

A. DESCRIPTION OF FORECAST ELEMENTS

The forecast of aeronautical activity at the Chesterfield County Airport (FCI) for the 20-year planning period (2008-2027) is a key element of the Master Plan Update process as it 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 FCI forecast development was collected from local sources such as the County of Chesterfield and the local fixed base operator, as well as from the Virginia Department of Aviation (DOAV) Virginia Air Transportation System Plan Update (VATSP), published in 2003. Additional sources for the forecast include the 1991 Airport Master Plan Update prepared for Chesterfield County, FAA Form 5010-1, Airport Master Record, dated March 2007, as well as 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 utilized in the forecast for FCI were derived using the VATSP, FAA Aerospace Forecast FY 2008-2025, and with consideration of local conditions that affect the fleet mix of aircraft operating at the airport. The FAA Aerospace Forecast is updated annually and includes forecasted trend data for the national aircraft fleet, aircraft utilization and all levels of the pilot population. FAA AC 150/5070-6B, *Airport Master Plans*, as well as *Forecasting Aviation Activity by Airport*, a report prepared for the FAA, dated July 2001 provide guidance for conducting forecast development for master plan studies.

Since FCI is a general aviation airport with no air traffic control tower, operational activity data is collected periodically by the fixed base operator (FBO) and observation based estimates. These base data were compared to the operational counts reported on the most recent FAA Form 5010-1, Airport Master Record, dated March 2007, the Federal Aviation Administration (FAA) Terminal Area Forecast (TAF) issued December 2007, and the 2008 DOAV Based Aircraft Summary Report.



The forecasted activity levels are formulated for the short (2008-2012), intermediate (2013-2017), and long range (2018-2027) planning periods and are used in the next chapter to determine facility requirements. Since 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 Forecasts FY 2020, 2025 and 2030 were considered in the development of the 2027 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, 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

Local population and income levels as well as the cost of flying largely determine general aviation activity including the number of based aircraft at an 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.

Census data indicated that the population of Chesterfield County experienced an average annual growth rate of 2.4 percent from 1990 to 2000, a rate higher than that of the state of Virginia for the same period. The 2000 Census reported that Chesterfield County was the fourth largest county in the Commonwealth of Virginia and contained approximately 4 percent of the State’s total population. Chesterfield County’s per capita personal income remained above both the Richmond Metropolitan area and state as reported in the County’s 2008 Chesterfield County Business Report while the County’s unemployment rate has remained consistently below the state and national rates. 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 summary of population projections for the county, state, and country are depicted in **Table 3-1**.

**Table 3-1
Chesterfield County Airport
Population Projections**

	2000	2010	2020	2030	% Change 2000-2030
United States	281,421,906	308,809,416	336,196,916	363,584,435	29.2%
Virginia	7,078,515	7,994,016	8,909,517	9,825,019	38.8%
Chesterfield County	259,903	317,800	370,704	426,104	63.9%

Sources: U.S. Census Bureau, Population Division Interim State Population Projections, 2005.
Chesterfield County Planning Department, January 2009.



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 occurs as the result of the events of September 11, 2001.

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 state trends for general aviation and was derived directly from the 2003 VATSP Update. The 2003 VATSP growth forecasts were applied to FCI data. Results indicate that the general aviation



aircraft fleet is anticipated to increase at average annual rates of 1.4 percent for the period 2005 through 2015 and 1.2 percent for the period 2015 through 2020.

In comparison, FAA forecasts expect the general aviation aircraft fleet to increase at an average annual rate of 1.4 percent for the period 2007 through 2025, excluding ultralight and newly manufactured light sport aircraft. 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 5.6 percent annually. The FAA forecast also expects total hours flown in the turbojet aircraft segment to increase by 7.7 percent annually throughout the planning period.

This trend is largely attributable to the number of aircraft being operated by fractional ownership providers. Fractional ownership providers maintain a fleet of aircraft, provide crew, and calculate the logistics of the flight for customers who purchase share in the aircraft equivalent to the hours of flying time per year. This system provides the owner with a flexible and convenient way to fly at a fraction of the cost of fully owning a GA aircraft. While the average corporate jet utilization is approximately 350 hours per year, it is estimated that utilization for fractional ownership aircraft is about 3.5 times as much.

Chesterfield County's role in the national air transportation system as a designated reliever airport for the Richmond International 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.

