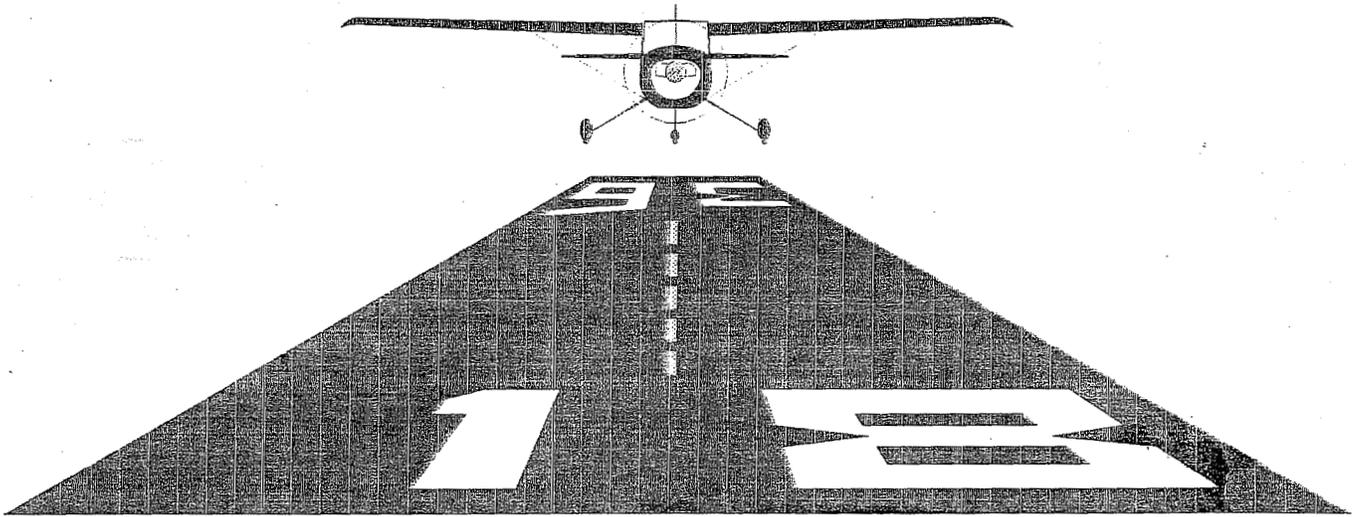


**GUSTINE MUNICIPAL AIRPORT
MASTER PLAN**

GUSTINE, CALIFORNIA



ARIES CONSULTANTS LTD.

AUGUST 1996

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Chapter 1

INTRODUCTION AND SUMMARY

In 1993, the City of Gustine initiated an Airport Master Plan for the Gustine Municipal Airport under a grant from the Federal Aviation Administration Airport Improvement Program (AIP). The purpose of the study was to determine the future role and type of aviation activity that can be accommodated at the Airport and to prepare a long-range master plan to guide development in order to maintain the Airport as a valued transportation facility for both the City of Gustine and those parts of the surrounding area for which the Airport is the most convenient aviation facility.

An initial working paper describing the Aviation Activity Forecasts and the Existing Airport Facilities was prepared in April 1994. A second working paper describing the Airport Facility Requirements and Alternative Airport Development Concepts was prepared in January 1995. A third working paper describing the Recommended Airport Master Plan, Implementation Plan and Evaluation of Airport Agreements and Recommended Lease Policy Guidelines was prepared in June 1995. Several coordination meetings were held with the Airport Commission.

The Airport Master Plan was approved by the Gustine Airport Commission at a June 12, 1995 Public Hearing and recommended to be forwarded to the City Council for adoption. Subsequent to that meeting, a *Draft Environmental Assessment/Initial Study for the City of Gustine Wastewater Treatment Master Facilities Plan* was published by the Environmental Protection Agency and the City of Gustine in September 1995 which presented potential conflicts with the recommended Airport Master Plan. At the request of the City, further processing of the Airport Master Plan was delayed while the environmental documentation for the Wastewater Treatment Master Facility Plan and the Airport Master Plan were coordinated to achieve future compatibility. An Initial Study for the Airport Master Plan was prepared in February 1996 (See Appendix C).

The study was performed by Aries Consultants Ltd. of Morgan Hill, California. The study was coordinated with the City of Gustine, the Federal Aviation Administration, State of California, (Caltrans) Aeronautics Program and other Federal, State and local organizations.

INTRODUCTION

The Gustine Municipal Airport is geographically located in the west central portion of the County of Merced, California. The Airport is 1-1/2 miles east of downtown Gustine adjacent to State Highway 140. The Airport is located on about 45 acres of land at an elevation of 75 feet above mean sea level (MSL). The location of the Airport with respect to nearby communities and other airports in the area is illustrated on Figure 1.

The Airport is owned and operated by the City of Gustine under the administration of the City Manager. A five-member Airport Commission serves as an advisory board to the City Council for airport and aviation-related issues.

The Gustine Municipal Airport is included in the Federal Aviation Administration's (FAA) National Plan of Integrated Airport Systems (NPIAS) and the California Aviation System Plan (CASP) Update prepared in 1989 by the State of California, Division of Aeronautics (Caltrans). The Airport is included in the Merced County Airport System being prepared by the Merced County Association of Governments for inclusion in the Central California Aviation System Plan.

