APPENDIX C
AVIATION ACTIVITY FORECAST

This appendix includes the forecast of aviation activity for Gnoss Field Airport that was prepared for the Environmental Impact Statement and Environmental Impact Report. The FAA approved this aviation forecast on September 18, 2009, with comments to incorporate additional information into the final version. That additional information is included in this EIS.

Since the publication of the Draft EIS and Draft EIR, several editorial correction and clarifications to Appendix C have been identified. These are included in this final document and are identified by footnotes.

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U.S. Department of Transportation
Federal Aviation Administration

Western-Pacific Region
Airports Division

San Francisco Airports District Office
831 Mitten Road, Room 210
Burlingame, CA 94010

September 18, 2009

Mr. Ken Robins
Airport Manager
Novato/Gnoss Field Airport
Marin County Public Works
P.O. Box 4186
San Raphael, California 94913

Subject: Novato/ Gnoss Field Airport
Aviation Activity Forecast

Dear Mr. Robbins:

The Federal Aviation Administration (FAA) has completed the review of the Draft Gnoss Field Airport Aviation Forecast report. The FAA agrees with the forecast data used for the preparation of this report and concurs with the analysis of the Bay Area airports, historical trends, based aircraft, aircraft operations, and aircraft mix. The FAA also concurs with the projected growth rate for the 20-year period. The FAA finds these forecasts acceptable for the preparation of the airport's environmental document.

The FAA would like to offer the following comments for the final version of this forecast report:

1- Some reference to the current economic conditions (i.e., "The Great Recession") would be valuable for a more balanced assessment of both local and national trends.
2- The discussion of "Fleet Diversification" may be enhanced with more details about the difficulties of the Very Light Jets (VLJs) operations at GA airports.
3- The Average Annual Growth Rates (Table 4 – Aircraft Operations Forecast) appear to have an unusually high growth level beginning at 2017. This sudden growth rate in the later years should be verified.

If you have any further questions please contact me at (650) 876-2778. Ext. 611.

Sincerely,

Elisha Novak

Elisha Novak, Ph.D.
Airport Planner

Enclosure
CC: Mr. Rob Adams, Landrum & Brown

AVIATION ACTIVITY FORECAST

1. PURPOSE AND CONTEXT

This report presents the forecast of aviation demand for Gnoss Field Airport (DVO or Airport). DVO exclusively serves general aviation (GA) and air taxi activity and does not have any scheduled commercial passenger air service. The term "general aviation" refers to any aircraft not operated by the commercial airlines (passenger or cargo) or the military. Typical GA activity includes recreational and flight training activities, business travel, news reporting, traffic observation, environmental surveys, police patrol, emergency medical evacuation, and crop dusting aircraft. Air taxi activity typically includes "for hire" aircraft chartered for specific trips on an on-demand basis. Air taxi operations are usually made up of larger GA aircraft, such as large turboprop aircraft and an array of corporate jets. DVO is classified as a "Reliever Airport" by the FAA. The reliever designation is applied to "high capacity general aviation airports in metropolitan areas."[1]

Aviation demand forecasts were developed to provide an updated analysis of historical activity at the airport and to develop a basis for forecasting future activity levels. The forecast presented in this report is "unconstrained" and as such does not take facility constraints or other outside limiting factors into consideration. In other words, for purposes of estimating future demand, the forecast assumes facilities can be provided to meet the demand.

The baseline year for this forecast is 2008. Annual operations forecasts, aircraft fleet mix forecasts, and based aircraft forecasts are presented through 2027.

2. HISTORICAL NATIONAL TRENDS

Understanding the history and current state of the air taxi/GA industry can help predict future aviation demand. This section discusses nationwide historical, emerging, and forecast trends in air taxi and GA activity.

