b>18</b>	<b>20</b>	<b>20</b>	<b>20</b>	<b>20</b>
B747-100/200/300/400/F	38	3	2	0	0	0	0
A300-600/B4	298	58	4	20	20	20	20
DC-10-10/30/CF/40	5	0	0	0	0	0	0
MD-11	3	4	4	0	0	0	0
L-100-30 (L-382G) Hercules	0	0	8	0	0	0	0
<b>Narrow Body</b>	<b>1,807</b>	<b>2,090</b>	<b>1,966</b>	<b>1,970</b>	<b>1,990</b>	<b>2,000</b>	<b>2,020</b>
DC-9-10/15/F/30/40/50	1,000	1,014	850	788	736	680	666
B727-100/C/QC/200	577	742	875	926	975	1,000	1,030
B757-200/300	214	292	203	197	219	240	263
DC-8-62/63/71/73/F	16	40	34	39	40	40	20
B737-100/200	0	2	4	20	20	40	40
<b>Small</b>	<b>1</b>	<b>2</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
Cessna 208	1	2	1	0	0	0	0
<b>Percent of Totals</b>	<b>100.0%</b>						
<b>Wide Body</b>	<b>16.0%</b>	<b>3.0%</b>	<b>0.9%</b>	<b>1.0%</b>	<b>1.0%</b>	<b>1.0%</b>	<b>1.0%</b>
B747-100/200/300/400/F	11%	5%	11%	0%	0%	0%	0%
A300-600/B4	87%	89%	22%	100%	100%	100%	100%
DC-10-10/30/CF/40	1%	0%	0%	0%	0%	0%	0%
MD-11	1%	6%	22%	0%	0%	0%	0%
L-100-30 (L-382G) Hercules	0%	0%	44%	0%	0%	0%	0%
<b>Narrow Body</b>	<b>84.0%</b>	<b>96.9%</b>	<b>99.0%</b>	<b>99.0%</b>	<b>99.0%</b>	<b>99.0%</b>	<b>99.0%</b>
DC-9-10/15/F/30/40/50	55%	49%	43%	40%	37%	34%	33%
B727-100/C/QC/200	32%	36%	45%	47%	49%	50%	51%
B757-200/300	12%	14%	10%	10%	11%	12%	13%
DC-8-62/63/71/73/F	1%	2%	2%	2%	2%	2%	1%
B737-100/200	0%	0%	0%	1%	1%	2%	2%
<b>Small</b>	<b>0.0%</b>	<b>0.1%</b>	<b>0.1%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>
Cessna 208	100%	100%	100%	0%	0%	0%	0%

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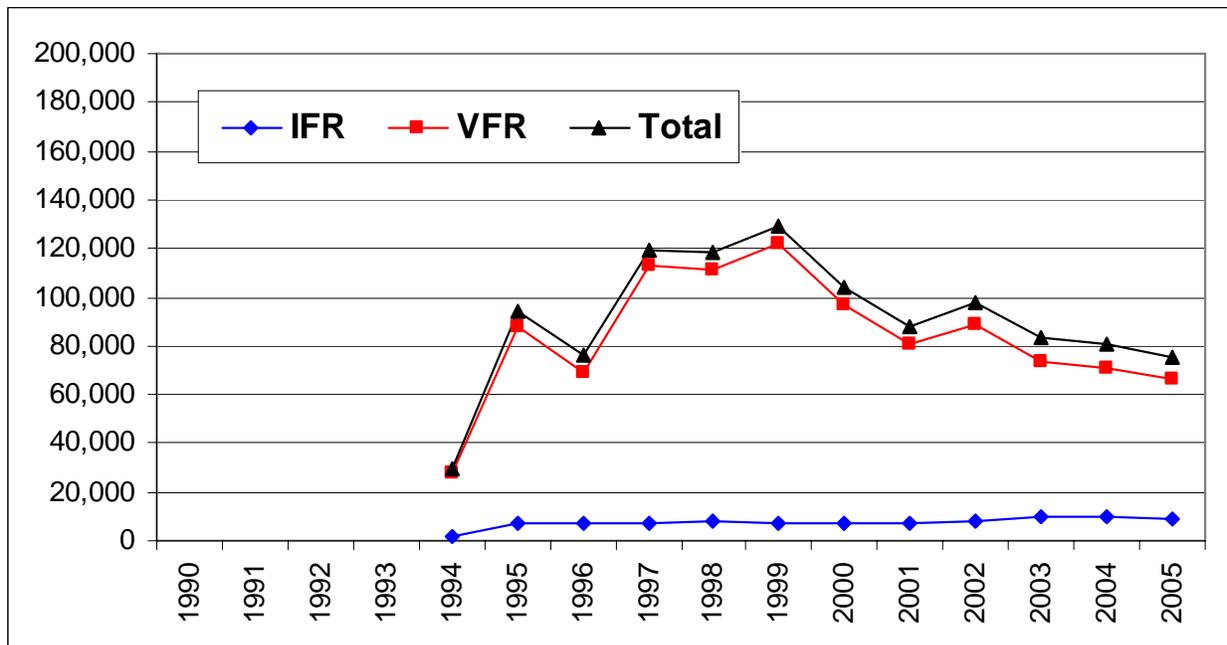
Sources: T-100; Landrum & Brown, Inc.

