

A. DESCRIPTION OF FORECAST ELEMENTS

The forecast of aeronautical activity at the Sussex County Airport (GED) during the 20-year planning period (2002-2021) is a key element of the Master Plan process. The forecast establishes the basis for determining and planning the airfield infrastructure and facility requirements necessary to adequately serve the community's current and future general aviation (GA) needs. The foundation data for the GED forecast development was collected from local sources such as the County and the local fixed base operators, as well as from the Federal Aviation Administration (FAA) Terminal Area Forecast (TAF). The TAF is a nationwide forecast of aviation activity for individual airports that is updated annually. Aircraft fleet trend projections used in the forecast for GED were derived using the FAA Aerospace Forecast, 2002-2013, dated March 2002, and with consideration of local conditions that affect the fleet mix of aircraft operating at the airport. The Aerospace Forecast is updated annually and includes forecasted trend data for the national aircraft fleet, aircraft utilization and all levels of the pilot population. Additional sources for the forecast included the 1994 Airport Master Plan prepared for Sussex County, the Delaware Aviation System Plan Update (DASPU), Phase I Technical Report, published August 1996, and the Runway 10-28 Preliminary Study, dated March 1999. Guidance for the conduct of the forecast development is provided by FAA AC 150/5070-6A, Airport Master Plans, and Forecasting Aviation Activity by Airport, a report prepared for the FAA, dated July 2001.

As GED is a general aviation airport with no operating air traffic control tower, operational activity data is collected periodically by the fixed base operator (FBO) and observation based estimates. Calendar year 2000 was the last full year of data reported in the TAF without notation of revision due to the events of September 11, 2001, and as such, it is used as the most recent recorded activity. This base data was also compared to the operational counts reported on the most recent FAA Form 5010-1, Airport Master Record, dated November 1998.



The forecasted activity levels are formulated for the short (2002-2006), intermediate (2007-2011), and long range (2012-2021) planning periods and will be used in the next chapter to determine facility requirements. As this Master Plan Update presents long range planning horizons beyond those presented in FAA forecasts, the consultant has interpolated forecast levels for the out years. Growth figures from the FAA Long Range Aerospace Forecast FY 2015, 2020 and 2025 were considered in the development of the 2021 forecast, as this is the most reliable data available at the time of forecast preparation. The major forecast elements addressed in this chapter include:

Local Socioeconomic Factors – A community’s socioeconomic character affects its air traffic potential. Local activity that distinguishes the geographic area served by the airport from the aggregate conditions across the region is particularly important in forecasting general aviation activity. The size and composition of the area’s population, and its potential growth rate, are basic ingredients in creating the demand for air transportation services. The discretionary purchasing power available to residents over any given period of time is also a good indicator of consumers’ financial ability to travel by air.

General Aviation Forecast - The general aviation forecast provides projections of general aviation activity for based aircraft by type; local, itinerant and total operations; operations by aircraft type; and estimates of pilots and passengers.

Peak Period Demand - This forecast element provides peak month, peak hour, average day peak month of enplaned passengers and aircraft operations. These measures are critical to the sizing of future airport facilities.

Other Airport Activity Forecasts - Other airport activity forecasts include identifying the existing and future critical aircraft which use the airport on a regular basis. The critical aircraft is used to determine the airport reference code (ARC). In addition, a forecast of the annual volume of instrument approaches will be presented.



B. LOCAL SOCIOECONOMIC FACTORS

General aviation activity is largely determined by local population and income levels, the cost of flying, and the number of based aircraft at the local airport. Aviation activity levels result from the interaction of typical supply and demand factors. The demand for aviation is primarily a function of demographic and economic activity within the region the airport serves.

The population of Sussex County maintained an average annual growth rate of 3.8 percent from 1990 to 2000, a rate more than double that of the state of Delaware, and almost triple the national average for the same period. The county is second in the state in population with growth projected to continue at 3.0 percent annually throughout the planning period. The private non-farm employment in the County grew by 21.9 percent from 1990 to 2000, a significant trend given Sussex County is significantly distant from any major metropolitan area. The employment increase represented a rate 30 percent higher than the state.

