Chapter 2

FORECASTS

Forecasts

Facility planning must begin with a definition of the demand that may reasonably be expected to occur at the facility and in the upper Napa Valley over a specific period of time. For Angwin Airport, this involved preparation of forecasts of aviation activity indicators through the year 2030, including forecasts of based aircraft, fleet mix, and annual aircraft operations.

Because aviation activity can be affected by many influences at the local, regional, and national levels, it is important to understand that forecasts serve only as reasonable planning guidelines, and planning must remain flexible enough to respond to unforeseen facility needs.

For facility planning purposes, it was necessary to select a planning forecast for each of the aviation demand indicators at the airport. While the planning forecast provides an indication of the long term growth potential at the airport, actual growth potential may fluctuate above and below the selected planning forecast levels.

The resulting forecast may be used for several purposes, including facility needs assessments and environmental evaluations. The forecasts were reviewed and approved by the Federal Aviation Administration (FAA) to ensure that they are reasonable projections of aviation activity. The intent was to assist Napa County with determining potential aviation demand in the upper Napa Valley, completing facility needs assessments, and evaluating the overall feasibility of owning and operating the existing airport (or an alternate site).

NATIONAL AVIATION TRENDS

Each year, the FAA updates and publishes a national aviation forecast. Included in this publication are forecasts for the large air carriers, regional/ commuter air carriers, general aviation, and FAA workload measures. The forecasts are prepared to meet budget and planning needs of the constituent units of the FAA and to provide information that can be used by state and local authorities, the aviation industry, and the general public.

The current edition when this chapter was prepared was FAA *Aerospace Forecasts - Fiscal Years 2008-2025*, published in March 2008. The forecasts use the economic performance of the United States as an indicator of future aviation industry growth. Similar economic analyses are applied to the outlook for aviation growth in international markets.

The market for general aviation products and services showed mixed results in 2007. Although total shipments and billings were up 4.2 percent and 15.2 percent respectively compared to 2006, piston aircraft shipments by U.S. manufacturers were down 4.9 percent. The increase in shipments and billings seen in the jet fleet was stimulated by growth in the U.S. and world economy.

The Office of Management and Budget (OMB) forecasts a slowdown in U.S. economic growth in FY 2008 followed by a rebound to more historic rates for the balance of the forecast. This slowdown in 2008 could result in some difficulties for the aviation industry, but the return to historic rates after that should allow the industry to continue its growth.

GENERAL AVIATION

Following more than a decade of decline, the general aviation industry was revitalized with the passage of the *General Aviation Revitalization Act* in 1994, which limits the liability on general aviation aircraft to 18 years from the date of manufacture. This legislation sparked an interest to renew the manufacturing of general aviation aircraft due to the reduction in product liability, as well as renewed optimism for the industry.

As the demand for business jets has grown over the past several years, the current forecast assumes that business use of general aviation aircraft will expand at a more rapid pace than that for personal/sport use. The business/corporate side of general aviation should also continue to benefit from a growing market for new very light jets (VLJs).

In 2007, there were an estimated 225,007 active general aviation aircraft in the United States. **Exhibit 2A** depicts the FAA forecast for active general aviation aircraft. The FAA projects an average annual increase of 1.3 percent through 2025, resulting in 286,500 active aircraft. The more expensive and sophisticated turbine-powered fleet (including rotorcraft) is projected to grow at an average of 3.7 percent a year over the forecast period, with the turbine jet fleet increasing at 5.6 percent a year.

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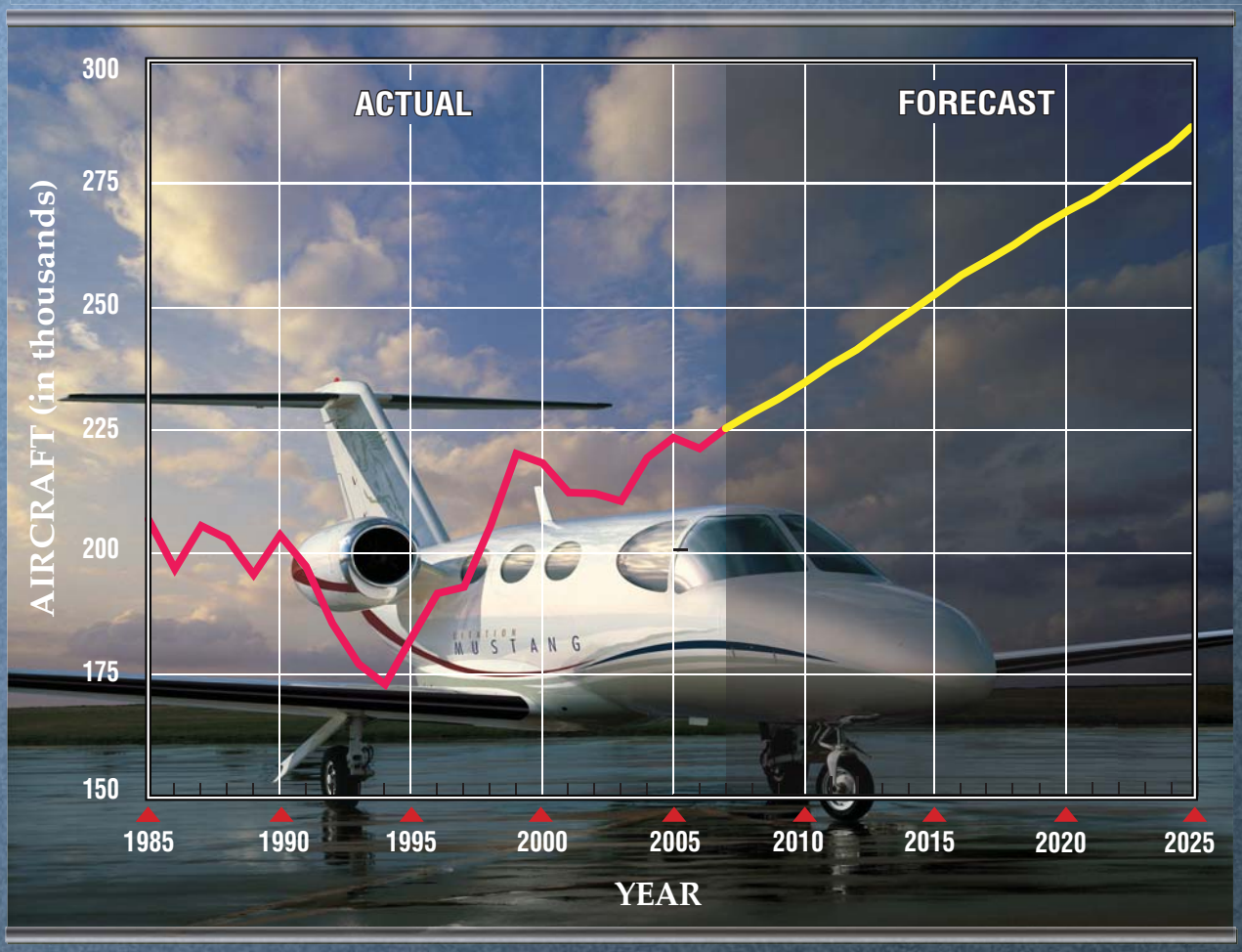
U.S. ACTIVE GENERAL AVIATION AIRCRAFT