### VIII.3 GENERAL AVIATION OPERATIONS

This section summarizes the annual general aviation operations forecasts for SWF. According to the FAA, “the term general aviation is used to describe a diverse range of aviation activities and includes all segments of the aviation industry except commercial air carriers (including commuter/regional/freighter airlines) and military.”<sup>1</sup>

Airport radar data was not available to develop a complete general aviation fleet mix for SWF. Therefore an Instrument Flight Rules (IFR) and Visual Flight Rules (VFR) operations split was examined to get a basic understanding of the general aviation fleet (see **Exhibit VIII-1**). Generally larger corporate and business jets make instrument (IFR) approaches to an airport. Smaller privately owned piston and turboprop aircraft more often conduct visual (VFR) approaches. Over 88 percent of general aviation operations at SWF were visual approaches in 2005. This suggests that the majority of general aviation operations are likely smaller non-jet aircraft. The relationship between VFR and IFR activity at SWF has been relatively consistent over the past 10 years. As a result, no material change in this relationship is expected over the forecast period.

**Exhibit VIII-1**  
**GENERAL AVIATION ACTIVITY PROFILE**



Sources: FAA ATCT counts and Landrum & Brown.

<sup>1</sup> FAA Aerospace Forecasts, Fiscal Years 2005-2016.

**Table VIII-6** presents historical and forecast general aviation operations at SWF. Since 1999, there has been a declining trend in general aviation activity at SWF. FAA Air Traffic Activity System (ATADS) data for the first quarter of 2006 suggests that this trend will continue into 2006. The decline in general aviation activity at SWF is indicative of broader national trends, however, the degree of decline at SWF has been greater than at other U.S. airports collectively. Current FAA forecasts call for long-term growth in general aviation activity of approximately 1.0 percent per year. Due to the fact that general aviation activity has not performed well against a national benchmark and that general aviation activity at the airport is likely of a somewhat discretionary nature (i.e. personal flying) it is assumed that general aviation activity at the airport will remain flat at 70,000 operations after 2006.

#### **VIII.4 NON-COMMERCIAL AIR TAXI OPERATIONS**

This section summarizes the annual non-commercial air taxi operations forecasts for SWF. The non-commercial air taxi category represents operations on chartered aircraft operated by companies who operate under Part 91 (i.e. not certificated as an air carrier by the FAA and not covered under Part 121) and large corporate aircraft. Non-commercial air taxi operations at SWF have increased by 16.3 percent annually over the previous 10 years, from 1,628 in 1995 to 7,387 in 2005. Year-to-date April 2006 ATADS data shows that non-commercial air taxi operations are down from the same period in 2005. The FAA projects that this category of operations will increase faster than general aviation activity. This forecast projects non-commercial air taxi operations will decline in the short-term and then increase at an average annual rate of 2.0 percent per annum, reaching 8,570 annual operations in 2025. Table VIII-6 shows the resulting non-commercial air taxi operations forecast.

**Table VIII-6  
SWF FORECAST OF GENERAL AVIATION AND AIR TAXI OPERATIONS**

	<b>Calendar Year</b>	<b>General Aviation</b>	<b>Non-Comm. Air Taxi</b>
Actual	1995	94,261	1,628
	2000	104,083	2,195
	2005	74,974	7,387
Estimate	2006	70,000	6,900
Forecast	2007	70,000	6,760
	2008	70,000	6,620
	2009	70,000	6,490
	2010	70,000	6,360
	2011	70,000	6,490
	2012	70,000	6,620
	2013	70,000	6,750
	2014	70,000	6,890
	2015	70,000	7,030
	2020	70,000	7,760
	2025	70,000	8,570
<b>Average Annual Growth Rates</b>			
	1995-2005	-2.3%	16.3%
	2005-2025	-0.3%	0.7%

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Sources: FAA ATCT counts and Landrum & Brown analysis.

