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

6

24

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')

13

31

H

F

E

C

A

B

J

C

MALSR

Existing Lighted Wind Cone & Segmented Circle

Relocated Lighted Wind Cone, Tetrahedron, & Segmented Circle

EXISTING AWOS

Existing AWOS Critical Area

Relocated AWOS

Relocated AWOS Critical Area

Tetrahedron

Holding Apron

I

50'

240'

250'

35'

Holding Apron

C

Holding Apron

Airway Dr.

Aerostar Way

Flynn Rd.

Bolsa Rd. (Hwy 25)

NORTH

0 800 1,600

SCALE IN FEET

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

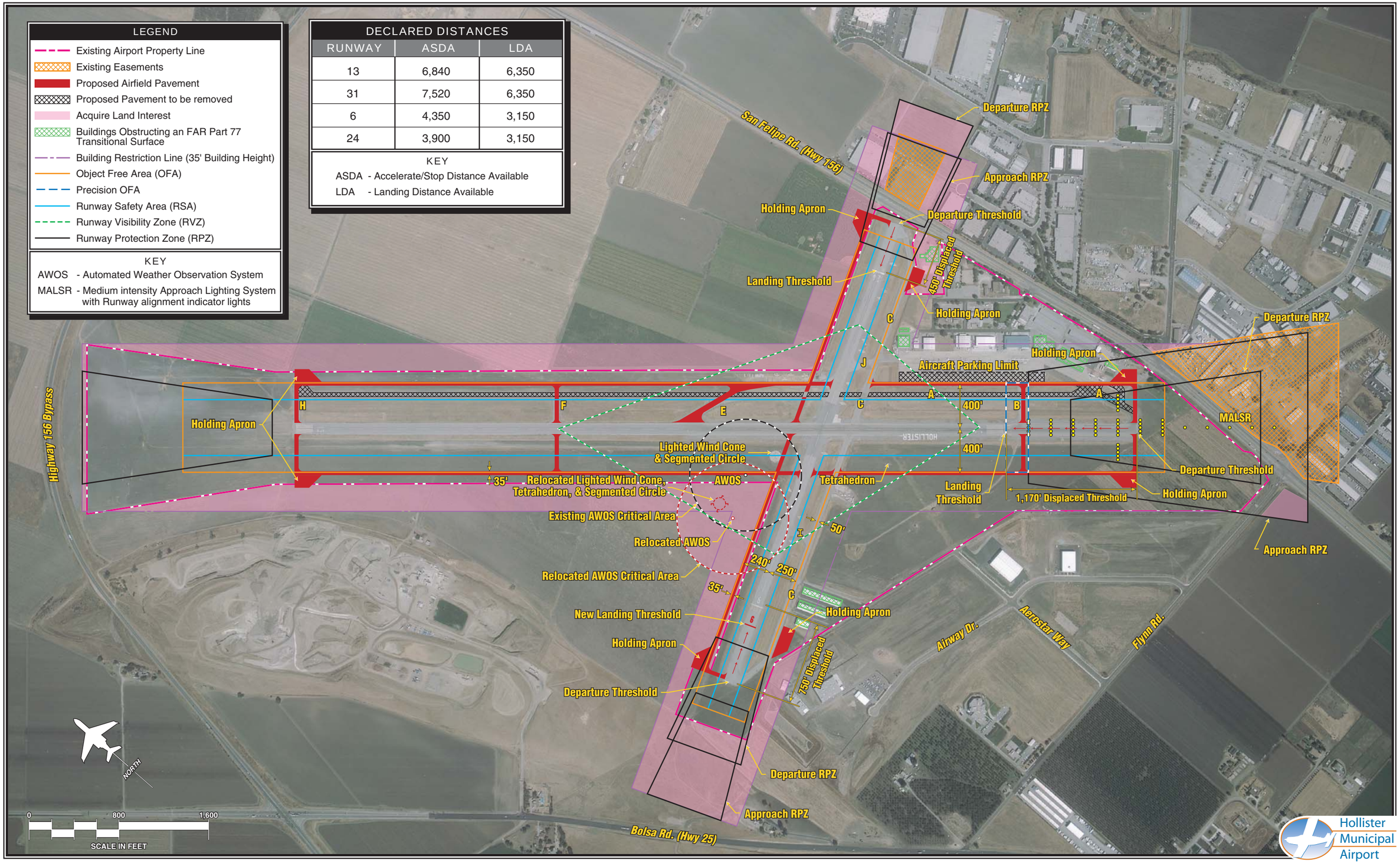
DECLARED DISTANCES

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



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

Aircraft Parking Limit

J

A

A

H

F

E

C

400'