U.S. ACTIVE GENERAL AVIATION AIRCRAFT (in thousands)

Year	FIXED WING				ROTORCRAFT		Experimental	Sport Aircraft	Other	Total
	PISTON		TURBINE							
	Single Engine	Multi-Engine	Turboprop	Turbojet	Piston	Turbine				
2007 (Est.)	144.6	18.5	8.2	11.0	3.6	6.0	23.9	2.7	6.4	225.0
2015	145.6	17.2	9.3	19.8	6.2	7.3	29.7	10.5	6.5	252.3
2020	150.0	16.5	10.1	24.9	7.3	7.9	32.6	13.2	6.4	268.9
2025	157.4	15.6	10.8	29.5	8.3	8.6	35.2	14.7	6.4	286.5

Source: FAA Aerospace Forecasts, Fiscal Years 2008-2025.
Notes: An active aircraft is one that has a current registration and was flown at least one hour during the calendar year.

The number of active piston-powered aircraft (including rotorcraft) is projected to decrease from the 2006 total of 167,008 through 2008, and then increase gradually to 181,345 by 2025, which is an average annual growth rate of 0.5 percent. In addition, it is expected that the new, light sport aircraft and the relatively inexpensive microjets could erode the replacement market for traditional piston aircraft at the high and low ends of the market respectively.

Beginning in 2005, a new category of aircraft that was previously not included in the FAA's aircraft registry counts was created: light sport aircraft. At the end of 2006, a total of 1,273 aircraft were estimated to be in this category. The forecast assumes registration of 5,600 aircraft over a five-year period beginning in 2005. By 2025, a total of 14,700 light sport aircraft are projected to be in the fleet.

The number of general aviation hours flown is projected to increase by 3.0 percent yearly over the forecast period. Much of this reflects increased flying by business and corporate aircraft as well as a relatively small annual percentage increase in utilization rates for piston aircraft. Hours flown by turbine aircraft are forecast to increase 5.3 percent yearly over the forecast period, compared with 1.1 percent for piston-powered aircraft. Jet aircraft are forecast to account for most of the increase, with hours flown expanding at an average annual rate of 7.7 percent over the forecast period. The large increases in jet hours result mainly from the introduction of VLJs, as well as increases in the fractional ownership fleet and its activity levels.

FORECASTING APPROACH

The development of aviation forecasts proceeds through both analytical and judgmental processes. A series of mathematical relationships is tested to establish statistical logic and rationale for projected growth. However, the judgment of the forecast analyst, based upon professional experience, knowledge of the aviation industry, and assessment of the local situation, is important in the final determination of the preferred forecast. The most reliable approach to estimating aviation demand is through the utilization of more than one analytical technique. Methodologies frequently considered include trend line/time-series projections, correlation/regression analysis, and market share analysis.

Trend line/time-series projections are probably the simplest and most familiar of the forecasting techniques. By fitting growth curves to historical data and then extending them into the future, a basic trend line projection is produced. A general assumption of this technique is that outside factors will continue to affect aviation demand in much the same manner as in the past. As broad as this assumption may be, the trend line projection does serve as a reliable benchmark for comparing other projections.

Correlation analysis provides a measure of direct relationship between two separate sets of historic data. Should there be a reasonable correlation between the data sets, further evaluation using regression analysis may be employed.

Regression analysis measures statistical relationships between dependent and independent variables, yielding a "correlation coefficient." The correlation coefficient (Pearson's "r") measures association between the changes in the dependent variable and the independent variable(s). If the "r^2" value (coefficient determination) is greater than 0.95, it indicates good predictive reliability. A value less than 0.95 may be used, but with the understanding that the predictive reliability is lower.

