Hollister Municipal Airport

INTRODUCTION

The Hollister Municipal Airport Master Plan study has been undertaken to evaluate the airport's capabilities and role, to forecast future aviation demand, and to plan for the timely development of new or expanded facilities that may be required to meet that demand. The ultimate goal of the Master Plan is to provide systematic guidelines for the airport's overall maintenance, development, and operation.

The Master Plan is intended to be a proactive document which identifies, and then plans for, future facility needs well in advance of the actual need for the facilities. This is done to ensure that the City of Hollister can coordinate project approvals, design, financing, and construction in a timely manner prior to experiencing the detrimental effects of inadequate facilities.

An important result of the Master Plan is reserving sufficient areas for future facility needs. This protects development areas and ensures they will be readily available when required to meet future needs. The intended result is a detailed land use concept which outlines specific uses for all areas of airport property.

The preparation of this Master Plan is evidence that the City of Hollister recognizes the importance of air transportation to the community and the associated challenges inherent in providing for it's unique operating and improvement needs. The cost of maintaining an airport is an investment, which yields impressive benefits to the community. With a sound and realistic Master Plan, Hollister Municipal Airport can maintain its role as an important link to the

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national air transportation system for the community and maintain the existing public and private investments in its facilities.

MASTER PLAN OBJECTIVES

The primary objective of the Hollister Municipal Airport Master Plan is to develop and maintain a financially feasible long term development program which will satisfy aviation demand and be compatible with community development, other transportation modes, and the environment. The accomplishment of this objective requires the evaluation of the existing airport and a determination of what actions should be taken to maintain an adequate, safe, and reliable airport facility to meet the air transportation needs of the area. The completed Master Plan will provide an outline of the necessary development and give responsible officials advance notice of future needs to aid in planning, scheduling, and budgeting.

Specific objectives of the Hollister Municipal Airport Master Plan are:

- To preserve and protect the City's investment in the airport;
- To enhance the safety of aircraft operations;
- To obtain socioeconomic factors likely to affect the air transportation demand in the Hollister area;
- To determine projected needs of airport users through the year 2025 by which to support airport development alternatives;
- To recommend improvements which will enhance the airport's capacity (airside and landside);
- To evaluate development options for all quadrants of the airport, potential land acquisition needs, and environmental considerations of development;
- To evaluate possible long term acquisition measures needed to satisfy environmental concerns and promote orderly airport growth;
- To produce current and accurate airport base maps and Airport Layout Plans;
- To establish a schedule of development priorities and a program for the improvements proposed in the Master Plan Update;
- To prioritize the airport capital improvement program, and examine potential funding sources; and
- To develop active and productive public involvement throughout the planning process.

The Master Plan will accomplish these objectives by carrying out the following:

- Determining projected needs of airport users through the year 2025;
- Identifying existing and future facility needs;
- Evaluating future airport facility development alternatives which will optimize airport capacity and aircraft safety;
- Developing a realistic, commonsense plan for the use and/or expansion of the airport;
- Developing land use strategies for the use of airport property;

- ➢ Developing compatible land use strategies;
- ➢ Establishing a schedule of development priorities and a program for improvements;
- ➢ Analyzing the airport's financial requirements for capital improvement needs and grant options;
- ➢ Coordinating this Master Plan with local, regional, state, and federal agencies; and
- ➢ Developing active and productive public involvement through the planning process.

MASTER PLAN ELEMENTS AND PROCESS

The Hollister Municipal Airport Master Plan is being prepared in a systematic fashion following Federal Aviation Administration (FAA) guidelines and industry-accepted principles and practices. The Master Plan for Hollister Municipal Airport has six general elements which are intended to assist in the discovery of future facility needs and provide the supporting rationale for their implementation. **Exhibit A** provides a graphical depiction of the Hollister Municipal Airport Master Plan process and elements.

Element One encompasses the inventory efforts. The inventory efforts are focused on collecting and assembling relevant data pertaining to the airport and the area it serves. The inventory effort collects information on existing airport facilities, operations, and control. Local economic and demographic data is collected to define the local growth trends. Planning studies which may have relevance to the Master Plan are also collected. Information collected during the inventory efforts is summarized in Chapter One, Inventory.

Element Two examines the potential aviation demand for commercial air service and general aviation activity at the airport. This analysis utilizes local socioeconomic information, as well as national air transportation trends to quantify the levels of aviation activity which can reasonably be expected to occur at Hollister Municipal Airport through the year 2025. The results of this effort are used to determine the types and sizes of facilities which will be required to meet the projected aviation demands for Hollister Municipal Airport over the next 25 years. The results of this analysis are presented in Chapter Two, Aviation Demand Forecasts.

Element Three comprises the facility requirements analysis. The intent of this analysis is to compare the existing facility capacities to forecast aviation demand and determine where deficiencies in capacities (as well as excess capacities) may exist. Where deficiencies are identified, the size and type of new facilities to accommodate the demand are identified. The airfield analysis focuses on improvements needed to serve the type of aircraft expected to operate at the airport and navigational aids to increase the safety and efficiency of operations. This element also includes a determination of passenger terminal building and general aviation facility needs. The findings of this analysis will be presented in Chapter Three, Facility Needs Evaluation.

Element Four considers a series of reasonable solutions to accommodate the projected facility needs. This element proposes various facility and site plan configurations which meet the projected facility needs. A thorough analysis is completed to analyze the strengths and weaknesses of each proposed development alternative with the intention of determining a single direction for development. Chapter Four, Airport Development Alternatives, comprises the results of the work efforts given to completing this element.

Element Five includes two independent, yet interrelated, work efforts: a capital implementation program and airport plans. This element will comprise Chapters Five and Six of the Master Plan. Chapter Five provides both a graphic and narrative description of the recommended plan for the use, development, and operation of the airport. Specifics on environmental concerns and compatible land use strategies are also provided. Appendix B to the Master Plan includes the official Airport Layout Plan (ALP) and detailed technical drawings depicting related airspace, land use, and property data. These drawings are used by the FAA in determining grant eligibility and funding. Chapter Six focuses on the capital needs program which defines the schedules, costs, and funding sources for the recommended development projects.

COORDINATION

The Hollister Municipal Airport Master Plan is of interest to many within the local community. This includes local citizens, community organizations, airport users, airport tenants, area-wide planning agencies, and aviation organizations. As an important component of the regional, state, and national aviation system, the Hollister Municipal Airport Master Plan is of importance to both state and federal agencies responsible for overseeing air transportation.

To assist in the development of the Hollister Municipal Airport Master Plan, the City of Hollister identified a cross-section of community members and interested persons to act in an advisory role in the development of the Master Plan. As members of the Planning Advisory Committee (PAC), the committee members reviewed phase reports and provided comment throughout the study to help ensure that a realistic, viable plan was developed.

To assist in the review process, draft phase reports were prepared at three milestones in the planning process as shown previously on **Exhibit A**. The draft phase report process allowed for input and review during each step within the Master Plan process to ensure that all Master Plan issues were fully addressed as the recommended program was developed.

A series of public information workshops were also included as part of the plan coordination. The public information workshops allowed the public to provide input and learn about general information concerning the Master Plan.

The Master Plan data was also placed on the World Wide Web for viewing at anyone's leisure. Users of the web site were able to submit comments and view the materials given to the PAC and City for review.

01MP12-IA-12/11/03

INVENTORY

- Airport Facilities
- Airspace and Air Traffic Activity
- Area Socioeconomic Data
- Local Planning and Land Use
- Airport Access and Parking, Utilities, and Aerial Photography

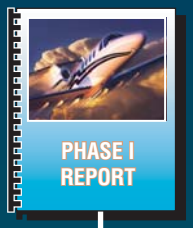
FORECASTS

- Based Aircraft and Fleet Mix
- Annual Operations

FACILITY REQUIREMENTS

- Design Categories
- Runway Length and Strength
- Support Facilities
- Taxiways
- Hangar Facilities
- Terminal Building
- Aprons
- Navigational Aids

PLANNING ADVISORY COMMITTEE MEETING



AIRPORT ALTERNATIVES

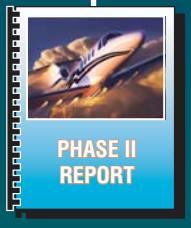
- Evaluate Development Scenarios
  - Airside
  - Landside

PLANNING ADVISORY COMMITTEE MEETING

PUBLIC INFORMATION WORKSHOP

RECOMMENDED DEVELOPMENT PLAN ENVIRONMENTAL OVERVIEW

- Detailed Master Plan Facility and Land Use Plans
- Review/Evaluation of NEPA Environmental Categories
- Noise Exposure



FINANCIAL PLAN

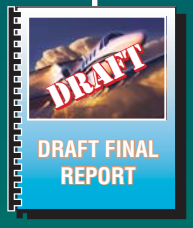
- Airport Development Schedule
- Cost Estimates
- Funding Sources

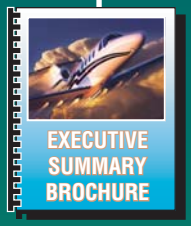
PLANNING ADVISORY COMMITTEE MEETING

PUBLIC INFORMATION WORKSHOP

AIRPORT LAYOUT PLANS

- Airport Layout Plan
- Landside Drawing
- Airspace/Approach Drawings
- On-Airport Land Use Plan
- Property Map





Hollister Municipal Airport

Exhibit A
MASTER PLAN PROCESS

Hollister Municipal Airport

INVENTORY

The initial step in the preparation of the airport master plan for Hollister Municipal Airport is the collection of information pertaining to the airport and the area it serves. The information summarized in this chapter will be used in subsequent analyses in this study and includes:

- Physical inventories and descriptions of the facilities and services currently provided at the airport, including the regional airspace, air traffic control, and aircraft operating procedures.
- Background information pertaining to the City of Hollister and regional area, including descriptions of the regional climate, surface transportation systems, the Hollister Municipal Airport's role in the regional, state, and aviation systems, and development that has taken place recently at the airport.
- Population and other significant socioeconomic data which can provide an indication of future trends that could influence aviation activity at the airport.
- A review of existing local and regional plans and studies to determine their potential influence on the development and implementation of the airport master plan.

The information in this chapter was obtained from several sources, including on-site inspections, interviews with City staff and airport tenants, airport records, related studies, the Federal Aviation Administration (FAA), and a number of internet sites.

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A complete listing of the data sources is provided at the end of this chapter.

HISTORICAL PERSPECTIVE

Hollister Municipal Airport began as a private grass airstrip in 1912 when it served as host to aviators Frank Bryant and Roy Francis, who performed an air show on May 18 and 19. The airstrip became known as Turner Field in the mid-20s after the property was acquired by Everett Turner, who ran the local crop dusting service. 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. Eighteen months later, on December 9, 1947, the facilities were turned over to the City of Hollister through a quitclaim deed.

RECENT DEVELOPMENT HISTORY

In cooperation with the FAA and State, the City of Hollister has made continual improvements to Hollister Municipal Airport. **Table 1A** summarizes the major improvement projects at the Airport since 1989. Since 1989, almost 10 million dollars have been invested by the FAA at Hollister Municipal Airport through the Federal Airport Improvement Program (AIP).

AIRPORT ADMINISTRATION

Hollister Municipal Airport is owned by the City of Hollister. The airport is under the direction of the City Manager. The Airport Manager is responsible for the operation, maintenance, and management of the airport.

A five-member Airport Advisory Commission provides recommendations on the policies and long-range plans for the Hollister Municipal Airport to the City Council. At least three members are required to be residents of the City of Hollister and all members must be residents of San Benito County. The members are appointed by the Mayor with the approval of the City Council. Appointments are for a two-year time period, with staggered terms of office to ensure that no more than two-thirds of the terms expire in any one-year period.

TABLE 1A
Recent Development History/Federal Grant History

Grant Year	Project Description	Federal Grant
1989	Overlay Runway 24, Reconstruct Taxiways	$472,200
1991	Overlay Runway 31, Seal Runway 24	$672,200
1996	Extend Runway 31, Purchase 22 Acres	$6,062,800
2000	Taxiway Extension To Runway 31, Reconstruct Taxiway To Runway 24	$1,220,000
2001	Purchase Aviation Easement and Install AWOS, Airport Beacon, and Security Fence	$1,381,000

Source: City of Hollister

AWOS – Automated Weather Observation System

AIRPORT FACILITIES

Airport facilities can be functionally classified into two broad categories: airside and landside. The airside category includes those facilities directly associated with aircraft operations. The landside category includes those facilities necessary to provide a safe transition from surface to air transportation and support aircraft servicing, storage, maintenance, and operational safety.

AIRSIDE FACILITIES

Airside facilities include runways, taxiways, airfield lighting, and navigational aids. Airside facilities are identified on **Exhibit 1A. Table 1B** summarizes airside facility data.

Runways

The existing runway configuration at Hollister Municipal Airport includes two intersecting runways (Runway 6-24 and Runway 13-31). Runway 13-31, the longest runway, is 6,350 feet long, 100 feet wide, and is oriented in a northwest-southeast manner. Runway 6-24 is 3,150 feet long, 100 feet wide, and oriented in a northeast-southwest manner. A 750-foot lead-in taxiway is located behind the Runway 6 landing threshold. A 450-foot lead-in taxiway is located behind the Runway 24. This pavement cannot be used for landings. Since it is not designated as part of the runway, it should not be used for departure. The Runway 6 and Runway 24 thresholds have been located to provide sufficient landing clearance over obstacles within the approach surface. A hill is located west of the Runway 24 end, while San Felipe Road is an obstruction to Runway 24 without the threshold in its existing location. A 1,170-foot lead-in taxiway is located behind the Runway 31 end.

TABLE 1B
Airside Facility Data
Hollister Municipal Airport

	Runway 6-24		Runway 13-31	
Length (ft.)	3,150		6,350	
Width (ft.)	100		100	
Surface Material	Asphalt		Asphalt	
Load Bearing Strength				
Single Wheel	30,000		30,000	
Double Wheel	45,000		45,000	
Instrument Approach Procedures	None		GPS (31)	
Approach Aids	**Rwy 6**	**Rwy 24**	**Rwy 13**	**Rwy 31**
Global Positioning System (GPS)	No	No	No	Yes
Visual Approach Slope Indicators (VASI)	No	Yes	No	No
Precision Approach Path Indicators (PAPI)	No	No	Yes	Yes
Runway End Identifier Lights (REILs)	No	Yes	Yes	Yes
Pavement Edge Lighting	Medium Intensity Runway Lighting Taxiway Retro-Reflective Delineators		Medium Intensity Runway Lighting Taxiway Retro-Reflective Delineators	
Pavement Markings	Basic		Nonprecision	
Elevation	230 feet Mean Sea Level (MSL)			
Fixed Wing Aircraft Traffic Pattern	Left			
Helicopter Traffic Pattern	Right			

Source: November 2002 Airport/Facility Directory
GPS- Global Positioning System

Both runways are constructed of asphalt. The load bearing strengths are the same for both runways: 30,000 SWL and 45,000 DWL. Single wheel loading (SWL) refers to the design of certain aircraft landing gear which has a single wheel on each main landing gear strut. Dual wheel loading (DWL) refers to the design of certain aircraft landing gears which have two wheels on each main landing gear strut.

Taxiways

The taxiway system at Hollister Municipal Airport is identified on **Exhibit 1A**. Both runways are equipped with full-length parallel taxiways. Taxiway A is a full-length parallel taxiway providing access to both ends of Runway 13-31. Taxiway A is 50 feet wide and is located 300 feet from the Runway 13-31 centerline. Taxiways B, D, F, and H connect Taxiway A to Runway 13-31, and serve as runway entrance and exit points. Each taxiway is 50 feet wide.

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Hollister Municipal Airport

Exhibit 1A
AIRSIDE FACILITIES

Taxiway C is a full length parallel taxiway extending between each end of Runway 6-24. Taxiway C is 50 feet wide and is located 250 feet from the Runway 6-24 centerline. Taxiway I and Taxiway J connect Taxiway C to Runway 6-24. Each taxiway is 50 feet wide.

Airfield Lighting

Airfield lighting systems extend an airport's usefulness into periods of darkness and/or poor visibility. A variety of lighting systems are installed at the airport for this purpose. These lighting systems, categorized by function, are summarized as follows.

Identification Lighting: The location of an airport at night is universally identified by a rotating beacon. A rotating beacon projects two beams of light, one white and one green, 180 degrees apart. The rotating beacon at Hollister Municipal Airport is located in the southeast portion of the airfield, adjacent to the main power vault as shown on **Exhibit 1A**.

Pavement Edge Lighting: Pavement edge lighting utilizes light fixtures placed near the edge of the pavement to define the lateral limits of the pavement. This lighting is essential for safe operations during night and/or times of low visibility in order to maintain safe and efficient access to and from the runway and aircraft parking areas. Both runways at Hollister Municipal Airport are equipped with medium intensity runway lighting (MIRL). All taxiways are equipped with retro-reflector markers. Each runway end is equipped with threshold lights, which identify the landing threshold. Runway threshold lights utilize specially designed lens which are red on one side and green on the other. The red portion is visible during departure while the green portion is visible during approach.

Visual Approach Lighting: The approach and landing phase of all flights at Hollister Municipal Airport is conducted visually by the pilot. A number of landing aids have been installed at the airport to assist pilots in determining the correct descent path to the runway end during landing. A visual approach slope indicator (VASI) is available at the Runway 24 end. A precision approach path indicator (PAPI) is available at the Runway 13 and Runway 31 ends. While different in configuration, the VASI and PAPI are similar in use. Each system consists of a series of lights, located at various distances from the runway threshold, which when interpreted by the pilot, give him or her an indication of being above, below, or on the designated descent path to the runway end.

Runway End Identification Lighting: Runway end identification lights (REILs) provide rapid and positive identification of the approach end of the runway. The REIL system consists of two synchronized flashing lights, located laterally on each side of the runway threshold, facing the approaching aircraft. REILs are installed on both ends of Runway 13-31 and to Runway 24.

Airfield Signs: Airfield identification signs assist pilots in identifying their location on the airport and direct them to their desired location. Lighted air-

field signs are located at aircraft hold positions, at taxiway intersections, and at the intersection of the connecting taxiways and runways.

Pilot-Controlled Lighting: Airfield lighting systems can be controlled through a pilot-controlled lighting system (PCL). A PCL allows pilots to turn on/or increase the intensity of the airfield lighting systems from the aircraft with the use of the aircraft's radio transmitter. The MIRL to each runway, REILs, PAPIs, and VASIs are connected to the PCL system at Hollister Municipal Airport.

Pavement Markings

Pavement markings aid in the movement of aircraft along airport surfaces and identify closed or hazardous areas on the airport. The non-precision markings on Runway 13-31 identify the runway centerline, threshold, designation, pavement edge, and aircraft holding positions. The basic markings on Runway 6-24 identify the runway centerline, designation, and aircraft holding positions.

Taxiway and apron taxilane centerline markings are provided to assist aircraft using these airport surfaces. Centerline markings assist pilots in maintaining proper clearance from pavement edges and objects near the taxilane/taxiway edges. Pavement markings also identify aircraft parking positions.

Weather Reporting

Hollister Municipal Airport is not currently equipped with automated weather reporting. However, the City has a federal grant to install an automated weather observation system (AWOS). The AWOS will provide automated aviation weather observations 24 hours a day. The system updates weather observations every minute, continuously reporting significant weather changes as they occur. The AWOS system reports cloud ceiling, visibility, temperature, dew point, wind direction, wind speed, altimeter setting (barometric pressure), and density altitude (airfield elevation corrected for temperature).

Hollister Municipal Airport is equipped with a lighted wind cone, tetrahedron, and segmented circle. The wind cone provides wind direction and speed information to pilots. The tetrahedron is a device that is used as a landing direction indicator. The small end of the tetrahedron points in the direction of landing. The segmented circle provides aircraft traffic pattern information. The lighted wind cone and segmented circle are located northwest of the runway intersection, while the tetrahedron is located southwest of the runway intersection.

Enroute Navigation And Airspace

Navigational aids are electronic devices that transmit radio frequencies, which pilots of properly equipped air-

craft translate into point-by-point guidance and position information. For pilots flying to and from Hollister Municipal Airport, the global positioning system (GPS), very high frequency omnidirectional range (VOR), and LORAN-C navigational aids are available for use.

The global positioning system (GPS) was initially developed by the United States Department of Defense for military navigation around the world. Increasingly, GPS has been utilized more in civilian uses. GPS uses satellites placed in orbit around the globe to transmit electronic signals, which pilots of properly equipped aircraft use to determine altitude, speed, and navigational information. The FAA is proceeding with a program to make satellite navigation the primary navigation system across the country; however, most existing navigational aids will be retained for redundancy and security.

The VOR, in general, provides azimuth readings to pilots of properly equipped aircraft by transmitting a radio signal at every degree to provide 360 individual navigational courses. Frequently, distance measuring equipment (DME) is combined with a VOR facility to provide distance as well as direction information to the pilot. Military tactical air navigation aids (TACANs) are commonly combined to form a VORTAC. A VORTAC provides distance and direction information to civil and military pilots. The Salinas VORTAC, San Jose VOR/DME, Panoche VORTAC, and Priest VOR can be used by pilots when navigating to or from Hollister Municipal Airport. These facilities are identified on **Exhibit 1B**.

Loran-C is a ground-based enroute navigational aid which utilizes a system of transmitters located in various locations across the continental United States. Loran-C is similar to GPS as pilots are not required to navigate using a specific facility. With a properly equipped aircraft, pilots can navigate to any airport in the United States using Loran-C.

Instrument Approach Procedures

Instrument approach procedures are a series of predetermined maneuvers established by the FAA, using electronic navigational aids, that assist pilots in locating and landing at an airport during low visibility and cloud ceiling conditions. There is currently one published instrument approach to Hollister Municipal Airport. The GPS approach to Runway 31 is a non-precision instrument approach that provides course guidance information to the pilot.

The capability of an instrument approach is defined by the visibility and cloud ceiling minimums associated with the approach. Visibility minimums define the horizontal distance that the pilot must be able to see in order to complete the approach. Cloud ceilings define the lowest level a cloud layer (defined in feet above the ground) can be situated for the pilot to complete the approach. If the observed visibility or cloud ceilings are below the minimums prescribed for the approach, the pilot cannot com-

plete the instrument approach. The minimum visibility and cloud ceiling requirements vary according to the approach speed of the aircraft. The Runway 31 GPS approach provides for straight-in landings when the visibility is restricted to one mile and cloud ceilings are at least 600 feet above the ground for aircraft with approach speeds less than 120 knots. In aircraft with approach speeds between 121 and 140 knots, the cloud ceilings remain the same, while the visibility minimums increase to one and one-half miles. When a local altimeter setting is not available, the cloud ceiling minimums increase to 700 feet for aircraft with approach speeds less than 120 knots. For aircraft with approach speeds between 121 and 140 knots, the cloud ceiling increases to 700 feet while the visibility minimums increase to two miles.

The Runway 31 GPS approach also provides a circling option. The circling option allows pilots to land on any runway end at the airport after following the approach procedure. The circling minimums are the same as the straight-in approach procedure if the local altimeter setting is available. When this is not available, the cloud ceilings increase to 800 feet for aircraft with approach speeds less than 121 knots. For aircraft with approach speeds between 121 and 140 knots, the cloud ceilings increase to 800 feet, while the visibility minimums increase to two miles. The installation of the AWOS should eliminate the disparity in approach minimums as it will provide local altimeter settings continuously.

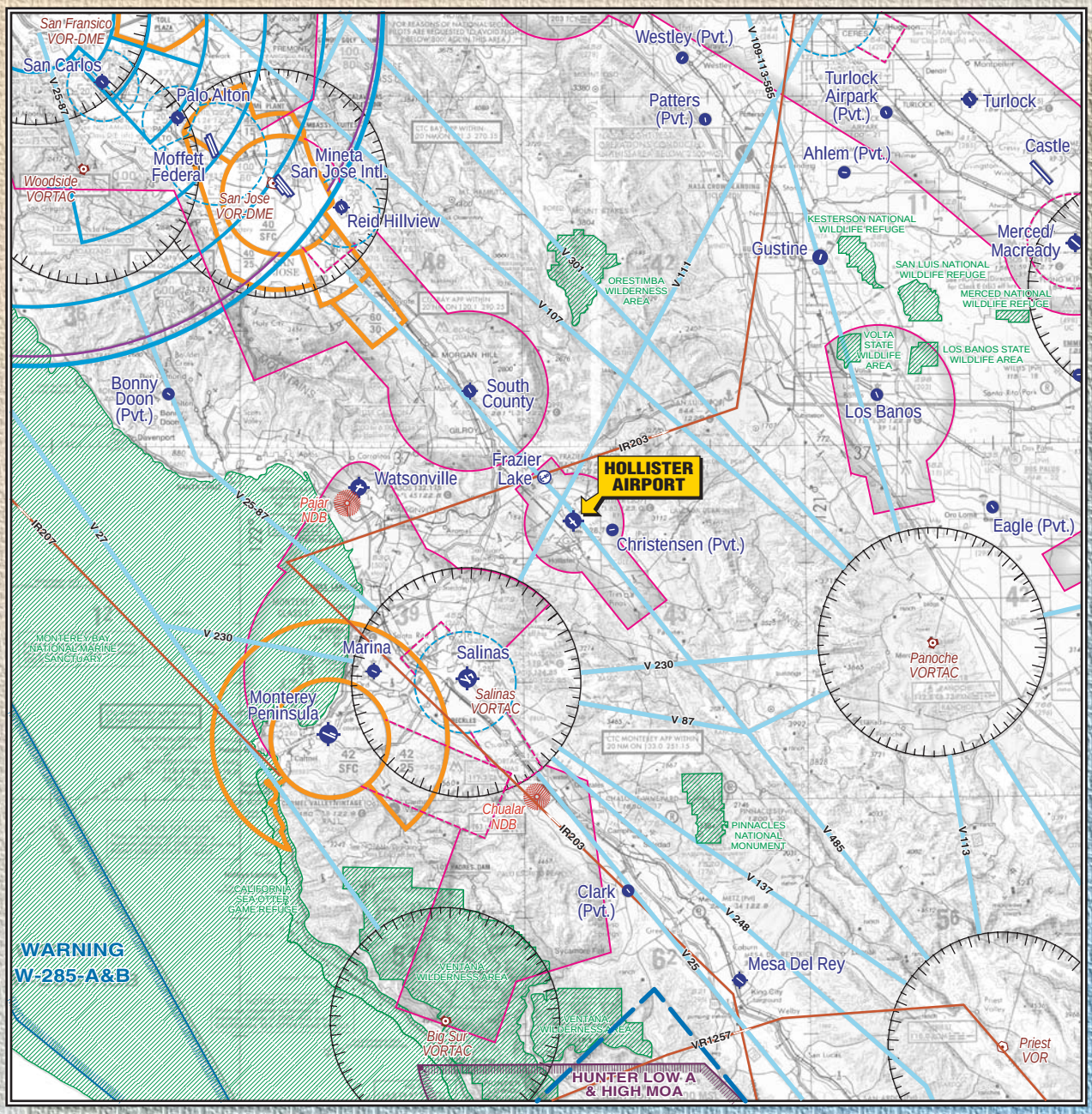
Local Operating Procedures

Hollister Municipal Airport is located at 230 feet mean sea level (MSL). A left-hand traffic pattern has been established for all runways. In this manner, aircraft approach the desired runway end, following a series of left-hand turns. The traffic pattern altitude (TPA) is 1,030 feet MSL (800 feet AGL) for fixed-wing aircraft. The helicopter TPA is 750 feet MSL (500 feet AGL). Helicopters are requested to use a right traffic pattern.

Vicinity Airspace

The *Federal Aviation Administration Act of 1958* established the FAA as the responsible agency for the control and use of navigable airspace within the United States. In response to this legislative directive, the FAA has established the National Airspace System (NAS) to protect persons and property on the ground and to provide for a safe and efficient airspace environment for civil, commercial, and military aviation. The NAS consists of U.S. airspace, air navigation facilities, airports and landing areas, aeronautical charts, regulations and procedures, technical information and services, personnel and material. The system also includes components shared jointly with the military. Airspace in the vicinity is depicted in **Exhibit 1B.**

The U.S. airspace structure provides two basic categories of airspace, controlled and uncontrolled, and identifies them as Classes A, B, C, D, E, and



LEGEND

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

Source: San Francisco Sectional Chart, US Department of Commerce, National Oceanic and Atmospheric Administration 9/5/02

Hollister Municipal Airport

Exhibit 1B
VICINITY AIRSPACE AND AIRPORTS

G. Class A airspace is controlled airspace and includes all airspace from 18,000 feet mean sea level (MSL) to Flight Level 600 (approximately 60,000 feet MSL). Class B airspace is controlled airspace surrounding high capacity commercial service airports (e.g., San Francisco International Airport). Class C airspace is controlled airspace surrounding lower activity commercial service (e.g., Monterey Peninsula Airport) and some military airports. Class D airspace is controlled airspace surrounding airports with an airport traffic control tower (e.g., Salinas Municipal Airport). All aircraft operating within Classes A, B, C, and D airspace must be in contact with the air traffic control facility responsible for that particular airspace. Class E is controlled airspace that encompasses all instrument approach procedures and low altitude federal airways. Only aircraft conducting instrument flights are required to be in contact with air traffic control when operating in Class E airspace. Aircraft conducting visual flights in Class E airspace are not required to be in radio communications with air traffic control facilities; however, visual flight can only be conducted if minimum visibility and cloud ceilings exist. Class G airspace is uncontrolled airspace that does not require contact with an air traffic control facility.

Hollister Municipal Airport is located in Class E airspace, with a floor 700 feet above surface. The Class E airspace around Hollister Municipal Airport extends outward at a radius of approximately five nautical miles. The Class E airspace extends an additional seven nautical miles southeast of the airport to encompass the Runway 31 GPS approach procedure. The Class E airspace also extends outward approximately two nautical miles to the northwest.

For aircraft arriving or departing the regional area using VOR facilities, a system of Federal Airways, referred to as Victor Airways, has been established. Victor Airways are corridors of airspace eight miles wide that extend upward from 1,200 feet AGL to 18,000 feet MSL and extend between VOR navigational facilities. Victor Airways are shown with solid blue lines on **Exhibit 1B**. V485 crosses Hollister Municipal Airport, extending between the Priest VOR to the southeast and San Jose VOR/DME to the northwest. V111 extends north of the airport, and emanates from the Salinas VORTAC.

Military training routes in the vicinity of Hollister Municipal Airport are identified on **Exhibit 1B**. Military jets travel these routes above 10,000 feet MSL at speeds in excess of 250 knots.

While not considered part of the U.S. airspace structure, the boundaries of National Park Service areas and U.S. Forest and Primitive areas are noted on aeronautical charts. While aircraft operations are not specifically restricted over these areas, aircraft are requested to maintain a minimum altitude of 2,000 feet above the surface. **Exhibit 1B** depicts the boundaries of these areas near Hollister Municipal Airport.

Air Traffic Control

Hollister Municipal Airport does not have an airport traffic control tower (ATCT); therefore, no formal air traffic services are available. Aircraft operating in the vicinity of the airport are not required to file any type of flight plan or contact any air traffic control facility unless they are entering airspace where contact is mandatory or have filed an instrument flight plan. Air traffic advisories and certain weather information can be obtained using the common traffic advisory frequency (CTAF) channel 123.0 MHz, also known as UNICOM.

The Oakland Flight Service Station (FSS) provides pilots with weather information and flight planning processing. NorCal Approach Control provides enroute air traffic control functions and controls all aircraft using the Runway 31 GPS approach.

LANDSIDE FACILITIES

Landside facilities are the ground-based facilities that support the aircraft and pilot/passenger handling functions. These facilities typically include a terminal building, aircraft storage/maintenance hangars, aircraft parking aprons, and support facilities such as fuel storage, automobile parking, roadway access, and aircraft rescue and firefighting. Landside facilities are identified on **Exhibit 1C.**

Apron

The main apron area at Hollister Municipal Airport is located southeast of the Runway 13-31/Runway 6-24 intersection. This main apron area encompasses approximately 42,800 square yards including space for aircraft parking and taxilane access to hangar facilities. The main apron provides approximately 120 tiedown spaces.

Aircraft Hangars

There are 17 separate hangar buildings at Hollister Municipal Airport, totaling approximately 153,100 square feet. Hangar facilities are located adjacent to the main hangar (east hangar area) as well as near the Runway 6 end (west hangar area). Hangar space at Hollister Municipal Airport is comprised of conventional (clear span) hangars and T-hangars. Conventional hangars provide a large, open space free from roof support structures which typically have the capability to accommodate several aircraft simultaneously. T-hangars provide for separate hangar facilities within a larger continuous facility.

Conventional hangar space at Hollister Municipal Airport totals approximately 71,500 square feet within six facilities located along the eastern edge of the main apron area. This includes hangar space devoted to the aviation college, aircraft maintenance,

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Fuel Storage/Dispensing

Airport Maintenance

1 Gavilan College

2 Gavilan College

3 Gavilan College

4 Gavilan College

5 Electrical Vault and Rotating Beacon

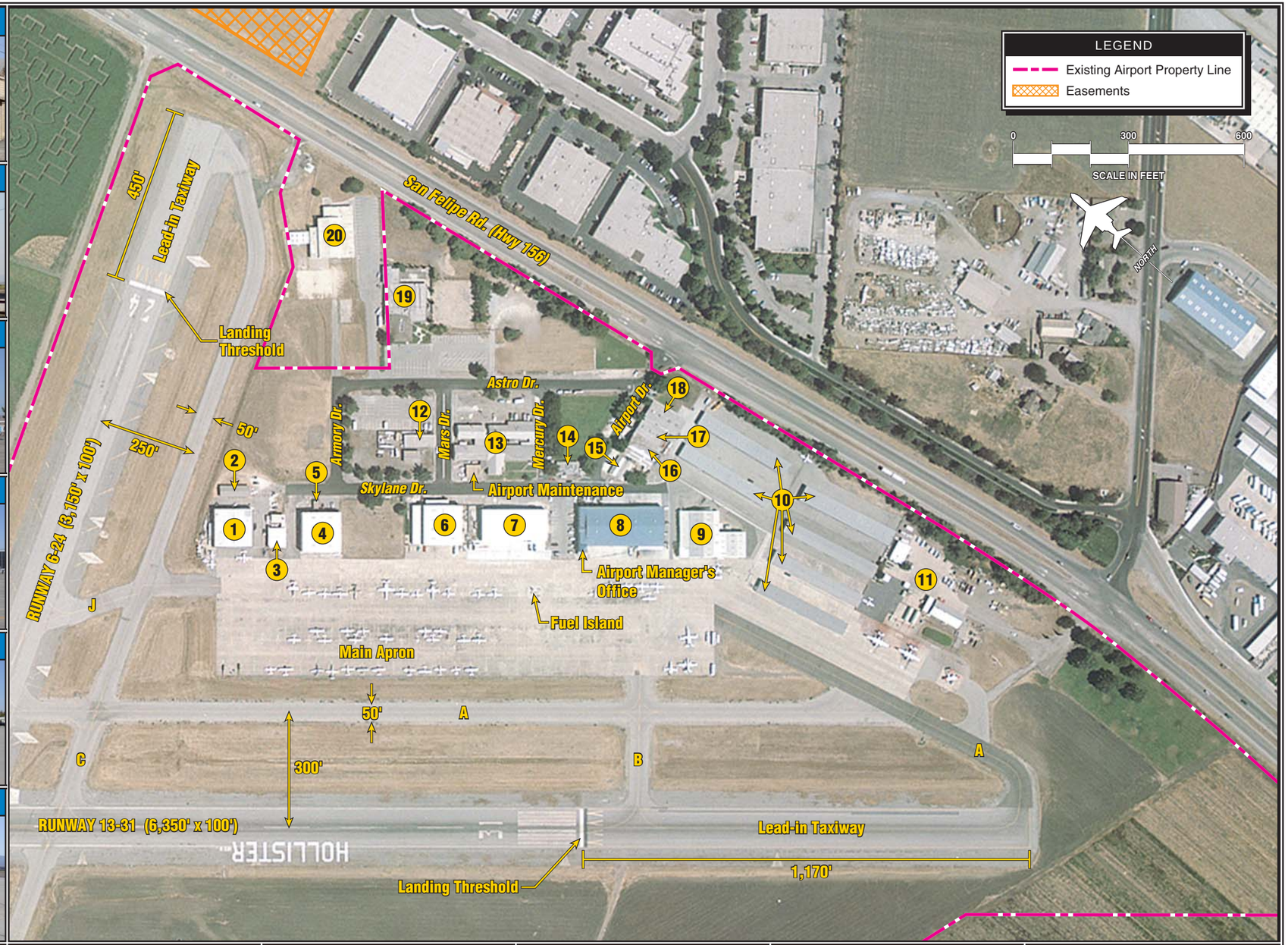
6 Aircraft Maintenance

7 Aircraft Storage/Maintenance

8 Aircraft Storage/Maintenance

9 Aircraft Storage

10 T-Hangar Facilities



11 California Dept. of Forestry

13 Office/Storage

14 Restaurant

15 Storage Buildings

16 Aircraft Maintenance
17 18 Office/Storage

19 Hollister Elks Lodge

20 Former National Guard Facility (Vacant)

Hollister Municipal Airport

Exhibit 1C
LANDSIDE FACILITIES

fixed base operator (FBO) services, and aircraft storage. There are nine separate T-hangar buildings on the airport, providing approximately 81,600 square feet of space and 75 separate hangar spaces. Three of these facilities are located southwest of the Runway 6 end.

Other Buildings

A number of original N.A.A.S. Hollister buildings still remain at Hollister Municipal Airport. These include Buildings 15 (19,116 s.f.), 18 (2,500 s.f.), 19 (4,800 s.f.), 20 (3,243 s.f.), and 21 (4,606 s.f.). All buildings are one-story and wood-framed and are currently used by various aviation-related and non-aviation related businesses. An architectural and structural assessment was completed in July 1999 for Buildings 15, 19, 20, and 21. This study found the buildings to be in generally sound condition, with the exception of non-conventional lateral load resisting systems and a reduced load carrying capacity. The buildings show significant deterioration to the exterior as well as some interior damage. These buildings are likely to contain lead and asbestos. The assessment also noted concerns relating to compliance with building codes and disabled person accessibility requirements. One of the original buildings, Building 25, was lost to fire in 2002. Building 18 is a former military building and is used for general storage by a private tenant.

The Elks Lodge is located on the east side of the airport, near San Felipe Road. This is the former N.A.A.S. Hollister enlisted club. The building is owned by the City and leased by the Elks Lodge. This building encompasses approximately 15,500 square feet.

In addition to its hangar facilities, Gavilan College has a 2,250 square-foot classroom facility and 2,250 square-foot aviation shop with attached noise suppression equipment for engine testing. The on-airport restaurant is located east of the main apron area in a 1,650 square-foot building.

General Aviation Services

Gavilan Aviation provides the traditional FBO services at Hollister Municipal Air-port. Gavilan Aviation provides aircraft refueling, line services flight training, aircraft rentals, sightseeing tours/rides, aircraft maintenance, aircraft parts, aviation accessories, aircraft sales/leasing/brokerage, pilot supplies, and courtesy transportation.

Adventure Center Skydiving provides skydiving services. While Adventure Center Skydiving facilities are located on the airport, and aircraft takeoff and land at Hollister Municipal Airport, there is not a parachutist landing area on the airport. The parachutist landing area is located on private property near the town of Tres Pinos.

Soar Hollister provides glider training, rentals, and sightseeing. Soar Hollister is located off airport property north of Runway 6-24. Runway 24 is generally used for glider operations, however, any runway may be used depending on wind direction and when

practicing crosswind or downwind landings.

OK Turbines provides aircraft turbine jet engine repair and parts. Air-Fab provides aircraft restoration services. C&M Helicopters provides aerial crop dusting services. Gavilan College provides aviation maintenance training. Vintage Wings and Wheels provides aircraft maintenance, modifications, parts, and accessories.

Other Airport Tenants

The following businesses and organizations are located at Hollister Municipal Airport.

- Hollister Elks Lodge
- Airborne
- Ding-A-Ling Café
- Steve Eggleston
- Hollister Elks Building
- P.L. Enterprises
- Ramstad Enterprises
- Specialty Distributors
- Tri Systems
- Weath-Aero, Inc.

California Department of Forestry (CDF)

The California Department of Forestry (CDF) currently operates an Air Attack Base from facilities located east of Runway 13-31. The CDF utilizes S-2 Trackers, a former Navy aircraft. The S-2 is a twin-engine, piston-powered aircraft. The CDF has expressed interest in moving west of Runway 13-31, as depicted on **Exhibit 1A**. The proposed facility would be accessible via Aerostar Way, through the adjacent industrial park.

Aircraft Rescue and Firefighting (ARFF)

There is no designated aircraft rescue and firefighting (ARFF) facility at Hollister Municipal Airport. The closest fire department to the Airport is located in downtown Hollister, approximately four miles south of the Airport.

Fuel Storage and Dispensing

Fuel storage at Hollister Municipal Airport is located underground on the main apron as shown on **Exhibit 1B**. Fuel storage totals 20,000 gallons, evenly split between 100LL and Jet-A fuel. Fuel is dispensed through the fixed fuel island and mobile fuel trucks.

Utilities

Water, sanitary sewer, and electrical utilities are available at the airport. Natural gas and electric utilities are supplied by PG&E. Water and sanitary sewer service is provided by the City of Hollister. The airport's primary electrical vault is located east of Runway 13-31 near the rotating beacon.

Fencing

The airport perimeter and apron areas are equipped with a mix of barbed-wire and chain-link fencing. Neither

the entire airport perimeter nor apron area is completed fenced. Vehicle access to the apron area is not restricted, for the most part, by fencing or gates.

COMMUNITY PROFILE

This section brings together individual studies and data to provide an understanding of the characteristics of the local area. Within this section is a historical summary of the local population, a description of the ground access system near the airport, existing and planned land uses, a summary of aviation systems planning applicable to Hollister Municipal Airport, regional airports, and the local climate.

REGIONAL SETTING, ACCESS AND TRANSPORTATION

As depicted on **Exhibit 1D**, Hollister Municipal Airport is located in the north central portion of San Benito County, in the northern limits of the City of Hollister. Santa Clara County borders San Benito County to the north, while Monterey County borders San Benito County to the west.

State Highways 25 and 156 converge in the City of Hollister and provide primary highway access for the area. The airport site is located between both highways. Highway 25 (Bolsa Road) is located west of the airport, while Highway 156 (San Felipe Road) is located on the east side of the airport. Airport facilities on the east side of the airport are accessed via Highway 156. Flynn Road extends between Highway 25 and Highway 156. The City of Hollister is located approximately 40 miles east of Monterey, 93 miles southeast of San Francisco, 151 miles south of Sacramento, and 304 miles north of Los Angeles.

REGIONAL AIRPORTS

A review of public use airports within 30 nautical miles of Hollister Municipal Airport has been made to identify and distinguish the type of air service provided in the area surrounding the airport. These airports were previously illustrated on **Exhibit 1B**. Information pertaining to each airport was obtained from FAA records.

Frazier Lake Airpark Airport is located approximately 4.5 nautical miles northwest of Hollister Municipal Airport and is privately-owned. Two runways are available for use at the airport, one waterway which is 3,000 feet long and a turf runway that is 2,500 feet long. The airport does not have an airport traffic control tower. There are no published instrument approach procedures. Approximately 90 aircraft are based at the airport. Tiedowns are the only service available at the airport.

South County Airport of Santa Clara County is located approximately 14 nautical miles northwest of Hollister Municipal Airport. There is one 3,100-foot runway available for use. The airport does not have an airport traffic control tower. There is one published instrument approach. Approximately 70 aircraft are based on the airport and a full range of general aviation services are provided.

Salinas Municipal Airport is located approximately 17 nautical miles southwest of Hollister Municipal Airport. Three runways are available for use at the airport, the longest being 6,000 feet long. There is an operating airport traffic control tower. There are five published instrument approaches. Approximately 224 aircraft are based at the airport and a full range of general aviation services are available.

Watsonville Municipal Airport is located approximately 18 nautical miles northwest of Hollister Municipal Airport. There are two runways available for use at the airport, the longest being 4,501 feet long. There is no airport traffic control tower. There are three published instrument approaches. Approximately 331 aircraft are based at the airport and a full range of general aviation services are available.

Marina Municipal Airport is located approximately 21 nautical miles southwest of Hollister Municipal Airport. There is one 3,000-foot runway available for use at the airport. There is no airport traffic control tower. There are four published instrument approaches available at the airport. Approximately 65 aircraft are based at the airport. Services available include fuel, flight instruction, skydiving, and major airframe and power plant services.

Monterey Peninsula Airport is located approximately 28 nautical miles southwest of Hollister Municipal Airport. There are two runways available for use at this airport, the longest being 7,598 feet long. There is no airport traffic control tower. There are seven published instrument approaches available at the airport. Approximately 169 aircraft are based at the airport and a full range of general aviation services are available.

Los Banos Municipal Airport is located approximately 28 nautical miles northeast of Hollister Municipal Airport. There is one 3,005-foot runway available for use. There is no airport traffic control tower. There are two published instrument approaches. Approximately 24 aircraft are based at the airport. Services include fuel and aircraft maintenance, minor airframe service, and major power plant service.

THE AIRPORT'S SYSTEM ROLE

Airport planning exists on many levels: local, regional, and national. Each level has a different emphasis and purpose. An airport master plan is the primary local airport planning document. The previous master plan for Hollister Municipal Airport was completed in 1985. Principal recommendations of the master plan included land acquisition, extension of Runway13-31 to the northwest, construction of new terminal areas including access roads, utilities, and T-hangars.

At the national level, Hollister Municipal Airport is designated within the FAA's *National Plan of Integrated Airport Systems* (NPIAS). Inclusion within the NPIAS allows the airport to

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Hollister Municipal Airport

Exhibit 1D
LOCATION MAP

be eligible for Federal Airport Improvement Program (AIP) funding. Hollister Municipal Airport is classified as a general aviation airport in the NPIAS. A total of 3,489 airports across the country are included in the NPIAS. This includes 2,558 existing general aviation airports and 111 proposed general aviation airports. Hollister Municipal Airport is one of 175 general aviation airports in the State of California that are included in the NPIAS.