## VIII.5 MILITARY OPERATIONS

This section summarizes the annual military operations forecasts at SWF. Between 1942 and 1970, the airport functioned as a United States Army Air Force Base. The air force base was de-activated in 1970. The airbase was re-opened in 1983, with the 105th Airlift Wing of the New York Air National Guard the primary tenant. In recent years, the 105<sup>th</sup> Airlift Wing has supported U.S. military operations in Afghanistan and Iraq. C-5 and C-130 military transport aircraft account for the majority of military operations at SWF.

Historical and forecast military operations are shown in **Table VIII-7**. Historically, military operations have ranged between seven and eight percent of total aircraft operations at SWF. In 2005, 8,000 military operations were reported at SWF. In line with FAA practices, military operations are forecast to remain virtually unchanged over the forecast period.

**Table VIII-7  
SWF FORECAST OF MILITARY OPERATIONS**

	<b>Calendar Year</b>	<b>Military Operations</b>
Actual	1995	16,338
	2000	10,118
	2005	8,011
Estimate Forecast	2006	8,043
	2007	8,080
	2008	7,790
	2009	7,830
	2010	7,950
	2011	7,940
	2012	7,920
	2013	7,890
	2014	7,910
	2015	7,920
	2020	7,910
	2025	7,910
	Average Annual Growth Rates	
	1995-2005	-6.9%
	2005-2025	-0.1%

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Sources: FAA ATCT counts and Landrum & Brown.

## VIII.6 TOTAL AIRCRAFT OPERATIONS

Tables VIII-8 summarizes the total operations forecasts for SWF. Historical operation totals were taken from the online FAA ATADS database. Total operations at the airport are expected to decline in 2006 due to the decline in commuter passenger and general aviation operations. Thereafter total operations are forecast to grow slowly reaching 101,190 operations by 2025.

**Table VIII-8  
SWF FORECAST OF TOTAL OPERATIONS**

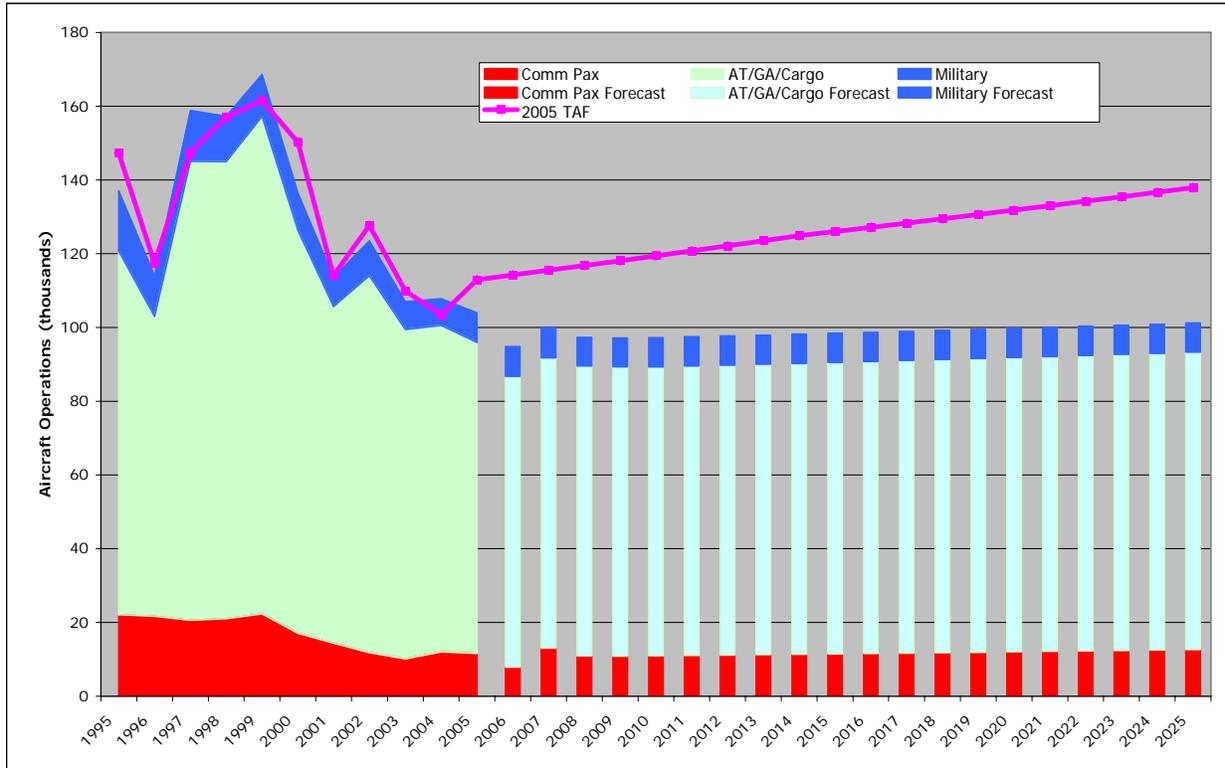
	Calendar Year	Passenger		Non-Comm		General		Total
		Air Carrier	Commuter	All-Cargo	Air Taxi	Aviation	Military	
Actual	1995	10,950	11,165	2,700	1,628	94,261	16,338	137,042
	2000	2,892	14,143	3,058	2,195	104,083	10,118	136,489
	2005	260	11,343	1,985	7,387	74,974	8,011	103,960
Estimate Forecast	2006	490	7,392	1,990	6,900	70,000	8,043	94,815
	2007	7,070	5,950	1,990	6,760	70,000	8,080	99,850
	2008	4,940	5,980	1,990	6,620	70,000	7,790	97,320
	2009	4,940	5,890	1,990	6,490	70,000	7,830	97,140
	2010	5,030	5,910	1,990	6,360	70,000	7,950	97,240
	2011	5,110	5,920	2,000	6,490	70,000	7,940	97,460
	2012	5,210	5,940	2,010	6,620	70,000	7,920	97,700
	2013	5,300	5,950	2,010	6,750	70,000	7,890	97,900
	2014	5,390	5,960	2,010	6,890	70,000	7,910	98,160
	2015	5,490	5,980	2,010	7,030	70,000	7,920	98,430
	2020	6,000	6,050	2,020	7,760	70,000	7,910	99,740
	2025	6,550	6,120	2,040	8,570	70,000	7,910	101,190
Average Annual Growth Rates								
	1995-2005	-31.2%	0.2%	-3.0%	16.3%	-2.3%	-6.9%	-2.7%
	2005-2015	35.7%	-6.2%	0.1%	-0.5%	-0.7%	-0.1%	-0.5%
	2015-2025	1.8%	0.2%	0.1%	2.0%	0.0%	0.0%	0.3%
	2005-2025	17.5%	-3.0%	0.1%	0.7%	-0.3%	-0.1%	-0.1%