FINDINGS AND RECOMMENDATIONS

The general objective of the Airport Master Plan is to provide a long-range plan to guide development in order to maintain the Airport as a valued transportation facility for both the City of Gustine and those parts of the surrounding area for which the Airport is the most convenient aviation facility.

The principal findings and recommendations of the study are summarized below:

Principal Findings

- The City of Gustine will continue to experience a significant annual growth rate of 3.9 percent over the 22-year planning period. The population of the City is expected to grow from 4,090 in 1993 to about 10,203 by 2015.
- The number of based aircraft at the Gustine Municipal Airport is forecast to increase from 18 in 1993 to 40 in 2015, with a larger percentage increase in multiengine aircraft than in single-engine aircraft.
- The number of annual aircraft operations at the Airport is forecast to increase from an estimated 1,500 in 1993 to 5,500 by 2015.
- By adopting the recommendations in this Airport Master Plan, the Airport can be developed to accommodate aviation requirements through the 2015 planning period and beyond, and at the same time, the Airport and aircraft activity can be compatible with surrounding land uses.

Principal Recommendations

- Portions of the future runway protection zone for Runway 36 will extend beyond the physical boundaries of the Airport to the south when the runway is extended by 500 feet to a length of 3,700 feet. The expanded runway protection zone south of Carnation Road is over a portion of the 500 acres of land the City is acquiring for the expansion of the City's Wastewater Treatment Facility. It is recommended that an avigation easement be recorded for that portion (about 3.6 acres) of the runway protection zone that will extend over the Wastewater Treatment Facility.
- In addition, the City should expand the area included in the existing avigation easement (by about 0.2 acres) over a portion of private land north of Carnation Road for the expanded runway protection zone. Obtaining avigation easements with adequate **land interest** now will **ensure** the unobstructed passage of aircraft when the runway is extended.
- The recommended year 2015 airfield configuration provides for extending Runway 18-36 by 500 feet to the south to 3,700 feet to accommodate the aircraft that are expected to use the Airport during the planning period. The existing runway width of 60 feet is retained for the full length of the extended runway.
- The parallel taxiway is extended 500 feet to the south and 1,450 feet to the north to **connect** to the existing taxiway from the current hangar and **tiedown** area. The taxiway is retained at **30** feet wide; an **entry/exit** taxiway is planned for the future extension of the runway; and holding aprons are provided at each end of the extended runway.
- The airfield pavement should be designed to accommodate single- and dual-wheel aircraft with 12,500 pounds maximum gross weight. The existing airfield pavement (12,000 pounds maximum gross weight) is planned for an overlay for operations by aircraft currently using and expected to use the airfield. Additional **runway** pavement overlays would be required if aircraft over 12,500 pounds maximum gross weight are to use the Airport.
- FAA should be requested to determine whether the threshold of Runway 18 should be relocated by approximately another 10 feet to the south to provide the required 15-foot clearance over **State** Highway 140 or if the existing conditions can be grandfathered or waived.
- The east-west power lines south of the Airport along Carnation Road are recommended to be put underground for the extension of Runway 18-36 to the south.

- The California Department of Transportation, Aeronautics Program (Caltrans) conducted a site visit to the Airport on March 7, 1995 to update the FAA Airport Master Record Form 5010-1 and to perform the State permit compliance inspection. In the Caltrans March 10, 1995 letter to the City on the findings of their inspection several items were noticed to the City including the following:
 - "There is an irrigation canal and low embankment in the runway safety area (RSA). The embankment has been graded since our last inspection and is safer than before. However, the canal and embankment are not allowable in the RSA and should be relocated to be at least 60 feet from the runway centerline.
 - There are a fence, a four-foot berm and a six-foot berm approximately 75 feet east of the runway centerline along the south end of the runway. These objects penetrate the runway primary surface and should be evaluated by the Federal Aviation Administration (FAA) to determine if they are hazards to air navigation".

The irrigation canal pipe and relocation of the fence and berms were to be accomplished as part of a project funded by an FAA ADAP Grant 5-06-0096-01 in 1978. The May 1978 construction plan "Record Drawing" indicated that 120 feet of 18-inch RCP was to be installed under the runway and 80 feet of 18-inch RCP was to be installed under the parallel taxiway. These lengths of piping would have satisfied both the runway and taxiway safety area criteria for Airplane Design Group B-I aircraft if they had been installed as planned.

The May 1978 construction plan "Record Drawing" for realigning the fence, ditch and levee in this area indicated the fence was to be relocated 160 feet from the runway centerline. Based on recent field checks by City and Caltrans representatives the fence was actually only relocated to 75 feet from the runway centerline at the closest point to the runway.

The irrigation canal, fence and berms have been in their present location for over 17 years and the Airport has been inspected several times since then by both FAA and Caltrans. The current FAA approved Airport Layout Plan also indicates these features as shown on the 1978 construction plan "Record Drawing".

In response to the March 10, 1995 letter from Caltrans, the City filed a Form 7460-1, "Notice of Proposed Construction or Alteration" with FAA on June 23, 1995 as requested by Caltrans. The FAA, in their January 19, 1996 response, recommended that the fence, the 4-foot berm, and the 6-foot berm be relocated by the City of Gustine to the original specified distance, of at least 160 feet from the runway centerline, as required by FAA ADAP Grant 5-06-0096-01.