There have been two official economic recessions in the U.S. thus far in the 21st century. The first occurred between March and November 2001 and was compounded by the September 11, 2001 terrorist attacks. The deleterious impact of these events on the airline industry is well documented. The recession itself was short-lived by historical standards and the economy returned to more normal growth rates quite quickly, fueled in large part by a gradual but prolonged reduction in interest rates. By 2007, the economy had begun to slow again and currently finds itself in the midst of the worst financial crisis to affect the United States since the Great Depression. According to the National Bureau of Economic Research, the U.S. has been in this current recession since December of 2007. The U.S. and other industrialized western countries are faced with an increasing credit crisis. According to the U.S. Department of Commerce Bureau of Economic Analysis, U.S. real GDP declined by 1.7 percent in 2009 before returning to positive growth in

[1] FAA National Plan of Integrated Airport Systems (NPIAS), 2009-2013

2010. Annual growth is then expected to reach 3.4 to 3.9 percent in 2011 before slowing down to between 2.5 and 2.8 percent annual growth in the long-term.

For the local economy, the general conclusion of the analysis of the socioeconomic indicators is that Marin County is well positioned to experience future economic expansion. Over the long-term, it is anticipated that growth in income and employment will be at 1.9 percent and 1.8 percent per year between 2005 and 2030 albeit a slower rates than projected growth for population (0.3 percent per year over the same period).[2] The projected growth rates for income and employment of Marin County are higher the State levels. This is largely indicative of the continued maturation of the local economy.

2.1 U.S. HISTORICAL ACTIVITY LEVELS

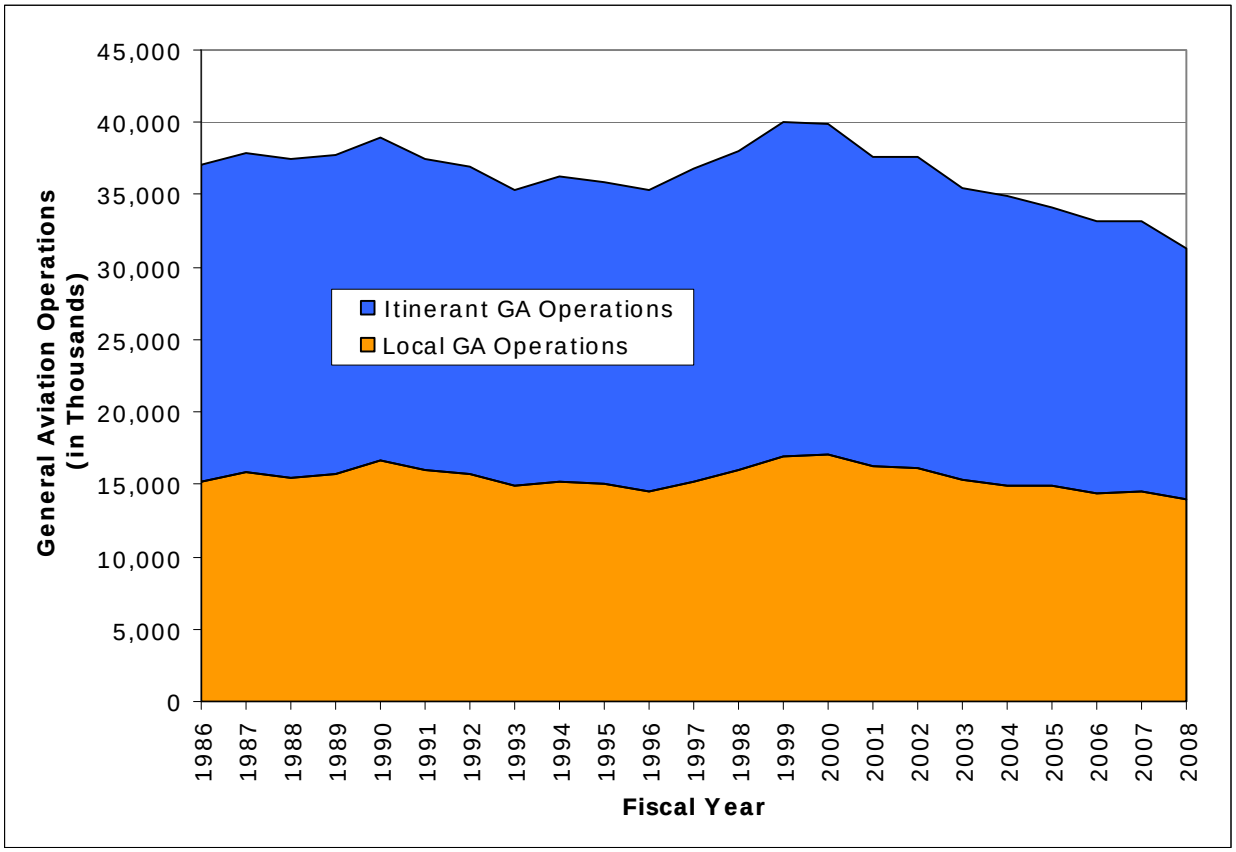
The GA industry in the U.S. has experienced major changes over the last 30 years. GA activity levels were at their highest in the late 1970s through 1981. GA activity levels and new aircraft production reached all-time lows in the early 1990s due to a number of factors including increasing fuel prices, increased product liability stemming from litigation concerns, and the resulting higher cost of new aircraft. The passage of the 1994 General Aviation Revitalization Act (GARA)[3] combined with reduced new aircraft prices, lower fuel prices, resumed production of single-engine aircraft, continued strength in the production and sale of business jets, and a recovered economy led to growth in the GA industry in the later half of the 1990s (see **Figure 1**).[4]