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Sources: FAA ATCT counts and Landrum & Brown.

**Exhibit VIII-2** summarizes SWF operations by segment. It also depicts the expected forecast compared to the FAA 2005 TAF. The forecast presented herein is lower than the TAF, principally due to significant differences in the projections of commuter and general aviation activity.

**Exhibit VIII-2  
SWF AIRCRAFT OPERATIONS FORECAST VS. FAA TAF**



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Sources: FAA ATCT counts, TAF and Landrum & Brown analysis.

## VIII.7 TOTAL AIRCRAFT OPERATIONS – SENSITIVITY SCENARIOS

As with the enplanement forecasts, sensitivity scenarios were developed for the operations forecasts. The sensitivity scenarios were developed for commercial passenger activity only. All non-passenger activity is assumed to remain the same as the base case in both scenarios. As a result, optimistic and pessimistic operations forecasts were derived from the corresponding enplanement forecasts. The pessimistic scenario assumes lower enplanement volumes resulting in lower passenger operations. The optimistic scenario assumes recapture of some of the leakage to other airports.

**Table VIII-9** summarizes total operations for the three scenarios. The optimistic scenario results in 128,160 annual passenger operations by 2025 while the pessimistic scenario yields 96,730 passenger operations in 2025.

**Table VIII-9**  
**SWF BASE, OPTIMISTIC & PESSIMISTIC FORECAST OF TOTAL OPERATIONS**

Stewart International Airport					
	Calendar				
	Year	Base Case	Optimistic	Pessimistic	
Actual	1995	137,042	137,042	137,042	
	1996	113,998	113,998	113,998	
	1997	158,883	158,883	158,883	
	1998	157,308	157,308	157,308	
	1999	168,603	168,603	168,603	
	2000	136,489	136,489	136,489	
	2001	113,564	113,564	113,564	
	2002	123,528	123,528	123,528	
	2003	106,970	106,970	106,970	
	2004	107,779	107,779	107,779	
	2005	103,960	103,960	103,960	
	Estimate Forecast	2006	94,810	94,810	94,810
		2007	99,850	99,850	92,950
		2008	97,320	97,320	92,260
2009		97,140	97,740	92,290	
2010		97,240	98,490	92,400	
2011		97,460	99,440	92,650	
2012		97,700	100,500	92,900	
2013		97,900	101,610	93,120	
2014		98,160	102,890	93,410	
2015		98,430	104,290	93,690	
2016		98,690	105,810	93,980	
2017	98,940	107,460	94,250		
2018	99,200	109,280	94,540		
2019	99,470	111,280	94,830		
2020	99,740	113,470	95,130		
2021	100,030	115,890	95,460		
2022	100,320	118,540	95,770		
2023	100,600	121,440	96,080		
2024	100,890	124,640	96,400		
2025	101,190	128,160	96,730		
<b>Average Annual Growth Rates</b>					
	1995-2005	-2.7%			
	2005-2015	-0.5%	0.0%	-1.0%	
	2015-2025	0.3%	2.1%	0.3%	
	2005-2025	-0.1%	1.1%	-0.4%	