- The City needs to resolve these two issues with FAA as soon as practicable after adoption of the **Airport Master Plan**. The modifications noticed in the **Caltrans** March 10, 1995 letter are included in Phase I of the **Capital Improvement Program** for the **Airport Master Plan**.
- Runway protection zones for small aircraft, with approach visibility **minimums** not less than one mile and an approach surface slope of **20:1** are provided for Runways 18 and 36.
- The building restriction line (BRL) on the west side should be established at 370 feet to the west of the Runway 18-36 centerline. The BRL is retained at 250 feet east of the Runway 18-36 **centerline** for future control of development on the east side of the **Airport**.
- It is recommended that the City request the FAA to evaluate the feasibility of establishing Differential Global Positioning System (DGPS) procedures for both Runways 18 and 36. If approved Runway 18-36 should be painted with nonprecision markings.
- The weather at the **Airport** is below VFR minimums approximately 11 percent of the time. Based on available data and the air traffic forecasts, the provision of a nonprecision instrument approach procedure would substantially enhance the utility of the **Airport**. **Stockton TRACON** will provide approach and departure control for the **Gustine Municipal Airport** in the future instead of **Castle RAPCON**.
- The Plan provides for medium intensity runway lights (MIRL) to be installed on the Runway 18-36 extension. Medium intensity taxiway lights (MITL) are planned to be installed on both the existing and planned-for parallel taxiway extensions and on the new **entry/exit** taxiway for Runway 36.
- The VASI-2 on Runway 36 will require relocation when the runway is extended.
- The Plan provides for supplemental wind cones to be erected at each end of the runway, in addition to the existing lighted wind cone located at the segmented circle. The tetrahedron should be relocated to east of the parallel taxiway.
- A new general aviation area is planned on the southwest side of the **Airport**. The existing hangar area on the west side of the **Airport** alongside State Highway 140 is to be gradually phased out over time as new hangars are constructed and the older deteriorating hangars are demolished. Hangars within the recommended building restriction line are also to be phased out.

- * Future aircraft storage hangar development should be consolidated west of the end of Runway 36. About 5 acres are provided and can be developed to accommodate up to 50 hangar spaces. The four hangars currently located on the apron should be relocated to the new hangar area. Space for commercial aviation/fixed-base operator leases and executive hangar storage is also reserved west of the runway in the existing hangar area.

Aircraft parking apron areas for itinerant aircraft and based aircraft tiedowns are retained in the present area in the short-term but in the long-term would be expanded to the area southwest of the runway. Additional taxiway access to the new tiedown and hangar areas is planned west of Runway 18-36.

- An area for a future general aviation terminal/administration building is reserved adjacent to the midfield taxiway in the long-term.
- It is recommended that the southerly Airport access road, which enters the Airport terminal area from State Highway 140, become the principal access point to serve the Airport through the planning period. This is to minimize interactions between aircraft and vehicular traffic on the Airport.
- A new service road is proposed south of the proposed Airport access point to serve the recommended development on the southwest side of the Airport.
- Automobile parking spaces should be provided in the terminal area for public and employee parking. Parking for visitors and employees of commercial aviation/FBO lease holders should be provided within individual lease plot boundaries.
- Space is reserved for a City maintenance baseyard, west of the proposed service road and south of the midfield taxiway, to serve the Airport during the planning period. Airfield maintenance is performed by the City of Gustine with equipment currently stored on the Airport.
- While there is no current requirement for an Aircraft Rescue and Firefighting (ARFF) facility on the Airport, the City should establish written response procedures with the City of Gustine Fire Department and California Department of Forestry for any emergency at the Airport.
- The existing underground fuel storage tank located north of the midfield taxiway will have to be removed by 1998.

- A new location is proposed on the north side of the midfield taxiway next to the present tank for an above-ground tank. A fuel dispensing system operated through a "card lock" system could be used to provide fuel service during non-business hours. A card lock system allows fuel to be dispensed using one of several credit cards 24 hours a day. (The City's Airport Commission has included an above-ground fuel tank and 24-hour card lock system in their FY1997 budget).
- The utility systems are generally adequate to serve any additional development on the west side of the **Airport**. When the south side of the Airport is developed, utilities will require extension into this area. The City sewer system extends along Carnation Road to the south and the **Airport** is already connected to this system.
- The drainage channel under the airfield will have to be put in a pipe to accommodate the runway and taxiway safety area criteria as well as the new development south of the midfield taxiway. A lift pump is proposed at the east end of the east-west channel under the airfield.
- Any additional improvements will increase the **storm** water runoff because of the increase in the area of pavement, concrete, and roof surfaces which do not allow water to soak into the ground. Additional improvements may require new or increased size of drainage ditches and channels.
- The City of Gustine Police Department should be informed of future development in order that it can plan for any additional resources necessary to continue to provide security at the **Airport**.
- The present radio-controlled model aircraft activities should be relocated to an area off the **Airport**. In the event the City allows the Club to remain on the **Airport**, a memorandum of understanding should be signed between the City and Club members addressing the Club activities such as time of **day**, location on the **Airport**, flight area with respect to the traffic pattern and other areas of concern.
- The City entered into a "Through-the-Fence" agreement in January 1994 with a "License-to-Use" . Although the License-to-Use is specific regarding a chain link fence and access gate to **Airport** property, the License is silent as to compensation to the City for use of the **Airport**. The City is obligated to make the **Airport** available for the use and benefit of the public, and FAA mandates that the City must operate the **Airport** in a safe and serviceable condition. In addition, the City is entitled to recover its initial and continuing costs of providing a public airport. The City should reach an agreement with the off-airport user to abide by the minimum standards established