[2] Woods & Poole Economics 2007

[3] GARA imposes an 18-year statute of repose on product liability lawsuits for general aviation aircraft.

[4] Based on information from the General Aviation Manufacturers Association (GAMA).

Figure 1
U.S. GENERAL AVIATION OPERATIONS



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Note: Represents operations at U.S. airports with Air Traffic Control Service.

Sources: FAA Aviation Forecasts, Fiscal Years 1991-2002 and 1995-2006; FAA Aerospace Forecasts, Fiscal Years 2009-2025; FAA Air Traffic Activity Data System (ATADS); Landrum & Brown analysis

The rebound in the U.S. GA industry that began with GARA started to subside by Fiscal Year (FY) 2000. GA traffic at airports with air traffic control service slowed considerably in FY 2001 due largely to a U.S. economic recession and to some extent the terrorist attacks of September 11, 2001. GA traffic at airports with air traffic control service continued to decline through FY 2006 as spikes in fuel costs occurred and the economy grew at a relatively even pace. For the first time since FY 1999, GA traffic at airports with air traffic control service increased in FY 2007, but just slightly (0.04 percent over FY 2006).

The FAA subdivides GA operations into two major subcategories: "itinerant" and "local" based on FAA classifications. Local operations are defined by the FAA as "operations remaining in the local traffic pattern, simulated instrument approaches at the airport…and operations to or from the airport and a practice area within a 20-mile radius of the tower."[5] Itinerant operations are all operations not classified

[5] FAA Order 7210.3, Facility Operation and Administration, Section 2, Airport Operations Count

as "local." Local operations have been fairly flat over the last 30 years while itinerant operations have been most impacted by the industry changes discussed in this section.

2.2 FAA NATIONAL FORECAST

The FAA annually publishes forecasts of the U.S. aviation industry. The FAA forecast is considered to be one of the most complete and reliable forecasts available for civil activity in the U.S. In fact, the General Aviation Manufacturers Association (GAMA) *2007 General Aviation Statistical Databook & Industry Outlook* uses the FAA Aerospace Forecasts for its projections. The FAA forecasts[6] project the following trends in the U.S. GA industry from 2011 to 2031:

- The number of active GA aircraft is forecast to increase by 0.9 percent annually.
- Growth of 2.2 percent per annum is expected in the number of GA hours flown.
- The number of student pilots is expected to increase at a rate of 0.1 percent annually through 2031.
- GA operations at airports with air traffic control service are forecast to increase by 1.0 percent annually through 2025.
- Business use of GA aircraft has experienced historically high growth rates and will continue to grow more rapidly than recreational use.
- The downturn in the economy in 2008 and 2009 dampened the near-term prospects for the general aviation industry, but the long-term outlook remains favorable.