Market share analysis involves a historical review of the airport activity as a percentage, or share, of a larger regional, state, or national aviation market. A historical market share trend is determined, providing an expected market share for the future. These shares are then multiplied by the forecasts of the larger geographical area to produce a market share projection. This method has the same limitations as trend line projections, but can provide a useful check on the validity of other forecasting techniques.

It is important to note that one should not assume a high level of confidence in forecasts that extend beyond five years. Facility and financial planning usually require at least a 10-year preview since it often takes more than five years to complete a major facility development program. However, it is important to use forecasts which do not overestimate revenue-generating capabilities or understate demand for facilities needed to meet public (user) needs.

AIRPORT MARKET AND SERVICE AREA

Angwin Airport, which is located one mile east of the City of Angwin, has been open to the public since 1961 and serves the upper Napa Valley. A review of airports within 30 nautical miles of Angwin Airport has been made to identify and distinguish the type of air service provided in the area immediately surrounding the airport. A total of eleven public-use airports are located within this 30-mile radius. However, Napa County Airport is the only airport in this 30-mile radius that is located in Napa County.

Napa County Airport is located approximately 23 nautical miles south-southeast of Angwin Airport. The airport is served by three runways, the longest of which is 5,931 feet long and 150 feet wide. Napa County Airport is equipped with an airport traffic control tower (ATCT) and there are four published instrument approaches available. There are 259 based aircraft at Napa County Airport as of March 2008 and the airport averages 334 operations per day. A full-service fixed-base operator (FBO) is located at the airport and services provided by the FBO include aircraft charter, aircraft rental/sales, flight training, aircraft maintenance, aircraft tiedowns, fuel sales (100LL & Jet A), and pilot supplies. The remaining ten public-use airports within a 30-mile radius of Angwin Airport are located more than 20 miles away, and the majority of these are located in Sonoma County.

AVIATION ACTIVITY FORECASTS

The following forecast analysis examines each of the aviation demand categories expected at Angwin Airport. Each segment will be examined individually, and then collectively, to provide an understanding of the overall aviation activity at the airport through 2030.

The need for airport facilities at Angwin Airport can best be determined by accounting for forecasts of future aviation demand. Therefore, the remainder of this chapter presents the forecasts for airport users and includes the following:

- GENERAL AVIATION
  - Based Aircraft
  - Aircraft Fleet Mix
  - Local and Itinerant Operations
  - Peak Activity

GENERAL AVIATION

General aviation encompasses all portions of civil aviation except commercial operations. To determine the types and sizes of facilities that should be planned to accommodate general aviation activity, certain elements of this activity must be forecast. These indicators of general aviation demand include based aircraft, aircraft fleet mix, and annual operations.

The number of based aircraft is the most basic indicator of general aviation demand. By first developing a forecast of based aircraft, the growth of other general aviation activities and demands can be projected. Aircraft basing at an airport is somewhat dependent upon the nature and magnitude of aircraft ownership in the local service area. As a result, aircraft registrations in the area were reviewed and forecast first.

Registered Aircraft Forecasts

Table 2A presents historical registered aircraft data for Napa County since 1998. Historical data was obtained from *Aviation Goldmine CD* (1998-2000) and *Avantex Aircraft & Airmen CD* (2001-2007). The current number of registered aircraft (357) was obtained from the FAA.

TABLE 2A
Historical Registered Aircraft
Napa County

Year	Napa Co. Registered Aircraft	Annual Growth Rate
1998	341	-
1999	329	-3.5%
2000	343	4.3%
2001	334	-2.6%
2002	335	0.3%
2003	350	4.5%
2004	349	-0.3%
2005	340	-2.6%
2006	335	-1.5%
2007	348	3.9%
2008	357	2.6%

Source: Historical Registered Aircraft – Aviation Goldmine CD (1998-2000), Avantex Aircraft & Airmen CD (2001-2007), FAA (2008).

Over the past ten years, the county's registered aircraft experienced an average annual growth rate of 0.5 percent. This is slightly lower than the national average of 1.6 percent annual growth rate for U.S. active general aviation aircraft during the same time. National growth coincides not only with the improved general economic conditions of the period, but also the *General Aviation Revitalization Act*, which was approved by Congress in 1994 and sparked new aircraft manufacturing.

There are no recently prepared forecasts of registered aircraft to examine and compare. As a result, several projections of county registrations were developed. First, a time-series analysis of registered aircraft in Napa County was prepared based upon the historic data gathered between 1998 and 2008. A regression analysis, which compared registered aircraft in Napa County to the population, was also examined. However, because of the fluctuation in registered aircraft during this period, these analyses both yielded an r^2 value well below 0.95. As previously mentioned, an r^2 less than 0.95 does not indicate good predictive reliability. Therefore, other methods were used to project registered aircraft.

One of these methods used to project registered aircraft in Napa County considered the county's market share of U.S. active general aviation aircraft. This market share analysis, which is presented in **Table 2B**, compares the county's aircraft ownership trends versus national aircraft ownership trends. As shown in the table, the county's market share has fluctuated very little over the past ten years, ranging from a low 0.15 percent to a high of 0.17 percent. Because the county's market share has varied only slightly since 1998, only a constant market share projection was developed. Applying the current 0.16 percent market share to the forecast years yields 478 registered aircraft by 2030.