B

MALSR

Highway 156 Bypass

Holding Apron

9

HOLLISTER

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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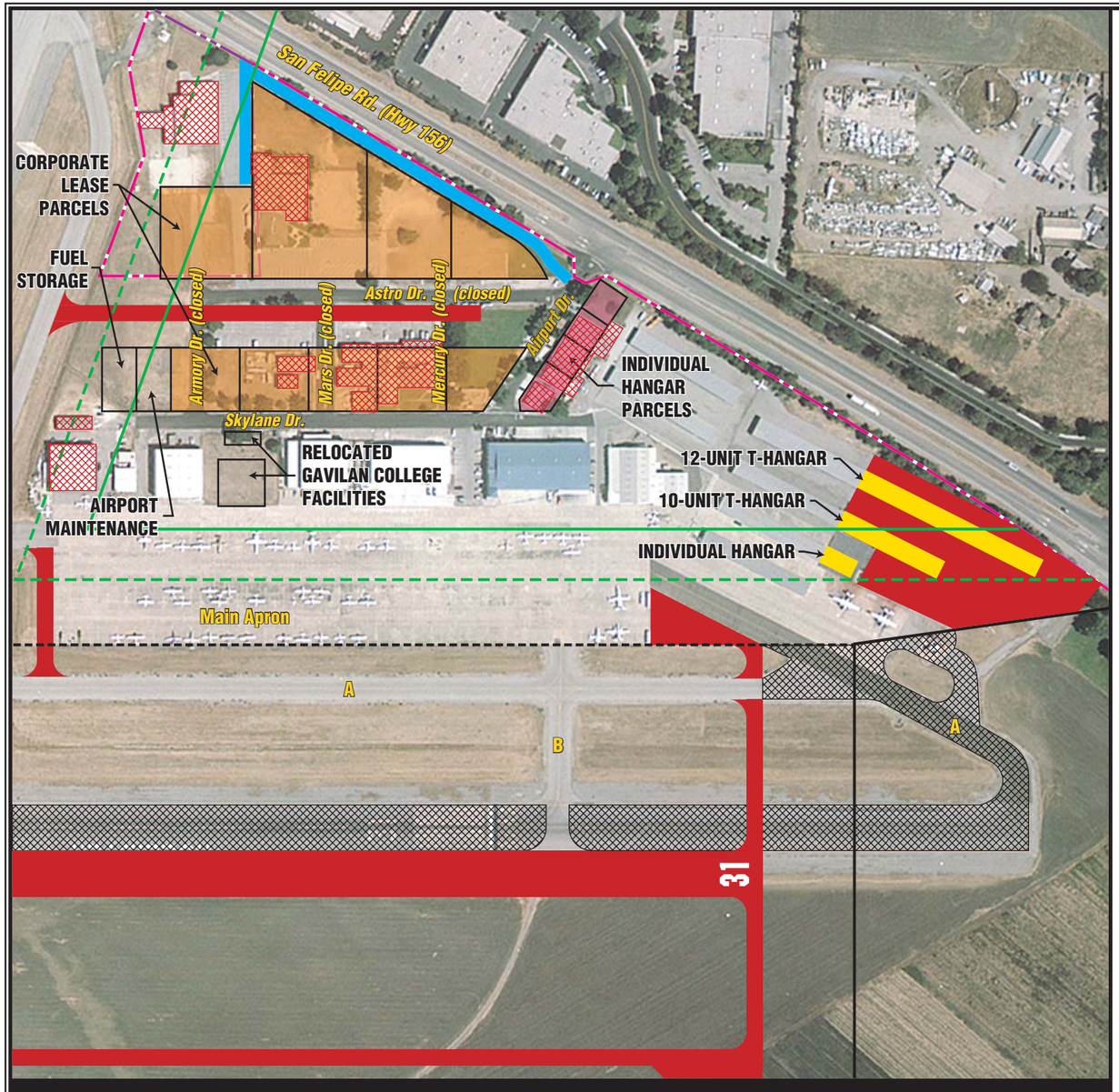
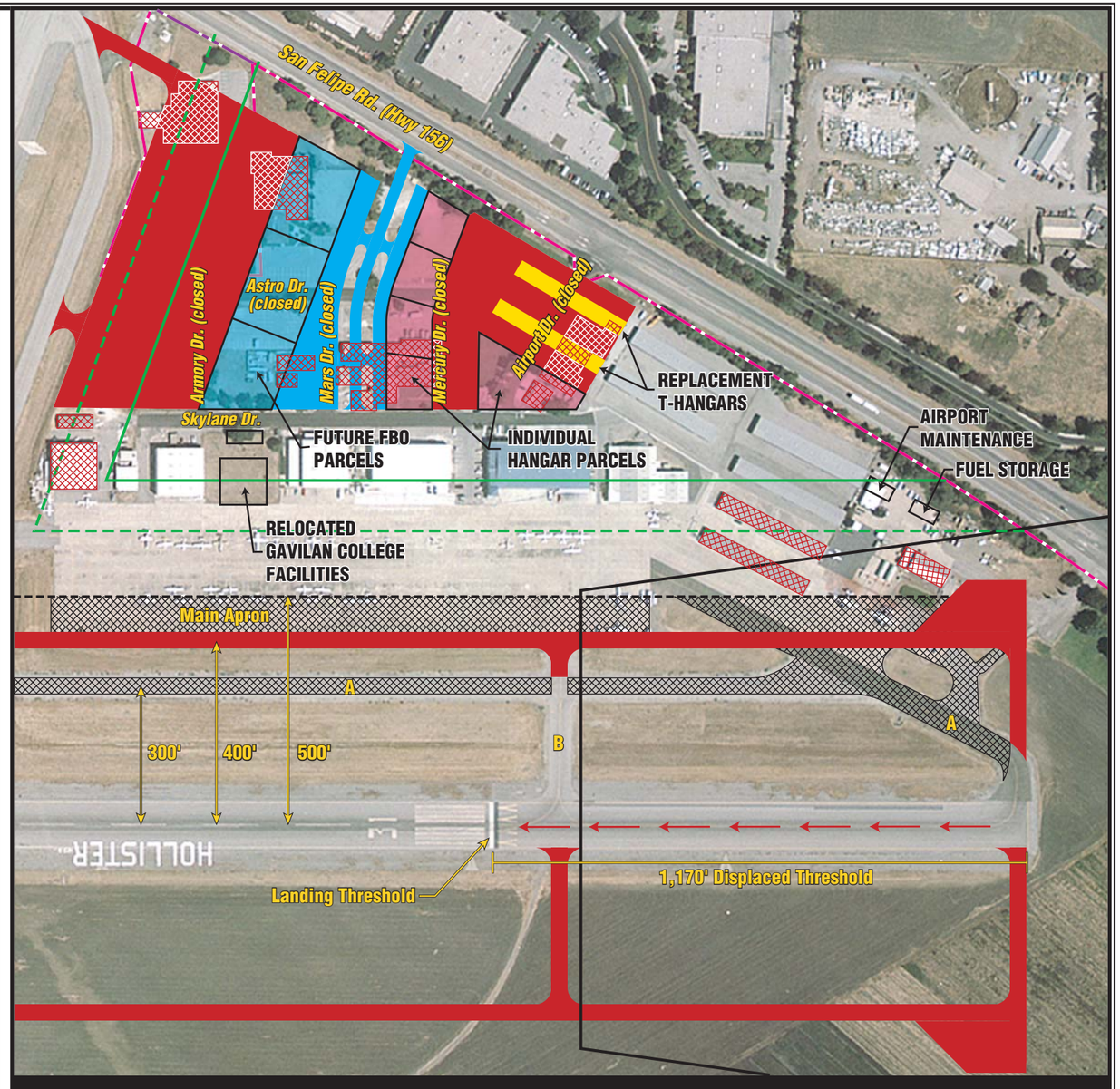