2.3 EMERGING AIRCRAFT OWNERSHIP TRENDS

The concept of purchasing hours of jet time began to emerge in the 1990s with the fractional ownership of business jets gaining popularity. Fractional ownership, as it suggests, involves purchasing a share in a GA aircraft. The user also typically pays an hourly usage fee and a monthly management fee. Companies such as NetJets, FlexJet, Citation Shares, and others provide these types of services. The fractional ownership concept began with jets but has also begun to expand to all types of aircraft including single-engine piston aircraft. Fractional ownership has significantly contributed to the revitalization of the GA manufacturing industry in the 21st century. For example, NetJets alone has purchased hundreds of corporate jet aircraft of varying sizes ranging up to the Boeing BBJ (typically a derivative of the Boeing 737 aircraft). Projected increases in fractional ownership activity levels are a large part of the FAA's projected growth in GA operations through 2025.

2.4 FLEET DIVERSIFICATION

A new category of personal jets, Very Light Jets (VLJs), has been introduced to the GA market in the 21st century. These jets are aimed chiefly at owners of twin-

[6] *FAA Aerospace Forecast, Fiscal Years 2011-2031*

engine piston and turboprop aircraft. They are smaller than traditional entry-level jets, and achieve high performance at significantly lower ownership and operating costs. The cost for a VLJ is highly competitive with a number of twin-engine piston aircraft types and the more popular turboprop GA aircraft. A VLJ is defined as a small jet that seats 4 to 8 people, is certified for single-pilot operation, and has a maximum takeoff weight of less than 10,000 pounds.

Initially, some aviation analysts believed the VLJs could lead to more travelers choosing GA over commercial air travel, particularly if delays at major airports lead to significant increases in missed flight connections, increased travel times, lost productivity, and cancelled flights. As a result, the 2008 FAA Aerospace Forecasts predicted a delivery rate of 400 to 500 VLJs per year to reach around 8,145 active aircraft by 2025. However, one of the major manufacturers of VLJs, Eclipse Aviation, declared bankruptcy in 2008 and DayJet (one of the largest users of VLJs) ceased VLJ operations in 2008. VLJ deliveries reached only 282 in 2008. There are a few challenges in operating VLJs at a GA airport. First, the timing for launching VLJ business is unfortunate. Like other types of air travel businesses, the demand for VLJ operations is significantly impacted by the economic recession. Second, the nature of the VLJ business being an on-demand scheduling is difficult to manage. Lastly, the impact on the environment of VLJ operations could also lead to government user fees and surcharges.[7]

Current FAA projections for VLJs are for up to 440 entering the fleet over the next three years and an average of 216 aircraft a year over the next twenty years.[8] However, it is important to note that at this point, the sole manufacturer of VLJ aircraft has filed for bankruptcy, which may have a negative effect on the actual number of aircraft delivered.

While VLJs are at the small end of the aircraft spectrum, new versions of corporate jets have also entered at the large aircraft spectrum, expanding the range of options available to users. It will be important to consider the requirements of these aircraft in future planning.

2.5 FUEL PRICES

Fuel prices increased to record highs over a 4-year period ending in the summer of 2008. Decreased demand and the worldwide recession led to fuel prices subsequently dropping in the 4th quarter of 2008. Changes in fuel prices impact the economic relationships between modes of transportation and the price differentials between different segments of the aviation market. Although fuel prices are a major problem for the commercial airlines, corporate GA users are relatively less sensitive to changes in fuel prices. Given the cost to own and operate a corporate aircraft or to charter a business jet, the incremental cost of fuel is typically a secondary consideration. Conversely, fuel prices have in many cases reduced recreational flying.

