

AIRPORT LAYOUT PLAN UPDATE AND NARRATIVE REPORT



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For

**HOLLISTER MUNICIPAL AIRPORT
Hollister, California**

Prepared for the

CITY OF HOLLISTER

By

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In Association with

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TABLE OF CONTENTS

TABLE OF CONTENTS

AIRPORT LAYOUT PLAN UPDATE AND NARRATIVE REPORT

HOLLISTER MUNICIPAL AIRPORT

Hollister, California

AIRPORT BACKGROUND.....	1
AIRPORT ROLE.....	3
EXISTING FACILITIES.....	5
Airside Facilities.....	6
Landside Facilities.....	10
VICINITY AIRPORTS.....	12
VICINITY AIRSPACE.....	12
Special Use Airspace.....	16
Instrument Approach Procedures.....	18
SOCIOECONOMIC CHARACTERISTICS	19
Population	19
Employment and Personal Income	21
FORECASTS OF AVIATION DEMAND	23
Forecasting Approach.....	23
National General Aviation Trends	24
Airport Service Area	27
Registered Aircraft Forecast.....	30
Based Aircraft Forecast	32
Based Aircraft Fleet Mix	33
Annual Operations.....	34
Annual Instrument Approaches	37
Peak Period Forecasts	38
Forecast Comparison to the TAF	39
Forecast Summary.....	39
AIRPORT/AIRCRAFT/RUNWAY CLASSIFICATION	41
Aircraft Classification.....	41
Airport and Runway Classification	43
CRITICAL DESIGN AIRCRAFT	45
Airport Design Aircraft.....	46

TABLE OF CONTENTS *(Continued)*

Existing Runway Design	47
Future Runway Design.....	48
FACILITY REQUIREMENTS	49
Airside Facility Requirements	49
Landside Facility Requirements.....	67
Support Requirements	71
Summary.....	73
RECOMMENDED DEVELOPMENT CONCEPT	73
Airside Facilities	73
Landside Facilities.....	81
Non-Standard Conditions	81
CAPITAL IMPROVEMENT PROGRAM	82
Capital Improvement Summary	83
Funding Sources	83
PLAN IMPLEMENTATION	87

EXHIBITS

A	VICINITY/LOCATION MAP	2
B	EXISTING FACILITIES	7
C	VICINITY AIRPORTS	13
D	AIRSPACE CLASSIFICATION	15
E	VICINITY AIRSPACE	17
F	INSTRUMENT APPROACH PROCEDURES	20
G	FAA NATIONAL GENERAL AVIATION FORECASTS	25
H	AIRPORT SERVICE AREA.....	29
J	FORECAST SUMMARY.....	40
K	AIRCRAFT CLASSIFICATION PARAMETERS	42
L	AIRCRAFT REFERENCE CODES.....	44
M	WINDROSES	50-51
N	RUNWAY SAFETY AREAS.....	59-60
P	AIRSIDE/LANDSIDE FACILITY REQUIREMENT SUMMARY.....	74-75
Q	DEVELOPMENT CONCEPT	77
R	CAPITAL IMPROVEMENT PROGRAM	84
S	DEVELOPMENT STAGING	85

APPENDIX A – Glossary of Terms

APPENDIX B – ALP Drawing Set





AIRPORT LAYOUT PLAN UPDATE
AND NARRATIVE REPORT

HOLLISTER

MUNICIPAL AIRPORT

AIRPORT LAYOUT PLAN UPDATE AND NARRATIVE REPORT

This report is intended to provide the City of Hollister, the California Department of Transportation – Division of Aeronautics (CALTRANS), and the Federal Aviation Administration (FAA) with a document that depicts the most current plans for airport improvements at Hollister Municipal Airport (CVH or Airport). This document focuses primarily on the development direction and facility changes that have taken place since the completion and approval of the last Airport Layout Plan (ALP) Update in 2009, and provides a concept for future development potential over the next several years. The report provides a narrative and an updated ALP drawing set, which consists of a computer-generated drawing that depicts the current and future facility conditions.

AIRPORT BACKGROUND

CVH is located approximately 2.5 miles north of the City of Hollister, along Highway 156B in the north-central quadrant of San Benito County, California. On a regional scale, the Airport is located roughly 40 miles to the east of Monterey and 93 miles south of San Francisco. Owned and operated by the City of Hollister, CVH is situated on approximately 343 acres at an elevation of 229.6 feet above mean sea level (MSL). **Exhibit A** depicts the location of the Airport and its surroundings.

The Airport began as a private grass airstrip when aviators Frank Bryant and Roy Francis performed an air show on May 18 and 19, 1912. The airstrip became known as Turner Field in the mid-1920s after the property was acquired by local crop duster, Everett Turner. The year 1932 brought the first annual Hollister Air Race and the first parachute jump and, in 1936, a special airmail delivery service was introduced.

In 1941, the Navy purchased the property and the airfield became Navy Air Auxiliary Station (N.A.A.S. Hollister). At its peak operation, N.A.A.S. Hollister housed 200-300 Navy personnel undergoing advanced weapons training and military operations/attack procedures prior to entering the war zone. N.A.A.S. Hollister operated as a military base until June 1946 when civilian activity was allowed. On December 9, 1947, the facilities were turned over to the City of Hollister through a quit claim deed.





**Main Aircraft Parking Apron with
Based and Itinerant Aircraft**

Since the Airport does not have an airport traffic control tower (ATCT), the number of annual operations taking place at the Airport must be estimated. The aggregate operations were estimated by the Federal Aviation Administration (FAA) in the 2017 *Terminal Area Forecast* (TAF) to total 52,600. These operations comprised 21,600 itinerant general aviation operations; 1,200 itinerant military operations; and 29,800 local general aviation operations. Generally, local operations are characterized by training operations, and itinerant operations are those performed by aircraft with a specific origin or destination away from an airport. Typically, itinerant operations increase with business and commercial use since business aircraft are not usually used for large scale training activities. The TAF projections are based upon local and national economic

factors, as well as conditions within the aviation industry. Typically, forecasting at airports without an ATCT is based upon historic operations reported in the Airport Master Record Form 5010. This data is generally held constant for the forecast projections unless specified by a local or regional FAA official.

Although the most current TAF and Airport Master Record report 85 and 173 (including helicopters, gliders, and ultra-light aircraft) based aircraft, respectively, a based aircraft list verified by Airport management reported a total of 140 based aircraft in March 2017. The based aircraft listed are composed of 100 single engine piston fixed-wing aircraft, 10 multi-engine piston fixed-wing aircraft, three turboprops, two rotorcraft, six jets, and 19 gliders which are classified in the “other” category. The “other” category includes aircraft such as gliders, balloons, dirigibles, and ultralights.

CVH is largely surrounded by industrial and agricultural land with some single residence homes situated throughout the area. The Airport does not have mandatory or voluntary noise abatement procedures in place for aircraft operations. It should also be noted that the Airport does not currently have height and hazard zoning in place to protect navigable airspace surrounding the Airport against obstructions.

AIRPORT ROLE

CVH is recognized within the FAA’s *National Plan of Integrated Airport Systems* (NPIAS) as a General Aviation (GA) airport. The NPIAS is a compilation of airports within the United States that are viewed as assets to national air transportation by the FAA. Airports included within the NPIAS are qualified for federal funding through the Airport Improvement Program (AIP).

Given that CVH is designated as a GA airport within the NPIAS, certain criteria must be met in order to be viewed by the federal government as an asset to the air transportation system. Typically, GA airports have at least 10 based aircraft and are approximately 20 miles from any other airport listed in the NPIAS. Within the GA designation, there are four different airport categories: National, Regional, Local, and Basic. CVH is classified within the Local category. Local GA airports are critical components of the GA

system, providing communities with access to local and regional markets. Typically, local airports are located near larger population centers but not necessarily in metropolitan areas. They also accommodate flight training and emergency services. These airports account for 38 percent of all NPIAS airports. It should be noted, however, that CVH meets many of the requirements for the Regional airports within the NPIAS. This classification is attained by airports that support regional economies by connecting communities to regional and national markets located in metropolitan areas with relatively large populations.



CalFire Air Attack Base

The Airport also serves as an Air Attack Base for the California Department of Forestry and Fire Protection (CalFire), which plays a large role in suppressing wildfire over a six-county area. CalFire aircraft, which include Grumman S-2T airtankers, UH-1H Super Huey helicopters, and Rockwell OV-10 air tactical aircraft, are strategically located at 13 air attack and nine helitack bases around the state.

In addition to its inclusion in the NPIAS, CVH is also included in the *California Aviation Systems Plan* (CASP). Within the CASP, CVH is designated as a GA regional airport. As presented in **Table A**, this qualification requires 100 percent accommodation of the design aircraft fleet at 60 percent useful load, a 75-foot primary runway width, minimum 12,500 pound single wheel load (SWL) pavement rating, visual approach slope indicator (VASI)/precision approach path indicator (PAPI) visual approach guidance system to a lighted runway, global positioning system (GPS)/very high frequency omnidirectional range (VOR) instrument approach procedures, 24-hour on-field weather observation, Jet A and 100LL fuels, and an ALP not more than five years since its last approval.

TABLE A
CASP Minimum Standards for Regional GA Airports
Hollister Municipal Airport

Facility Description	CASP Regional GA Airports	CVH
Runway Length	Sufficient to accommodate 100% of the aircraft fleet at 60% useful load per FAA AC 150/5325-4B	Yes
Runway Width	75'	100'
Runway Pavement Strength	12,500 lbs SWL	34,000 lbs SWL
Runway Safety Area	Formula determined per AC 150/5300-13	Yes
Visual Aids	VASI/PAPI to lighted runway if no approach lights; REIL for IFR runway without approach lights	PAPI-2 to runway equipped with MIRL and REILs
Approach Procedures	GPS/VOR	RNAV (GPS)
Runway/Approach Lighting	None	None
24-Hour On-Field Automated Weather AWOS/ASOS	24 hour on-field weather observation	AWOS
Fuel Available	Jet A and Avgas	Jet A and Avgas
Airport Layout Plan	Approval date fewer than five years old	Yes (pending approval of this document)
ASOS: Automated Surface Observation System AWOS: Automated Weather Observation System GPS: Global Positioning System IFR: Instrument Flight Rules lbs: Pounds PAPI: Precision Approach Path Indicator REIL: Runway End Identifier Lights SWL: Single Wheel Loading VASI: Visual Approach Slope Indicator VOR: Very High Frequency Omnidirectional Range		

Source: *California Aviation System Plan* (CASP), General Aviation System Needs Assessment Element, 2010.

Historical funding and projects are presented in **Table B**. Between 1984 and 2016, CVH received 19 grants from the FAA for a combined total of approximately \$22.6 million. Most recently, in 2016, CVH was granted \$261,888.00 in AIP entitlement funding to conduct this current ALP Update and Narrative Report.

TABLE B
Grant History
Hollister Municipal Airport

Year	Project	Amount	Grant Number
1984	Conduct airport master plan study	\$46,661	001-1984
1985	Install runway and apron lighting	\$154,336	002-1985
1987	Rehabilitate runway	\$405,090	003-1987
1988	Acquire land for approaches, rehabilitate runway and taxiway	\$604,980	004-1988
1991	Improve airport drainage, extend runway and taxiway, install taxiway lighting, install vertical visual guidance system, install apron lighting, acquire ARFF equipment, acquire land for development	\$5,000,000	005-1991
1994	Rehabilitate and extend taxiway	\$1,220,000	006-1994
2000	Install perimeter fencing, weather reporting equipment, miscellaneous NAVAIDS, and acquire easement for approaches	\$1,779,834	007-2000
2001	Conduct airport master plan study	\$133,856	008-2001
2005	Install perimeter fencing	\$450,000	009-2005
2007	Rehabilitate runway and taxiway – slurry seal	\$427,500	010-2007
2008	Rehabilitate runway and taxiway	\$127,926	011-2008
2009	Repair vertical visual guidance system, conduct miscellaneous study, rehabilitate taxiway lighting (LED lighting, REILs, and taxiway reflectors)	\$192,620	012-2009
2010	Conduct miscellaneous study (PMS study)	\$28,443	013-2010
2011	Improve Runway Safety Area for Runway 13-31 (Design) – Grade, drain, compact, and hydro-seed approximately 73 acres; Excavate, grade, reconfigure RSA, approximately 80,000 CY of material; Install/construct over 9,000 linear feet of drainage pipe.	\$176,612	014-2011
2012	Improve Runway Safety Area for Runway 13-31 (Construct) - Grade drain, compact, and hydro-seed approximately 73 acres; Excavate, grade, reconfigure RSA, approximately 80,000 CY of material; Install/construct over 9,000 linear feet of drainage pipe.	\$2,290,629	015-2012
2013	Rehabilitate runway/Reconstruct northwest 3,690 feet of Runway 13-31 and associated parallel and access taxiways (Phase 1, Design Only)	\$383,368	016-2013
2014	Rehabilitate runway/Reconstruct northwest 3,690 feet of Runway 13-31 and associated parallel and access taxiways (Phase 1 Construction)	\$3,253,500	017-2014
2015	Rehabilitate runway and taxiway (Design and Construct) – Reconstruct northwest portion of Runway 13-31 (approximately 35,600 SY)	\$5,620,666	018-2015
2016	Update airport master plan study (ALP Update and Narrative Report)	\$261,888	019-2016
Total		\$22,557,909	

LED: Light Emitting Diode

REIL: Runway End Identification Lighting

CY: Cubic Yards

SY: Square Yards

Source: FAA Grant History.

EXISTING FACILITIES

Airport facilities can be categorized into two separate classifications: airside facilities and landside facilities. The airside facilities are directly associated with aircraft operations. These facilities may include,

but are not limited to, runways, taxiways, airport lighting, and navigational aids. Landside facilities pertain to facilities necessary to provide safe and efficient transition from surface transportation to air transportation, as well as support aircraft servicing, storage, maintenance, and safe operation. The existing airside and landside facilities are presented in **Exhibit B**.

AIRSIDE FACILITIES

CVH is equipped with two intersecting asphalt runways: Runway 13-31 (northwest-southeast) and Runway 6-24 (northeast-southwest).

Runway 13-31 is 6,350 feet long by 100 feet wide. Runway 31 is marked as a precision instrument runway, while Runway 13 is marked as a non-precision instrument runway. Precision instrument markings include landing designation, centerline, threshold markings, aiming point, touchdown zone, and edge markings. Non-precision markings include a runway designation, threshold, and aiming point. Runway 13-31 has a gradient of 0.4 percent, sloping up from northwest to southeast. Runway 13-31 is equipped with runway end identifier lights (REILs) and two-box PAPI systems serving both ends. In addition, the pavement strength rating for Runway 13-31 is published as 34,000 pounds for single wheel loading (SWL) and 45,500 pounds for dual wheel loading (DWL). It should be noted that Runway 13-31 has recently undergone reconstruction in an effort to improve its pavement condition. Runway 13-31 is served by a 50-foot wide full length parallel taxiway (Taxiway A), with a separation of 300 feet from runway centerline to taxiway centerline. In addition, there are five taxiways that connect Runway 13-31 and parallel Taxiway A, which include Taxiways B, C, D, E, and F moving southeast to northwest. A sixth taxiway serves as a lead-in taxiway farther southeast providing access to the Runway 31 threshold.