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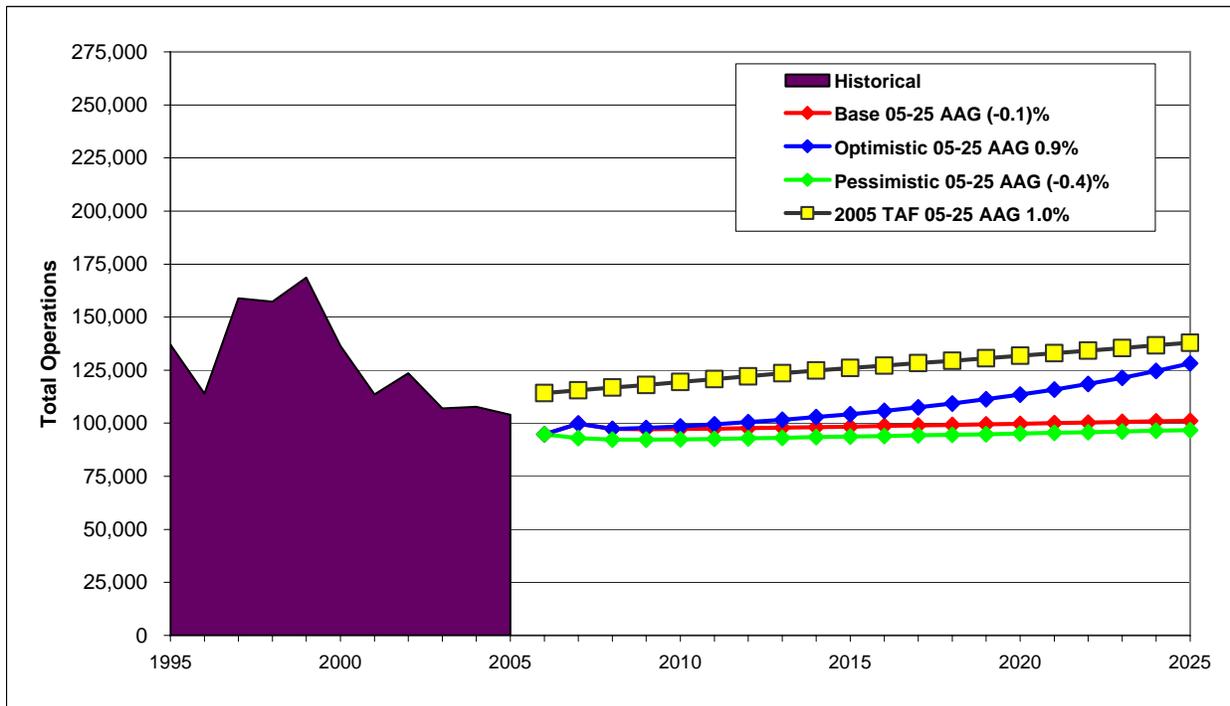
Source: Landrum & Brown, Inc.

**VIII.8 COMPARISON OF FORECAST TO FAA 2005 TAF**

**Exhibit VIII-3** allows comparison of the base, optimistic and pessimistic operations forecasts to the 2005 FAA TAF for SWF. The 2005 TAF projects higher growth than the three forecasts developed for this study.

The difference in the forecasts is partly explained by an expected near term drop in commercial passenger operations in 2006 which was not forecast in the 2005 TAF due to data available at that time. Additionally, the 2005 TAF forecasts 1.1 percent average annual growth in general aviation operations for SWF, which is in line with the FAA's current growth forecast for general aviation nationally. The general aviation forecasts presented herein for the base case calls for a flattening of general aviation activity over the 20-year period.

**Exhibit VIII-3  
BASE, OPTIMISTIC, & PESSIMISTIC OPERATIONS FORECASTS VS. 2005 TAF**



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Sources: FAA TAF; Landrum & Brown analysis

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## **IX. PEAK ACTIVITY FORECASTS**

The traffic demand patterns imposed upon an airport are subject to seasonal, monthly, daily, and hourly variations. These variations result in peak periods, when the greatest constant amount of demand is placed upon facilities required to accommodate passenger and aircraft movements. Peaking characteristics are critical in the assessment of existing facilities and airfield components to determine their ability to accommodate forecast increases in passenger and operational activity throughout the study period. The objective of developing forecasts is to provide a design level that sizes facilities so they are neither underutilized nor overcrowded too often.