Although per capita personal income growth remained below the state and national average, growth in total personal income is very near both the state and national averages. Median income for Sussex County increased 50 percent during the ten year period (1990-2000) to \$39,208. The county's population, income and employment are anticipated to maintain moderate growth throughout the 20-year planning period, and as such, are positive indicators for the continued increase in demand for aviation services at the airport.

A major corporate presence at the airport also represents a significant local socioeconomic impact. DeCrane Aircraft Holdings, Inc., a leading manufacturer of avionics components and systems integrator for the commercial and high-end corporate aircraft industry acquired the local Georgetown firm PATS, Inc. in 1999. PATS, Inc., designs, manufactures and installs auxiliary fuel tanks and other equipment for commercial and corporate jet aircraft. The company has an established customer base including Boeing, Bombardier, Leajet, Cessna, Raytheon and Lockheed Martin and a seven year contract with Boeing as an authorized maintenance facility. The Boeing contract involves the manufacture and installation of auxiliary fuel tanks for the Boeing Jet (BBJ). The new BBJ aircraft (a derivative of Boeing's next generation 737-700) are typically flown from Boeing's Seattle,



Washington assembly plant to the DeCrane/PATS installation facility at GED. DeCrane expanded their facilities at the Sussex County Airport during 2000 and 2001 by 40 percent, growing the size of the entire facility to 145,000 square feet. The facility can now accommodate up to five B-737 or B-727 aircraft simultaneously in its two hangars. DeCrane/PATS, Inc. employs approximately 170 at the GED facility and is continually pursuing additional opportunities to grow the facility and expand their specialized commercial and corporate jet services.

C. GENERAL AVIATION FORECAST

It is important to note the dramatic changes in the general aviation industry over the past 20 years when developing forecasts for the next 20 years. Although the large business aircraft sector of the general aviation industry has remained viable, issues of product liability in the early 1980s forced the cost of owning and operating a general aviation aircraft to steadily increase. The liability issue forced aircraft manufacturers to cease production of single engine and many light twin engine model aircraft. The passage of the General Aviation Revitalization Act of 1994 revived the industry with great success, including the creation of more than 250,000 new jobs, a 100 percent increase in GA aircraft production, a 150 percent increase in the research and development of general aviation aircraft and hundreds of thousands of new pilots. The large business sector remains strong, while the single and light twin market is once again showing signs of positive growth. This trend is projected to continue, assuming no extreme new regulation of general aviation aircraft and pilots result from the events of September 11, 2001, and assuming the economic recovery continues.

This section projects future growth based on key indicators of the strength of the local general aviation community. The general aviation forecasts determined in this section include:

- Based Aircraft by Type
- Annual Operations
- Local/Itinerant Operations
- Operations by Fleet Mix / Aircraft Type
- Pilots and Passengers



1. Based Aircraft by Type

The projected mix of based aircraft was generated to reflect national trends for general aviation, see **Tables 2-1 and 2-2**. FAA forecasts expect the general aviation aircraft fleet to increase at an average annual rate of 0.5 percent for the period 2002 through 2013. The fleet of turbine aircraft is expected to increase at a greater rate than that of piston aircraft, as a result of the dramatic growth in fractional ownership and a shift from commercial air travel to corporate/business air travel by many business travelers and corporations. Turbojet aircraft are projected to increase at 3.4 percent annually. The FAA forecast also expects total hours flown in the turboprop and turbojet aircraft segments to continue increasing throughout the planning period.

This trend is largely attributable to the number of aircraft being operated by fractional ownership providers. While the average corporate jet utilization is approximately 300 hours per year, it is estimated that utilization for fractional ownership aircraft is about three times as much. The Aerospace Forecast indicates that turbojet hours flown will increase at a significant rate (5.8 percent annually) from 2004 to 2008, a period anticipated to be very strong in the growth of fractional ownership and corporate flying.

Sussex County Airport's role in the national air transportation system as a general aviation (GA) airport has already made it a facility of choice for large turboprop and turbojet operators, and its location and service role ensure that it will meet or exceed average industry growth projections. Activity at the airport has increased as a result of increased restrictions on GA air traffic in the Washington, D.C. area. As a result, FAR Part 135 charter operators are positioning themselves at airports close to the metropolitan area to service the large corporate demand for executive transportation.