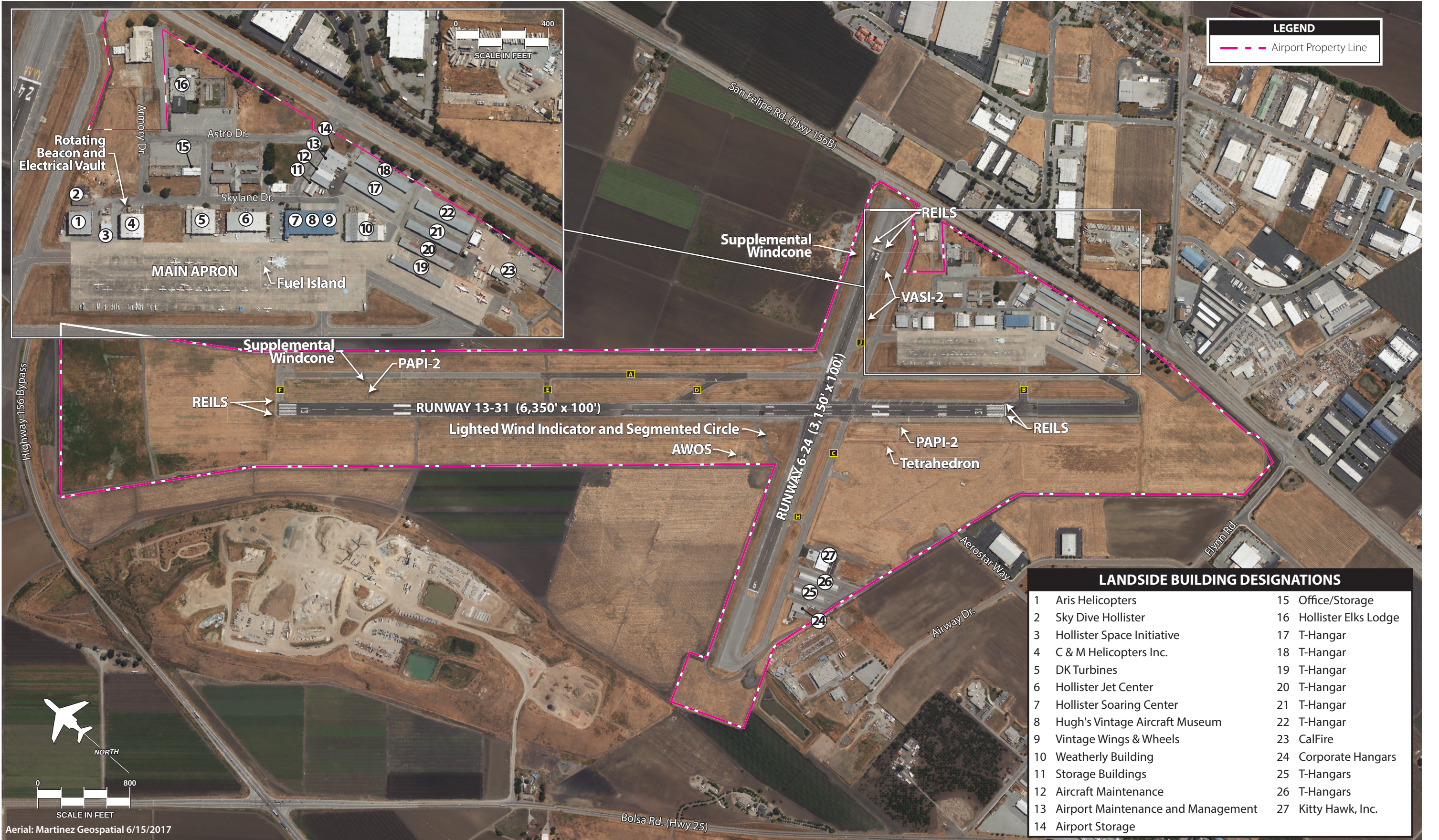


Two-Light Precision Approach Path Indicator

Runway 6-24 is 3,150 feet long by 100 feet wide with basic markings that include runway designations, centerline, and edge markings. Runway 6-24 has a gradient of 1.0 percent, sloping up from east-northeast to west-southwest.

The runway is also served by a 50-foot wide full length parallel taxiway (Taxiway C) with a separation of 250 feet from runway centerline to taxiway centerline. Two taxiways connect Runway 6-24 to parallel Taxiway C and include Taxiways H and J moving southwest to northeast. Lead-in taxiways are also present on each end of the runway, providing additional access to/from the parallel taxiway system.

Runway 6-24 has published pavement strength ratings of 30,000 pounds SWL and 45,000 pounds DWL. Runway 24 is served by two-box VASIs and REILs.



Both runways are equipped with medium intensity runway lighting (MIRL). **Table C** summarizes the airside facilities data available at CVH. Navigational aids (NAVAIDS) include a lighted wind indicator, a tetrahedron that indicates the direction of the wind, supplemental windcones, a segmented circle, and a rotating beacon that remains in operation from sunset to sunrise.

TABLE C
Airside Facilities Data
Hollister Municipal Airport

	Runway 13-31	Runway 6-24
Runway Length (feet)	6,350'	3,150'
Runway Width (feet)	100'	100'
Runway Surface Material	Asphalt	Asphalt
Condition	Good	Good
Pavement Markings	Non-Precision/Precision	Basic
Runway Weight Bearing Capacity		
Single Wheel Weight Bearing Capacity	34,000 lbs	30,000 lbs
Dual Wheel Weight Bearing Capacity	45,500 lbs	45,000 lbs
Runway Lighting	MIRL	MIRL
Runway End Identifier Lights (REILs)	Yes (Both Ends)	Yes (Rwy 24)
Taxiway Lighting	MITL/Edge Reflectors	MITL/Edge Reflectors
Approach Aids	PAPI-2 (Both Ends)	VASI-2 (Rwy 24)
Instrument Approach Procedures	RNAV (GPS) RWY 31	None
Weather or Navigational Aids	AWOS CTAF/UNICOM Segmented Circle Lighted Wind Indicator Tetrahedron Supplemental Windcones Rotating Beacon	
MIRL: Medium Intensity Runway Lighting MITL: Medium Intensity Taxiway Lighting PAPI: Precision Approach Path Indicator VOR: Very High Frequency Omnidirectional and Range RNAV: Area Navigation	GPS: Global Positioning System AWOS: Automated Weather Observation System UNICOM: Universal Communication Frequency CTAF: Common Traffic Advisory Frequency REIL: Runway End Identifier Lights	

Source: FAA Airport Master Record (Form 5010-1), Hollister Municipal Airport Layout Plan (2009), Airport communication.

CVH is served by a common traffic advisory frequency (CTAF)/universal communication frequency (UNICOM), 123.0 MHz, which can be utilized by pilots to communicate with one another, as well as activate the airport lighting systems by keying the radio microphone. In addition, CVH is home to an automated weather observation system (AWOS-III). The AWOS-III automatically records the following weather conditions:

- Wind speed, gusts, and direction
- Temperature
- Dew point
- Altimeter setting
- Density altitude
- Visibility
- Precipitation accumulation
- Cloud height



Automated Weather Observation System

This information is transmitted at regular intervals on the Airport's AWOS-III aeronautical advisory frequency (120.425 MHz) or via a local telephone number (831-636-4394), where a computer-generated voice will present Airport weather information. AWOS-III broadcasts are updated on a minute-by-minute basis and provide arriving and departing pilots with the current weather conditions.

Instrument approaches and departures are handled by NORCAL Approach and Departure Control on frequency 124.525 MHz.

Parallel Taxiways A and C provide access to Runways 13-31 and 6-24. A series of connecting taxiways provide access and egress for aircraft operating on the runways. Connecting taxiways are equipped with light emitting diode (LED) medium intensity taxiway lighting (MITL), while the remaining taxiway system is equipped with blue reflectors.

LANDSIDE FACILITIES

The Airport offers several amenities to pilots, catering to both itinerant and based aircraft. Hollister Jet Center operates as the Airport's fixed base operator (FBO). Aircraft hangars and apron area are also available for both itinerant and based aircraft. Building and facility footprint measurements are summarized in **Table D**. The aircraft apron has approximately 120 marked tiedown positions, including four large aircraft positions. The aircraft apron and movement area encompasses approximately 42,800 square yards. At this time, CVH has approximately 190,800 sf of hangar space on the airfield. Hangar styles available include T-hangars, executive box/corporate, and conventional.

TABLE D

**Landside Facility Data
Hollister Municipal Airport**

	Total Footprint Area
Hollister Jet Center	2,500 sf
T-Hangars	88,800 sf
Executive Box/Corporate	22,200 sf
Conventional Hangars	79,800 sf
Apron and Movement Area	42,800 sy

sf: Square feet

sy: Square yards

Source: Google Maps Satellite Photo (2016).

Hollister Jet Center has a single-level structure with a footprint of approximately 13,400 sf consisting of approximately 10,900 sf of conventional hangar space and 2,500 sf of FBO space. The facility offers provisions for pilots and passengers, including a lobby equipped with a large screen television, a conference room, quiet room, flight planning room/weather station, and rental car services. Hollister Jet Center provides the following aviation-related services:

- Aviation fuel
- Aircraft ground handling
- Oxygen service
- Aircraft parking
- Ground power unit (GPU)
- Flight training
- Aircraft rental
- Aerial tours
- Aircraft maintenance

In addition to Hollister Jet Center, there are numerous businesses located on the Airport providing a wide range of services. Below is a list of aviation-related businesses and services provided on the Airport:

- Aris Helicopters — aerial construction and heavy lift operations, firefighting, law enforcement support, and media and aerial photography support.
- Skydive Hollister — tandem and solo skydive operations, as well as instruction for solo jumps.
- C&M Helicopters, Inc. — crop dusting services.
- DK Turbines — parts and solutions for turbine-powered aircraft.
- Hugh's Vintage Aircraft Museum — public tours and vintage aircraft restoration.
- Vintage Wings and Wheels — maintenance, repair, and restoration for vintage aircraft.
- Bay Area Glider Rides — glider rides and glider flight instruction.
- Kitty Hawk Inc. — aircraft development and research

Furthermore, CalFire also has a strong presence on the airfield, utilizing CVH as an air attack base during fire season. In an effort to support ground forces, the CalFire emergency response air program includes a fleet of Grumman S-2T 1,200-gallon airtankers, UH-1H Super Huey helicopters, and OV-10A air-tactical aircraft. These aircraft are operated from 13 air attack and nine helitack bases located around the state. CVH serves as one of the 13 air attack bases. Tactical aircraft are used to fly overhead directing the airtankers and helicopters to critical areas of the fire to disperse water and fire retardant. CalFire aircraft are located throughout the state in such a manner that most fires can be reached within approximately 20 minutes. During high fire activity, however, aircraft may be relocated around the state to provide better air support.

At CVH, the CalFire base is located on the southeastern side of the airfield near Runway 31, as presented on **Exhibit B**. It should be noted, however, that the existing CalFire base is located within critical safety areas serving Runway 13-31. The State of California has shown interest in relocating the CalFire base to the westernmost side of Runway 13-31. Ultimately, the Airport would like to use the existing CalFire location for fuel storage purposes.

The Airport's perimeter is equipped with six-foot fencing with three strands of barbed-wire affixed on top. Controlled access gates located in various locations prevent inadvertent access by unauthorized personnel as well as wildlife.

Fuel facilities available at CVH include self-serve Jet-A and 100LL available for purchase with a credit card on a 24-hour basis. Fuel storage and dispensing facilities are owned by the City of Hollister and operated by Hollister Jet Center. Fuel is stored in two underground 10,000-gallon tanks (one tank designated for Jet-A and the other 100LL) that are used to dispense fuel from a self-service fuel island located on the main apron to the west of Hollister Jet Center. Hollister Jet Center also operates four fueling trucks, one

truck with a storage capacity of 750 gallons for 100LL, and three trucks designated for Jet A with capacities of 2,000; 4,000; and 4,500 gallons.



Hollister Jet Center

Utilities serving the Airport include water, sanitary sewer, natural gas, and electricity. Natural gas and electric utilities are provided by PG&E, while water and sanitary sewer services are provided by the City of Hollister. The Airport has an emergency generator capable of operating the Airport beacon, runway, and taxiway lights in the event of a power outage. CVH does not have provisions in place for aircraft rescue and firefighting (ARFF) capabilities as it is a general aviation airport and is not required. The Airport does maintain a compressed air foam firefighting system on one of its maintenance trucks.

The Airport is accessible from the west side of State Highway 156B. The automobile parking lot lies on the western side of Skylane Drive in between the Hollister Jet Center and the Airport management building. Marked automobile parking is designated in two common parking lots consisting of approximately 10,000 sf of combined parking area. These parking lots provide 30 marked parking spaces, including four handicap accessible spaces. Approximately 15,300 sf of unmarked parking is also available on the Airport that can accommodate an estimated 44 vehicles. The apron area is separated from the parking lot through use of a controlled access gate.

VICINITY AIRPORTS

There are multiple airports located within the vicinity of CVH. Given the existence of numerous private and public use airports located near the Airport, **Exhibit C** outlines those facilities that are designated as public use within a 30-nautical mile (nm) radius of CVH. There are varying levels of service located on each airport.

VICINITY AIRSPACE

The airspace within the National Airspace System (NAS) is divided into six different categories or classes. The airspace classifications that make up the NAS are presented in **Exhibit D**. These categories are made up of Classes A, B, C, D, E, and G airspace. Each class of airspace contains its own criteria that must be met in terms of required aircraft equipment, operating flight rules (visual or instrument flight rules), and procedures. Classes A, B, C, D, and E are considered controlled airspace which requires pilot communication with the controlling agency prior to airspace entry and throughout operation within the designated airspace. Pilot communication procedures, required pilot ratings, and required minimum aircraft equipment vary depending upon the class of airspace, as well as the type of flight rules in use. Class G

FRAZIER LAKE AIRPARK (1C9)

Airport NPIAS Classification	NA
FAA Asset Study Classification	NA
Location from CVH	4.4 nm NW
Elevation	152 ft
Weather Reporting	None
ATCT	None
Annual Operations	9,490
Based Aircraft	91
Enplaned Passengers	None

Runways	5-23	5W-23W
Length	2,500	3,000
Width	100	60
Pavement Strength		
SWL	Turf	Water
DWL	NA	NA
Lighting	LIRL	None
Marking	None	Buoys
Approach Aids	REILs(23)	None
Instrument Approach Procedures	None	None

Services Provided: Aircraft tiedowns.

MARINA MUNICIPAL AIRPORT (OAR)

Airport NPIAS Classification	GA
FAA Asset Study Classification	Local
Location from CVH	21.1 nm SW
Elevation	136.6 ft
Weather Reporting	AWOS
ATCT	None
Annual Operations	41,975
Based Aircraft	49
Enplaned Passengers	None

Runways	11-29
Length	3,483
Width	75
Pavement Strength	
SWL	20,000
DWL	50,000
Lighting	MIRL
Marking	Basic
Approach Aids	PAPI-2(29)
Instrument Approach Procedures	GPS/VOR

Services Provided: Aircraft tiedowns, 100LL and Jet A fuel, major airframe and powerplant maintenance and oxygen.

SAN MARTIN AIRPORT (E16)

Airport NPIAS Classification	Reliever
FAA Asset Study Classification	Local
Location from CVH	14.4 nm NW
Elevation	283.8 ft
Weather Reporting	AWOS
ATCT	None
Annual Operations	32,485
Based Aircraft	67
Enplaned Passengers	None

Runways	14-32
Length	3,095
Width	75
Pavement Strength	
SWL	12,500
DWL	NA
Lighting	MIRL
Marking	Basic
Approach Aids	PAPI-2; REILs(32)
Instrument Approach Procedures	GPS(32)

Services Provided: Aircraft hangars and tiedowns, 100LL and Jet A fuel, major airframe and powerplant maintenance, and bottled oxygen.

MONTEREY REGIONAL AIRPORT (MRY)

Airport NPIAS Classification	Non-Hub
FAA Asset Study Classification	NA
Location from CVH	27.8 nm SW
Elevation	256.6 ft
Weather Reporting	ASOS
ATCT	Yes
Annual Operations	83,950
Based Aircraft	114
Enplaned Passengers	186,935

Runways	10R-28L	10L-28R
Length	7,175	3,503
Width	150	60
Pavement Strength		
SWL	100,000	12,500
DWL	160,000	NA
Lighting	HIRL	MIRL
Marking	PI	Basic
Approach Aids	PAPI-4/REILs; MALSR(10R)	None
Instrument Approach Procedures	ILS/RNP/GPS/LOC	

Services Provided: Aircraft tiedowns, 100LL Jet A fuel, major airframe and powerplant maintenance, and oxygen.

SALINAS MUNICIPAL AIRPORT (SNS)

Airport NPIAS Classification	GA
FAA Asset Study Classification	Regional
Location from CVH	16.7 nm SW
Elevation	84.3 ft
Weather Reporting	ASOS
ATCT	Yes
Annual Operations	77,745
Based Aircraft	175
Enplaned Passengers	None

Runways	8-26	13-31
Length	6,004	4,825
Width	150	150
Pavement Strength		
SWL	25,000	65,000
DWL	32,000	100,000
Lighting	MIRL	HIRL
Marking	NPI	PI
Approach Aids	VASI-2 REILs(26)	VASI-4(13); REILs(13) PAPI-2(31); MALSR(31)
Instrument Approach Procedures	None	GPS/VOR(13) ILS/GPS/LOC(31)

Services Provided: Aircraft hangars and tiedowns, 100LL and Jet A fuel, and major airframe and powerplant maintenance.

LOS BANOS MUNICIPAL AIRPORT (LSN)

Airport NPIAS Classification	GA
FAA Asset Study Classification	Local
Location from CVH	27.9 nm ENE
Elevation	121.4 ft
Weather Reporting	None
ATCT	AWOS
Annual Operations	16,060
Based Aircraft	18
Enplaned Passengers	None

Runways	14-32
Length	3,801
Width	75
Pavement Strength	
SWL	23,000
DWL	NA
Lighting	MIRL
Marking	Basic
Approach Aids	PAPI-2; REILs
Instrument Approach Procedures	GPS/VOR/DME

Services Provided: Aircraft tiedowns, 100LL and Jet A fuel, minor airframe and powerplant maintenance.