The annual enplanement and commercial passenger aircraft operations forecasts for SWF were converted into peak month, average week day, and peak hour equivalents using historical aviation statistics.

### **IX.1 ENPLANED PASSENGERS**

The peak month for enplanements was identified using monthly enplanement data for 2000 through 2005, provided by airport staff. There has been no consistent pattern for peak month enplanements over the six year period, with the month of July, August, October, and December each accounting for the most monthly enplanement activity during a given year(s). The peak month has ranged between 9.5 percent and 11.4 percent of annual enplanements over the six year period. The air carrier activity has typically exhibited higher peak month factors than commuter activity, often reflecting the start-up a particular airline which caused a relatively temporary spike in air carrier enplanements. Over the forecast period, it is assumed that the air carrier component of activity will be less peaked than historical levels due to the implicit assumption that AirTran and/or JetBlue will operate a more predictable schedule at SWF over the forecast period.

The peak month enplanement forecasts were converted into average week day (PMAWD) and peak hour equivalents using OAG departing seat data as a proxy for enplanements. Airline schedules for 2006 and early 2007 were used in order to capture new air carrier operations and a more representative commuter schedule.

**Table IX-1** presents the results of the peak enplanement activity forecasts for the 2010, 2015, 2020, and 2025 planning horizons.

PMAWD enplanements are projected to increase from 724 enplanements in 2005 to 1,295 enplanements by 2025; representing average annual growth of 3.0 percent. Peak hour enplanements which were estimated to be 133 for the 2005 baseline design day are projected to increase to 328 enplanements by 2025.

**Table IX-1  
SWF DERIVATIVE FORECASTS—PASSENGER ENPLANEMENTS**

<b>Annual</b>				
	Calendar	Air Carrier	Commuter	Commercial
	<u>Year</u>	<u>Enplanements</u>	<u>Enplanements</u>	<u>Passenger Enplanements</u>
Base	2005	11,806	187,619	199,425
Forecast	2010	258,230	102,470	360,700
	2015	281,960	111,140	393,100
	2020	308,010	120,590	428,600
	2025	336,380	130,820	467,200

<b>Peak Month</b>				
	Calendar	Air Carrier	Commuter	Commercial
	<u>Year</u>	<u>Enplanements</u>	<u>Enplanements</u>	<u>Passenger Enplanements</u>
Base	2005	2,903	17,188	20,092
Forecast	2010	22,240	8,927	31,167
	2015	24,284	9,683	33,966
	2020	26,527	10,506	37,033
	2025	28,971	11,397	40,368

<b>Peak Month Average Week Day</b>				
	Calendar	Air Carrier	Commuter	Commercial
	<u>Year</u>	<u>Enplanements</u>	<u>Enplanements</u>	<u>Passenger Enplanements</u>
Base	2005	161	562	724
Forecast	2010	712	288	1,000
	2015	777	312	1,089
	2020	849	339	1,188
	2025	927	368	1,295

<b>Peak Hour</b>				
	Calendar	Air Carrier	Commuter	Commercial
	<u>Year</u>	<u>Enplanements</u>	<u>Enplanements</u>	<u>Passenger Enplanements</u>
Base	2005	81	105	133
Forecast	2010	206	92	252
	2015	225	100	275
	2020	246	108	300
	2025	269	118	328

Source: Landrum & Brown, Inc.

Note: Air carrier data for 2005 reflects data for Pan Am which no longer serves SWF.

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## **IX.2 PASSENGER AIRCRAFT OPERATIONS**

Peak month operations factors for SWF were developed primarily using the FAA Air Traffic Activity Data System (ATADS); DOT, T-100 data, and airline schedules published in the OAG. August was selected as the month from which to develop peak month operations factors at SWF. As for enplanements, the passenger operations data was developed for air carrier and commuter activity for the 2010, 2015, 2020, and 2025 planning periods.

Derivative passenger operations forecasts by category are presented in **Tables IX-2**.