At the state level, Hollister Municipal Airport is included as a general aviation airport in the *California State Aviation System Plan (SASP)*. The purpose of the SASP is to ensure that the state has an adequate and efficient system of airports to serve its aviation needs well into the future. The SASP defines the specific role of each airport in the state's aviation system and establishes funding needs.

AREA LAND USE

As evident from the aerial photograph on **Exhibit 1A**, the land uses surrounding the airport are varied and include open space, agricultural uses, and industrial/commercial development. The areas north of Runway 6-24 (on the north, east, and west sides of the airport) are currently in agricultural or open space uses. Light industrial uses are located east of San Felipe Road. The Air Park Business Center is a 100-acre master-planned industrial park that is developing southwest of the airport in the area between the airport boundary and Flynn Road.

As detailed in the *1995 Hollister General Plan*, the land uses for the area adjoining the Airport are planned for industrial and public/industrial uses and is shown on **Exhibit 1E**. Agricultural uses are planned within the broader approach paths for Runway 6 and Runway 13. The area northeast of the runway intersection is planned for commercial, industrial, and public airport uses. A portion of the land northwest of the runway intersection is planned for industrial uses along the airport boundary and agricultural uses to Bolsa Road. A combination of industrial, public, and agricultural uses are designated for the area north of Flynn Road to the Airport boundary. Proposed land uses within the *Northeast Hollister Area Plan* include: general commercial, administrative/professional office, low density residential, open space/parks, and public/institutional uses.

The City of Hollister completed the annexation of 208 acres of land along the northeastern airport boundary for the development of the Hollister Airport Terminal Business Park. The Hollister Airport Terminal Business Park could include as much as 1,215,324 square feet of building space for light industrial northeast of the New Airport Parkway, 784,080 square feet of additional corporate aircraft hangars, a museum, hotel, fixed base operator (FBO), and other airport service buildings, and the expansion of airport tiedowns and aprons. Similar to the Air Park Business Center, the Hollister Airport Terminal Business Park is planned to have direct airport access for businesses that would require access to the runways and taxi-

ways. A depiction of the business park is shown on **Exhibit 1F**.

In October 2001, a Comprehensive Land Use Plan (CLUP) was prepared for Hollister Municipal Airport. The CLUP seeks to protect the public from the adverse effects of aircraft noise, ensure that people and facilities are not concentrated in areas susceptible to aircraft accidents, and to keep aircraft operational areas free from obstructions or activities that may impact aircraft navigation. The Hollister Municipal Airport CLUP is administered by the San Benito County Airport Land Use Commission, which is made of member communities of the San Benito County Council of Governments.

Both the City of Hollister and San Benito County have implemented zoning regulations to regulate the height of structures and objects of natural growth and the uses of airspace in the vicinity of the Airport. San Benito County Ordinance No. 231 and City of Hollister Ordinance No. 433 are based on an Airport Zoning Map prepared by the California Department of Transportation (CALTRANS) in 1962. San Benito County Ordinance No. 523, *Airport Safety Overlay Zone*, was approved in 1987 to establish development policies in areas adjacent to the Airport for the purpose of assuring land use compatibility and safety of persons and property on the ground.

CITY CODE

Two Chapters of the City of Hollister Code apply to the Hollister Municipal Airport. Chapter 13.28, *Hollister Municipal Airport Access Permits*, grants access rights to the airport from properties located adjacent to the airport-through the granting of an access permit. The Council sets yearly annual fees and usage fees for each access permit. Commonly known within the aviation industry as "through-the-fence" access, Chapter 13.23.40 grants access rights for specific sites and limited time periods as determined for each separate permit. Chapter 13.28.070 limits access rights to parcels with aeronautical or aeronautical-related uses. Aeronautical uses specifically allowed include: aircraft manufacturing, aircraft parts manufacturing, wholesale aircraft and parts distributing, aircraft parking, and storage solely for aircraft used for these allowable uses. Land uses which provide aeronautical services to the general public are not allowed. This includes, but is not limited to, sales promotions of aircraft, sale of aircraft to the public, aircraft maintenance, aircraft parts rebuilding, aircraft electronic sales and services, aircraft pilot or navigational schools, aircraft fuel or lubricant sales, aircraft agricultural services, aircraft parking, including storage or hangar facilities, and any other activity which promotes or engages on-site public participation in an aircraft-related activity. The Planning Advisory Committee (PAC) has suggested that Chapter 13.28 be amended to allow the uses proposed by the Air Park Business Center and Hollister Airport Terminal Business Park.

Chapter 13.24 is the *Hollister Municipal Airport Use and Operation Regulations*. This Chapter of the City Code is intended to provide for reasonable, safe, economic, and efficient use of the

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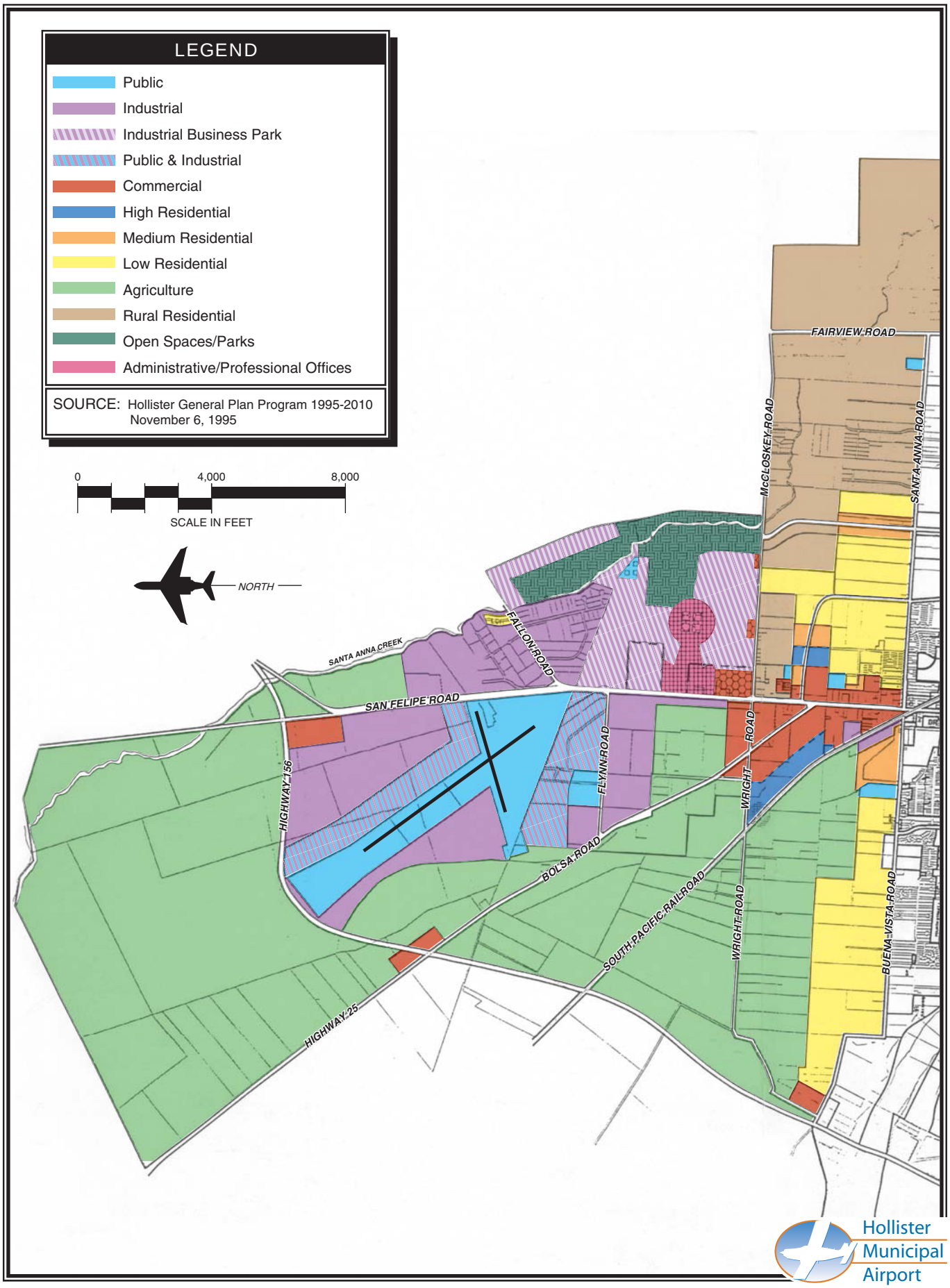

Hollister Municipal Airport

Exhibit 1E
GENERAL PLAN

airport as a public transportation facility and as a base for aviation and aviation-related operations, and to protect the municipal environment from unwanted and inappropriate aviation uses.

DEVELOPMENT MORATORIUM

The City of Hollister, through Ordinance No. 974, and the California Regional Water Quality Control Board, through Cease and Desist Order No. R3-2002-0105, have imposed a moratorium on new development in the City. The moratorium suspends the issuance of new building permits for construction in the City including: construction of new commercial, residential, or industrial buildings which require connection to the City sewer system, construction of new dwelling units, or building additions that include installation of a new plumbing fixture unit. This moratorium is in effect until the City of Hollister can make improvements to the wastewater treatment and disposal facilities.

CLIMATE

Weather conditions are important to the planning and development of an airport. Temperature is an important factor in determining runway length requirements, while wind direction and speed are used to determine optimum runway orientation. The need for navigational aids and lighting is determined by the percentage of time that visibility is impaired due to cloud coverage or other conditions.

Climate in the Hollister area is typically warm and sunny. July through September is the warmest period with the maximum temperature reaching 81 to 83 degrees Fahrenheit. December and January is the coolest period with lows in the mid–30s. The region averages 13.52 inches of precipitation a year, with relatively rain free summer months. The majority of the rainfall occurs in December and January. **Table 1C** summarizes climatic data for Hollister, California.

POPULATION

Population is an important demographic element to consider when planning for future needs of the airport. Historical population data for the City of Hollister and San Benito County is presented in **Table 1D.** As shown in the table, the City of Hollister has grown 5.9 percent since 1990, growing from 19,318 in 1990 to 34,413 in 2000. San Benito County has grown at a lesser rate of 3.8 percent since 1990, adding 16,900 residents.

SUMMARY

The information which has been provided on the preceding pages provides a foundation upon which the remaining elements of the planning process will be constructed. Information on current facilities and activities will provide (with additional data collection and analysis) for the development of aviation demand forecasts, demand/capacity analyses, and facility needs assessments. This information will, in turn, provide guidance for the

assessment of potential changes to aviation facilities or procedures necessary to meet goals for long-term facility improvements.

TABLE 1C
Climatological Summary

	Monthly Averages		Precipitation
Month	**Maximum (F)**	**Minimum (F)**	**Mean (inches)**
January	60.5	36.2	2.67
February	64.1	39.6	2.40
March	67.0	40.6	2.01
April	71.0	43.1	1.23
May	74.2	46.3	0.27
June	78.9	49.6	0.07
July	81.9	51.3	0.03
August	82.1	51.1	0.03
September	83.2	50.4	0.16
October	77.7	46.0	0.54
November	68.4	40.1	1.56
December	61.5	37.0	2.56
Annual	72.6	44.3	13.52

Source: Western Regional Climate Center

TABLE 1D
Historical Population

Year	City of Hollister	San Benito County
1990	19,318	36,900
1991	20,150	37,900
1992	21,300	39,850
1993	22,700	41,050
1994	24,000	42,300
1995	25,650	44,350
1996	27,400	46,050
1997	29,300	48,450
1998	31,200	50,200
1999	32,850	52,200
2000	34,413	53,234
2001	35,094	54,430
2002	36,338	55,921
Average Annual Growth 1990-2002	5.4%	3.6%

Source: California Department of Finance Demographic Research Unit

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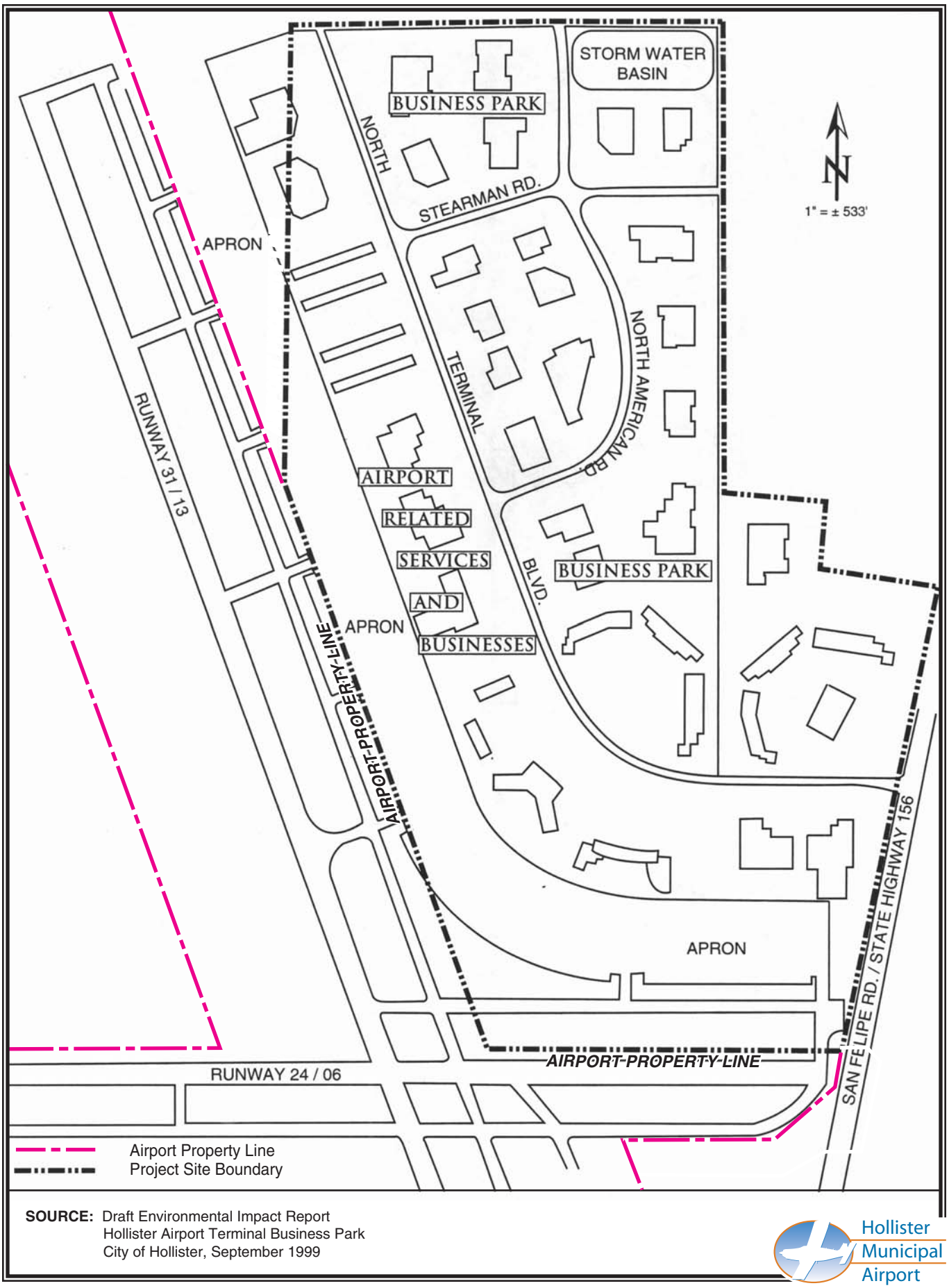

SOURCE: Draft Environmental Impact Report
Hollister Airport Terminal Business Park
City of Hollister, September 1999

Hollister Municipal Airport

Exhibit 1F
HOLLISTER AIRPORT
TERMINAL BUSINESS PARK

DOCUMENT SOURCES

A variety of sources were used in the inventory of existing facilities. The following listing presents a partial list of reference documents. The list does not reflect some information collected by airport staff or through interviews with airport personnel.

Hollister Municipal Airport Master Plan, January 1986, Waddell Engineering Corporation.

From Grass Strip to Airport: A History of the Hollister Municipal Airport, September 2001, Harriet Brin.

Hollister Airport Terminal Business Park: Draft Environmental Impact Report, September 1999, prepared for the City of Hollister by David J. Powers & Associates, Inc.

Hollister Municipal Airport Building Assessment, July 1999, Hemingway/Stock Architects.

Hollister General Plan 1995-2010, November 1995, Duncan & Jones.

Hollister Municipal Airport Comprehensive Land Use Plan, October 2001, Aries Consultants LTD.

Sectional Aeronautical Charts, U.S. Department of Commerce, National Oceanic and Atmospheric Administration, current edition.

U.S. Terminal Procedures, Southwest U.S., U.S. Department of Transportation, Federal Aviation Administration, National Aeronautical Charting Office, current edition.

Airport Facility Directory, Southwest U.S., U.S. Department of Transportation, Federal Aviation Administration, National Aeronautical Charting Office, current edition.

The following Internet web pages were also visited for information during the preparation of this chapter:

www.airnav.com
www.faa.org
www.ambag.org
www.census.gov
www.dof.ca.gov
www.wrcc.edu

Chapter Two

Aviation Demand Forecasts

Hollister Municipal Airport

Facility planning must begin with a definition of the demand that may reasonably be expected to occur at the facility over a specific period of time. For Hollister Municipal Airport, this involves forecasts of aviation activity through the year 2025. In this master plan, forecasts of based aircraft, the based aircraft fleet mix, and annual aircraft operations will serve as the basis for facility planning.

Air transportation is a unique industry that has experienced wide fluctuations in growth and recession. For this reason, it is important that from time-to-time an airport evaluate its current position and examine future demand trends and potential. This holds especially true today given limited public funding mechanisms.

The primary objective of this planning effort is to define the magnitude of change that can be expected over time. Because of the cyclical nature of the economy, it is virtually impossible to predict, with certainty, year-to-year fluctuations in activity when looking as far as 20 years into the future. However, a trend can be established which delineates long term growth potential. While a single line is often used to express the anticipated growth, it is important to remember that actual growth may fluctuate above and below this line. The point to remember about forecasts is that they serve only as guidelines, and planning must remain flexible to respond to unforeseen facility needs. This is because aviation activity is affected by many external influences, as well as by the

HOLLISTER

types of aircraft used and the nature of available facilities.

Recognizing this, the master plan for Hollister Municipal Airport will be demand-based rather than time-based. As a result, the reasonable levels of activity potential that are derived from this forecasting effort will be related to the planning horizon levels rather than dates in time. These planning horizons will be established as levels of activity that will call for consideration of the implementation of the next step in the master plan program. This will be further described in subsequent chapters of this master plan.

Although publicly-owned and operated, an airport is, in many ways, very similar to the private business environment. Airports provide much needed services to the community and have to recognize their position and establish well-planned goals in order to better serve the community. Marketing efforts and facility development are matched to goals so that the airport can best serve the community.

In order to fully assess current and future aviation demand for Hollister Municipal Airport, an examination of several key factors is needed. These include: national and regional aviation trends, historical and forecast socio-economic and demographic information of the area, competing transportation modes, and facilities. Consideration and analysis of these factors will ensure a comprehensive outlook for future aviation demand at Hollister Municipal Airport.

These are the first planning forecasts to be prepared for Hollister Municipal Airport subsequent to the events of September 11, 2001. Following the events of September 11, 2001, the already sluggish economy stalled. A slow recovery with small (but measurable) gains was experienced in 2002, growing by more than 1.4 percent in the 4th quarter of 2002 alone. While the commercial airline industry experienced overall decreases in passenger traffic and revenues in 2002, many general aviation businesses experienced growth. For example, charter operators and fractional ownership companies were experiencing increases as the result of the commercial airline travel difficulties and delays. Corporate aircraft ownership increased.

There is no comparative period in recent history to draw conclusions or trends to gauge the full effects of the events of September 11th. In 1991, the commercial airlines experienced a decline in passengers and profits due to the Persian Gulf War and simultaneous economic recession. However, general aviation was already in an extended period of decline due to product liability concerns and was not specifically affected by the war or economic recession. The industry did not begin to recover until 1994 with the passage of the *General Aviation Revitalization Act*. Commercial airline traffic experienced a decline only in 1991, growing each subsequent year through 2000.

The total impacts the events of September 11, 2001 will have on commercial and general aviation can only be

determined over time. Commercial air service has recovered and grown in many parts of the country since September 11th. This signals the beginning of the recovery from September 11th for the industry. Many of the economic problems for the commercial airlines are now most likely being affected by the larger air carrier business models and cost structures, current economic climate, international political events such as the war on terrorism, health concerns, and events in Iraq. These events, combined with the lasting financial impacts of September 11th, have caused many airlines to cease operation and/or seek bankruptcy protection. Large commercial airline recovery will be a factor of the ability of the air carriers to refine their business models to meet the current economic conditions and air traveler price requirements, continued air traveler confidence in new security measures, and the recovery of the U.S. economy. General aviation recovery will be dependent upon the economy, corporate profitability, fuel prices, and the type and extent of any new regulatory controls over flight training and operations.

The demand-based manner in which this master plan is being prepared is intended to accommodate variations in demand at the airport. Demand-based planning relates capital improvements to demand factors, such as based aircraft, instead of points in time. This allows the airport to address capital improvement needs according to the actual demand occurring at the airport. For example, should based aircraft growth slow or decline, it may not be necessary to implement some improvement projects. However, should the airport experience accelerated growth in based aircraft, the plan will be flexible enough to respond accordingly.

NATIONAL AVIATION TRENDS

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

The current edition when this chapter was prepared was FAA *Aerospace Forecasts-Fiscal Years 2003-2014*, published in March 2003. The forecasts use the economic performance of the United States as an indicator of future aviation industry growth. Similar economic analyses are applied to the outlook for aviation growth in international markets.

The FAA expects modest recovery in 2003, although profitability for much of the commercial airline industry is expected to remain elusive. Positive growth is expected in 2004 and full recovery to pre-September 11th levels is not expected to be achieved until 2005. While the majority of this decline was forecast to occur with the large air carriers, the regional airline industry was expected to continue to grow. Air

cargo traffic was expected to grow faster than passenger traffic. General aviation is expected to achieve low-to-moderate increases in the active fleet and hours flown, with most of the growth occurring in business/corporate flying.

On February 5, 2002, the FAA published a notice of proposed rulemaking (NPRM), titled *Certification of Aircraft and Airmen for the Operation of Light-Sport Aircraft*. The rulemaking would establish new light-sport aircraft categories and allow aircraft manufacturers to build and sell completed aircraft without obtaining type and production certificates. Instead, aircraft manufacturers would build to industry consensus standards. This reduces development costs and subsequent aircraft acquisition costs. This new category places specific conditions on the design of the aircraft to limit them to low performance aircraft. New pilot training times are reduced and offer more flexibility in the type of aircraft which the pilot would be allowed to operate. Viewed by many within the general aviation industry as a revolutionary change in the regulation of recreational aircraft, this new rulemaking is anticipated to significantly increase access to general aviation by reducing the time and costs to earn a pilot's license and owning and operating an aircraft. These regulations are aimed primarily at the recreational aircraft owner/operator. This new rulemaking is expected to add between 300 and 500 new aircraft each year beginning in 2005. By 2014, there is expected to be 6,200 of these aircraft in the national fleet.

GENERAL AVIATION TRENDS

Following more than a decade of decline, the general aviation industry was revitalized with the passage of the *General Aviation Revitalization Act* in 1994, which limited the liability on general aviation aircraft to 18 years from the date of manufacture. This legislation sparked an interest to renew the manufacturing of general aviation aircraft, due to the reduction in product liability, as well as renewed optimism for the industry. The high cost of product liability insurance was a major factor in the decision by many American aircraft manufacturers to slow or discontinue the production of general aviation aircraft. The industry responded as expected. According to the General Aviation Manufacturers Association (GAMA), between 1994 and 2000, general aviation aircraft shipments increased at an average annual rate over 20 percent, increasing from 928 shipments in 1994 to 2,816 shipments in 2000.

However, the growth in the general aviation industry slowed considerably in 2001, negatively impacted by the economic downturn already taking place in 2001. In 2001, aircraft shipments were down 6.6 percent to 2,634. The 2002 shipments were down an additional 15.9 percent to 2,214 with piston-engine aircraft shipments down 12 percent, turboprop shipments down 33.5 percent, and business jet shipments down 12.7 percent.

According to GAMA, in 2001 business aircraft production (turboprop and turbojets) represented 46 percent of

total production, with business jets constituting nearly 30 percent of the total. For 2002, business aircraft production represented 32 percent of total production with business jets representing 32 percent of the shipments, while turboprops had fallen to eight percent.

The decline in aircraft shipments is not expected to last long. According to the National Business Aviation Association (NBAA), there are more than 2,700 aircraft still on order. NBAA cites a study by Honeywell that aircraft shipments will recover to record levels by 2004 and that 8,400 business aircraft will be delivered over the next 10 years.

At the end of 2002, the total pilot population, including student, private, commercial, and airline transport, was estimated at 661,358. This is an increase of 4,000 pilots over 2001, which saw a 3.9 percent increase, or 24,000 pilots, over 2000. Student pilots were down 8.9 percent in 2002. This follows a 3.3 percent decrease in 2001 from 2000. Pilot training is suffering from limitations on foreign training and visa issues since September 11th. The number of student pilots is projected to increase by 1.0 percent in 2003, 2.0 percent in 2004, 3.5 percent in 2005, and 2.8 percent in 2006. Thereafter, it is expected to grow at 2.0 percent annually. The strong growth in 2005 and 2006 is expected to be the result of the new Sport Aircraft regulations.

While impacting aircraft production and delivery, the events of September 11th and economic downturn have not had the same negative impact on the business/corporate side of general aviation. The increased security measures placed on commercial flights has increased interest in fractional and corporate aircraft ownership, as well as on-demand charter flights. According to GAMA, the total number of corporate operators increased by 482 operators in 2002. Corporate operators are defined as those companies that have their own flight departments and utilize general aviation airplanes to enhance productivity. **Table 2A** summarizes the number of U.S. companies operating fixed-wing turbine aircraft since 1991.

TABLE 2A
U.S. Companies Operating Fixed-Wing Turbine Business Aircraft And Number Of Aircraft, 1991-2002

Year	Number of Operators	Number of Aircraft
1991	6,584	9,504
1992	6,492	9,504
1993	6,747	9,594
1994	6,869	10,044
1995	7,126	10,321
1996	7,406	11,285
1997	7,805	11,774
1998	8,236	12,425
1999	8,778	13,148
2000	9,317	14,079
2001	9,709	14,837
2002	10,191	15,569

Source: NBAA

The growth in corporate operators comes at a time when fractional aircraft programs are experiencing significant growth. Fractional ownership programs sell 1/8 or greater shares in an aircraft at a fixed cost. This cost, plus monthly maintenance fees, allows the shareholder a set number of hours of use per year and provides for the management and pilot services associ-

ated with the aircraft's operation. These programs guarantee the aircraft is available at any time, with short notice times. Fractional ownership programs offer the shareholder a more efficient use of time (when compared with commercial air service) by providing faster point-to-point travel times and the ability to conduct business confidentially while flying. The lower initial startup costs (when compared with acquiring and establishing a flight department) and easier exiting options are also great benefits.

Since beginning in 1986, fractional jet programs have flourished. **Table 2B** summarizes the growth in fractional shares since 1986. The NBAA reports that there were 776 aircraft in fractional jet programs at the end of 2002. There were 696 aircraft used in 2001. GAMA reports that 15 percent of all turbine aircraft deliveries are for fractional programs.

Manufacturer and industry programs and initiatives continue to revitalize the general aviation industry with a variety of programs. For example, Piper Aircraft Company has the Piper Financial Services (PFS) to offer competitive interest rates and/or leasing of Piper aircraft. Manufacturer and industry programs include the "No Plane, No Gain" program promoted jointly by the General Aviation Manufacturers Association (GAMA) and the National Business Aircraft Association (NBAA). This program was designed to promote the use of general aviation aircraft as an essential, cost-effective tool for businesses. Other programs are intended to promote growth in new pilot starts and to introduce people to general aviation. These include "Project Pilot" sponsored by the Aircraft Owners and Pilots Association (AOPA), "Flying Start" sponsored by the Experimental Aircraft Association (EAA), "Be a Pilot" jointly sponsored and supported by more than 100 industry organizations, and "Av Kids" sponsored by the NBAA. Over the years, programs such as these have played an important role in the success of general aviation and will continue to be vital to its growth in the future.

TABLE 2B
Fractional Shares
1986-2002

Year	Number of Shares
1986	3
1987	5
1988	26
1989	51
1990	57
1991	71
1992	84
1993	110
1994	158
1995	285
1996	548
1997	957
1998	1,551
1999	2,607
2000	3,834
2001	4,871
2002	5,827

Source: NBAA

In 2001, there was an estimated 211,447 active general aviation aircraft, representing a 2.8 percent decrease from the previous year, the second consecutive year after five years of growth. **Exhibit 2A** depicts the FAA forecast for active general aviation aircraft in the United States. The FAA forecasts general aviation air-

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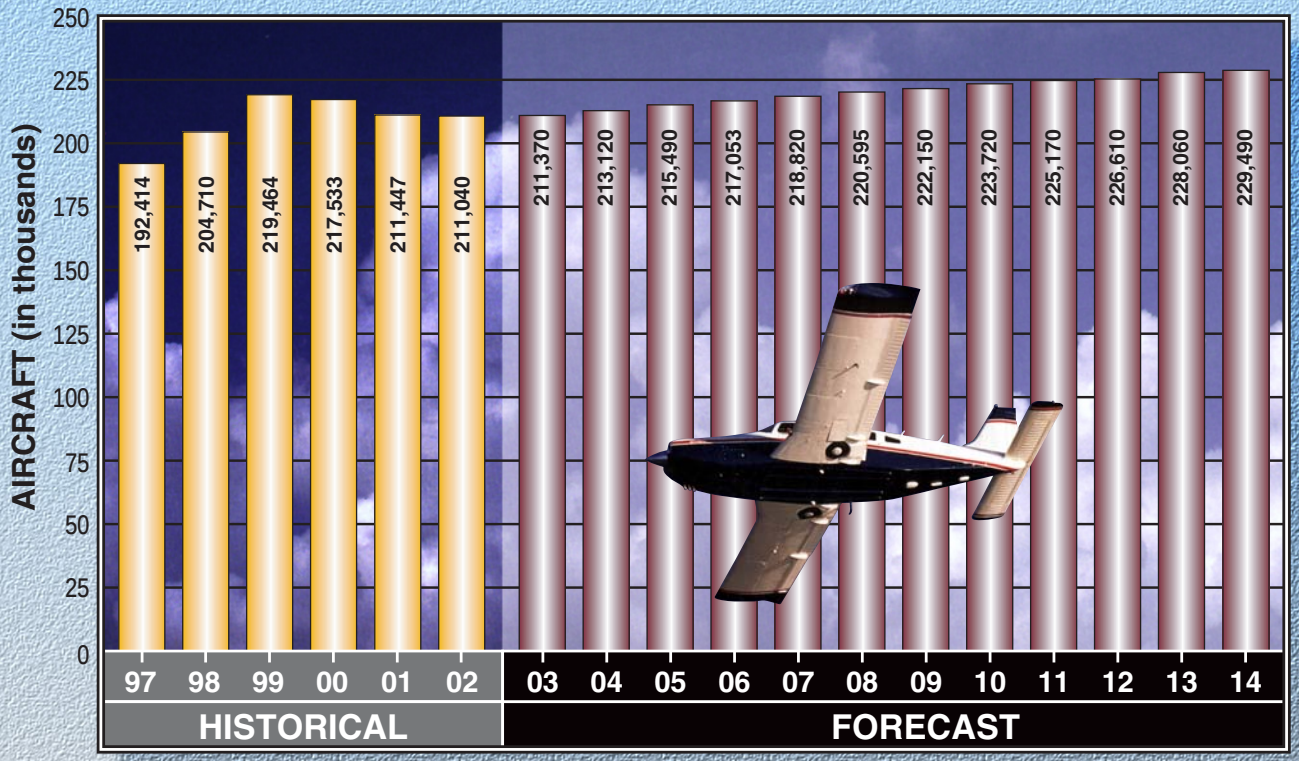
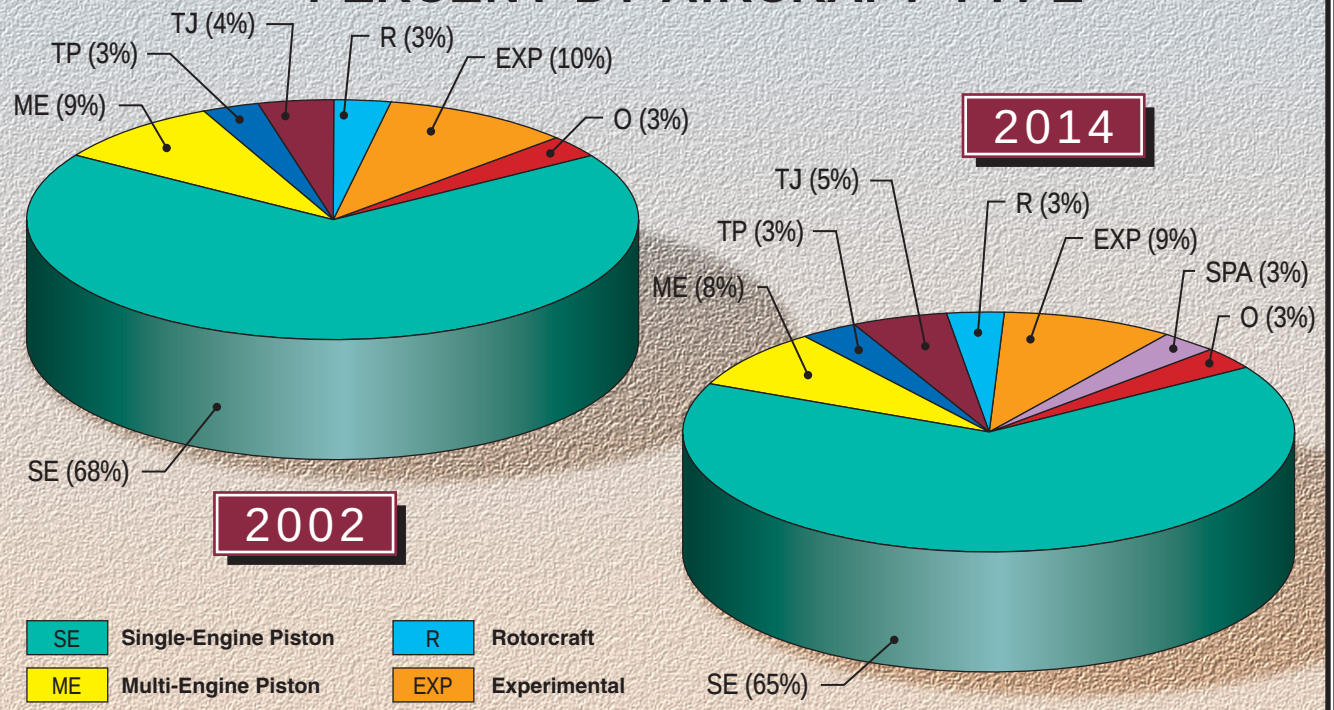
ACTIVE GENERAL AVIATION AIRCRAFT



Source: FAA Aerospace Forecasts, FY 2003-2014

PERCENT BY AIRCRAFT TYPE



Hollister Municipal Airport

Exhibit 2A
U.S. ACTIVE GENERAL AVIATION AIRCRAFT FORECASTS

craft to increase at an average annual rate of 0.7 percent over the 13-year forecast period. Single-engine piston aircraft are expected to grow by only 0.2 percent over the planning period. Multi-engine piston aircraft are expected to decline by 0.2 percent throughout the forecast period. Helicopters are projected to grow at 0.7 percent annually, while experimental aircraft and gliders are expected to grow at 0.4 percent and 0.2 percent annually, respectively.

By far, the strongest growth is expected in turbine-powered aircraft. Turbine-powered aircraft are expected to grow at an average annual rate of 2.5 percent over the forecast period, with turboprop aircraft growing at 1.5 percent annually and turbojet aircraft growing at an annual average growth rate of 3.6 percent. This strong growth rate for turbojet aircraft can be attributed to the growth in the fractional ownership industry and corporate aircraft ownership, new product offerings (which include new entry level aircraft and long-range global jets), and a shift away from commercial travel by many travelers and corporations.

The development of small, inexpensive business jets is not factored into national forecasting at this time. This developing industry is marked by the Eclipse Jet, although there are about four other airframes in development.

This six-seat, single-pilot aircraft could revolutionize the industry with it's less than one million dollar price and low operating cost projected at $0.51 per mile. Should this aircraft reach production at the specified costs, it would have the ability to revolutionize business and personal travel, making the air taxi business possible. However, much still needs to be done to have this aircraft come to fruition; most importantly is the engine. Eclipse Aviation has discontinued its agreement with Williams, the original engine manufacturer and is actively pursuing new engine options. The key to the low acquisition and operational costs lies with the engine. Should the Eclipse or similar aircraft come to fruition, more than 5,000 new jet aircraft could be added to the national fleet by 2014.

COMPARATIVE FORECASTS

Forecasts of future aviation activity at Hollister Municipal Airport have been prepared by the FAA and the California Department of Transportation (CALTRANS) Aeronautics Division. The forecasts prepared by CALTRANS are included in the 1999 California Aviation System Plan (CASP). Using 1995 base year data, the CASP projected based aircraft and annual aircraft operations for Hollister Municipal Airport through 2025. As shown in **Table 2C**, CALTRANS projected based aircraft to grow by 132 aircraft to 274 in 2020. Annual operations were projected to grow from 51,500 in 1995 to 99,373 in 2020. CALTRANS projected based aircraft and annual operations to grow at 2.7 percent annually.

TABLE 2C
1999 CALTRANS California Aviation System Plan
Forecasts For Hollister Municipal Airport

	1995	2005	2010	2015	2020
Based Aircraft	142	201	227	250	274
Annual Operations	51,500	72,898	82,327	90,669	99,373

Source: 1999 CASP

The FAA provides forecasts for based aircraft and annual operations for Hollister Municipal Airport within their *Terminal Area Forecasts* (TAF) document. The TAF is updated annually by the FAA based upon current trends and typically updated when new planning forecasts are prepared for master plan studies.

The current FAA TAF forecasts for Hollister Municipal Airport are summarized in **Table 2D**. While these projections are developed for each year through 2015, only the five-year incremental projection is included in the table. The TAF projects static operational and based aircraft levels for the airport through 2015. Based aircraft and operational levels are also underestimated in these forecasts. In 2002, there were 57,300 operations and 195 based aircraft at Hollister Municipal Airport.

TABLE 2D
FAA Terminal Area Forecast

	2000	2005	2010	2015
Based Aircraft	145	145	145	145
Annual Operations	53,000	53,000	53,000	53,000

Source: FAA TAF

FORECASTING APPROACH

The development of aviation forecasts proceeds through both analytical and judgmental processes. A series of mathematical relationships are tested to establish logic and rationale for projected growth. However, the judgment of the forecast analyst, based upon professional experience, knowledge of the aviation industry, and assessment of the local situation, is important in the final determination of the preferred forecast.

The most reliable approach to estimating aviation demand is through the utilization of more than one analytical technique. Methodologies frequently considered include trend line/time-series projections, correlation/regression analysis, and market share analysis.

Trend line/time-series projections are probably the simplest and most famil-

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

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

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

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

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

AIRPORT SERVICE AREA

The airport service area is an area where there is a potential market for airport services. Access to general aviation airports, commercial air service, and transportation networks are important determinates in the size of the airport service area. The proximity of other airports and the facilities and services they provide to general aviation are important considerations as well. It should be noted that aviation demand does not necessarily conform to political or geographical boundaries.

The local airport service area is defined by the proximity of other airports and the facilities that they are able to provide to general aviation aircraft. General aviation service areas are very closely defined as the result of nearby airports providing similar

aircraft tie-down, fuel, and hangar services.

Chapter One detailed the public-use airports within a 30 nautical mile radius of Hollister Municipal Airport. These airports provide a wide range of tie-down, fuel, hangar, and general aviation services. From a physical facility and capability viewpoint, Hollister Municipal Airport can serve a larger portion of general aviation, most importantly business and corporate aviation, than many of the airports. Frazier Lake Airport, South County Airport, Marana Municipal Airport, and Los Banos Municipal Airport all have runways less than 3,100 feet in length. These runways are not capable of serving many of the business and corporate aircraft. Salinas Municipal Airport and Monterey Peninsula Airport have runways in excess of 6,000 feet, suitable for most business and corporate aircraft. These airports are well-positioned to serve the Monterey Bay area and most likely limit the Hollister Municipal Airport service area to the west. However, it can be expected that the Hollister Municipal Airport service area extends over the other airports to the north and east as the services and facilities at Hollister exceed those available at those airport.

A review of aircraft ownership for based aircraft at Hollister Municipal Airport was made to gain an understanding of the existing service area for based aircraft demand and, in particular, determine if the airport serves demand from the San Francisco Bay area. Using aircraft records provided by the City and airport tenants, it was determined that the majority of based aircraft are owned by residents of the City of Hollister as shown on **Exhibit 2B**. However, the airport draws a number of aircraft from the Bay area. Interestingly, Hollister Municipal Airport draws few aircraft from the Monterey Bay area to the west, even though it is located in closer proximity to Hollister. This is due most likely to the capabilities of the Salinas Municipal Airport and Monterey Peninsula Airport.

Exhibit 2B depicts the zip codes of based aircraft ownership at Hollister Municipal Airport. This exhibit details that the airport is drawing aircraft from owners in the San Jose area, San Mateo County, and even San Francisco. It is most notable that the airport draws from this large of a service area, considering that there are a number of general aviation airports located in closer proximity to Bay area aircraft owners than Hollister Municipal Airport. Most notably, Reid-Hillview Airport, San Carlos Airport, Half Moon Bay Airport, and Hayward Executive Airport, which are located in the Bay area. This underlines the capacity constraints experienced in the Bay area for hangar and tie-down space.

The 2003 *Regional Airport System Plan* (RASP) prepared for the Association of Bay Area Governments (ABAG) noted that the shortage of hangar space is a key issue for general aviation in the Bay area. Aircraft owners are looking for affordable and available areas to base their aircraft and are moving to airports further away from their homes or businesses to find them. This is a trend that will most

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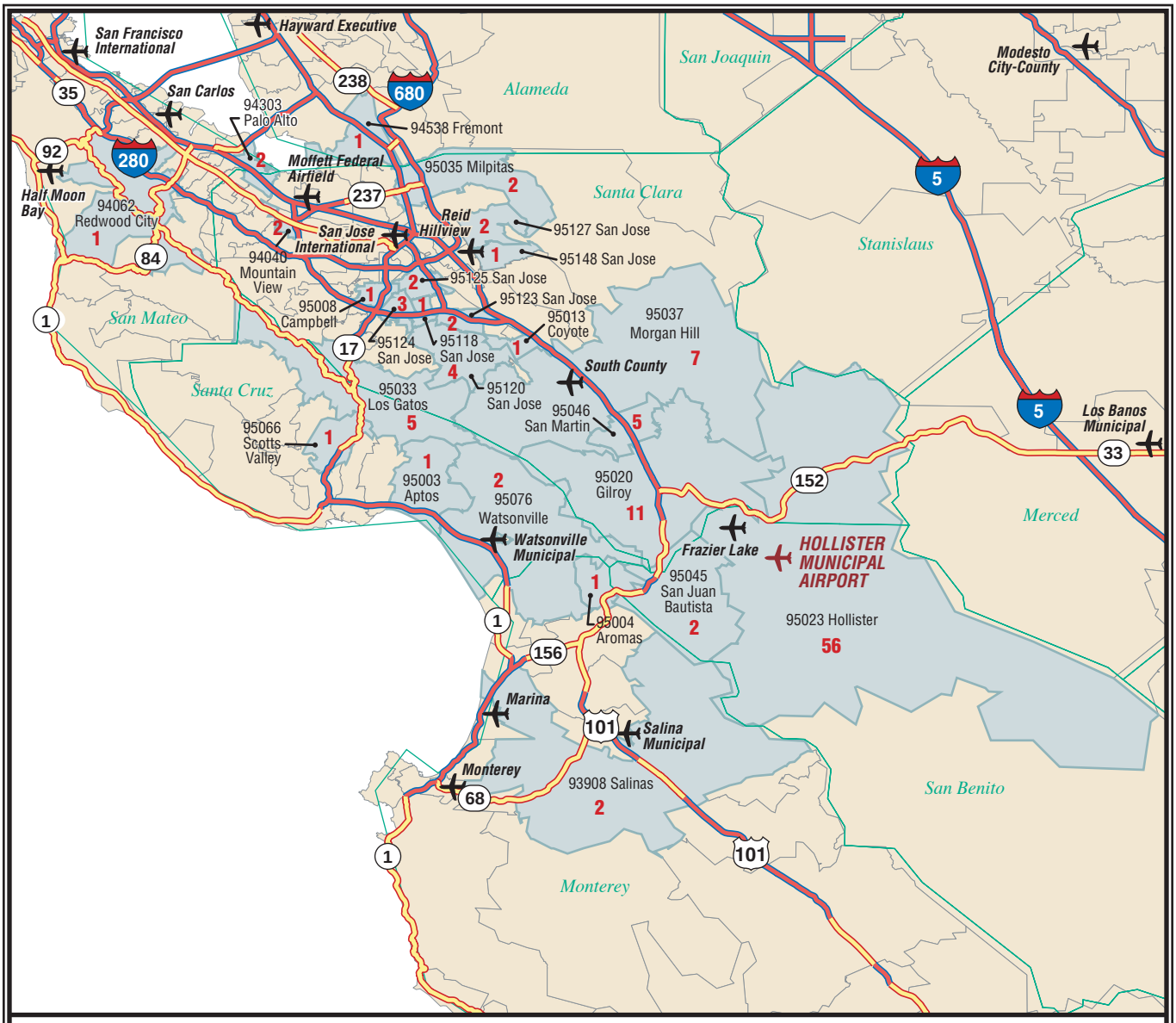

LEGEND

	ZIP Code Area
5	Number of Based Aircraft
	County Line
	Airport

Hollister Municipal Airport

Exhibit 2B
BASED AIRCRAFT BY ZIP CODE

likely benefit Hollister Municipal Airport through the planning period.