for on-airport tenants and compensate the City for use of the facility. FAA requires that all access onto the Airport property be shown on the Airport Layout Plan and, before any future access is permitted onto the Airport, it must be submitted to FAA for approval.

Capital Improvement Program and Financial Plan

A three-phase Capital Improvement Program was prepared for the recommended Airport Master Plan. Phase I (the first five-year period through 2000) projects are considered to be the highest priority items and should be implemented as soon as practicable. These projects are listed below:

Airfield

- Overlay existing Runway 18-36
- Develop taxiways to new hangar area
- Enclose east-west drainage ditch and install lift pump at east end
- Relocate fence, berms and drainage ditch east of runway

Navigational Aids

- Install wind cone at end of Runway 18

Terminal Area

- Develop new hangars to south (22 hangars)
- Develop new aircraft apron area to north and remove underground fuel storage tank
- Develop new service road to south
- Develop vehicular parking to south

Airport Support

- Extend utilities (electricity, water, telephone) to south side of Airport
- Connect new development to City sewer system

The total estimated costs for all projects included in the Phase I Capital Improvement Program amount to an estimated \$1.7 million. This amount is expressed in terms of current base year (1996) dollar values. On the basis of current eligibility criteria and funding participation rates, Federal funding from the FAA Airport Improvement Program (AIP) and Caltrans matching grants for AIP funds, the City's net financial obligation is estimated to be \$74,100 over the first phase.

The Financial Plan developed as part of the **Airport** Master Plan is limited to consideration of projects included in Phase I of the recommended **Capital** Improvement Program.

- Historically, the Airport has essentially operated on a breakeven basis although fluctuating on an annual basis. An annual operating surplus of over \$19,000 occurred in **FY1995** while an annual loss of over \$13,000 was reported in **FY1992**. According to airport management, **an** estimated \$28,000 surplus currently exists in the **Airport** fund.
- Based on the projections of revenues and expenses, the Airport fund will operate slightly short of **sufficient** surplus revenues over the initial five-year period to finance the recommendations of the Capital Improvement Program. The **total** surpluses are estimated to be \$66,000. Based on the assumption that Caltrans will fund 5 percent of total Federal **grants** for a total of \$45,800, the City's share of funding the initial five-year Capital Improvement Program is estimated to be \$74,100 which will be approximately \$8,000 short (an estimated \$1,600 annually) of the requirement to implement Phase I of the Capital Improvement Program. Therefore, the feasibility of development of the Airport will be based on the willingness of the City to provide direct financial support to the **Airport**. Alternatively, the Phase I development could be refined to reflect available financing.

SUMMARY

On the basis of all of the analyses made in this study, it is recommended that:

- The City of Gustine adopt the Airport Master Plan presented herein as a guide for the continuing development of the Gustine Municipal **Airport**.
- The City implement the recommendations of the study as set forth relating to financial considerations.
- The City submit a **Preapplication** for Federal grant assistance to include Phase I projects as soon as practicable.
- The City submit the Phase I Capital Improvement Program to the Merced County Association of Governments for inclusion in the State of California, Aeronautics Program, Ten-Year Capital Improvement Program.
- The City implement the Recommended Lease Policy Guidelines, presented in Appendix B, for the future management and administration of the **Airport**.

Chapter 2

AVIATION ACTIVITY FORECASTS

To assess existing facilities and to determine future facility requirements at the Gustine Municipal Airport, it is necessary to forecast the demand for future aviation activity. Such activity demand is created by air taxi and general aviation air traffic and may be stated in terms of aircraft operations, aircraft basing demand and related components. In turn, the air traffic generated at the Gustine Municipal Airport is directly related to the population and economy of the surrounding area; general aviation trends and forecasts on national, State and local levels; and the aviation demand and airport facilities and services provided at other airports in the surrounding area.

In this chapter, the air trade area served by the Airport is defined. The historical and forecast population and economic data and general aviation trends and forecasts are described along with other relevant characteristics of the area served by the Airport. Historical air traffic activity at the Airport is also described. Aviation activity forecasts for the years 2000, 2005, 2010 and 2015 are presented later in this chapter.

DEFINITION OF THE AIR TRADE AREA

The geographic area served by any airport is designated as the air trade area. Typically, the air trade area includes a densely-populated urban area (such as a city and its environs) within a larger, less-densely populated area that is usually defined or limited by the existence of other airports. Although the air trade area can seldom be precisely identified in terms of political boundaries, usually a city, county, or political region is selected to represent the air trade area because relevant population and employment data are readily available for such areas. Furthermore, trends in aviation demand typically correspond closely with general growth trends in the political subdivision containing the main concentration of population served by a given airport.