Concerns and delays associated with commercial flying will continue to push many business travelers and corporations to GA travel and/or fractional ownership. In addition, the Delaware Aviation System Plan Update noted in 1996 that many private airports serving the public air transportation needs in the state are coming under increasing pressure from land development options, diminishing returns on investment and increasing taxation, and as a result, the number of private airports in Delaware may decrease over the period 1995 to



2015, requiring the remaining public airports to accommodate the aircraft currently based at, and using, those airports.

A review of the FAA Form 5010-1, Airport Master Record, as filed for GED November 1998, indicated a based aircraft count of 33. This count was entered into the Terminal Area Forecast (TAF) database in 1999; however it represents a significant decrease from the 49 reported in the Delaware Aviation System Plan Update (DASPU) of 1996. Follow-up discussions with both local FBOs at GED, and site visits to the airport, indicate that the perceived decrease of based aircraft in the late 1990s did not actually occur. Changes were occurring in the ownership of the FBOs during 1998 and a miscommunication regarding the total based count for the airport may have resulted in the lower figure as recorded on the Master Record. Although no local records exist that document the annual based count for the period 1994 to 2002, it appears that the growth trend forecast by the prior GED Master Plan and the DASPU was achieved. Therefore, a based count of 52 aircraft, as forecast in both plans, is used as the base data for the current master plan forecast. Additionally, a based count of 55 aircraft, as provided by the local FBO's during June 2002, is used as the initial forecast figure in the current year. Please see Table 2-1 for a comparison of the forecasts aligned with the planning horizons of the current Master Plan effort.

As noted previously, both population and employment for Sussex County continue to grow at a rate significantly higher than the state. Moderate growth in median income levels as well should contribute to more operational activity, including training and a greater number of local pilots. The additional aeronautical services offered at the airport since 1998, the new GA terminal building, aircraft parking apron, and the County's commitment to developing the facility into a first class GA airport are all key indicator's of the airport's continued growth. Enhancements to the airfield currently under consideration by the County include reopening closed Runway 10-28 as the crosswind runway and the commitment to extend primary Runway 4-22 when the justification for such extension is documented.

The 1996 DASPU reported concern that private airports throughout Delaware may be forced to close due to pressures for alternative land development, diminished returns of investment and increasing taxation. GED should remain aware of this concern and anticipate the possibility of additional based aircraft and operations as a result of private airport closure



within the GED service area. As a result of these factors, the growth of based aircraft has been projected to be higher than the national average presented in the FAA Aerospace Forecast.

**Table 2-1
Sussex County Airport
Based Aircraft Forecast Comparison**

	<u>BASE</u>	<u>FORECAST</u>			
	2000	2002	2007	2012	2021
1994 Master Plan	52	53	56	58	64
1996 DASPU	52	53	55	57	59
2002 Master Plan	52	55	61	68	80
FAA TAF	33	33	33	33	33

Note: Figures were extrapolated from 1994 Master Plan and 1996 DASPU to match current planning horizons for purposes of comparison. FAA Form 5010-1 reported 33 based aircraft in November 1998. 2002 Forecast data based on actual inventory reported by FBOs during June 2002.

Source: GED Local FBO Records - 2002
GED Master Plan – 1994
FAA Terminal Area Forecast (TAF)
Delaware Aviation System Plan Update (DASPU) - 1996
Delta Airport Consultants, Inc. Analysis

In the forecasting process, the based aircraft fleet mix is used to determine operational fleet mix forecasts. Fleet mix type categories include: single engine, multi-engine piston, multi-engine turboprop, turbojet and rotorcraft. The fleet mix forecasting process typically involves the following steps:

- a. The existing based aircraft fleet mix is identified by FAA Form 5010-1, Airport Master Records, FBO records and/or visual observation;
- b. Growth rates for each aircraft type from the forecast of general aviation fleet mix for the United States is calculated;
- c. The fleet mix growth rates are applied to the based aircraft forecasts for each planning period and;
- d. Consideration of any special local factors that may increase or decrease the projections in total or by individual type category.