A forecast comparing the number of registered aircraft in Napa County to the population was also developed. This forecast examined the historical registered aircraft as a ratio of 1,000 residents in the county. As shown in **Table 2C**, the California Department of Finance estimated the population of Napa County at 136,700 on January 1, 2008. This equates to 2.61 registered aircraft per 1,000 residents. Over the past ten years, this ratio has fluctuated between a high of 2.81 in 1998 and a low of 2.51 in 2006. Because of this fluctuation, a constant ratio projection was developed using the current 2.61 ratio. This ratio, which falls in the mid-range of the past ten years, yields 401 registered aircraft by 2030.

TABLE 2B
Registered Aircraft Market Share of U.S. Active General Aviation Aircraft
Napa County

Year	Napa County Registered Aircraft	U.S. Active GA Aircraft	Napa County Market Share
1998	341	204,711	0.17%
1999	329	219,464	0.15%
2000	343	217,533	0.16%
2001	334	211,446	0.16%
2002	335	211,244	0.16%
2003	350	209,606	0.17%
2004	349	219,319	0.16%
2005	340	224,262	0.15%
2006	335	221,942	0.15%
2007	348	225,007	0.15%
2008	357	228,155	0.16%
Constant Market Share Projection			
2013	383	245,090	0.16%
2018	411	262,460	0.16%
2030	478	305,200[1]	0.16%

Source: Historical Registered Aircraft – Aviation Goldmine CD (1998-2000), Avantex Aircraft & Airmen CD (2001-2007), FAA (2008); Historical & Forecast U.S. Active GA Aircraft – FAA Aerospace Forecasts, Fiscal Years 2008-2025.
[1]Extrapolated

TABLE 2C
Registered Aircraft Per 1,000 Residents
Napa County

Year	Napa County Registered Aircraft	Napa County Population	Registered Aircraft Per 1,000 Residents
1998	341	121,450	2.81
1999	329	122,857	2.68
2000	343	124,279	2.76
2001	334	125,768	2.66
2002	335	127,274	2.63
2003	350	128,799	2.72
2004	349	130,342	2.68
2005	340	131,903	2.58
2006	335	133,483	2.51
2007	348	135,082	2.58
2008	357	136,700	2.61
Constant Ratio Projection			
2013	366	140,300[1]	2.61
2018	376	144,100[1]	2.61
2030	401	153,400	2.61

Source: Historical Registered Aircraft – Aviation Goldmine CD (1998-2000), Avantex Aircraft & Airmen CD (2001-2007), FAA (2008); Historical Population – U.S. Census Bureau; Forecast Population – Napa County General Plan Update, Environmental Impact Report (February 2007).
[1]Interpolated

Another forecast method examined the historical growth rate of registered aircraft in Napa County. As previously mentioned, registered aircraft grew at an average annual rate of 0.5 percent between 1998 and 2008. This growth rate was applied to the forecast years and yields 398 registered aircraft by the year 2030.

Table 2D and **Exhibit 2B** summarize the registered aircraft forecasts for Napa County. For planning purposes, an average of each of the newly created forecasts has been selected as the planning forecast. This forecast results in 370 registered aircraft by 2013; 390 registered aircraft by 2018; and 430 registered aircraft by 2030. This represents an average annual growth rate of 0.8 percent, which is slightly greater than the historical growth rate.

TABLE 2D
Registered Aircraft Forecast Summary
Napa County

	2008	2013	2018	2030
Market Share of U.S. Active GA Aircraft Constant Market Share Projection		383	411	478
Registered Aircraft Per 1,000 Residents Constant Ratio Projection		366	376	401
0.5% Historical Growth Rate (1998-2008)		366	375	398
Selected Planning Forecast	**357**	**370**	**390**	**430**

Based Aircraft Forecasts

Having forecast the registered aircraft in Napa County, based aircraft at Angwin Airport was examined. As previously mentioned, the number of based aircraft is the most basic indicator of general aviation demand at an airport. By first developing a forecast of based aircraft, the growth of aviation activities at the airport can be projected.

Limited historical data was available for based aircraft at Angwin Airport over the past ten years. According to the FAA 5010 Form, there were a reported 46 based aircraft in 1998 and 38 based aircraft in 2000. Airport records indicate 43 current based aircraft at the airport. Because of this limited data, time-series and regression analyses could not be performed, as they would not provide reliable projections. Instead, other methods have been utilized to project based aircraft.

The first method used to develop forecasts of based aircraft examined the airport's market share of registered aircraft in Napa County, which is presented in **Table 2E**. The current 43 based aircraft at Angwin Airport represents 12 percent of the total aircraft registered in Napa County. As shown in the table, the airport's market share has remained fairly consistent over the past ten years, fluctuating by only a few percentages. Therefore, a constant market share forecast was prepared and assumes the airport's market share will remain at 12 percent through the planning period, which yields 53 based aircraft by 2030.