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7 *Marketing Very Light Jets in a Turbulent Economy*, Clair L. Comm, University of Massachusetts Lowell, September 2008.

8 *FAA Aerospace Forecast, Fiscal Years 2009-2025*

3. SAN FRANCISCO BAY AREA AIRPORTS

There are six other airports serving GA activity that have similar characteristics as DVO and are located within a reasonable driving distance of DVO: Sonoma Valley Airport (0Q3), Petaluma Municipal Airport (O69), Napa County Airport (APC), Half Moon Bay (HAF), Charles M. Schulz-Sonoma County Airport (STS), and San Rafael Airport (CA35). **Table 1** summarizes the major facilities and key aviation activity characteristics of each of the aforementioned airports as compared to Gnoss Field Airport.

Table 1
GENERAL AVIATION AIRPORTS IN THE VICINITY OF DVO
Gnoss Field Airport

Airport Name		Gnoss Field	Sonoma Valley	Petaluma Municipal	Napa County	Half Moon Bay	Charles M. Schulz - Sonoma County	San Rafael Airport
Airport Code		**DVO**	**0Q3**	**O69**	**APC**	**HAF**	**STS**	**CA35**
NPIAS Role		Reliever	General Aviation	Reliever	Reliever	Reliever	General Aviation	GA Private Use
Distance from DVO (in driving miles)		0	16	14	29	49	36	11
Distance from DVO (in nautical miles)		0	7	7	14	38	25	8
Control Tower		NO	NO	NO	YES	NO	YES	NO
Acreage		90	79	220	804	325	1,014	100
Number of Runways		1	2	1	3	1	2	1
Runway Dimensions (Length x Width; in feet)		13-31: 3,300x75	7-25: 2,700x45 17-35: 1,500x50	11-29: 3,600x75	6-24: 5,007x150 18L-36R: 2,510x75 18R-36L: 5,931x150	12-30: 5,000x150	14-32: 5,119x150 1-19: 5,002x100	4-22: 2,140x30
ILS		NO	NO	NO	NO	NO	YES	NO
Hangars/ Buildings		196	43	27	25	50	261	110
Annual Operations[1]	**FY 1997**	n/a	11,500	50,200	141,922	60,150	134,732	n.a.
	FY 2007	85,058	16,060	53,200	122,623	60,150	132,739	n.a.
Based Aircraft[1]	**FY 1997**	298	330	203	247	70	413	n.a.
	FY 2007	296	123	203	228	70	415	100

[1] Annual operations and based aircraft data was obtained from the FAA TAF for all airports with the exception of Sonoma Valley. Sonoma Valley Airport is not included in the TAF so operations and based aircraft counts were obtained from airnav.com and *Regional Airport System Plan, General Aviation Element, Final Report,* Regional Airport Planning Committee, June 2003.

Sources: Landrum & Brown Analysis, FAA Form 5010-1; FAA TAF, airnav.com

Petaluma, Napa County, and Half Moon Bay are designated by the FAA as reliever airports (as is Gnoss Field Airport). Each of the Bay Area reliever airports provides runway capacity and landside support facility relief to San Francisco International Airport (SFO) and Oakland International Airport (OAK). As such, these airports reduce airspace congestion and improve the safety of the runway system at both airports (SFO and OAK). Reliever airports can also reduce airspace capacity conflicts with large passenger aircraft that typically serve both SFO and OAK.

DVO accommodated approximately 17 percent of the region's activity and 16 percent of the based aircraft in 2008. Napa County and Sonoma Valley Airports handled the majority of GA activity in the region, collectively handling over 255,000 operations in 2008. Each of the six airports is discussed below.