The Gustine Municipal Airport serves primarily the residents of Gustine and those communities surrounding the City for which the Airport is the most convenient aviation facility. The City of Gustine was designated as the air trade area.

POPULATION AND ECONOMY

A review of the socioeconomic characteristics of the City of Gustine is helpful in preparing the aviation activity forecasts presented later in this chapter. This analysis is based on available data which have been analyzed for their potential impact on aviation demand. As such, the information presented should not be considered as a comprehensive economic analysis of the air trade area.

Population

Historical and forecast population data for the City of Gustine and the County of Merced are presented in Table 2-1. A comparison is made with historical and forecast population data for the State of California and the United States as a whole.

The City of Gustine has experienced very moderate increases in population since 1970. The average annual growth rate has been 1.7 percent from a population base of 2,793 in 1970 to an estimated population of 4,090 in 1993, as shown in Table 2-1. According to the City of Gustine, General Plan, adopted July 20, 1992, the population growth rate in the City has averaged 2.3 percent annually over the most recent five-year period.

The 1.7 annual average increase from 1970 to 1993 was less than the population growth increases experienced by the County of Merced (2.8 percent), the State of California (2.1 percent) and greater than the population growth rate of the United States as a whole (0.9 percent) over the 23-year period, as shown in Table 2-1.

According to population forecasts prepared for the City by the Merced County Association of Governments and the City of Gustine, population growth in the City is expected to increase at a faster rate than the County, State and the United States. The population is projected to increase from 4,090 in the base year 1993 to 10,200 in 2015, an average annual rate of 3.9 percent.

Population forecasts for the County of Merced are projected to increase by close to 84 percent from a base year 1993 population of 193,400 to a forecast population of 355,000 in 2015, as shown in Table 2-1. Population forecasts for the State are projected to increase by an estimated 50 percent from a base year 1993 population of 31,552,000 to a forecast 45,600,000 in 2015 while the United States as a whole reflects a 10 percent increase in population from a base year 1993 population of 251,400,000 to a forecast 277,300,000 in 2015.

Overall, the City of Gustine and the County of Merced are forecast to experience significantly faster population growth than the State and the United States.

Economic Characteristics

The City of Gustine has long been recognized as an agriculturally-oriented community. Through redevelopment and infrastructure improvements, the City is working to attract new industry and residents, which in turn would support additional commercial activity. The continuing migration of California residents to the Central Valley, along with a growing commuting population, supports a primary goal of the City to provide adequate land for the

Table 2-1

HISTORICAL AND FORECAST POPULATION TRENDS
City of Gustine, County of Merced, State of California and United States
1970-2015

	Historical			Base Year	Forecast			
	1970	1980	1990	1993	2000	2005	2010	2015
City of Gustine	2,793 ¹	3,142 ¹	3,931 ²	4,090 ¹	5,700 ²	6,900 ²	8,400 ²	10,200 ²
County of Merced	105,000 ³	135,500 ³	180,600 ³	193,400 ¹	239,000 ¹	273,000 ³	313,600 ¹	355,000 ³
State of California	20,039,000 ¹	23,780,100 ¹	29,976,000 ³	31,552,000 ³	36,444,000 ¹	39,319,000 ³	42,408,000 ³	45,600,000 ³
United States ⁴	203,984,000	227,555,000	247,300,000	251,400,000	268,300,000	271,300,000	274,300,000	277,300,000

	Average Annual Percentage Change				
	1970-1993	1993-2000	2000-2005	2005-2010	2010-2015
City of Gustine	1.7	4.9	3.9	3.9	3.9
County of Merced	2.8	3.1	2.8	2.8	2.5
State of California	2.1	2.1	1.5	1.5	1.5
United States	0.9	0.8	0.2	0.2	0.2

1. State of California, Department of Finance
2. City of Gustine, *General Plan*
3. Interpolated by Aries Consultants Ltd. based on State of California, Department of Finance projections
4. U.S. Department of Commerce, Bureau of the Census

City's urban development, while preserving prime and producing agricultural land, sensitive wetlands and lands of environmental significance.

Table 2-2 presents the employment characteristics of the City of Gustine. The primary sources of employment in the City in 1990 were services, manufacturing and retail which accounted for over 63 percent of the total employment with 1,024 persons employed in those categories. Significant increases in the services and retail sectors are forecast by the year 2010 with an estimated 3,242 persons projected to be employed in these two sectors accounting for over 51 percent of the total employment. A decrease in persons employed in the agriculture and manufacturing sectors, from 550 (34 percent of the total) in 1990 to 1,179 (19 percent of the **total**) in 2010 is also projected.

GENERAL AVIATION TRENDS

General aviation is defined as all aviation not classified as air carrier, **commuter/air** taxi or military. It includes a multitude of diverse and growing uses of aircraft, ranging from flying for enjoyment and the transportation of personnel or cargo by business firms and individuals in privately-owned aircraft, to highly-specialized uses such as **cropdusting**, pipeline patrol and aerial advertising. Included in the general aviation category are agricultural, industrial and **business/corporate** aviation; the aviation of Federal, State and local governments; and other miscellaneous aviation activities.