Using this method, the based aircraft fleet can be projected using national and regional trends of active aircraft fleet mix for comparison purposes. As noted previously, many special factors indicate that Sussex County will continue to substantially exceed the national growth



trend for based aircraft as it has in the past. A review of the 1994 Master Plan historical data indicates the GED based fleet has grown on average one additional aircraft per year since 1984. The forecast of based aircraft by type for the Sussex County Airport, over the 20 year planning period anticipates a similar trend and projects an average annual increase of 1.25 aircraft. Table 2-2 presents the based aircraft forecast figures.

**Table 2-2
Sussex County Airport
Forecast of Based Aircraft by Type**

YEAR	SINGLE ENGINE PISTON	MULTI- ENGINE PISTON	MULTI-ENGINE TURBO-PROP	TURBOJET	ROTOR CRAFT	TOTAL
Base 2000	45	3	2	1	1	52
Forecast						
2002	45	3	2	3	2	55
2007	47	3	4	5	2	61
2012	50	4	5	6	3	68
2021	57	4	7	9	4	80

Sources: GED Local FBO Records
 FAA Aerospace Forecast 2002-2013
 Delta Airport Consultants, Inc. Analysis

As reflected in the FAA Aerospace Forecast and the FAA Long Range Aerospace Forecasts, the most aggressive growth category is focused on the turboprop and turbojet aircraft. Sussex County Airport is realizing the full effect of the growing demand for business jet aircraft with the recent basing of two Hawker HS125-700/800 aircraft at the airfield. The aircraft are being used to support a FAR Part 135 charter operation that requires close proximity to the Washington D.C. executive travel market.

The FBO management indicates that itinerant business jet traffic continues to increase, noting that Fortune 500 companies such as Dean-Witter and Wal-Mart routinely use GED, as well as fractional industry leaders Flexjet and Execujet. The Sussex County Airport is also a popular arrival point for executive jets during the two annual NASCAR events at Dover, Delaware. The impact of the business jet activity on the operational forecasting for GED is significant and is discussed in greater detail later in this chapter with regard to defining the critical aircraft for the airport.



2. Annual Operations

An aircraft operation is defined as either a take-off or landing. A touch and go (landing and take-off without a full stop) is counted as two operations. This section quantifies total general aviation operations, while the next subsection identifies the share of total operations attributed to local and itinerant operations.

The forecast of general aviation operations was derived directly from the FAA Terminal Area Forecast (TAF), with the figure for the long range (2021) planning horizon being extrapolated based on the average annual growth rate provided by the FAA Long Range Aerospace Forecast FY 2015, 2020 and 2025. Comparisons were made between the TAF forecast operations and forecast data from the previous Master Plan and the DASPU. The results indicated minimal differences between the figures, and no extenuating local factors were identified that would produce activity levels less than, or greater than, the TAF. Given this finding, the TAF operational forecast was determined to be appropriate for this Master Plan update. **Table 2-3** presents a comparison of the forecast to the prior studies, as well as the TAF. **Table 2-4** presents the detail of aircraft operations as defined for general aviation, air taxi and military aircraft.



**Table 2-3
Sussex County Airport
Forecast of Aircraft Operations Comparison**

	2002	2007	2012	2021
1994 Master Plan	52,280	54,500	57,140	61,820
1996 DASPU	49,480	52,180	54,880	59,740
2002 Master Plan	47,124	50,498	53,872	60,881
FAA TAF	47,124	50,498	53,872	60,881

Note: Figures were extrapolated from 1994 Master Plan, 1996 DASPU and FAA TAF to match current planning horizons for purposes of comparison.

Source: GED Master Plan – 1994
 FAA Terminal Area Forecast (TAF)
 Delaware Aviation System Plan Update (DASPU) - 1996
 Delta Airport Consultants, Inc. Analysis

**Table 2-4
Sussex County Airport
Forecast of Aircraft Operations**

	BASE	FORECAST			
	2000	2002	2007	2012	2021
Total Operations	46,445	47,124	50,498	53,872	60,881
General Aviation	36,208	36,646	39,416	42,187	47,859
Air Taxi	5,237	5,478	6,082	6,685	8,022
Military	5,000	5,000	5,000	5,000	5,000

Sources: FAA Terminal Area Forecast (TAF)
 Delta Airport Consultants, Inc. Analysis

3. Local/Itinerant Operations

Aircraft operations are classified into two broad types: local and itinerant. A local operation is defined as a take-off or landing performed by an aircraft that:

- a. operates in the local traffic pattern or within sight of the airport;
- b. is known to be departing for, or arriving from, flights in a local practice area located within a 20-mile radius of the airport; or
- c. executes simulated instrument approaches or low passes at the airport.