AVIATION ACTIVITY FORECASTS

To determine the types and sizes of facilities that should be planned to accommodate general aviation activity, certain elements of that activity must be forecasted. Indicators of general aviation demand include:

- Based Aircraft
- Based Aircraft Fleet Mix
- Annual Operations
- Peak Activity

The remainder of this chapter will examine historical trends with regard to these areas of general aviation activity and project future demand for these segments of general aviation activity at the airport.

BASED AIRCRAFT FORECASTS

The number of based aircraft is the most basic indicator of general aviation demand at an airport. By first developing a forecast of based aircraft, the growth of other factors can be projected. **Table 2E** summarizes based aircraft at Hollister Municipal Airport for 1990, 1995, and 2002, the years reliable records were available from the FAA and airport. The 2002 total was based on an actual aircraft count completed by airport management. As shown in the table, based aircraft totals have grown in the past 12 years, increasing by 62 aircraft. This equates to an average annual growth rate of 3.2 percent.

The first step in developing forecasts of based aircraft typically involves the use of time-series and regression analyses. However, due to the limited annual based aircraft records, any time-series or regression analyses would have not had sufficient comparative data to yield reliable correlation coefficients considered accurate enough for planning purposes. Therefore, these analytic techniques were discarded in favor of market share analyses, which compare historical based aircraft totals to U.S. active aircraft and the local population to gain an understanding of future growth potential.

Table 2E compares historical based aircraft at Hollister Municipal Airport and historical U.S. active aircraft. As shown in the table, the percentage of U.S. active general aviation aircraft based at Hollister Municipal Airport increased from 0.07 percent in 1990 to 0.09 percent in 2002.

To gain an understanding of future based aircraft at Hollister Municipal Airport considering growth projected nationally, two market share forecasts (a constant share of U.S. active aircraft forecast and an increasing share U.S. active aircraft forecast) have been prepared. The constant share forecast assumes that based aircraft will continue to grow at the same rate as U.S. active aircraft and applies the 2002 Hollister Municipal Airport market share of 0.09 percent to project U.S. active aircraft prepared by the FAA. As shown in the table, this forecast

yields 217 based aircraft in 2025. An increasing share forecast of U.S. active aircraft was also considered. This is consistent with the historical trend at Hollister Municipal Airport which has increased its market share 0.02 percent since 1991. Applying an increasing share to forecast U.S. active aircraft yields 382 based aircraft at Hollister Municipal Airport in 2025.

TABLE 2E
Share of U.S. Active Aircraft

Year	U.S. Active Aircraft	Hollister Municipal Airport Based Aircraft	Percentage of U.S. Active Aircraft Based at Hollister
HISTORICAL			
1990	203,400	133	0.07%
1995	188,089	142	0.08%
2002	211,040	195	0.09%
FORECASTS			
Constant Share			
2005	215,490	193	0.09%
2010	223,720	201	0.09%
2015	227,600	207	0.09%
2020	233,300	212	0.09%
2025	238,900	217	0.09%
Increasing Share			
2005	215,490	237	0.11%
2010	223,720	268	0.12%
2015	227,600	296	0.13%
2020	233,300	350	0.15%
2025	238,900	382	0.16%

Source for historical and forecast U.S. active aircraft: FAA Aerospace Forecasts, selected years; FAA Long Range Forecasts.

A second technique examined historical based aircraft totals to residents in San Benito County. This forecasting technique examined historical based aircraft as a ratio of 1,000 residents. As shown in **Table 2F**, the 1990 ratio of based aircraft per 1,000 residents was 3.6. This ratio slightly decreased to 3.5 in 2002 as the local population growth outpaced based aircraft growth. Between 1990 and 2002, the San Benito County population grew at an average annual rate of 3.6 percent, while based aircraft grew at 3.2 percent.

TABLE 2F
Ratio of Based Aircraft to Population

Year	Hollister Based Aircraft	San Benito County Population	Based Aircraft Per 1,000 Residents
1990	133	36,697	3.6
1995	142	43,300	3.3
2002	195	55,921	3.5
Constant Ratio of Based Aircraft per 1,000 Residents			
2005	222	63,600	3.5
2010	251	72,000	3.5
2015	276	79,100	3.5
2020	303	86,800	3.5
2025	332	95,250	3.5
Increasing Ratio of Based Aircraft per 1,000 Residents			
2005	235	63,600	3.7
2010	281	72,000	3.9
2015	324	79,100	4.1
2020	373	86,800	4.3
2025	429	95,250	4.5

Source: Historical and Forecast population: California Department of Finance. Extrapolated by Coffman Associates.

Assuming a constant ratio of 3.5 aircraft per 1,000 residents yields 332 based aircraft in 2025. This results in based aircraft growing at the same rate as the County population. Assuming the ratio of based aircraft to 1,000 residents increases gradually throughout the planning period yields 429 based aircraft at Hollister Municipal Airport in 2025.

Based Aircraft Forecast Summary

A summary of all forecasts for based aircraft at Hollister Municipal Airport and the selected planning forecast are presented in **Table 2G.** As shown on **Exhibit 2C**, the combination of forecasts represents a "forecast envelope." The forecast envelope represents the area in which future based aircraft at Hollister Municipal Airport should be found. The constant share of U.S. aircraft represents the lower end of the planning envelope. The increasing ratio of aircraft per 1,000 residents represents the upper end of the forecast envelope. The FAA TAF is below and outside the planning envelope as it currently underestimates based aircraft; the CASP forecasts lies in the lower portion of the planning envelope.

TABLE 2G
Based Aircraft Forecast Summary

	FORECASTS					
	2002	**2005**	**2010**	**2015**	**2020**	**2025**
Share of U.S. Active Aircraft						
Constant Share		193	201	207	212	217
Increasing Share		237	268	296	350	382
Aircraft Per 1,000 Residents						
Constant Ratio		222	251	276	303	332
Increasing Ratio		235	281	324	373	429
Other Resources						
FAA TAF		145	145	145	N/A	N/A
1999 CASP		201	227	250	274	N/A
Selected Planning Forecast	195	205	240	285	330	380

In examining the forecasts, the constant share of U.S. active forecasts appears to be too conservative considering historical growth trends at the airport. This forecast only adds 21 aircraft through the panning period; 62 aircraft have been added in the past 12 years. The constant ratio of aircraft to 1,000 residents would also appear to be conservative; it only adds 137 new aircraft over a 23-year planning period. As noted above, many factors appear to support future strong growth in based aircraft demand for Hollister Municipal Airport. These include its airfield capabilities and capacity and its services in relation to nearby airports, and the potential transfer of aviation demand from the San Francisco Bay area.

As detailed in the airport service area analysis above, approximately 45 percent of the based aircraft at Hollister Municipal Airport are from aircraft owners in the Bay area counties (Santa Clara, Santa Cruz, San Mateo) with airports closer to their residents. While the Bay area population is expected to grow at an annual of rate of only 0.5 percent, the Bay area has a severe shortage of available and affordable hangar space. It can be expected that the amount of based aircraft at the airport from the San Francisco Bay area will increase as a result of affordable hangar space, less restrictive airspace, air traffic control environment, and lower levels of aircraft activity at Hollister Municipal Airport.

These factors, along with continued growth in San Benito County, suggest that planning at the higher end of the forecast envelope is appropriate for Hollister Municipal Airport. The selected planning forecast projects 380 based aircraft in 2025 with an evenly distributed gain of aircraft for each planning period. The selected planning forecast projects 185 new based aircraft at the airport by 2025. This equates to an average annual growth rate of 2.9 percent. Slower growth in the near term is projected as the focus on capital improvements related to security and maintenance and the City

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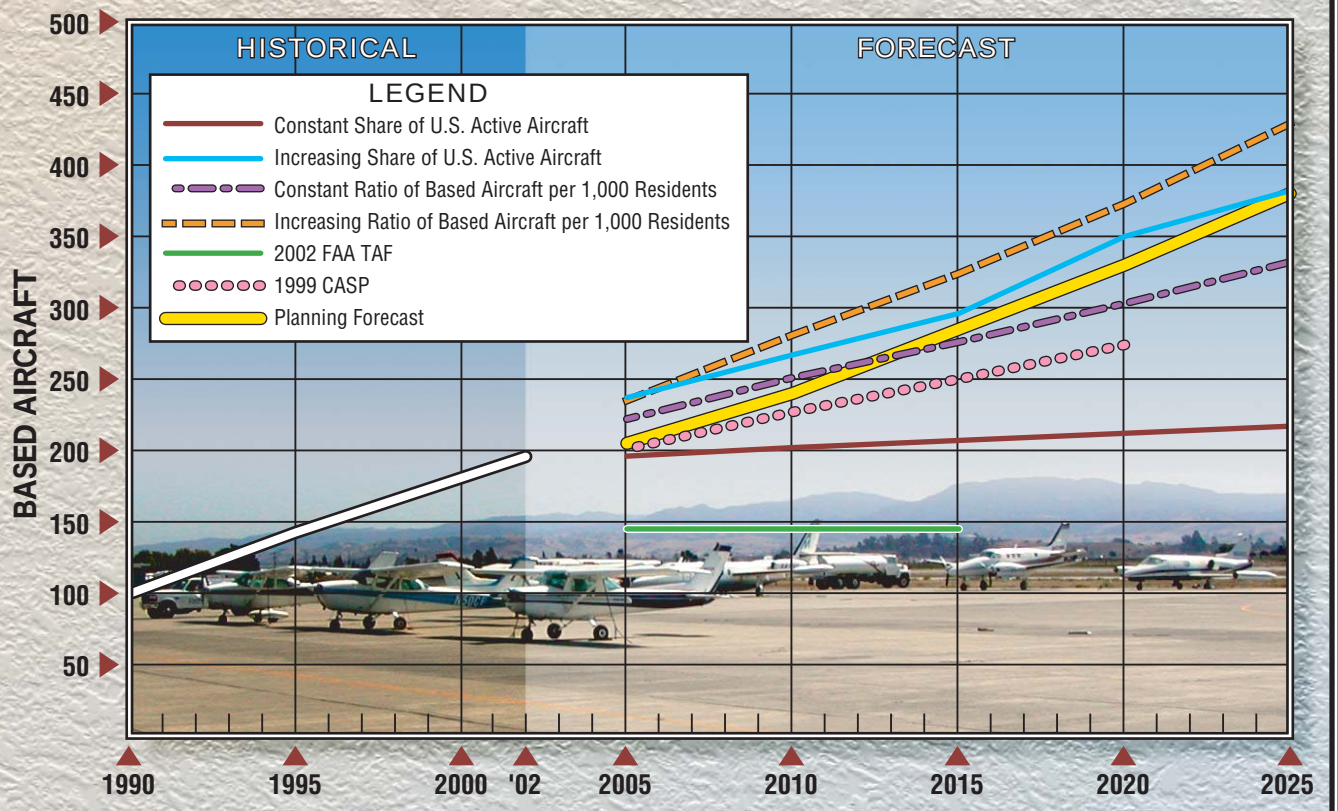
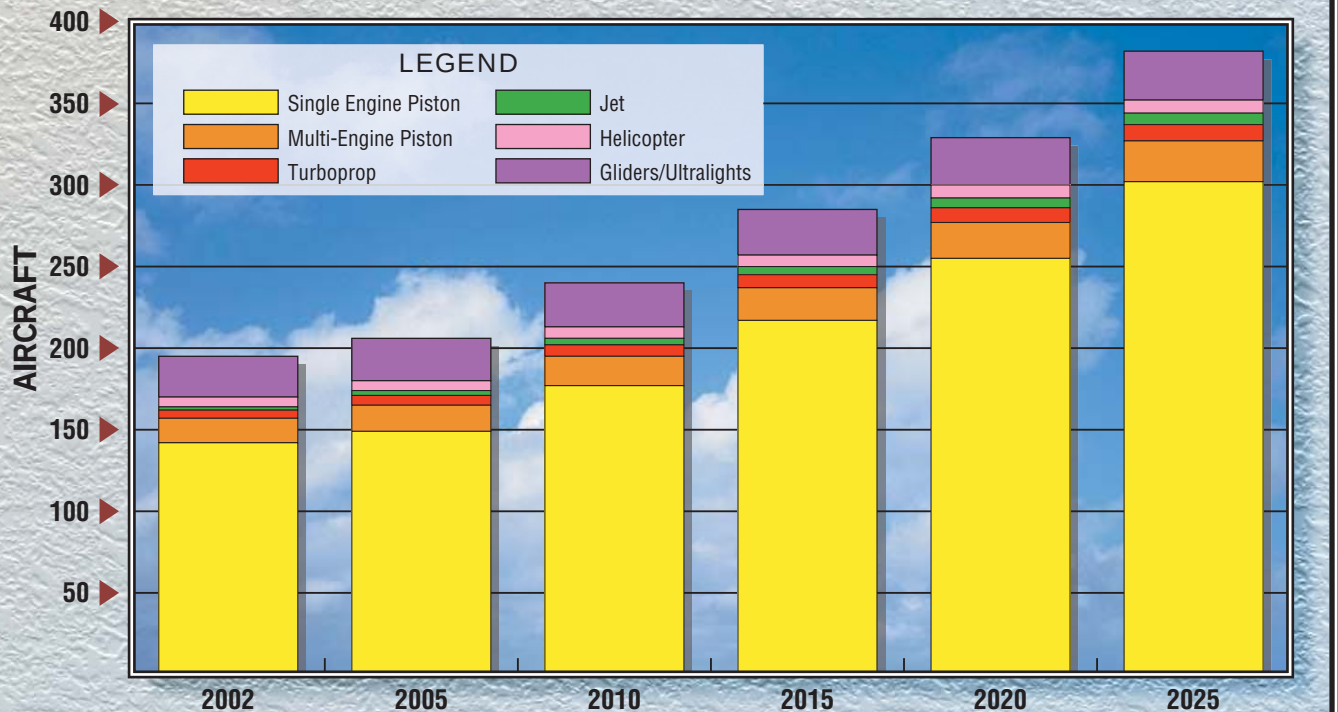
BASED AIRCRAFT



FLEET MIX



Hollister Municipal Airport

Exhibit 2C
BASED AIRCRAFT FORECASTS

addresses the sanitary sewer treatment issues to eliminate the moratorium on new development.

BASED AIRCRAFT FLEET MIX PROJECTION

Knowing the aircraft fleet mix expected to utilize the airport is necessary to properly plan facilities that will best serve the level of activity and the type of activities occurring at the airport. The existing based aircraft fleet mix is comprised mainly of single-engine piston aircraft, but also includes 15 multi-engine piston aircraft, five turboprop aircraft, two jet aircraft, six helicopters, and 25 gliders/ultralights.

Projections for the based aircraft fleet mix consider the expected use of Hollister Municipal Airport in the future. Strong growth in single-engine piston aircraft is projected for the airport. This is driven by relocation of based aircraft from Bay area residents seeking affordable and available hangars and tie-down space. Local economic and population growth will add new private aircraft ownership. The new regulations for sport aircraft should increase single-engine based aircraft levels as these aircraft will tend to be operated outside busy metropolitan areas with complicated airspace environments. The fleet mix projection in **Table 2H** includes the addition of 157 single-engine piston aircraft over the planning period. The airport is expected only to gain 10 multi-engine aircraft through the planning period. This is the result of the static levels of multi-engine aircraft projected nationally. An additional two helicopters and 10 gliders/ultralights are anticipated through the planning period. Glider growth is expected to outpace growth nationally as Hollister Municipal Airport is ideally situated for glider activities.

Consistent with national projections, the airport is expected to benefit from the growth of business and corporate aircraft use. The airport is expected to add five turboprops and five turbojets over the planning period. This will be supported by economic growth in the region and perhaps the basing of corporate aircraft from the Bay area. The 2003 *RASP* noted that a number of the local corporations have chosen to base their aircraft outside the Bay area for cost savings, accessibility, space and hangar availability, and other concerns such as safety. Presently, the airports of choice include Sacramento International, Fresno-Yosemite, and Modesto City-County Airport. Aircraft and crews fly from the base airport to the Bay area, pickup passengers, and fly to their destination. The aircraft returns to its base airport at the conclusion of the flights. The based aircraft fleet mix projection for Hollister Municipal Airport is summarized in **Table 2H** and **Exhibit 2C**.

TABLE 2H
Based Aircraft Fleet Mix

Year	Total	Single-Engine Piston	Multi-Engine Piston	Turboprop	Jet	Helicopter	Gliders
HISTORICAL							
2002	195	140	15	5	4	6	25
FORECAST							
2005	205	146	16	6	5	6	26
2010	240	174	18	7	7	7	27
2015	285	214	20	8	8	7	28
2020	330	253	22	9	9	8	29
2025	380	297	25	10	10	8	30

Source for historical data: Airport records.

ANNUAL OPERATIONS

There are two types of operations at an airport: local and itinerant. A local operation is a takeoff or landing performed by an aircraft that operates within sight of an airport, or which executes simulated approaches or touch-and-go operations at the airport. Itinerant operations are those performed by aircraft with a specific origin or destination away from the airport. Generally, local operations are characterized by training operations. Typically, itinerant operations increase with business and commercial use since business aircraft are used primarily to carry people from one location to another.

Due to an absence of an airport traffic control tower (ATCT), actual operation counts are not available for Hollister Municipal Airport. Instead, only estimates of operations are available. The most accurate estimate of aircraft activity has been compiled by CALTRANS, which completed an acoustical count of aircraft activity at the airport in the winter and summer of 2002. Based on their counts over two separate two-week periods, the airport was estimated by CALTRANS to accommodate 53,800 annual operations. This count was increased by 3,500 operations to account for glider operations at the airport resulting in 57,800 total operations.

For purposes of this forecasting effort, military operations are included within the general aviation forecasts due to their small number. Military operations consist mostly of itinerant helicopter operations.

At Hollister Municipal Airport, itinerant operations are estimated to repre-

sent a higher percentage of total annual operations than local operations. In 2002, itinerant operations were projected to account for 34,400 (or 60 percent) of the 57,300 total operations. Local operations represent the remaining 40 percent, or 22,900 operations.

Projections of annual operations are examined by the number of operations per based aircraft. Two forecasts of operations per based aircraft have been developed. First, a constant, or static, level of operations is applied to forecast based aircraft. Applying the 2002 ratio of 294 operations per based aircraft yields 111,700 total operations at Hollister Municipal Airport by 2025. This projection results in annual operations growing at the same rate as based aircraft.

The FAA projects general aviation activity to increase at an average annual rate of 1.2 percent per year through 2025. If this growth rate is applied to the operations per based aircraft ratio, it will increase the ratio to 388 by the end of the long term planning horizon. Applying this ratio to forecast based aircraft yields 147,400 annual general aviation operations by 2025.

Previous forecasts have been examined for comparative purposes and are summarized in **Table 2J** and on **Exhibit 2D**. The 2002 FAA TAF projects annual operations to remain static at an understated level of 53,000 through 2015. The 1999 CASP projects annual operations reaching 99,373 by 2020.

The FAA projects an increase in aircraft utilization and the number of general aviation hours flown nationally. This trend, along with projected growth in based aircraft, support future growth in annual operations at Hollister Municipal Airport. Considering these factors, the selected planning forecast for the airport projects the number of operations per based aircraft to gradually increase through the planning period, reaching 565 by 2025. Annual operations are, therefore, projected to grow to 129,600 by 2025.

PEAKING CHARACTERISTICS

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

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

Without an airport traffic control tower, adequate operational information is not available to directly determine peak operational activity at the

airport. Therefore, peak period forecasts have been determined according to trends experienced at similar airports and by examining the operational counts completed at the airport in 2002.

TABLE 2J
General Aviation Operations

Year	Operations	Based Aircraft	Operations Per Based Aircraft
2002	57,300	195	294
Constant Ratio of Operations Per Based Aircraft			
2005	60,300	205	294
2010	70,600	240	294
2015	83,800	285	294
2020	97,000	330	294
2025	111,700	380	294
Increasing Ratio of Operations Per Based Aircraft			
2005	62,700	205	306
2010	78,200	240	326
2015	98,600	285	346
2020	120,800	330	366
2025	147,400	380	388

Typically, the peak month for activity at general aviation airports approximates 10 to 15 percent of the airport's annual operations. Without a significant level of training activity at Hollister Municipal Airport, the peak month is expected to remain at the lower end of the range and represent approximately 10 percent of annual operations. The forecast of busy day operations was calculated as 1.25 times design day activity. Design hour operations were estimated at 15 percent of design day operations. **Table 2K** summarizes peak operations forecasts for the airport.

COMMERCIAL AIR SERVICE POTENTIAL

Hollister Municipal Airport has never been served by scheduled airline service. If it had commercial air service, the airport would need to compete with air service at Monterey, San Jose, Oakland, and San Francisco. Monterey Peninsula Airport provides regular service to Los Angeles and San Francisco. San Jose and Oakland provide low-cost jet service to most west coast destinations and major national designations, with one-stop service to most destinations nationally. San

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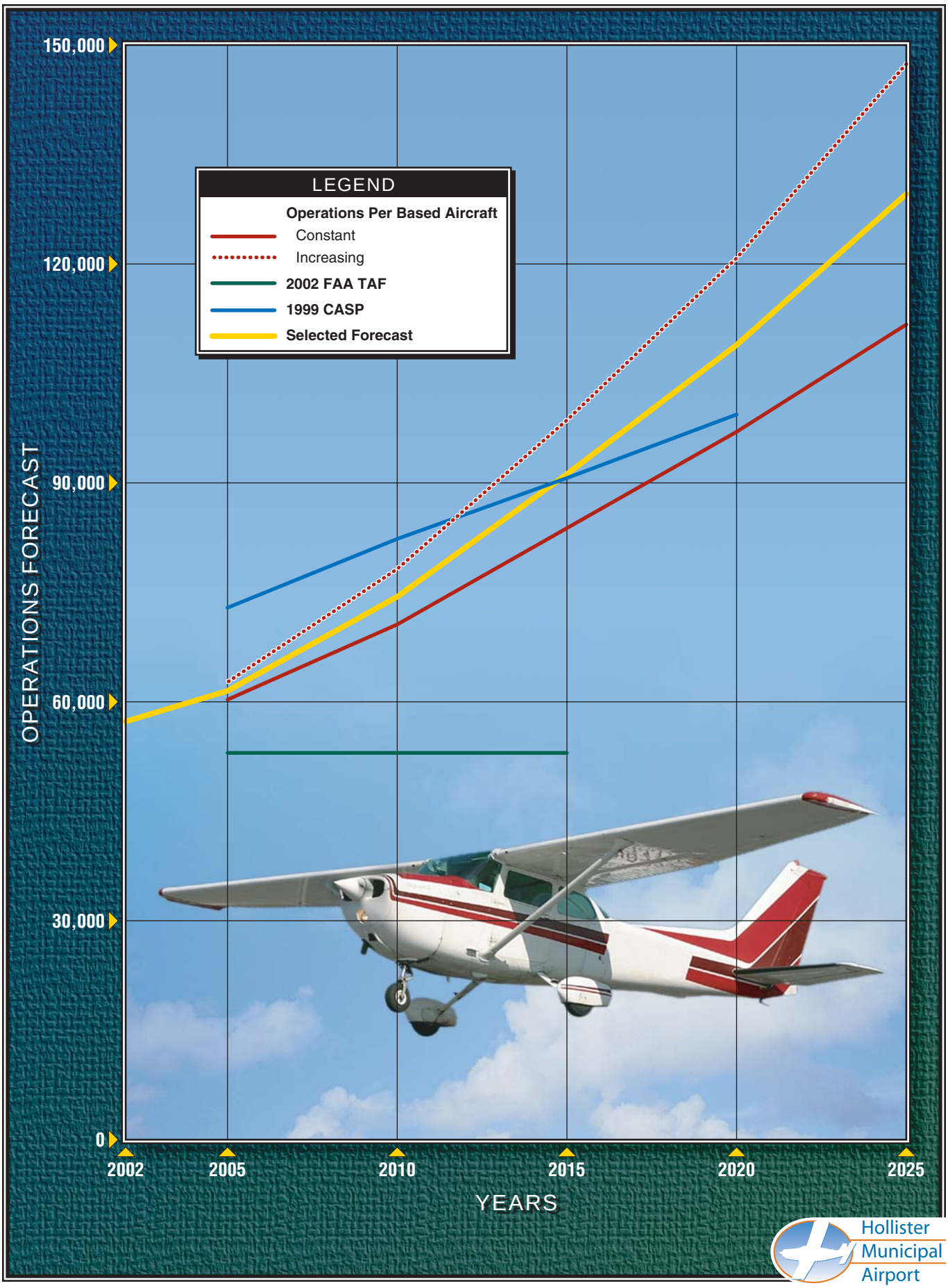


Hollister Municipal Airport

Exhibit 2D
ANNUAL OPERATIONS FORECASTS

Francisco provides both national and international service.

The schedules, aircraft type, and fares offered from these airports significantly limit the potential for airlines to provide service from Hollister Municipal Airport. If Hollister Municipal Airport would be expected to compete with these airports, Hollister Municipal Airport would need to provide similar levels of service to similar destinations. To support these services, Hollister Municipal Airport would need to have similar levels of passengers. With a significantly lower population base for the Hollister Municipal Airport service area, this may be unlikely. This causes Hollister to focus on commuter/regional service as a potential air service niche.

TABLE 2K
Annual Operations Forecast Summary

	2002	2005	2010	2015	2020	2025
Operations Per Based Aircraft						
Constant		60,300	70,600	83,800	97,000	111,700
Increasing		62,700	78,200	98,600	120,800	147,400
2002 FAA TAF		53,000	53,000	53,000	N/A	N/A
1999 CASP		72,898	82,327	90,669	99,373	N/A
Selected Planning Forecast	57,300	61,500	74,400	91,200	108,900	129,600

More specifically, this second opportunity would be to serve secondary markets not served by jet service at San Jose and Oakland, and only commuter air service at San Francisco. These markets would be limited to markets in California as smaller regional airline aircraft have profitable stage length limitations of less than 500 miles. This could include markets such as Bakersfield, Eureka, Fresno, Palm Springs, Redding, and Santa Barbara. To support at least two daily round trips to any of these destinations would require between 15,200 and 24,000 passengers annually for each destination. There is most likely not this level of passengers wanting to fly from Hollister to any of these destinations annually.

Table 2L summarizes all the commercial service airports in the State of California, along with their 2001 level of enplanements and 2001 population. As shown in the table, only one airport in the state, Jack McNamara in Crescent City, accommodates scheduled airline service with a County population below that of San Benito County. Scheduled airline service is most likely feasible in Crescent City considering its distance from major hub airports. The only other communities that support scheduled airline service with less than 200,000 residents are Imperial County and Redding. Redding is nearly three hours from Sacramento; Imperial County is only two hours from San Diego. San Diego draws significantly from the Imperial County passenger market.

TABLE 2L
Commercial Service Airports
State of California

Associated City	Airport Name	County	2001 County Population	2001 Enplanements
Arcata/Eureka	Arcata	Humboldt	126,832	97,480
Bakersfield	Meadows	Kern	378,317	127,006
Burbank	Burbank-Glendale-Pasadena	Los Angeles	9,665,243	2,250,685
Carlsbad	McClellan-Palomar	San Diego	2,871,061	73,173
Chico	Chico Municipal	Butte	206,566	25,858
Crescent City	Jack McNamara	Del Norte	27,633	12,108
Fresno	Fresno Yosemite International	Fresno	818,083	457,570
Imperial	Imperial County	Imperial	146,164	14,820
Inyokern	Inyokern	Kern	678,314	10,292
Long Beach	Long Beach (Daugherty)	Los Angeles	9,665,243	297,130
Los Angeles	Los Angeles International	Los Angeles	9,665,243	29,365,436
Merced	Merced Municipal/MacReady	Merced	219,727	3,456
Modesto	Modesto City-County-Harry Sham	Stanislaus	464,915	25,235
Monterey	Monterey Peninsula	Monterey	408,803	195,788
Oakland	Metropolitan Oakland International	Alameda	1,462,619	5,566,100
Ontario	Ontario International	San Bernardino	1,771,322	3,168,975
Oxnard	Oxnard	Ventura	772,849	35,534
Palm Springs	Palm Springs International	Riverside	461,006	586,028
Redding	Redding Municipal	Shasta	77,988	66,621
Sacramento	Sacramento International	Sacramento	638,204	4,021,102
San Diego	San Diego International-Lindbergh	San Diego	1,364,557	7,506,320
San Francisco	San Francisco International	San Francisco	714,093	16,475,611
San Jose	San Jose International	Santa Clara	1,072,259	5,981,440
San Luis Obispo	San Luis Obispo Co.-McChesney	San Luis Obispo	106,395	138,884
Santa Ana	John Wayne/Orange Co.	Orange	1,433,709	3,688,304
Santa Barbara	Santa Barbara Municipal	Santa Barbara	265,419	363,581
Santa Maria	Santa Maria Pub/Capt G Allan Hancock	Santa Barbara	265,419	35,038
Santa Rosa	Sonoma Co.	Sonoma	206,375	24,629
Stockton	Stockton Metropolitan	San Joaquin	292,062	19,651

Source: CEDDS, FAA

Another consideration is the availability of an airline to consider serving Hollister Municipal Airport. There are only four commuter/regional airlines in California. These airlines are affiliated with the major air carriers and are committed to feeding passengers to the major air carriers' hubs. These carriers are increasing the size of their aircraft to meet passenger expectations for comfort, speed, and jet reliability. The lack of competition between the commuter airlines and increasing size of their aircraft limit the potential to find a candidate to provide service at the airport.

Prior to accommodating scheduled air service, Hollister Municipal Airport would need to comply with Federal Aviation Regulation (FAR) Part 139, *Certification and Operations: Land Airports Serving Certain Air Carriers.* Hollister Municipal Airport is not now, or nor has never been certificated under FAR Part 139; therefore, at this

time, Hollister Municipal Airport cannot accommodate scheduled air carriers using aircraft with more than 9 passenger seats.

FAR Part 139 sets forth rules for a continuous self-inspection program of operations and maintenance by the airport owner, to ensure a safe operating environment for commercial air carrier aircraft. FAR Part 139 requires the development of an airport certification manual to describe how the airport would comply with the regulations and the details of the self-inspection program. These regulations specify that airport rescue and firefighting equipment and personnel be on hand during air carrier operations, and the development of an emergency plan. FAR Part 139 further specifies inspections of the air carrier operating areas, limiting vehicle and pedestrian access to the airfield and air carrier operating areas, the protection of navigational aids on the airport, and identification (or removal) of obstructions in the air space used by air carrier aircraft.

The initial cost to implement FAR Part 139 certification could range between $200,000 and $1,000,000, with annual recurring operational costs of more than $100,000. These initial costs assume the development of a suitable terminal to accommodate the security and operational needs of an airline, airfield improvements, and improvements to firefighting capacity. The recurring costs include the costs associated with Police and Fire support.

The Air Carrier Access Act of 1986 requires that an air carrier/commuter service airport either have loading bridges or equipment to assist the boarding of disabled passengers where level entry is not available. Hollister Municipal Airport is not equipped with loading bridges, nor does it have a disabled person lift. This arrangement would need to be met prior to initiating airline service at Hollister Municipal Airport.

Of special consideration with all scheduled airline activities are new requirements for passenger checked baggage and departure screening. Following the events of September 11, 2001, the federal government passed the *Aviation and Transportation Security Act*. This law created the Transportation Security Administration (TSA) to administer air transportation security. With this law, the TSA took responsibility for conducting check point passenger screening and was responsible for checked baggage screening. The law requires security screeners to be employees of the Federal government, except for a few limited situations when the airport can request contract security screeners funded by the TSA.

Therefore, prior to establishing any new scheduled airline service at Hollister Municipal Airport, the TSA must fund security screening at Hollister Municipal Airport. In 2003 and 2004, the TSA was reducing their security staff nationwide to meet congressionally mandated staffing size. Furthermore, the TSA was focusing

their capital funding requirements on the installation of in-line automated baggage screening devices at major airports, to meet explosive detection requirements of the law. Without the support of the TSA, scheduled airline service could not be established at Hollister Municipal Airport.

An airline's decision to enter a market is purely a business decision based on the potential passenger market. Attracting scheduled air service to Hollister would require a considerable commitment on the part of the City of Hollister. Necessary airport improvements would include a terminal facility, terminal apron, and auto parking. In addition, the City of Hollister would likely need to provide marketing and/or subsidies to attract scheduled air service to Hollister. New security requirements would need to be implemented, as well as safety certification for the airport, which would require dedicated airport rescue and firefighting equipment. The cost to maintain safety certification with the FAA could be more than $100,000 annually.

Considering the current economic state of the national airline industry, proximity to large hub airports, and expected limited passenger market for Hollister Municipal Airport, it is not expected that there is a potential for scheduled airline service at Hollister Municipal Airport. Therefore, the master plan will not consider the establishment of commercial airline service at Hollister Municipal Airport at any time during the planning period. For this master plan, Hollister Municipal Airport will be assumed to remain a general aviation airport through the planning period of this master plan.

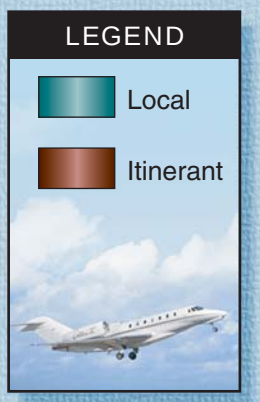
SUMMARY

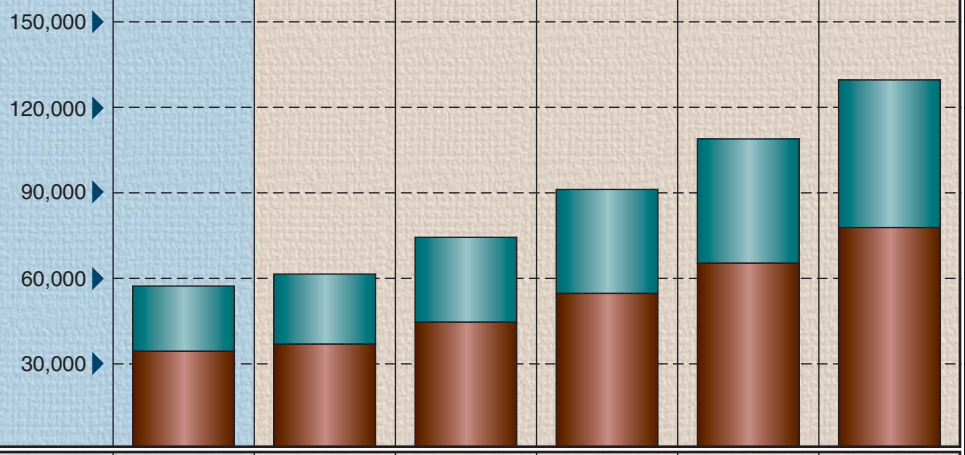
This chapter has outlined the various aviation demand levels anticipated through the year 2025 at Hollister Municipal Airport. Long term growth at the airport will be influenced by many factors including the local economy, the need for a viable aviation facility in the immediate area, trends in general aviation at the national level, and the transfer of aviation demand from the Bay area. A summary of the forecasts aviation activity levels for Hollister Municipal Airport is summarized on **Exhibit 2E**.

The next step in the master planning process will be to assess the capacity of existing facilities, their ability to meet forecast demand, and to identify changes to the airfield and/or landside facilities which will create a more functional aviation facility.

SUMMARY OF AVIATION ACTIVITY

CATEGORY	Historical 2002	Forecasts 2005	2010	2015	2020	2025
ANNUAL OPERATIONS						
Itinerant	34,000	36,900	44,600	54,700	65,300	77,800
Local	22,900	24,600	29,800	36,500	43,600	51,800
Total Annual Operations	***56,900***	***61,500***	***74,400***	***91,200***	***108,900***	***129,600***
BASED AIRCRAFT						
Single Engine Piston	140	146	174	214	253	297
Multi-engine Piston	15	16	18	20	22	25
Turboprop	5	6	7	8	9	10
Jet	4	5	7	8	9	10
Helicopter	6	6	7	7	8	8
Other	25	26	27	28	29	30
Total Based Aircraft	***195***	***205***	***240***	***285***	***330***	***380***





Hollister Municipal Airport

Exhibit 2E
FORECAST SUMMARY

Chapter Three

FACILITY REQUIREMENTS

Hollister Municipal Airport

In this chapter, existing components of the airport are evaluated so that the capacities of the overall system are identified. Once identified, the existing capacity is compared to the forecast activity levels prepared in Chapter Two to determine where deficiencies currently exist or may be expected to materialize in the future. Once deficiencies in a component are identified, a more specific determination of the approximate sizing and timing of the new facilities can be made.

The objective of this effort is to identify, in general terms, the adequacy of the existing airport facilities and outline what new facilities may be needed and when they may be needed to accommodate forecast demands. Having established these facility requirements, alternatives for providing these facilities will be evaluated in Chapter Four to determine the most cost-effective and efficient means for implementation.

The cost-effective, efficient, and orderly development of an airport should rely more upon actual demand levels experienced at an airport rather than a time-based forecast figure. In order to develop a master plan that is demand-based rather than time-based, a series of planning horizon milestones have been established for Hollister Municipal Airport that take into consideration the reasonable range of aviation demand projections.

It is important to consider that the actual activity at the airport may be higher or lower than projected. By planning according to activity

HOLLISTER

milestones, the resultant plan can accommodate unexpected shifts, or changes in aviation demand. It is important for the plan to accommodate these changes so that airport officials can respond to unexpected changes in a timely fashion. As a result, these milestones provide flexibility, while potentially extending this plan's useful life if aviation trends slow over the period.

The most important reason for utilizing milestones is they allow the airport to develop facilities according to need generated by actual demand levels. The demand-based schedule provides flexibility in development, as development schedules can be slowed or expedited according to actual demand at any given time over the planning period. The resultant plan provides airport officials with a financially responsible and need-based program. **Table 3A** presents the planning horizon milestones for each activity demand category.

TABLE 3A
Planning Horizon Activity Levels
Hollister Municipal Airport

	2002	Short Term	Intermediate Term	Long Term
Based Aircraft	195	240	285	380
Annual Operations	57,300	74,400	91,200	129,600

AIRFIELD REQUIREMENTS

Airfield requirements include the need for those facilities related to the arrival and departure of aircraft. These facilities comprise the following items:

- Runways
- Taxiways
- Navigational Aids
- Instrument Approach Procedures
- Airfield Marking and Lighting

AIRFIELD CAPACITY

The capacity of the airfield is affected by several factors including airfield layout, meteorological conditions, aircraft mix, runway use, aircraft arrivals, aircraft touch-and-go activity, and exit taxiway locations. An airport's airfield capacity is expressed in terms of its annual service volume (ASV). Annual service volume is a reasonable estimate of the maximum level of aircraft operations that can be accommodated in a year.

Pursuant to Federal Aviation Administration (FAA) guidelines, detailed in the FAA Advisory Circular 150/5060-5, *Airport Capacity and Delay*, the annual service volume of an intersecting runway configuration normally exceeds 200,000 annual operations. Since the forecasts for the airport indicate that activity throughout the planning period may only reach 129,600 annual operations,

the capacity of the existing airfield system will not be reached and the airfield can meet operational demands. Therefore, there is no requirement for the consideration of a parallel runway.

RUNWAY ORIENTATION

Hollister Municipal Airport is served by two intersecting runways. The primary runway (Runway 13-31) runs northwest-southeast. The crosswind runway (Runway 6-24) runs northeast-southwest. For the operational safety of an airport, the primary runway should be oriented as close as possible to the direction of the prevailing wind. This reduces the percentage of time that crosswind conditions (wind flowing perpendicular to the travel of the aircraft) could make the primary runway inoperable and unsafe for aircraft landing and taking off.

FAA design standards specify that a crosswind runway should be made available when the primary runway orientation provides less than 95 percent wind coverage for any aircraft forecast to use the airport on a regular basis. The 95 percent wind coverage is computed on the basis of the crosswind component not exceeding 10.5 knots for small aircraft weighing less than 12,500 pounds, and not exceeding 13 to 20 knots for aircraft weighing more than 12,500 pounds.

Wind data specific to Hollister Municipal Airport is not available due to the lack of an automated weather observation system (AWOS) at the airport. In instances when wind data specific to the airport is not available, FAA AC 150/5300-13, *Airport Design*, provides for the wind analysis to be based in part on wind data from a nearby recording station. For this Master Plan, the closest recording station with available wind data was Salinas, California. **Table 3B** summarizes wind coverage for Hollister Municipal Airport using the wind data from Salinas, California. As shown in the table, the combined wind coverage for Runways 13-31 and 6-24 exceed 99 percent for all crosswind components. Therefore, based only on this analysis, there is no need to consider a new runway orientation at Hollister Municipal Airport. However, this analysis should not be construed to indicate that there should only be one runway orientation at the airport. This analysis is limited by the fact that Salinas Municipal Airport is not exactly comparable to Hollister Municipal Airport.

Salinas Municipal Airport is located approximately 15 nautical miles southwest of Hollister Municipal Airport. There are significant geographical features, including rising terrain as high as 3,000 feet, between each facility. This leads to significantly different wind patterns and climatological conditions at each airport. The difference in wind patterns can be shown by the difference in the primary runway orientations between each airport. The primary runway at Salina Municipal Airport is Runway 8-26, which is oriented in an east-west direction. As mentioned previously, the primary runway at Hollister Municipal Airport is Runway 13-31 which is oriented in a northwest/

southeast direction. Salinas Municipal Airport is equipped with Runway 13-31 and Runway 14-32 as well, although these runways are secondary and much shorter.

FAA AC 150/5300-13 recognizes that substituting wind data from another airport is only reliable when the terrain between the airports is similar. In situations when the terrain varies significantly, such as between Salinas Municipal Airport and Hollister Municipal Airport, the wind analysis is expected to have only marginal validity. When this occurs, the wind analysis should be augmented with personal observations. Members of the Planning Advisory Committee (PAC) agreed that the Salinas wind data is not comparable to Hollister Municipal Airport. During most afternoons, the wind at Hollister Municipal Airport is from the west leading to the use of Runway 24 by nearly all aircraft.

Recognizing the limitation of the wind data available for this analysis, the wind coverage analysis shown above should not be solely relied upon to make determinations of runway orientation at Hollister Municipal Airport. The existing use of the airport, which requires using Runway 24 on a daily basis, is a better indicator of the needed runway orientations at the airport. The wind coverage analysis should be updated when 10 years of consecutive wind data specific to the airport can be collected using the automated weather observing system (AWOS) at the airport.

TABLE 3B
Wind Coverage

Crosswind Component	Runway 13-31	Runway 6-24	Combined
10.5 knots	95.98%	92.50%	99.85%
13.0 knots	98.48%	96.60%	99.95%
16.0 knots	99.76%	98.99%	99.97%
20.0 knots	99.95%	99.71%	99.98%

Source: Salinas, CA, 1/1/93 to 12/31/02

PHYSICAL PLANNING CRITERIA

The selection of appropriate FAA design standards for the development and location of airport facilities is based primarily upon the characteristics of the aircraft which are currently using, or are expected to use, the airport. Planning for future aircraft use is of particular importance since design standards are used to plan separation distances between facilities. These standards must be determined now since the relocation of these facilities would likely be extremely expensive at a later date.

The most important characteristics in airfield planning are the approach speed and wingspan of the critical design aircraft anticipated to use the airport now and in the future. The critical design aircraft is defined as

the most demanding category of aircraft which conducts 500 or more operations per year at the airport. The FAA has established a coding system to relate airport design criteria to the operational and physical characteristics of aircraft expected to use the airport. This code, referred to as the airport reference code (ARC), has two components: the first component, depicted by a letter, is the aircraft approach category and relates to aircraft approach speed (operational characteristic); the second component, depicted by a Roman numeral, is the airplane design group (ADG) and relates to aircraft wingspan (physical characteristic). Generally, aircraft approach speed applies to runways and runway-related facilities, while airplane wingspan primarily relates to separation criteria involving taxiways, taxilanes, and landside facilities.

According to FAA Advisory Circular (AC) 150/5300-13, *Airport Design*, Change 7, an aircraft's approach category is based upon 1.3 times its stall speed in landing configuration at that aircraft's maximum certificated weight. The five approach categories used in airport planning are as follows:

Category A: Speed less than 91 knots.
Category B: Speed 91 knots or more, but less than 121 knots.
Category C: Speed 121 knots or more, but less than 141 knots.
Category D: Speed 141 knots or more, but less than 166 knots.
Category E: Speed greater than 166 knots.

The airplane design group (ADG) is based upon the aircraft's wingspan. The six ADGs used in airport planning are as follows:

Group I: Up to but not including 49 feet.
Group II: 49 feet up but not including 79 feet.
Group III: 79 feet up to but not including 118 feet.
Group IV: 118 feet up to but not including 171 feet.
Group V: 171 feet up to but not including 214 feet.
Group VI: 214 feet or greater.

As shown on **Exhibit 3A**, the airport does not currently, nor is it expected to, serve aircraft in ARCs C-III, D-III, C-IV, D-IV, or D-V. These are large transport aircraft commonly used by commercial air carriers. As mentioned previously in Chapter Two, Hollister Municipal Airport presently serves general aviation activity. This role is expected to remain the same through the planning period.

FAA advises designing airfield facilities to meet the requirements of the airport's most demanding aircraft, or critical aircraft. As discussed above, this is the aircraft, or group of aircraft (defined by ARC), with at least 500 operations at the airport. In order to determine future facility needs, an ARC should first be determined, and then appropriate airport design criteria can be applied. This begins with a review of aircraft currently using the airport and those expected to use the airport through the planning period.

Hollister Municipal Airport is currently utilized by all types of general aviation aircraft ranging from small single-engine and multi-engine aircraft to turboprop and business jets, gliders, helicopters, and ultralights. Helicopters are not assigned an ARC; ultralights fall with ARC A-I. Most based aircraft at Hollister Municipal Airport fall within ARCs A-I and B-I, and include a variety of single-engine and multi-engine piston aircraft.