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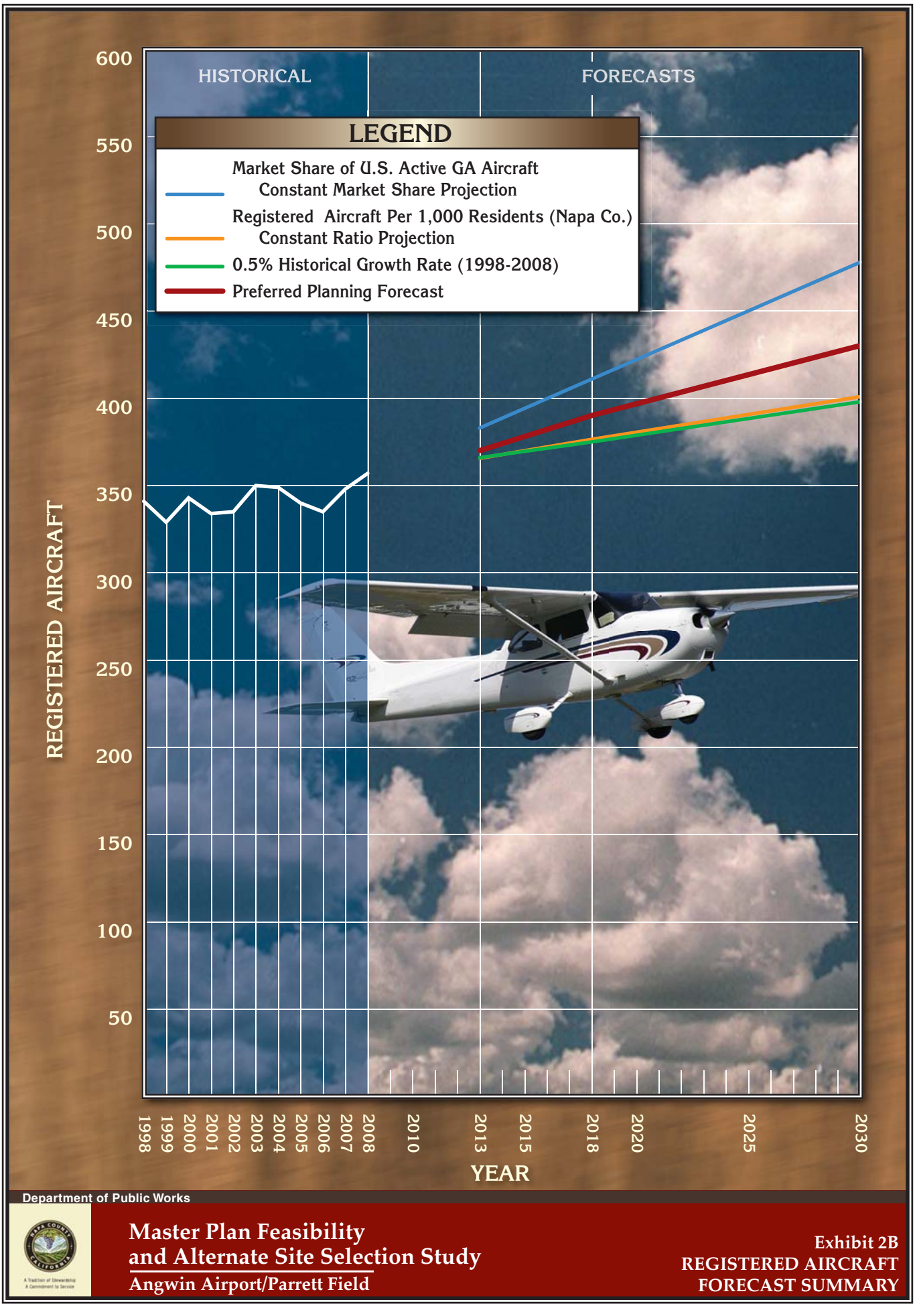

Department of Public Works

Master Plan Feasibility and Alternate Site Selection Study

Angwin Airport/Parrett Field

Exhibit 2B
REGISTERED AIRCRAFT FORECAST SUMMARY

TABLE 2E
Based Aircraft Market Share of Registered Aircraft (Napa County)
Angwin Airport

Year	Angwin Based Aircraft	Napa County Registered Aircraft	Based Aircraft Market Share
1998	46	341	13%
2000	38	343	11%
2008	43	357	12%
Constant Market Share Projection			
2013	46	370	12%
2018	48	390	12%
2030	53	430	12%

Source: Historical Based Aircraft – FAA 5010 Form; Current Based Aircraft – Airport Records; Historical Registered Aircraft – Aviation Goldmine CD (1998-2000), Avantex Aircraft & Airmen CD (2001-2007), FAA (2008).

The population of Napa County has also been used as a comparison with based aircraft. This forecast examined the airport's historical based aircraft as a ratio of 1,000 residents in the county and is presented in **Table 2F**. According to the California Department of Finance, the county's estimated population as of January 1, 2008 is 136,700, which equates to 0.32 based aircraft per 1,000 residents. As shown in the table, this ratio has fallen slightly over the past ten years. Due to the limited historical data, only a constant market share projection was developed. This constant market share projection yields 49 based aircraft by 2030.

TABLE 2F
Based Aircraft Per 1,000 Residents (Napa County)
Angwin Airport

Year	Angwin Based Aircraft	Napa County Population	Based Aircraft Per 1,000 Residents
1998	46	121,450	0.38
2000	38	124,279	0.31
2008	43	136,700	0.32
Constant Ratio Projection			
2013	45	140,300[1]	0.32
2018	46	144,100[1]	0.32
2030	49	153,400	0.32

Source: Historical Based Aircraft – FAA 5010 Form; Current Based Aircraft – Airport Records; Historical Population – U.S. Census Bureau; Forecast Population – Napa County General Plan Update, Environmental Impact Report (February 2007).
[1]Interpolated

Another forecast method examined the historical growth rate of based aircraft at the airport. As previously mentioned, limited historical data of based aircraft was available. The historical growth rate over the past eight years revealed an annual average growth rate of 1.8 percent. This growth rate was applied to the forecast years and yields 65 based aircraft by the year 2030.