Overall Trends in General Aviation

Although general aviation activity on a national basis has been cyclical in nature since as far back as World War II, **beginning** in the early 1970s continuous growth in the general aviation industry occurred reaching a peak in 1978. A total of 17,032 piston aircraft units were shipped in 1978 compared to 436 aircraft in 1993. The growth in general aviation activity up until 1978 was fostered by eligible students obtaining their flight **training** benefits prior to expiration of the Veteran's Bill which provided financial assistance for pilot training. Aircraft manufacturers were spurred on to continue high rates of production. Through the late 1970s general aviation activity generally paralleled changes in business activity.

A number of changes have occurred in the general aviation industry since 1978 that have affected, and are expected to continue affecting, the future growth rate of general aviation, particularly over the next few years. There has been a significant reduction in the number of new aircraft units built and shipped since 1978. While a decline in manufacturing levels has occurred in the past, none has been so extensive or extended over such a long period of time. High product liability costs, high interest rates, high fuel costs and removal of the investment tax credit in 1986 have added to the decrease in the numbers of general aviation aircraft shipments.

Table 2-2

EMPLOYMENT ESTIMATES AND PROJECTIONS
City of Gustine
1990-2010

SECTOR	PROJECTIONS			
	1990	2000	2005	2010
Agriculture	190	190	190	190
Manufacturing	360	465	696	989
Construction	80	157	251	372
Telephone, Communications, Public Utilities	142	177	270	387
Wholesale	52	121	187	270
Retail	269	482	755	1,100
Fire	46	123	230	364
Services	395	947	1,475	2,142
Basic	802	1,391	1,845	2,418
Other	984	2,007	3,167	4,635
TOTAL EMPLOYMENT	1,621	2,951	4,407	6,248

Source: City of Gustine *General Plan*

In addition to aircraft shipments, the number of student and private pilots have declined due to fewer student completions and a large attrition rate of pilots trained during World War II. Fewer student pilot starts have been attributed in part to rapidly rising **training** costs and the repeal of the GI Bill of Rights in 1979. There is an increasing demand for air transport pilots and the military are also expected to make increased efforts to retain experienced pilots. As a result, the trends indicate there are fewer general aviation pilots with a declining interest in, or ability to afford, recreational and private flying.

General aviation activity is forecast to show some increase in the future for several reasons. These include the Budget Reconciliation Act repealing the luxury tax on general aviation aircraft; legislative actions placing limitations on aircraft product liability reducing aircraft insurance and cost of new aircraft; reintroduction of the manufacturing of light aircraft; FAA streamlining of the certification process for new entry-level aircraft; strong market for used aircraft; increased use of aircraft for business and corporate flying; and increased use of helicopters by business.

Another issue has recently surfaced related to environmental concerns and the continued availability of leaded fuel. The Clean Air Act of 1991 requires the phase-out of leaded fuel by 1995, and although this does not apply to aircraft, the possibility exists that manufacturers will gradually phase out leaded fuel, and this type of fuel will become more expensive and difficult to obtain.

Federal Aviation Administration Aviation Forecasts--Fiscal Years 1994-2005

The Federal Aviation Administration publishes annual trends in the aviation industry on a nationwide basis and prepares forecasts of aviation activity through the ensuing 12-year period. FAA's most recent publication of the historical and forecast active general aviation aircraft fleet, published in March 1994, is presented in Table 2-3. Although the active general aviation aircraft fleet decreased considerably from 1988 to 1992, the estimated fleet decreased from 198,500 in 1992 to 184,400 in 1993.

Single-engine aircraft are forecast to account for 74 percent of the estimated active general aviation fleet in 2005, compared to 78 percent in 1993, while **multiengine** piston aircraft are forecast to continue to account for 10 percent of the total fleet through 2005. The number of single-engine aircraft are projected to decrease by **an** additional 9 percent from an estimated total of 143,600 in 1993 to a total of 131,100 by 1998 and remain constant over the remaining seven-year forecast period. **Multiengine** aircraft are projected to decrease by an additional 7 percent from an estimated total of 18,500 in 1993 to a total of 17,300 by 1998 and remain fairly constant over the seven-year forecast period.

Table 2-3

**ESTIMATED ACTIVE GENERAL AVIATION AIRCRAFT BY TYPE OF AIRCRAFT (in thousands)
1994-2005**

	Fixed-Wing					Rotorcraft		Balloons/ Dirigibles/ Giders
	Total	Piston		Turboprop	Turbojet	Piston	Turbine	
		Single- Engine	Multi- Engine					
<u>Historical</u>								
1988	202.7	159.7	21.8	4.9	4.1	2.6	3.3	6.3
1989	196.2	153.7	21.2	4.9	3.9	2.4	3.6	6.4
1990	205.0	158.9	21.9	5.9	4.1	3.0	4.0	7.2
1991	198.0	154.0	21.1	5.3	4.1	3.2	3.7	6.5
1992	198.5	154.1	21.2	4.9	4.4	2.5	3.8	7.6
1993(est.)	184.4	143.6	18.5	4.7	4.0	2.2	3.6	7.8
<u>Forecast</u>								
1994	180.9	140.0	18.2	4.9	4.1	2.1	3.6	8.0
1995	178.4	137.2	17.9	5.1	4.2	2.1	3.8	8.1
1996	175.7	134.4	17.6	5.2	4.3	2.0	4.0	8.2
1997	174.1	132.4	17.4	5.3	4.5	2.0	4.2	8.3
1998	173.3	131.1	17.3	5.5	4.6	2.0	4.4	8.4
1999	173.8	131.1	17.3	5.6	4.7	2.0	4.6	8.5
2000	174.3	131.1	17.3	5.8	4.7	1.9	4.8	8.7
2001	174.8	131.1	17.3	5.9	4.8	1.9	5.0	8.8
2002	175.5	131.1	17.4	6.0	4.9	1.9	5.2	9.0
2003	176.2	131.1	17.5	6.2	5.0	1.8	5.4	9.2
2004	177.0	131.1	17.6	6.4	5.1	1.8	5.6	9.4
2005	177.4	131.1	17.6	6.5	5.1	1.8	5.8	9.5