The California Department of Forestry (CDF) operates the Grumman S-2 for wildfire-fighting activities. The S-2 is a multi-engine piston aircraft that falls within ARC B-II. The CDF conducted 1,182 operations in 2001 and 942 operations in 2002 with the S-2. Operations were conducted on both runways.

The type of transient aircraft using the airport is more diverse than the type of aircraft based at the airport and includes single-engine and multi-engine piston aircraft, as well as turboprop aircraft and various business jets within ARCs B-I, B-II, C-I, C-II, and D-I.

In an effort to more clearly define business jet use of the airport, a review of instrument flight data for business jet operations at Hollister Municipal Airport was completed using 10 months of actual data in 2003 (February through December). This data indicates that 18 different models of business jets have used Hollister Municipal Airport. The aircraft models included the IAI Jet Commander 1121, North American Saberliner 65, four models of the Cessna Citation jet, Learjet 25 and 35, Hawker 800XP, Canadair Challenger, Hawker Sidley 600A, and Beechraft 400A. **Table 3C** summarizes the percentage of operations by aircraft within each ARC.

TABLE 3C
Estimated Annual
Business Jet Operations By ARC

Airport Reference Code	Percent of Operations	Recorded Operations
B-I	21%	42
B-II	25%	50
C-I	37%	76
C-II	8%	16
D-I	10%	20
Total	100%	204

Source: FAA, February 5, 2003 through December 2, 2003

Critical Design Aircraft Conclusion

Considering that the Grumman S-2 (ARC B-II) conducts more than 500 operations annually at the airport, this aircraft is the current critical design aircraft. When coupled with business jet activity, aircraft operations within ARC B-II are

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A-I

- Beech Baron 55
- **Beech Bonanza**
- Cessna 150
- Cessna 172
- Piper Archer
- Piper Seneca

B-I less than 12,500 lbs.

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

B-II less than 12,500 lbs.

- **Super King Air 200**
- Cessna 441
- DHC Twin Otter

B-I, II over 12,500 lbs.

- Super King Air 300
- Beech 1900
- Jetstream 31
- Falcon 10, 20, 50
- Falcon 200, 900
- **Citation** II, **III**, IV, V
- Saab 340
- Embraer 120

A-III, B-III

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

C-I, D-I

- **Lear** 25, **35**, 55
- Israeli Westwind
- HS 125

C-II, D-II

- **Gulfstream** II, III, **IV**
- Canadair 600
- Lockheed JetStar
- Super King Air 350

C-III, D-III

- Boeing Business Jet
- B 727-200
- **B 737-300 Series**
- MD-80, DC-9
- Fokker 70, 100
- A319, A320
- Gulfstream V
- Global Express

C-IV, D-IV

- **B-757**
- B-767
- DC-8-70
- DC-10
- MD-11
- L1011

D-V

- **B-747** Series
- B-777

Note: Aircraft pictured is identified in bold type.

Hollister Municipal Airport

Exhibit 3A
AIRPORT REFERENCE CODES

estimated to conduct between 1,100 and 1,400 operations annually. Therefore, the current ARC for Hollister Municipal Airport is ARC B-II.

As discussed in Chapter Two, the potential exists in the future for increased use of the airport by business jet aircraft. This follows with the national trend of increased business and corporate use of turbojet aircraft, strong sales, and deliveries of business jet aircraft, and expanded fractional ownership programs. Currently, business jets conduct over 200 operations annually at the airport. The transfer of aviation demand from the Bay Area also increases the potential for increased use by business jet aircraft. Business jets within approach categories B and C, and ADG I and II represent 90 percent of the operational business jets. Therefore, by applying ARC C-II design and safety standards to the airport, it is expected that the airport would adequately serve over 90 percent of the operational business jets. To safely accommodate business jet aircraft at Hollister Municipal Airport in the future, the airport would need to conform to ARC C-II design standards. Thus, ARC B-II design criterion apply to the current design and use of Runway 13-31, and ARC C-II design criterion applies to the ultimate design and use of Runway 13-31.

It is not necessary to design all airfield elements to the same ARC. Since the CDF Grumman S-2 uses Runway 6-24 almost half of the time, ARC B-II design standards are applicable to Runway 6-24. This designation is not expected to change in the future as the length of Runway 6-24 will limit larger business jet aircraft use.

The design of taxiway and apron areas should consider the wingspan requirements of the most demanding aircraft to operate within that specific functional area on the airport. The airfield taxiways, aircraft maintenance and repair hangar areas, and transient apron areas should consider ADG II design requirements to accommodate the wingspan requirements of the largest general aviation aircraft to operate at the airport. T-hangar and small conventional hangar areas should consider ADG I requirements as these commonly serve smaller single and multi-engine piston aircraft.

RUNWAY LENGTH

The determination of runway length requirements for an airport is based on four primary factors: airport elevation; mean maximum temperature of the hottest month; runway gradient (difference in elevation of each runway end); and critical aircraft type expected to use the airport. Aircraft performance declines as the elevation, temperature, and gradients increase.

For calculating runway length requirements at Hollister Municipal Airport, the airport elevation is 230 feet above mean sea level (MSL) and the mean maximum temperature of

the hottest month is 83 degrees Fahrenheit (September). For Runway 13-31, there is a 27-foot difference in runway end elevations. The effective runway gradient is 0.4%. For Runway 6-24, the difference in runway end elevations is 1.2 feet. The effective gradient is 0.03 percent.

Using the specific data for Hollister Municipal Airport described above, runway length requirements for the various classifications of aircraft that may operate at the airport were examined using the FAA Airport Design computer program, Version 4.2D, which groups general aviation aircraft into several categories, reflecting the percentage of the fleet within each category and useful load (passengers and fuel) of the aircraft. **Table 3D** summarizes FAA recommended runway lengths for Hollister Municipal Airport.

As mentioned previously, the current critical design aircraft at Hollister Municipal Airport are within ARC B-II. The appropriate FAA runway length planning category for aircraft within ARC B-II is "small airplanes with 10 or more passenger seats." As shown in the table, the FAA recommends a runway length of 3,700 feet to serve this category of aircraft. This length is exceeded along Runway 13-31. However, Runway 6-24 is 550 feet short of this planning standard.

TABLE 3D
FAA Recommended Runway Length Requirements

AIRPORT AND RUNWAY DATA	
Airport elevation	230 feet
Mean daily maximum temperature of the hottest month	83.2 F
RUNWAY LENGTHS RECOMMENDED FOR AIRPORT DESIGN	
Small airplanes with less than 10 passenger seats	
75 percent of these small airplanes	2,510 feet
95 percent of these small airplanes	3,100 feet
100 percent of these small airplanes	3,700 feet
Large airplanes of 60,000 pounds or less	
75 percent of these large airplanes at 60 percent useful load	5,400 feet
75 percent of these large airplanes at 90 percent useful load	7,000 feet

Source: FAA Airport Design Computer Program, Version 4.2D.
Small airplanes – aircraft weighing less than 12,500 pounds.

The length of Runway 6-24 is limited by San Felipe Road to the east and terrain to the west which obstructs the Runway 6 approach surface. The alternatives analysis will examine the extent to which the length of Runway 6-24 can be lengthened to 3,700 feet.

For aircraft within ARC C-II, the appropriate runway length planning category is "75 percent of large airplanes at 90 percent useful load." This planning category specifies a primary runway length of 7,000 feet. At 6,350 feet, Runway 13-31 falls 650

feet short of this planning standard. Runway 13-31 is equipped with a 1,170-foot lead-in taxiway that is currently not considered part of the runway. Technically, this portion of the runway should not be used for departure calculations as it is not part of the declared runway length. The alternatives analysis will examine the options available to recapture part of this pavement for use in meeting a 7,000-foot runway length recommendation for Runway 13-31.

Runway 6-24 is equipped with a 750-foot lead-in taxiway behind the Runway 6 end and a 450-foot lead-in taxiway behind the Runway 24 end. These lead-in taxiways are not currently marked as displaced thresholds or declared a portion of the usable runway length. The alternatives analysis will examine the future use of these pavement areas and their continued retention through the planning period.

AIRFIELD DESIGN STANDARDS

The FAA has established several imaginary surfaces to protect aircraft operational areas and keep them free from obstructions that could affect the safe operation of aircraft. These include the runway safety area (RSA), object free area (OFA), precision OFA, obstacle free zone (OFZ), and runway protection zones (RPZ).

The OFA is defined as a "two dimensional ground area surrounding runways, taxiways, and taxilanes which are clear of objects except for objects whose location is fixed by function." The RSA is defined as a "defined surface surrounding the runway prepared or suitable for reducing the risk of damage to airplanes in the event of an overshoot, undershoot, or an excursion from the runway." The OFZ is defined as "the airspace below 150 feet above the established airport elevation along the runway and extended runway centerline that is required to be clear of all objects (except for frangible items required for navigation of aircraft) in order to provide clearance protection for aircraft landing and taking off from the runway, and for missed approaches." The OFA is defined as "a two-dimensional ground area surrounding runways, taxiways, and taxilanes which is clear of objects except for objects whose location is fixed by function." The precision OFA applies to runways with a precision instrument approach procedure. The RPZ is defined as "an area off the runway end to enhance the protection of people and property on the ground." The RPZ is trapezoidal in shape and centered about the extended runway centerline. The dimensions of an RPZ are a function of the runway ARC and approach visibility minimums.

Table 3E summarizes the design requirements of these safety areas for each runway at Hollister Municipal Airport. The FAA expects the RSA, OFA, and OFZ areas to be under the control of the airport and free from obstructions. While the FAA prefers that the RPZ be owned

fee simple, the RPZ can be secured with avigation easements.

A review of current airport drawings indicates that Runway 13-31 fully meets ARC B-II design requirements; however, a full analysis of the ability to meet ARC C-II design requirements must be made. This will need to consider the potential of recapturing portions of the lead-in taxiways as runway. If the full lead-in taxiway behind the Runway 31 end were recaptured, the airport would not meet ARC C-II RSA or OFA standards as the RSA and OFA would extend across San Felipe Road. It appears that sufficient area is available behind the Runway 13 end to meet ARC C-II RSA and OFA requirements.

The alternatives analysis to follow will also examine the requirements of FAA Order 5200.8, *Runway Safety Area Program*. Established in October 1999, the order requires the FAA to make a determination of the status of each RSA at all federally-obligated airports. The objective of the order is for all airports to conform with RSA standards to the extent practicable. The alternatives analysis will follow the guidance in the order, including an analysis of the required options to be considered to ensure RSA standards are met at the airport.

TABLE 3E
Airfield Safety Area Dimensions (ft.)

	ARC B-II Existing Runway 13-31	ARC C-II Ult. Runway 13-31	
Runway Safety Area (RSA)			
Width	150	400	
Length Beyond Runway End	300	1,000	
Object Free Area (OFA)			
Width	500	800	
Length Beyond Runway End	300	1,000	
Precision OFA			
Width	N/A	800	
Length Beyond Runway End	N/A	200	
Obstacle Free Zone (OFZ)			
Width	400	400	
Length Beyond Runway End	200	200	
Runway Protection Zone (RPZ)		Rwy. 31	Rwy. 13
Inner Width	500	1,000	500
Outer Width	700	1,750	1,010
Length	1,000	2,500	1,700

RUNWAY WIDTH

Runway width is primarily determined by the planning ARC for the particular runway. The ultimate planning ARC for Runway 13-31 is C-II. ARC C-II design standards specify a runway width of 100 feet. Currently, Runway 13-31 is 100 feet wide, meeting this design requirement. ARC

B-I design standards for small aircraft specify a pavement width of 60 feet. Runway 6-24 is 100 feet wide exceeding this requirement. In the future, it will be necessary to analyze the cost-benefit of reducing the width of the runway to meet width standards. This cost- benefit is primarily related to the costs to remove and reconstruct the airfield lighting at the new pavement width. If the cost to remove and reconstruct the airfield lighting is more than the cost to rebuild the pavement, then it is likely that the 100-foot width may be maintained. If it is not, then the runway would need to be rebuilt to 60-feet when the reconstruction of the runway is needed.

RUNWAY PAVEMENT STRENGTH

The most important feature of airfield pavement is its ability to withstand repeated use by aircraft of significant weight. Presently, both Runways 13-31 and 6-24 have a pavement strength of 30,000 pounds single wheel loading (SWL) and 45,000 dual wheel loading (DWL).

Exhibit 3B depicts the pavement strength results of the last pavement evaluation completed for Hollister Municipal Airport. This analysis, completed by the FAA in 1995, determined pavement condition as well as pavement strength for various pavement sections at the airport. This analysis revealed a range of pavement strengths for Hollister Municipal Airport, varying greatly across the same taxiway or runway. The results of this analysis are presumed to have led to the published pavement strengths for Hollister Municipal Airport.

While a SWL strength of 30,000 pounds is sufficient to accommodate the majority of the mix of aircraft expected to use the airport through the planning period, Runway 13-31 should be upgraded to 75,000 DWL to accommodate the larger business jet aircraft within the national fleet. Aircraft weighing more than these planned pavement strength ratings may use the airport on occasion. Prior to their use, an evaluation of the number of annual operations which can be conducted should be determined. The number of operations by heavier aircraft should be closely monitored.

TAXIWAYS

Taxiways are constructed primarily to facilitate aircraft movements to and from the runway system. Some taxiways are necessary simply to provide access between the aprons and runways, whereas other taxiways become necessary as activity increases at an airport to provide safe and efficient use of the airfield.

Taxiway width is determined by the ADG of the most demanding aircraft to use the taxiway. As mentioned previously, the most demanding aircraft to use Runway 13-31 fall within ADG II. According to FAA design standards, the minimum

taxiway width for ADG II is 35 feet. Taxiways serving Runway 6-24 are only required to be 25 feet wide. Presently, all taxiways at Hollister Municipal Airport are 50 feet wide, exceeding this requirement.

Design standards for the separation distances between runways and parallel taxiways are based primarily on the ARC for that particular runway and the type of instrument approach capability. For Runway 13-31, which is served by a GPS approach, ARC B-II design standards specify a runway/taxiway separation distance of 240 feet. ARC C-II design standards specify a runway/taxiway separation distance of 400 feet for runways served by an instrument approach procedure with visibility minimums of less than one mile. Presently, Taxiway A is located 300 feet from the Runway 13-31 centerline. The alternatives analysis will examine options to provide a runway/taxiway separation distance of 400 feet along Runway 13-31 to preserve the ability to accommodate a precision instrument approach in the future.

Taxiway C is located 250 feet from the Runway 6-24 centerline. The FAA distance requirement for this taxiway is 150 feet. Since the FAA only requires the parallel taxiway to be 150 feet from the runway, it may be advantageous to examine the benefit of ultimately relocating the taxiway at this distance. The benefit would be measured by the amount of developable property that could be recaptured through the relocation of the taxiway to standard.

The taxiway entrance/exit points at each end of Runway 6-24 are located at an acute angle to the runway. Typically, these taxiways are located perpendicular to the runway to provide better visibility of both the approach and departure paths. The alternatives analysis will examine the options to realigning these taxiways.

Additional exit taxiways should be considered for each runway. Additional exit taxiways would reduce the amount of time that aircraft occupy the runway, maximizing airfield capacity and reducing delay. The alternatives analysis will examine the optimum number of exit taxiways and locations, or the mix of aircraft expected to use the airport.

Glider activities at the airport should be given special consideration. Glider aircraft require special ground handling prior to and after departure. This increases the amount of time that these aircraft occupy the active runway surface. Consideration may be given to developing dedicated entrance and exit taxiways for the glider aircraft on the north side of Runway 6-24 to accommodate the ground handling of these aircraft.

Facility planning should include the development of a full length parallel taxiway west of Runway 13-31 and a full length parallel taxiway north of Runway 6-24. This will facilitate airfield development in these areas of the airport by providing access to the runway system.

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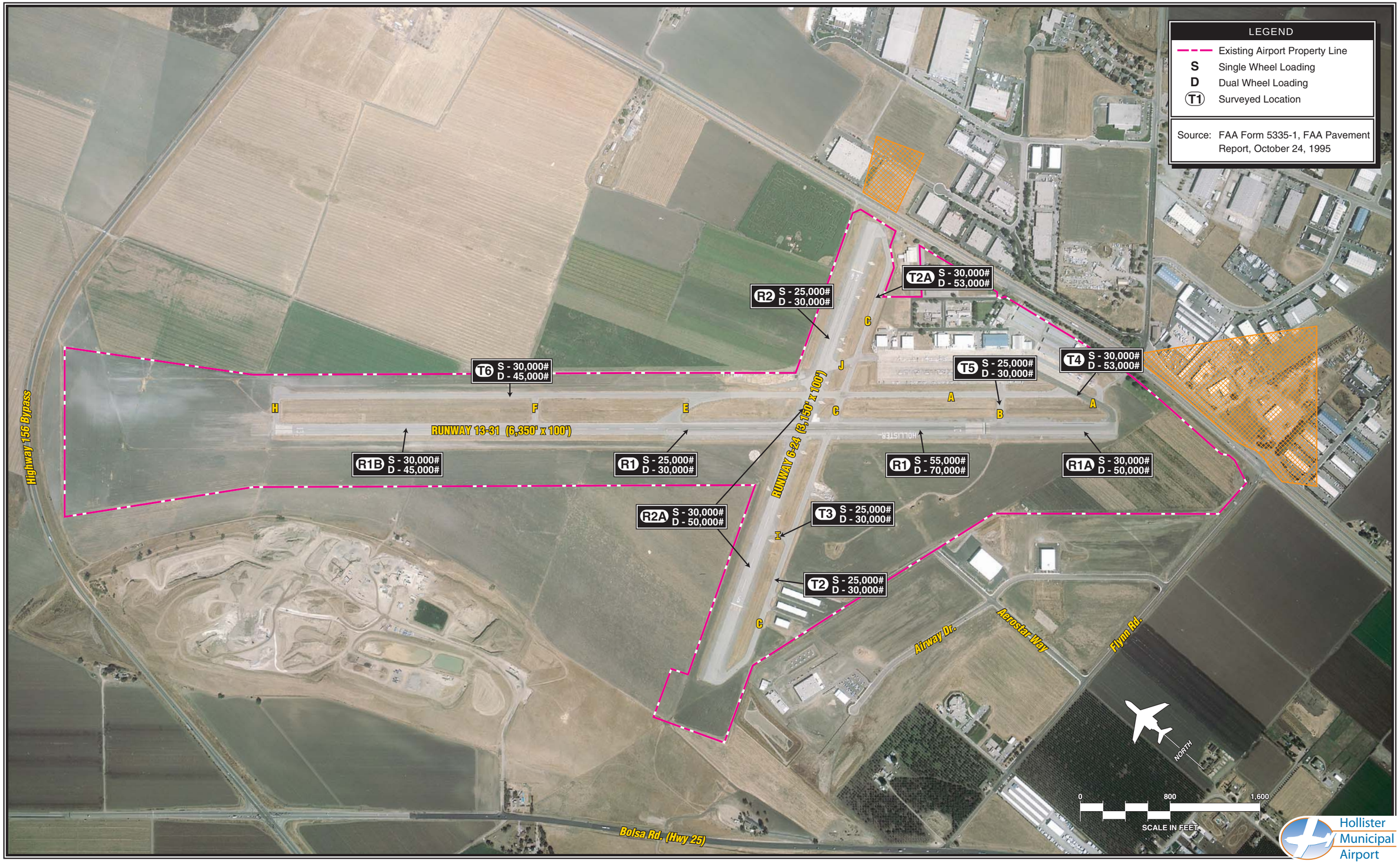

Hollister Municipal Airport

Exhibit 3B
PAVEMENT STRENGTH RATINGS

Holding aprons provide an area at the runway end for aircraft to prepare for departure and/or bypass other aircraft which are ready for departure. A holding apron is currently located at the Runway 13 end. Holding aprons should be planned for the remaining runway ends.

HELIPADS

The airport does not have a designated helipad. Helicopters utilize the same areas as fixed-wing aircraft. Helicopter and fixed-wing aircraft should be segregated to the extent possible.

As shown on **Exhibit 3C**, facility planning should include establishing a designated helipad at the airport. This should be supplemented with two parking positions and be lighted to allow for operations at night and during low visibility conditions.

NAVIGATIONAL AIDS AND INSTRUMENT APPROACH PROCEDURES

Navigational Aids

Navigational aids are electronic devices that transmit radio frequencies which properly equipped aircraft and pilots translate into point-to-point guidance and position information. The types of electronic navigational aids available for aircraft flying to or from Hollister Municipal Airport include the very high frequency omnidirectional range (VOR) facility, global positioning system (GPS), and Loran-C. These systems are sufficient for navigation to and from the airport; therefore, no other navigational aids are needed at the airport.

GPS was developed and deployed by the United States Department of Defense as a dual-use (civil and military) radio navigation system. GPS initially provided two levels of service: the GPS standard positioning system (SPS), which supported civil GPS uses; and the GPS precise positioning system (PPS), which was restricted to U.S. Armed Forces, U.S. federal agencies and selected allied armed forces, and government use.

The differences in GPS signals have been eliminated and civil users now access the same signal integrity as federal agencies. A GPS modernization effort is underway by the FAA and focuses on augmenting the GPS signal to satisfy requirements for accuracy, coverage, availability, and integrity. For civil aviation use, this includes the development the Wide Area Augmentation System (WAAS). The WAAS uses a system of reference stations to correct signals from the GPS satellites for improved navigation and approach capabilities. Where the present GPS provides for enroute navigation and limited instrument approach (nonprecision) capabilities, WAAS will provide for approaches with both course and vertical navigation. This capability is currently only provided by an instrument landing system (ILS), which requires extensive on-airport

facilities. The WAAS upgrades are expected to allow for the development of approaches to most airports with cloud ceilings as low as 250 feet above the ground and visibilities restricted to three-quarters of a mile. The FAA is developing the local area augmentation system (LAAS) to provide the same capabilities as the ILS system. In contrast with WAAS, the LAAS system will require on-site airport equipment. The LAAS is expected to provide for Category I standards (200-foot cloud ceilings and one-half mile visibility).

Instrument Approach Procedures

Instrument approach procedures have been established for the airport using the GPS navigational aid. The GPS approach to Runway 31 consists of a series of predetermined maneuvers established by the FAA for navigation during inclement weather conditions.

The capabilities of the GPS circling approach at the airport are limited. This approach only provides for landings for aircraft within approach categories A, B, and C. Category D aircraft are excluded. Additionally, the approach only provides for landings when cloud ceilings are higher than 600 feet above the ground and visibility is greater than one mile for aircraft within approach categories A and B, and one-half mile for aircraft within approach category C. These minimums are increased if a local altimeter setting cannot be obtained. The installation of an automated weather observation system (AWOS) at the airport will eliminate this degradation of the approach minimums.

In the future, improved instrument approach capability at the airport may be desirable. The limited approach capability of the airport can lead to diversions and canceled flights. In some cases, pilots may wish to avoid the airport if inclement weather is forecast to avoid the cost of diversion. Reliability is a key component of business aircraft users who try to maintain schedules for time savings.

The advent of Global Positioning System (GPS) technology will ultimately provide the airport with the capability of establishing instrument approaches. As mentioned previously, the FAA is proceeding with a program to transition from existing ground-based navigational aids to a system based primarily on satellite-based navigation utilizing GPS technology. GPS is currently certified for enroute guidance and for use with instrument approach procedures. The initial GPS approaches being developed by the FAA provide only course guidance information. The wide area augmentation system (WAAS) is expected to allow for GPS approaches that provide descent information as well as course guidance information.

Appendix 16 of FAA AC 150/5300-13, *Airport Design*, Draft Change 7, details the minimum airport landing surface requirements that must be met prior to the establishment of a new instrument approach procedure.

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EXISTING	SHORT TERM NEED	LONG TERM NEED
RUNWAYS		
RUNWAY 13-31		
ARC B-II 6,350' x 100' 1,170' Lead-In Taxiway to Runway 31 30,000 SWL • 45,000 DWL ***Runway Safety Area*** 75' each side of runway centerline 300' beyond each runway end ***Object Free Area*** 250' each side of runway centerline 300' beyond each runway end ***Runway Protection Zone Each End*** Inner Width - 500' • Outer Width - 700' Length - 1,000'	ARC B-II 6,350' x 100' **Convert Portion of 1,170' Lead-In Taxiway to Runway** 30,000 SWL • 45,000 DWL ***Runway Safety Area*** 75' each side of runway centerline 300' beyond each runway end ***Object Free Area*** 250' each side of runway centerline 300' beyond each runway end ***Runway Protection Zone Each End*** Inner Width - 500' • Outer Width - 700' Length - 1,000'	ARC C-II 7,000' x 100' 30,000 SWL • 75,000 DWL ***Runway Safety Area*** 200' each side of runway centerline 1,000' beyond each runway end ***Object Free Area*** 400' each side of runway centerline 1,000' beyond each runway end ***Precision Object Free Area - Runway 31*** 400' each side of runway centerline 200' beyond each runway end ***Runway Protection Zone - Runway 31*** Inner Width - 1,000' • Outer Width - 1,750' Length - 2,500' ***Runway Protection Zone - Runway 31*** Inner Width - 500' • Outer Width - 1,010' Length - 1,700'
RUNWAY 6-24		
ARC B-II 3,150' x 100' 750' Lead-In Taxiway to Runway 6 450' Lead-In Taxiway to Runway 24 30,000 SWL • 45,000 DWL ***Runway Safety Area*** 75' each side of runway centerline 300' beyond each runway end ***Object Free Area*** 250' each side of runway centerline 300' beyond each runway end ***Runway Protection Zone Each End*** Inner Width - 500' • Outer Width - 700' Length - 1,000'	ARC B-II • 3,150' x 100' **Improve Markings and/or Eliminate 750' Lead-In Taxiway to Runway 6** **Eliminate 450' Lead-In Taxiway to Runway 24** ***Runway Safety Area*** 75' each side of runway centerline 300' beyond each runway end ***Object Free Area*** 250' each side of runway centerline 300' beyond each runway end ***Runway Protection Zone Each End*** Inner Width - 500' • Outer Width - 700' Length - 1,000'	ARC B-II 3,150' x 60' 30,000 SWL ***Runway Safety Area*** 75' each side of runway centerline 300' beyond each runway end ***Object Free Area*** 250' each side of runway centerline 300' beyond each runway end ***Runway Protection Zone Each End*** Inner Width - 500' • Outer Width - 700' Length - 1,000'
TAXIWAYS		
TO RUNWAY 13-31		
Full-length Parallel Taxiway A - 50' wide 300' from runway centerline Taxiways B, E, F, H - 50' wide	Full-length Parallel Taxiway A - 50' wide 300' from runway centerline Taxiways B, E, F, H - 50' wide	Full-length Parallel Taxiway A - 50' wide **400' from runway centerline** Taxiways B, E, F, H - 50' wide **Add Exit Taxiways** **West Side Parallel Taxiway**
TO RUNWAY 6-24		
Full-Length Parallel Taxiway C - 50' wide 250' from runway centerline Taxiways J, I - 50' wide	Full-Length Parallel Taxiway C - 50' wide 250' from runway centerline Taxiways J, I - 50' wide **Realign Entrance Taxiways Perpendicular to Runway**	Full-length Parallel Taxiway C - 50' wide 250' feet from runway centerline Taxiways J, I - 50' wide Realigned Entrance Taxiways **Add Exit Taxiways** **North Side Parallel Taxiway**
HELIPAD		
None	**Helipad** **2 parking positions** **Lighted**	Helipad 2 parking positions Lighted

KEY

SWL - Single wheel loading **DWL -** Dual wheel loading

Exhibit 3C
AIRCRAFT OPERATIONAL
AREA REQUIREMENTS

This appendix details the requirements for three types of instrument approach procedures: precision instrument approaches, approach procedures with vertical guidance (APV), and nonprecision approaches. While both the precision instrument and APV will provide both descent and course guidance information, the precision approach provides the best approach minimums (visibility less than 3/4-mile and 200-foot cloud ceilings). Precision approach capabilities can currently only be met with the installation of an ILS. In the future, the LAAS is expected to provide this capability. The APV can provide similar visibility minimums, but cloud ceiling minimums only to 250 feet. The APV is applicable to any approach using GPS. Nonprecision approaches can provide for approaches with visibility minimums less than 3/4- mile and 300-foot cloud ceilings.

Since both course guidance and descent information is desirable for instrument approach procedures to the airport, both a precision approach and an APV approach should be planned for Hollister Municipal Airport. The prevailing weather conditions only support the need for one precision approach at the airport. This approach should be planned for Runway 31. An APV approach is appropriate for Runway 13. No instrument approach capability is needed for Runway 6-24 since this runway is needed only for small aircraft during visual conditions.

A review of Appendix 16 indicates that Runway 13-31 can support an APV with visibility minimums of one mile and cloud ceilings as low as 300 feet. Lower visibility and cloud ceiling minimums would require an approach lighting system, upgraded runway edge lighting, and precision runway markings. These lighting and marking improvements will be detailed later within this chapter.

LIGHTING AND MARKING

Currently, there are a number of lighting and pavement marking aids serving pilots using Hollister Municipal Airport. These lighting systems and marking aids assist pilots in locating the airport at night or in poor weather conditions and assist in the ground movement of aircraft. Existing and future lighting and marking aids are summarized on **Exhibit 3D**.

Identification Lighting

Hollister Municipal Airport is equipped with a rotating beacon to assist pilots in locating the airport at night. The existing rotating beacon, located next to the electrical vault southeast of the runway intersection, is being replaced and should be maintained in the future.

Runway and Taxiway Lighting

Runways 13-31 and 6-24 are equipped with medium intensity runway lights (MIRL). The runways are also equipped with threshold lights, which indicate the location of the runway threshold at night. The MIRL to Runway 6-24 are sufficient for the use of this runway and should be maintained through the planning period. High intensity runway lighting (HIRL) is needed for a future precision approach to Runway 13-31.

Effective ground movement of aircraft at night can be enhanced by taxiway lighting. Currently, taxiways at Hollister Municipal airport are equipped with retro-reflector markers. Facility planning should include the installment of medium intensity taxiway lighting (MITL) along all taxiways at the airport.

Visual Approach Lighting

The landing phase of all flights to the airport must be conducted visually. To provide pilots with visual descent information during landings to the runway, visual glideslope indicators are commonly provided at airports. A precision approach path indicator (PAPI-2L) is installed at the Runways 13 and 31 ends for this purpose. A visual approach slope indicator (VASI) is installed to Runway 24. While the PAPI-2L is appropriate for the existing mix of aircraft using the airport, a PAPI-4L should ultimate be planned for Runways 13 and 31. The PAPI-4L is more appropriate for business jet operations. The Runway 24 VASI should ultimately be replaced with the more cost-efficient PAPI-2L. A PAPI-2L should be planned for Runway 6.

Approach and Runway End Identification Lighting

Runway end identification lighting provides the pilot with rapid and positive identification of the runway end. The most basic system involves runway end identifier lights (REILs). As REILs provide pilots with the ability to identify the runway ends and distinguish the runway end lighting from other lighting on the airport and in the approach areas, REILs are installed at the Runway 24, 13, and 31 ends. A REIL should be planned for Runway 6. The REILs to Runway 13 and Runway 24 should be maintained through the planning period. To support a precision approach to Runway 31, the existing Runway 31 REIL should ultimately be replaced with a medium intensity approach lighting system with runway alignment indicator lights (MALSR).

Airfield Signs

Lighted directional and hold signs are installed at the airport. This signage identifies runways, taxiways, and apron areas. These aid pilots in determining their position on the airport and provide directions to their desired location on the airport. These lighting aids are sufficient and should

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EXISTING	SHORT TERM NEED	LONG TERM NEED
INSTRUMENT APPROACH PROCEDURES		
Straight-in or Circling GPS Approach - Runway 31 One mile visibility, 600' cloud ceiling minimums Approach Categories A and B $1^1/_2$ mile visibility, 600' cloud ceiling minimums Approach Categories C	**Straight-in or Circling GPS Approach - Runway 31** One mile visibility, 600' cloud ceiling minimums Approach Categories A and B $1^1/_2$ mile visibility, 600' cloud ceiling minimums Approach Categories C *Add Approach Category D*	*Precision Approach - Runway 31* *Approach Categories A, B, C, and D* *One-half mile visibility minimum* *200' cloud ceilings* *APV - Runway 13* *Approach Categories A, B, C, and D* *One mile visibility minimum*
AIRFIELD LIGHTING AND MARKINGS		
Rotating Beacon Pilot Controlled Lighting	Rotating Beacon Pilot Controlled Lighting	Rotating Beacon Pilot Controlled Lighting
Runway 13-31		
Medium Intensity Runway Edge Lighting Lighted Runway/Taxiway Directional Signage PAPI-2 - Runway 13 and 31 REIL - Runway 13 and 31 Nonprecision Runway Markings Taxiway Edge Reflectors	Medium Intensity Runway Edge Lighting Lighted Runway/Taxiway Directional Signage PAPI-2 - Runway 13 and 31 REIL - Runway 13 and 31 Nonprecision Runway Markings **Medium Intensity Taxiway Edge Lighting**	*High Intensity Runway Edge Lighting* Lighted Runway/Taxiway Directional Signage *PAPI-4 - Runway 13 and 31* REIL - Runway 13 *MALSR - Runway 13* *Distance Remaining Signs* *Precision Runway Markings* Medium Intensity Taxiway Edge Lighting
Runway 13-31		
Medium Intensity Runway Edge Lighting VASI-4 - Runway 24 Lighted Runway/Taxiway Directional Signage REIL - Runway 24 Taxiway Edge Reflectors Basic Runway Markings	Medium Intensity Runway Edge Lighting *PAPI-2 - Runway 6 and 24* Lighted Runway/Taxiway Directional Signage *REILs - Runways 6 and 24* *Medium Intensity Taxiway Edge Lighting* Basic Runway Markings	Medium Intensity Runway Edge Lighting PAPI-2 Runway 6 and 24 Lighted Runway/Taxiway Directional Signage REILs - Runways 6 and 24 Medium Intensity Taxiway Edge Lighting Basic Runway Markings
WEATHER/COMMUNICATION FACILITIES		
Lighted Wind Indicator Segmented Circle Tetrahedron Remote Communications Outlet (RCO) UNICOM	Lighted Wind Indicator Segmented Circle *Automated Weather Observation System (AWOS)* Remote Communications Outlet (RCO) UNICOM	Lighted Wind Indicator Segmented Circle Automated Weather Observation System (AWOS) Remote Communications Outlet (RCO) UNICOM

KEY:

APV - Approach with Vertical Guidance
GPS - Global Positioning System
MALSR - Medium Intensity Approach Lighting System with runway alignment indicator lighting
PAPI - Precision Approach Path Indicator
REIL - Runway End Identifier Lights
VASI - Visual Approach Slope Indicator

Hollister Municipal Airport

Exhibit 3D
AIRFIELD SUPPORT REQUIREMENTS

be maintained through the planning period.

Pilot-Controlled Lighting

Hollister Municipal Airport is equipped with pilot-controlled lighting (PCL). PCL allows pilots to control the intensity of runway and taxiway lighting using the radio transmitter in the aircraft. PCL also provides for more efficient use of runway and taxiway lighting energy use. A PCL system turns the runway or taxiway lights off or to a lower intensity when not in use. Similar to changing the intensity of the lights, pilots can turn up the lights using the radio transmitter in the aircraft. This system should be maintained through the planning period. All airfield lighting components should be connected to this system.

Distance Remaining Signs

Distance remaining signage should be planned for Runway 13-31. These lighted signs are placed in 1,000-foot increments along the runway to notify pilots of the length of runway remaining.

Pavement Markings

Pavement markings are designed according to the type of instrument approach available on the runway. FAA AC 150/5340-1F, *Markings of Paved Areas on Airports*, provides the guidance necessary to design an airport's markings. Runway 13-31 is equipped with nonprecision runway markings. Runway 6-24 is equipped with basic runway markings. To support the future precision approach to Runway 31, precision runway markings to Runway 31 will be required. The remaining makings will be sufficient through the panning period.

Taxiway and apron areas also require marking to assure that aircraft remain on the pavement. Yellow centerline stripes are currently painted on all taxiway and apron surfaces at the airport to provide this guidance to pilots. Besides routine maintenance, these markings will be sufficient through the planning period.

WEATHER REPORTING

To provide weather reporting, an automated weather observation system (AWOS) or automated surface observation system (ASOS) is commonly installed at an airport. Both systems provide similar capabilities which include reporting current weather conditions such as: altimeter setting, wind direction and speed, temperature, dewpoint, density altitude, visibility, cloud ceilings data, and precipitation identification and intensity. Hollister Municipal Airport is not currently equipped with automated weather reporters. However, the City has a federal grant to install an AWOS. This will provide pilots flying into or out of the airport more accurate information about weather conditions in the area.

OTHER FACILITIES

The airport has a lighted wind cone which provides pilots with information about wind conditions. A segmented circle provides traffic pattern information to pilots. These facilities are required when the airport is not served by a 24-hour airport traffic control tower (ATCT). Hollister Municipal Airport is also equipped with a tetrahedron which also indicates wind direction. These facilities are sufficient and should be maintained in the future.

AIRPORT TRAFFIC CONTROL TOWER

Hollister Municipal Airport does not have an operational ATCT; therefore, no formal terminal air traffic control services are available at the airport. The establishment of a fully-funded ATCT, staffed and maintained by FAA personnel, follows guidance provided in FAA Handbook 7031.2C, *Airway Planning Standard Number One - Terminal Air Navigation Facilities and Air Traffic Control Services*. To be identified as a possible candidate for an ATCT, the airport must meet certain qualifications concerning the activity of operations within six categories: Air Carrier Operations, Air Taxi Operations, General Aviation Itinerant Operations, General Aviation Local Operations, Military Itinerant Operations, and Military Local Operations. To be identified as a possible candidate for an ATCT, the sum of the following formula must be greater than or equal to one. The formula is as follows:

AC +	AT +	GAI +	GAL +	MI +	ML =	X
38,000	90,000	160,000	280,000	48,000	90,000	

Where:

AC = Air Carrier Operations
AT = Air Taxi Operations
GAI = General Aviation Itinerant Operations
GAL = General Aviation Local Operations
MI = Military Itinerant Operations
ML = Military Local Operations

Using current activity levels and those forecast activity levels prepared in Chapter Two, it is expected that Hollister Municipal Airport would not qualify as a possible candidate for a fully-funded FAA ATCT due to levels of air traffic at the airport. At 2002 activity levels, the sum of the formula above is 0.29. At long term planning horizon levels, the sum is 0.66.

A remote communications outlet (RCO) is commonly established at an

airport that has an instrument approach procedure. The RCO provides pilots with a direct connection to the Air Route Traffic Control Center (ARTCC) for retaining communication with NorCal Approach and Oakland Center. Oakland Center is available via an antenna located on the airport. A RCO should be included in facility planning for the airport.

AIRFIELD CONCLUSIONS

The critical design aircraft currently falls within ARC B-II. In the future, it is expected that the critical design aircraft will fall within ARC C-II. This places new airfield design requirements on the airport, including a runway/taxiway separation of 400 feet and larger safety areas for Runway 13-31. The alternatives analysis will examine the options available to conform to these standards.

An ultimate runway length for Runway 13-31 of 7,000 feet should be examined. This would better serve business jet operators at the airport which are weight-limited, especially during warm summer months. Converting a portion of the lead-in taxiway to Runway 24 may provide the ability to meet this length. Additional length is not required to Runway 6-24, although consideration needs to be given to the use of the lead-in taxiways at each end of the runway.

Additional exit taxiways should be planned for each runway along with options to reconfigure the Runway 6 and Runway 24 entrance taxiways perpendicular to the runway. A parallel taxiway should be planned west of Runway 13-31 and north of Runway 6-24 to facilitate future landside development in these areas. Holding aprons should be planned for the Runway 31, 6, and 24 ends. Specially-planned taxiways should be planned for glider aircraft handling.

A helipad should ultimately be constructed to enhance aircraft safety and operations on the ground by segregating helicopter and fixed-wing aircraft.

In order to provide for aircraft arrivals at lower decision height, a precision approach should be planned for Runway 31, and an APV should be planned for Runway 13. This will require the installation of a MALSR to Runway 31, precision runway markings to Runway 31, and HIRL. The existing Runway 13 and Runway 31 PAPI-2L should be upgraded to PAPI-4L. The Runway 24 VASI should be replaced with a PAPI-2. A PAPI-2 and REIL should be planned for Runway 6. All the taxiways should be equipped with MITL. Distance remaining signs should be planned for Runway 13-31. The addition of an automated weather reporting system would enable local and transient pilots to determine weather conditions at the airport.

LANDSIDE REQUIREMENTS

Landside facilities are those necessary for handling of aircraft and passengers while on the ground. These facilities provide the essential interface between the air and ground transportation modes. The capacities of the various components of each area were examined in relation to projected demand to identify future landside facility needs.

HANGAR REQUIREMENTS

Utilization of hangar space varies as a function of local climate, security, and owner preferences. The trend in general aviation aircraft, whether single or multi-engine, is towards more sophisticated aircraft (and, consequently, more expensive aircraft). Additionally, at airports such as Hollister Municipal Airport, where a large number of vintage and sport aircraft are based, the aircraft owners prefer enclosed storage to protect those aircraft which may have fabric covered surfaces. Therefore, many aircraft owners prefer enclosed hangar space to outside tie-downs. Presently, all the hangars at the airport are occupied.

The demand for aircraft storage hangars is dependant upon the number and type of aircraft expected to base at the airport in the future. For planning purposes, it is necessary to estimate hangar requirements based upon actual demand trends and financial investment conditions. While a majority of aircraft owners prefer enclosed aircraft storage, a number of based aircraft will still tie-down outside (due to the lack of hangar availability, hangar rental rates, and/or operational needs). Therefore, enclosed hangar facilities should not be planned for each aircraft. Currently, 125 of the 195 based aircraft are stored in enclosed hangars at Hollister Municipal Airport.

Future hangar requirements for the airport are summarized on **Exhibit 3E.** Future hangar requirements were developed with the assumption that a majority of aircraft owners would prefer enclosed storage and that the percentage of aircraft within enclosed hangar facilities would increase through the planning period. T-hangar requirements were determined by providing 1,066 square feet of space for aircraft within T-hangars, 1,200 square feet for single engine aircraft stored in conventional hangars, and 2,500 square feet for multi-engine aircraft within conventional hangars.

There are 32 aircraft owners on a hangar waiting list maintained by Gavilan Aviation. This list includes aircraft owners who currently base an aircraft at Hollister Municipal Airport and those who base their aircraft at another regional airport. This list indicates that there is currently an unmet demand for hangar storage at Hollister Municipal Airport and that additional T-hangar storage could be constructed at the airport.

AIRCRAFT STORAGE HANGAR REQUIREMENTS

	EXISTING	CURRENT NEED	SHORT TERM NEED	INTERMEDIATE TERM NEED	LONG TERM NEED
Aircraft to be Hangared	125	146	182	220	300
T-Hangars / Shade Hangars	75	95	111	136	188
Conventional Hangar Positions	28-59	51	71	84	112

HANGAR AREA REQUIREMENTS

	EXISTING	CURRENT NEED	SHORT TERM NEED	INTERMEDIATE TERM NEED	LONG TERM NEED
T-Hangar Area (s.f.)	81,600	103,400	120,800	148,000	204,500
Conventional Hangar Storage Area	71,500	88,500	119,000	138,500	181,200
Maintenance Area	--	13,300	17,900	20,800	27,200
Subtotal Conventional Area	71,500	101,800	136,900	159,300	208,400
Total Hangar Area (s.f.)	153,100	205,200	257,700	307,300	412,900

AIRCRAFT PARKING APRON REQUIREMENTS

	EXISTING	CURRENT NEED	SHORT TERM NEED	INTERMEDIATE TERM NEED	LONG TERM NEED
Single, Multi-Engine Transient Aircraft Positions		19	26	32	46
Apron Area (s.y.)		15,500	20,600	25,700	36,600
Transient Business Jet Positions		2	2	2	3
Apron Area (s.y.)		3,200	3,200	3,200	4,800
Locally-Based Aircraft Positions		70	56	64	80
Apron Area (s.y.)		35,000	28,000	32,000	40,000
Total Positions	120	91	84	98	129
Total Apron Area (s.y.)	42,800	53,700	51,800	60,900	81,400

TRANSIENT PASSENGER TERMINAL FACILITIES

	EXISTING	CURRENT NEED	SHORT TERM NEED	INTERMEDIATE TERM NEED	LONG TERM NEED
Building Area	Note [1]		3,600	4,680	5,760

FUEL STORAGE (gallons)

	EXISTING	CURRENT NEED	SHORT TERM NEED	INTERMEDIATE TERM NEED	LONG TERM NEED
100LL AVGAS	10,000	10,000	10,000	10,000	10,000
JET-A	10,000	10,000	10,500	13,000	17,500

OTHER FACILITIES

	EXISTING	CURRENT NEED	SHORT TERM NEED	INTERMEDIATE TERM NEED	LONG TERM NEED
	Aircraft Wash Rack	Aircraft Wash Rack	Aircraft Wash Rack	Aircraft Wash Rack	Aircraft Wash Rack

Note [1] - Transient terminal facility needs provided in privately owned hangars.

Exhibit 3E
LANDSIDE FACILITY REQUIREMENTS

While all 32 aircraft owners desire hangar space, their decision to occupy a hangar will be based primarily on the hangar rental rate. If the rate is too high, they will choose not to base at the airport. Other factors include their current aircraft situation. For some owners, it may have been up to a year since they had been put on the list and they may have sold their aircraft or found other hangar space.

For these reasons and others, a hangar waiting list does represent the absolute demand for hangar facilities. Therefore, it should not be expected that 32 hangars could be constructed and filled. The members of the Planning Advisory Committee (PAC) felt that an additional 20 T-hangars could be constructed and filled at the airport. This has been shown in the Current Need section of **Exhibit 3E**.