A review of the DOAV Based Aircraft Summary Reports from 2004 – 2009 are presented in **Table 3-2**. Reports filed for FCI in the planning base year 2008, indicated a based aircraft count of 130. This count is consistent with the FAA Terminal Area Forecast (TAF). Please see **Table 3-3** for a comparison of the forecasts aligned with the planning horizons of the current Master Plan effort.



**Table 3-2
Chesterfield County Airport
Historic Based Aircraft Summary**

Aircraft Type	2004	2005	2006	2007	2008	2009
Ultra-light	0	0	0	0	0	0
Glider	0	0	0	0	0	0
Single Engine	92	97	104	103	97	93
Multi-Engine Piston	22	21	22	14	18	17
Multi-Engine Turbo-Prop	10	6	7	7	3	6
Business Jet	7	7	8	9	7	10
Helicopter	2	2	3	4	4	4
Other	1	2	1	1	1	1
TOTAL	134	135	145	138	130	131

Source: DOAV Annual Based Aircraft Survey, Summary Report.

**Table 3-3
Chesterfield County Airport
Based Aircraft Forecast Comparison**

	BASE	FORECAST			
	2007	2008	2013	2018	2027
2003 VATSP ¹	131	132	135	138	144
FAA TAF	134	134	134	134	134
2008 Master Plan Update ²	130	130	137	143	155
Percent Difference (2008 MPU/TAF)	-3.1%	-3.1%	2.2%	6.3%	13.5%

Note: ¹ Figures were extrapolated from 2003 VATSP to match current planning horizons for purposes of comparison.

² 2007 figures from actual airport records reported to DOAV on January 23, 2008

Sources: FCI DOAV Based Aircraft Summary Report - FY 2007
Virginia Air Transportation System Plan Update (VATSP) - 2003
FAA Terminal Area Forecast (TAF)
Delta Airport Consultants, Inc. Analysis

As noted previously, both population and employment for Chesterfield County continue to grow at a rate significantly higher than the state. Growth in median income levels should also translate to increased operational activity and a greater number of local pilots.

The excellent aeronautical services offered at the Airport, the GA terminal building, the full service fixed base operator (FBO), and the County's continued commitment to developing the facility as a first class GA airport are all key indicator's of the airport's



potential for continued growth. Enhancements to the airfield currently under consideration by the County include the extension of Runway 15-33 as appropriate to serve the airport's critical aircraft, and will evaluate the viability of a parallel and/or crosswind runway.

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 is weighed.

Using this method, the based aircraft fleet can be projected using national and regional trends of active aircraft fleet mix for comparison purposes. The forecast of based aircraft by type for the Chesterfield County Airport, over the 20-year planning period, anticipates a trend similar to the national forecast. **Table 3-4** presents the based aircraft forecast figures.



Table 3-4
Chesterfield County Airport
Forecast of Based Aircraft by Type

YEAR	SINGLE ENGINE PISTON	MULTI- ENGINE PISTON	MULTI- ENGINE TURBO- PROP	TURBOJET	ROTORCRAFT	OTHER	TOTAL
Base							
2007	97	18	3	7	4	1	130
Forecast							
2008	91	18	5	10	5	1	130
2013	96	18	5	12	5	1	137
2018	100	18	5	14	5	1	143
2027	108	18	5	18	5	1	155

Sources: FCI 2008 Based Aircraft Summary Report as reported to DOAV January 2009.
 FAA Form 5010-1, Airport Master Record - March 2007
 Virginia Air Transportation System Plan Update (VATSP) - 2003
 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. Chesterfield County Airport is realizing the full effect of the growing demand for business jet aircraft. As noted in Table 3-2 previously, based turbojet aircraft are forecast to double during the 20-year planning period.

The FBO management indicates that itinerant business jet traffic continues to increase, noting that major corporate aircraft owners routinely use FCI. The impact of the business jet activity on the operational forecasting for FCI 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 2003 VATSP Update and FAA Form 5010-1, Airport Master Record, dated March 2008. Comparisons were made between the VATSP forecast operations and forecast data from the FAA Terminal Area Forecast (TAF). **Table 3-5** presents a comparison of the forecast to the VATSP update, as well as the TAF. **Table 3-6** presents the detail of aircraft operations as defined for general aviation, air taxi, and military aircraft.

FAA Long Range Aerospace Forecasts expect the general aviation aircraft fleet to increase at an average annual rate of 1.3 percent for the period 2005 through 2030. The forecast of general aviation operations for the Chesterfield County Airport, over the 20 year planning period, anticipates a trend similar to the national forecast.