Table IX-2  
SWF DERIVATIVE FORECASTS—PASSENGER AIRCRAFT OPERATIONS

Annual				
	Calendar Year	Air Carrier <u>Operations</u>	Commuter <u>Operations</u>	Commercial Passenger <u>Operations</u>
Base	2005	260	11,343	11,603
Forecast	2010	5,030	5,910	10,940
	2015	5,490	5,980	11,470
	2020	6,000	6,050	12,050
	2025	6,550	6,120	12,670

Peak Month				
	Calendar Year	Air Carrier <u>Operations</u>	Commuter <u>Operations</u>	Commercial Passenger <u>Operations</u>
Base	2005	73	988	1,061
Forecast	2010	433	512	946
	2015	473	518	991
	2020	517	525	1,041
	2025	564	531	1,095

Peak Month Average Week Day				
	Calendar Year	Air Carrier <u>Operations</u>	Commuter <u>Operations</u>	Commercial Passenger <u>Operations</u>
Base	2005	4	33	37
Forecast	2010	14	17	30
	2015	15	17	32
	2020	17	17	33
	2025	18	17	35

Peak Hour				
	Calendar Year	Air Carrier <u>Operations</u>	Commuter <u>Operations</u>	Commercial Passenger <u>Operations</u>
Base	2005	2	6	6
Forecast	2010	4	3	6
	2015	4	3	6
	2020	5	4	7
	2025	5	4	7

Source: Landrum & Brown, Inc.

Note: Air carrier data for 2005 reflects data for Pan Am which no longer serves SWF.

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## **X. 2015 Airline Flight Schedules**

The traffic demand patterns imposed upon an airport are subject to seasonal, monthly, daily, and hourly variations. These variations result in peak periods, when the greatest constant amount of demand is placed upon facilities required to accommodate passenger and aircraft movements. Peaking characteristics are critical in the assessment of existing facilities and airfield components to determine their ability to accommodate forecast increases in passenger and operational activity throughout the study period. The objective of developing forecasts is to provide a design level that sizes facilities so they are neither underutilized nor overcrowded too often.

The annual enplanement and aircraft operations forecasts for SWF were converted into peak month average weekday (PMAWD) forecasts using historical aviation statistics. These PMAWD statistics formed the basis for developing the 2015 flight schedules.

### **X.1 Enplaned Passengers**

The peak month for enplanements was identified using monthly enplanement data for 2000 through 2005, provided by airport staff. There has been no consistent pattern for peak month enplanements over the six year period, with the month of July, August, October, and December each accounting for the most monthly enplanement activity during a given year(s). The peak month has ranged between 9.5 percent and 11.4 percent of annual enplanements over the six year period. The air carrier activity has typically exhibited higher peak month factors than commuter activity, often reflecting the start-up a particular airline which caused a relatively temporary spike in air carrier enplanements. Over the forecast period, it is assumed that the air carrier component of activity will be less peaked than historical levels due to the implicit assumption that AirTran and/or JetBlue will operate a more predictable schedule at SWF over the forecast period.

The peak month enplanement forecasts were converted into average week day (PMAWD) and peak hour equivalents using OAG departing seat data as a proxy for enplanements. Airline schedules for 2006 and early 2007 were used in order to capture new air carrier operations and a more representative commuter schedule.

At SWF, PMAWD enplanements are projected to increase from 724 enplanements in 2005 to 1,089 enplanements by 2015; representing average annual growth of 4.2 percent. **Table X-1** presents the PMAWD enplanement activity forecasts for 2015 for SWF.

**Table X-1  
SWF FORECASTS—2015 PASSENGER ENPLANEMENTS**

	<u>Calendar Year</u>	<u>Annual Enplanements</u>	<u>PMAWD</u>
Actual	1990	188,226	683
	1995	392,830	1,426
	2000	272,172	988
Estimated	2005	199,425	724
	2006	158,360	575
Forecast	2007	316,600	877
	2008	337,600	936
	2009	354,500	982
	2010	360,700	1,000
	2012	373,300	1,035
	2013	379,800	1,053
	2014	386,400	1,071
	2015	393,100	1,089
<u>Average Annual Growth Rates</u>			
	1990-2005	0.4%	0.4%
	2005-2015	7.0%	4.2%

Sources: NYSDOT; US DOT Schedule T100, *Official Airline Guide*; Landrum & Brown, analysis.

## X.2 Aircraft Operations

Peak month operations factors for SWF were developed primarily using the FAA Air Traffic Activity Data System (ATADS), DOT, T-100 data, and airline schedules published for commercial passenger activity in the OAG. August was selected as the month from which to develop peak month operations factors for the 2015 design day schedule. Passenger operations data were developed for air carrier and commuter based on assumptions related to aircraft gauge and passenger load factor.

Derivative forecasts by operations category for SWF are presented in **Table X-2**.