Itinerant operations are defined as all aircraft operations other than local operations. The local/itinerant split is useful as one indicator in evaluating an airport's overall capacity. For instance, if there is a large percentage of local operations, this would typically indicate the airport has a significant level of training activity.

The local/itinerant division of GA operations for the Sussex County Airport is 60 percent (local)/40 percent (itinerant). This ratio is consistent with the FAA Terminal Area Forecast and the Delaware Aviation System Plan Update. A review of the FAA Form 5010-1, Airport Master Record, as filed for GED November 1998 indicated a local/itinerant ratio of 75 percent/25 percent. Follow up discussions with the FBO management noted that 40 percent itinerant traffic is much more representative of current activity and thus this figure is used for planning purposes. The ratio is expected to remain constant throughout the planning period. **Table 2-5** presents the local/itinerant operational counts for the planning period horizons. Air taxi operations, all of which are itinerant, are not subject to the ratio calculation.

Table 2-5
Sussex County Airport
Local/Itinerant Operations

	<u>BASE</u>	<u>FORECAST</u>			
	2000	2002	2007	2012	2021
Total Operations	46,445	47,124	50,498	53,872	60,881
Local Operations					
- general aviation	26,938	27,302	29,452	31,603	36,217
Itinerant Operations					
- general aviation	9,270	9,344	9,964	10,584	11,642
- air taxi	5,237	5,478	6,082	6,685	8,022
- military	5,000	5,000	5,000	5,000	5,000

Source: FAA Terminal Area Forecast (TAF)
 Delaware Aviation System Plan Update
 Delta Airport Consultants, Inc. Analysis

4. Operations by Fleet Mix / Aircraft Type

The FAA Aerospace Forecast 2002-2013 indicates a projected trend in operations toward a heavier, more sophisticated aircraft fleet, and the Long Range Aerospace Forecast, through



2025 anticipates this trend to continue throughout the planning period for GED. It is expected that future GA operations by aircraft type will generally reflect the based aircraft forecast, but include an increasing number of turboprop and turbojet operations. The GED forecasted operational fleet mix for general aviation aircraft was developed based on discussions with the local FBOs, observed conditions and an analysis of the 1994 Master Plan, the Delaware Aviation System Plan Update (DASPU), and the FAA Aerospace Forecast 2002-2013 Hours Flown projections. The 1994 Master Plan and DASPU forecast minimal change in the operational fleet mix over their respective forecast periods. A comparison of the allocated percentages by aircraft type for these two documents is presented in **Table 2-6**.

Table 2-6
Sussex County Airport
GA Operations by Aircraft Type – Distribution Comparison

	SINGLE ENGINE PISTON	MULTI- ENGINE PISTON	MULTI- ENGINE TURBO- PROP	BUSINESS JET	ROTOR CRAFT	TOTAL
1994 Master Plan	50%	15%	10%	10%	15%	100%
1996 DASPU	64%	23%*	*	11%	2%	100%

Note: *The DASPU figure of 23% represents all multi-engine aircraft; no allocation between piston and turboprop multi-engine aircraft. The DASPU figures represent averages of the trends forecast.

Sources: GED Master Plan – 1994
 Delaware Aviation System Plan Update (DASPU) - 1996
 Delta Airport Consultants, Inc. Analysis

Discussions with the local FBO, Georgetown Air Services, regarding the recent trends in the operational fleet mix indicates that both itinerant and based business jet activity is increasing. The introduction of a charter helicopter operator is also increasing rotorcraft operations. A key element in the recent growth is the introduction of two HS125 aircraft now based at GED for part 135 ops. Additionally, flight training services offered by FBO, American Aerospace, is contributing to increased local operations at the airport. With consideration of these factors, a base operational fleet mix was developed that is representative of the mix that exists today. The forecast mix was then developed for each horizon of the planning period based on the GA Hours Flown forecast from the FAA Aerospace Forecast, and the based aircraft forecast. **Table 2-7** presents the operational fleet mix forecast.