Table 3-5
Chesterfield County Airport
Comparison of Forecasted Aircraft Operations & Percent Average Annual Growth Rate

	BASE			FORECAST					
	2007	2008	%	2013	%	2018	%	2027	%
2003 VATSP	56,348	57,124	1.4%	61,004	1.3%	65,036	1.3%	72,949	1.3%
FAA TAF	82,500	82,500	0.0%	82,500	0.0%	82,500	0.0%	82,500	0.0%
2008 Master Plan Update	82,500	83,597	1.3%	89,306	1.3%	95,218	1.3%	106,860	1.3%
Percent Difference (2008 MPU/TAF)	0%	1%		8%		13%		23%	

Note: Figures were extrapolated from 2003 VATSP to match current planning horizons for purposes of comparison. 2008 Master Plan Update data was developed using 5010-1 base data and applying VATSP growth rate.

Sources: Virginia Air Transportation System Plan Update (VATSP) - 2003
 FAA Form 5010-1, Airport Master Record - March 2007



Table 3-6
Chesterfield County Airport
Forecast of Aircraft Operations & Percent Average Annual Growth Rate

	BASE			FORECAST					
	2007	2008	%	2013	%	2018	%	2027	%
Total Operations	82,500	83,597	1.3%	89,306	1.3%	95,218	1.3%	106,860	1.3%
General Aviation ¹	81,500	82,597	1.3%	88,196	1.3%	93,988	1.3%	105,330	1.3%
Air Taxi ²	750	750	0.0%	860	2.7%	980	2.7%	1,280	2.7%
Military	250	250	0.0%	250	0.0%	250	0.0%	250	0.0%

Note: ¹ Growth rates were interpolated from 2003 VATSP
² Growth rate source: FAA Long Range Forecast (2008 - 2025)

Sources: Virginia Air Transportation System Plan Update (VATSP) - 2003
FAA Form 5010-1, Airport Master Record - March 2007

A review of operations per based aircraft (OPBA) at the forecast milestones is also helpful in understanding the anticipated growth rate. **Table 3-7** provides the OPBA during the planning period which represents an annual growth rate of approximately 0.3 percent.

Table 3-7
Chesterfield County Airport
Operations Per Based Aircraft (OPBA)

	2008	2013	2018	2027
Total Operations	83,597	89,306	95,218	106,860
Total Based Aircraft	130	137	143	155
OPBA	643	652	666	689

Source: 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 are a large percentage of local operations, this would typically indicate the airport has a significant level of training activity.

The local/itinerant division of total operations for the Chesterfield County Airport based on FAA Form 5010-1, Airport Master Record, as filed for FCI March 2007 is 84 percent (local)/16 percent (itinerant). This ratio is consistent with the FAA Terminal Area Forecast. The ratio is expected to remain constant throughout the planning period.

Table 3-8 presents the local/itinerant operational counts for the planning period horizons. With Air taxi and military operations withdrawn from the equation, all of which are itinerant, the ratio for GA operations alone is 15 percent local and 85 percent itinerant.

Table 3-8
Chesterfield County Airport
Local/Itinerant Operations

	BASE			FORECAST					
	2007	2008	%	2013	%	2018	%	2027	%
Total Operations ¹	82,500	83,597	1.3%	89,306	1.3%	95,218	1.3%	106,860	1.3%
Local Operations									
- general aviation	33,000	33,439	1.3%	35,722	1.3%	38,087	1.3%	42,744	1.3%
Itinerant Operations									
- general aviation	48,500	49,158	1.4%	52,474	1.3%	55,901	1.3%	62,586	1.3%
- air taxi	750	750	0.0%	860	2.7%	980	2.7%	1,280	2.7%
- military	250	250	0.0%	250	0.0%	250	0.0%	250	0.0%

Note: ¹ Growth rates were interpolated from 2003 VATSP

Sources: Virginia Air Transportation System Plan Update (VATSP) - 2003
 FAA Long-Range Aerospace Forecasts FY 2020, 2025, 2030



4. Operations by Fleet Mix / Aircraft Type

The FAA Aerospace Forecast 2008-2025 indicates a projected trend in operations toward a heavier, more sophisticated aircraft fleet, and the Long Range Aerospace Forecast, through 2030 anticipates this trend to continue throughout the planning period for FCI. 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 FCI forecasted operational fleet mix for general aviation aircraft was developed based on discussions with the airport, observed conditions, and an analysis of the 2003 VATSP Update.