SOUTHEAST ALTERNATIVE A



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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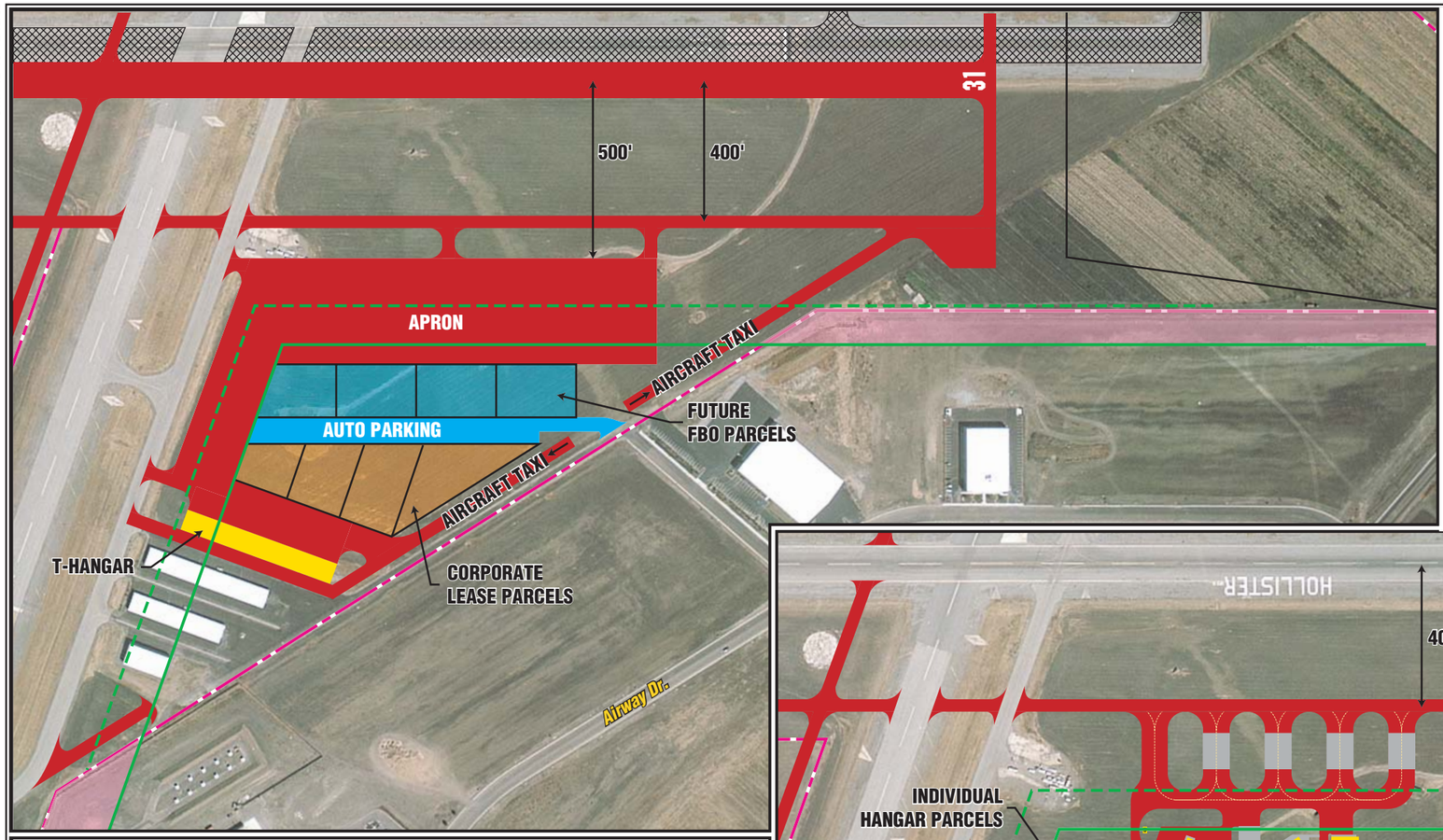
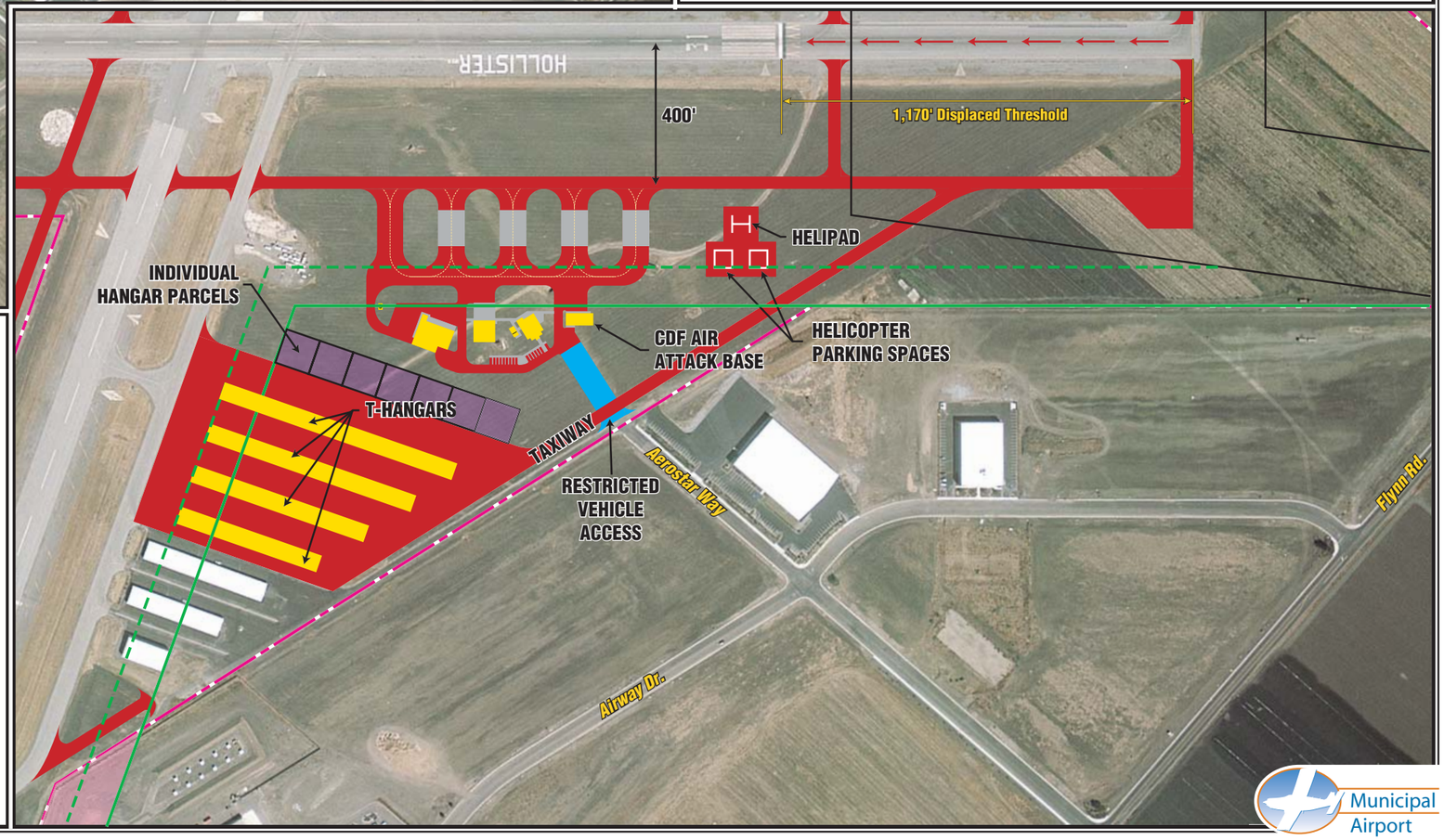


ALTERNATIVE A



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.