As indicated on the exhibit, additional hangar space is expected to be required through the planning period. It is expected that the aircraft storage hangar requirements will continue to be met through a combination of hangar types. The alternatives analysis will examine the options available for hangar development at the airport and determine the best location for each type of hangar facility.

AIRCRAFT PARKING APRON REQUIREMENTS

The aircraft parking apron should provide for at least the number of locally-based aircraft that are not stored in hangars, as well as transient aircraft. There are approximately 120 tie-downs available for both based and transient aircraft on a single apron at the airport. Although the majority of future based aircraft were assumed to be stored in an enclosed hangar, a number of based aircraft will still tie-down outside. Glider aircraft are currently stored on an unpaved area northeast of the Runway 13-31/Runway 6-24 intersection. Ideally, a paved area should be available for these aircraft for year-round all-weather use.

Along with based aircraft parking needs, transient aircraft parking needs must also be considered in determining apron requirements. Hollister Municipal Airport accommodates a significant level transient activity annually.

Total apron area requirements were determined by applying a planning criterion of 800 square yards per transient aircraft parking position and 500 square yards for each locally-based aircraft parking position. Transient business jet positions were determined by applying a planning criterion of 1,600 square yards for each transient business jet position. The results of this analysis are presented on **Exhibit 3E**. Based upon the planning criteria above and assumed transient and based aircraft users, additional apron areas will be needed through the planning period. Additional apron area in excess of these needs may be needed as new hangar areas are developed on the

airport which is not contiguous with the existing apron areas.

TERMINAL BUILDING REQUIREMENTS

General aviation terminal facilities provide an area for transient passengers to meet waiting passengers, pilots' lounge and flight planning, concessions, management, storage, restrooms, and general aviation businesses providing services such as refueling and line services. There is currently not a dedicated general aviation terminal building at the airport, although these services are provided in private buildings at the airport. **Exhibit 3E** summarizes the space requirements required to efficiently provide these services through the planning period.

SUPPORT REQUIREMENTS

Various facilities that do not logically fall within classifications of airfield, terminal building, or general aviation areas have been identified. These other areas provide certain functions related to the overall operation and safety of the airport and include: airport access, vehicle parking, fuel storage, and aircraft rescue and firefighting.

Airport Access

State Highways 25 and 156 provide primary highway access for the area. Hollister Municipal Airport is accessed via 156 (San Felipe Road). Off Highway 156, a two-lane access road leads to the landside facilities providing access for based aircraft owners. These roadways provide sufficient capacity for the level of activity at the airport and will not require any upgrades to serve the airport.

Fuel Storage

Fuel storage at Hollister Municipal Airport totals 20,000 gallons, evenly split between 100LL and Jet-A fuel. Fuel is dispensed through the fixed fuel island and mobile fuel trucks.

Exhibit 3E presents future Avgas and Jet-A storage requirements for the airport based upon the fuel use projections developed from the fuel delivered to the airport in 2001 and 2002. Fuel storage requirements are typically based upon maintaining a two-week supply of fuel during an average month, however, more frequent deliveries can reduce the fuel storage capacity requirement. Based upon the use assumptions presented above, it is anticipated that additional fuel storage will be needed through the planning period for Jet-A.

Aircraft Wash Facility

There is one aircraft wash facility located on the airport. It is near the west T-hangars. This wash rack is sufficient and should be maintained.

Perimeter Fencing and Access Gates

The airport is presently equipped with a combination of barbed wire and chain link fencing; however, the entire perimeter of the airport and the apron areas are not fully equipped with sufficient fencing to prevent the inadvertent entry of vehicles or persons to the aircraft operating area. Facility planning should consider improving the current fencing to limit access to aircraft operating areas and secure the airport perimeter. The airport has a current FAA grant to improve fencing at the airport. Automated access gates should be considered for access to the aircraft operating areas. These systems are operated through a keypad or card system. This would allow the airport to control the vehicles which access the aircraft operational areas and prevent vehicles from inadvertently accessing these areas.

Skydiving Operations

While a business providing skydiving services is located on the airport, there is no dedicated drop zone on the airport. The drop zone has been arranged privately by the company on private property near Tres Pinos. F.A.R. Part 105, *Parachute Operations*, specifies the requirements for skydiving operations. Section 105.23, *Parachute Operations over or onto Airports*, specifies that "for airports without an operating control tower, [no person may conduct parachute operations unless] prior approval has been obtained from the management of the airport to conduct parachute operations over or on that airport." The City of Hollister has not approved skydiving activities on the airport.

The United States Parachute Association guidance for the size of the drop zone (landing area) is shown on **Table 3F**. These criterion should be considered if a drop zone is contemplated at the airport. However, as established previously, the City of Hollister must provide approval to conduct parachute operations at the airport.

SUMMARY

The intent of this chapter has been to outline the facilities required to meet potential aviation demands projected for Hollister Municipal Airport through the long term planning horizon. The next step is to develop a direction for development to best meet these projected needs. The remainder of the master plan will be devoted to outlining this direction, its schedule, and costs.

TABLE 3F
Drop Zone Requirements
United States Parachute Association

1. Areas used for skydiving should be unobstructed, with the following minimum radial distances to the nearest hazard: [S]
   a. solo students and A-license holders – 100 meters (328.084')
   b. B- and C-license holders – 50 meters (164.0421')
   c. D-license holders – unlimited

2. Hazards are defined as telephone and power lines, towers, buildings, open bodies of water, highways, automobiles, and clusters of trees covering more than 3,000 square meters. [NW]

3. Manned ground-to-air communications (e.g., radios, panels, smoke, lights) are to be present on the drop zone during skydiving operations. [NW]

Chapter Four

Airport Development Alternatives

Hollister Municipal Airport

Prior to defining the development program for Hollister Municipal Airport, it is important to consider development potential and constraints at the airport. The purpose of this chapter is to consider the actual physical facilities that are needed to accommodate projected demand and meet the program requirements as defined in Chapter Three, Airport Facility Requirements.

In this chapter a series of airport development scenarios are considered for the airport. In each of these scenarios, different physical facility layouts are presented for the purposes of evaluation. The ultimate goal is to develop the underlying rationale that supports the final master plan recommendations. Through this process, an evaluation of the highest and best uses of airport property is made while considering local goals, physical constraints, and appropriate federal airport design standards, where appropriate.

Any development proposed by a master plan evolves from an analysis of projected needs. Though the needs were determined by the best methodology available, it cannot be assumed that future events with not change these needs. The master planning process attempts to develop a viable concept for meeting the needs caused by projected demands through the planning period.

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The number of potential alternatives that can be considered can be endless. Therefore, some judgment must be applied to identify the alternatives that have the greatest potential for implementation. The alternatives presented in this chapter have been identified as such.

The alternatives have been developed to meet the overall program objectives for the airport in a balanced manner. Through coordination with the Planning Advisory Committee (PAC) and the City of Hollister, the alternatives (or combination thereof) will be refined and modified as necessary to produce the recommended development program. Therefore, the alternatives presented in this chapter can be considered a beginning point in the development of the recommended master plan development program and input will be necessary to define the resultant program.

While the focus of the analysis summarized in this chapter is identifying future development options for Hollister Municipal Airport, it is also important to consider the impacts of alternatives to developing Hollister Municipal Airport to meet future demands. These include 1) no future development at the airport (no action alternative), and 2) transferring aviation demand to another airport.

The "no action" alternative essentially considers keeping the airport in its present condition and not providing for any type of improvement to the existing facilities to accommodate future demand. The primary results of this alternative would be the inability of the airport to satisfy the projected aviation demands of the airport service area, as well as experience additional economic growth through the development of viable parcels of land on the airport or adjacent business park parcels with access permission to the airfield.

The airport's aviation forecasts and the analysis of facility requirements indicated a potential need for a lengthened runway, increased safety areas and greater runway/taxiway separation distance. Additionally, the facility requirements analysis indicated a need for the establishment of an instrument approach procedure, additional airfield lighting, and expanded hangar facilities. Without these improvements to the airport facilities, regular and potential users of the airport will be constrained from taking maximum advantage of the airport's air transportation capabilities. Also, the City of Hollister would not be able to meet the recommendations of the *Hollister Airport Area Development Plan* without further development at the airport.

Hollister Municipal Airport plays an important role in serving the needs of air ambulance providers and the California Department of Forestry (CDF). These important public service aspects of the airport's operation require a safe airport maintained in good working order. No further improvement to the airport could limit the role of public services providers operating from the airport, including impacting CDF plans for a new air attack base at the airport.

The unavoidable consequences of the "no action" alternative would involve the airports inability to attract potential airport users. If the airport does not have the capability to meet hangar, apron, or airfield needs of the potential users, the airport's capabilities to accommodate businesses that rely on air transportation will be diminished. As detailed in Chapter Two, Aviation Demand Forecasts, Hollister Municipal Airport has a potentially important role in the future, serving both sport and corporate aviation users. This is the result of accommodating demand from the Bay Area due to limited capacity of the Bay Area airport system and trends showing increasing general aviation activity regionally, nationally, and at Hollister Municipal Airport. To propose no further development at the airport would be inconsistent with local community goals to expand the economic development of the City of Hollister.

Transferring aviation services to another airport essentially considers limiting development at Hollister Municipal Airport and relying on other airports to serve aviation demand for the local area. Of the seven public use airports within 30 nautical miles of Hollister Municipal Airport, only Salinas Municipal Airport and Monterey Peninsula Airport have the capability to serve the mix of aircraft using Hollister Municipal Airport. The remaining five airports have runways less than 4,500 feet, with four being less than 3,100 feet. These airports could only serve the recreational users and some sport users of Hollister Municipal Airport. Considering the current capability of these five airports, none are presently configured to serve the existing mix of aircraft serving Hollister Municipal Airport, without significant investments.

While Monterey Peninsula Airport and Salinas Municipal Airport provide airfield facilities and services capable of accommodating the mix of aircraft operating at Hollister Municipal Airport, these airports are located approximately 40 miles and 28 miles, respectively from the City of Hollister. At this distance, neither airport would be in a good position to serve local demand. While both airports could theoretically accommodate a portion of the demand from Hollister Municipal Airport, each of these airports has a role to fill in the regional and national aviation system. Accommodating demand from Hollister Municipal Airport could potentially reduce the long-term ability of these airports to meet their future demand levels.

Regional, state, and federal airport system planning has designated a specific role for Hollister Municipal Airport and the other seven airports within 30 nautical miles of Hollister Municipal Airport. For the system plans to be effective, each airport needs to fully fulfill their intended role. Hollister Municipal Airport is expected to contribute to economic development of the area by serving the general aviation needs of Hollister Municipal and surrounding areas. This role is not easily replaced by another airport.

AIRPORT DEVELOPMENT OBJECTIVES

It is the overall objective of this effort to produce a balanced airside and landside complex to serve forecast aviation demands. However, before defining and evaluating specific alternatives, airport development objectives should be considered. As owner and operator, the City of Hollister provides the overall guidance for the operation and development of the Hollister Municipal Airport. It is of primary concern that the airport is marketed, developed, and operated for the betterment of the community and its users. With this in mind, the following development objectives have been defined for this planning effort:

1. Develop a safe, attractive, and efficient aviation facility in accordance with applicable federal, state, and local regulations.

2. Identify facilities to efficiently serve general aviation users.

3. Identify the necessary improvements that will provide sufficient airside and landside capacity to accommodate the long-term planning horizon level of demand of the area.

4. Target local economic growth through the development of available airport property and adjacent industrial properties that have been given specific permission to access the airfield.

5. Maintain and operate the airport in compliance with applicable environmental regulations, standards and guidelines.

The remainder of the chapter will describe various development alternatives for the airside and landside facilities. Within each of these components, specific facilities are required or desired. Although each component is treated separately, planning must integrate the individual requirements so that they complement one another.

AIRFIELD ALTERNATIVES

Airfield facilities are, by nature, the focal point of the airport complex. Because of their primary role and the fact that they physically dominate airport land use, airfield facility needs are often the most critical factor in the determination of viable airport development alternatives. In particular, the runway system requires the greatest commitment of land area and often imparts the greatest influence of the identification and development of other airport facilities. Furthermore, aircraft operations dictate the FAA design criteria that must be considered when looking at airfield improvements. These criteria, depending upon the areas around the airport, can often have a significant impact on the viability of various alternatives designed to meet airfield needs.

AIRFIELD DEVELOPMENT CONSIDERATIONS

Exhibit 4A summarizes the primary planning issues related to the airfield. These issues are the result of the analyses conducted previously in Chapter Two, Aviation Demand Forecasts, and Chapter Three, Aviation Facility Requirements. These issues have been incorporated into a series of airfield development alternatives. The following describes in detail the specific requirements considered in the development of the airfield alternatives to follow.

Airport Reference Code (ARC) Designation

The design of airfield facilities is based, in part, on the physical and operational characteristics of aircraft using the airport. The FAA utilizes the airport reference code (ARC) system to relate airport design requirements to the physical (wingspan) and operational (approach speed) characteristics of the largest and fastest aircraft conducting 500 or more operations annually at the airport. While this can at times be represented by one specific make and model of aircraft, most often the airport's ARC is represented by several different aircraft which collectively conduct more than 500 annual operations at the airport.

The FAA uses the 500 annual operations threshold when evaluating the need to develop and/or upgrade airport facilities to ensure that an airport is cost-effectively constructed to meet the needs of those aircraft that are using, or have the potential to use, the airport on a regular basis. In some cases, aircraft operate at airports even though they may exceed the ARC designation for the airport. This is due to these aircraft not meeting the 500 annual operations threshold.

At Hollister Municipal Airport, based aircraft fall within ARC A-I, B-I, B-II, and C-I. The mix of transient aircraft is similar and includes aircraft in ARCs A-I, B-I, B-II, C-I, and C-II. Aircraft in ARCs C-I and C-II are the most demanding aircraft to operate at the airport (due to their higher approach speeds); however, these aircraft conduct less than 500 annual operations at the airport. Therefore, at this time, the most demanding approach category for the airport is Approach Category B. The wingspans of the most demanding aircraft fall within Airplane Design Group (ADG) II.

Aircraft within ARC B-II use both runways. Runway 6-24 is used by ARC B-II aircraft in the summer months when the winds are from the west, including CDF aircraft. Activity levels are sufficient to warrant an ARC B-II designation for both Runway 6-24 and Runway 13-31.

The potential exists in the future for increased use of the airport by business turboprop and turbojet aircraft. This follows with the national trend of increased business and corporate use of turboprop and turbojet aircraft, strong sales and deliveries of turboprop and turbojet aircraft, and expanded fractional ownership programs for these

aircraft. Common business and turboprop aircraft have higher approach speeds than the current critical aircraft operating at the airport; however, most of these aircraft have similar wingspans to the existing critical aircraft operating at the airport. The higher approach speeds of these aircraft are expected to change the critical aircraft designation for the airport. Ultimately, the airport is expected to accommodate 500 annual operations by aircraft within ARC C-II.

While ARC B-II design standards are presently required for both Runways 6-24 and 13-31, the ultimate ARC C-II design requirements will only be applied to Runway 13-31, since this runway serves as the primary runway at the airport and would be expected to accommodate aircraft with this ARC. **Table 4A** details ARC B-II and ARC C-II design requirements.

TABLE 4A
Runway Design Standards

	Existing and Ultimate Runway 6-24 Existing Runway 13-31	Ultimate Runway 13-31	
Airport Reference Code	B-II	C-II	
Approach Visibility Minimums	One Mile	CAT I - Runway 31 One Mile - Runway 13	
Width	75	100	
Runway Safety Areas (RSA)			
Width (centered on runway centerline)	150	400	
Length Beyond Runway End	300	1,000	
Object Free Area (OFA)			
Width	500	800	
Length Beyond Runway End	300	1,000	
Precision Object Free Area (POFA)			
Width	N/A	800	
Length Beyond Runway End	N/A	200	
Obstacle Free Zone (OFZ)			
Width (centered on runway centerline)	400	400	
Length Beyond Runway End	200	200	
Runway Centerline to:			
Parallel Taxiway Centerline	240	400	
Aircraft Parking	250	500	
	Runway 6-24	Runway 13	Runway 31
Runway Protection Zones (RPZ)			
Inner Width	500	500	1,000
Outer Width	700	1,010	1,750
Length	1,000	1,700	2,500

Source: FAA Airport Design Software Version 4.2D, Change 7, FAA AC 150/5300-13, Airport Design.

Historically, ARC A-I (small aircraft only) and ARC B-II (one-mile visibility minimum instrument approaches) have been applied to the design of Runway 6-24 and Runway 13-31, respectively. The transition to the ARC B-II for Runway 6-24 and ARC C-II for Runway 13-31 is an important consideration for

AIRFIELD CONSIDERATIONS

- Provide for an ultimate length on Runway 13-31 of 7,000 feet
- Provide for an ultimate length on Runway 6-24 of 3,700 feet
- Conform to Airport Reference Code (ARC) C-II design standards on Runway 13-31
  - Establish full runway safety area (RSA) at each runway end
  - Provide for a 400-foot runway/parallel taxiway separation distance
  - Realign Runway 31 entrance taxiway perpendicular to runway
- Conform to Airport Reference Code (ARC) B-II design standards on Runway 6-24
  - Establish full runway safety area (RSA) at each runway end
  - Realign entrance taxiways perpendicular to runway
- Provide for a parallel taxiway west of Runway 13-31
- Provide for a parallel taxiway north of Runway 6-24
- Provide for holding aprons at each runway end
- Provide for Category I precision instrument approach to Runway 31
- Provide for one-mile visibility minimum APV instrument approach to Runway 13

LANDSIDE CONSIDERATIONS

- Provide areas for new aircraft storage hangar development
- Provide areas for commercial general aviation development
- Provide for expanded transient and based aircraft parking apron
- Maintain airfield access for the Hollister Airport Terminal Business Park and Airpark Business Center
- Define any land acquisition requirements
- Provide for a helipad and two helicopter parking positions
- Provide for efficient vehicular access to future development areas

Hollister Municipal Airport

Exhibit 4A
DEVELOPMENT CONSIDERATIONS

the Master Plan, as these design requirements are much different than previously planned for the airport. The transition will be most evident for primary Runway 13-31. As shown in the table, applying ARC C-II design requirements considerably increases safety area requirements and runway to parallel taxiway separation distance. For example, the FAA required distance that the runway safety area (RSA) extends beyond the runway end increases from 300 feet to 1,000 feet for Runway 13-31. The distance the parallel taxiway to the runway increases from 240 feet to 400 feet. Presently, Taxiway A, the parallel taxiway to Runway 13-31, is only 300 feet from the Runway 13-31 centerline. The airfield alternatives analysis to follow examines the options available for fully complying with ARC C-II and ARC B-II design requirements.

Precision Instrument Approach

The facility requirements analysis indicated the need for a precision instrument approach to Runway 31, with Category I (CAT I) capability (one-half mile visibility minimums and 200-foot cloud ceiling minimums). A precision instrument approach provides both vertical and course guidance to pilots. This capability is currently provided with the land-based instrument landing system (ILS) and satellite-based global positioning system (GPS) via the wide area augmentation system (WAAS). In comparison to the existing one-mile visibility minimum GPS approach to Runway 31, a CAT I precision approach, whether provided by an ILS or WAAS GPS approach, significantly changes the design requirements for the airport. For example, for ARC C-II, the runway to parallel taxiway separation distance increases from 300 feet for one-mile visibility minimum approaches to 400 feet for one-half mile visibility minimums approaches. The total area required for the runway protection zone (RPZ) increases from 29 acres to 78 acres. The distance that buildings must be placed from the centerline increases by 250 feet laterally each side of the runway.

To achieve CAT I standards, any future precision approach to Runway 31 will require the installation of a medium intensity approach lighting system with runway alignment indicator lights (MALSR). The MALSR is an approach lighting system that begins 200 feet from the landing threshold and extends 2,400 feet into the approach area. FAA standards prefer that the land surrounding the MALSR be owned fee simple. This includes the land 200 feet each side of the MALSR (based on the extended runway centerline) and 200 feet beyond the last lighting standard. However, in situations where area surrounding the MALSR cannot be owned fee simple, sufficient land interest must be maintained to ensure access is limited to the MALSR for only authorized personnel.

Taxiways

Presently, the Taxiway A centerline is located 300 feet from Runway 13-31 centerline. At this distance from the

runway centerline, the airport only meets the requirements for ARC C-II with a one-mile visibility minimum instrument approach. A runway centerline to parallel taxiway centerline distance of 400 feet is required for the CAT I precision instrument approach discussed above.

Two options can be considered to increase the Runway 13-31 to Taxiway A separation distance: 1) relocate Taxiway A to the east; or 2) relocate Runway 13-31 to the west. Both alternatives will be considered in more detail later within this chapter. The runway centerline to taxiway centerline distance also has impacts on landside development planning west of Runway 13-31, as a planning goal is to provide for a full-length parallel taxiway on this side of the airport. Relocating Runway 13-31 west reduces developable property in this area.

Further planning goals include a parallel taxiway north of Runway 6-24, providing holding aprons at each runway end, and realigning taxiways at the Runway 6, 24, and 31 ends, perpendicular to the runway centerline.

Runway Length

The runway length analysis in Chapter Three indicated a need for a longer primary runway length for the mix of aircraft projected to use Hollister Municipal Airport in the future. Presently, Runway 13-31 is 6,350 feet long. The analysis in Chapter Three indicated that a runway length of 7,000 feet is needed to fully serve projected critical design aircraft with an ARC C-II. For planning purposes, a 650-foot extension to Runway 13-31 will be considered.

For Runway 6-24, a runway length of 3,700 feet is recommended for the ARC B-II design standard. Runway 6-24 is presently 3,150 feet long. Runway 6-24 was shortened in the past to provide sufficient approach obstacle clearance at each runway end. Existing terrain features to the west had obstructed the approach to Runway 6, while San Felipe Road obstructed the approach to Runway 24. An analysis of current threshold siting standards indicates that the landing threshold to Runway 6 can be moved approximately 223 feet west, without being further obstructed by the terrain features to the west. The Runway 24 threshold cannot be moved any further east. Therefore, while a runway length of 3,700 feet would be preferable for ARC B-II, existing terrain features limit where the Runway 6 and Runway 24 thresholds can be placed. Therefore, the maximum length that can be achieved on Runway 6-24, without obstruction removal, is 3,373 feet.

Both Runway 13-31 and Runway 6-24 have pavement areas in excess of their official runway length published by the Federal Aviation Administration (FAA). For Runway 13-31, a 1,170-foot-long paved area extends to the south behind the Runway 31 threshold. For Runway 6-24, a 450-foot-long paved area extends to the east behind the Runway 24 threshold, while a 750-foot-long paved area extends to the west behind the Runway 6 threshold. Presently, these

paved areas are used for departure operations. While these pavement areas are the width of the remaining portions of the runway, these paved areas are marked and designated as taxiways.

Using taxiways for departure operations is contrary to current FAA design standards. To be used for departure or landing, a pavement surface must be designated as a runway surface, be marked accordingly, and have met the required safety area and object clearing standards. The alternatives analysis to follow will examine the requirements and alternatives to convert portions of these designated taxiways for use as a runway, in an effort to meet projected runway length needs, as well as current design requirements.

Aircraft Safety Areas

The design of airfield facilities includes both the pavement areas to accommodate landing and ground operations of aircraft, as well as both physical and imaginary safety areas to protect aircraft operational areas and keep them free of obstructions that could affect the safe operation of aircraft at the airport. The physical safety areas include the runway safety area (RSA), while the imaginary safety areas include the object free area (OFA) and runway protection zone (RPZ).

The RSA is defined as "a defined surface surrounding the runway prepared or suitable for reducing the risk of damage to airplanes in the event of an undershoot, overshoot, or excursion from the runway." FAA Order 5300.1F, *Modification of Agency Airport Design, Construction, and Equipment Standards,* states runway safety areas that do not meet dimensional standards are subject to review, following the requirements of FAA Order 5200.8, *Runway Safety Area Program*. Modifications of standards are ***not*** issued for nonstandard runway safety areas. Therefore, this Master Plan must define alternatives that provide for compliance with the RSA standards, as this is now a requirement of FAA design standards, where previously modifications to standards were permitted at airports not in compliance with standard.

The RPZ is a trapezoidal area centered on the extended runway centerline to protect people and property on the ground. The RPZ is a two-dimensional area and has no associated approach surface. FAA design standards limit the types of development within the RPZ, to development that is compatible to aircraft operations.

FAA design standards limit residential and other types of development that can cause the congregation of people on the ground. Typically, compatible development includes agricultural land uses, golf courses (although consideration is being given to limiting golf course development due to bird strike considerations), or surface parking lots and roadways.

It should be noted that, while preferable, the FAA does not require fee simple interest in the RPZ in all cases. The FAA does encourage an airport

operator to have positive control over the RPZ to ensure that incompatible development and/or obstructions are not developed within the RPZ area. In many cases, an avigation easement is acquired to define land use within the RPZ and provide positive control of the airspace within the RPZ.

The airport currently controls each existing RPZ to each runway end, through a combination of fee simple ownership and avigation easement ownership. In the future, the RPZ may extend beyond the area currently controlled by the City of Hollister and additional fee simple or avigation easement acquisitions may be necessary. The size and location of the ultimate RPZ for each runway end is shown throughout this report. The exhibits within this report also show the areas to be acquired to protect each RPZ.

The FAA defines the OFA as "a two-dimensional ground area surrounding runways, taxiways, and taxilanes which is clear of objects except for objects whose location is fixed by function (i.e., airfield lighting)." The OFA is an imaginary surface that prevents the location of permanent objects within its boundaries.

Change 6 to FAA Advisory Circular (AC) 150/5300-13 established the precision OFA (POFA). The POFA is centered on the extended runway centerline and extends 200 feet beyond the runway end. The POFA extends 400 feet each side of the extended centerline. The POFA applies to all runways with instrument approach procedures that provide approach visibility minimums less than ¾-mile. For Hollister Municipal Airport, the Runway 31 end must comply with POFA requirements as this is the runway end planned for a CAT I precision instrument approach.

The RSA and OFA begin at the runway threshold. To fully assess the RSA and OFA requirements, alternatives for runway length must be considered and the runway ends established. This requires examining the paved areas beyond the runway ends, which are currently designated as taxiways, and the use of these paved areas as runways. RSA and OFA requirements will be considered concurrently with runway length alternatives.

Federal Aviation Regulations (FAR) Part 77 define obstacle clearance at each runway end and laterally along each side of the runway. FAR Part 77 establishes approach surfaces for each runway end based upon the category of aircraft using the runway and the approach visibility minimums. The approach surface begins 200 feet from each runway end. Based on the existing visual approaches to the Runway 6, 24, and 13 ends, the existing approach slope for each of these runway ends is 20:1. The existing instrument approach procedure to the Runway 31 end requires a 34:1 approach slope. A CAT I precision instrument approach to Runway 31 will require a 50:1 approach surface. Should a one-mile visibility minimum approach be established to Runway 13, a 34:1 approach slope would be required for that runway end.

Obstacle clearance laterally on each side of the runway follows a 7:1

transitional surface that begins 250 feet on either side of the runway centerline for Runway 6-24 and 500 feet either side of the runway centerline for Runway 13-31. For example, a 35-foot-tall building must be located 745 feet from the Runway 13-31 centerline to be clear of the transitional surface. For Runway 6-24, this same building must be located at least 495 from the runway centerline. Additionally, the area 250 feet each side of Runway 6-24 and 500 feet each side of Runway 13-31 must be free of permanent obstructions (e.g., buildings, aircraft parking aprons) as this includes the area for the primary surface.

While FAR Part 77 defines obstacle clearance standards, FAR Part 77 does not specifically require the removal of buildings or objects obstructing a FAR Part 77 surface. FAR Part 77 is a tool to keep aircraft operational areas free from obstructions that might limit aircraft operations or reduce instrument approach capabilities. FAR Part 77 should be used for building placement at the airport to ensure there are no limitations on future operations at the airport.

An obstruction to a FAR Part 77 surface is officially determined by the FAA through an airspace analysis. If the FAA determines that an object is a hazard to air navigation, the FAA will determine its effects on operations at the airport and what may be required to mitigate its effects on aircraft operations. In some cases, the obstruction to a FAR Part 77 surface may only require obstruction lighting. In other cases, the FAA might recommend that an obstruction be removed to ensure that an instrument approach can be developed or that the minimums of an instrument will not be increased. In the case of a building removal, it is entirely a local decision as to whether or not to remove a building obstructing a FAR Part 77 surface. It should be understood that if the local community does not remove an obstruction, then airport users will suffer the consequences of not removing the obstruction, such as increased minimums, loosing an instrument approach procedure, or not being able to establish an instrument approach procedure at all.

For Hollister Municipal Airport, the change in use of Runway 6-24 to include aircraft over 12,500 pounds and the desire to establish a precision instrument approach to Runway 31, changes the FAR Part 77 surfaces for the airport. These changes have inevitably created new obstructions to FAR Part 77 transitional surfaces, as explained in greater detail within this report.

In this report, buildings obstructing a FAR Part 77 surface are identified. In some cases, where a building may significantly obstruct a FAR Part 77 surface, the removal of that building is considered within the alternative. This should not be construed as a requirement that the building has to be removed. As mentioned previously, this determination of the obstruction and its effects on aircraft operations will be made by the FAA. Removal of the building is only considered, as prudent facility planning suggests that the removal and its impacts on future land

use be considered as the worst-case scenario.

Obstacle clearance is further defined by the runway visibility zone (RVZ). The RVZ defines minimum line-of-sight requirements between intersecting runways and is required at an airport without an airport traffic control towers (ATCT) operating 24-hours-a-day. The location of the RVZ is dependent upon the distance between each runway threshold and the runway intersections. RVZ requirements for each alternative will be examined concurrently with runway length alternatives.

FAA design standards also dictate how close aircraft parking can be located to the runway centerline. For Runway 13-31, ARC C-II design standards for a runway with a CAT I precision instrument approach stipulate that aircraft be located at least 500 feet from the runway centerline. At Hollister Municipal Airport, a portion of the existing aircraft parking areas are located only 400 feet from the runway centerline. Therefore, with Runway 13-31 in its existing location, a portion of the aircraft parking area obstructs this design requirement. A portion of the existing parking apron may need to be abandoned to fully comply with ARC C-II design standards, should Runway 13-31 remain in its existing location and a CAT I precision instrument approach is established to Runway 13-31.

For Runway 6-24, the aircraft parking limit is established at 250 feet from the runway centerline. No portion of the apron currently obstructs this aircraft parking requirement.

Table 4A summarized the dimensions of the safety areas for both existing and ultimate conditions. FAA standards require these areas to be under the control of the airport to ensure that they are kept clear of objects that could be hazardous to aircraft operations.

AIRFIELD ALTERNATIVE A1

Airfield Alternative A1 is shown on **Exhibit 4B** and examines the requirements to upgrade Runway 13-31 to ARC C-II design standards and Runway 6-24 to ARC B-II standards. Alternatives A1 seeks to meet the 400-foot Runway 13-31 centerline to Taxiway A centerline distance requirement by relocating Runway 13-31 100 feet west. As a result, Taxiway A is retained in its existing location and the existing aircraft parking apron is not affected by the aircraft parking limit standard described above.

For this alternative, Runway 13-31 is reconstructed to 7,000 feet and at 30,000 pounds single wheel loading and 60,000 pounds dual wheel loading. The Runway 31 end is established approximately 970 feet south of the existing Runway 31 threshold. This allows for the full extension of the RSA and OFA behind the new Runway 31 threshold on existing airport property. The Runway 13 end would be located approximately 35 feet north of its

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LEGEND

- Existing Airport Property Line
- Existing Easements
- Proposed Airfield Pavement
- Proposed Pavement to be removed
- Acquire Land Interest
- Buildings Obstructing an FAR Part 77 Transitional Surface
- Building Restriction Line (35' Building Height)
- Object Free Area (OFA)
- Precision OFA
- Runway Safety Area (RSA)
- Runway Visibility Zone (RVZ)
- Runway Protection Zone (RPZ)

KEY

AWOS - Automated Weather Observation System

MALSR - Medium intensity Approach Lighting System with Runway alignment indicator lights

San Felipe Rd. (Hwy 156)

Holding Apron

Holding Apron

Holding Apron

Holding Apron

Holding Apron

Holding Apron

Holding Apron

Highway 156 Bypass

RUNWAY 13-31 (7,000' x 100')

RUNWAY 6-24 (3,373' x 100')

13

31

H

F

E

C

A

B

J

400'

400'

MALSR

Tetrahedron

Existing Lighted Wind Cone & Segmented Circle

AWOS

Relocated Lighted Wind Cone, Tetrahedron, & Segmented Circle

35'

Existing AWOS Critical Area

Relocated AWOS

Relocated AWOS Critical Area

35'

240'

250'

50'

Airway Dr.

Aerostar Way

Flynn Rd.

Bolsa Rd. (Hwy 25)

NORTH

0 800 1,600

SCALE IN FEET

Hollister Municipal Airport

Exhibit 4B

AIRFIELD ALTERNATIVE A1

present position and require a new entrance taxiway to be constructed as shown on the exhibit.

Relocating the runway west impacts the existing segmented circle, lighted wind cone, and tetrahedron. Each of these facilities would be located within the limits of the RSA and would need to be relocated. Alternative A1 depicts the relocation of these facilities west of the existing segmented circle/lighted windcone location, with the tetrahedron being co-located with the segmented circle and lighted wind cone outside the OFA. This would require placing these facilities on property not currently owned by the City of Hollister. Alternative A1 depicts the acquisition of property necessary to accommodate this relocation.

FAA *Order 6560.20A, Siting Criteria for Automated Weather Observing Systems (AWOS)* provides AWOS siting requirements. While each AWOS sensor has specific siting requirements, all AWOS sensors should be located together and outside the runway and taxiways object free areas. Generally, AWOS sensors are best placed between 1,000 and 3,000 feet from the primary runway threshold and between 500 and 1,000 feet from the runway centerline. The existing location of the AWOS is 2,300 feet from the Runway 31 threshold, 1,050 feet from the Runway 6 threshold, 400 feet west of Runway 13-31 and 500 feet north of Runway 6-24.

Should Runway 13-31 be relocated to the south as shown in this alternative, the existing AWOS location would be within the ultimate OFA and ultimately need to be relocated. AWOS siting criteria for precision instrument runways stipulates that the AWOS should be located at least 750 feet from the runway centerline. Alternative A1 depicts the relocation of the AWOS 750 feet from the Runway 13-31, directly west of its existing location. This area is located outside existing airport property and is shown for acquisition by the City of Hollister. Generally, an area within a 500-foot radius of the AWOS is protected from development that could interfere with the sensing equipment.

This protection area is shown on the exhibit and included in the land acquisition requirements.

This area is generally the best location for the AWOS. The AWOS cannot be located east of Runway 13-31 and north of Runway 6-24, as this area is reserved for the Hollister Airport Terminal and Business Park. The area south of Runway 6-24 and west of Runway 13-31 is needed for landside development. The protection area around the AWOS would effectively limit development in this area.

The requirements for a CAT I approach to Runway 31 are shown on Alternative A1. Based upon the proposed location of the Runway 31 end, the Runway 31 precision instrument approach RPZ and MALSR would extend beyond the existing airport property line, into an existing industrial area. Alternative A1 depicts both the necessary areas for land interest acquisition. This can include fee simple acquisitions or the purchase of avigation easements. The avigation easement would allow the continued use of the property for its current uses, but protect this property

from future incompatible development should the property ultimately be redeveloped.

A consideration of the MALSR extending outside existing airport property, into an existing developed area, is the lighting impact on these areas. The MALSR includes high-intensity strobe lights that would be located in close proximity to these existing buildings and land uses. Additionally, the City would need to secure the land 200 feet each side of the MALSR and 200 feet beyond the last light standard, to meet FAA standards. Additionally, some of these lighting standards may have to be placed on top of buildings. The remaining lighting standards may have to be developed to maintain the correct alignment and slope of the MALSR equipment. This increases development and construction costs.

Alternative A1 also depicts the acquisition of the property necessary to protect to a 35-foot clearance of the FAR Part 77 transitional surface laterally on each side of Runway 6-24 and Runway 13-31. The 35-foot clearance of the FAR Part 77 transitional surface has historically been referred to as the building restriction line (BRL). This line has been established to ensure most buildings located laterally of the runway would not impact future instrument approach capability to both runways.

Alternative A1 proposes to redevelop Runway 6-24 to 3,373 feet. This is accomplished by relocating the existing Runway 6 end 223 feet west, the maximum extent possible without obstructing the Runway 6 approach surface. Runway 24 remains in its existing location. Since the paved areas behind the Runway 6 and Runway 24 are not usable as runway, Alternative A1 proposes to remove these pavement areas. These pavement areas cannot be retained as paved overruns. The FAA does not require paved overruns or stopways, and does not require the RSA be paved. Furthermore, if these pavement areas would be designated as paved overruns or stopways, the FAA would require that the RSA and OFA extend beyond the end of the paved overrun or stopway. The airport could not meet RSA and OFA standards behind the Runway 24 end if the paved area behind the Runway 24 end was designated as a paved overrun. This action would also require specific approval by the FAA for the designation of a paved overrun behind the Runway 24 end. New entrance taxiways are constructed at each runway end, perpendicular to the runway centerline.

Alternative A1 proposes the development of a parallel taxiway north of Runway 6-24 and a parallel taxiway west of Runway 13-31. Both taxiways would be located outside the existing airport property boundary. If federal funding would be desired for the construction of these taxiways, the airport would need a long-term interest in the property where the taxiway and taxiways safety and object free areas would be located. This is usually accomplished through fee simple land acquisition. The acquisition of property within the 35-foot BRL for each runway would provide for the development of these taxiways.

The acquisition of the California Army National Guard Armory is proposed in Alternative A1. Applying ARC B-II design requirements to Runway 6-24 increases the lateral distance buildings must be located from the runway centerline. As this property is currently vacant and for sale, the acquisition of the Army National Guard Armory land would ensure that this property is not redeveloped with incompatible land uses that could further obstruct the FAR Part 77 transitional surface along Runway 6-24.

This alternative depicts the buildings potentially obstructing a FAR Part 77 transitional surface. This includes the California Army National Guard Armory, Gavilan College facilities, and two buildings located east of San Felipe Road. The need to remove both buildings will be determined by the FAA through an airspace determination. As discussed previously, the FAA must find that these buildings are hazards to air navigation and that they would have a detrimental impact on aircraft operations, prior to a recommendation being issued to remove the buildings. Otherwise, the buildings would be allowed to remain. The relocation of the Gavilan College facilities, should this be required, will be analyzed in the landside alternatives.

AIRFIELD ALTERNATIVE A2

Airfield Alternative A2 is shown on **Exhibit 4C**. Airfield Alternative A2 is exactly the same as Airfield Alternative A1, except for the location of the Runway 13 and Runway 31 ends. Airfield Alternative A2 shifts a reconstructed Runway 13-31 to the north to ensure that the MALSR is located entirely on airport property. All other elements remain the same.

In this alternative, the Runway 31 threshold is located approximately 420 feet north of its present position. The Runway 13 threshold is located approximately 1,040 feet north of its present position. The RSA and OFA behind the Runway 13 end would extend to the Highway 156 bypass right-of-way and the Runway 13 RPZ would extend across the Highway 156 bypass. A small portion of the Runway 31 precision instrument approach RPZ would extend beyond the boundaries of the existing Runway 31 avigation easements. The fee simple acquisition of the land within these RPZs, or the acquisition of an avigation easement, would be required to fully protect the Runway 13 RPZ and Runway 31 RPZ from incompatible development.

AIRFIELD ALTERNATIVE B1

Airfield Alternative B1 is shown on **Exhibit 4D**. This alternative seeks to meet design standards, with minimal changes to the existing airfield facilities. In this alterative, Taxiway A is relocated 100 feet east, to meet the ARC C-II CAT I runway centerline to parallel taxiway centerline separation distance of 400 feet. The relocated taxiway would extend along the edge of the existing aircraft parking apron, displacing the apron edge parking. The existing glider operational area would

also be impacted and need to be relocated. Furthermore, the planned placement of facilities in the Hollister Airport Terminal and Business Park may be affected, as current facility planning for the Hollister Airport Terminal and Business Park has considered Taxiway A remaining in its present position 300 feet east of the Runway 13-31 centerline.

The existing aircraft parking apron would further be impacted by the ARC C-II aircraft parking limit standard. In this alternative, two rows of aircraft parking on the west side of the existing apron (including the row impacted by the relocated Taxiway A) would need to be removed to meet the 500-foot aircraft parking limit standards and FAR Part 77 primary surface clearing standards. Taxiway A would also be extended to the existing pavement end and be reconfigured perpendicular to the runway centerline.

The relocation of the CDF facilities is required with this alternative. The existing CDF parking apron would be located within the 500-foot parking limit and the CDF operational building would be located within the approach RPZ. The CDF operational building is incompatible with the RPZ, since the CDF building serves as a staging area with personnel located within the building most of the time.

To formalize the use of the pavement areas behind the Runway 6, Runway 24, and Runway 31 ends for aircraft departure operations, this alternative proposes to convert these pavement areas from their current taxiway designation to displaced runway thresholds. The use of these pavement areas would not change, they would still be used for departure only and the landing thresholds would remain in their existing locations. This involves the use of a concept know as "declared distances" to comply with OFA and RSA design standards and FAA requirements that a pavement area used for departure or landing operations be designated as a runway surface. Specifically, declared distances incorporate the following concepts:

Accelerate-Stop Distance Available (ASDA) - The runway plus stopway length declared available for the acceleration and deceleration of an aircraft aborting a takeoff; and

Landing Distance Available (LDA) - The runway length declared available and suitable for landing.

Exhibit 4D summarizes declared distances for Hollister Municipal Airport, considering the displaced landing threshold discussed above. When determining the ASDA, FAA guidelines require that the full RSA and OFA safety areas be provided at the far end of the runway an aircraft is departing. For example, the ASDA for Runway 31 is 7,520 feet or equal to the full length of the existing runway (6,350 feet), plus the length of the existing paved taxiway area (1,170 feet), since the full RSA and OFA is provided behind the Runway 13 end, as shown on the exhibit. However, the Runway 13 ASDA is reduced by 650 feet since the RSA and OFA do not extend a full 1,000 feet beyond the end of the pavement behind the Runway 31 end. The full

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LEGEND

- Existing Airport Property Line
- Existing Easements
- Proposed Airfield Pavement
- Proposed Pavement to be removed
- Acquire Land Interest
- Buildings Obstructing an FAR Part 77 Transitional Surface
- Building Restriction Line (35' Building Height)
- Object Free Area (OFA)
- Precision OFA
- Runway Safety Area (RSA)
- Runway Visibility Zone (RVZ)
- Runway Protection Zone (RPZ)

KEY

AWOS - Automated Weather Observation System

MALSR - Medium intensity Approach Lighting System with Runway alignment indicator lights

San Felipe Rd. (Hwy 156)

Holding Apron

Holding Apron

Highway 156 Bypass

Holding Apron

400'

400'

35'

RUNWAY 13-31 (7,000' x 100')

RUNWAY 6-24 (3,373' x 100')

H

F

E

C

A

B

J

13

31

MALSR

Existing Lighted Wind Cone & Segmented Circle

Relocated Lighted Wind Cone, Tetrahedron, & Segmented Circle

EXISTING AWOS

Tetrahedron

Holding Apron

Existing AWOS Critical Area

Relocated AWOS

Relocated AWOS Critical Area

50'

35'

240'

250'

Holding Apron

Holding Apron

Airway Dr.

Aerostar Way

Flynn Rd.

NORTH

0 800 1,600

SCALE IN FEET

Bolsa Rd. (Hwy 25)

Hollister Municipal Airport

Exhibit 4C

AIRFIELD ALTERNATIVE A2

01MP12-4D-12/12/03

LEGEND

- Existing Airport Property Line
- Existing Easements
- Proposed Airfield Pavement
- Proposed Pavement to be removed
- Acquire Land Interest
- Buildings Obstructing an FAR Part 77 Transitional Surface
- Building Restriction Line (35' Building Height)
- Object Free Area (OFA)
- Precision OFA
- Runway Safety Area (RSA)
- Runway Visibility Zone (RVZ)
- Runway Protection Zone (RPZ)

KEY

AWOS - Automated Weather Observation System

MALSR - Medium intensity Approach Lighting System with Runway alignment indicator lights

DECLARED DISTANCES

RUNWAY	ASDA	LDA
13	6,840	6,350
31	7,520	6,350
6	4,350	3,150
24	3,900	3,150

KEY

ASDA - Accelerate/Stop Distance Available

LDA - Landing Distance Available

San Felipe Rd. (Hwy 156)
Departure RPZ
Approach RPZ
Holding Apron
Departure Threshold
450' Displaced Threshold
Landing Threshold
Holding Apron
C
Departure RPZ
Holding Apron
J
Aircraft Parking Limit
A
400'
B
A
MALSR
Highway 156 Bypass
H
F
E
C
Holding Apron
Lighted Wind Cone & Segmented Circle
400'
Departure Threshold
35'
Relocated Lighted Wind Cone, Tetrahedron, & Segmented Circle
AWOS
Tetrahedron
Landing Threshold
1,170' Displaced Threshold
Holding Apron
Existing AWOS Critical Area
Relocated AWOS
I
50'
Approach RPZ
240'
250'
Relocated AWOS Critical Area
35'
C
New Landing Threshold
Holding Apron
6
Airway Dr.
Aerostar Way
Flynn Rd.
Holding Apron
750' Displaced Threshold
Departure RPZ
Approach RPZ
NORTH
0
800
1,600
SCALE IN FEET
Bolsa Rd. (Hwy 25)

Hollister Municipal Airport

Exhibit 4D
AIRFIELD ALTERNATIVE B1

attainment of the RSA and OFA in this area is prevented by the location of San Felipe Road, which would obstruct the RSA and OFA if they were allowed to extend beyond the existing airport property line. Since the landing threshold locations do not change, the LDA would be 6,350 feet or equal to the existing runway length.