WATSONVILLE MUNICIPAL AIRPORT (WVI)

Airport NPIAS Classification	GA
FAA Asset Study Classification	Regional
Location from CVH	18.4 nm W
Elevation	163.2 ft
Weather Reporting	ASOS
ATCT	None
Annual Operations	64,970
Based Aircraft	381
Enplaned Passengers	None

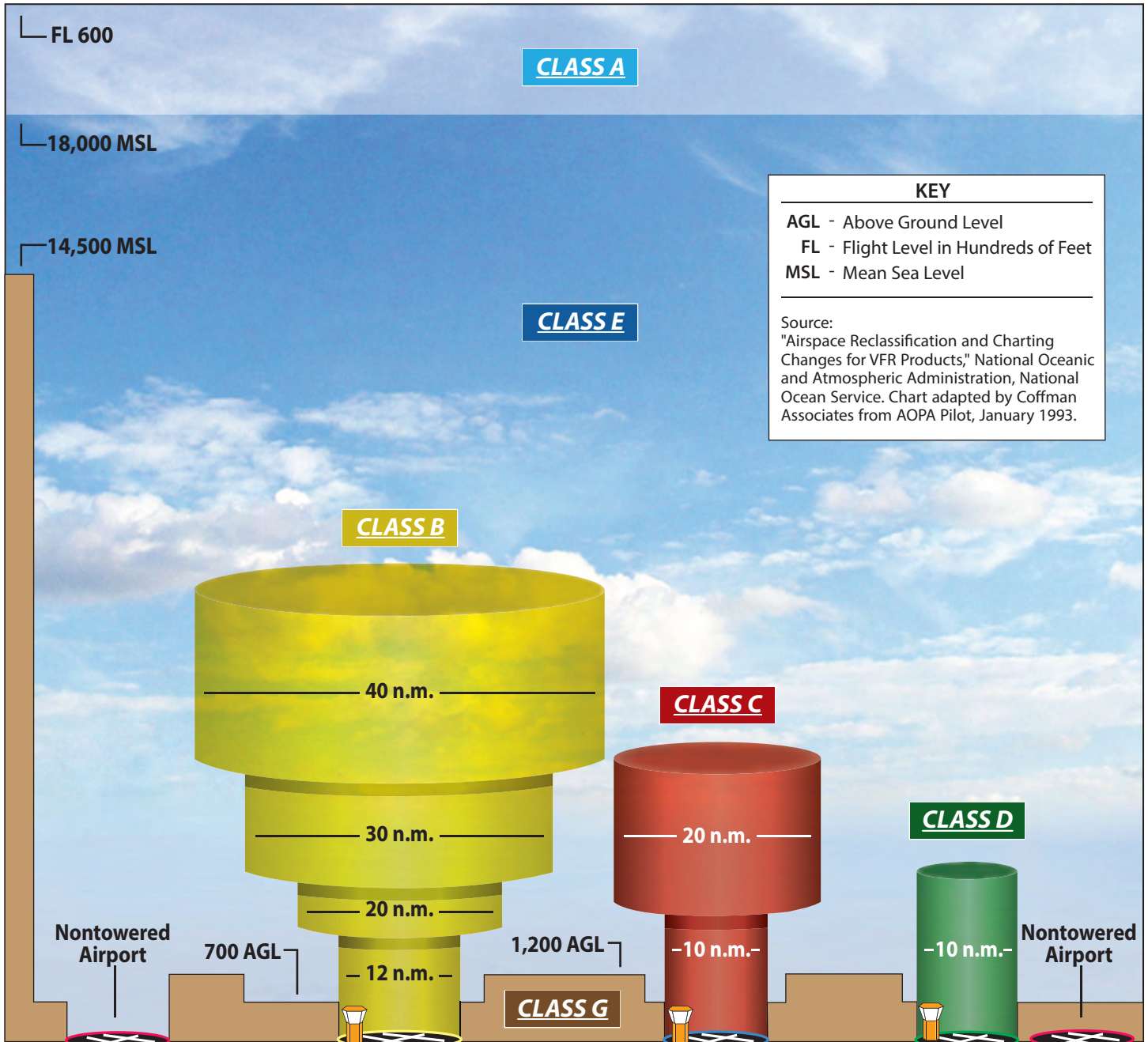
Runways	2-20	9-27
Length	4,501	3,998
Width	149	98
Pavement Strength		
SWL	81,000	45,000
DWL	96,000	65,000
Lighting	MIRL	None
Marking	NPI	Basic
Approach Aids	PAPI-2; REILs(2)	PAPI-2(9)
Instrument Approach Procedures	GPS/LOC(2) VOR	

Services Provided: Aircraft tiedowns, 100LL and Jet A fuel, minor airframe and major powerplant maintenance, and oxygen.

ABBREVIATION KEY

ATCT	- Airport Traffic Control Tower
ASOS	- Automated surface observation station
AWOS	- Automated Weather Observation System
DME	- Distance measuring equipment
DWL	- Dual Wheel Loading
GA	- General Aviation
GPS	- Global Positioning System
HIRL/LIRL	- High/Low intensity runway edge lighting
ILS	- Instrument landing system
MALSR	- Medium Intensity Approach Lighting System with Runway Alignment Indicator Lights
MIRL	- Medium Intensity Runway Lighting
nm	- Nautical Miles
NPI	- Non-Precision Instrument
PAPI	- Precision Approach Path Indicator
REIL	- Runway End Identifier Lights
SWL	- Single Wheel Loading
VOR	- VHF Omni-Directional Range





KEY

AGL - Above Ground Level
FL - Flight Level in Hundreds of Feet
MSL - Mean Sea Level

Source:
"Airspace Reclassification and Charting Changes for VFR Products," National Oceanic and Atmospheric Administration, National Ocean Service. Chart adapted by Coffman Associates from AOPA Pilot, January 1993.

DEFINITION OF AIRSPACE CLASSIFICATIONS

- CLASS A** Generally airspace above 18,000 feet MSL up to and including FL 600.
- CLASS B** Generally multi-layered airspace from the surface up to 10,000 feet MSL surrounding the nation's busiest airports.
- CLASS C** Generally airspace from the surface to 4,000 feet AGL surrounding towered airports with service by radar approach control.
- CLASS D** Generally airspace from the surface to 2,500 feet AGL surrounding towered airports.
- CLASS E** Generally controlled airspace that is not Class A, Class B, Class C, or Class D.
- CLASS G** Generally uncontrolled airspace that is not Class A, Class B, Class C, Class D, or Class E.

airspace is uncontrolled and extends from the surface to the base of the overlying Class E airspace. Although ATC has no authority or responsibility to control air traffic within this airspace, pilots should remember there are visual flight rule minimums that apply to Class G airspace.

CVH lies within Class E Airspace with a floor 700 feet above the ground, which is a form of controlled airspace; however, only pilots operating under instrument flight rules (IFR) are required to be in communication with the controlling air traffic agency. Pilots operating under visual flight rules (VFR) are not required to be in communication with the controlling agency when operating in Class E Airspace.

CVH is 28 nautical miles (nm) from Monterey Regional Airport and 17 nm from Salinas Municipal Airport, which are within Classes C and D airspace, respectively. **Exhibit E** presents the classifications of airspace within the vicinity of CVH.

SPECIAL USE AIRSPACE

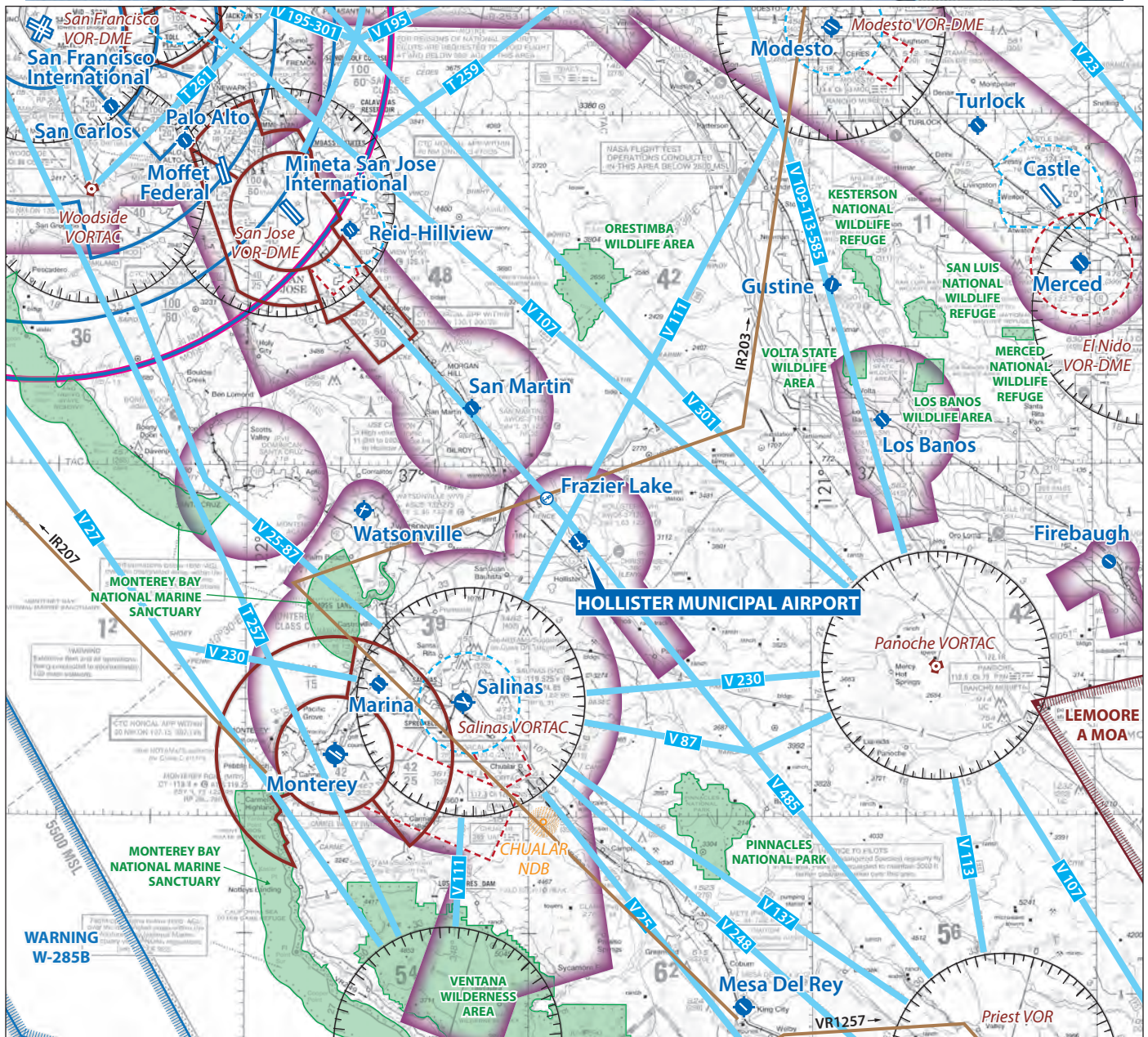
Special use airspace is defined as airspace where activities must be confined because of their nature or where limitations are imposed on aircraft not taking part in those activities. The designation of special use airspace identifies for other users the areas where military activity occurs, provides for segregation of that activity from other fliers, and allows charting to keep airspace users informed. These areas are depicted on **Exhibit E**.

Victor Airways: Victor Airways are designated navigational routes extending between VOR facilities. Victor Airways have a floor of 1,200 feet AGL and extend upward to an altitude of 18,000 feet MSL. Victor Airways are eight nm wide.

Numerous Victor Airways are in the vicinity of the Airport. VOR facilities can also be coupled with tactical aircraft control and navigation facilities (VORTACs), as well as distance measuring equipment (VOR-DME). Victor Airways near CVH extend from the San Francisco, San Jose, El Nido, and Modesto VOR-DMEs, as well as the Woodside, Salinas, and Panoche VORTACs and the Priest VOR.

Military Training Routes: Military Training Routes (MTRs) are designated military flight paths that allow flight in excess of 250 knots at low altitude, typically below 10,000 feet MSL. MTRs can be designated for either VFR or IFR flight at altitudes below 1,500 feet or above 1,500 feet. Non-participating pilots are not restricted from utilizing MTRs, however, extreme caution and vigilance is recommended due to the nature of the participant aircraft using the MTRs. The FAA recommends contacting the nearest Flight Service Station (FSS) to obtain information regarding the activity status of the MTR. MTRs within the vicinity of CVH are located west, north-northeast, and southeast of the Airport and includes IR203.

Military Operations Areas: Military Operating Areas (MOAs) are designated areas of airspace established outside Class A airspace to separate or segregate certain military activities, IFR traffic, and to identify VFR traffic where these activities are conducted. While the FAA does not prohibit civilian VFR traffic from transiting an active MOA, it is strongly discouraged. The MOAs in the vicinity of CVH include the Lemoore MOAs, which is located approximately 50 nm east-southeast of the Airport.



LEGEND

- | | | | | | |
|--|---|--|---|--|---|
| | Seaplane Base | | Compass Rose | | MOA - Military Operations Area |
| | Airport with hard-surfaced runways 1,500' to 8,069' in length | | Class B Airspace | | Prohibited, Restricted, Warning and Alert Areas |
| | Airports with hard-surfaced runways greater than 8,069' or some multiple runways less than 8,069' | | Class C Airspace | | Military Training Routes |
| | Non-Directional Radiobeacon (NDB) | | Class D Airspace | | Wilderness Areas |
| | VORTAC | | Class E Airspace | | |
| | VHF Omni Range (VOR) | | Class E Airspace with floor 700 ft. above surface | | |
| | VOR-DME | | Mode C | | |
| | | | Victor Airways | | |

Source: San Francisco Sectional Chart, US Department of Commerce, National Oceanic and Atmospheric Administration, August 18, 2016

Restricted Airspace: Restricted areas contain airspace in which the flight of aircraft, while not wholly prohibitive, is subject to restrictions. Activities within these areas must be confined because of their nature, and limitations to aircraft operations may be imposed on those aircraft that are not a part of these activities. Restricted airspace is off-limits for public use unless granted permission from the controlling agency.

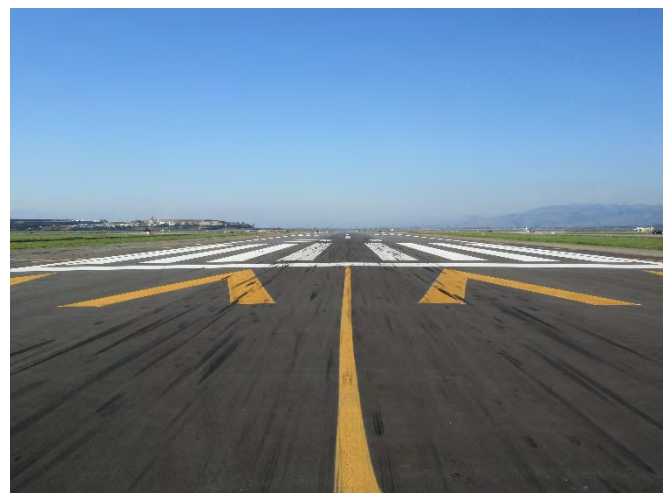
The Air Route Traffic Control Center (ARTCC) facility having jurisdiction over the restricted airspace needs to authorize clearances to aircraft that cannot avoid the restricted area, unless the aircraft is on a previously approved altitude reservation mission or is part of the activity within the restricted area. If the restricted area is not active, the ARTCC facility will allow aircraft to transition through the airspace without issuing special clearances. Currently, there is no restricted airspace in the vicinity of the Airport.

Warning Areas: Warning areas are similar in nature to restricted areas; however, the United States government does not have sole jurisdiction over the airspace. A warning area is airspace of defined dimension, extending from 3 nm outward from the coast of the United States, containing activity that may be hazardous to nonparticipating aircraft. The purpose of such areas is to warn nonparticipating pilots of the potential danger. A warning area may be located over domestic or international waters or both. Warning area W-285B is currently located over the Pacific Ocean, approximately 80 nm to the southwest of CVH.

National Park Service, Recreation, and Wilderness Areas: Nine wilderness areas exist in proximity to CVH. Aircraft are requested to maintain a minimum altitude of 2,000 feet above the surface of designated Wilderness Areas, which can include National Park Recreation Areas and wildlife breeding grounds. FAA Advisory Circular (AC) 91-36D defines the “surface” as the highest terrain within 2,000 feet laterally of the route of flight or the uppermost rim of a canyon or valley. The Airport is located in proximity to the Monterey Bay National Marine Sanctuary, Ventana Wilderness Area, Pinnacles National Park, Los Banos Wildlife Area, Merced National Wildlife Refuge, San Luis National Wildlife Refuge, Kesterson National Wildlife Refuge, Volta State Wildlife Area, and Orestimba Wildlife Area.

INSTRUMENT APPROACH PROCEDURES

Runway 31 is served by an area navigation (RNAV) global positioning system (GPS) instrument approach system. This system enables pilots to locate and land at the Airport during low visibility conditions. The instrument procedures are a series of electronic navigational aids, coupled with maneuvers predetermined by the FAA to ensure safe navigation to the Airport in reduced visibility conditions. The lowest minimums available provide for landing with a cloud ceiling of 400 feet above ground level (AGL) and visibility of 1¼-mile utilizing the RNAV GPS local-



Runway 31

izer performance with vertical guidance (LPV) approach. Circling approaches are also available with minimums of not less than 700 feet AGL cloud ceilings and visibility of 1 mile.

The approved approaches for the Airport are for Categories A, B, and C aircraft only. Category A aircraft are those with approach speeds of less than 91 knots. Category B aircraft have approach speeds of 91 knots or greater, but less than 121 knots. Category C aircraft have approach speeds of 121 knots or greater, but less than 141 knots. **Exhibit F** presents the RNAV GPS instrument approach to Runway 31, and its associated cloud ceiling and visibility minimums.

SOCIOECONOMIC CHARACTERISTICS

Socioeconomic characteristics can provide valuable information and insight with regard to growth and economic well-being of the study area. This information can contribute to the understanding and determination of the aviation service level requirements, as well as forecasting future operation and based aircraft levels.