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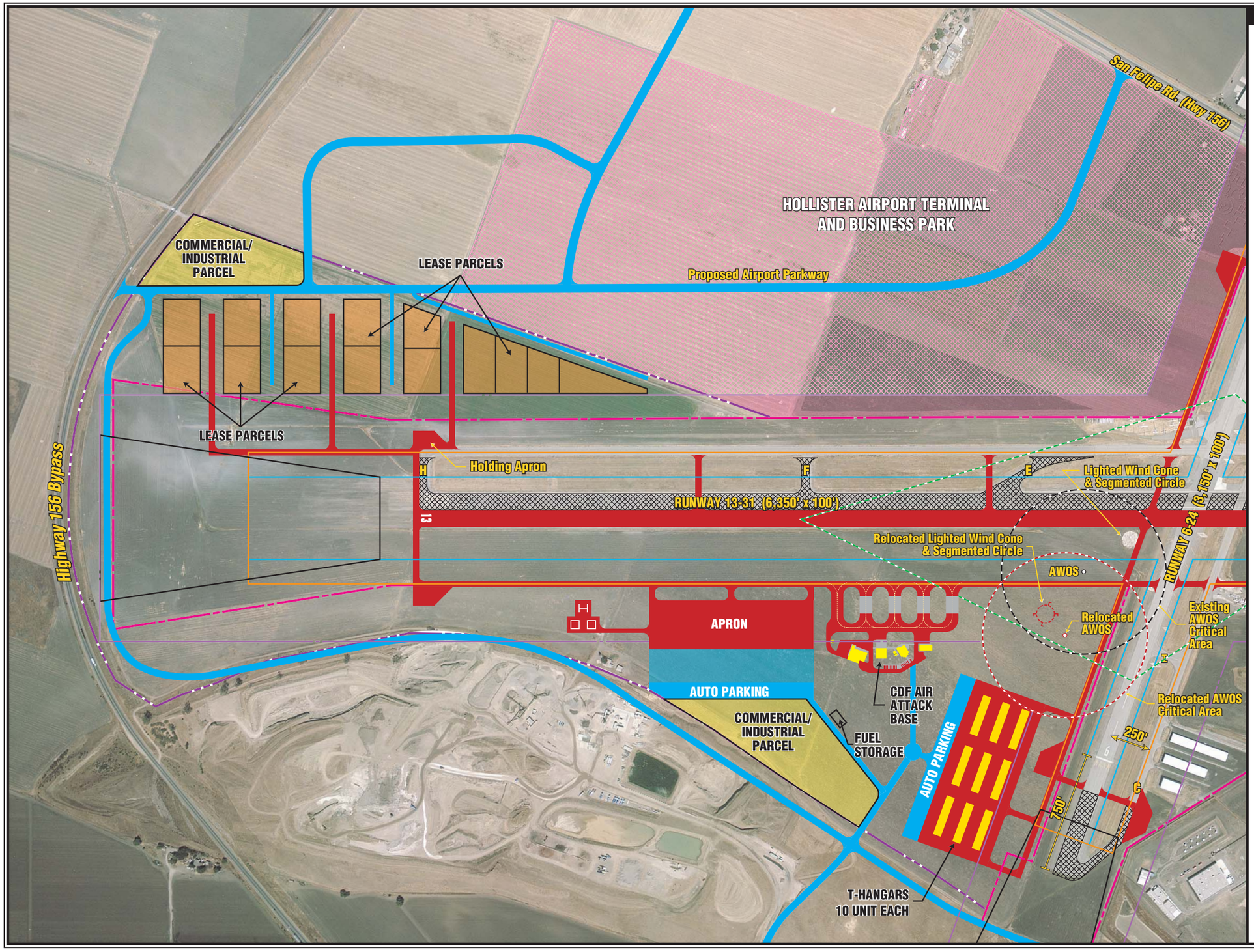

LEGEND

- 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