Table 2-7
Sussex County Airport
GA Operations by Aircraft Type – Distribution Comparison

	SINGLE ENGINE PISTON	MULTI- ENGINE PISTON	MULTI- ENGINE TURBO- PROP	BUSINESS JET	ROTOR CRAFT	TOTAL
Base						
2000	72%	9%	6%	5%	8%	100%
Forecast						
2002	70%	8%	7%	6%	9%	100%
2007	67%	7%	8%	8%	10%	100%
2012	65%	6%	9%	10%	10%	100%
2021	62%	5%	11%	12%	10%	100%

Source: GED Local FBO
 FAA Aerospace Forecast
 Delta Airport Consultants, Inc. Analysis

Table 2-8 illustrates the distribution of forecast operational activity given the aircraft type allocations noted above.

Table 2-8
Sussex County Airport
Operations by Aircraft Type

YEAR	SINGLE ENGINE PISTON	MULTI- ENGINE PISTON	MULTI- ENGINE TURBO- PROP	BUSINESS JET	ROTOR CRAFT	MILITARY	TOTAL
Base							
2000	29,840	3,730	2,487	2,072	3,316	5,000	46,445
Forecast							
2002	29,487	3,370	2,949	2,527	3,791	5,000	47,124
2007	30,483	3,185	3,640	3,640	4,550	5,000	50,498
2012	31,767	2,933	4,398	4,887	4,887	5,000	53,872
2021	34,646	2,794	6,147	6,706	5,588	5,000	60,881

Sources: FAA Terminal Area Forecast (TAF)
 FAA Aerospace Forecasts
 Delta Airport Consultants, Inc. Analysis



5. Pilots and Passengers

Forecasts of annual general aviation enplaned passengers play an important role in determining such landside facilities as the general aviation terminal building sizes and the amount of automobile parking areas required. This activity is often ignored due to the lack of historical data. To forecast general aviation enplaned passengers, an aircraft occupancy rate is typically multiplied by the number of departures from the airport. The Aircraft Owners and Pilots Association (AOPA) estimates that an average of 2.5 passengers per general aviation departure is a reasonable estimate of GA aircraft occupancy. For this study, this factor was applied to all forecast itinerant departures and 50 percent of local departures (to account for touch and go training that does not add to landside facility use) in order to tabulate a forecast of general aviation enplanements.

General aviation pilots and passengers include those traveling for corporate/business, charter, air taxi, and other transient departures except for any regularly scheduled commercial airline departures. **Table 2-9** presents the total number of pilots and passengers for the planning period.

Table 2-9
Sussex County Airport
Pilots and Passengers Forecast

YEAR	PERSONS/ GA FLIGHT	TOTAL DEPARTURES	ANNUAL PILOTS AND PASSENGERS
<u>Base</u> 2000	2.5	20,723	51,806
<u>Forecast</u>			
2002	2.5	21,062	52,655
2007	2.5	22,749	56,873
2012	2.5	24,436	61,090
2021	2.5	27,938	69,845

Sources: Delaware Aviation System Plan Update
Delta Airport Consultants, Inc. Analysis



D. PEAK PERIOD DEMAND

Peak period operations are a key element in evaluating facility requirements during periods of high demand. Peak operations drive the space and facility requirements required to meet forecasted demand. General aviation facility needs are related to peak period activity, and the most common and useful peaking characteristic of an airport is peak hour activity. Typically, non-towered general aviation airports do not keep consistent records of peak period activity. Thus, an industry standard accepted method of estimation is used to predict peak period activity that does not require a census of hourly operations totals. The following characteristics were used to determine peak period operations:

- ≅ Peak Month - Peak month operations are calculated assuming that the peak month is 10 percent busier than the average month ($\text{annual operations}/12 \times 110\%$).
- ≅ Average Peak Day - Average peak day operations are defined as the average day during the peak month. It is calculated by dividing the peak month by 30.
- ≅ Peak Hour - Peak hour operations represent the highest number of operations during the busiest hour of an average day during a peak month. Peak hour operations are assumed to be 15 percent of the average peak day.