3.1 SONOMA VALLEY AIRPORT (0Q3)

Sonoma Valley Airport is the closest alternative airport to DVO and is categorized as a General Aviation Airport by the FAA. 0Q3 is located 7 nautical miles northeast of DVO and is privately owned but is open for public use. The airport has two runways; one runway is 2,700 feet in length and the other is 1,500 feet in length. These runway lengths limit the traffic at Sonoma Valley to light aircraft only (i.e. single- and multi-engine piston aircraft, almost no turbine activity). The 1997 operations report from Sonoma Valley states that 330 aircraft were based on the field and undertook 11,500 operations. In 2007, there were 16,060 operations and 123 based aircraft.

3.2 PETALUMA MUNICIPAL AIRPORT (O69)

Petaluma Municipal Airport is located 7 nautical miles north of DVO and is categorized as a Reliever Airport by the FAA. O69 is owned by the City of Petaluma. The airport has one runway that is 3,600 feet in length and 75 feet in width. Like Sonoma Valley, the airport's runway length limits the gauge of aircraft that are able to use the airport to mainly piston-engine aircraft and a few turbine aircraft operations. In 2007, O69 reported a total of 53,200 operations and 203 based aircraft.

3.3 NAPA COUNTY AIRPORT (APC)

Napa County Airport is the third closest airport to DVO overall, but the closest airport that has increased capacity and capabilities. APC is designated as a Reliever Airport by the FAA and is located 14 nautical miles east of DVO. It is owned by Napa County. The airport has three runways measuring 5,007 feet, 2,510 feet, and 5,931 feet in length. These runway lengths allow APC to serve a significant amount of general aviation turbine aircraft operations without restrictions; unlike DVO or the other airports mentioned thus far. APC is also the closest airport that is served by an FAA Airport Traffic Control Tower (ATCT), thus enabling the airport to operate at a higher capacity. In 2007, APC reported a total of 122,623 annual operations and had 228 based aircraft.

3.4 HALF MOON BAY AIRPORT (HAF)

Half Moon Bay Airport is located 38 nautical miles to the south of DVO and is owned by San Mateo County. The FAA has designated HAF as a Reliever Airport. HAF has one runway measuring 5,000 feet in length. These runway lengths allow HAF to serve a substantial portion of the business jet fleet. HAF is not served by an FAA ATCT. In 2007, HAF reported a total of 60,150 annual operations and had 70 based aircraft.

3.5 CHARLES M. SCHULZ–SONOMA COUNTY AIRPORT (STS)

Charles M. Schulz-Sonoma County Airport is 25 nautical miles northwest of DVO. It is designated as a General Aviation Airport by the FAA. STS has two runways measuring 5,119 feet and 5,002 feet in length. As a result, STS has sufficient

runway length to accommodate most general aviation turbine aircraft without restrictions. STS has an FAA ATCT. This airport served 132,739 operations in 2007 and had 415 based aircraft.

3.6 SAN RAFAEL AIRPORT (CA35)

San Rafael Airport is a privately owned and privately used airport with a 2,140 foot long by 30 foot wide runway. This airport only accommodates small general aviation aircraft. Since the airport is a private use airport, it is only open to the owners and invited guests.[9] There are 100 aircraft based on the field, all of which are single engine piston aircraft. The airport is located 8 nautical miles south of DVO.

4. DVO HISTORICAL TRENDS

Background data on DVO traffic was gathered from the Federal Aviation Administration (FAA) Form 5010-1, FAA Terminal Area Forecasts (TAF), DVO Airport Management, and the *Marin County Airport Proposed Runway Extension Benefit Cost Analysis (BCA),* April 26, 2004. Per FAA regulations, airports are required to submit to the FAA a Form 5010-1, which states the previous year's count of operations broken down by category, as well as the based aircraft for the airport. The FAA TAF uses the 5010-1 forms as a basis for defining historical and forecast traffic. Operational counts for airports such as Gnoss Field Airport that do not have an ATCT are often overestimated and are carried over year-after-year. A review of the 5010-1 form for DVO indicated that this is the case for Gnoss Field Airport. As a result, the FAA Form 5010-1 and the FAA TAF for DVO were found to be unreliable. Therefore, operational numbers and based aircraft counts have been estimated based upon a combination of the 2004 BCA and information provided by DVO Airport Management.