**Table X-2**  
**SWF PMAWD FORECASTS—AIRCRAFT OPERATIONS**

	Calendar Year	Air Carrier Operations	Commuter Operations	Commercial Passenger Operations
Actual	1990	11	7	18
	1995	30	32	62
	2000	8	41	49
Estimated	2005	4	33	37
	2006	8	21	29
Forecast	2007	10	17	27
	2008	14	17	31
	2009	14	17	31
	2010	14	17	31
	2011	14	17	31
	2012	14	17	31
	2013	15	17	32
	2014	15	17	32
	2015	15	17	32
	<u>Average Annual Growth Rates</u>			
	1990-2005	-6.6%	10.9%	4.8%
	2005-2015	14.1%	-6.2%	-1.2%

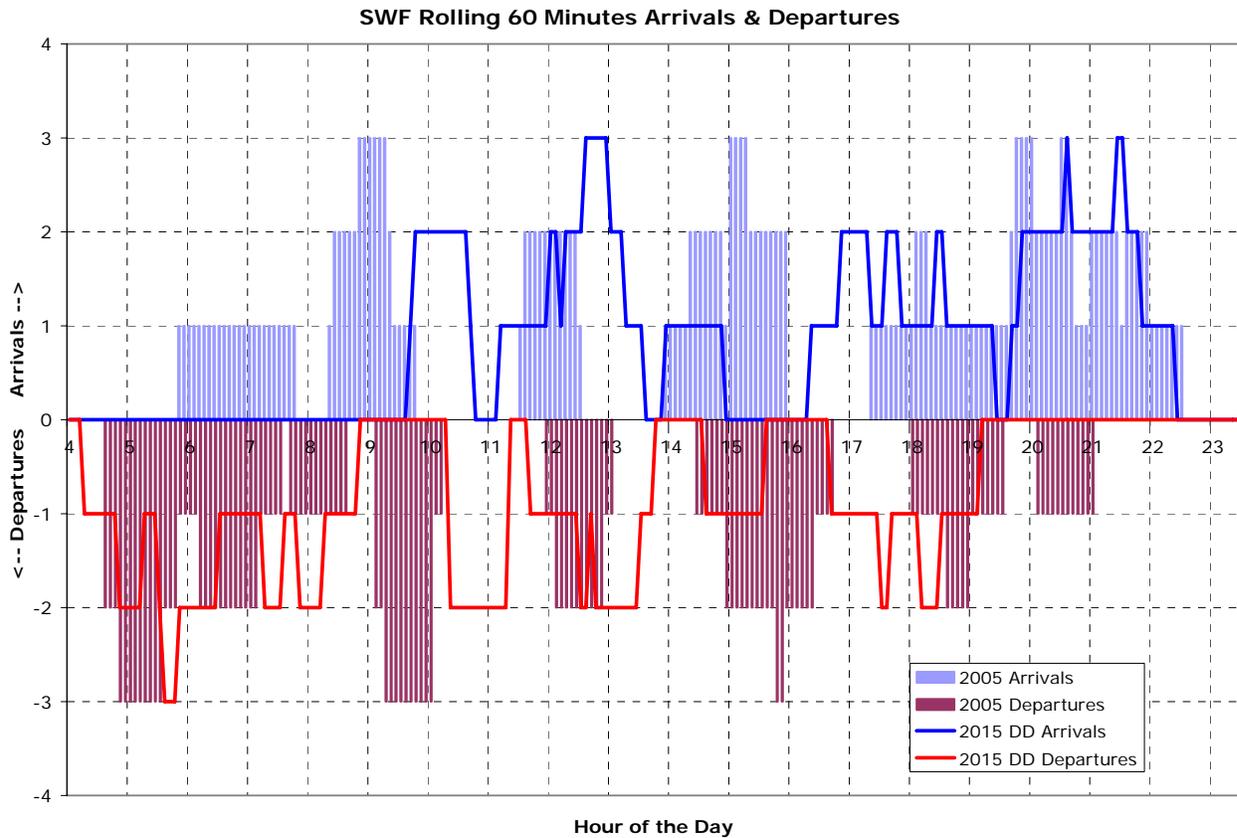
Sources: NYSDOT; US DOT Schedule T100, *Official Airline Guide*; Landrum & Brown, analysis.

At SWF, PMAWD operations are projected to decline in 2007 due to reduced commuter activity. Thereafter, PMAWD operations are expected to increase gradually driven by increased air carrier operations and reach 32 PMAWD operations by 2015.

For purposes of developing the design day schedule the aggregate forecasts were then broken down by airline and by aircraft type. A base airline schedule from August 2005, supplemented by schedules from 2006 and 2007, was used from which to develop the future 2015 design day schedule. The 2005 baseline and 2015

design day operations are presented in **Exhibits X-1** a “heart beat” chart showing aircraft operations by 5 minute bucket on a rolling 60 minute basis.

**Exhibit X-1  
 SWF DESIGN DAY AIRCRAFT OPERATIONS**



Sources: *Official Airline Guide* and Landrum & Brown analysis.