A summary of the based aircraft forecasts is presented in **Table 2G** and **Exhibit 2C**. The selected planning forecast is an average of the newly created forecasts and yields 45 based aircraft by 2013; 49 based aircraft by 2018; and 55 based aircraft by 2030. This represents an average annual growth rate of 1.1 percent, which is slightly lower than the historical trend experienced at the airport since 2000.

TABLE 2G
Based Aircraft Forecast Summary
Angwin Airport

	2008	2013	2018	2030
Market Share of Registered Aircraft (Napa Co.) Constant Market Share Projection		46	48	53
Based Aircraft Per 1,000 Residents (Napa Co.) Constant Ratio Projection		45	46	49
1.8% Historical Growth Rate (2000-2008)		48	53	65
Selected Planning Forecast	**43**	**45**	**49**	**55**

Based Aircraft Fleet Mix

According to airport records, the current fleet mix consists of 39 single-engine aircraft, and four multi-engine aircraft. While the number of general aviation aircraft basing at Angwin Airport is projected to increase, it is important to know the fleet mix of the aircraft expected to use the airport. This will ensure the planning for proper facilities in the future.

The national trend in general aviation is toward a greater percentage of larger, more sophisticated aircraft as part of the national fleet. While an increase in single engine aircraft can be expected, their percentage of the total fleet mix will likely decrease. Meanwhile, the percentage of multi-engine aircraft is projected to increase by the end of the planning period. Only a slight increase in the number of ultralights is projected at Angwin Airport. The fleet mix projections are shown in **Table 2H**.

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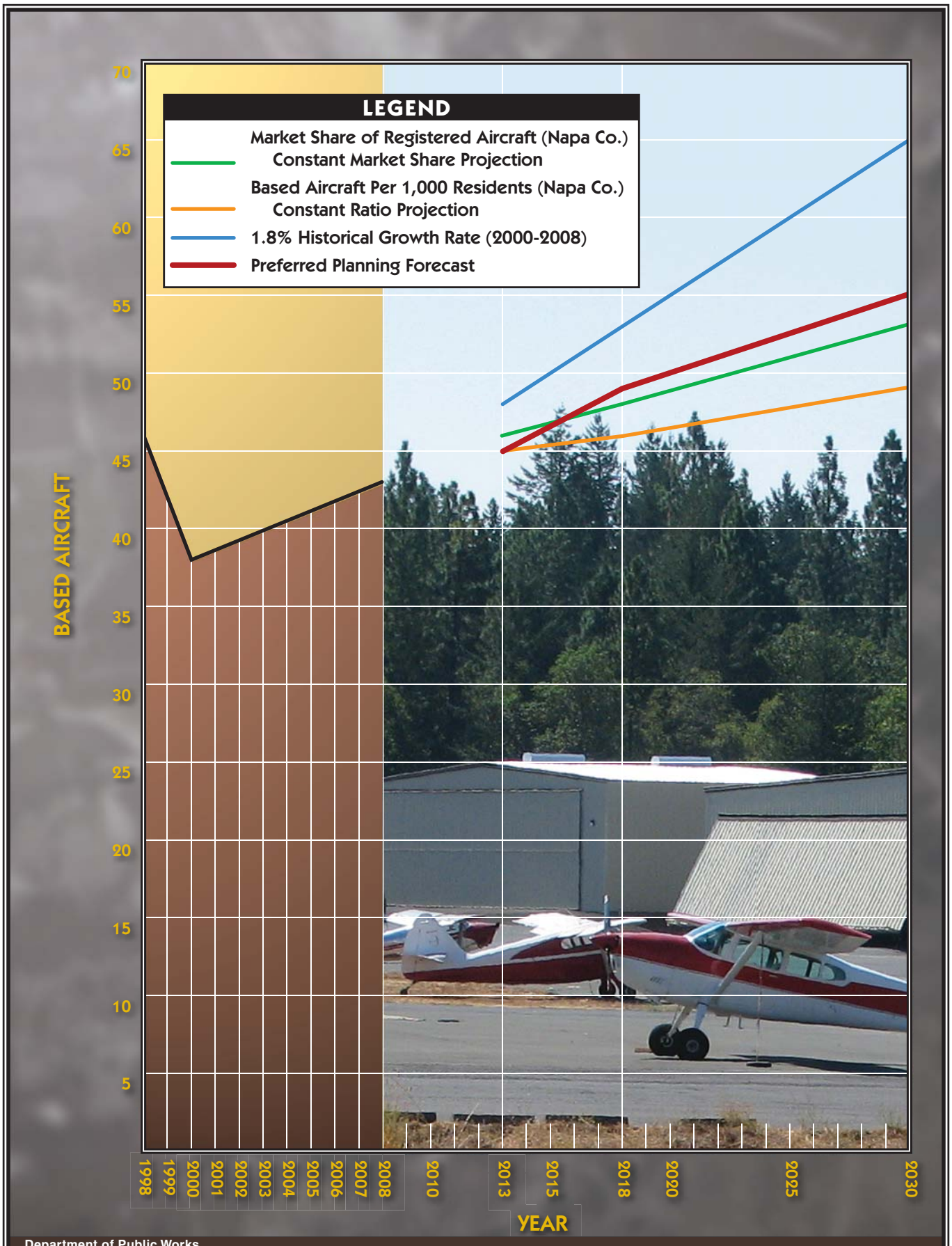