NOTES: Detail may not add to total because of independent rounding. Active aircraft must have a current registration and must have been flown at least one hour during the previous calendar year.

Source: FAA Aviation Forecasts, Fiscal Years 1994-2005

The continuing decrease in the numbers of single-engine and multiengine piston aircraft is due in part to the retirement of older aircraft from the fleet. The slight increases in multiengine aircraft during the late 1990s and early 2000s are anticipated as new technology aircraft are introduced **and** the recent legislation which placed limitations on aircraft product liability.

Turboprop aircraft are forecast to increase at **an** average annual rate of 2.4 percent and account for 4 percent of the fleet in 2005, compared to 3 percent of the fleet in 1993, while turbojet aircraft are forecast to increase at an average annual rate of 2.5 percent accounting for **3** percent of the fleet in 2005, compared to **2** percent of the fleet in 1993.

Increases in the turboprop and turbojet aircraft reflect an expanding U.S. economy and emphasize the increased use of aircraft for business and corporate flying.

The rotorcraft fleet is in transition from piston to turbine-powered. The combined fleet is forecast to increase at an annual average rate of 2.3 percent with all of the growth in the turbine-powered fleet. Piston-powered rotorcraft are projected to decrease by 18 percent from an estimated total of 2,200 in 1993 to a total of 1,800 in 2005.

All other aircraft, including gliders, are forecast to increase at an average annual rate of 1.5 percent from an estimated total of 7,800 in 1993 to a total of 9,500 in 2005.

While the overall active general aviation fleet is forecast to decrease over the forecast period, there are growth trends in the turboprop, turbojet and rotorcraft type aircraft as more business and corporate aircraft are introduced into the general aviation fleet.

FAA also projects the total **number** of hours flown to increase at an average annual rate of 1.0 percent over the forecast period, primarily in the turbine-powered and rotorcraft aircraft, indicating a greater utilization of the existing fleet. The pilot population is also forecast to increase at an average annual rate of 1.0 percent with growth occurring primarily in the demand for airline transport **pilots**.

HISTORICAL AIR TRAFFIC ACTIVITY

This section presents an analysis of the historical air traffic activity at the **Gustine** Municipal Airport through 1993. **The** data presented are based on FAA records at both the national and local levels, City and County data, as well as discussions with persons knowledgeable of the Airport. Other available sources of data were used where applicable.

Based Aircraft

The number of aircraft based at an airport is a **function** of many factors, including the number of active aircraft registered in the **Airport's** air trade area, **aircraft** registered elsewhere but used in the area (e.g., corporate or government aircraft), and the existence and location of other general aviation airports in the area. Although transient aircraft are not considered based **aircraft**, their needs for **tiedown** and hangar space must be considered at any public airport.

The number of based aircraft at the Airport were obtained from historical FAA Airport Master Record Form 5010-1 since 1986. In 1986, FAA records indicated that 20 single-engine aircraft and one multiengine aircraft, a total of 21 aircraft, were based at the Airport. According to City records, there are 17 single-engine and one multiengine aircraft, a total of 18 aircraft, based at the Airport in 1994.

By way of comparison, registered aircraft in Merced County totaled 266 in 1986. Of the 266 aircraft, 86 percent (229 aircraft) were single-engine and 6 percent (16 aircraft) were multiengine. There were 18 helicopters and three other-type aircraft registered in 1986.

By 1992, 273 aircraft were registered in the County. Of the 272 aircraft, 82 percent (224 aircraft) were single-engine and 7 percent (18 aircraft) were multiengine. There were 22 helicopters and eight other aircraft registered in the County 1986. The decrease in numbers of single-engine aircraft and increase in numbers of multiengine aircraft and helicopters parallels the nationwide trends in general aviation activity.

Distribution of Based Aircraft Owners. An analysis of the geographic distribution of based aircraft owners at the Airport was made based on **information** obtained from airport management records. This information is presented in Table 2-4 for 1993.

Only four of the existing based aircraft owners reside in **Gustine** while an additional four based aircraft owners reside in Los Banos. Eight of the aircraft based at the Gustine Municipal Airport are owned by persons residing in the **nearby** rural communities of Newman and Patterson in Stanislaus County. The remaining two based aircraft are owned by persons residing in Modesto and Stevenson in Merced County.