Table 2-10 presents the forecasted peak period general aviation operations during the planning period.



**Table 2-10
Sussex County Airport
General Aviation Operations Peak Period Forecast**

YEAR	ANNUAL	PEAK MONTH	PEAK DAY	PEAK HOUR
<u>Base</u>				
2000	46,445	4,257	142	21
<u>Forecast</u>				
2002	47,124	4,320	144	22
2007	50,498	4,629	154	23
2012	53,872	4,938	165	25
2021	60,881	5,581	186	28

Notes: Figures do not include military operations.
Sources: Delaware Aviation System Plan Update
FAA Terminal Area Forecast (TAF)
FAA Aerospace Forecast 2002-2013
Delta Airport Consultants, Inc. Analysis

E. OTHER AIRPORT ACTIVITY FORECASTS

Other airport activity forecasts not previously described are presented in this section. Activity evaluated in this section includes defining the future critical aircraft utilizing each runway of the airport and projecting future annual instrument approaches.

1. Critical Aircraft

The determination of the future critical aircraft at Sussex County Airport will be useful to establish the airport reference code (ARC) for the airport. The critical aircraft is defined as the aircraft or family of aircraft with the largest wingspan and highest approach to landing speed that uses the airport on a regular basis. Regular basis is defined as more than 500 itinerant operations a year. In some cases, the critical aircraft may be two different aircraft where one aircraft establishes design criteria based on the largest wingspan and another establishes design criteria based on the highest approach to landing speed. For airports such as Sussex County that have a secondary runway, a critical aircraft is also determined for that



runway, to establish the design criteria required to serve the most critical aircraft forecast to use it on a regular basis.

As mentioned in Chapter One the critical aircraft for the airport and primary runway is currently the Cessna Citation II as defined in the 1994 Master Plan. The plan also noted the significant operational activity by larger aircraft at that time, and it has been determined that such activity has substantially increased since the last Master Plan. The critical family of aircraft for the Sussex County Airport during the current planning period (2002-2021) is the medium size business jet, similar to the Hawker HS125 and Gulfstream III type aircraft. These three aircraft all represent approach category ‘C’ aircraft and the total of their forecast operations represent approximately 50 percent of all forecast turbojet operations. More than half of the operations by these aircraft also represent Group II wingspan characteristics. An analysis of other business jet aircraft in the GED operational fleet such as the Citation V, Falcon 20 and Challenger 601 revealed that 65 percent of the total business jet fleet is comprised of aircraft with Group II or greater wingspan characteristics, including the Boeing Business Jet (ARC C-III).

Based on a sample of operational counts of jet aircraft provided by the local FBO, operations by the aircraft listed in **Table 2-11** below represent more than 95 percent of the current and forecast turbojet operations.

**Table 2-11
Sussex County Airport
Estimated Turbojet Operations - 2002**

AIRCRAFT	OPERATIONS	ARC
Citation II/V	700	B-I/II
Gulfstream III/IV	500	C-II/D-II
HS 125 – 700/800	400	C-I
Lear 55/35	300	C-I/D-I
Falcon 20	200	B-II
Boeing Business Jet (737-700)	130	C-III
Challenger 601	100	C-II
IAI Westwind 1124	100	C-I



Given the combined operational demand as presented above, the design criteria for the primary runway (Runway 4-22) is planned for ARC C-III.

The current secondary, or crosswind, runway (Runway 13-31) does not meet FAA design criteria for even the smallest wingspan and slowest approach speed; ARC classification, A-I.

A 1999 Runway 10-28 Preliminary Study examined reopening the currently closed runway due to the limited potential for lengthening Runway 13-31 from its current 2,330 foot length. The Study found that for unconstrained conditions, a crosswind runway at the Sussex County Airport should be designed to ARC B-II standards. The Study also found that Runway 10-28 reopened at a length of approximately 3,500 feet would serve approximately 25 percent of all operations at the airport. Based on the findings of the Study and the ARC B-II aircraft currently based and operating at the airport, the critical aircraft for the crosswind runway at GED is the family of larger turboprop aircraft such as the Beechcraft King Air C-90, Super King Air B-200 and the Cessna 400 series aircraft.