POPULATION

Trends in population can provide an indication of the potential for the region to sustain growth in aviation activity. The historical population for the State of California was determined in 1990 by the California Department of Finance (DOF) to be over 29.76 million. As of July 1, 2016, the California DOF calculated a population total of approximately 39.35 million. This total represents a compound annual growth rate (CAGR) of roughly 1.08 percent from 1990-2016. Over the same period, the San Jose-Sunnyvale-Santa Clara Metropolitan Statistical Area (MSA), which includes the City of Hollister, as well as the entirety of San Benito and Santa Clara counties, experienced a population growth of 453,037 residents. This equates to a 1.00 percent CAGR. San Benito County's population has grown from a reported 36,697 in 1990 to 85,014 in 2016 at a CAGR of 1.78 percent. From 1990 to 2016, the City of Hollister experienced a population CAGR of 2.50 percent reaching 36,484 in 2016. More recently, population growth rates for the State of California, San Benito County, and City of Hollister have been somewhat lower. From 2010-2016, the State of California, San Benito County, and City of Hollister experienced growth rates of 0.88, 0.81, and 0.98 percent, respectively, while the San Jose-Sunnyvale-Santa Clara MSA experienced a slightly higher growth rate of 1.28 percent. **Table E** further presents historical population information.

TABLE E
Historical Population

	Year			CAGR (1990-2016)	CAGR (2010-2016)
	1990	2010	2016		
City of Hollister	19,212	34,413	36,484	2.50%	0.98%
San Benito County	36,697	55,269	58,014	1.78%	0.81%
San Jose-Sunnyvale-Santa Clara MSA	1,535,142	1,842,462	1,988,179	1.00%	1.28%
State of California	29,760,021	37,333,583	39,354,432	1.08%	0.88%
United States	249,622,800	309,347,100	324,506,900	1.01%	0.80%

HOLLISTER, CALIFORNIA

AL-6785 (FAA)

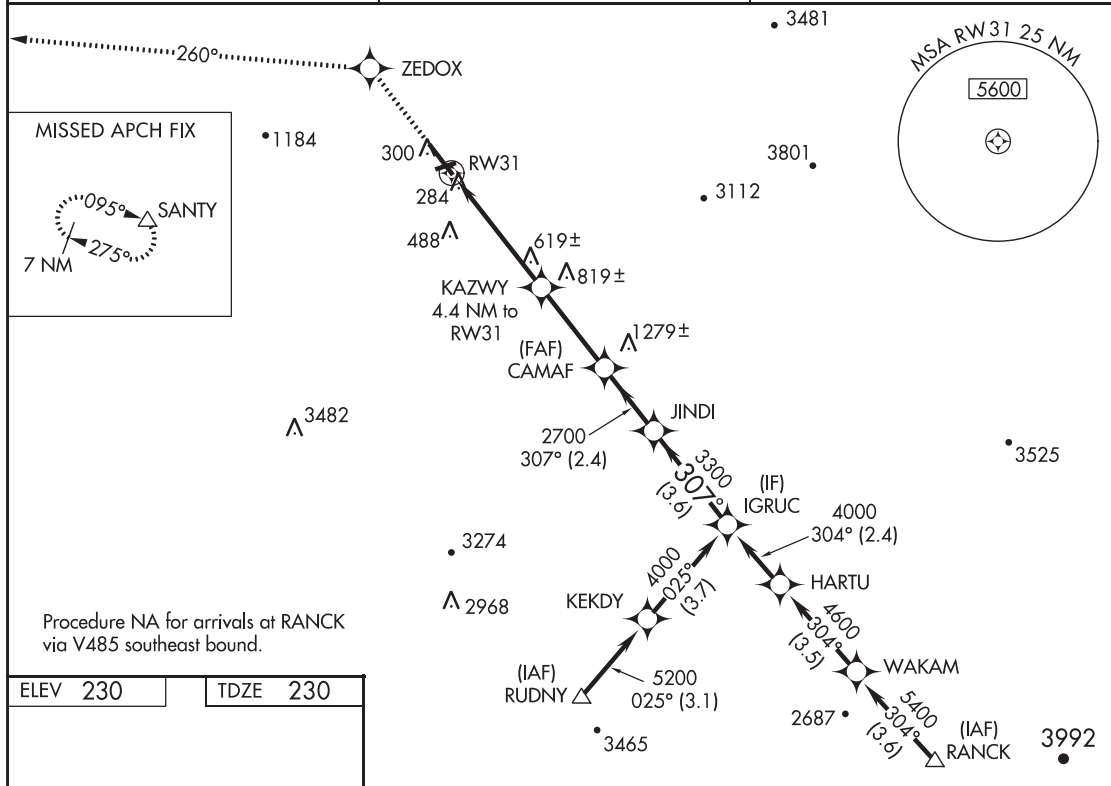
16035

WAAS CH 93806 W31A	APP CRS 307°	Rwy Idg TDZE Apt Elev	6350 230 230
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RNAV (GPS) RWY 31 HOLLISTER MUNI (CVH)

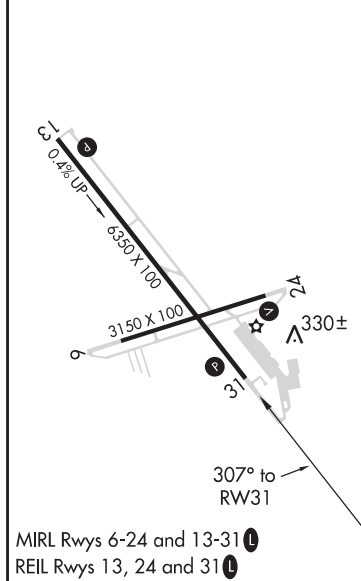
T DME/DME RNP-0.3 NA. Visibility reduction by helicopters NA. A Baro-VNAV NA when using Norman Y Mineta (KSJC) San Jose Intl altimeter setting. For uncompensated Baro-VNAV systems, LNAV/VNAV NA below -15°C (5°F) or above 54°C (130°F). When local altimeter setting not received, use Norman Y Mineta (KSJC) San Jose Intl altimeter setting, and increase all DAs/MDAs 120 feet and all visibilities ½ mile. VDP NA when using Norman Y Mineta (KSJC) San Jose Intl altimeter setting.	MISSED APPROACH: Climb to 7000 direct ZEDOX and via 260° track to SANTY and hold, continue climb-in-hold to 7000.
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AWOS-3 120.425	NORCAL APP CON 124.525 348.675	UNICOM 123.0 (CTAF)
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Procedure NA for arrivals at RANCK via V485 southeast bound.

ELEV 230	TDZE 230
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MIRL Rwy 6-24 and 13-31
REIL Rwy 13, 24 and 31

7000 ↑	ZEDOX 	260° tr	SANTY △	Procedure Turn NA	
*LNAV only		KAZWY 4.4 NM to RW31	CAMAF	JINDI	IGRUC
*1.9 NM to RW31		307°		4000	
RW31		1580*	2700	GP 3.00° TCH 40	
1.9 NM		2.5 NM	3.1 NM	2.4 NM	3.6 NM
CATEGORY	A	B	C	D	
LPV DA	553-1¼ 323 (400-1¼)			NA	
LNAV/ VNAV DA	801-2 571 (600-2)			NA	
LNAV MDA	880-1 650 (700-1)		880-1¾ 650 (700-1¾)		NA
CIRCLING	880-1 650 (700-1)		880-1¾ 650 (700-1¾)		NA

HOLLISTER, CALIFORNIA

Orig 05JUN08

36°54'N-121°25'W

RNAV (GPS) RWY 31 HOLLISTER MUNI (CVH)

Population projections through 2037 retrieved from the 2016 Woods and Poole Complete Economic and Demographic Data Source, as well as the CALTRANS Economic Analysis Branch, are presented in **Table F**. According to the CALTRANS Economic Analysis Branch, the State of California is projected to grow at a CAGR of 0.70 percent through 2037, reaching a population total of 45.60 million. The San Jose-Sunnyvale-Santa Clara MSA population is forecasted to grow at a CAGR of 0.87 percent, resulting in a population of 2.39 million by 2037. San Benito County population is forecasted to grow at a CAGR of 0.92 percent through 2037, reaching 70,348 by 2037.

TABLE F
Forecast Population

Area	2016	2022	2027	2037	CAGR (2016-2037)
San Benito County	58,014	61,168	64,096	70,348	0.92%
San Jose-Sunnyvale-Santa Clara MSA	1,988,179	2,102,125	2,199,851	2,387,107	0.87%
State of California	39,354,432	41,170,000	42,760,000	45,600,000	0.70%
United States	324,506,944	342,963,009	359,050,382	390,716,159	0.89%

CAGR: Compound Annual Growth Rate

Source: California Economic Forecast, 2016-2050, Economic Analysis Branch, Caltrans; The Complete Economic And Demographic Data Source, Woods and Poole 2016.

EMPLOYMENT AND PERSONAL INCOME

An overview of the community's employment and personal income base can provide pertinent information with regard to the economic health of the community. Generally speaking, the economic well-being of the community is greatly influenced by the variety and availability of employment opportunities, as well as wages offered by local employers. **Table G** summarizes employment and income data obtained from Woods and Poole Complete Economic and Demographic Data Source over the past 26 years for San Benito County, San Jose-Sunnyvale-Santa Clara MSA, the State of California, and the United States.

As presented in **Table G**, total employment in San Benito County has increased by 8,394 over a 26-year period, equating to a CAGR of 1.68 percent, outpacing the San Jose-Sunnyvale-Santa Clara MSA total employment CAGR of 0.97 percent. Over the same time period, the county also experienced per capita personal income (PCPI) and mean household income CAGRs of 1.56 percent and 1.59 percent, respectively, while the MSA experienced growth rates of 2.39 percent and 2.50 percent.

During the 26-year timeframe, the State of California and the United States experienced total employment CAGRs of 1.17 percent and 1.27 percent. The State of California experienced PCPI and mean household income CAGRs of 1.53 percent and 1.55 percent, while the United States experienced CAGRs of 1.58 and 1.37 percent, respectively.

Table H presents forecasts for employment, PCPI, and mean household income in San Benito County, San Jose-Sunnyvale-Santa Clara MSA, California, and the United States. If realized, the projected employment growth could provide a base for increased aviation demand in the region. Moreover, PCPI is determined by dividing the total income by population. In order for PCPI to grow, income growth must outpace population growth significantly. Over the planning period, the MSA's PCPI is anticipated to grow at the same rate as the United States and at a greater rate than the State of California.

TABLE G
Historical Employment and Income Data

	1990	2010	2016	CAGR (1990-2016)
San Benito County				
Total Employment	15,501	20,541	23,895	1.68%
PCPI (2009 Dollars)	26,149	33,994	39,115	1.56%
Mean Household Income (2009 Dollars)	82,775	111,296	124,751	1.59%
San Jose-Sunnyvale-Santa Clara MSA				
Total Employment	1,052,577	1,136,653	1,353,173	0.97%
Income Per Capita (2009 Dollars)	37,811	57,835	69,924	2.39%
Mean Household Income (2009 Dollars)	106,789	168,869	202,978	2.50%
State of California				
Total Employment	16,834,530	19,803,750	22,789,470	1.17%
Income Per Capita (2009 Dollars)	31,872	41,721	47,259	1.53%
Mean Household Income (2009 Dollars)	89,794	121,397	134,114	1.55%
United States				
Total Employment	138,330,900	173,034,700	191,870,800	1.27%
Income Per Capita (2009 Dollars)	29,050	39,622	43,613	1.58%
Mean Household Income (2009 Dollars)	76,860	102,642	109,355	1.37%

CAGR: Compound Annual Growth Rate

PCPI: Per Capita Personal Income

Source: The Complete Economic and Demographic Data Source, Woods & Poole, 2016.

TABLE H
Forecast Employment and Income Data

	2016	2022	2027	2037	CAGR (2016-2037)
San Benito County					
Total Employment	23,895	25,830	27,340	30,126	1.11%
PCPI (2009 Dollars)	39,115	41,737	43,649	46,458	0.82%
Mean Household Income (2009 Dollars)	124,751	132,028	139,124	151,762	0.94%
San Jose-Sunnyvale-Santa Clara MSA					
Total Employment	1,353,173	1,495,077	1,614,700	1,855,547	1.51%
PCPI (2009 Dollars)	69,924	76,241	81,562	92,068	1.32%
Mean Household Income (2009 Dollars)	202,978	220,007	237,599	275,910	1.47%
State of California					
Total Employment	22,789,470	24,957,650	26,760,920	30,266,320	1.36%
PCPI (2009 Dollars)	47,259	51,528	55,070	61,334	1.25%
Mean Household Income (2009 Dollars)	134,114	145,938	157,983	182,247	1.47%
United States					
Total Employment	191,870,800	209,147,800	223,284,100	250,168,700	1.27%
PCPI (2009 Dollars)	43,613	47,796	51,287	57,428	1.32%
Mean Household Income (2009 Dollars)	109,355	119,227	129,252	149,162	1.49%

CAGR: Compound Annual Growth Rate

PCPI: Per Capita Personal Income

Source: The Complete Economic and Demographic Data Source, Woods & Poole, 2016.

FORECASTS OF AVIATION DEMAND

Facility planning requires a definition of demand that may be expected to occur during the useful life of the facility's crucial components. For CVH, this involves projecting aviation demand for a 20-year timeframe. In this report, forecasts of registered aircraft, based aircraft, based aircraft fleet mix, annual airport operations, and forecasts of airport peaking characteristics are projected.

The forecasts generated may be used for a multitude of purposes; including facility needs assessments as well as environmental evaluations. The forecasts will be submitted to the FAA for review and approval to ensure accuracy and reasonable projection of aviation activity. The intent of the projections is to enable the City of Hollister and CVH to make facility improvements to meet demand in the most efficient and cost-effective manner possible.

It should be noted that aviation activity can be affected by numerous outside influences on local, regional, and national levels. As a result, forecasts of aviation demand should be used only for advisory purposes. It is recommended that planning strategies remain flexible enough to accommodate any unforeseen facility needs.

FORECASTING APPROACH

Typically, the most accurate and reliable forecasting approach is derived from multiple analytical forecasting techniques. Analytical forecasting methodologies typically consist of regression analysis, trend analysis and extrapolation, market share or ratio analysis, and smoothing. Through the use of multiple forecasting techniques based upon each aviation demand indicator, an envelope of aviation demand projections can be generated. Generally, the preferred planning forecast will consist of a combination of forecasts as the averaged result of multiple forecasts are typically more accurate, although it is possible to use just one forecast result.

Regression Analysis can be described as a forecasting technique that correlates certain aviation demand variables (such as passenger enplanements or operations) with economic measures. When using regression analysis, the technique should be limited to relatively simple models containing independent variables for which reliable forecasts are available (such as population or income forecasts).

Trend Analysis and Extrapolation is a forecasting technique that records historical activity (such as airport operations) and projects this pattern into the future. Oftentimes, this technique can be beneficial when local conditions of the study area are differentiated from the region or other airports.

Market Share or Ratio Analysis can be described as a forecasting technique that assumes the existence of a top-down relationship between national, regional, and local forecasts. The local forecasts are presented as a market share of regional forecasts and regional forecasts are presented as a market share of national forecasts. Typically, historical market shares are calculated and used as a base to project future market shares.

Smoothing is a statistical forecasting technique that can be applied to historical data, giving greater weight to the most recent trends and conditions. Generally, this technique is most effective when generating short-term forecasts.

NATIONAL GENERAL AVIATION TRENDS

The FAA forecasts the fleet mix and hours flown for single engine piston aircraft, multi-engine piston aircraft, turboprops, business jets, piston and turbine helicopters, light sport, experimental, and others (gliders and balloons). The FAA forecasts “active aircraft,” not total aircraft. An active aircraft is one that is flown at least one hour during the year. It is important to note that from 2010 through 2013, the FAA undertook an effort to have all aircraft owners re-register their aircraft. This effort resulted in a 10.5 percent decrease in the number of active general aviation aircraft, mostly in the piston category.

The long-term outlook for general aviation is favorable, led by gains in turbine aircraft activity. The active general aviation fleet is forecast to increase 0.1 percent a year between 2016 and 2037, equating to an absolute increase in the fleet of about 3,500 units. While steady growth in both GDP and corporate profits results in continued growth of the turbine and rotorcraft fleets, the largest segment of the fleet – fixed-wing piston aircraft - continues to shrink over the FAA’s forecast.

In 2016, the general aviation industry experienced a consecutive decline in aircraft deliveries since 2015. While the single engine piston aircraft deliveries by U.S. manufacturers continued to grow and business jet deliveries recorded a very modest increase compared to the previous year, turboprop deliveries declined by two percent, and the much smaller category of multi-engine piston deliveries declined 23 percent.

In 2016, the FAA estimated there were 140,020 piston-powered aircraft in the national fleet. The total number of piston-powered aircraft in the fleet is forecast to decline by 0.8 percent from 2016-2037, resulting in 117,520 by 2037. This includes -0.9 percent annually for single engine pistons and -0.5 percent for multi-engine pistons.