For Runway 24, the ASDA would not be limited, as the full ARC B-II RSA and OFA would be available behind the Runway 6 end. Therefore, the Runway 24 ASDA would be 4,350 feet or equal to the length of the existing runway (3,150 feet), plus the length of the paved taxiway behind the Runway 24 end (450 feet) and the length of the paved taxiway behind the Runway 6 end (750 feet). For Runway 6, the ASDA would be 3,900 feet or equal to the length of the existing runway (3,150 feet), plus the length of the paved taxiway behind the Runway 6 end (750 feet). Since the landing threshold locations do not change, the LDA would be 3,150 feet or equal to the existing runway length.

When there is a displaced threshold, FAA guidelines specify two runway protection zones (RPZs) - an approach RPZ and departure RPZ. Normally, the approach and departure RPZs overlap. **Exhibit 4D** depicts the approach RPZ and departure RPZ for each runway end, with a displaced threshold. For the Runway 6, 24, and 31 ends, these RPZs extend beyond the existing airport boundary and would require that the City acquire an interest in the land encompassed by the RPZ to ensure future compatible development. As discussed previously, this can include either fee simple ownership of the ownership of an avigation easement.

The use of declared distances requires specific approval from the FAA Western-Pacific Region. While FAA AC 150/5300-13, *Airport Design*, specifies the use of declared distances for complying with OFA, OFZ and RSA design standard deficiencies; the FAA Western-Pacific Region has limited the implementation of declared distances at general aviation airports. In most cases, the FAA Western-Pacific Region has approved declared distances only at those airports that are constrained in meeting these standards at each runway end. As shown by Alternatives A1 and A2, the full ARC C-II OFA and RSA standards can be met at the airport. Additionally, a 7,520-foot departure distance is not required by the projected mix of aircraft to operate at the airport.

Similar to Airfield Alternatives A1 and A2, the existing lighted wind cone, segmented circle, and tetrahedron would need to be relocated to fully comply with ARC C-II RSA and OFA standards. Similar to airfield Alternatives A1 and A2, these facilities are proposed to be located north of Runway 6-24, west of Runway 13-31, outside the limits of the OFA.

This alternative also incorporates the requirements for a CAT I precision instrument approach. Similar to the previous alternatives, additional land acquisition is proposed to ensure the protection of the FAR Part 77 transitional surface to 35 feet above the primary surface. Additionally, the

installation of a MALSR is shown. This MALSR would be located almost entirely on airport property; only the last three lighting standards would extend outside the airport boundary into the adjacent industrial park. The MALSR lights on runway pavement would be embedded in the pavement.

This alternative depicts the buildings potentially obstructing a FAR Part 77 transitional surface. They include the California Army National Guard Armory, Gavilan College facilities, west T-hangars, and two buildings located east of San Felipe Road that could potentially obstruct the Runway 6-24 transitional surface. The two T-hangar facilities, an existing CDF building, and all the buildings along the eastern edge of the main apron that could potentially obstruct the Runway 13-31 transitional surface are also shown.

The need to remove any of these buildings will be determined by the FAA through an airspace determination. As discussed previously, the FAA must find that these buildings are hazards to air navigation and that they would have a detrimental impact on aircraft operations prior to a recommendation being issued to remove the buildings. Otherwise, the buildings would be allowed to remain.

AIRFIELD ALTERNATIVE B2

Airfield Alternative B2 is shown on **Exhibit 4E**. The intent of this alternative is to develop a 7,000-foot primary runway length, utilizing as much of the existing runway pavement as possible, while also meeting ARC C-II CAT I design standards to the extent possible on existing airport property.

To achieve these goals, this alternative shifts Runway 13-31 to the north where the RSA and OFA behind the Runway 13 end would intersect the existing airport property line. This essentially requires a 900-foot extension to the Runway 13 end. The Runway 31 is established 7,000 feet southeast of the new Runway 13 end. The pavement behind the new Runway 31 end is abandoned as it is not required to meet runway length requirements and could not be retained as a paved overrun. The FAA does not require paved overruns or stopways, and does not require the RSA be paved. Furthermore, if these pavement areas would be designated as paved overruns or stopways, the FAA would require that the RSA and OFA extend beyond the end of the paved overrun or stopway. The airport could not meet RSA and OFA standards behind the Runway 31 end if the paved area behind the Runway 31 end was designated as a paved overrun. Establishing paved overruns would also require specific approval by the FAA.

The Runway 13 RPZ would extend beyond the existing airport property line and require acquiring a land interest to protect the RPZ from future incompatible development. The Runway 31 RPZ would also extend beyond the existing airport property and existing avigation easements.

By limiting the distance that Runway 13-31 is shifted to the northwest to the

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0 800 1,600
SCALE IN FEET

NORTH

San Felipe Rd. (Hwy 156)

PROPOSED AIRPORT PARKWAY

Holding Apron

35'

C

Holding Apron

J

Aircraft Parking Limit

A

A

H

F

E

C

400'

B

MALSR

Highway 156 Bypass

Holding Apron

9

HOLLISTER

31

400'

Lighted Wind Cone
& Segmented Circle

35'

Relocated Lighted Wind Cone,
Tetrahedron, & Segmented Circle

AWOS

Tetrahedron

Holding Apron

Existing AWOS Critical Area

I

50'

Relocated AWOS

240'

250'

Relocated AWOS Critical Area

C

Holding Apron

6

Holding Apron

Airway Dr.

Aerostar Way

Flynn Rd.

Bolsa Rd. (Hwy 25)

LEGEND

- Existing Airport Property Line
- Existing Easements
- Proposed Airfield Pavement
- Proposed Pavement to be removed
- Acquire Land Interest
- Buildings Obstructing an FAR Part 77 Transitional Surface
- Building Restriction Line (35' Building Height)
- Object Free Area (OFA)
- Precision OFA
- Runway Safety Area (RSA)
- Runway Visibility Zone (RVZ)
- Runway Protection Zone (RPZ)

KEY

AWOS - Automated Weather Observation System

MALSR - Medium intensity Approach Lighting System with Runway alignment indicator lights

Hollister Municipal Airport

Exhibit 4E
AIRFIELD ALTERNATIVE B2

existing airport boundaries, the ability to develop new public access roadways as envisioned by the Hollister Area Airport Development Plan is retained as shown on the exhibit. This is in contrast with Alternative A2 which would prevent the possibility to construct the access road along the northern airport boundary, as Alternative A2 extends the RSA and OFA to the Highway 156 Bypass right-of-way. The difference between this alternative and Alternative A2 is that the MALSR for Alternative A2 would be located entirely on airport property, while in this alternative, a portion of the MALSR would extend across San Felipe Road.

For this alternative, Runway 6-24 is redeveloped at 3,373 feet long, exactly the same as presented earlier in Alternative A1. This is accomplished by relocating the existing Runway 6 end 223 feet west, the maximum extent possible without obstructing the Runway 6 approach surface. Runway 24 remains in its existing locating. Since the paved areas behind Runway 6 and Runway 24 are not usable as runway, this alternative proposes to remove these pavement areas. New entrance taxiways are constructed at each runway end, perpendicular to the runway centerline.

Similar to the previous airfield alternatives, the existing lighted wind cone, segmented circle, and tetrahedron would need to be relocated to fully comply with ARC C-II RSA and OFA standards. These facilities are proposed to be located north of Runway 6-24, west of Runway 13-31, outside the limits of the OFA.

This alternative also incorporates the requirements for a CAT I precision instrument approach. Similar to the previous alternatives, additional land acquisition is proposed to ensure the protection of the FAR Part 77 transitional surface to 35 feet above the primary surface.

Similar to Alternative B1, this alternative depicts the buildings potentially obstructing a FAR Part 77 transitional surface. They include the California Army National Guard Armory, Gavilan College facilities, west T-hangars, and two buildings located east of San Felipe Road that could potentially obstruct the Runway 6-24 transitional surface. The two T-hangar facilities, an existing CDF building, and all the buildings along the eastern edge of the main apron that could potentially obstruct the Runway 13-31 transitional surface are also shown.

The need to remove any of these buildings will be determined by the FAA through an airspace determination. As discussed previously, the FAA must find that these buildings are hazards to air navigation and that they would have a detrimental impact on aircraft operations, prior to a recommendation being issued to remove the buildings. Otherwise, the buildings would be allowed to remain.

LANDSIDE ALTERNATIVES

The primary general aviation functions to be accommodated at Hollister Municipal Airport include aircraft

storage hangars, aircraft parking aprons, and commercial general aviation activities. The interrelationship of these functions is important to defining a long-range landside layout for general aviation uses at the airport. Runway frontage should be reserved for those uses with a high level of airfield interface, or need of exposure. Other uses with lower levels of aircraft movements or little need for runway exposure can be planned in more isolated locations. The following briefly describes landside facility requirements.

Fixed Base Operator (FBO): This essentially relates to providing areas for the development of facilities associated with aviation businesses that require airfield access. This includes businesses involved with (but not limited to) aircraft rental and flight training, aircraft charters, aircraft maintenance, line service, and aircraft fueling. High levels of activity characterize businesses such as these, with a need for apron space for the storage and circulation of aircraft. These facilities are best placed along ample apron frontage with good visibility from the runway system for transient aircraft. The facilities commonly associated with businesses such as these include large conventional type hangars that hold several aircraft. Utility services are needed for these types of facilities, as well as automobile parking areas.

Planning for FBO development areas is important for this Master Plan. The existing main apron has well-developed large hangars along the east side of the existing apron. There is only one undeveloped parcel left along this apron area for a future FBO facility. However, this location may be needed to accommodate relocated or replacement facilities for Gavilan College, should the FAA determine that the existing Gavilan College facilities are safety obstructions and need to be removed. When this location is filled, there are currently no other apron areas to support an active commercial general aviation operation.

Aircraft Storage Hangars: The facility requirements analysis indicated the need for additional aircraft storage facilities. This could include the development of T-hangar units for small general aviation aircraft and large clearspan hangars for accommodating several aircraft simultaneously, transient business aircraft, or corporate aircraft operations.

Fuel Storage: Fuel storage at Hollister Municipal Airport is located in underground tanks on the main apron area. Access to these tanks is available only by crossing aircraft operational areas. Consideration is being given in this Master Plan to ultimately developing an expanded fuel farm. Most important to the siting of the fuel farm is fuel delivery truck access. Access should be available from the primary roadway and not require that the truck access the apron area. Airside access must also be maintained to allow for the airport fuel delivery vehicles to access the fuel storage tanks.

Helipad: A helipad is identified to provide a marked and segregated

landing and takeoff area for helicopters. This is anticipated to include specific parking areas for helicopter aircraft. There is currently no designated helipad at the airport.

Airport Maintenance: The airport maintenance building is presently located along Skylane Drive. The alternatives analysis will examine new site locations should this facility need to be replaced with a new facility.

Segregated Vehicular Access: A planning consideration for any Master Plan is the segregation of vehicles and aircraft operational areas. This is both a safety and security consideration for the airport. Aircraft safety is reduced and accident potential increased when vehicles and aircraft share the same pavement surfaces. Vehicles contribute to the accumulation of debris on aircraft operational surfaces, which increases the potential for Foreign Object Damage (FOD), especially for turbine-powered aircraft. The potential for runway incursions is increased, as vehicles may inadvertently access active runway or taxiway areas if they become disoriented once on the aircraft operational area (AOA). Finally, airfield security is compromised as there is loss of control over the vehicles as they enter the secure AOA. The greatest concern is for public vehicles such as delivery vehicles and visitors, which may not fully understand the operational characteristics of aircraft and the markings in place to control vehicle access.

Hollister Municipal Airport is presently without any type of fencing limiting access to aircraft operational areas. The airport's capital improvement program includes installing fencing to increase airfield security. However, the design of portions of the airfield still requires vehicles and aircraft to use the same pavement area. This includes the west T-hangars and T-hangars east of the main apron area.

The best solution is to provide dedicated vehicle access roads to each landside facility that is separated from the aircraft operational areas, with security fencing. This will be examined in more detail as the landside alternatives are presented.

Security of general aviation airports is coming under greater scrutiny since the events of September 11, 2001. The *Aviation and Transportation Security Act*, passed in November 2001, created the Transportation Security Administration (TSA) to administer the security of public-use airports across the country. The TSA is in the process of establishing a general aviation security director.

In anticipation of expected rulemaking by the TSA, the American Association of Airport Executives (AAAE) created a task force to make recommendations on the future of GA airport security. The task force consisted of airport officials from general aviation facilities, as well as representatives of the National Association of State Aviation officials and the National Business Aviation Association. This task force submitted a series of recommendations to the TSA on June 3, 2002. In making their recommendations, the task force defined

the most probable terrorist threat to general aviation aircraft as the possible theft or hijacking of an aircraft.

While only recommendations to the TSA, the results of the task force are the most comprehensive assessment of threats to general aviation facilities and potential security measures, to date. Therefore, a brief overview of the task force recommendations applicable to Hollister Municipal Airport is made to summarize current industry consensus on how to effectively secure general aviation facilities in the future.

The task force recommended the establishment of four different categories of general aviation airports based upon the airport's location relative to potential terrorist targets, runway length, and number of based aircraft. Based upon their suggested criteria, Hollister Municipal Airport would be classified as either a Category I or Category II airport. Under the recommended plan, Hollister Municipal Airport would need to develop a security plan and a criminal record background check would be required for all airport fixed base operators and airport tenant employees with unescorted access to the aircraft operating area.

The segregation of vehicle and aircraft operational areas is further supported by new FAA guidance established in June 2002. FAA AC 150/5210-20, *Ground Vehicle Operations on Airports*, states, "The control of vehicular activity on the airside of an airport is of the highest importance." The AC further states, "An airport operator should limit vehicle operations on the movement areas of the airport to only those vehicles necessary to support the operational activity of the airport." The landside alternatives for Hollister Municipal Airport have been developed to reduce the need for vehicles to cross an apron or taxiway area. Special attention is within the alternatives given to ensure public access routes to fixed base operator (FBO) facilities. FBO facilities are focal points for users who are not familiar with aircraft operations (i.e., delivery vehicles, charter passengers, etc.).

Adjacent Property Owner Airfield Access: The landside alternatives consider the need to maintain access to the airfield from the Airpark Business Center and the Hollister Airport Terminal and Business Park.

The landside alternatives focus on three separate quadrants of the airport. Two alternatives have been developed for existing apron area in the southeast quadrant of the airport. This includes the area south of Runway 6-24 and east of Runway 13-31 to San Felipe Road. Two alternatives have been developed for the southwest quadrant of the airport, which generally includes the area west of Runway 13-31 and south of Runway 6-24, to the airport boundary with the Airpark Business Center. Finally, consideration is given to development north of Runway 6-24 on property adjacent to the existing airport boundary. This includes development on property not currently owned by the City of Hollister.

SOUTHEAST LANDSIDE ALTERNATIVES

The southeast landside alternatives consider development opportunities in the area along the existing apron area. This includes development east of Skylane Drive. This area generally includes the remaining original airport facilities built in the 1940s for the Navy Air Auxiliary Station (N.A.A.S.) Hollister. These building support a combination of both aviation-related and non-aviation related activities. Chapter One, Inventory, noted that these buildings are in poor condition due to their age and that they do not generally meet current building design standards. With these buildings now reaching sixty years old, it can be assumed that these facilities may not remain in working order throughout this Master Plan. Therefore, for planning purposes, redevelopment of this area is being considered. However, prudent business planning would suggest that these buildings continue to be used until such time as they can no longer profitably be maintained.

Two alternatives can be considered for redevelopment of the area east of Skylane Drive. The first is to continue the development of this area for a mix of commercial/industrial development uses without a need for airfield access. This could include future office, retail, or warehouse type facilities. The location along San Felipe Road is a factor in deciding to continue this type of use, due to the good visibility and access afforded by San Felipe Road. Since there is already an established road network in this area, alternatives for continuing this type of use have not been considered. Instead Southeast Landside Alternative A and Southeast Landside Alternative B consider the second alternative of redeveloping this area, over time, for aviation-related development with a need for airfield access. This includes, but is not limited to, FBO facilities, aircraft storage hangars, and corporate aviation facilities.

Southeast Landside Alternative A

Southeast Alternative A is shown on the left side of **Exhibit 4F**. This alternative considers development opportunities, should Runway 13-31 be relocated 100 feet south to meet the ARC C-II CAT I runway centerline to taxiway centerline separation distance of 400 feet. Airfield Alternative A1 is shown. A relocation of the existing CDF facilities and acquisition of the California Army National Guard Armory site is also assumed.

In this alternative, the area east of Skylane Drive is redeveloped for corporate aviation facilities. Corporate aviation facilities are characterized by co-located hangar and office complexes for corporate-owned aircraft storage, maintenance, and administration. Corporate aviation facilities are different from FBO facilities, as corporate aviation facilities generally have lower levels of activity and do not require good visibility from the runways or taxiways for transient aircraft identification and location.

Armory Drive, Mars Drive, Astro Drive, and Mercury Drive would all eventually be closed under this alternative, in favor of establishing the development parcels. Only Skylane Drive and Airport Drive would be retained to maintain existing public access routes to the hangar facilities along the main apron. A new interior access road along the eastern airport boundary would provide access to the Elk Lodges and other corporate aviation parcels east of the access taxiway. Access to the airfield would be developed from Taxiway B.

This alternative provides for the relocation of the Gavilan College facilities that are located within the Runway 6-24 FAR Part 77 transitional surface, to the last undeveloped portion of the main apron. The relocation of these buildings would be determined separately by the FAA through an airspace determination and is only considered here for planning purposes should the FAA determine the need to remove the facilities.

Individual hangar parcels for aircraft storage hangar development only is designated for the area south of Airport Drive, currently occupied by a series of 1940 vintage office and hangar facilities. This area is only viable for aircraft storage hangar development due to its limited airfield access and taxiways which can only support smaller aircraft within ADG I. The area currently occupied by the CDF is redeveloped with T-hangars. T-hangar building heights are generally not more than 20 feet high, so T-hangars can generally extend beyond the 35-foot BRL as shown on the exhibit.

Finally, this alternative reserves an area along Skylane Drive for the development of a consolidated fuel farm and airport maintenance facilities. In this location, both facilities would have good public access via Skylane Drive, but also have direct access to the airfield via the adjacent taxiways.

Southeast Landside Alternative B

Southeast Alternative B is shown on the right side of **Exhibit 4F**. This alternative considers development opportunities should Taxiway A be relocated 100 feet east to meet the ARC C-II CAT I runway centerline to taxiway centerline separation distance of 400 feet. Airfield Alternative B1 is shown. A relocation of the existing CDF facilities and acquisition of the California Army National Guard Armory site is also assumed.

This alternative clearly demonstrates the impacts on the main apron tiedown areas as a result of upgrading Runway 31 with a CAT I precision instrument approach and Runway 13-31 remaining in its existing location. As shown on the exhibit, approximately 100 feet of the west portion of the main apron would be lost, including two existing rows of aircraft tiedowns, due to the aircraft parking limit standard and FAR Part 77 primary surface object clearing standards. The CDF facility aircraft parking area would be lost for the same reasons.

Several facilities would be located in the FAR Part 77 transitional surfaces for both Runways 13-31 and Runway 6-24.

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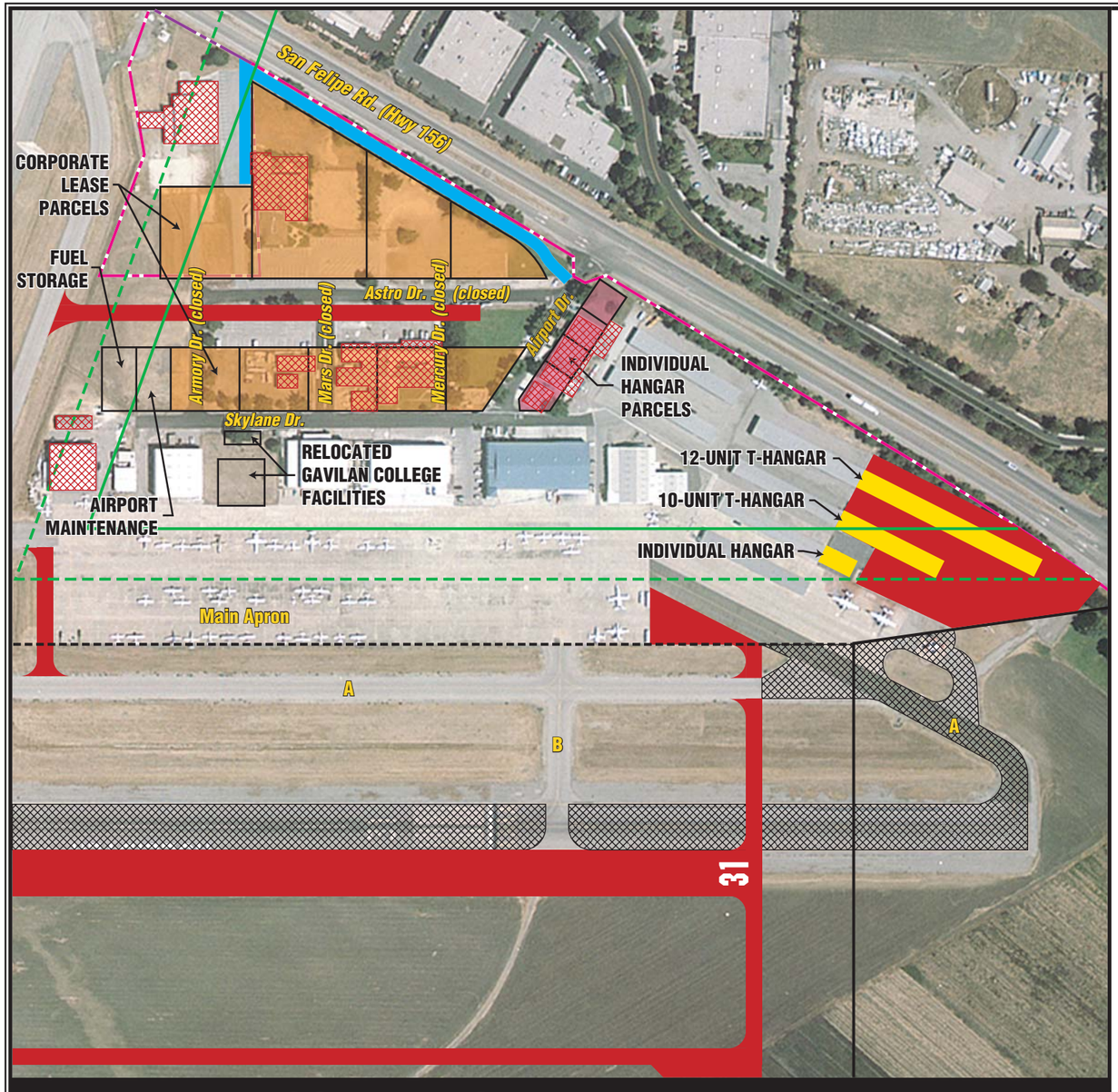
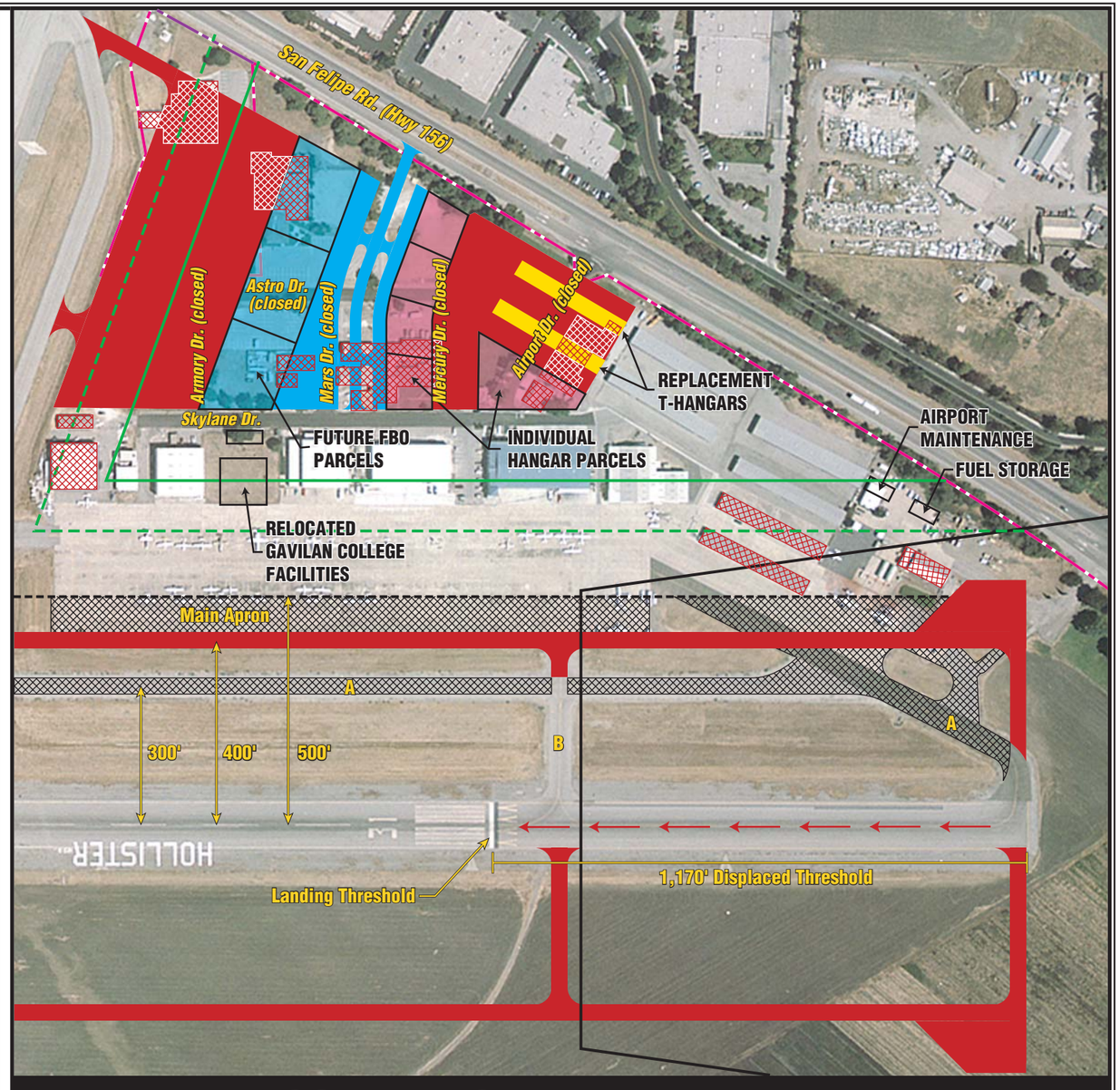


SOUTHEAST ALTERNATIVE A



SOUTHEAST ALTERNATIVE B

LEGEND

- Existing Airport Property Line
- Future Airport Property Line
- 35' Building Restriction Line
- 20' Building Restriction Line
- Aircraft Parking Limit
- Proposed Airfield Pavement
- Proposed Roads/Parking
- Proposed Buildings
- Pavement to be Removed
- Building to be Removed

NORTH

0 300 600

SCALE IN FEET

Hollister Municipal Airport

Exhibit 4F

SOUTHEAST LANDSIDE ALTERNATIVES

Two existing T-hangars, a CDF building, and one hangar facility located along the east edge of the main apron could be considered obstructions to the Runway 13-31 FAR Part 77 transitional surface. The removal of the building closest to the runway has been assumed in this alternative, although, as stated before, the requirement to relocate these buildings would be determined separately by the FAA through an airspace determination when establishing a future CAT I precision instrument approach to Runway 31

The relocation of the Gavilan College facilities is also shown in this alternative, as these facilities could be considered obstructions to the Runway 6-24 FAR Part 77transitional surface. Similar to the other facilities impacting the FAR Part 77 transitional surface, the relocation of these buildings would be determined separately by the FAA through an airspace determination.

Replacement locations for the T-hangars have been established north of the existing T-hangars. These replacement T-hangars would require the closure of Airport Drive and removal of a series of 1940s vintage office and hangar facilities. With Airport Drive closed, access to the main apron would be via a new entrance roadway located north of Airport Drive. This roadway would connect to Skylane Drive to provide access to the existing FBO facilities. Individual hangar parcels would be located south of this new access road. To compensate for the loss in the main apron area and tiedowns, a new apron is planned south of Taxiway B, parallel with Runway 6-24. FBO parcels are located along the southern edge of this apron area. A future airport maintenance facility and fuel storage facility are located in the redeveloped CDF area. In this location, both facilities would have good public access via San Felipe Road, but also have direct access to the airfield via the adjacent taxiways.

SOUTHWEST LANDSIDE ALTERNATIVES

The southwest landside alternatives consider development potential in the area west of Runway 13-31 and south of Runway 6-24, to the airport boundary with the Airpark Business Center. This parcel of land has been reserved in previous planning efforts for aircraft storage hangar development. A taxiway paralleling the southwest airport property boundary was recommended in the *Hollister Airport Area Development Plan,* to provide access to the runways from the adjacent Airpark Business Center. The CDF has proposed the development of a new air-attack base in the quadrant by 2007. These requirements, as well as alternative development options, have been considered for this quadrant of the airport.

Southwest Landside Alternative A

Southwest Landside Alternative A is shown in the upper left corner of **Exhibit 4G**. This alternative considers development potential should Runway 13-31 be relocated 100 feet west, to meet ARC C-II CAT I runway centerline to parallel taxiway centerline

separation distances. A parallel taxiway 400 feet west of the relocated runway is assumed to serve this quadrant.

In this alternative, the southwest quadrant is developed with a mix of FBO parcels, corporate aviation parcels, and T-hangars. A large apron is developed south of the relocated Runway 13-31 for FBO development. This apron is extended to the west parallel with Runway 6-24, for additional aircraft parking. Corporate aviation parcels are reserved west of the shared public parking area with the FBO facilities. A single 12-unit T-hangar facility is planned east of the existing T-hangars.

An access taxiway is planned along the airport boundary with the Airpark Business Center; however, this taxiway is not contiguous. Since the development of the FBO parcels and corporate aviation parcels would require public vehicle access, it would be necessary to develop a segregated vehicular road and taxiways for security and safety reasons. Therefore, this taxiway would not extend across the FBO access roadway. In this manner, taxiway access would only be available for the Airpark Business Center parcels located directly along the taxiway. Access via Aerostar Way would not be available. This alternative is shown for planning purposes only as currently there is no FAA or TSA directive specifically prohibiting the crossing of a taxiway and public access road at a general aviation airport. This alternative provides a planning direction should future security directives require segregated vehicular and aircraft operating areas as currently recommended by FAA AC150/5210-20, *Ground Vehicle Operations on Airport.*

Southwest Landside Alternative B

Southwest Landside Alternative B is shown in the lower right corner of **Exhibit 4G**. This alternative considers development potential should Runway 13-31 remain in its existing location and Taxiway A be relocated 100 feet east to meet ARC C-II CAT I runway centerline to parallel taxiway centerline separation distances. A parallel taxiway 400-feet west of the existing runway is assumed.

This alternative is representative of previous planning efforts and current design proposals at Hollister Municipal Airport for the southwest quadrant. For this alternative, the development of a new CDF Air Attack Base is assumed along the new west parallel taxiway. A helipad and two parking positions are shown south of the CDF facility. Four additional rows of T-hangars and seven 10,000 square-foot individual hangar parcels are provided to continue aircraft storage hangar development along Runway 6-24.

The full contiguous taxiway along the southwest airport boundary is assumed as depicted in the Hollister Airport Area Development Plan. Since there is not a FBO facility planned for this area, public vehicle access could be limited with a gate offering limited access to permitted users.

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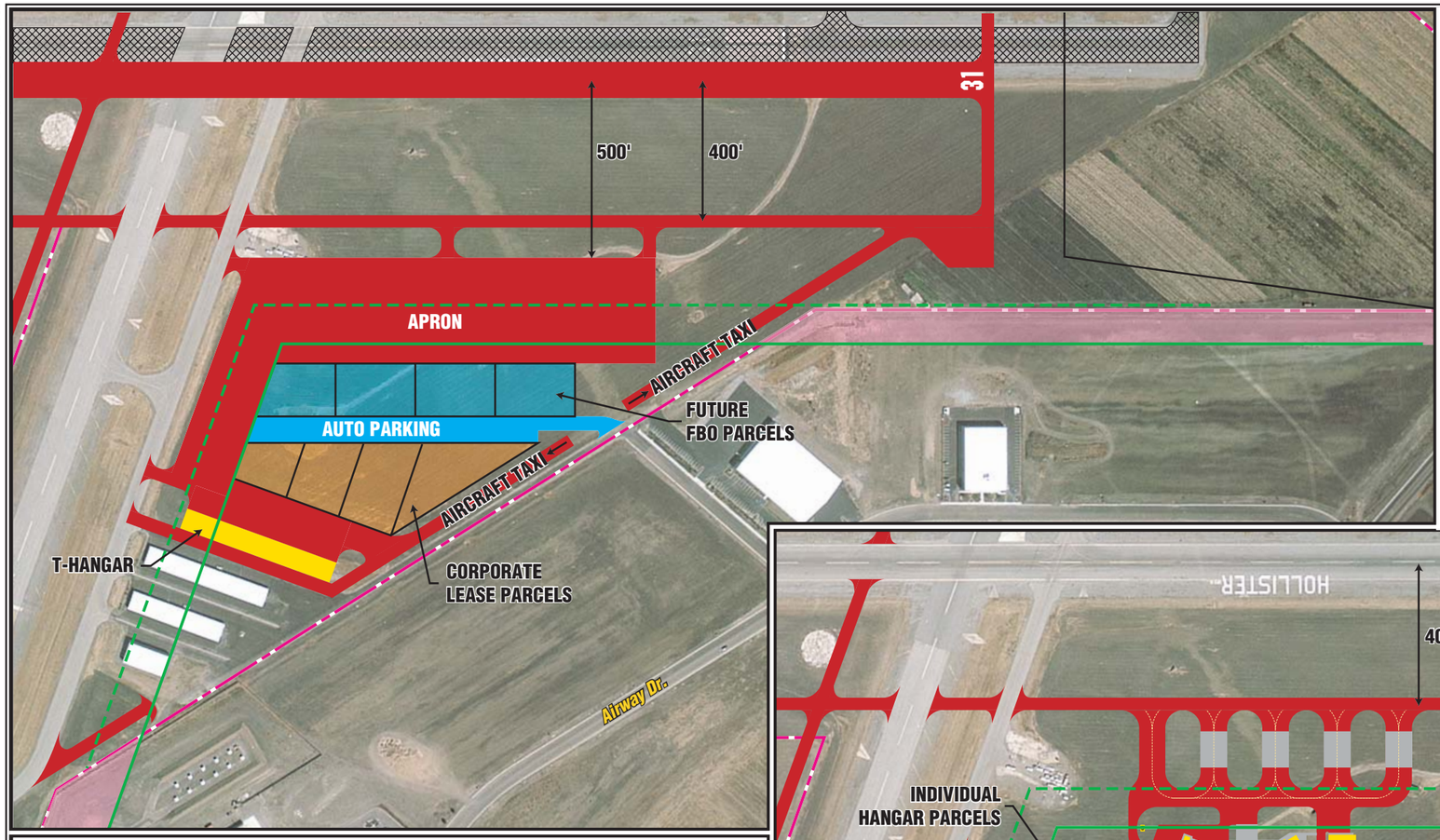
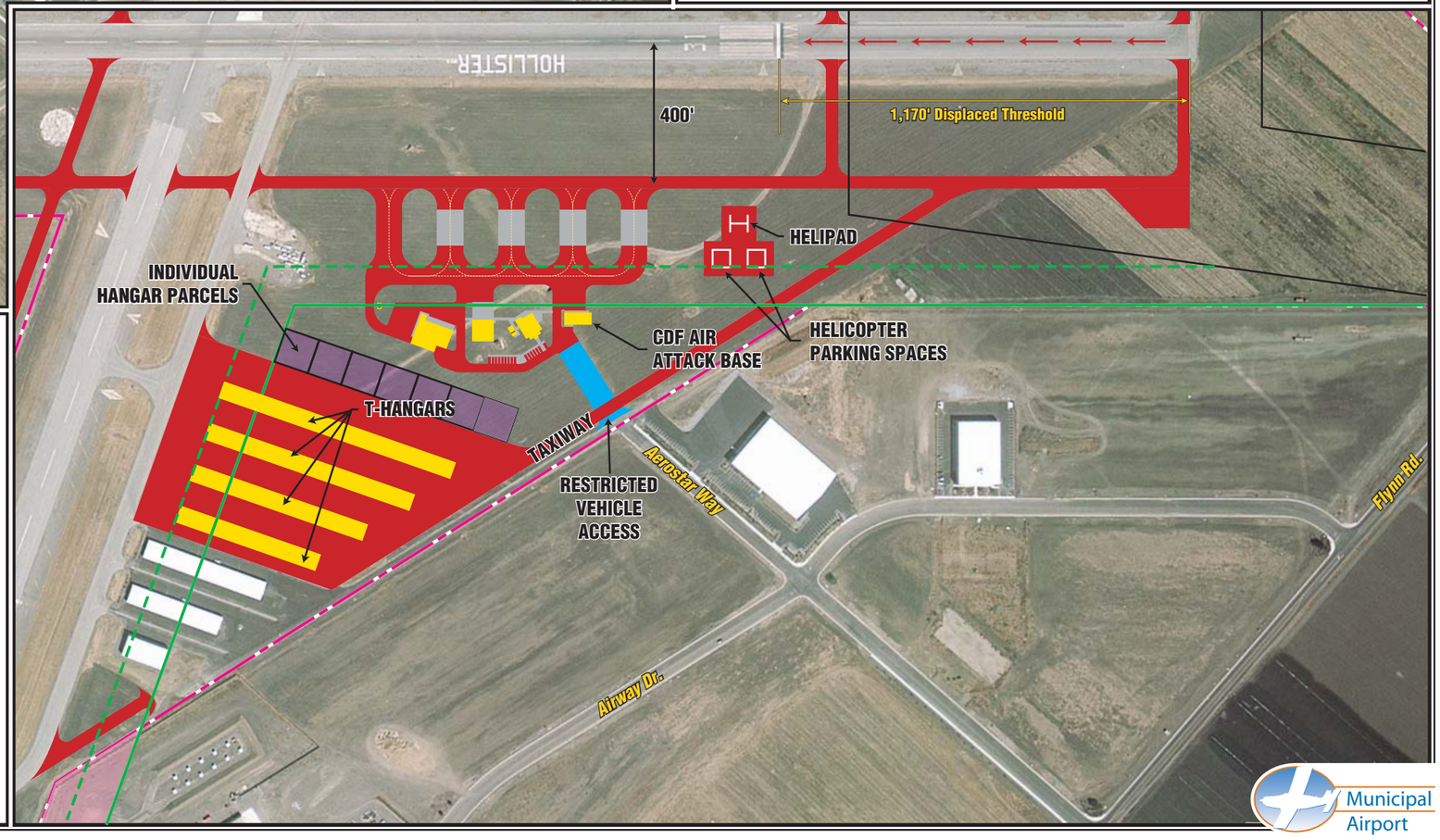


ALTERNATIVE A

ALTERNATIVE B



LEGEND

- Existing Airport Property Line
- 35' Building Restriction Line
- 20' Building Restriction Line
- Proposed Airfield Pavement
- Proposed Roads/Parking
- Proposed Buildings
- Pavement to be Removed
- Acquire Land Interest

NORTH

0 400 800

SCALE IN FEET

Municipal Airport

Exhibit 4G

SOUTHWEST LANDSIDE ALTERNATIVES

NORTH LANDSIDE ALTERNATIVE

Development potential north of Runway 6-24 for land parcels adjacent to the existing airport boundary has also been considered. While some of the demand for hangar facilities may be met through development off-airport property in either the Airpark Business Center or Hollister Airport Terminal and Business Park, the acquisition of the land parcels shown in this alternative is most likely necessary for the airport to provide sufficient area to meet long term facility demand. The area within the existing airport boundaries cannot meet long-term projected needs. The north landside alternative is shown on **Exhibit 4H**.

This alternative depicts development opportunities and constraints, assuming the implementation of Airfield Alternative A1. However, the elements of this alternative remain essentially the same whether Alternatives A2, B1, or B2 are considered, since this alternative examines landside development outside the safety areas of either alternative. Only slight modifications to the placement of the facilities, as shown, would be necessary to customize this alternative to meet a particular airfield alternative. This alternative depicts the proposed major roadways around the airport as shown in the *Hollister Airport Area Development Plan*.

This alternative retains airfield access to the area northeast of the Runway 13-31/Runway 6-24 intersection. The area is reserved for the planned Hollister Airport Terminal and Business Park, corporate hangars, T-hangars, apron, offices, museum, restaurant, hotel, FBO maintenance and restoration hangars, and terminal. Airfield access for the planned Hollister Airport Terminal and Business Park will be available via the existing Taxiway A and potential parallel taxiway north of Runway 6-24.

This alternative further proposes the fee simple acquisition of or portion of all available land parcels surrounding the existing airport boundary, as shown on the exhibit. This includes property northeast and northwest of Runway 13-31 and west of Runway 13-31 to the rock quarry.

This alternative proposes a number of alternative developments for these parcels. In the northeast portion of the airport, this alternative proposes the development of corporate aviation lease parcels. These would be developed via a series of taxiway stubs connecting to a northerly extension of Taxiway A.

In the area west of Runway 13-31, north of Runway 6-24, FBO and apron development, a helipad, and T-hangars are proposed. An alternative location for the proposed CDF Air Attack Base is also depicted. An alternate location for the CDF Air Attack Base is shown in consideration of the potential for different uses being developed in the southwest quadrant where the CDF Air Attack Base has been proposed. As shown previously in Southwest Landside Alternative A, the southwest quadrant has the potential for development of FBO and apron facilities. Should facility planning

include FBO and/or apron facilities being developed in the southwest quadrant, this alterative demonstrates that there is an alternative location for the proposed CDF facilities. The type of development reserved for the southwest quadrant may be a function of the need for a particular type of development on the airport, the timing of that development, and funding availability. These factors need to be considered by the City of Hollister and Planning Advisory Committee (PAC) in selecting an alternative that defines the highest and best use of each parcel of land at the airport.

SUMMARY

The process utilized in assessing the airside and landside development alternatives involved a detailed analysis of short and long-term requirements, as well as future growth potential. Current airport design standards were considered at each stage of development.

Upon review of this report by the City of Hollister and the Planning Advisory Committee, a final Master Plan concept can be formed. The resultant plan will represent an airside facility that fulfills safety and design standards and a landside complex that can be developed as demand dictates.

The proposed development plan for the airport must represent a means by which the airport can grow in a balanced manner, both on the airside as well as the landside, to accommodate forecast demand. In addition, it must provide (as all good development plans should) for flexibility in the plan to meet activity growth beyond the 20-year planning period.

The remaining chapters will be dedicated to refining the basic concept into a final plan, with recommendations to ensure proper implementation and timing for a demand-based program.

01MP12-4H-7/6/04

HOLLISTER AIRPORT TERMINAL AND BUSINESS PARK

San Felipe Rd. (Hwy 156)

Proposed Airport Parkway

COMMERCIAL/ INDUSTRIAL PARCEL

LEASE PARCELS

LEASE PARCELS

Highway 156 Bypass

Holding Apron

RUNWAY 13-31 (6,350' x 100')

Lighted Wind Cone & Segmented Circle

RUNWAY 6-24 (3,150' x 100')

Relocated Lighted Wind Cone & Segmented Circle

AWOS

Relocated AWOS

Existing AWOS Critical Area

Relocated AWOS Critical Area

APRON

AUTO PARKING

COMMERCIAL/ INDUSTRIAL PARCEL

CDF AIR ATTACK BASE

FUEL STORAGE

AUTO PARKING

T-HANGARS 10 UNIT EACH

250'

750'

LEGEND

- Existing Airport Property Line
- Proposed Airport Property Line
- Existing Easements
- Proposed Airfield Pavement
- Pavement to be removed
- Building Restriction Line (35' Building Height)
- Object Free Area (OFA)
- Runway Safety Area (RSA)
- Runway Visibility Zone (RVZ)
- Runway Protection Zone (RPZ)
- Proposed Roads

Source for proposed road alignment: Hollister Airport Area Development Plan, Airport Terminal Business Park Initial Study.

NORTH

0 600 1,200

SCALE IN FEET

Hollister Municipal Airport

Exhibit 4H

NORTH LANDSIDE ALTERNATIVE

Hollister Municipal Airport

Airport Plans

The planning process for the Hollister Municipal Airport Master Plan has included several analytic efforts in the previous chapters, intended to project potential aviation demand, establish airside and landside facility needs, and evaluate options for improving the airport to meet those airside and landside facility needs. The planning process, thus far, has included the presentation of two draft phase reports (representing the first four chapters of the Master Plan) to the Planning Advisory Committee (PAC) and City of Hollister. A plan for the use of Hollister Municipal Airport has evolved considering their input. The purpose of this chapter is to describe in narrative and graphic form, the plan for the future use of Hollister Municipal Airport.

The implementation of the *Aviation and Transportation Security Act* of 2001 will need to be closely monitored throughout the implementation of this Master Plan. This law established the Transportation Security Administration (TSA) to administer transportation security nationally. As of the end of calendar year 2003, there was no formal rulemaking for general aviation airport security. However, industry groups had made a series of recommendations to the TSA for general aviation threat assessment and security standards for general aviation airports. This Master Plan has anticipated the potential for greater security scrutiny at general aviation airports in the future, especially those general aviation airports serving aircraft greater than 12,500 pounds, such as Hollister Municipal Airport. The TSA is implementing security provisions for air charter operations with aircraft over 12,500 pounds. For Hollister Municipal Airport, the Master Plan secu-

HOLLISTER

rity enhancements focus on limiting vehicle and pedestrian access to the apron areas and aircraft operational areas.

AIRFIELD PLAN

The airfield plan for Hollister Municipal Airport focuses on meeting Federal Aviation Administration (FAA) design and safety standards, lengthening both runways, establishing precision and nonprecision instrument approach procedures, adding airfield taxiways, installing airfield lighting aids, and pavement strengthening. **Exhibit 5A** graphically depicts the proposed airfield improvements. The following text summarizes the elements of the airfield plan.