Department of Public Works

Master Plan Feasibility and Alternate Site Selection Study

Angwin Airport/Parrett Field

Exhibit 2C
BASED AIRCRAFT
FORECAST SUMMARY

TABLE 2H
Based Aircraft Fleet Mix
Angwin Airport

Year	Total	Single Engine	Multi-Engine
2008	43	39	4
Percentage Share			
2008	100.0%	90.7%	9.3%
FORECAST			
2013	45	40	5
2018	49	42	7
2030	55	45	10
Change	+12	+6	+6
Percentage Share			
2013	100.0%	88.9%	11.1%
2018	100.0%	85.7%	14.3%
2030	100.0%	81.8%	18.2%

Source: Current Based Aircraft – PUC Records.

GENERAL AVIATION OPERATIONS

General aviation operations are classified as either local or itinerant. A local operation is a take-off or landing performed by an aircraft that operates within sight of the airport, or which executes simulated approaches or touch-and-go operations at the airport. Itinerant operations are those performed by aircraft with a specific origin or destination away from the airport. Generally, local operations are characterized by training operations. Typically, itinerant operations increase with business and commercial use, since business aircraft are not typically used for large scale training activities.

The FAA 5010 Form currently estimates 12,000 annual operations at Angwin Airport, with 25 percent itinerant traffic and 75 percent local traffic. However, without an airport traffic control tower, these operational numbers reflect only a rough estimate of operational activity. Therefore, other methods were used to determine the base number of operations.

When forecast data of operations is not available, the FAA recommends using the statewide growth rate from the *Terminal Area Forecasts* (TAF) and to develop current activity statistics by estimating annual operations per based aircraft. According to the *Field Formulation of the National Plan of Integrated Airport Systems* (NPIAS), Order 5090.3C, a general guideline is 250 operations per based aircraft for rural general aviation airports with little itinerant traffic. Using this guideline, the current number of annual operations at Angwin Airport is estimated at 11,000.

Another method developed by the FAA Statistics and Forecast Branch, the *Model for Estimating General Aviation Operations at Non-Towered Airports* (July 2001) was also examined. This

report develops and presents a regression model for estimating general aviation (GA) operations at non-towered airports. Independent variables used in the equation include airport characteristics (i.e., number of based aircraft, number of flight schools, population totals, and geographic location. This equation also yielded an initial annual operations total of 11,000.

Because both equations yielded an estimated base number of 11,000 annual operations, this is the number used to develop the forecasts of general aviation operations at Angwin Airport. From this base number, a constant projection of 250 operations per based aircraft was developed. This forecast yields 14,000 annual general aviation operations by 2030, which represents an average annual growth rate of 1.1 percent. It is expected that the operational split will remain 25 percent itinerant and 75 percent local. **Table 2J** presents the general aviation operations forecast for Angwin Airport.

TABLE 2J
General Aviation Operations Per Based Aircraft Forecast
Angwin Airport

Year	Based Aircraft	Itinerant Operations	Local Operations	Total Operations	Operations Per Based Aircraft
2008	43	2,750	8,250	11,000	250
Constant Ratio Projection					
2013	45	2,900	8,600	11,500	250
2018	49	3,100	9,400	12,500	250
2030	55	3,500	10,500	14,000	250

Source: 2008 Estimate of Operations – Derived from *Field Formulation of the NPIAS,* Order 5090.3C and *Model for Estimating General Aviation Operations at Non-Towered Airports* (July 2001).

Peaking Characteristics

Many airport facility needs are related to the level of activity during peak periods. The periods used in developing facility requirements for this study are as follows:

- **Peak Month –** The calendar month when peak activity occurs.
- **Design Day –** The average day in the peak month. This indicator is derived by dividing the peak month activity by the number of days in the month.
- **Busy Day –** The busy day of a typical week in the peak month.
- **Design Hour –** The peak hour within the design day.

It is important to realize that only the peak month is an absolute peak within the year. Each of the other periods will be exceeded at various times during the year. However, each provides reasonable planning standards that can be applied without overbuilding or being too restrictive.

Typically, the peak month for general aviation operations represents between 10 and 12 percent of the airport's annual operations. For Angwin Airport, it is estimated that the peak month represents 10 percent of annual operations. This equates to 1,100 operations for the peak month of the base year. Forecasts of peak month activity have been developed by applying this percentage to the forecasts of annual operations.

Design day operations were calculated by dividing the total number of operations in the peak month by the number of days in the month. The design hour is projected as 15 percent of the design day operations. Busy day operations were calculated as 1.25 times the design day activity. **Table 2K** summarizes the general aviation peak activity forecasts for Angwin Airport.

TABLE 2K
General Aviation Peak Period Forecasts
Angwin Airport

	Base Year	FORECASTS		
	2008	2013	2018	2030
Annual	11,000	11,500	12,500	14,000
Peak Month (10%)	1,100	1,150	1,250	1,400
Design Day	37	38	42	47
Busy Day	46	48	52	58
Design Hour (15%)	6	6	6	7

SUMMARY

This chapter has provided forecasts for each sector of aviation demand anticipated over the planning period. **Exhibit 2D** presents a summary of the aviation forecasts developed for Angwin Airport. The forecasts were reviewed and approved by the FAA on August 5, 2009 (letter attached). The following chapter assesses the capacity of the existing facilities to accommodate forecast demand and determine what types of facilities will be needed to meet these demands.