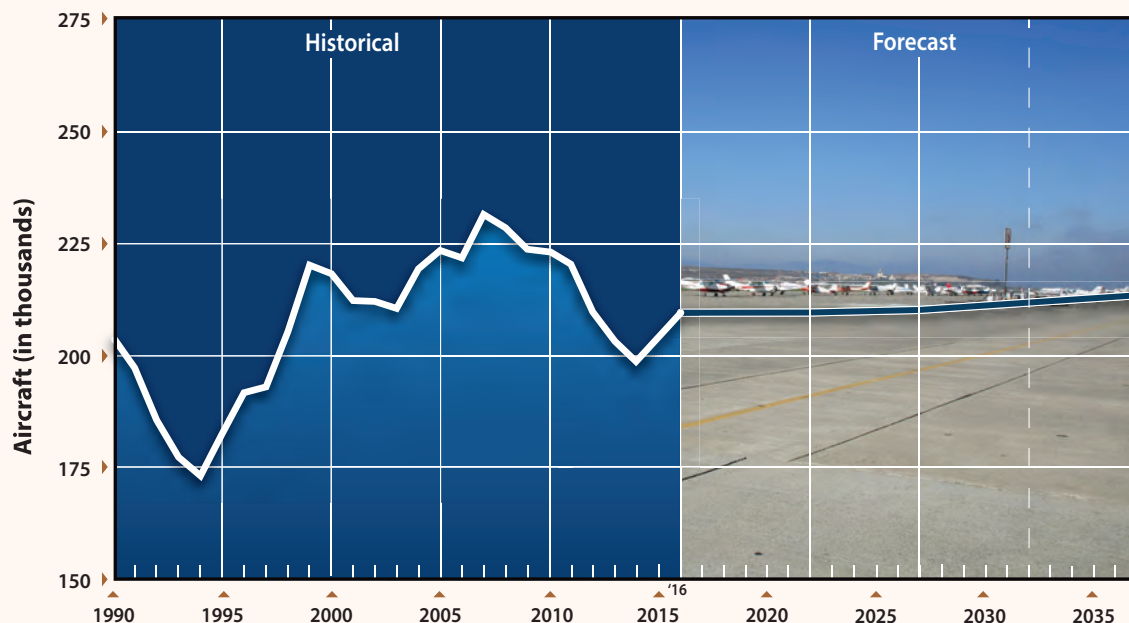
Total turbine aircraft are forecast to grow at an annual growth rate of 1.9 percent through 2037. The FAA estimates there were 30,595 turbine-powered aircraft in the national fleet in 2016, and there will be 45,305 by 2037. This includes annual growth rates of 1.4 percent for turboprops, 2.3 percent for business jets, and 1.8 percent for turbine helicopters.

While comprising a much smaller portion of the general aviation fleet, experimental aircraft, typically identified as home-built aircraft, are projected to grow annually by 2.3 percent through 2037. The FAA estimates there were 28,475 experimental aircraft in 2016, and these are projected to grow to 35,310 by 2037. Sport aircraft are forecast to grow 4.1 percent annually through the long term, growing from 2,530 in 2016 to 5,885 by 2037. **Exhibit G** presents the historical and forecast U.S. active general aviation aircraft.

The FAA also forecasts total operations based upon activity at control towers across the United States. Operations are categorized as air carrier, air taxi/commuter, general aviation, and military.

U.S. ACTIVE GENERAL AVIATION AIRCRAFT

	2016	2022	2027	2037	AAGR 2016-2037
Fixed Wing					
Piston					
Single Engine	126,820	120,600	115,245	105,550	-0.9%
Multi-Engine	13,200	12,965	12,705	11,970	-0.5%
Turbine					
Turboprop	9,460	9,115	9,755	12,585	1.4%
Turbojet	13,770	15,845	17,745	22,040	2.3%
Rotorcraft					
Piston	3,245	3,770	4,170	5,005	2.1%
Turbine	6,995	8,215	9,185	11,250	2.3%
Experimental					
	28,475	30,895	32,345	35,310	1.0%
Sport Aircraft					
	2,530	3,480	4,285	5,885	4.1%
Other					
	4,950	4,955	4,965	5,015	0.1%
Total Pistons	143,355	137,170	131,785	121,905	-0.8%
Total Turbines	30,595	33,155	36,425	45,305	1.9%
Total Fleet	209,905	209,655	209,805	213,420	0.1%



Notes: An active aircraft is one that has a current registration and was flown at least one hour during the calendar year.
Source: FAA Aerospace Forecast - Fiscal Years 2017-2037

General aviation operations, both local and itinerant, declined significantly as a result of the 2008-2009 recession and subsequent slow recovery. Through 2037, total general aviation operations are forecast to grow 0.3 percent annually. Air taxi/commuter operations are forecast to decline by 3.0 percent through 2026, and then increase slightly through the remainder of the forecast period. Overall, air taxi/commuter operations are forecast to decline by 0.9 percent annually from 2016 through 2037.

General Aviation Aircraft Shipments and Revenue

The 2008-2009 economic recession has had a negative impact on general aviation aircraft production, and the industry has been slow to recover. Aircraft manufacturing declined for three straight years from 2008 through 2010. According to the General Aviation Manufacturers Association (GAMA), there is optimism that aircraft manufacturing will stabilize and return to growth, which has been evidenced since 2011. **Table J** presents historical data related to general aviation aircraft shipments.

TABLE J
Annual General Aviation Airplane Shipments
Manufactured Worldwide and Factory Net Billings

Year	Total	SEP	MEP	TP	J	Net Billings (\$millions)
1994	1,132	544	77	233	278	3,749
1995	1,251	605	61	285	300	4,294
1996	1,437	731	70	320	316	4,936
1997	1,840	1043	80	279	438	7,170
1998	2,457	1508	98	336	515	8,604
1999	2,808	1689	112	340	667	11,560
2000	3,147	1,877	103	415	752	13,496
2001	2,998	1,645	147	422	784	13,868
2002	2,677	1,591	130	280	676	11,778
2003	2,686	1,825	71	272	518	9,998
2004	2,962	1,999	52	319	592	12,093
2005	3,590	2,326	139	375	750	15,156
2006	4,054	2,513	242	412	887	18,815
2007	4,277	2,417	258	465	1,137	21,837
2008	3,974	1,943	176	538	1,317	24,846
2009	2,283	893	70	446	874	19,474
2010	2,024	781	108	368	767	19,715
2011	2,120	761	137	526	696	19,042
2012	2,164	817	91	584	672	18,895
2013	2,353	908	122	645	678	23,450
2014	2,454	986	143	603	722	24,499
2015	2,331	946	110	557	718	24,129
2016	2,262	890	129	582	661	20,719

SEP - Single Engine Piston; MEP - Multi-Engine Piston; TP - Turboprop; J - Turbofan/Turbojet

Source: General Aviation Manufacturers Association 2016 General Aviation Statistical Databook & 2017 Industry Outlook

Worldwide shipments of general aviation airplanes decreased in 2016 with a total of 2,262 units delivered around the globe compared to 2,331 units in 2015. Worldwide general aviation billings were also

lower than the previous year. In 2016, \$20.7 billion in new general aviation aircraft were shipped, but year-end results were mixed across the market segments. Results were impacted by economic uncertainty in key markets, including Brazil, Europe, and China; however, the U.S. experienced stronger delivery numbers, which is cause for cautious optimism.

Business Jets: General aviation manufacturers business jet deliveries declined from 718 units in 2015 to 661 units in 2016. Business jet deliveries were strongest in the North American market at 62.0 percent, an increase in market share compared to 2015.

Turboprops: In 2016, turboprop shipments maintained pace in 2016 at 582 units, a slight increase from 557 in 2015. The share of turboprop shipments in 2016 in North America increased slightly compared to the prior year, 57.8 percent compared to 56.2 percent.

Pistons: In 2016, piston airplane shipments fell to 1,019 units compared to 1,056 units the prior year, a 4.9 percent decrease. The North American market share, however, retained its position and increased to 69.6 percent, which is its largest share of total deliveries in the past decade.

AIRPORT SERVICE AREA

In determining aviation demand for an airport, it is necessary to identify the role of that airport. CVH is classified as a Local GA airport in the NPIAS; however, it meets the many of the Regional GA airport thresholds. According to the NPIAS, Regional airports are those that support regional economies, are located in metropolitan areas serving relatively large populations, and have high levels of activity with some jets and multi-engine propeller aircraft. In order to be classified as a Regional airport in the NPIAS, an airport must meet the above stated description and meet one of the following minimum criteria for annual activity:

- Located in a MSA, 10 or more domestic flights over 500 miles, 1,000 or more instrument operations, and 1 or more based jet or 100 or more based aircraft.
- Reliever airport with 90 or more based aircraft.
- Nonprimary commercial service airport (requiring scheduled service) within a MSA.

The primary role of the Airport is to serve the needs of GA in the service area. GA is a term used to describe a diverse range of aviation activities, which includes all segments of the aviation industry except commercial air carriers and the military. GA is the largest component of the national aviation system and includes activities such as pilot training, recreational flying, and the use of sophisticated turboprop and jet aircraft for business and corporate use.

The initial step in determining the GA demand for an airport is to define its generalized service area. The airport service area is a generalized geographical area where there is a potential market for airport services, particularly based aircraft. Access to GA airports and transportation networks enter the equation to determine the size of a service area, as well as the quality of aviation facilities, distance, and other subjective criteria.

As in any business enterprise, the more attractive the facility is in terms of service and capabilities, the more competitive it will be in the market. If an airport's attractiveness increases in relation to nearby airports, so will the size of its service area. If facilities and services are adequate and/or competitive, some level of aviation activity might be attracted to an airport from more distant locales.

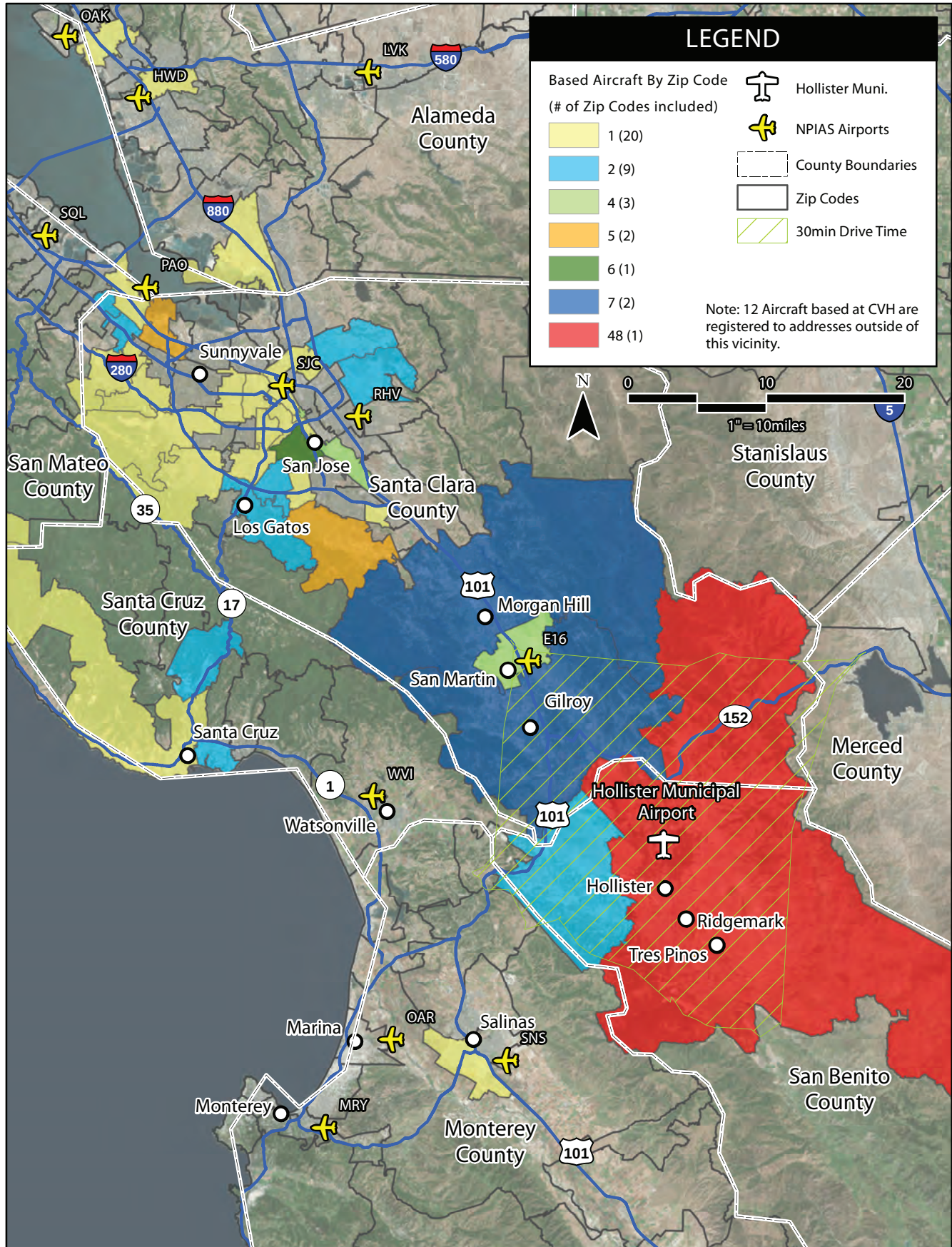
Typically, the service area for a local GA airport can range from a minimum of 30 miles, extending up to approximately 50 miles. The proximity and level of GA services are largely the defining factors when describing the GA service area. A description of nearby airports was previously completed in the Vicinity Airports section, as presented on **Exhibit C**. There are seven public-use airports and three privately owned airports located within 30 nm of the Airport.

Of the seven public-use airports within 30 nm of CVH, Marina Municipal Airport (OAR) and Los Banos Municipal Airport (LSN) are also classified as Local GA airports. In addition, Salinas (SNS) and Watsonville (WVI) Municipal Airports are classified as Regional GA airports, while San Martin Airport (E16) is classified as a Local Reliever, helping to relieve the GA activity associated with San Jose International Airport. Monterey Regional Airport (MRY) is classified as a primary commercial service airport; however, it also accommodates a significant level of GA demand in the region. Frazier Lake Airpark (1C9), located in close proximity to CVH, is a non-NPIAS airport that also serves GA demand mainly associated with small piston-powered aircraft.

Given the surrounding competition for based aircraft and services offered, the most effective method of defining the Airport's service area is by examining the based aircraft listing by their registered address. **Exhibit H** presents the number of CVH based aircraft located within the region by their associated zip code, as well as a 30-minute drive time area from the Airport. It should be noted that 12 based aircraft are registered to addresses outside the regional area, many of which are registered out-of-state.

As depicted on the exhibit, the most concentrated number of aircraft owners are located in the northern portion of San Benito County and southern portion of Santa Clara County, near the cities of Hollister, Ridgemark, Tres Pinos, Gilroy, San Martin, and Morgan Hill. When considering all 140 CVH based aircraft, approximately 79 percent are registered in San Benito and Santa Clara counties, with 31 percent being registered in San Benito County and 48 percent registered in Santa Clara County. The remaining based aircraft are primarily registered in the neighboring counties of Santa Cruz, Monterey, and the southern portion of Alameda.

Although there is strong competition from airports within the region offering services similar to or greater than those available at CVH, the service area appears to extend northwest to include a large portion of Santa Clara County, in addition to San Benito County. Given the services currently offered at CVH and the possibility for expansion to meet future demand, it is likely for the Airport to remain competitive within the region. For the purposes of this study, the primary service area for CVH can be defined as the entirety of San Benito and Santa Clara counties, and more broadly defined as the northern portion of the Central Coast Region as the secondary service area. The Central Coast Region is made up of Santa Cruz, San Benito, Monterey, San Luis Obispo, and Santa Barbara counties.



REGISTERED AIRCRAFT FORECAST

Table K depicts the historical registered aircraft for the counties of San Benito and Santa Clara for years 1993 to 2016. The registered aircraft in the area shows a decreasing trend from years 1993 through 1996, then increasing through 2001. However, after 2001, the service area experienced a downward trend in aircraft registration, reaching a low of 1,500 registered aircraft in 2014. As previously noted, the FAA's effort to re-register aircraft during this timeframe likely contributed to the decrease in registered aircraft ownership in the region, as it did in much of the United States. The service area experienced modest increases in registered aircraft during 2015 and 2016, reaching totals of 1,504 and 1,524, respectively. Although there are no recently prepared forecasts for the Airport service area regarding registered aircraft, one was prepared for this study using market share projection and ratio projection methods.

TABLE K
Historical Registered Aircraft
San Benito and Santa Clara Counties

Year	Helicopter	MEP	Other*	SEP	Turbojet	Turboprop	Total
1993	65	174	102	1,692	75	33	2,141
1994	57	170	99	1,630	74	29	2,059
1995	58	165	107	1,584	79	26	2,019
1996	61	172	116	1,555	65	22	1,991
1997	62	155	120	1,574	65	22	1,998
1998	61	161	123	1,581	63	23	2,012
1999	62	157	117	1,587	78	26	2,027
2000	66	173	131	1,729	84	27	2,210
2001	69	135	132	1,699	101	94	2,230
2002	74	134	132	1,696	102	90	2,228
2003	72	119	130	1,562	89	137	2,109
2004	70	115	134	1,518	86	139	2,062
2005	69	112	130	1,501	85	130	2,027
2006	65	151	128	1,564	62	41	2,011
2007	62	147	141	1,545	58	36	1,989
2008	60	135	142	1,527	71	50	1,985
2009	60	133	137	1,483	70	49	1,932
2010	59	125	129	1,450	67	49	1,879
2011	58	122	125	1,427	68	48	1,848
2012	47	106	104	1,270	59	50	1,636
2013	38	90	99	1,192	58	51	1,528
2014	36	93	82	1,188	59	42	1,500
2015	40	86	87	1,189	61	41	1,504
2016	38	90	93	1,195	58	50	1,524

MEP: Multi-Engine Piston

SEP: Single Engine Piston

* The "Other" aircraft category refers to aircraft such as gliders, electric aircraft, balloons, and dirigibles.