AIRFIELD DESIGN STANDARDS

The FAA has established a variety of design criterion to define the physical dimensions of runways and taxiways, and the imaginary surfaces surrounding them that protect the safe operation of aircraft at the airport. FAA design standards also define the separation criteria for the placement of landside facilities. As discussed previously in Chapter Three, FAA design criteria is a function of the critical design aircraft's (the most demanding aircraft or "family" of aircraft which will conduct 500 or more operations (take-offs and landings) per year at the airport) wingspan and approach speed, and in some cases, the runway approach visibility minimums. The Federal Aviation Administration (FAA) has established the Airport Reference Code (ARC) to relate these factors to airfield design standards.

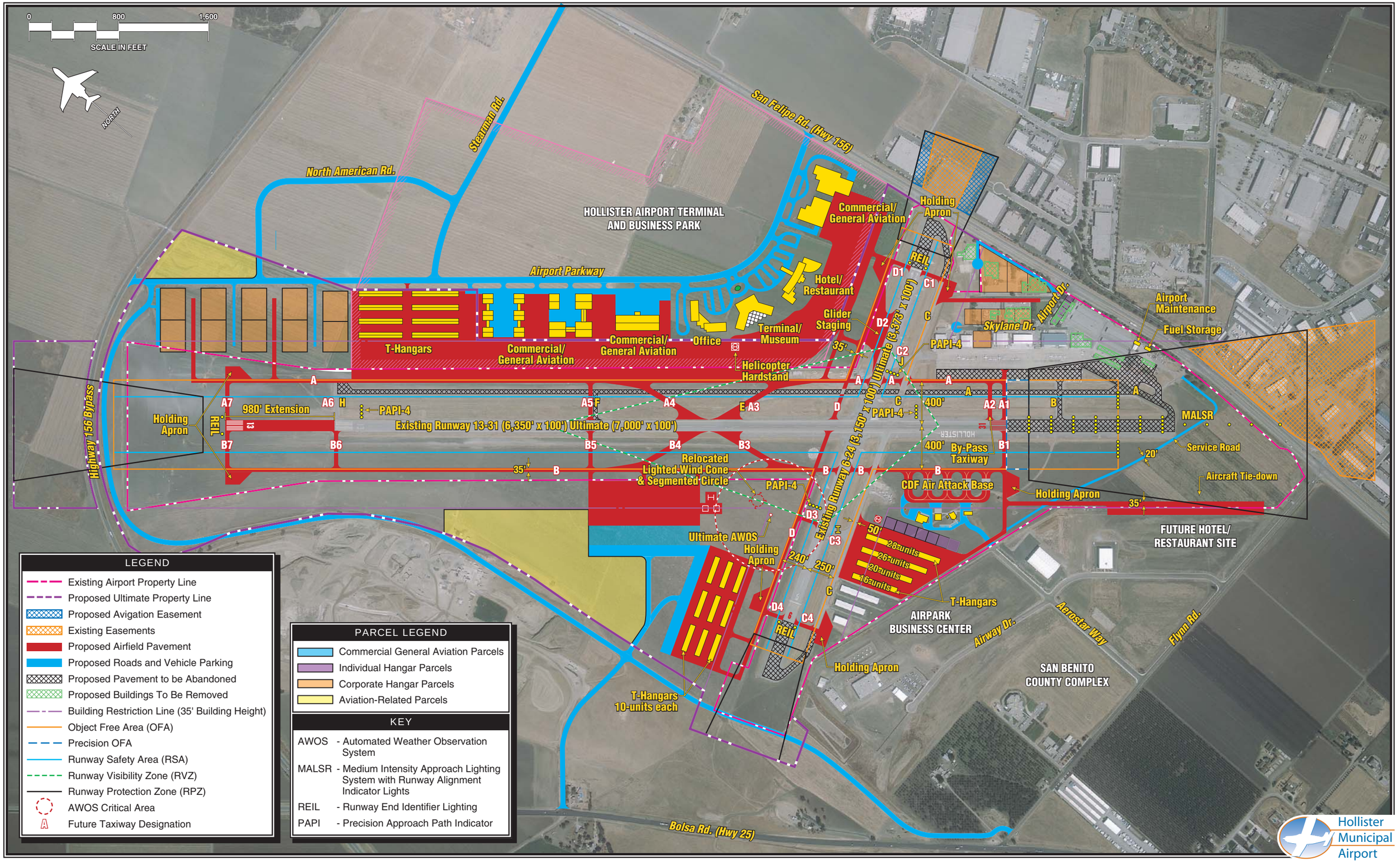
Hollister Municipal Airport is currently used by a wide range of general aviation piston-powered and turbine powered aircraft. These aircraft range from ARC A-I to ARC D-II on occasion. General aviation business jets are the most demanding aircraft to operate at the airport, due to their larger wingspans and higher approach speeds when compared with the remaining types of aircraft operating at the airport.

For the Master Plan, business jets within approach categories C and ADG II are expected to comprise the critical design aircraft through the planning period. Assigning ARC C-II to the ultimate design of airfield facilities at Hollister Municipal Airport provides for the operation of nearly all corporate aircraft on a regular basis at the airport. Even the Bombardier Global Express and Gulfstream V, the largest corporate aircraft, would be able to use the airport on a limited basis.

As the primary runway, Runway 13-31 and its associated taxiways will be designed to ARC C-II. ARC B-II will be applied to Runway 6-24.

Table 5A summarizes the ultimate ARC C-II and B-II airfield safety and facility dimensions for Hollister Municipal Airport. These standards were considered in the planned improvements of the existing airport site, to be discussed in greater detail later within this chapter.

01MP12-5A-4/16/04



LEGEND

- Existing Airport Property Line
- Proposed Ultimate Property Line
- Proposed Avigation Easement
- Existing Easements
- Proposed Airfield Pavement
- Proposed Roads and Vehicle Parking
- Proposed Pavement to be Abandoned
- Proposed Buildings To Be Removed
- Building Restriction Line (35' Building Height)
- Object Free Area (OFA)
- Precision OFA
- Runway Safety Area (RSA)
- Runway Visibility Zone (RVZ)
- Runway Protection Zone (RPZ)
- AWOS Critical Area
- Future Taxiway Designation

PARCEL LEGEND

- Commercial General Aviation Parcels
- Individual Hangar Parcels
- Corporate Hangar Parcels
- Aviation-Related Parcels

KEY

AWOS - Automated Weather Observation System

MALSR - Medium Intensity Approach Lighting System with Runway Alignment Indicator Lights

REIL - Runway End Identifier Lighting

PAPI - Precision Approach Path Indicator

Hollister Municipal Airport

Exhibit 5A
RECOMMENDED PLAN

TABLE 5A
Planned Airfield Safety and Facility Dimensions (in feet)

	Runway 13-31		**Runway 6-24**
Airport Reference Code (ARC)	C-II		B-II
Runway			
Width	100		100
Length	7,000		3,373
Runway Safety Area (RSA)			
Width	400		150
Length Beyond Runway End	1,000		300
Object Free Area (OFA)			
Width	800		500
Length Beyond Runway End	1,000		300
Precision Object Free Area (POFA) – *Runway 31 only*			
Width	800		N/A
Length Beyond Runway End	200		N/A
Obstacle Free Zone (OFZ)			
Width	400		400
Length Beyond Runway End	200		200
Runway Centerline To:			
Hold Line	250		200
Parallel Taxiway Centerline	400		240
Edge of Aircraft Parking	500		250
	Runway 13	**Runway 31**	**Runways 6 and 24**
Approach Visibility Minimums	One Mile	½ Mile	Visual
Runway Protection Zone (RPZ)			
Inner Width	500	1,000	500
Outer Width	1,010	1,700	700
Length	1,700	2,500	1,000
Approach Obstacle Clearance	34:1	50:1	20:1
Taxiways			
Width	35		
Safety Area Width	79		
Object Free Area Width	131		
Taxiway Centerline To:			
Parallel Taxiway/Taxilane	105		
Fixed or Moveable Object	65.5		
Taxilanes			
Taxilane Centerline To:			
Parallel Taxilane Centerline	97		
Fixed or Moveable Object	57.5		
Taxilane Object Free Area	115		

Source: FAA Advisory Circular 150/5300-13, *Airport Design,* Change 7, FAR Part 77, *Objects Affecting Navigable Airspace*, FAA Advisory Circular 150/5340-1F, *Marking Of Paved Areas On Airports*

AIRFIELD DEVELOPMENT

Runways

The airfield plan for Hollister Municipal Airport provides for the airport to fully comply with ARC C-II design standards on Runway 13-31, and the design requirements applicable to a precision Instrument Landing System (ILS) approach to Runway 31. To fully comply with ARC C-II design standards and to allow a future Medium Intensity Approach Lighting System with Runway Alignment Indicator Lighting (MALSR) to be installed behind the Runway 31 end, the airfield plan shifts Runway 13-31, 330 feet to the northwest. This will involve relocating the existing Runway 31 threshold and Taxiway A to the northwest, to allow for the ARC C-II RSA and OFA to be fully developed on existing airport property behind the Runway 31 end. The MALSR is required for the future ILS approach, and the area surrounding the MALSR must be controlled by the airport.

Since the existing paved area behind the relocated Runway 31 threshold, including a portion of the lead-in taxiway, will be designated for the RSA and OFA, the pavement behind the relocated Runway 31 threshold (along with those portions of Taxiway A) will be removed and most likely used as base material for new airfield pavement development. To maintain the existing runway length of 6,350 feet when Runway 13-31 is shifted to the northwest, the Runway 13 end and Taxiway A will be shifted 330 feet northwest.

As mentioned, the plan does not retain the pavement areas, including the existing lead-in taxiway, behind the relocated Runway 31 end. The FAA does not recognize lead-in taxiways, does not require paved overruns or stopways, and does not require the RSA be paved. If these pavement areas would be designated as paved overruns, or stopways, the FAA would require that the RSA and OFA extend beyond the end of the paved overrun or stopway. The airport could not meet RSA and OFA standards if the lead-in taxiway behind the Runway 31 threshold was designated as a paved overrun. Furthermore, the existing lead-in taxiway behind the Runway 31 threshold is contrary to federal design standards. Any paved surface used for aircraft landing and/or departure operations must be marked accordingly and meet federal design standards. The lead-in taxiway does not meet these standards.

A 650-foot extension is planned for Runway 13-31 and Taxiway A. This will extend the runway to 7,000 feet, the FAA recommended runway length for Hollister Municipal Airport. At 7,000 feet, Runway 13-31 would be able to better serve the business and corporate users of the airport by allowing for greater payloads in the warm summer months.

Shifting and extending Runway 13-31 to the northwest places the Runway 13 Runway Protection Zone (RPZ) out-

side existing airport property. The acquisition of approximately 23 acres of land is needed to protect the RPZ from incompatible development.

The Runway 13-31, Taxiway A, and Runway 13-31 to Taxiway A connecting taxiway pavements are planned to be strengthened to 75,000 dual wheel loading (DWL). The existing pavement strength is estimated at 45,000 DWL. This is insufficient to meet the needs of the larger corporate aircraft operating at the airport. Aircraft weighing more than these planned pavement strength ratings may use the airport on occasion. Prior to their use, an evaluation of the number of annual operations which can be conducted should be determined. The number of operations by heavier aircraft should be closely maintained.

The Runway 6 threshold is planned to be relocated approximately 223 feet west, the maximum extent possible without obstructing the Runway 6 visual approach surface. This allows for an increase in the Runway 6-24 length from 3,150 feet, to 3,373 feet. Obtaining the additional 223 feet of pavement will require remarking a portion of the 750-foot lead-in taxiway behind the Runway 6 end. The remainder of Runway 6 lead-in taxiway and 450-foot lead-in taxiway behind the Runway 24 end will be removed. Similar to the lead-in taxiway behind the Runway 31 end, these lead-in taxiways will be removed and the area behind the runway ends designated for RSA and OFA. These lead-in taxiways are contrary to federal design standards. Any paved surface used for aircraft landing and/or departure operations must be marked accordingly and meet federal design standards. The lead-in taxiways do not meet these standards. The entrance taxiways at each runway end will be realigned perpendicular to each runway end. This is the preferred alignment for entrance taxiways, as it allows pilots to view both the approach and departure areas.

The Runway 6 and Runway 24 RPZs extend beyond existing airport property. The acquisition of approximately six acres of land to the west is planned to protect the Runway 6 RPZ. The acquisition of three acres of avigation easements is planned for the Runway 24 RPZ. The avigation easement allows the existing land within the easement to continue to be owned and controlled by the property owner, while providing the City of Hollister an assurance that this area would not be redeveloped with incompatible land uses.

Taxiways

For an ILS approach at an ARC C-II airport, FAA design standards require a runway centerline to parallel taxiway centerline separation distance of 400 feet. Taxiway A is currently 300 feet from the Runway 13-31 centerline. The airfield plan relocates Taxiway A 100 feet east, to meet these design requirements. The existing Taxiway A surface would be removed and most likely used in the base material for the new taxiway.

A full-length parallel taxiway is planned 400 feet west of Runway 13-31, as required by ARC C-II design

standards. This taxiway will support future landside needs west of Runway 13-31.

A full-length parallel taxiway is planned 240 feet north of Runway 6-24, as required by ARC B-II design standards. This taxiway is intended to support landside activity located north of Runway 6-24. The acquisition of approximately 11 acres of land north of the Runway 24 end is needed to allow for federal and state grant funding of the taxiway. The 11-acre acquisition will also ensure adequate protection of the Federal Aviation Regulation (F.A.R.) Part 77 transitional surfaces for Runway 6-24.

A glider staging area is planned north of Runway 6-24, east of Runway 13-31. Designed in conjunction with the glider operator at the airport, this staging area is planned and designed to allow for the ground handling of glider aircraft off of the active runway.

Exhibit 5A depicts the ultimate taxiway designations, assuming the new parallel taxiways. Holding aprons are planned for the Runway 6, 24, and 13 ends, and west of the Runway 31 end. A bypass taxiway is planned east of the Runway 31 end, since there is not sufficient area between the relocated Taxiway A and aircraft parking apron for a holding apron. Holding aprons and bypass taxiways allow aircraft to prepare for departure off the active taxiway and allow aircraft ready for departure to bypass without waiting on the aircraft preparing for departure.

Instrument Approaches

A precision instrument approach with Category I (CAT I) minimums is planned for the Runway 31 end. At the present time, only the instrument landing system (ILS) provides Category I (CAT I), one-half mile visibility and 200-foot cloud ceiling minimum, capabilities. While the FAA is implementing the Wide Area Augmentation System (WAAS) to enhance the standard global positioning system (GPS) signal for both vertical and lateral navigational approach capabilities, the current capabilities of the WAAS do not allow for CAT I approach minimums. Current lateral/vertical navigation (LNAV) approaches typically have a 400-foot cloud ceiling and 1.5 statute-mile visibility minimum. GPS approaches with CAT I standards are not envisioned until after 2015. A GPS LNAV approach is planned for the Runway 13 end. Since CAT I approach capability is planned for Runway 31 end, lower approach minimums are not needed on Runway 31.

Two rows of T-hangars and a conventional hangar located along the east side of the main apron obstruct the Runway 13-31 precision instrument approach transitional surface. The T-hangars are shown for removal and replacement in the west T-hangar area. The conventional hangar is planned to be removed and ultimately replaced with a new facility that does not obstruct the FAR Part 77 transitional surface.

The RPZ for the Runway 31 instrument approach will extend over the existing CDF facilities. Once the CDF facilities are relocated west of Runway 13-31, the existing CDF facilities should be removed and this area not redeveloped, except outside the limits of the RPZ.

The existing visual approaches to Runways 6 and 24 are retained, with no plans for instrument approaches to Runway 6-24. Instrument approaches would require a 34:1 approach surface, compared with the existing 20:1 approach surface. A 34:1 approach surface cannot be obtained on Runway 6-24 without further shortening the runway to clear San Felipe Road and terrain to the west.

The existing T-hangars and executive hangars south of the Runway 24 end and the Gavilan College hangar obstruct the Runway 6-24 transitional surface. The former Army National Guard Armory is expected to obstruct this surface as well. While the Army National Guard Armory is proposed to be acquired and removed, the T-hangars, executive hangars, and Gavilan College hangar are expected to remain. The FAA will need to perform further analysis to determine if these buildings require obstruction lighting. Once these buildings have reached the end of their useful life, they should be removed and not replaced.

Lighting Aids and Markings

The airfield plan includes the installation of a Medium Intensity Approach Lighting System with Runway Alignment Indicator Lights (MALSR) at the Runway 31 end. The MALSR will be required to achieve CAT I standards on the ILS approach. The ILS to Runway 31 will require the replacement of the existing Runway 13-31 Medium Intensity Runway Lighting (MIRL) with High Intensity Runway Lighting (HIRL).

Runway End Identifier Lights (REILs) are planned for the Runway 13, Runway 6, and Runway 24 ends. REILs aid in the identification of the runway end at night and during low visibility conditions. A Precision Approach Path Indicator (PAPI) is planned for each runway end. A PAPI-4 is planned for each runway end. The PAPI-4 is designed for large aircraft use. The PAPI-4 will replace any existing approach surface lighting. Medium Intensity Taxiway Lighting (MITL) is planned for all existing and future taxiways.

Precision runway markings are planned for Runway 31. Nonprecision markings are planned for Runway 13. Visual markings are planned for Runway 6-24.

Other Facilities

The Automated Weather Observation System (AWOS) is retained west of Runway 13-31, north of Runway 6-24; however, the AWOS is ultimately planned to be relocated. While the AWOS is being installed in 2004, it will need to be relocated prior to developing the west parallel taxiway. The City does not currently own the

property where the AWOS must ultimately be located. An AWOS provides automated weather observations and reporting.

The segmented circle and lighted wind cone will ultimately need to be relocated for the development of the north parallel taxiway and to meet ARC C-II RSA and OFA design standards. The segmented circle and lighted wind cone are planned to be relocated near the ultimate AWOS location.

A service road is planned to extend between the existing aircraft parking apron/terminal area to the west T-hangar area. This roadway is intended to extend around the airfield operations area and provide a year-round roadway for use by airport maintenance, security, aircraft refueling vehicles, and firefighting vehicles. This enhances airfield safety by allowing for airport vehicles to access portions of the airport without crossing active runways and taxiways.

LANDSIDE PLAN

The landside plan for Hollister Municipal Airport has been devised to safely, securely, and efficiently accommodate potential aviation demand. The landside plan provides for the development of new commercial general aviation facilities, aircraft storage facilities, expanded fuel storage, and helicopter parking areas.

The landside plan continues to provide for access to the airfield from areas outside airport property, as envisioned in the *Hollister Airport Area Development Plan*. Chapter 13.28, *Hollister Municipal Airport Access Permits*, of the City of Hollister Code grants access rights to the airport from properties located adjacent to the airport through the granting of an access permit. The Planning Advisory Committee (PAC) has suggested that Chapter 13.28 be amended to allow the uses proposed by the Air Park Business Center and Hollister Airport Terminal Business Park. The proposed Hollister Airport Terminal and Business Park is located northeast of the Runway 13-31/Runway 6-24 intersection, off existing airport property. This area is planned for a variety of general aviation businesses, aircraft storage hangars, terminal facilities, and a museum. This area will have access to the airfield via the future parallel taxiway north of Runway 6-24 and relocated Taxiway A.

The Airpark Business Center is located off airport along the southwest airport boundary. Access to the airfield will be via a diagonal taxiway developed along the airport's southwestern boundary and a taxiway extending to the south parallel with Runway 13-31. While the latter taxiway is located on airport property, it may not be eligible for federal or state funding assistance since it serves users located outside the airport boundary. The diagonal taxiway is assumed to be eligible since it also serves the west T-hangar area. The remaining apron and taxiway development outside the existing airport boundary will not be eligible for federal or state funding assistance.

With the exception of future T-hangar facilities, most structural improve-

ments at Hollister Municipal Airport are anticipated to be developed privately, as has been done historically in the past. The capital improvement program (Chapter Six) identifies the infrastructure improvements needed at the airport to support development, and the federal and state funding assistance available to City of Hollister to make those improvements.

Several areas of the airport are planned for future hangar development. Within the existing terminal area, hangar development is planned along the eastern edge of the aircraft parking apron. Hangar development is proposed for an undeveloped parcel near Gavilan College. Corporate hangar or fixed based operator (FBO) hangars could be developed in this area. Corporate aviation facilities are characterized by co-located hangar and office complexes for corporate-owned aircraft storage, maintenance, and administration. Fixed based operators (FBO) are providers of commercial general aviation services such as aircraft maintenance. An additional aircraft storage hangar location is available through the redevelopment of the southern-most conventional hangar location near the T-hangars. The existing hangar is planned to be replaced with a new hangar that does not obstruct the precision instrument approach transitional surface.

Individual hangar parcels for aircraft storage hangar development only are designated for the area south of Airport Drive, currently occupied by a series of 1940 vintage office and hangar facilities. This area is only viable for aircraft storage hangar development due to its limited airfield access and taxiways which can only support smaller aircraft within ADG I (wingspans less than 49 feet).

The area east of Skylane Drive is redeveloped for corporate aviation facilities. Armory Drive, Mars Drive, Astro Drive, and Mercury Drive would all eventually be closed in favor of establishing the development parcels. All existing 1940's vintage office buildings would be removed. Only Skylane Drive and Airport Drive would be retained to maintain existing public access routes to the hangar facilities along the main apron. A new interior access road along the eastern airport boundary would provide access to the Elk Lodge and other corporate aviation parcels east of the access taxiway. Access to the airfield would be developed from Taxiway B.

Individual hangar parcels and expansion of the west T-hangars is retained in the area south of Runway 6-24, west of Runway 13-31. Eight individual hangar parcels and an additional 90 T-hangars could be developed in this area. Corporate and/or FBO hangars cannot be developed in this area as the planned taxilanes can only support smaller aircraft within ADG I. An area north of the Runway 6 end could support an additional 90 T-hangars. The area east of Runway 13-31 could support an additional 90 T-hangars.

A final area for corporate hangar development is reserved for the area east of the Runway 13 end. Ten development parcels are shown. These could support a variety of FBO and/or corporate uses. A future apron with area

for FBO development is reserved west of Runway 13-31, along the future west parallel taxiway.

As a result of upgrading Runway 31 with a CAT I precision instrument approach, approximately 100 feet of the west portion of the main apron would be lost, including two existing rows of aircraft tiedowns. This is the result of the ARC C-II aircraft parking limit standard and FAR Part 77 primary surface object clearing standards. Most of the CDF facility aircraft parking area would be lost for the same reasons.

A helicopter hardstand is planned on the north side of the existing aircraft parking apron. The hardstand will provide a segregated area for helicopter operations. In contrast to a helipad, the hardstand can only be approached by a hover taxi. A hardstand cannot be used for takeoff and landing. With the hardstand, helicopters must approach to a runway or taxiway surface prior to parking at the hardstand. A helipad is planned west of Runway 13-31, along a future apron area.

An area for the development of an airport maintenance facility and aboveground fuel storage area is reserved along San Felipe Road, south of the existing T-hangars. Once the CDF facilities are moved west of Runway 13-31, this area could be redeveloped for this purpose. Since the Runway 31 RPZ would extend across most of this area, this area is not readily available for hangar development.

NOISE EXPOSURE ANALYSIS

Aircraft sound emissions are often the most noticeable environmental effect an airport will produce on the surrounding community. If the sound is sufficiently loud or frequent in occurrence, it may interfere with various activities or otherwise be considered objectionable.

To determine the noise-related impacts that the proposed development could have on the environment surrounding Hollister Municipal Airport, noise exposure patterns were analyzed for both existing airport activity conditions and projected long-term activity conditions.

The Community Noise Exposure Level (CNEL) was used in this study to assess aircraft noise. CNEL is defined as the average A-weighted sound level as measured in decibels (dB), during a 24-hour period. A 5dB penalty applies to noise events occurring in the evening (7:00 p.m. to 10:00 p.m.), while a 10 dB penalty applies to noise events occurring at night (10:00 p.m. to 7:00 a.m.). CNEL is a summation metric which allows objective analysis and can describe noise exposure comprehensively over a large area. The 65 CNEL contour has been established as the threshold of incompatibility, meaning that noise levels below 65 CNEL are considered compatible with underlying land uses.

Since noise decreases at a constant rate in all directions from a source,

points of equal CNEL noise levels are routinely indicated by means of a contour line. The various contour lines are then superimposed on a map of the airport and its environs. It is important to recognize that a line drawn on a map does not imply that a particular noise condition exists on one side of the line and not on the other. CNEL calculations do not precisely define noise impacts. Nevertheless, CNEL contours can be used to: (1) highlight existing or potential incompatibilities between and airport and any surrounding development; (2) assess relative exposure levels; (3) assist in the preparation of airport environs land use plans; and (4) provide guidance in the development of land use control devices, such as zoning ordinances, subdivision regulations and building codes.

The noise contours for Hollister Municipal Airport have been developed from the Integrated Noise Model (INM), Version 6.1. The INM was developed by the Transportation Systems Center of the U.S. Department of Transportation at Cambridge, Massachusetts, and has been specified by the FAA as one of the two models acceptable for federally-funded noise analysis.

The INM is a computer model which accounts for each aircraft along flight tracks during an average 24-hour period. These flight tracks are coupled with separate tables contained in the database of the INM which relate to noise, distances, and engine thrust for each make and model of aircraft type selected.

Computer input files for the noise analysis assumed implementation of the proposed airfield plan. The input files contain operational data, runway utilization, aircraft flight tracks, and fleet mix as projected in the plan. **Table 5B** summarizes runway use percentages used in the noise analysis. These percentages were derived from discussions with airport staff.

TABLE 5B
Noise Model Input: Runway Use Percentages

Aircraft	13	31	6	24
Single Engine Piston	5.00%	45.00%	5.00%	45.00%
Multi-Engine Piston	5.00%	45.00%	5.00%	45.00%
Turboprop	5.00%	45.00%	5.00%	45.00%
Light/Medium Turbojet	5.00%	45.00%	5.00%	45.00%
Large Turbojet	5.00%	95.00%	0.00%	0.00%

Source: Coffman Associates Analysis

Table 5C summarizes the mix of aircraft and their operations used in the noise modeling. This mix was derived from examining transient aircraft records maintained by the FAA, and information derived from airport staff.

TABLE 5C
Noise Model Input: Aircraft Operations

Operations By Type	Single Engine	Multi-Engine	Turboprop	Turbojet	Helicopter	Totals
Existing Conditions						
Local	19,482	3,438	0	0	0	22,920
Itinerant	30,655	3,213	70	270	172	34,380
Total	50,137	6,651	70	270	172	57,300
Long Term						
Local	44,064	7,776	0	0	0	51,840
Itinerant	68,218	6,043	1,555	1,555	389	77,760
Total	112,282	13,819	1,555	1,555	389	129,600

Source: Coffman Associates Analysis

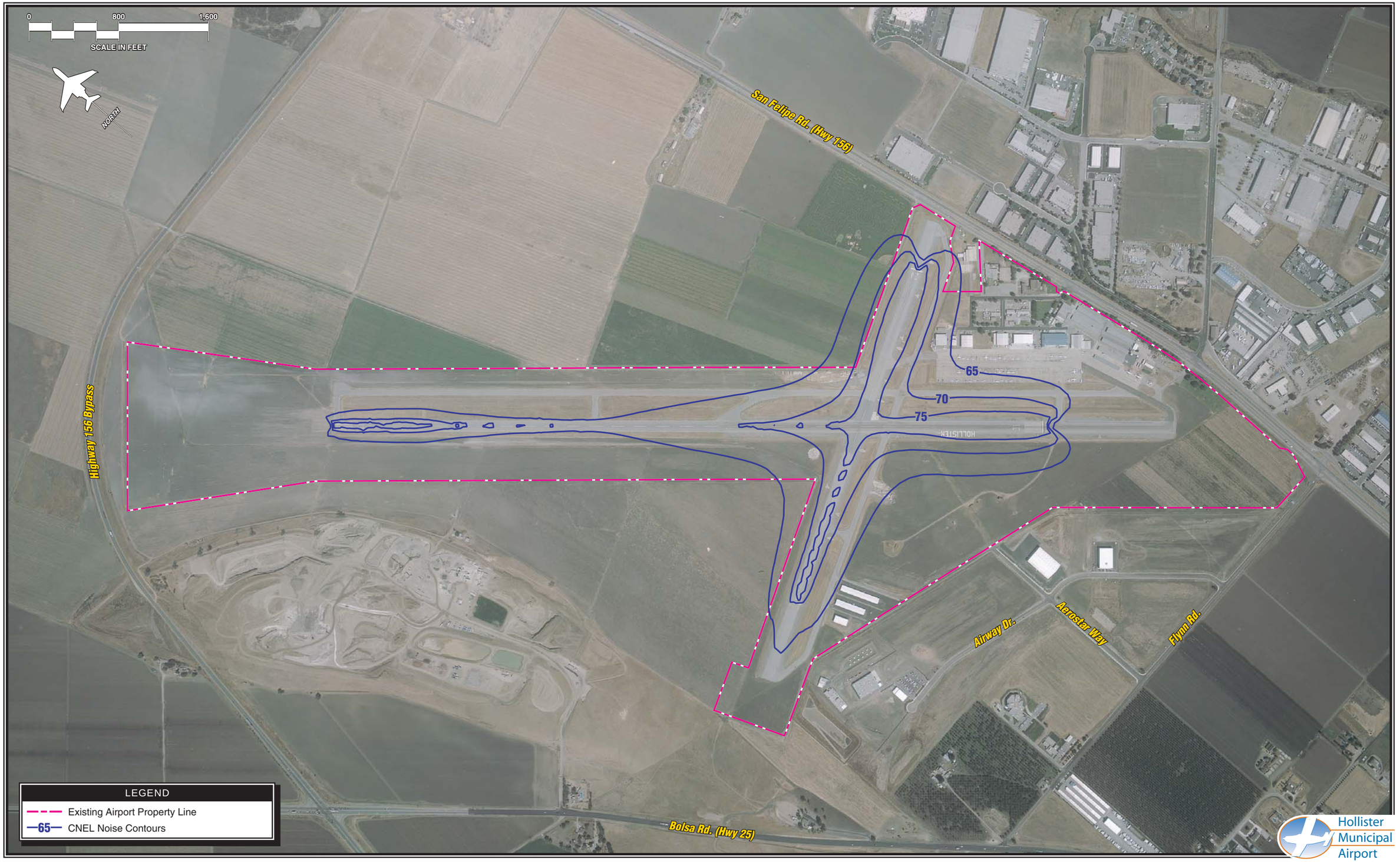
The aircraft noise contours generated using the aforementioned data for Hollister Municipal Airport are depicted on **Exhibit 5B,** Existing Noise Exposure, and **Exhibit 5C,** Projected Long Term Noise Exposure. For existing activity levels, the 65 CNEL noise contour remains almost entirely within the existing airport property line, or over undeveloped land. When considering long term forecast activity at the airport, a portion of the Long Term 65 CNEL contour extends beyond the western airport boundary; however, this land area is planned for compatible uses.

ENVIRONMENTAL EVALUATION

The protection and preservation of the local environment are essential concerns in the Master Planning process. Now that a program for the use and development of Hollister Municipal Airport has been finalized, it is necessary to review environmental issues to ensure that the program can be implemented in compliance with applicable environmental regulations, standards, and guidelines.

Once the airport begins receiving federal funding, improvements planned for Hollister Municipal Airport will require compliance with the *National Environmental Policy ACT (NEPA) of 1969,* as amended. Many of the improvements will be categorically excluded and will not require further NEPA documentation; however, some improvements may require further NEPA analysis and documentation. As detailed in *FAA Order 5050.4A, Airport Environmental Handbook,* compliance with NEPA is generally satisfied with the preparation of an Environmental Assessment (EA). In cases where a categorical exclusion is issued, environmental issues such as

01MP12-5B-12/19/03



Hollister Municipal Airport

Exhibit 5B
EXISTING NOISE EXPOSURE CONTOURS

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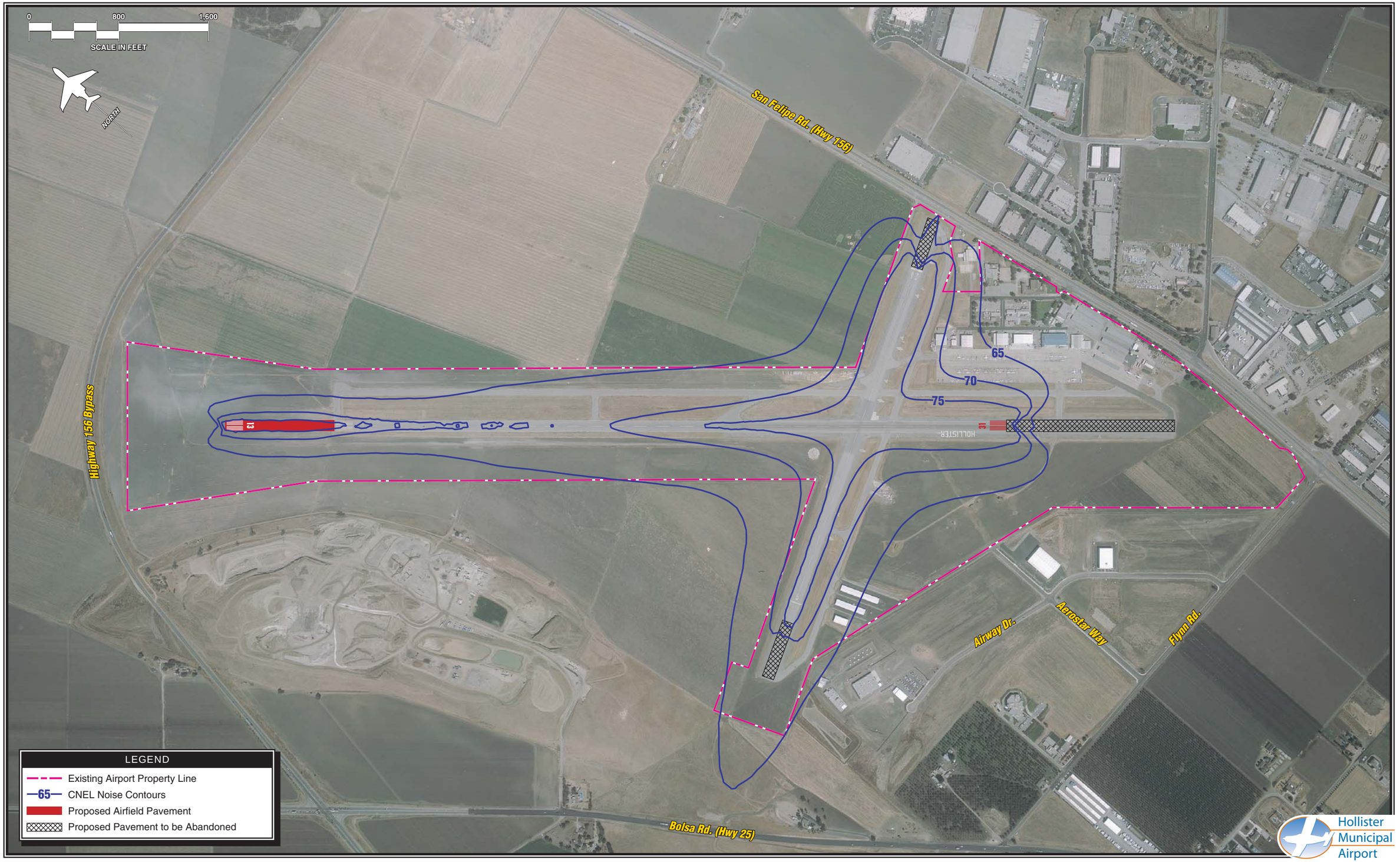

Hollister Municipal Airport

Exhibit 5C
PROJECTED LONG TERM NOISE EXPOSURE CONTOURS

wetlands, threatened or endangered species, and cultural resources are further evaluated during the federal, state, and/or local permitting processes. This Master Plan and any major improvements will also be subject to the requirements of the *California Environmental Quality Act* (CEQA). As many CEQA requirements are similar to those addressed within NEPA, impacts can be expected to be similar for both.

Several factors are considered in a formal environmental document such as an EA or an EIS, which are not included in an environmental evaluation. These factors include details regarding the project location, historical perspective, existing conditions at the airport, and the purpose and need for the project. This information is available within the Master Plan document. A formal environmental document also includes the resolution of issues/impacts identified as significant during the environmental process.

This section is intended to supply a preliminary review of environmental issues that would need to be analyzed in more detail within the NEPA or the permitting process. Consequently, this environmental evaluation only identifies potential environmental issues and *does not* address mitigation or the resolution of environmental impacts. Each of the specific impacts categories outlined in *FAA Order 5050.4A* are addressed. The following provides a discussion of each environmental resource category outlined in *FAA Order 5050.4A*.

An Environmental Impact Report (EIR) was prepared in 1999, in conformance with CEQA, for the proposed Hollister Airport Terminal Business Park. The 1999 EIR provided information for various sections of this evaluation and is referenced within those sections.

COMPATIBLE LAND USE

Federal Aviation Regulation (F.A.R) Part 150 recommends guidelines for planning land use compatibility within various levels of aircraft noise exposure. As the name indicates, these are guidelines only. F.A.R. Part 150 explicitly states that determination of noise compatibility and the regulation of land use are purely local responsibilities. In addition, *Advisory Circular 150/5200-33* identifies land uses that are incompatible with safe airport operations because of their propensity for attracting birds or other wildlife, which in turn results in an increased risk of aircraft strikes and damage. Finally, F.A.R. Part 77 regulates the height of structures within the vicinity of the airport.

Currently the airport does not have an identified problem with wildlife strikes, and the proposed improvements will not provide any new wildlife attractants; therefore, an increased risk of aircraft strikes is not anticipated. Development of the proposed airport improvements will not result in the introduction of any new obstructions to the F.A.R. Part 77 surfaces. Existing buildings that obstruct the FAR Part 77 surfaces will require further evaluation from the FAA. As discussed above, the existing projected

Long Term noise contours do not impact any incompatible land uses.

SOCIAL IMPACTS

These impacts are often associated with the relocation of residents or businesses or other community disruptions. Implementation of proposed projects within the Master Plan will require acquisition of approximately 193 acres of prime and unique farmland. According to the Hollister General Plan, the land to the west of the airfield is already planned for light industrial land use; therefore, the land is not protected by *Farmland Protection Policy Act (FPPA)*. To the northwest, the land proposed to be acquired is planned for agricultural land use. Acquisition of this prime farmland will not directly convert farmland to nonagricultural use. This area will be utilized as a runway protection zone (RPZ) and will not be developed; therefore, the land use will not be changed. Coordination with the United States Department of Agriculture (USDA) may be required for further compliance.

Compliance with the *Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970* (URAUPAPA) will be required. *FAA Order 50.50.4A* provides that where the relocation or purchase of a residence, business, or farmland is involved, the provisions of the URARPAPA must be met. The Act requires that landowners, whose property is to be purchased, be compensated fair market value for their property.

The proposed development and associated land acquisition are not anticipated to divide or disrupt an established community, interfere with orderly planned development, or create a short-term, appreciable change in employment.

INDUCED SOCIOECONOMIC IMPACTS

These impacts address those secondary impacts to surrounding communities resulting from the proposed development, including shifts in patterns of population growth, public service demands, and changes in business and economic activity to the extent influenced by the airport development.

Significant shifts in patterns of population movement or growth, or public service demands are not anticipated as a result of the proposed development. It could be expected, however, that the proposed development would potentially induce positive socioeconomic impacts for the community over a period of years. The airport, with expanded facilities and services, would be expected to attract additional users. It is also expected to encourage tourism, industry and trade, and to enhance the future growth and expansion of the community's economic base. Future socioeconomic impacts resulting from the proposed development would be primarily positive in nature.

AIR QUALITY

The U.S. Environmental Protection Agency (EPA) has adopted air quality standards that specify the maximum permissible short-term and long-term concentrations of various air contaminants. The National Ambient Air Quality Standards (NAAQS) consist of primary and secondary standards for six criteria pollutants which include: Ozone (O3), Carbon Monoxide (CO), Sulfur Dioxide (SO2), Nitrogen Oxide (NO), Particulate matter (PM10), and Lead (Pb). Various levels of review apply within both NEPA and permitting requirements. For example, an air quality analysis is typically required during the preparation of a NEPA document if enplanement levels exceed 3.2 million enplanements or general aviation operations exceed 180,000.

Hollister Airport is located in San Benito County, which currently meets federally-mandated air quality standards of attainment for all criteria pollutants. However, San Benito County does not meet standards set forth by the California Clean Air Act (CCAA). According to an environmental impact report (EIR) completed in 1999 for the proposed Hollister Airport Business Park, San Benito County is in non-attainment (CCAA) for O_3. As outlined within *1050.1D, Policies and Procedures for Considering Environmental Impacts*, state and local air quality requirements must be considered. Section 176c of the CAA, as amended, requires that federal actions conform to the appropriate Federal or State air quality plans.

Further coordination with the Monterey Bay Unified Air Pollution Control District and the California Air Resource Board is suggested to determine conformity with CCAA.

Air quality impacts during construction of airport improvements are anticipated to be less-than-significant with the use of best management practices (BMPs).

WATER QUALITY

Water quality concerns associated with airport expansion most often relate to domestic sewage disposal, increased surface runoff and soil erosion, and the storage and handling of fuel, petroleum, solvents, etc.

Construction of the proposed improvements will result in an increase in impermeable surfaces and a resulting increase in surface runoff. During the construction phase, the proposed development may result in short-term impacts on water quality. Temporary measures to control water pollution, soil erosion, and siltation through the use of best management practices (BMPs) should be used.

The airport will need to comply with current National Pollution Discharge Elimination System (NPDES) operations permit requirements. With regard to construction activities, the airport and all applicable contractors will need to obtain and comply with the requirements and procedures of the construction-related NPDES General Permit, including the preparation

of a *Notice of Intent* and a *Stormwater Pollution Prevention Plan*, prior to the initiation of product construction activities.

SECTION 4(f) LANDS

These include publicly-owned land from a public park, recreation area, or wildlife and waterfowl refuge of national, state, or local significance, or any land from a historic site of national, state, or local significance. The proposed development will not require the use of Section 4(f) lands.

HISTORICAL AND CULTURAL RESOURCES

As discussed in Chapter One of this Master Plan, Hollister Municipal Airport was once a Navy Air Auxiliary Station (N.A.A.S. Hollister), in operation from 1941 until 1946. Within this time, various structures were built to support the operation of the base. Today, some of these buildings are still standing and are used for a variety of aviation-related nonaviation-related purposes. These buildings are showing significant deterioration and a recent building assessment determined they would need significant maintenance in order to restore them to good condition. A review of the National Register of Historic Places did not identify any historic buildings on airport property that would be affected by the proposed airport improvements.

These buildings do meet the age requirement criteria for listing within the National Register of Historic Places; however, other criteria, such as a significance in American history, have not been determined. Further coordination with the State Historic Preservation Office may be needed to determine whether a historical buildings survey is required.

The relocation of existing roads to the northeast and the construction of parallel taxiways will disturb previously undisturbed land; therefore, coordination with the State Historic Preservation Officer may be required to determine the possible need of a cultural resource survey.

THREATENED OR ENDANGERED SPECIES AND BIOLOGICAL RESOURCES

An Environmental Impact Report (EIR) was completed for the Hollister Airport Terminal Business Park in September of 1999. Within this EIR, a review of the *California Natural Diversity Data Base* (CNDDB) was conducted and a survey was completed to determine the presence of Federal or State listed threatened or endangered species, or their habitat. Species of special concern were also reviewed, as impacts to these species may be considered significant under the California Environmental Quality Act (CEQA).

Many Federal and State species with special status were either identified in the area, are known to live in the area, or have habitat in the area. **Table 5D** depicts these species.

TABLE 5D
Special Status Species with Habitat in the Vicinity

Species	Status	Potential for Occurrence
San Joaquin Kit Fox (*Vulpes macrotis mutica)*	Federally listed endangered, California listed threatened	Possible, project site within known range
California Tiger Salamander (*Ambystoma californiense)*	California species of special concern	No
Western Spadefoot Toad (*Scaphiopus hammondii*)	California species of special concern	No
California Red-Legged Frog (*Rana aurora draytonii)*	Federally listed endangered, California species of special concern	No
Southwestern Pond Turtle (*Clemmys marmorata pallida*)	California species of special concern	No
San Joaquin Whipsnake (*Masticophis flagellum)*	California species of special concern	Possible
Northern Harrier (*Circus cyaneus)*	California species of special concern	Observed, no nesting habitat on the site
Ferruginous Hawk (*Buteo regalis)*	California species of special concern	Observed, winter foraging habitat present
Golden Eagle (*Aquila chrysaetos)*	California species of special concern, California fully protected species	Observed, no nesting habitat on the site
Merlin (*Falco columbianus)*	California species of special concern	Observed, winter foraging habitat present
Prairie Falcon (*Falco mexicanus)*	California species of special concern	Possible, foraging habitat present; no nesting habitat on site
Burrowing Owl (*Athene cunicularia)*	California species of special concern	Possible, California ground squirrels present
California Horned Lark (*Eremophila alpestris actia)*	California species of special concern	Possible, foraging habitat present; nesting habitat not expected
Loggerhead Shrike (*Lanius ludovicianus)*	California species of special concern	Observed, no nesting habitat on the site

Source: Hollister Airport Business Park Draft EIR, September, 1999

According to the biological study, the results of which are outlined in the previous table, the kit fox is the only species that would require further surveys to be completed in order to determine if this species does indeed, occur in this area. A full protocol-level survey was conducted between October 19 and November 4, 1998, per the request of the U.S. Fish and Wildlife Service (USFWS), to determine the status of the kit fox at the proposed business park site. There was no kit fox observed during the protocol-level surveys.

Further consultation with the USFWS may be required to determine the validity of the previous survey. In addition, coordination with the California Fish and Wildlife Service may be required to determine if further information is required regarding the state species of special concern.

WATERS OF THE U.S. INCLUDING WETLANDS

There are no wetlands or waters of the U.S. located in the project area; therefore, no impacts are anticipated.

FLOODPLAINS

According to the Federal Emergency Management Agency (FEMA) flood insurance rate maps, (FIRM) Hollister Municipal Airport is not located within a floodplain.