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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

August 5, 2009

Mr. Martin Pehl
Airport Manager
Napa Valley Airport
Napa County
2030 Airport Road
Napa, California 94558

Subject: Angwin Airport/Parrett Field
Master Plan Feasibility Study and Alternate Site Selection Study
Forecast Approval

Dear Mr. Pehl:

The Federal Aviation Administration (FAA) has completed the review of Chapter Two: "Forecasts" for the Angwin Airport/Parrett Field.

The FAA agrees with the forecast analysis and the data used for the preparation of this study, and concurs with the fleet-mix and growth rate projected for this master plan. The FAA finds this forecast acceptable for the preparation of the Master Plan Feasibility and Alternate Site Selection Study.

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

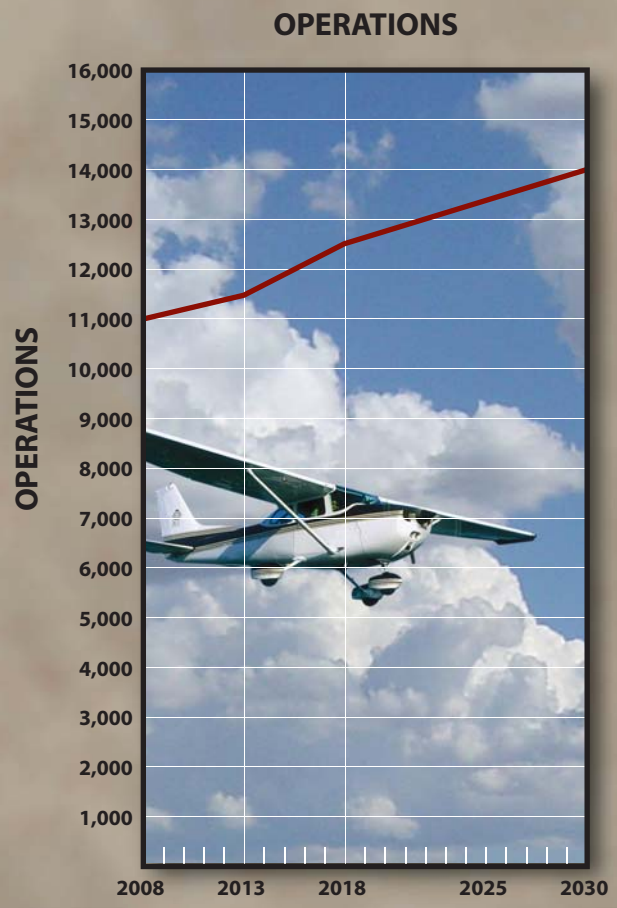
Sincerely,

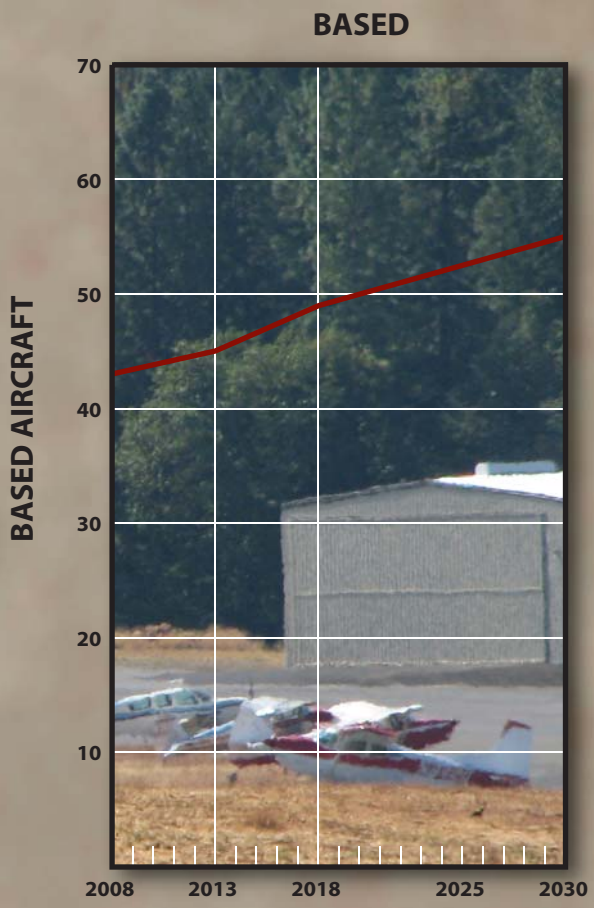
Elisha Novak

Elisha Novak, Ph. D.
Airport Planner

07MP08-2D-9/9/09

	Base Year	Forecasts		
	2008	2013	2018	2030
General Aviation Operations				
Itinerant	2,750	2,900	3,100	3,500
Local	8,250	8,600	9,400	10,500
Total Operations	***11,000***	***11,500***	***12,500***	***14,000***
Based Aircraft				
Single-Engine	39	40	42	45
Multi-Engine	4	5	7	10
Total Based Aircraft	***43***	***45***	***49***	***55***





Department of Public Works

Master Plan Feasibility and Alternate Site Selection Study

Angwin Airport/Parrett Field

Exhibit 2D
FORECAST SUMMARY