Source: FAA Registered Aircraft

When projecting the registered aircraft, it is helpful to calculate the service area's market share of the total active GA aircraft in the U.S. In conducting this market share analysis, comparison of the service

area aircraft ownership trends against the nation's ownership trends can be carried out. **Table L** details the market share analysis, which shows the service area market share of the U.S. active GA aircraft fleet has held a consistent declining trend, ranging from a high of 0.91 percent in 2006 to a low of 0.72 percent in 2015. Holding the 2016 market share of 0.73 percent constant, the market share can be applied to the forecast of U.S. active GA aircraft to generate the forecast registered aircraft in the Airport service area. According to this projection, 1,558 aircraft could be registered in the service area by 2037, yielding a CAGR of 0.11 percent. In addition, an increasing market share percentage was also applied. Despite the declining market share trend, there could be potential for increased market share capturing historical values should the service area experience economic growth. Utilizing this forecasting technique, registered aircraft within the service area could reach 1,750 by 2037 and grow at a CAGR of 0.66 percent.

TABLE L
Registered Aircraft Forecast
San Benito and Santa Clara Counties

Year	Service Area Registered Aircraft	U.S. Active GA Aircraft	% of U.S. Active GA Aircraft	Service Area Population	Aircraft per 1,000 Residents
2005	2,027	224,257	0.90%	1,729,959	1.17
2006	2,011	221,942	0.91%	1,745,283	1.15
2007	1,989	231,606	0.86%	1,766,098	1.13
2008	1,985	228,664	0.87%	1,795,231	1.11
2009	1,932	223,876	0.86%	1,819,573	1.06
2010	1,879	223,370	0.84%	1,842,462	1.02
2011	1,848	220,453	0.84%	1,870,279	0.99
2012	1,636	209,034	0.78%	1,897,969	0.86
2013	1,528	199,927	0.76%	1,928,701	0.79
2014	1,500	204,408	0.73%	1,952,872	0.77
2015	1,504	210,031	0.72%	1,969,711	0.76
2016	1,524	209,905	0.73%	1,988,179	0.77
Constant Market Share Projection of U.S. Active GA Aircraft (CAGR 0.11%)					
2022	1,530	209,655	0.73%	2,102,125	0.73
2027	1,532	209,805	0.73%	2,199,851	0.70
2037	1,558	213,420	0.73%	2,387,107	0.65
Increasing Market Share Projection of U.S. Active GA Aircraft (CAGR 0.66%)					
2022	1,572	209,655	0.75%	2,102,125	0.75
2027	1,615	209,805	0.77%	2,199,851	0.73
2037	1,750	213,420	0.82%	2,387,107	0.73
Constant Ratio Projection Per 1,000 Residents (CAGR 0.90%)—Selected					
2022	1,619	209,655	0.77%	2,102,125	0.77
2027	1,694	209,805	0.81%	2,199,851	0.77
2037	1,838	213,420	0.86%	2,387,107	0.77
Historical Average Ratio Projection Per 1,000 Residents (CAGR 1.96%)					
2022	1,682	209,655	0.80%	2,102,125	0.80
2027	1,870	209,805	0.89%	2,199,851	0.85
2037	2,292	213,420	1.07%	2,387,107	0.96

Source: Historical Registered Aircraft – FAA Aircraft Registry; Historical and Forecast U.S. Active GA Aircraft – *FAA Aerospace Forecast, Fiscal Years 2017-2037*; Historical and Forecast Population – Woods and Poole Complete Economic and Demographic Data Source (2016).

Population trends have also been used to analyze and project aircraft registrations within the service area. This projection method analyzes the service area population as a ratio of the historical registered

aircraft per 1,000 residents. In 2016, Woods and Poole Complete Economic and Demographic Data Source (2016) calculated the population of the service area to be approximately 1,988,179. Population within the service area is forecasted to increase to 2,387,107 by 2037. The ratio of registered aircraft to 1,000 population has been trending down from a high of 1.17 in 2005 to a low of 0.76 in 2015. A constant ratio projection maintaining the 2016 ratio of 0.77 yields 1,838 aircraft in the service area by 2037, growing at a CAGR of 0.90 percent.

A historical average ratio projection of 0.96 aircraft per 1,000 people was applied to the projected population to reflect a return to historic ratio levels. This projection yields a total of 2,292 registered aircraft and a CAGR of 1.96 percent.

The constant ratio projection per capita was selected as the planning forecast as it is indicative of the forecast economic and population growth potential within the region. As such, a slight increase in market share is carried forward throughout the planning horizon to continue a trend that was started at the end of 2015, and return to the registered aircraft level that was attained prior to the recession in 2008.

BASED AIRCRAFT FORECAST

According to Airport records, there are currently 140 aircraft based at the Airport. Historical based aircraft data prior to 2016 was also made available by Airport staff and consists of records associated with the FAA National Based Aircraft Inventory Program and FAA Form 5010-1. Building upon the projections previously developed, market share analysis and trend line projection forecasting approaches were used to generate forecasts for the future based aircraft totals at CVH. As presented in **Table M**, from 2011 to 2016, the CVH market share of registered aircraft within the service area has increased significantly. Holding the current market share constant at 9.19 percent, future based aircraft projections were calculated by applying the service area registered aircraft projection to the market share of registered aircraft. This approach results in a projection of 169 based aircraft by the year 2037. The second projection assumes the Airport's market share will increase throughout the planning period, reflecting the five-year trend. An increasing market share projection results in 276 based aircraft by 2037 and a CAGR of 3.28 percent.

Additional projections were prepared by examining the ratio of based aircraft to population. Historic data shows that the ratio of based aircraft per 1,000 residents has also increased significantly from 2011 to 2016. Holding the current value of 0.070 based aircraft per 1,000 residents constant results in a projection of 167 based aircraft by 2037. An increasing ratio of based aircraft per 1,000 residents was also applied to the forecast service area population. Given that the service area population is projected to increase at a CAGR of 0.87 percent over the planning horizon, it is reasonable to assume that based aircraft within the service area could also experience some growth. Increasing the ratio of registered aircraft per 1,000 residents within the service area to 0.085 over the planning horizon results in a projection of 203 based aircraft by 2037 and a CAGR of 1.79 percent.

The forecasts summarized in **Table M** represent a reasonable planning envelope. The selected forecast considers the airport experiencing an increase in market share and an increase in the ratio of the service

area population as has been experienced the past several years. By 2037, 203 aircraft are projected to be based at CVH. This forecast results in a 1.79 percent CAGR through the long term planning period.

Future aircraft basing at the Airport will depend on several factors, including the state of the economy, fuel costs, available facilities, competing airports, and adjacent development potential. Forecasts assume a reasonably stable and growing economy, as well as reasonable development of Airport facilities necessary to accommodate aviation demand. Competing airports will play a role in deciding demand; however, CVH should fare well in this competition as it is served by a runway capable of handling the majority of general aviation aircraft and the Airport's capability of being expanded to meet future demand.

TABLE M
Based Aircraft Forecast
Hollister Municipal Airport

Year	CVH Based Aircraft	Service Area Registrations	CVH Market Share	Service Area Population	Aircraft per 1,000 Residents
2011	103	1,848	5.57%	1,870,279	0.055
2012	103	1,636	6.30%	1,897,969	0.054
2013	115	1,528	7.53%	1,928,701	0.060
2014	113	1,500	7.53%	1,952,872	0.058
2015	120	1,504	7.98%	1,969,711	0.061
2016	140	1,524	9.19%	1,988,179	0.070
Constant Market Share Projection of Registered Aircraft (CAGR 0.89%)					
2022	149	1,619	9.19%	2,102,125	0.071
2027	156	1,694	9.19%	2,199,851	0.071
2037	169	1,838	9.19%	2,387,107	0.071
Increasing Market Share Projection of Registered Aircraft (CAGR 3.28%)					
2022	162	1,619	10.00%	2,102,125	0.077
2027	203	1,694	12.00%	2,199,851	0.092
2037	276	1,838	15.00%	2,387,107	0.115
Constant Ratio Projection Per 1,000 Residents (CAGR 0.88%)					
2022	147	1,619	9.09%	2,102,125	0.070
2027	154	1,694	9.09%	2,199,851	0.070
2037	167	1,838	9.09%	2,387,107	0.070
Increasing Ratio Projection per 1,000 Residents (CAGR 1.79%)—Selected					
2022	158	1,619	9.74%	2,102,125	0.075
2027	172	1,694	10.13%	2,199,851	0.078
2037	203	1,838	11.04%	2,387,107	0.085

Note: 2016 CVH based aircraft number from current Airport records, 03/02/2017. Historical based aircraft totals from 2011-2015 derived from the FAA National Based Aircraft Inventory Program and FAA Form 5010-1 records as provided by Airport staff.

Source: Historical Registered Aircraft – FAA Aircraft Registry; Historical Population –U.S. Census Bureau, Forecast Population – Woods and Poole Complete Economic and Demographic Data Source (2016); Airport Communication.

BASED AIRCRAFT FLEET MIX

The current fleet mix based at CVH consists of 100 single engine piston aircraft, 10 multi-engine piston aircraft, three turboprops, six jets, two helicopters, and 19 gliders. It should be noted that glider aircraft are classified in the “other” category. Given that the total number of aircraft based at the Airport is

projected to increase, it is important to have an idea of the type of aircraft expected to utilize the airfield. A forecast of the fleet mix will ensure that adequate facilities are planned to accommodate these aircraft in the future.

The projection for the fleet mix of based aircraft was generated by comparing the existing fleet mix of based aircraft at CVH with the U.S. GA fleet trends, as well as discussions with Airport personnel. The forecast for the active U.S. GA fleet shows declining trends in the single and multi-engine categories; however, the larger and more sophisticated aircraft, such as turboprop and turbojet, are forecast to increase. In addition, both piston and turbine rotorcraft are projected to increase through 2037. On a national level, the FAA forecasts no growth in the “Other” aircraft category through 2037. However, with recent growth in based gliders at CVH and the on-Airport presence of Bay Area Glider Rides, a modest increase in based gliders is expected at the Airport over the long term planning horizon. Taking the national trends and Airport communication into consideration, a projected based aircraft fleet mix has been prepared and is detailed in **Table N**.

TABLE N
Based Aircraft Fleet Mix
Hollister Municipal Airport

Aircraft Type	2016	%	2022	%	2027	%	2037	%
Single Engine Piston	100	71.43%	111	70.25%	117	68.02%	133	65.52%
Multi-Engine Piston	10	7.14%	10	6.33%	10	5.81%	8	3.94%
Turboprop	3	2.14%	4	2.53%	6	3.49%	10	4.93%
Jet	6	4.29%	7	4.43%	9	5.23%	14	6.90%
Helicopters	2	1.43%	4	2.53%	5	2.91%	8	3.94%
Other	19	13.57%	22	13.92%	25	14.53%	30	14.78%
Total	140	100.00%	158	100.00%	172	100.00%	203	100.00%

Other: Includes glider aircraft.

Source: Airport records; Coffman Associates’ analysis

ANNUAL 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. Generally, local operations are characterized by training operations. Itinerant operations are those performed by aircraft with a specific origin or destination away from the airport. Typically, itinerant operations increase with business and commercial use, since business aircraft are not typically used for large scale training activities.

Since the Airport is not equipped with an ATCT, precise operational (takeoff and landing) counts are not available. The FAA TAF does maintain annual operations estimates, which show 52,600 annual operations for each year from 2010 through 2016. To confirm these estimates, a method for estimating operations was utilized. This method, the *Model for Estimating General Aviation Operations at Non-Towered Airports*, was prepared for the FAA Statistics and Forecast Branch in July 2001. This report develops and presents a regression model for estimating general aviation operations at non-towered airports. The model was derived using a combined data set for small towered and non-towered general aviation airports and incorporates a dummy variable to distinguish the two airport types. In addition, the report applies the model to estimate activity at 2,789 non-towered general aviation airports contained in the

FAA Terminal Area Forecast. The estimate of annual operations at CVH was computed using the recommended equation (#15) for 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. The results of the equation confirm the TAF operational estimate of 52,600 annual operations for 2016.

According to Airport management, the local/itinerant operations split is approximately 57 percent local and 43 percent itinerant, with military operations accounting for approximately 100 annual operations. As such, these assumptions will be carried forward to the operations forecasts.

Itinerant General Aviation Operations Forecast

Utilizing the FAA TAF operations estimate confirmed by the model described above, four forecasts of itinerant GA operations have been developed and are presented in **Table P**. The forecasts presented examine and/or manipulate variables, such as CVH's market share of itinerant operations and operations per based aircraft. The first projection considers the Airport maintaining its market share of total U.S. itinerant GA operations at a constant level. In 2016, CVH accounted for 0.162 percent of U.S. itinerant operations. By carrying this percentage forward to the plan years of this study, a forecast emerges generating a CAGR of 0.26 percent and 23,835 itinerant GA operations by year 2037. The second forecast considers an increasing CVH market share of national GA itinerant operations and produces a CAGR of 0.49 percent and 25,012 operations by 2037.

TABLE P
Itinerant GA Operations Forecast
Hollister Municipal Airport

Year	CVH Itinerant GA Operations	U.S. ATCT Itinerant GA Operations	Market Share of Itinerant Operations	CVH Based Aircraft	Itinerant Operations per Based Aircraft
2016	22,575	13,904,000	0.162%	140	161
Constant Market Share Projection (CAGR 0.26%)					
2022	22,876	14,121,000	0.162%	158	145
2027	23,185	14,312,000	0.162%	172	135
2037	23,835	14,713,000	0.162%	203	117
Increasing Market Share Projection (CAGR 0.49%)					
2022	23,300	14,121,000	0.165%	158	147
2027	23,901	14,312,000	0.167%	172	139
2037	25,012	14,713,000	0.170%	203	123
Constant Operations per Based Aircraft (CAGR 1.78%)—Selected					
2022	25,438	14,121,000	0.180%	158	161
2027	27,692	14,312,000	0.193%	172	161
2037	32,683	14,713,000	0.222%	203	161
Increasing Operations per Based Aircraft (CAGR 2.18%)					
2022	26,070	14,121,000	0.185%	158	165
2027	29,240	14,312,000	0.204%	172	170
2037	35,525	14,713,000	0.241%	203	175

Sources: Airport based aircraft information; FAA Aerospace Forecast 2017-2037, Fiscal Years 2017-2037; FAA Form 5010; 2015 Estimate of operations – Derived from *Model for Estimating General Aviation Operations at Non-Towered Airports*, Equation #15, FAA Statistics and Forecast Branch (July 2001); Coffman Associates' analysis.

Additional forecasts were prepared by examining the Airport's operations per based aircraft. By maintaining the constant ratio of operations per based aircraft of 161 through the planning period, a forecast results in 32,683 itinerant GA operations by 2037 and a CAGR of 1.78 percent. Finally, by increasing the operations per based aircraft throughout the planning horizon, a forecast of 35,525 itinerant GA operations by 2037 and CAGR of 2.18 percent emerges.

Ultimately, the constant operations per based aircraft projection has been carried forward as the selected forecast. Given the forecast potential for GA itinerant operations to increase on a national level, it is possible for CVH to grow its market share within this operational segment. The selected forecast maintains a reasonable level of operations per based aircraft, while modestly increasing the Airport's market share.

Local General Aviation Operations Forecast

A similar methodology was utilized to generate a planning forecast for local GA operations. Four forecasts were developed, with the first considering the Airport maintaining a constant percentage of U.S. local GA operations. The second forecast applies an increasing market share percentage of U.S. local operations throughout the planning horizon. These forecasts generated CAGRs of 0.36 and 0.52 percent, respectively. Local GA operations forecasts are shown in **Table Q**.

TABLE Q

**Local GA Operations Forecast
Hollister Municipal Airport**

Year	CVH Local GA Operations	U.S. ATCT Local GA Operations	Market Share of Local Operations	CVH Based Aircraft	Local Operations per Based Aircraft
2016	29,925	11,632,000	0.257%	140	214
Constant Market Share Projection (CAGR 0.36%)					
2022	30,514	11,873,000	0.257%	158	193
2027	31,071	12,090,000	0.257%	172	181
2037	32,251	12,549,000	0.257%	203	159
Increasing Market Share Projection (CAGR 0.52%)					
2022	30,870	11,873,000	0.260%	158	195
2027	31,676	12,090,000	0.262%	172	184
2037	33,380	12,549,000	0.266%	203	164
Constant Operations per Based Aircraft (CAGR 1.79%)—Selected					
2022	33,816	11,873,000	0.285%	158	214
2027	36,808	12,090,000	0.304%	172	214
2037	43,442	12,549,000	0.346%	203	214
Increasing Operations per Based Aircraft (CAGR 2.14%)					
2022	34,760	11,873,000	0.293%	158	220
2027	38,700	12,090,000	0.320%	172	225
2037	46,690	12,549,000	0.372%	203	230

Sources: Airport based aircraft information; *f* Forecast, Fiscal Years 2017-2037; FAA Form 5010; 2015 Estimate of operations – Derived from *Model for Estimating General Aviation Operations at Non-Towered Airports*, Equation #15, FAA Statistics and Forecast Branch (July 2001); Coffman Associates analysis.