The Airport Manager of Gnoss Field Airport conducted a count of current based aircraft in late March/early April of 2008. This count revealed 296 aircraft based at DVO, consisting of 248 single-engine piston aircraft, 18 multi-engine piston aircraft, 26 turbine aircraft, and 4 helicopters.

The 2004 BCA provided total operations levels for 2003 of 92,366. Total operations for 2008 were estimated by applying the national growth rates in GA operations to the 2003 DVO operations. Based on this methodology, total annual operations were estimated at 85,500 for 2008.

According to the 2004 BCA, DVO has a higher proportion of turbine operations than the national average. This can be attributed to the fact that the Airport is relatively close to the downtown San Francisco area, as well as to the more affluent areas of the Marin County region. The BCA estimated that 13.5 percent of the DVO itinerant operations were by turbine aircraft. Based on this information and the current based aircraft fleet mix, the current operational fleet mix was estimated (see **Table 2**).

[9] The first three sentences of this paragraph have been updated for the final document as of October 2013.

Table 2
DVO 2008 OPERATIONAL FLEET MIX
Gnoss Field Airport

Aircraft Category	Percent of Total Ops.
Single-Engine Piston	87.0%
Multi-Engine Piston	4.5%
Turbine	8.0%
Rotorcraft	0.5%
Total	100.0%

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Sources: 2004 *Marin County Airport Proposed Runway Extension Benefit Cost Analysis*, Marin County Airport-Gnoss Field Airport Management, Landrum & Brown Analysis

5. DVO AVIATION FORECAST

This section summarizes the forecast of aircraft operations and based aircraft for DVO.

5.1 Forecast Based Aircraft

The based aircraft forecast was derived by applying the average of the growth rates presented in the *FAA Aerospace Forecast – Fiscal Years 2008-2025 Table 27 Active General Aviation and Table 28 Air Taxi Hours Flown.*

As shown in **Table 3**, the number of aircraft based at DVO is forecast to increase by 1.4 percent annually, from 297 in 2008 to 387 in 2027. The number of single-engine piston based aircraft is expected to increase slightly through 2027 (by 0.9 percent annually), while multi-engine piston aircraft will decrease slightly over this period (by -0.9 percent annually). These trends result from the fact that most of these aircraft become expensive to operate and maintain due to their old age. Turbine aircraft which are expected to be the fastest growing general aviation segment are projected to grow at an average annual rate of 5.0 percent while helicopters are forecast to increase by 2.9 percent annually.

Table 3
BASED AIRCRAFT FORECAST
Gnoss Field Airport

Year	Single Engine Piston Aircraft	Multi Engine Piston Aircraft	Turbine Aircraft	Helicopter	Total
Actual 2003	246	17	20	2	285
Est. 2004	247	17	21	2	287
2005	247	18	23	3	291
2006	248	18	24	3	293
2007	248	18	26	4	296
2008	247	18	28	4	297
2009	246	18	30	4	298
2010	246	17	32	5	300
2011	245	17	35	5	302
2012	246	17	37	5	305
Forecast[1]					
2013	246	16	40	5	307
2014	247	16	42	5	310
2015	249	16	45	6	316
2016	251	15	47	6	319
2017	253	15	49	6	323
2018	256	15	51	6	328
2019	260	15	53	6	334
2020	263	15	55	6	339
2021	266	15	58	6	345
2022	270	15	60	7	352
2023	274	15	62	7	358
2024	279	15	64	7	365
2025	284	15	66	7	372
2026	289	15	68	7	379
2027	295	15	70	7	387
Average Annual Growth Rates:					
2003-2008	0.1%	1.1%	7.0%	14.9%	0.8%
2008-2013	-0.1%	-2.3%	7.4%	4.6%	0.7%
2013-2018	0.8%	-1.3%	5.0%	3.7%	1.3%
2018-2027	1.6%	0.0%	3.6%	1.7%	1.9%
2008-2027	**0.9%**	**-0.9%**	**5.0%**	**2.9%**	**1.4%**

1. Updated to show that the values prior to 2013 are now historical estimated and values for 2013 and later are forecasted values.