2. Instrument Approaches

An instrument approach is an approach to an airport utilizing aircraft instrumentation and navigational facilities when actual instrument meteorological conditions exist. The volume of instrument approaches at Sussex County Airport have been difficult to measure since the airport has no air traffic control tower that would typically record the approaches. Aircraft performing instrument flight procedures at the airport are under guidance from military air traffic control (ATC) personnel at Dover Air Force Base (AFB) Dover, Delaware. Representatives from Dover AFB were contacted regarding the number of annual approaches to GED, however the data available was extremely limited and was determined not to be a reliable base on which to forecast annual approaches.

The demand for instrument approaches has been estimated based on historical averages at other airports and similar conditions. It is estimated that instrument approaches will average



2.5 percent of annual operations. The forecast of instrument approaches is presented in **Table 2-12** for the planning period.

Table 2-12
Sussex County Airport
Instrument Approaches

	<u>BASE</u>	<u>FORECAST</u>			
	2000	2002	2007	2012	2021
Annual Operations	46,445	47,124	50,498	53,872	60,881
Instrument Approaches (2.5%)	1,161	1,178	1,262	1,347	1,522

Source: Delta Airport Consultants, Inc. Analysis

F. FORECAST SUMMARY

Local economic strength and socioeconomic growth potential are key indicators of future demand for general aviation activity. The population of Sussex County continues to grow at a rate significantly higher than the state and national averages. Employment and personal income have also continued to rise and are anticipated to maintain moderate growth throughout the 20-year planning period. These trends represent positive indicators for continued increase in demand for general aviation services at the Sussex County Airport.

The FBOs and specialty aeronautical service organizations (SASO) operating at GED serve a wide range of general aviation clients. The aircraft served range from helicopters and Cessna 150 type aircraft to the Boeing Business Jet (B737-700). The presence and growth potential of DeCrane Aircraft Holdings, Inc. with their multi-year contract as an authorized aircraft maintenance facility for Boeing Aircraft, give the airport exceptional potential for continued operational growth.

Table 2-13 presents a summary of the forecasts for Sussex County Airport over the 20-year planning period. These forecasts indicate that all aspects of aviation demand at the airport will continue to grow during the planning period. Therefore, ongoing development of facilities will enable the



airport to continue to accommodate the growth in aviation demand and contribute to the economic vitality of the service area.

**Table 2-13
Sussex County Airport
Forecast Summary**

FORECAST ELEMENT	<u>BASE</u>	<u>FORECAST YEARS</u>			
	2000	2002	2007	2012	2021
Total Based Aircraft	52	55	61	68	80
Single Engine	45	45	47	50	57
Multi-Piston	3	3	3	4	4
Multi-Turbine	2	2	4	5	7
Business Jet	1	3	5	6	9
Rotorcraft	1	2	2	3	4
Operations	46,445	47,124	50,498	53,872	60,881
GA Operations by Aircraft Type					
Single Engine	26,070	25,652	26,409	27,422	29,673
Multi-Piston	3,259	2,932	2,757	2,530	2,393
Multi-Turbine	2,172	2,565	3,154	3,797	5,264
Business Jet	1,810	2,199	3,154	4,219	5,743
Rotorcraft	2,897	3,298	3,942	4,219	4,786
Air Taxi Operations	5,237	5,478	6,082	6,685	8,022
Military Operations	5,000	5,000	5,000	5,000	5,000
Total Peak Hour Operations	21	22	23	25	28
Total Instrument Approaches	1,161	1,178	1,262	1,347	1,522
Total GA Pilots and Passengers	51,806	52,655	56,873	61,090	69,845

Sources: GED Local FBOs
 FAA Terminal Area Forecast (TAF)
 Delaware Aviation System Plan Update (DASPU)
 FAA Aerospace Forecast 2002-2013
 Delta Airport Consultants, Inc. Analysis