Forecasts manipulating variables, such as operations per based aircraft, were also prepared. Maintaining the constant operations per based aircraft at 214 projects a total of 43,442 local GA operations by year 2037 and a CAGR of 1.79 percent, while increasing the operations per based aircraft to 230 over the planning horizon projects 46,690 operations and a CAGR of 2.14 percent.

The constant operations per based aircraft has been selected as the planning forecast. The potential for increases in based aircraft indicates possible growth for CVH's local operational levels and increased market share of national local GA operations.

Military Operations Forecast

Military aircraft utilize civilian airports across the country. The FAA TAF operational data identifies 1,200 annual military operations at CVH. Forecasting of military activity is inherently difficult because of the national security nature of their operations and the fact that their mission can change on a daily basis. Thus, it is typical for the FAA to utilize a flat-line number for military operations. However, communication with Airport management indicates that military activity is much lower. For the purposes of this study, 100 annual military operations will be considered throughout the planning horizon.

Operations Forecast Summary

Table R presents the aggregate total of estimated current operational totals, as well as the operational forecasts for the planning horizon.

TABLE R Operations Forecast Summary Hollister Municipal Airport					
Year	Based Aircraft	Itinerant GA Operations	Local GA Operations	Itinerant Military Operations	Total Operations
2016	140	22,575	29,925	100	52,600
Forecast Planning Horizon					
2022	158	25,438	33,812	100	59,350
2027	172	27,692	36,808	100	64,600
2037	203	32,683	43,442	100	76,225
CAGR	1.79%	1.78%	1.79%	0.00%	1.78%

ANNUAL INSTRUMENT APPROACHES

Forecasts of annual instrument approaches (AIAs) provide guidance in determining an airport's requirements for navigational aid facilities. An instrument approach is defined by the FAA as "an approach to an airport with intent to land by an aircraft in accordance with an IFR flight plan, when visibility is less than three miles and/or when the ceiling is at or below the minimum approach altitude." To qualify as an instrument approach, aircraft must land at an airport after following one of the published instrument

approach procedures. Forecasts of annual instrument approaches (AIAs) provide guidance in determining an airport's requirements for navigational aid facilities. Practice or training approaches do not count as AIAs, nor do instrument approaches that occur in visual conditions.

It is highly unusual for pilots to perform local operations when IFR conditions are in effect. AIAs may be expected to increase as itinerant operations and operations by more sophisticated aircraft (e.g., turbo-props and business jets) increase through the planning period. For this reason, AIA projections consider a constant estimate of two percent of annual itinerant operations. The projections are presented in **Table S**.

TABLE S
Annual Instrument Approaches (AIAs)
Hollister Municipal Airport

Year	AIAs	Itinerant Operations	Ratio
2016	454	22,675	2.00%
2022	511	25,538	2.00%
2027	556	27,792	2.00%
2037	656	32,783	2.00%

Source: Coffman Associates' analysis

PEAK PERIOD FORECASTS

Peaking characteristics are an important aspect in generating airport capacity and facility requirements. It should be noted that because CVH does not have a control tower, the generalized peaking characteristics of other non-towered general aviation airports have been used for the purpose of this study. The peaking periods used to develop the capacity analysis and facility requirements are described below.

- Peak Month – The calendar month in which traffic activity is highest.
- Design Day – The average day in the peak month. This indicator is easily derived by dividing the peak month 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.

For the purposes of this study, the peak month was estimated at ten percent of the annual operations. By 2037, the estimated peak month is projected to reach 7,623 operations. The design day is estimated by dividing the peak month by its number of days, and the busy day is calculated at 25 percent busier than the design day. The design hour is then calculated at 15 percent of the design day. These projections can be viewed in **Table T**.

TABLE T
Peak Period Forecasts
Hollister Municipal Airport

Year	2016	2022	2027	2037
Annual	52,600	59,350	64,600	76,225
Peak Month	5,260	5,935	6,400	7,623
Design Day	170	191	208	246
Busy Day	212	239	260	307
Design Hour	25	29	31	37

Source: Coffman Associates analysis

FORECAST COMPARISON TO THE FAA TAF

The FAA will review the forecasts presented in this document for consistency with the *Terminal Area Forecast*. The local FAA Airports District Office (ADO) or Regional Airports Division (RO) are responsible for forecast approvals. When reviewing a sponsor's forecast, the FAA must ensure that the forecast is based on reasonable planning assumptions, uses current data, and is developed using appropriate forecast methods. Forecasts of based aircraft and annual aircraft operations are considered consistent with the TAF if they differ by less than 10 percent in the five-year period and 15 percent in the 10-year forecast period. If the forecast is not consistent with the TAF, differences must be resolved if the forecast is to be used for FAA decision-making. The reason the FAA allows this differential is because the TAF forecasts are not meant to replace forecasts developed locally (i.e., in this Master Plan). While the TAF can provide a point of reference or comparison, their purpose is much broader in defining FAA national workload measures.

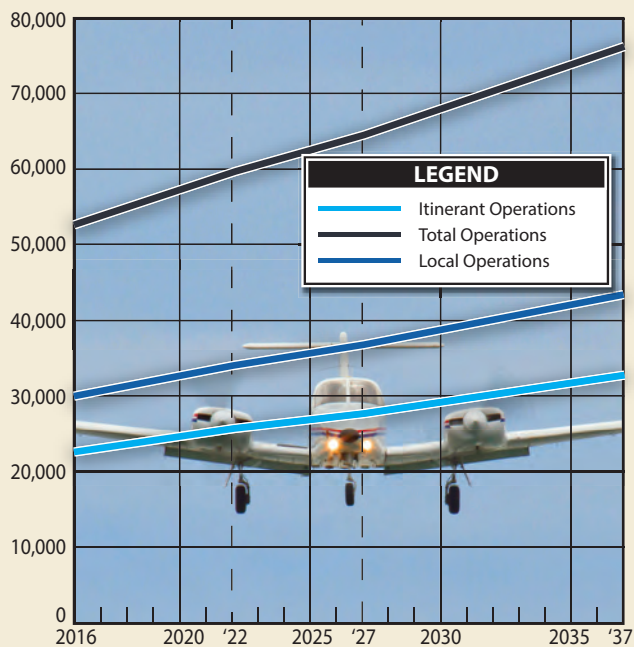
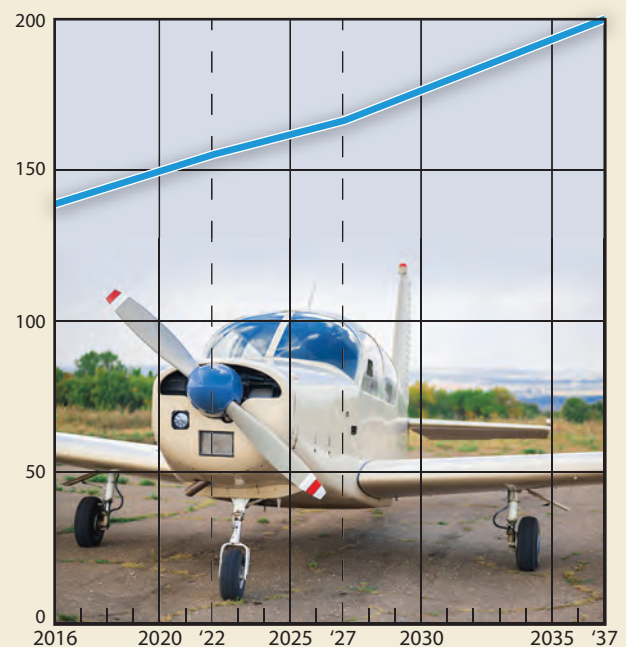
At the time the study forecasts for this Narrative Report were prepared, they were compared to the 2017 TAF. The study forecasts exceeded the 10 percent and 15 percent thresholds for the five- and 10-year periods; however, the 2017 TAF was reporting 85 based aircraft when the airport had a verified based aircraft count of 140. This significant difference in the base year data for based aircraft helps to explain the disparity in the study forecasts versus the TAF. In addition, the 2017 TAF for based aircraft considers a no-growth scenario, while the study forecast for based aircraft accounts for a 1.79 percent CAGR. It is also important to note that the current 2018 TAF more than doubled the forecast number of based aircraft for the airport, now accounting for 173. When making this comparison, the study forecast for based aircraft is within 8.7 percent and 0.6 percent of the 2018 TAF for the five- and 10-year planning periods, respectively. As such, these forecasts are consistent with the TAF.

For annual operations, the 2017 and 2018 TAFs maintain a no-growth scenario of 52,600 operations. When comparing the study forecast for annual aircraft operations, the five- and 10-year periods exceed the TAF by 12.8 percent and 22.8 percent, respectively. It is prudent to consider the TAF forecast for annual operations unreliable given the significant gain in based aircraft between 2017 and 2018, yet no change in annual operations to reflect this. A comparison was also made to the FAA Form 5010-1 for Hollister Municipal Airport, which is reporting 56,920 annual operations in 2017. When comparing this number with the study forecast for annual operations, the five- and 10-year forecasts are within 4.3 percent and 13.5 percent, respectively, thus making them consistent.

FORECAST SUMMARY

This section has provided demand-based forecasts of aviation activity at CVH over the next 20 years. An attempt has been made to define the projections in terms of short (1-5 years), intermediate (6-10 years), and long (11-20 years) term planning horizons. **Exhibit J** presents a 20-year forecast summary. Elements, such as local socioeconomic indicators, anticipated regional development, historical aviation data, and national aviation trends, were all considered when determining future conditions.

	Base Year	2022	2027	2037
BASED AIRCRAFT				
Single Engine	100	111	117	133
Multi-Engine Piston	10	10	10	8
Turboprop	3	4	6	10
Jet	6	7	9	14
Rotor	2	4	5	8
Other	19	22	25	30
TOTAL BASED AIRCRAFT	140	158	172	203
ANNUAL OPERATIONS				
ITINERANT				
General Aviation	22,575	25,438	27,692	32,683
Military	100	100	100	100
Total Itinerant	22,675	25,538	27,792	32,783
LOCAL				
General Aviation	29,925	33,812	36,808	43,442
Total Local	29,925	33,812	36,808	43,442
TOTAL OPERATIONS	52,600	59,350	64,600	76,225
PEAK OPERATIONS FORECAST				
Peak Month	5,260	5,935	6,460	7,623
Design Day	170	191	208	246
Busy Day	212	239	260	307
Design Hour	25	29	31	37
ANNUAL INSTRUMENT APPROACHES	454	511	556	656

AIRCRAFT OPERATIONS FORECAST

BASED AIRCRAFT FORECAST


Source: Coffman Associates analysis

AIRPORT/AIRCRAFT/RUNWAY CLASSIFICATION

The FAA has established multiple aircraft classification systems that group aircraft based upon performance (approach speed in landing configuration) and on design characteristics (wingspan and landing gear configuration). These classification systems are used to design certain airport elements, such as separation standards, safety areas, runways, taxiways, and aprons, based upon the aircraft expected to use the airport facilities most frequently.

AIRCRAFT CLASSIFICATION

The use of appropriate FAA design standards is generally based upon the characteristics of aircraft commonly using, or expected to use, the airport facilities. The aircraft used to design the airport is designated as the critical aircraft. The design criteria used in the aircraft classification process are presented in **Exhibit K**. An airport's critical aircraft can be a single aircraft or a collection of multiple aircraft commonly using the airport that fit into a single aircraft category. The design aircraft or collection of aircraft is classified by three different categories: Aircraft Approach Category (AAC), Airplane Design Group (ADG), and Taxiway Design Group (TDG). The FAA Advisory Circular (AC) 150/5300-13A, *Airport Design*, describes the following classification systems and parameters.

Aircraft Approach Category (AAC): A grouping of aircraft based on a reference landing speed (V_{REF}), if specified, or if V_{REF} is not specified, 1.3 times stall speed (V_{SO}) at the maximum certificated landing weight. V_{REF} , V_{SO} , and the maximum certificated landing weight are those values as established for the aircraft by the certification authority of the country of registry. The AAC generally refers to the approach speed of an aircraft in landing configuration. The higher the approach speed is, the design standards become more restrictive. The AAC, depicted by letters A-E, represents the approach category and relates to the approach speed of the aircraft (operational characteristics). The AAC typically applies to runways and runway-related facilities, such as runway width, runway safety area (RSA), runway object free area (ROFA), runway protection zone (RPZ), and separation standards.

Airplane Design Group (ADG): The ADG, depicted by a Roman numeral I through VI, is a classification of aircraft which relates to the aircraft wingspan or tail height (physical characteristics). If the aircraft wingspan or tail height fall under two different classifications, the higher category is used. The ADG is used to establish design standards for taxiway safety area (TSA), taxiway obstacle free area (TOFA), taxilane object free area, apron wingtip clearance, and various other separation standards.

Taxiway Design Group (TDG): A classification of airplanes based on outer-to-outer main gear width (MGW) and cockpit to main gear (CMG) distance. The TDG relates to the dimensions of the undercarriage of the design aircraft. The taxiway design elements determined by the application of the TDG include the taxiway width, taxiway edge safety margin, taxiway shoulder width, taxiway fillet dimensions, and, in some cases, the separation distance between parallel taxiway/taxilanes. Other taxiway elements, such as the taxiway safety area (TSA), taxiway/taxilane object free area (TOFA), taxiway/taxilane separation to parallel taxiway/taxilanes or fixed or movable objects, and taxiway/taxilane wingtip clearances are determined solely based on the wingspan (ADG) of the design aircraft utilizing those surfaces. It is

AIRCRAFT APPROACH CATEGORY (AAC)

Category	Approach Speed
A	less than 91 knots
B	91 knots or more but less than 121 knots
C	121 knots or more but less than 141 knots
D	141 knots or more but less than 166 knots
E	166 knots or more

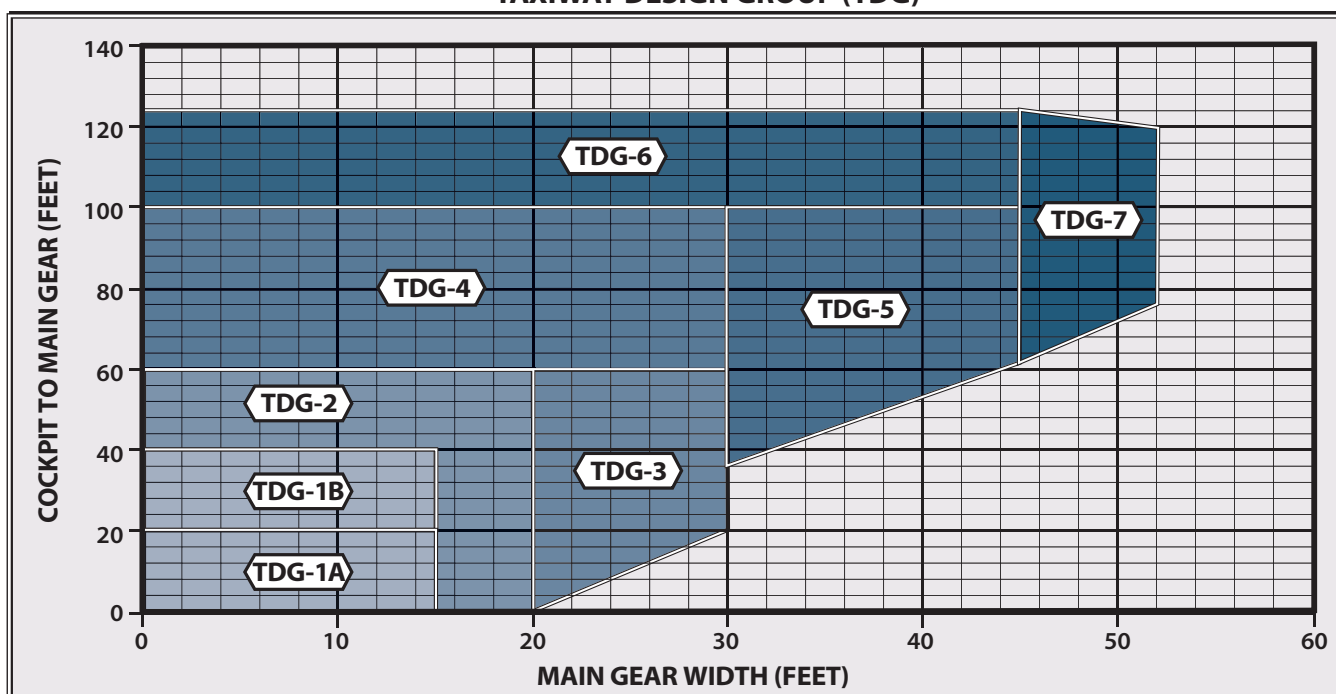
AIRPLANE DESIGN GROUP (ADG)

Group #	Tail Height (ft)	Wingspan (ft)
I	<20	<49
II	20-<30	49-<79
III	30-<45	70-<118
IV	45-<60	118-<171
V	60-<66	171-<214
VI	66-<80	214-<262

VISIBILITY MINIMUMS

RVR* (ft)	Flight Visibility Category (statute miles)
VIS	3-mile or greater visibility minimums
5,000	Not lower than 1-mile
4,000	Lower than 1-mile but not lower than ¾-mile
2,400	Lower than ¾-mile but not lower than ½-mile
1,600	Lower than ½-mile but not lower than ¼-mile
1,200	Lower than ¼-mile

*RVR: Runway Visual Range

TAXIWAY DESIGN GROUP (TDG)


Source: FAA AC 150/5300-13A, Airport Design

appropriate for a taxiway to be planned and built to different taxiway design standards based on expected use.