Sources: FAA Aerospace Forecast 2008-2025, Gnoss Field Airport Management, Landrum & Brown Analysis

5.2 FORECAST AIRCRAFT OPERATIONS

In order to develop a forecast of annual operations for DVO, the total operations numbers from the 2004 BCA were allocated into the following categories using the same ratios as reported on the FAA Form 5010-1 for DVO; GA Itinerant, GA Local, Air Taxi, and Military operations. National annual growth rates from the *FAA Aerospace Forecast – Fiscal Years 2008-2025, Table 28 Air Taxi Hours Flown,* were then applied to the base year annual operations numbers to determine the forecast of annual operations.

Table 4 summarizes the resulting aircraft operations forecast for DVO based on the general aviation growth rates promulgated in the *FAA Aerospace Forecast – Fiscal Years 2008-2025*. Itinerant and local GA operations are projected to continue to make up the majority of operations at DVO. There is currently no military activity at DVO and none is expected in the future. Air taxi and GA itinerant operations are projected to experience the highest growth rates as a result of the introduction of VLJs and increasing popularity of fractional ownership of turbine aircraft. Overall, aircraft operations at DVO are forecast to increase from an estimated 85,500 operations in 2008 to 124,300 operations in 2027. This represents an average annual growth rate of 2.0 percent. The percentage of operations by each aircraft category (single-engine piston, multi-engine piston, turbine, and helicopter) is assumed to remain unchanged throughout the forecast period.

Table 4
AIRCRAFT OPERATIONS FORECAST
Gnoss Field Airport

Year	GA Itinerant	GA Local	Air Taxi	Military	Total Operations
Estimated[1]					
2003	24,939	66,504	923	-	92,366
2004	25,700	63,800	1,200	-	90,700
2005	24,700	58,500	1,200	-	84,400
2006	25,300	59,700	1,200	-	86,200
2007	25,400	58,300	1,300	-	85,000
2008	26,000	58,100	1,400	-	85,500
2009	26,700	58,100	1,500	-	86,300
2010	27,700	58,400	1,700	-	87,800
2011	28,600	58,400	1,900	-	88,900
2012	29,600	58,500	2,000	-	90,100
Forecast					
2013	30,500	58,700	2,200	-	91,400
2014	31,500	58,900	2,400	-	92,800
2015	32,500	59,500	2,500	-	94,500
2016	33,500	60,000	2,700	-	96,200
2017	34,500	60,900	2,800	-	98,200
2018	35,600	62,000	2,900	-	100,500
2019	36,600	63,000	3,100	-	102,700
2020	37,700	64,100	3,200	-	105,000
2021	38,700	65,200	3,300	-	107,200
2022	39,800	66,300	3,500	-	109,600
2023	40,900	67,700	3,600	-	112,200
2024	42,000	69,100	3,800	-	114,900
2025	43,200	70,800	3,900	-	117,900
2026	44,400	72,600	4,000	-	121,000
2027	45,700	74,400	4,200	-	124,300
Average Annual Growth Rates:					
2003-2008	0.8%	-2.7%	8.7%	0.0%	-1.5%
2008-2013	3.2%	0.2%	9.5%	0.0%	1.3%
2013-2018	3.1%	1.1%	5.7%	0.0%	1.9%
2018-2027	2.8%	2.0%	4.2%	0.0%	2.4%
2008-2027	**3.0%**	**1.3%**	**6.0%**	**0.0%**	**2.0%**

1. Updated to show that the values prior to 2013 are now historical estimated and values for 2013 and later are forecasted values.

Sources: FAA Form 5010-1, FAA Aerospace Forecast 2010-2031, Airport User Interviews, 2004 Proposed Runway Extension Benefit Cost Analysis, Gnoss Field Airport Management, Landrum & Brown Analysis.