Discussions with the airport regarding the recent trends in the operational fleet mix indicate that both itinerant and based business jet activity is increasing. Additionally, flight training services offered by Heart of Virginia Aviation, 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 using the operations forecast from the 2003 VATSP Update. **Table 3-9** presents the operational fleet mix forecast, inclusive of air taxi and military operations.



Table 3-9
Chesterfield County Airport
Operations by Aircraft Type - Distribution Comparison

YEAR	SINGLE ENGINE PISTON	MULTI- ENGINE PISTON	MULTI-ENGINE TURBO-PROP	TURBOJET	ROTORCRAFT	TOTAL
Base						
2007	68%	9%	7%	12%	4%	100%
Forecast						
2008	68%	9%	7%	12%	4%	100%
2013	68%	9%	7%	12%	4%	100%
2018	67%	9%	7%	13%	4%	100%
2027	67%	9%	7%	13%	4%	100%

Note: Includes Air Taxi & Military

Sources: Virginia Air Transportation System Plan Update (VATSP) - 2003
Delta Airport Consultants, Inc. Analysis

Table 3-10 illustrates the distribution of forecast operational activity given the aircraft type allocations noted above.

Table 3-10
Chesterfield County Airport
Operations by Aircraft Type

YEAR	SINGLE ENGINE PISTON	MULTI- ENGINE PISTON	MULTI-ENGINE TURBO-PROP	TURBOJET	ROTORCRAFT	TOTAL
Base						
2007	55,930	7,402	5,758	9,870	3,540	82,500
Forecast						
2008	56,676	7,501	5,834	10,002	3,584	83,597
2013	60,558	8,015	6,234	10,687	3,812	89,306
2018	63,628	8,547	6,648	12,346	4,049	95,218
2027	71,429	9,595	7,463	13,859	4,514	106,860

Note: Figures include military operations as rotorcraft

Sources: FAA Form 5010-1, Airport Master Record - March 2007
Virginia Air Transportation System Plan Update (VATSP) - 2003
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 size and the amount of automobile parking areas. 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 3-11** presents the total number of pilots and passengers for the planning period.

Table 3-11
Chesterfield County Airport
Pilots and Passengers Forecast

YEAR	PERSONS/ GA FLIGHT	TOTAL DEPARTURES	ANNUAL PILOTS AND PASSENGERS
Base			
2007	2.5	41,125	102,813
Forecast			
2008	2.5	41,674	104,185
2013	2.5	44,528	111,320
2018	2.5	47,484	118,710
2027	2.5	53,305	133,263

Note: Figures do not include military operations

Sources: 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 methodology for estimation is used to predict peak period activity that does not require a census of hourly operations totals and includes the following steps:

- Peak Month - Peak month operations are calculated assuming that the peak month is 10 percent busier than the average month (annual operations/12 x 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 3-12 presents the forecasted peak period general aviation operations during the planning period.



Table 3-12
Chesterfield County Airport
General Aviation Operations Peak Period Forecast

YEAR	ANNUAL	PEAK MONTH	PEAK DAY	PEAK HOUR
Base				
2007	82,500	7,563	252	38
Forecast				
2008	83,597	7,663	255	38
2013	89,306	8,186	273	41
2018	95,218	8,728	291	44
2027	106,860	9,796	327	49

Sources: FAA Form 5010-1, Airport Master Record - March 2007
 Virginia Air Transportation System Plan Update (VATSP) - 2003
 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 Chesterfield 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. The FAA defines regular basis 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.



The first step in identifying the critical aircraft is to review the aircraft currently based at the airport. **Table 3-13** lists the based turboprop and turbojet aircraft at the Chesterfield County Airport.

Table 3-13
Chesterfield County Airport
Based Turbojet Aircraft (2008)

AIRCRAFT	QUANTITY
Cessna Citation 501/525/550/560	6
British Aerospace BAe125 800	1
Canadair Challenger 600	1
Beech Premier	1
Raytheon Hawker 800XP	1

Source: FCI Local Records – 2008

The growing itinerant traffic and diversity of business jets that FCI now receives however requires a broader analysis of the operational requirements for those aircraft. As mentioned in Chapter One, the critical family of aircraft for the Chesterfield County Airport during the current planning period (2008-2027) is the medium business jet, similar to the Challenger 604 and Hawker 800 type aircraft. Aircraft such as the Challenger 604 and Hawker 800 represent approach category ‘C’ aircraft and comprise approximately 10,000 of the current and forecasted annual operations. An analysis of other business jet aircraft in the FCI operational fleet revealed that more than 50 percent of the total business jet operations involve aircraft with Group II or greater wingspan characteristics, including the Citation Sovereign and the Gulfstream IV.