Exhibit L presents the aircraft classification of common aircraft in operation today.

AIRPORT AND RUNWAY CLASSIFICATION

The airport and runway classifications, along with the aircraft classifications defined above, are used to determine the appropriate FAA design standards to which the airfield facilities are to be designed and built.

Airport Reference Code (ARC): An airport designation that signifies the airport's highest runway design code (RDC), minus the third (visibility) component of the RDC. The ARC is used for planning and design purposes only and does not limit the aircraft's capability of operating safely on the airport. The current ALP, which was last updated in January 2009 and will be updated as part of this study, indicates that the Airport is currently designed to ARC B-II standards.

Runway Design Code (RDC): A code signifying the design standards to which the runway is to be built. The RDC is based upon planned development and has no operational component.

The AAC, ADG, and runway visual range (RVR) are combined to form the RDC of a particular runway. The RDC provides the information needed to determine certain design standards that apply. The first component, depicted by a letter, is the AAC and relates to aircraft approach speed (operational characteristics). The second component, depicted by a Roman numeral, is the ADG and relates to either the aircraft wingspan or tail height (physical characteristics), whichever is most restrictive. The third component relates to the visibility minimums expressed by RVR values in feet of 1,200 ($\frac{1}{8}$ -mile); 1,600 ($\frac{1}{4}$ -mile); 2,400 ($\frac{1}{2}$ -mile); 4,000 ($\frac{3}{4}$ -mile); and 5,000 (1-mile). The RVR values approximate standard visibility minimums for instrument approaches to the runways. The third component should read "VIS" for runways designed for visual approach use only.

Numerous airfield design standards are based upon the RDC. The RDC of any given runway is used to determine specific airfield design standards, which include imaginary surfaces established by the FAA to protect aircraft operational areas in order to keep them free of obstructions that could possibly affect the safe operation of aircraft. Airfield design standards at CVH are further described later in the report.

Approach Reference Code (APRC): A code signifying the current operational capabilities of a runway and associated parallel taxiway with regard to landing operations. Like the RDC, the APRC is composed of the same three components: the AAC, ADG, and RVR. The APRC describes the current operational capabilities of a runway under particular meteorological conditions where no special operating procedures are necessary, as opposed to the RDC, which is based upon planned development with no operational component. The APRC for a runway is established based upon the minimum runway to taxiway centerline separation.

A-I



- Beech Baron 55
- **Beech Bonanza**
- Cessna 150
- Cessna 172
- Cessna Citation Mustang
- Eclipse 500/550
- Piper Archer
- Piper Seneca

C-I, D-I



- Beech 400
- **Lear 31, 35, 45, 60**
- Israeli Westwind

B-I



- Beech Baron 58
- Beech King Air 100
- Cessna 402
- **Cessna 421**
- Piper Navajo
- Piper Cheyenne
- Swearingen Metroliner
- Cessna Citation I (525)

C-II, D-II



- **Cessna Citation X (750)**
- Gulfstream 100, 200, 300
- Challenger 300/600
- ERJ-135, 140, 145
- CRJ-200/700
- Embraer Regional Jet
- Lockheed JetStar
- Hawker 800

B-II *less than 12,500 lbs.*



- **Super King Air 200**
- Cessna 441
- Cessna 208 Caravan
- DHC Twin Otter
- Pilatus PC-12

C-III, D-III *less than 100,000 lbs.*



- ERJ-170
- CRJ 705, 900
- Falcon 7X
- **Gulfstream 500, 550, 650**
- Global Express, Global 5000
- Q-400

B-I, B-II *more than 12,500 lbs.*



- Super King Air 350
- Beech 1900
- Jetstream 31
- Falcon 10, 20, 50
- Falcon 200, 900
- **Citation II, III, IV, V**
- Saab 340
- Embraer 120

C-IV, D-IV



- B-757
- B-767
- **C-130 Hercules**
- DC-8-70
- MD-11

A-III, B-III



- DHC Dash 7
- **DHC Dash 8**
- DC-3
- Convair 580
- Fairchild F-27
- ATR 72
- ATP

D-V



- **B-747-400**
- B-777
- B-787
- A-330, A-340

Note: Aircraft pictured is identified in bold type.

Currently, the runway to taxiway centerline separation for Runway 13-31 is 300 feet. Given that Runway 13-31 is served by non-precision instrument approach procedures with minimums not lower than one mile, Runway 13-31 meets standards for APRC B/III/5000 and D/II/5000.

The runway to taxiway centerline separation for Runway 6-24 is currently 250 feet and is served by a visual approach to each end of the runway. Given these conditions, Runway 6-24 meets standards for APRC B/II/VIS.

Departure Reference Code (DPRC): A code signifying the current operational capabilities of a runway and associated parallel taxiway with regard to take-off operations. The DPRC represents those aircraft that can take off from a runway while any aircraft are present on adjacent taxiways, under particular meteorological conditions with no special operating conditions. The DPRC is similar to the APRC but is composed of two components: AAC and ADG. A runway may have more than one DPRC depending on the parallel taxiway separation distance.

The runway to taxiway centerline separation for Runway 13-31 is currently 300 feet which meets FAA design standards for DPRC B/III and D/II, while the 250-foot taxiway centerline separation for Runway 6-24 meets FAA design standards for DPRC B/II.

CRITICAL DESIGN AIRCRAFT

The selection of airport design criteria is based upon the aircraft currently using, or expected to use, the airport. The critical aircraft is used to establish the design parameters of the airport. These criteria are typically based upon the most demanding aircraft using the airfield facilities on a relatively frequent basis. The critical design aircraft can be a single aircraft or a composite of multiple aircraft that represent a collection of aircraft characteristics. Upon the selection of multiple aircraft, the most demanding aircraft characteristics are used to establish the design criteria of the airport based upon the AAC, ADG, and TDG. If the airport contains multiple runways, a critical design aircraft will be established for each runway.

The primary consideration for a critical design aircraft is to ensure safe operation of the aircraft using the airport. If an aircraft larger than the critical design aircraft is to operate at the airport, it may result in reduced safety margins, or an unsafe operation. However, airports typically do not establish design criteria based solely upon the largest aircraft using the airfield facilities if it operates on an infrequent basis.

The critical design aircraft can be defined as an aircraft conducting at least 500 itinerant annual operations at an airport or the most regularly scheduled aircraft in commercial service. When planning for future airport facilities, it is extremely important to consider the demands of aircraft operating at the airport in the future. As a result of the separation standards based upon the critical aircraft, caution must be exercised to ensure that short-term development does not preclude the long-term needs of the airport. Thus, it is important to strike a balance between the facility needs of aircraft currently operating at the airport and the facility needs of aircraft projected to operate at the airport. Although precautions must be taken to ensure long-term airport development, airports with critical aircraft that do not use

the airport facilities on a regular basis are unable to operate economically due to added development and maintenance expenses.

AIRPORT DESIGN AIRCRAFT

It is imperative to have an accurate understanding of what type of aircraft operate at the airport both now and in the future. The type of aircraft utilizing airport facilities can have a significant impact on numerous design criteria. Thus, an aircraft activity study by type and aircraft category can be beneficial in determining future airport standards that must be met in order to accommodate certain aircraft.

The most recent annual data was obtained from the Airport IQ Data Center, a program maintained to monitor the amount and type of aircraft activity at airports. Typically, information is added to the system when pilots file flight plans. The program includes commercial service (air carrier and air taxi) and general aviation aircraft. Although the program is capable of identifying the aircraft operating under filed flight plans, Airport IQ does not account for all aircraft operating at a given airport as it is not a requirement that all aircraft operators file flight plans with the FAA. Thus, it is possible for an airport to experience a considerable amount of operations that are not counted within the Airport IQ system. Despite its shortcomings, the program is a valuable source of information when it comes to identifying the primary airport users and type of aircraft operating at the airport on a regular basis.

Numerous aircraft classified within the B-II category were reported by Airport IQ as operating at CVH. Of the B-II aircraft identified, some have a maximum takeoff weight (MTOW) of less than 12,500 pounds, identifying with the small aircraft category, while others have MTOWs greater than 12,500 pounds which are classified as large aircraft. The operational characteristics of a sampling of the B-II category turbine aircraft operating at CVH are presented in **Table U**.

The 2009 ALP designates the ARC as B-II and identifies the critical aircraft as the Cessna Citation III. Based upon the Airport IQ analysis, as well as based aircraft records, Category B-II remains a prevalent ARC designation for CVH. It should be noted that B-II category aircraft are currently based at CVH, including a Beechcraft King Air 90. In addition, CalFire operates a Grumman S-2T airtanker at the Airport. This aircraft is also classified within the B-II category. According to landing fee reports, the Grumman S-2T has averaged 518 operations annually since 2010 and conducted a total of 902 operations in 2016. The Grumman S-2T is classified within TDG 2 due to the dimensions of the undercarriage of the aircraft. Thus, the airport design aircraft is best described as B-II-2. Although aircraft more demanding than B-II were identified utilizing the Airport, these aircraft do not currently conduct at least 500 annual operations to justify a larger critical design aircraft.

TABLE U
Category B-II Aircraft Characteristics
Hollister Municipal Airport

	MTOW (lbs)	Approach Speed (kts)	Wingspan (ft)	Tail Height (ft)
Beechcraft 1900	17,120	113	58.00	15.50
Beechcraft King Air 100	11,800	111	45.92	15.42
Beechcraft King Air 200	12,500	102	54.50	14.80
Beechcraft King Air 350	15,000	99	57.90	14.30
Beechcraft King Air 90	10,100	101	50.00	14.25
Cessna 441 Conquest	9,925	100	49.30	13.10
Citation Excel/XLS	22,000	114	53.50	16.80
Citation II/Bravo	14,800	112	52.17	15.00
Citation Sovereign	30,775	112	72.33	20.33
Citation Ultra/Encore	16,830	107	55.80	17.20
Falcon/Mystère 50	40,780	113	61.92	22.92
Grumman S-2T Airtanker	26,147	115	72.6	17.50

It should be mentioned, however, that three of the six based jets at CVH are classified within the Category C AAC. Moreover, in communications with Hollister Jet Center, the FBO indicated that it frequently provides fueling services for a variety of jet and turboprop aircraft. A list of based turbine-powered aircraft, as well as the most frequently fueled jet aircraft and their respective ARCs, is presented in **Table V**.

EXISTING RUNWAY DESIGN

As previously discussed, each runway has a designated RDC. The RDC relates to specific design criteria set forth by the FAA that should be met. The RDC is determined by the particular aircraft or category of aircraft expected to use each runway.

TABLE V
Hollister Municipal Airport
Based and Frequently Fueled Turbine Aircraft

Aircraft	ARC
Aero Vodochody L-39*	C-I
Beechcraft Beech Jet 400	C-I
Beechcraft King Air 90*	B-II
Beechcraft Premier 1	B-I
Bombardier Global Express	C-III
Cessna Citation CJ1*	B-I
Cessna Citation CJ2	B-I
Cessna Citation Sovereign	B-II
Cessna Citation X	B-II
Embraer Phenom 500	A-I
Gulfstream G-450	D-II
Gulfstream G-550	D-III
Grumman S-2T Airtanker*	B-II
Siai Marchetti S-211*	A-I

*Aircraft currently based at CVH
Source: Airport Records and Communication with Hollister Jet Center.

Runway 13-31 Runway Design Code

Runway 13-31 is the primary runway and should be designed to accommodate the critical design aircraft. This runway is currently 6,350 feet in length and 100 feet wide. The runway is equipped with instrument approach procedures with visibility minimums not lower than one mile. Given these characteristics, Runway 13-31 is currently categorized as B-II-5000.

Runway 6-24 Runway Design Code

Runway 6-24 is designated as the crosswind runway at CVH. The runway is designed to meet minimum requirements for smaller aircraft that utilize the airport. Runway 6-24 is 3,150 feet in length and 100 feet wide. Furthermore, Runway 6-24 is not served by instrument approach procedures and is designated as a visual runway only. Taking into consideration these characteristics, Runway 6-24 is categorized as B-II-VIS.

FUTURE RUNWAY DESIGN

The aviation demand forecasts indicate the potential for continued growth in turbine activity at the Airport. This includes 14 based jets and 10 turboprops by the long term planning horizon. The type and size of business jets and turboprops using the Airport regularly can impact the design standards to be applied to the airport system. Therefore, it is important to have an understanding of what type of aircraft may use the Airport in the future. Factors, such as population and employment growth, in the airport service area, the proximity to and level of service offered at other regional airports, and development at the Airport can influence future activity.

Most operations throughout the planning period of this study are expected to be by aircraft within AACs A and B and within ADGs I and II. However, the trend toward manufacturing of a larger percentage of medium and large business jets, in AACs C and D, may lead to greater utilization of these aircraft (particularly those in AAC C) at CVH by the long term planning horizon. This is a trend already being realized by Hollister Jet Center and Airport staff as the frequency of fueling operations provided for larger business jets and turboprops have been increasing, as noted in the previous section.

Future Runway 13-31 Runway Design Code

CVH currently has six based jets with eight more projected in the future. As previously mentioned, three of the six current based jets are categorized as AAC C aircraft. With projected growth in based jets, the current AAC C aircraft based at the Airport, and the potential for larger business jets to base at or utilize the Airport on a more frequent basis, the AAC could transition to Category C. The evidence supporting a shift to AAC C verifies the currently approved ALP, which ultimately defines Runway 13-31 as ARC C-II. Thus, the planning effort will consider ARC C-II as the ultimate critical design category and the future RDC to be C-II-5000 for Runway 13-31.

Future Runway 6-24 Runway Design Code

Given that Runway 6-24 is designated as the crosswind runway and meets the required length and width minimums for smaller aircraft that utilize the Airport, the ultimate RDC for Runway 6-24 should remain B-II-VIS.

FACILITY REQUIREMENTS

Previously mentioned in the report, components of an airport contain both airside and landside facilities. Airside facilities include facilities that are related to the approach, departure, and ground movement of aircraft on the airport. Airside facility components encompass runways, taxiways, navigational approach aids, airport signage, marking, and lighting. Landside facilities are needed on an airport to foster the interface of air and ground transportation. Landside facility components include terminal facilities, aircraft hangars and tiedowns, aircraft parking aprons, automobile parking, and airport support facilities.

AIRSIDE FACILITY REQUIREMENTS

Components included within the airside facility requirements section encompass runways, safety area design standards, taxiways, navigational and approach aids, lighting, marking, and signage.

Runway Orientation

Currently, CVH is served by a two-runway system (13-31 and 6-24) oriented in a northwest—southeast and northeast—southwest configuration. For the operational safety and efficiency of an airport, it is desirable for the primary runway to be oriented as close as possible to the direction of the prevailing wind. This reduces the impact of wind components perpendicular to the direction of travel of an aircraft that is landing or taking off.

FAA Advisory Circular 150/5300-13A, *Airport Design*, recommends that a crosswind runway be made available when the primary runway orientation provides for less than 95 percent wind coverage for specific crosswind components. The 95 percent wind coverage is computed on the basis of not exceeding a 10.5-knot (12 mph) component for RDC A-I and B-I, 13-knot (15 mph) component for RDC A-II and B-II, 16-knot (18 mph) component for RDC A-III, B-III, C-I through C-III, and D-I through D-III and a 20-knot (23) component for RDC A-IV through E-VI.

Data from the AWOS located at CVH was collected from the National Oceanic Atmospheric Administration (NOAA) National Climatic Data Center over a continuous nine-year period from February 1, 2009 through January 31, 2017. A total of 204,828 observations of wind direction and other data points were made. **Exhibit M** presents Runways 13-31 and 6-24 and their associated wind coverage.

In all-weather conditions, Runway 13-31 provides 88.38 percent coverage at 10.5 knots, 92.54 percent coverage at 13 knots, 97.22 percent coverage at 16 knots, and 99.50 percent coverage at 20 knots. In addition, Runway 6-24 provides 97.59 percent coverage at 10.5 knots, 98.70 percent coverage at 13 knots, 99.61 percent coverage at 16 knots, and 99.91 percent coverage at 20 knots. Given that Runway 13-31 does not provide at least 95 percent wind coverage under all-weather conditions at 10.5 and 13 knots, the crosswind runway is justified. The combined wind coverage for both runways under all-weather conditions accommodates 99.87 percent coverage at 10.5 knots, 99.99 percent coverage at 13 knots, and 100 percent coverage at 16 and 20 knots.