WILD AND SCENIC RIVERS

According to the National Park Service's list of Wild and Scenic Rivers, there are no wild or scenic rivers located within the vicinity of the proposed development.

FARMLAND

The *Farmland Protection Policy Act (FPPA)* authorizes the Department of Agriculture to develop criteria for identifying the effects of federal programs on the conversion of farmland to nonagricultural uses. Farmland protected by the FPPA is classified as either unique farmland, prime farmland (which is not already committed to urban development or water storage), or farmland which is of state or local importance (as determined by the appropriate government agency and the Secretary of Agriculture).

Direct impacts to farmland are those which permanently remove the property from even the potential for agriculture production. Direct impacts are primarily considered to occur in those areas not being directly converted, but which would no longer be capable of being farmed because access would be restricted.

According to the Natural Resource Conservation Service (NRCS), the majority of the soil surrounding the airport qualifies as prime or unique farmland under the Farmland Protection

Policy Act (FPPA). As discussed previously within the social impacts category, the proposed acquisition area to the west of the airfield is already planned for light industrial use; therefore, the land is not protected by FPPA. To the northwest, the land proposed to be acquired is planned for agricultural use; however, the acquisition of this land will not directly convert prime farmland to nonagricultural use. This area will be utilized as a runway protection zone (RPZ) and will not be developed; therefore, the land use will not be changed. Coordination with the United States Department of Agriculture (USDA) may be required to determine if further compliance with FPPA is required.

ENERGY SUPPLY AND NATURAL RESOURCES

An increase in energy demand is anticipated as a result of the proposed development; however, this increase is not expected to be large enough to have a dramatic affect on existing energy production facilities or energy resource supplies.

LIGHT EMISSIONS

A variety of lighting aids are available at Hollister Municipal Airport to facilitate airport identification, approaches, and landings, both at night and during adverse weather conditions. A rotating beacon (flashing green and white lights) identifies the location of the airport at night. The airport is also equipped with a lighted wind cone, in combination with a segmented circle. Both runways have medium intensity runway lighting (MIRL). Runway 24 is equipped with visual approach slope indicators (VASIs) and runway end identifier lights (REILs). Runway 13 is equipped with precision approach path indicators (PAPIs) and runway end identifier lights (REILs). Runway 31 is equipped with precision approach path indicators (PAPIs) and runway end identifier lights (REILs).

Implementation of the proposed project would require the installation of additional lighting for the new taxiways and additional/extended lighting for the runway extension project. Additional lighting will also be installed at the proposed T-hangers sites and the CDF Air Attack Base. The impact of the additional lighting is not anticipated to be significant, as the area surrounding the airport is used for agriculture and industrial uses.

SOLID WASTE

Increases in the amount of solid waste generated by the airport are expected as a result of the proposed development and overall growth in the aviation industry. These increases are not expected to place an undue burden on the existing landfill that accepts airport waste.

SUMMARY

The Master Plan for Hollister Municipal Airport has been developed in co-

operation with the Planning Advisory Committee, interested citizens, and City of Hollister. It is designed to assist the City in making decisions relative to the future use of Hollister Municipal Airport as it is maintained to meet the air transportation needs for the region.

Flexibility will be a key to the plan since activity may not occur exactly as forecast. The Master Plan provides the City of Hollister with options to pursue in marketing the assets of the airport for community development. Following the general recommendations of the plan, the airport can maintain it's viability and continue to provide air transportation services to the region.

Chapter Six

CAPITAL IMPROVEMENT PROGRAM

Hollister Municipal Airport

The analyses conducted in the previous chapters evaluated airport development needs based upon safety, security, potential aviation activity, and operational efficiency. Through this analysis, a plan for the use and development of the airport was defined. The purpose of this chapter is to identify the projects to implement the proposed plan for the use and development of Hollister Municipal Airport and those capital needs required to maintain the airport in a safe and environmentally acceptable manner.

The presentation of the financial plan and its feasibility has been organized into two sections. First, the airport's capital needs are presented in narrative and graphic form. Secondly, funding sources on the federal, state, and local levels are identified and discussed.

DEMAND-BASED PLAN

The Master Plan for Hollister Municipal Airport has been developed according to a demand-based schedule. Demand-based planning refers to the intention to develop planning guidelines for the airport, based upon airport activity levels, instead of guidelines based on points in time. By doing so, the levels of activity derived from the demand forecasts can be related to the actual capital investments needed to safely and efficiently accommodate the level of demand being experienced at the airport. More specifically, the intention of this Master

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Plan is that the facility improvements needed to serve new levels of demand should only be implemented when the levels of demand experienced at the airport justify their implementation.

For example, the aviation demand forecasts projected that based aircraft could be expected to grow through the year 2025. This forecast was supported by the local community's growing economy, and population and historical trends showing growing based aircraft levels.

The forecasts noted, however, that future based aircraft levels will be dependent upon a number of economic factors. These factors could slow or accelerate based aircraft levels differently than projected in the aviation demand forecasts. Since changes in these factors cannot be realistically predicted for the entire forecast period, it is difficult to predict with the level of accuracy needed to justify a capital investment, exactly when an improvement will be needed to satisfy demand level.

For these reasons, the Hollister Municipal Airport Master Plan has been developed as a demand-based plan. The Master Plan projects various activity levels for short, intermediate, and long term planning horizons. When activity levels begin to reach or exceed the level of one of the planning horizons, the Master Plan suggests planning begin to consider the next planning horizon level of demand. This provides a level of flexibility in the Master Plan, as the development program can be accelerated or slowed to meet demand. This can extend the time between Master Plan updates.

A demand-based Master Plan does not specifically require implementation of any of the demand-based improvements. Instead, it is envisioned that implementation of any Master Plan improvement would be examined against demand levels prior to implementation. In many ways, this Master Plan is similar to a community's general plan. The Master Plan establishes a plan for the use of the airport facilities, consistent with potential aviation needs and the capital needs required to support that use. However, individual projects in the plan are not implemented until the need is demonstrated and the project is approved by the City of Hollister.

CAPITAL NEEDS AND COST SUMMARIES

Once the specific needs for the airport have been established, the next step is to determine a realistic schedule and costs for implementing each project. The capital needs presented in this chapter outline the costs and timing for implementation. The program outlined on the following pages has been evaluated from a variety of perspectives and represents the culmination of a comparative analysis of basic budget factors, demand, and priority assignments.

Each year, the City of Hollister will need to reexamine the priorities for funding in the short-term period, adding or removing projects on the capital programming lists. **Table 6A** summarizes the key activity milestones for each planning horizon.

TABLE 6A
Planning Horizon Activity Levels

	2002	Short Term	Intermediate Term	Long Term
Based Aircraft	195	240	285	380
Annual Operations	57,300	74,400	91,200	129,600

Exhibit 6A summarizes capital needs for Hollister Municipal Airport through the planning period of this Master Plan. An estimate of federal and state funding eligibility has been included with each project, although none of those amounts are guaranteed.

Individual project cost estimates account for engineering and other contingencies that may be experienced during implementation of the project, and are in current (2003) dollars. Due to the conceptual nature of a Master Plan, implementation of capital improvement projects should occur only after further refinement of their design and costs through engineering and/or architectural analyses. Capital costs in this chapter should be viewed only as estimates subject to further refinement during design. Nevertheless, these estimates are considered sufficient for performing the feasibility analyses in this chapter.

The capital needs for the airport can be categorized as follows:

1) **Maintenance -** Maintaining the existing infrastructure is a priority. The capital needs program provides for the continued maintenance and rehabilitation of the airport's pavement areas.

2) **Safety and Security -** Of utmost importance with any transportation facility is safety and security. All projects in the plan are designed according to Federal Aviation Administration (FAA) design standards. This is carried throughout the other areas of focus. The safety needs in the capital needs program are considered necessary for the operational safety and protection of aircraft and/or people and property on the ground near the airport.

3) **Efficiency** - These are capital needs intended to improve aircraft ground and/or flight operations.

4) **Demand** – The master plan has established future activity levels for the airport. Should these activity levels be reached, it may be necessary to improve existing facilities to safely, efficiently, and securely accommodate the new activity levels. Therefore, the capital needs program includes provisions to accommodate levels of aviation demand. The implementation of these projects should only occur when demand for these needs are verified.

Each capital need is categorized using one of the four categories. Some projects have been identified to cover more than one category. The first category is considered the primary reason for completing the project. The applicable category (or categories) is included in parentheses within the description of the capital project. **Table 6B** summarizes capital needs by category.

TABLE 6B
Capital Needs by Category

Category	Short Term	Intermediate Term	Long Term	Total
Maintenance	$3,041,000	$904,000	$1,000,000	**$4,945,000**
Safety/Security	9,788,350	4,141,400	0	**13,929,750**
Efficiency	114,000	2,126,000	3,087,000	**5,327,000**
Demand	661,050	3,170,000	13,897,800	**17,728,500**
Total	**$13,604,400**	**$10,341,400**	**$17,984,800**	**$41,930,600**

SHORT TERM CAPITAL NEEDS

The Short Term Planning Horizon is the only planning horizon correlated to time. This is because development within this initial period is concentrated on the most immediate needs of the airfield and landside areas. Therefore, the program is presented year-by-year from Federal Fiscal Years (FFY) 2004 to 2009, to assist in capital planning, not only locally, but at the state and federal levels. Short term capital needs presented on **Exhibit 6A** are estimated at $15.6 million. Assuming full federal and state funding, the City of Hollister's share of these improvements is approximately $92,148, or approximately $15,358 per year over the six years contained in the Short Term Planning Horizon.

Projects included in the Short Term Planning Horizon focus on maintaining existing airport pavements, upgrading airfield lighting, and supporting existing and projected aviation demand. A summary of the projects included in the Short Term Planning Horizon, by category, is presented below.

Maintenance Projects: There are $3.041 million in maintenance projects in the Short Term Planning Horizon. This includes storm water handling system improvements (2004 and 2005), overlaying Runway 13-31 (2005), sealing and restriping Runway 6-24 (2005), sealing and restriping the main taxiways (2004) at the airport, and preparing a Pavement Maintenance Program.

Safety and Security Projects: Safety and security projects programmed for the Short Term Planning Horizon total $9.788 million and represent the largest category of projects proposed for the next five years. A project to add security fencing and access gates is programmed for 2004. This project is intended to add fencing, especially around

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No.	Description	Total Cost	Federally Eligible	State Eligible	Local Share
SHORT TERM PLANNING HORIZON					
2004					
1.	Install Security Gates/Perimeter Fencing *(Security/Safety)*	$ 250,000	$ 237,500	$ 6,250	$ 6,250
2.	Facility Storm Water Handling System (Phase 1) - Design *(Maintenance)*	300,000	285,000	7,500	7,500
3.	Install Standby Power System *(Safety/Security)*	390,000	370,500	9,750	9,750
4.	Seal/Restripe Main Taxiways *(Maintenance)*	433,000	411,350	10,825	10,825
5.	Convert Runway Edge Lighting for Glider Operations *(Safety/Efficiency)*	15,000	14,250	375	375
6.	Construct Helicopter Hardstand *(Safety)*	22,000	20,900	550	550
Subtotal 2004		**$ 1,410,000**	**$ 1,339,500**	**$ 35,250**	**$ 35,250**
2005					
1.	Facility Storm Water Handling System (Phase II) - Construction *(Maintenance)*	$ 1,200,000	$ 1,140,000	$ 30,000	$ 30,000
2.	Seal/Restripe Runway 6-24 *(Maintenance)*	386,000	366,700	9,650	9,650
3.	Overlay Runway 13-31 *(Maintenance)*	657,000	624,150	16,425	16,425
4.	Install Taxiway Lighting *(Safety)*	195,000	185,250	4,875	4,875
Subtotal 2005		**$ 2,438,000**	**$ 2,316,100**	**$ 60,950**	**$ 60,950**
2006					
1.	Construct West Hangar Access Taxilanes (Phase I) *(Demand)*	$ 847,000	$ 804,650	$ 21,175	$ 21,175
2.	Construct 20 T-Hangars *(Demand)*	534,000	507,300	13,350	13,350
3.	Increase Fuel Farm Capacity *(Demand)*	349,000	331,550	8,725	8,725
4.	Construct West Parallel Taxiway - Phase I *(Efficiency)*	652,000	619,400	16,300	16,300
Subtotal 2006		**$ 2,382,000**	**$ 2,262,900**	**$ 59,550**	**$ 59,550**
2007					
1.	Northern Land Acquisition *(Safety/Security)*	$ 2,306,000	$ 2,190,700	$ 57,650	$ 57,650
2.	Relocate Taxiway A *(Safety/Security)*	2,272,000	2,158,400	56,800	56,800
3.	Construct 20 T-Hangars *(Demand)*	534,000	507,300	13,350	13,350
4.	Remove T-Hangars *(Safety)*	50,000	47,500	1,250	1,250
Subtotal 2007		**$ 5,162,000**	**$ 4,903,900**	**$ 129,050**	**$ 129,050**
2008					
1.	Shift Runway 6-24 330' Northwest/ Extend to 7,000' *(Safety/Demand)*	$ 1,592,000	$ 1,512,400	$ 39,800	$ 39,800
2.	Install High Intensity Runway Lighting Runway 13-31 *(Safety)*	803,000	762,850	20,075	20,075
3.	Replace Runway 13 and Runway 31 PAPI-2 with PAPI-4 *(Safety/Efficiency)*	133,000	126,350	3,325	3,325
4.	Install MALSR *(Efficiency)*	350,000	332,500	8,750	8,750
5.	Install Instrument Landing System (ILS) Runway 31 *(Efficiency)*	1,500,000	1,425,000	37,500	37,500
6.	Construct By-Pass Taxiway Runway 31 *(Efficiency)*	114,000	108,300	2,850	2,850
Subtotal 2008		**$ 4,492,000**	**$ 4,267,400**	**$ 112,300**	**$ 112,300**
SUBTOTAL SHORT TERM PLANNING HORIZON		**$ 15,884,000**	**$ 15,089,800**	**$ 397,100**	**$ 397,100**

No.	Description	Total Cost	Federally Eligible	State Eligible	Local Share
INTERMEDIATE TERM PLANNING HORIZON					
1.	Construct Southeast Corporate Taxiway *(Demand)*	$ 276,000	$ 262,200	$ 6,900	$ 6,900
2.	Construct Southeast Corporate Hangar Access Road *(Demand)*	207,000	196,650	5,175	5,175
3.	Construct West Hangar Access Taxilanes (Phase II) *(Demand)*	847,000	804,650	21,175	21,175
4.	Construct 40 T-Hangars *(Demand)*	1,068,000	1,014,600	26,700	26,700
5.	Construct Southern Diagonal Taxiway *(Demand)*	468,000	444,600	11,700	11,700
6.	Acquire land for Runway 6-24 North Parallel Taxiway (11.3 acres) *(Safety/Security)*	1,210,000	1,149,500	30,250	30,250
7.	Construct North Parallel Taxiway - Phase I *(Demand)*	610,000	579,500	15,250	15,250
8.	Construct Glider Staging Area *(Efficiency/Demand)*	333,000	316,350	8,325	8,325
9.	Acquire Runway 24 RPZ Aviation Easement (2.78 acres) *(Safety/Security)*	480,000	456,000	12,000	12,000
10.	Runway 6 RPZ Land Acquisition *(Safety/Security)*	679,000	645,050	16,975	16,975
11.	Realign Runway 6 and 24 Entrance Taxiways/Remove Pavement *(Safety/Efficiency)*	256,000	243,200	6,400	6,400
12.	Construct Holding Apron Runway 6 *(Efficiency)*	138,000	131,100	3,450	3,450
13.	Construct Holding Apron Runway 24 *(Efficiency)*	138,000	131,100	3,450	3,450
14.	Replace Runway 24 VASI-4 with PAPI-2 *(Safety/Efficiency)*	66,700	63,365	1,668	1,668
15.	Install PAPI-2 Runway 6 (Safety/Efficiency)	66,700	63,365	1,668	1,668
16.	Install REILs Runway 6 and Runway 13 *(Safety/Efficiency)*	40,000	38,000	1,000	1,000
17.	Acquire National Guard Facility/Remove Building *(Safety/Security)*	1,500,000	1,425,000	37,500	37,500
18.	Land Acquisition (78.5 acres) *(Safety/Security)*	7,250,000	6,887,500	181,250	181,250
19.	Overlay Main Apron *(Maintenance)*	404,000	383,800	10,100	10,100
20.	Construct Service Road *(Safety)*	200,000	190,000	5,000	5,000
21.	Pavement Maintenance *(Maintenance)*	500,000	475,000	12,500	12,500
SUBTOTAL INTERMEDIATE TERM PLANNING HORIZON		**$ 16,737,400**	**$ 15,900,530**	**$ 418,435**	**$ 418,435**
LONG TERM PLANNING HORIZON					
1.	Relocate AWOS *(Efficiency/Demand)*	$ 150,000	$ 142,500	$ 3,750	$ 3,750
2.	Relocate Segmented Circle/Lighted Wind Cone *(Efficiency/Demand)*	25,000	23,750	625	625
3.	Construct West Parallel Taxiway - Phase II *(Efficiency/Demand)*	2,256,000	2,143,200	56,400	56,400
4.	Construct North Parallel Taxiway - Phase II *(Efficiency/Demand)*	766,000	727,700	19,150	19,150
5.	Construct Northeast Corporate Hangar Taxiways *(Demand)*	429,000	407,550	10,725	10,725
6.	Construct Northeast Corporate Hangar Access Road/Extend Utilities *(Demand)*	413,000	392,350	10,325	10,325
7.	Construct T-Hangar Access Taxilanes *(Demand)*	667,000	633,650	16,675	16,675
8.	Construct Automobile Parking and Access *(Demand)*	419,000	398,050	10,475	10,475
9.	Construct 50 T-Hangars *(Demand)*	1,334,000	1,267,300	33,350	33,350
10.	Construct Above Ground Fuel Storage Facility *(Demand)*	250,000	237,500	6,250	6,250
11.	Pavement Maintenance *(Maintenance)*	1,000,000	950,000	25,000	25,000
SUBTOTAL LONG TERM PLANNING HORIZON		**$ 7,709,000**	**$ 7,323,550**	**$ 192,725**	**$ 192,725**
TOTAL ALL DEVELOPMENT		**$ 40,330,400**	**$ 38,313,880**	**$ 1,008,260**	**$ 1,008,260**

REIL - Runway End Identifier Light
PAPI - Precision Approach Path Indicator
MALSR - Medium Intensity Approach Lighting System with Runway Alignment Indicator Lighting
VASI - Visual Approach Slope Indicator
AWOS - Automated Weather Observation System
RPZ - Runway Protection Zone

Hollister Municipal Airport

Exhibit 6A
CAPITAL IMPROVEMENT PROGRAM

the existing terminal area, to limit the potential for inadvertent vehicle and pedestrian access to the aircraft operational areas. A safety project identified for 2004 is the conversion of some of the existing runway lighting standards on the north side of Runway 6-24, to in-pavement lighting. Currently, when Runway 6-24 is used for glider operations, the glider operators remove the existing runway lighting standards to ensure that the light standards are not hit by a glider aircraft wing. The existing lighting standards are not made to be removed on such a regular basis. This increases the chances for the lighting standards to be damaged and not work after use. In-pavement lighting would eliminate this practice and ensure lighting aids are not damaged and prevented from working.

Currently, the taxiways at the airport are without pavement edge lighting. A project in 2005 would add medium intensity taxiway lighting (MITL) to assist pilots in ground maneuvering at night. The development of a helicopter hardstand is planned for 2004. The hardstand is an area for helicopter parking segregated from the fixed wing parking apron. The hardstand can only be approached by a hover taxi. A hardstand cannot be used for takeoff and landing. With the hardstand, helicopters must approach to a runway or taxiway surface prior to parking at the hardstand.

The bulk of the safety projects programmed for the Short Term Planning Horizon are related to bringing Runway 13-31 in conformance to FAA Airport Reference Code (ARC) C-II design standards and meeting design requirements so that an Instrument Landing System (ILS) approach can be installed to Runway 31. All runway improvements are planned before the ILS installation, as compliance with the design standards is a prerequisite for the approach, and the FAA would prefer to establish the ILS to the permanent Runway 31 threshold. This pushes the ILS installation beyond 2009, as land acquisition, building removal, and taxiway development will need to precede the ILS installation.

For an ILS approach at an ARC C-II airport, FAA design standards require a runway centerline to parallel taxiway centerline separation distance of 400 feet. A project in 2009 relocates Taxiway A 100 feet east, to meet these design requirements. The existing Taxiway A surface would be removed and most likely used in the base material for the new taxiway.

A project in 2009 shifts Runway 13-31, 330 feet northwest, to allow for the full development of the runway safety area (RSA) and object free area (OFA) behind the Runway 31 end. Concurrent with the shift, Runway 13-31 and Taxiway A are planned to be extended to 7,000 feet, which is the FAA recommended runway length for Hollister Municipal Airport. The shift allows for Medium Intensity Approach Lighting System with Runway Alignment Indicator Lighting (MALSR) to be developed almost entirely on existing airport property, and for the Runway 31 runway protection zone (RPZ) to encompass an area already protected by an avigation easement. Since the area behind the relocated Runway 31 end would be

dedicated for the RSA and OFA, the existing pavement behind the relocated Runway 31 threshold would be removed and most likely used as base material for the runway extension. The existing lead-in taxiway behind the Runway 31 end is contrary to federal design standards, which require any pavement used for aircraft departure and/or landing to be marked accordingly and all federal design standards be met. Following the shift, two existing T-hangars may need to be removed and replaced, as they would be within the RPZ and could be a considered an obstruction. The removal and replacement of the T-hangars is planned to precede the ILS installation in the Intermediate Term Planning Horizon.

Extending Runway 31 to 7,000 feet will require the acquisition of approximately 25 acres of land north of the Runway 13 threshold. This land is needed to protect the Runway 13 RPZ and provide for the full development of the RSA and OFA behind the Runway 13 end. The land acquisition is programmed for 2008. The installation of Precision Approach Path Indicators (PAPI) to each end of Runway 13-31 is planned for 2009, concurrent with the runway shift and extension.

The development of a portion of the west parallel taxiway from Runway 6-24, south to the relocated Runway 31 end is included in this planning horizon. This taxiway segment is needed to serve the future California Department of Forestry (CDF) facilities planned west of Runway 13-31.

The development of a portion of the parallel taxiway north of Runway 6-24 is programmed for this planning horizon. This taxiway would extend from the Runway 6 end, to its intersection with Runway 13-31. The acquisition of approximately 11 acres of land north of Runway 6-24 is programmed to allow for this taxiway to be eligible for federal and state funding, and also protect the Runway 6-24 transitional surface. Following this taxiway development, the development of a glider staging area is planned. Designed in conjunction with the glider operator at the airport, this staging area is planned and designed to allow for the ground handling of glider aircraft off of the active runway.

The full development of the southwest diagonal taxiway to the Runway 31 end is planned. This taxiway will allow for quick access to the Runway 31 end for aircraft in the west T-hangar area.

Efficiency Projects: Efficiency projects in the Short Term Planning Horizon total $114,000, and are intended to improve aircraft taxiing. This includes two separate taxiway projects and a bypass taxiway on the east side of Runway 13-31 at the Runway 31 end. Since there is not sufficient area between a relocated Taxiway A and the existing pavement area to construct a holding apron, a bypass taxiway must be constructed to ensure that aircraft ready for departure are not delayed by aircraft preparing for departure or waiting for a departure clearance.

Demand Projects: Demand projects include hangar development in the west T-hangar area. The development of 20 units in 2007 is expected to fulfill the existing unmet demand as shown by the existing hangar waiting list. The development of the necessary access taxilanes is also programmed.

INTERMEDIATE TERM CAPITAL NEEDS

Intermediate Term development needs support projected aviation demand, continue pavement maintenance, add airfield taxiways, and improve instrument approach capabilities. Intermediate Term Planning Horizon improvements are estimated at $10.3 million.

The installation of an ILS and MALSR to Runway 31 is programmed for this planning horizon. The ILS enhances the existing approach capability to ensure the airport can be reached during periods of poor visibility. The ILS is anticipated to provide for ½ mile visibility and 200-foot cloud ceiling approaches to Runway 31. The ILS and MALSR installation will need to follow the shifting of Runway 31 to the north (programmed for 2009). Without the shifting, the MALSR cannot be easily installed, as it would extend into an existing industrial development area. Furthermore, the FAA would prefer to establish the ILS procedure once the runway threshold is in a permanent location. As mentioned previously, the Runway 31 threshold must be relocated to allow the development of the RSA and OFA behind the runway 31 end. Compliance with the design standards is a prerequisite for the approach. The removal of 20 T-hangars east of the runway (with replacement planned in the west T-hangar area) will precede the ILS installation. These hangars obstruct the approach.

The Runway 6 and Runway 24 entrance taxiways are planned to be realigned perpendicular to the runway alignment. This is the preferred alignment for runway entrance taxiways. The pavement behind the Runway 6 and Runway 24 thresholds, which presently is not marked as runway, will be removed and no longer usable for aircraft operations. Instead, the area behind the runway thresholds will be dedicated to complying with ARC B-II RSA and OFA standards. Similar to the Runway 31 end, the existing lead-in taxiway behind the Runway 6 and Runway 24 ends is contrary to federal design standards, which require any pavement used for aircraft departure and/or landing to be marked accordingly and all federal design standards be met.

Holding aprons are planned at the Runway 6 and Runway 24 ends. Runway End Identifier Lights (REILs) are planned for the Runway 6 and Runway 13 ends. REILs assist pilots in locating the runway end at night and during poor visibility conditions. PAPIs are planned for each end of Runway 6-24.

Several projects to support future hangar development needs are also planned. This includes developing the southeast corporate taxiway. This will allow for hangar development east of existing apron area. This taxiway will connect with Taxiway B. Full develop-

ment of the west T-hangar access taxilanes and 60 T-hangars is planned. The full development of the west T-hangar access taxilanes will allow for individual/corporate hangar development on the eastern side of the west T-hangar area.

A service road is planned from the existing terminal area to the west T-hangar area. This roadway is intended to extend around the airfield operations area and provide a year-round roadway for use by airport maintenance, security, and aircraft refueling vehicles. This enhances airfield safety by allowing for airport vehicles to access portions of the airport without crossing active runways and taxiways.

The acquisition of the California National Guard Armory and removal of the former armory building is planned. This will ensure that this land is compatible with the operation of the Runway 6-24. The acquisition of land within the Runway 6 RPZ and avigation easements to protect the Runway 24 RPZ are also planned.

A total of $500,000 is included in the Intermediate Term Planning Horizon for pavement preservation activities. Pavement preservation activities typically include applying a slurry seal to rejuvenate and protect the pavement surface, crack sealing, and/or small pavement repairs. The overlay of the existing main apron is planned for strengthening and surface repair. Expansion of fuel storage and the overlay of the main apron is also planned.

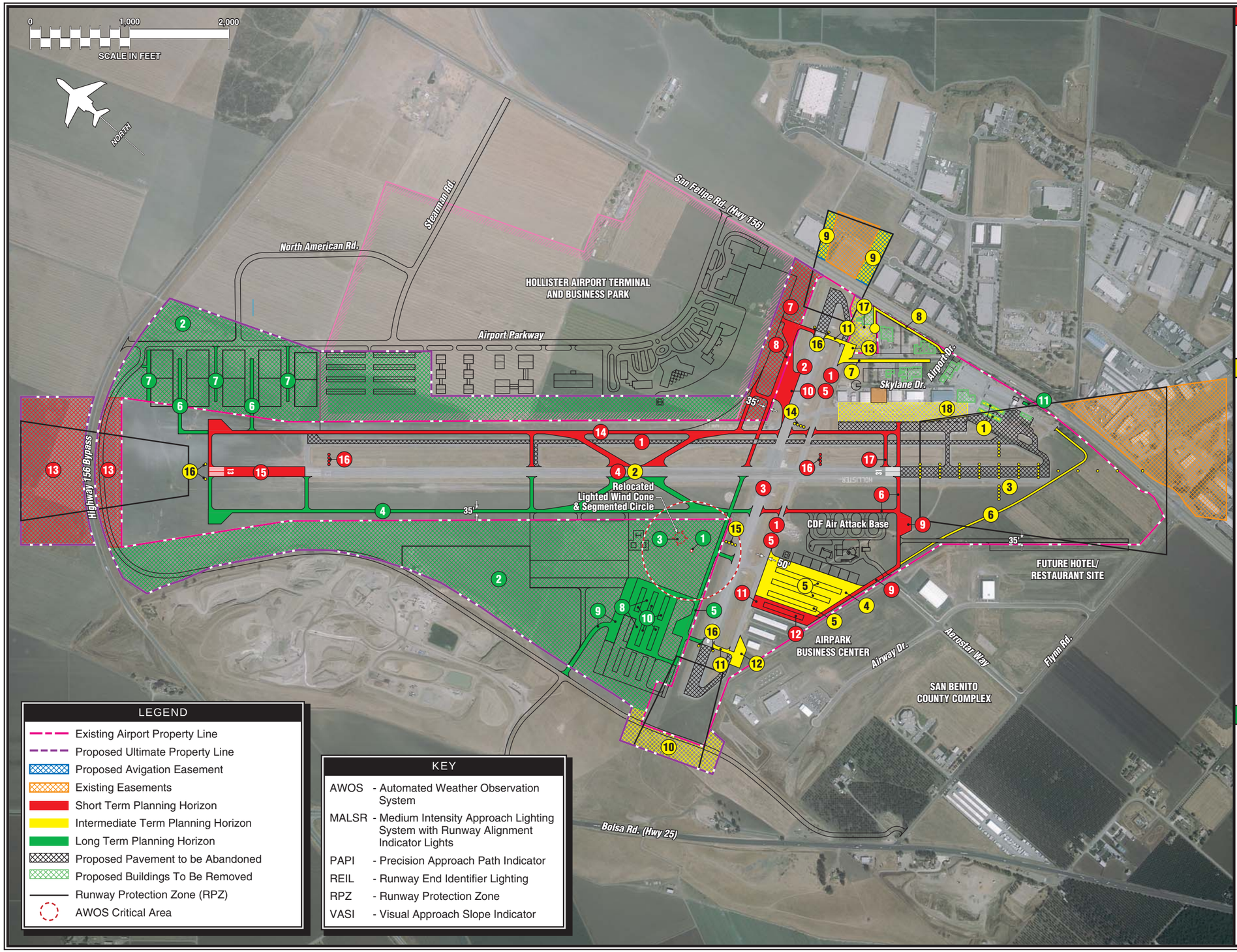
LONG TERM CAPITAL NEEDS

Projects in the Long Term Planning horizon are focused on meeting long term facility needs. This includes beginning T-hangar development north of the Runway 6 end. The northeast corporate hangar access taxilanes and roadway development is planned. An above ground fuel storage facility is planned in the former CDF area. To allow for the full development of the west parallel taxiway, the Automated Weather Observation System (AWOS) will need to be relocated. This also requires the relocation of the segmented circle and windcone. While the AWOS is being installed in 2004, the City does not own the property where the AWOS must ultimately be located. Therefore, the AWOS will ultimately need to be relocated. The full development of the north parallel taxiway is also planned.

Land acquisition totaling 112 acres is planned for the long term facility needs. This includes land to the east and west of Runway 13-31. A total of $1,000,000 is included in the Long Term Planning Horizon for pavement preservation activities. As mentioned previously, pavement preservation activities typically include applying a slurry seal to rejuvenate and protect the pavement surface, crack sealing, and/or small pavement repairs.

Exhibit 6B graphically depicts development staging.

01MP12-6B-4/19/04



SHORT TERM PLANNING HORIZON

1. Seal/Restripe Main Taxiways *(Maintenance)*
2. Convert Runway Edge Lighting for Glider Operations *(Safety/Efficiency)*
3. Seal/Restripe Runway 6-24 *(Maintenance)*
4. Overlay Runway 13-31 *(Maintenance)*
5. Install Taxiway Lighting *(Safety)*
6. Construct West Partial Parallel Taxiway *(Safety)*
7. Acquire land for Runway 6-24 North Parallel Taxiway (11.3 acres) *(Safety)*
8. Construct North Partial Parallel Taxiway *(Safety)*
9. Construct Southern Diagonal Taxiway *(Safety)*
10. Construct Glider Staging Area *(Safety)*
11. Construct West Hangar Access Taxilanes *(Safety)*
12. Construct 20 T-Hangars *(Demand)*
13. Northern Land Acquisition *(Safety)*
14. Construct Taxiway A Relocation *(Safety)*
15. Construct Runway 13-31 330' Northwest Shift and Extension to 7,000' *(Safety)*
16. Replace Runway 13 and Runway 31 PAPI-2 with PAPI-4 *(Safety)*
17. Construct By-Pass Taxiway Runway 31 *(Efficiency)*

INTERMEDIATE TERM PLANNING HORIZON

1. Remove T-Hangars *(Safety)*
2. Install High Intensity Runway Lighting Runway 13-31 *(Safety)*
3. Install MALSR *(Efficiency)*
4. Construct West Hangar Access Taxilanes *(Demand)*
5. Construct 60 T-Hangars *(Demand)*
6. Construct Service Road *(Safety)*
7. Construct Southeast Corporate Taxiway *(Demand)*
8. Construct Southeast Corporate Hangar Access Road *(Demand)*
9. Acquire Runway 24 RPZ Aviation Easement (2.78 acres) *(Safety/Security)*
10. Runway 6 RPZ Land Acquisition *(Safety/Security)*
11. Realign Runway 6 and 24 Entrance Taxiways/Remove Pavement *(Safety/Efficiency)*
12. Construct Holding Apron Runway 6 *(Efficiency)*
13. Construct Holding Apron Runway 24 *(Efficiency)*
14. Replace Runway 24 VASI-4 with PAPI-2 *(Safety/Efficiency)*
15. Install PAPI-2 Runway 6 *(Safety/Efficiency)*
16. Install REILs Runway 6 and Runway 13 *(Safety/Efficiency)*
17. Acquire National Guard Facility/Remove Building *(Safety/Security)*
18. Overlay Main Apron *(Maintenance)*

LONG TERM PLANNING HORIZON

1. Relocate AWOS *(Efficiency/Demand)*
2. Land Acquisition (112.4 acres) *(Demand)*
3. Relocate Segmented Circle/Lighted Wind Cone *(Efficiency/Demand)*
4. Construct West Parallel Taxiway - Phase II *(Efficiency/Demand)*
5. Construct North Parallel Taxiway - Phase II *(Efficiency/Demand)*
6. Construct Northeast Corporate Hangar Taxiways *(Demand)*
7. Construct Northeast Corporate Hangar Access Road/Extend Utilities *(Demand)*
8. Construct T-Hangar Access Taxilanes *(Demand)*
9. Construct Automobile Parking and Access *(Demand)*
10. Construct 50 T-Hangars *(Demand)*
11. Construct Above Ground Fuel Storage Facility *(Demand)*

LEGEND

- Existing Airport Property Line
- Proposed Ultimate Property Line
- Proposed Avigation Easement
- Existing Easements
- Short Term Planning Horizon
- Intermediate Term Planning Horizon
- Long Term Planning Horizon
- Proposed Pavement to be Abandoned
- Proposed Buildings To Be Removed
- Runway Protection Zone (RPZ)
- AWOS Critical Area

KEY

AWOS	- Automated Weather Observation System
MALSR	- Medium Intensity Approach Lighting System with Runway Alignment Indicator Lights
PAPI	- Precision Approach Path Indicator
REIL	- Runway End Identifier Lighting
RPZ	- Runway Protection Zone
VASI	- Visual Approach Slope Indicator

Hollister Municipal Airport

Exhibit 6B
DEVELOPMENT STAGING

CAPITAL IMPROVEMENTS FUNDING

Financing capital improvements at the airport will not rely exclusively upon the financial resources of the City of Hollister. Capital improvement funding is available at the federal level and state level for many airport projects. The following discussion outlines the key sources for capital improvement funding.

FEDERAL GRANTS

Through federal legislation over the years, various grants-in-aid programs have been established to develop and maintain a system of public airports throughout the United States. The purpose of this system and its federally-based funding is to maintain national defense and promote interstate commerce. The most recent legislation is the *Vision 100 – Century of Aviation Reauthorization Act*. *Vision 100* was signed into law on December 13, 2003.

Vision 100 is a four-year bill covering FAA fiscal years 2004, 2005, 2006, and 2007. *Vision 100* provides national funding levels of $3.4 billion in 2004, increasing $1 million annually, until reaching $3.7 billion in 2007. The Fiscal Year 2004 appropriation is expected to be finalized in January 2005. Until the appropriation is completed, 2004 AIP funding will not be available.

The source for federal funding of airports is the Aviation Trust Fund. The Aviation Trust Fund was established in 1970, to provide funding for aviation capital investment programs (aviation development, facilities and equipment, and research and development). The Trust Fund also finances the operation of the FAA. It is funded by user fees, taxes on airline tickets, aviation fuel, and various aircraft parts.

Proceeds from the Aviation Trust Fund are distributed each year by the FAA, from appropriations by Congress. A portion of the annual distribution is to primary commercial service airports (e.g., Monterey, Oakland, San Jose), based upon enplanement levels. Commercial service airports enplaning more than 10,000 passengers annually are provided a minimum $1,000,000 annual entitlement. For eligible general aviation airports, *Vision 100* provides up to $150,000 of funding each year. As a reliever airport, Hollister Municipal Airport does not qualify for the commercial service entitlement; however, it does qualify for the annual $150,000 entitlement.

After meeting entitlement obligations, the remaining Airport Improvement Program (AIP) funds are distributed by the FAA, based upon the priority of the project for which they have requested federal assistance through discretionary apportionments. A national priority ranking system is used to evaluate and rank each airport project. Those projects with the highest priority are given preference in funding. Each project for Hollister Municipal Airport is required to follow this procedure and compete with other airport projects in the State for AIP State Apportionment dollars, and across the country for other Federal AIP funds. An important point to consider is

that most funding for Hollister Municipal Airport is not guaranteed, as the airport is currently only eligible for the $150,000 annual entitlement. As evident from the airport development schedule and cost summaries, the City of Hollister could benefit significantly from federal discretionary funding.

Airport development that meets the FAA's eligibility requirements can receive 95 percent federal funding. This is a five percent increase from past funding, which only provided 90 percent funding for eligible projects. The 95 percent funding level is currently only provided by law until 2007. After 2007, the funding level would revert back to 90 percent unless extended by Congress. Funding at 95 percent for AIP eligible projects has been assumed to extend through the planning period, as it is expected that subsequent legislation would make permanent the 95 percent funding level. Property acquisition, airfield improvements, aprons, perimeter service roads, and access road improvements are examples of eligible items. General aviation terminal buildings and airport maintenance buildings are not eligible at non-primary airports such as Hollister Municipal Airport.

Vision 100 does provide for the Secretary of Transportation to fund revenue-generating developments such as hangars and fuel facilities, which have historically not been eligible for federal funding. *Vision 100* limits this funding eligibility to non-primary airports such as Hollister Municipal Airport. *Vision 100* also requires the Secretary of Transportation to determine that adequate provisions have been made to finance airside needs at the airport, prior to an airport receiving funding for revenue generating development.

FAA FACILITIES AND EQUIPMENT PROGRAM

The Airway Facilities Division of the FAA administers the national Facilities and Equipment (F&E) Program. This annual program provides funding for the installation and maintenance of various navigational aids and equipment for the national airspace system and airports. Under the F&E program, funding is provided for FAA airport traffic control towers, enroute navigational aids, and on-airport navigational aids such as approach lighting systems. While the capital improvement schedule provides for the City of Hollister to fund the Runway 31 Instrument Landing System (ILS), Medium Intensity Approach Lighting System with Runway Alignment Indicator Lights (MALSR), and planned Precision Approach Path Indicators (PAPIs) with AIP funds, these improvements could be installed and maintained by the FAA Airways Facility Division. The City of Hollister should maintain contact with this division of the FAA to determine their eligibility for equipment installation and maintenance.

STATE AID TO AIRPORTS

In support of the State airport system, the California Transportation Commission (CTC) also participates in State airport development projects. An Aero-

nautics Account has been established within the State Transportation Fund, from which all airport improvement monies are drawn. Tax revenues from the sale of general aviation jet fuel ($0.02 per gallon) and Avgas ($0.18 per gallon) are collected and deposited in the Aeronautics Account to support the State airport system development program.

The California Transportation Commission has established three grant programs to distribute funds deposited in the Aeronautics Account: Annual Grants, Acquisition and Development (A & D) Grants, and AIP Matching Grants. Another funding source provided by the CTC is low-interest loans. Each item is briefly discussed below.

Annual Grants

Annual Grants are distributed by the CTC for projects considered for "airport and aviation purposes" as defined in the State Aeronautics Act. All public use airports, with the exception of reliever and commercial service airports are eligible for this annual $10,000 grant. Hollister Municipal Airport is eligible for this grant.

Acquisition and Development (A & D) Grants

A & D Grants are designed to provide funding to airports for the purpose of land acquisition and development. This grant has a minimum allocation level of $10,000 and provides up to $500,000 per fiscal year (maximum allowable funding to a single airport yearly). Grant requests are initiated through the CIP process and require a local match of 10 to 50 percent of the project's cost. Unlike Annual Grants, all airports are eligible for the A & D grant.

AIP Matching Grants

The AIP grant is distributed for the purpose of aiding an airport with the local match of a federally-funded improvement project. In order to be eligible for an AIP Matching Grant, the project must have been included in the State CIP and the sponsor must have accepted a Federal AIP Grant for the project. This grant provides one-half of the project's remaining cost after federal funding. Following the enactment of *Vision 100*, it is expected that this would equate to 2.5 percent of the project cost. This funding counts towards the yearly $500,000 maximum grant disbursement level. As illustrated by **Exhibit 6A,** a majority of the projects within the CIP reflect eligibility for matching funds provided by the State.

California Airport Loan Program

The loan program provides funding for all airports within the State of California which are owned by an eligible public agency and open to the public without exception. These loans provide funding to eligible airports for construction and land acquisition projects which will benefit the airport and improve its self-sufficiency. The loans can be used for any airport-related project, and the

funding limits are not bound by law or regulation. The amount of the loan is determined in accordance with project feasibility and the sponsor's financial status. Terms of the loan provide 8 to 15 years for its payback, and the interest rate is based upon the most recent State bond sale.

LOCAL FUNDING

The balance of project costs, after consideration has been given to grants, must be funded through local resources. Assuming federal and state funding, this essentially equates to 2.5 percent of the project costs if all eligible FAA and state funds are available.

There are several alternatives for local finance options for future development at the airport, including airport revenues, direct funding from the City of Hollister, issuing bonds, and leasehold financing. These strategies could be used to fund the local matching share, or complete the project if grant funding cannot be arranged.

The capital improvement program has assumed that some landside facility development would be completed privately. Under this type of development, for on-airport landside development, the City of Hollister would complete the necessary infrastructure improvements, as this development is grant-eligible. Apron, taxiway, and utilities improvements off-airport are not eligible for grant funding assistance and would need to be completed with private funds.

There are several municipal bonding options available to the City of Hollister including: general obligation bonds, limited obligation bonds, and revenue bonds. General obligation bonds are a common form of municipal bonds which are issued by voter approval and secured by the full faith and credit of the City of Hollister. City of Hollister tax revenues are pledged to retire the debt. As instruments of credit, and because the community secures the bonds, general obligation bonds reduce the available debt level of the community. Due to the community pledge to secure and pay general obligation bonds, they are the most secure type of municipal bond and are generally issued at lower interest rates and carry lower costs of issuance. The primary disadvantage of general obligation bonds is that they require voter approval and are subject to statutory debt limits. This requires that they be used for projects that have broad support among the voters, and that they are reserved for projects that have highest public priorities.

In contrast to general obligation bonds, limited obligation bonds (sometimes referred to as Self-Liquidating Bonds) are secured by revenues from a local source. While neither general fund revenues nor the taxing power of the local community is pledged to pay the debt service, these sources may be required to retire the debt if pledged revenues are insufficient to make interest and principal payments on the bonds. These bonds still carry the full faith and credit pledge of the local community and, therefore, are considered, for the purpose of financial analysis, as part of the

debt burden of the local community. The overall debt burden of the local community is a factor in determining interest rates on municipal bonds.

There are several types of revenue bonds, but in general they are a form of a municipal bond which is payable solely from the revenue derived from the operation of a facility that was constructed or acquired with the proceeds of the bonds. For example, a Lease Revenue Bond is secured with the income from a lease assigned to the repayment of the bonds. Revenue bonds have become a common form of financing airport improvements. Revenue bonds present the opportunity to provide those improvements without direct burden to the taxpayer. Revenue bonds normally carry a higher interest rate because they lack the guarantees of general and limited obligation bonds.

Leasehold financing refers to a developer or tenant financing improvements under a long term ground lease. The obvious advantage of such an arrangement is that it relieves the community of all responsibility for raising the capital funds for improvements. However, the private development of facilities on a ground lease, particularly on property owned by a municipal agency, produces a unique set of problems. In particular, it is more difficult to obtain private financing, as only the improvements and the right to continue the lease can be claimed in the event of a default. Ground leases normally provide for the reversion of improvements to the lessor at the end of the lease term, which reduces their potential value to a lender taking possession. Also, companies that want to own their property as a matter of financial policy may not locate where land is only available for lease. The City of Hollister has used long term lease arrangements successfully to finance capital improvements at the airport in the past. Most hangar facilities were developed with private funds under a long term ground lease with the City.

PLAN IMPLEMENTATION

The successful implementation of the Hollister Municipal Airport Master Plan will require sound judgment on the part of the City of Hollister with regard to the implementation of projects to meet future activity demands, while maintaining the existing infrastructure and improving this infrastructure to support new development. While the projects included in the capital improvement program have been broken into short, intermediate, and long term planning periods, the City of Hollister will need to consider the scheduling of projects in a flexible manner, and add new projects from time-to-time to satisfy safety or design standards, or newly created demands. In summary, the planning process requires that the City of Hollister continually monitor the need for new or rehabilitated facilities, since applications (for eligible projects) must be submitted to the FAA and state each year.