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 Chesterfield County Airport has 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 the Potomac Terminal Radar Approach Control (TRACON) located in Manassas, Virginia.

Due to the lack of reliable historical data regarding FCI instrument approach procedures, 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 3-14** for each planning horizon.

Table 3-14
Chesterfield County Airport
Instrument Approaches

	BASE	FORECAST			
	2007	2008	2013	2018	2027
Annual Operations	82,500	83,597	89,306	95,218	106,860
Instrument Approaches (2.5%)	2,063	2,090	2,233	2,380	2,672

Source: Virginia Air Transportation System Plan Update (VATSP) - 2003
 FAA Long-Range Aerospace Forecasts FY 2020, 2025, 2030
 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 Chesterfield County continues to grow at a rate higher than the Commonwealth of Virginia. Employment and personal income have also remained above the state and are anticipated to maintain moderate growth trends throughout the 20-year planning period. These trends represent positive indicators for continued increase in demand for general aviation services at the Chesterfield County Airport.



The FBO at FCI serves a wide range of general aviation clients ranging from helicopters and Cessna 150 type aircraft to the Gulfstream G-V. **Table 3-15** presents a summary of the forecasts for Chesterfield 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 3-15
Chesterfield County Airport
Forecast Summary

FORECAST ELEMENT	BASE		FORECAST YEARS			AVERAGE ANNUAL COMPOUND GROWTH RATES			
	2007	2008	2013	2018	2027	2008 ³	2013	2018	2027
Total Based Aircraft¹	130	130	137	143	155	0.0%	1.1%	0.9%	0.9%
Single Engine Piston	97	91	96	100	108	-6.2%	1.1%	0.8%	0.9%
Multi-Engine Piston	18	18	18	18	18	0.0%	0.0%	0.0%	0.0%
Multi-Engine Turbo-Prop	3	5	5	5	5	66.7%	0.0%	0.0%	0.0%
TurboJet	7	10	12	14	18	42.9%	3.7%	3.1%	2.8%
Rotorcraft	4	5	5	5	5	25.0%	0.0%	0.0%	0.0%
Other	1	1	1	1	1	0.0%	0.0%	0.0%	0.0%
Operations	82,500	83,597	89,306	95,218	106,860	1.3%	1.3%	1.3%	1.3%
Local ⁴	33,000	33,439	35,722	38,087	42,744	1.3%	1.3%	1.3%	1.3%
Itinerant	49,500	50,158	53,584	57,131	64,116	1.3%	1.3%	1.3%	1.3%
Operations by Aircraft Type (GA & Air Taxi)	82,250	83,347	89,056	94,969	106,610	1.3%	1.3%	1.3%	1.3%
Single Engine Piston	55,930	56,676	60,558	63,628	71,429	1.3%	1.3%	1.0%	1.3%
Multi-Engine Piston	7,402	7,501	8,015	8,547	9,595	1.3%	1.3%	1.3%	1.3%
Multi-Engine Turbo-Prop	5,758	5,834	6,234	6,648	7,463	1.3%	1.3%	1.3%	1.3%
TurboJet	9,870	10,002	10,687	12,346	13,859	1.3%	1.3%	2.9%	1.3%
Rotorcraft	3,290	3,334	3,562	3,800	4,264	1.3%	1.3%	1.3%	1.3%
Military Operations	250	250	250	250	250	0.0%	0.0%	0.0%	0.0%
Total Peak Hour Operations	38	38	41	44	49	0.0%	1.5%	1.4%	1.2%
Total Instrument Approaches	2,063	2,090	2,233	2,380	2,672	1.3%	1.3%	1.3%	1.3%
Total GA Pilots & Passengers	102,813	104,185	111,320	118,710	133,263	1.3%	1.3%	1.3%	1.3%

Note: ¹ Source for based aircraft data is airport records; growth rates 2013 and beyond are from VATSP.

² Source for operations base data is 5010-1 dated March 2007 with growth rates from VATSP.

³ Actual survey data from airport records and resulting growth rate, January 2009.

⁴ Based on average flight training hours provided by Dominion Aviation Services, February 2009.

Sources: FCI 2008 Based Aircraft Summary Report as reported to DOAV January 2009