Aircraft Operations

Historical data on aircraft operations at non-towered airports are limited. According to FAA's Airport Master Record Form 5010-1, dated July 1992, there were an estimated 1,500 aircraft operations at the Airport during fiscal year 1992. Based on discussions with persons

Table 2-4

**DISTRIBUTION OF BASED AIRCRAFT OWNERS
Gustine Municipal Airport
1993**

Location	Aircraft
<u>Merced County</u>	
Gustine	4
Modesto	1
Stevenson	1
Los Banos	4
Subtotal	10
<u>Stanislaus County</u>	
Newman	7
Patterson	1
Subtotal	8
TOTAL	18

Source: City of Gustine

knowledgeable of the Airport, the number of aircraft operations did not increase in 1993, and 90 percent (1,350 operations) were estimated to be itinerant operations while the remaining 10 percent (150 operations) were estimated to be local operations.

Local general aviation operations are performed by aircraft operating in the local traffic pattern and aircraft departing for, or arriving from, local practice areas. These operations include training operations (referred to as touch-and-goes), and based on persons knowledgeable of the Airport, an estimated 50 percent of the local operations are by aircraft from nearby airports at Los Banos, Turlock and Merced performing training exercises. According to the draft *Central California Aviation System Plan*, crosswinds at the Gustine Municipal Airport make it a desirable training facility for student pilots.

Itinerant operations are conducted by aircraft that takeoff at one airport and land at another airport, or the reverse. They include the operations of aircraft based at the Airport and flights of other aircraft to and from the Airport. Itinerant operations at the Airport include aircraft flying in persons conducting business with local industries, agricultural interests and cattle ranchers. They also include the cropdusting activities of aircraft based at the Airport.

AVIATION ACTIVITY FORECASTS

The aviation demand forecasts presented in this section have been developed based on a review of the population and economic trends and forecasts for City of Gustine, County of Merced and the surrounding areas; an analysis of the historical air traffic activity at the Gustine Municipal Airport; and an assessment of developments and trends that have, or may have, a potentially significant affect on aviation demand at the Airport.

Another element that will influence the demand for aircraft basing facilities at the Airport in the future includes the facilities and services provided at the Airport and the extent of facilities and services provided at other airports in the area.

General Assumptions

The following general assumptions were used in the preparation of the forecasts:

- These forecasts are demand-based and therefore are not limited by facility constraints or policy considerations. .
- No policies that would constrain aviation growth will be imposed on the Airport by any governmental entity.
- The population and economic analyses and forecasts set forth in this chapter are satisfactory for purposes of aviation demand forecasting.

- The historical aviation activity **data** presented forms an adequate basis for the forecasts presented in this chapter.
- The City will continue striving to provide an attractive community for those persons commuting or relocating from the Bay Area and elsewhere.

These forecasts were prepared on the basis of the information and assumptions set forth above. Although the information and assumptions used constitute a reasonable basis for preparing the forecasts, the achievement of any such forecast may be affected by fluctuating conditions and is dependent upon the occurrence of future events which cannot be assured. Therefore, the actual results achieved may vary from the forecasts, and such variations could be material.

Explanatory comments are provided in the following sections. The comments are intended to show the basic method of approach and the assumptions underlying individual forecast components.

The aviation demand forecasts prepared for the **Gustine Municipal Airport** are presented in Table 2-5.

Based Aircraft

The number of based aircraft at the **Gustine Municipal Airport** is forecast to increase from 18 in 1993 to 40 in 2015 as shown in Table 2-5, an average annual increase of 3.7 percent. The growth rate in forecast based aircraft at the Airport is due in part to the population increases forecast by the City in an effort to attract increasing commuter residents to the San Francisco Bay Area in addition to residents relocating from the Bay Area to the Central Valley. The growth in the number of based aircraft will be attributed in large part due to the result of aircraft being relocated from other airports including the Bay Area.

Single-engine aircraft are forecast to increase from 17 in 1993 to 32 in 2015, an average annual increase of 2.9 percent over the 22-year planning period but will decrease as a percent of the total based aircraft from 94 percent in 1993 to 80 percent in 2015.

Multiengine aircraft are forecast to increase from one in 1993 to five in 2015, an average annual increase of 7.6 percent over the 22-year planning period and will increase as a percent of the total based aircraft from 6 percent in 1993 to 13 percent in 2015.

Table 2-5

AVIATION ACTIVITY FORECASTS
Gustine Municipal Airport
1993 - 2015

	Base Year	Forecast			
	1993	2000	2005	2010	2015
GENERAL AVIATION BASED AIRCRAFT					
Fixed-wing					
---Single-engine	17	22	25	29	32
---Multiengine	1	2	3	4	5
Helicopters	0	1	2	2	3
TOTAL	18	25	30	35	40
AIRCRAFT OPERATIONS²					
Air Taxi	0	200	300	400	500
General Aviation					
---Itinerant	1,350	2,100	2,600	3,300	4,000
---Local	150	300	500	700	1,000
TOTAL	1,500	2,600	3,400	4,400	5,500
OPERATIONS PER BASED AIRCRAFT	83	95	105	115	125
PEAK HOUR OPERATIONS (ADPM)	1	2	3	3	4

1. Airport Management Records
 2. FAA Master Record Form 5010-1
- ADPM = Average day, peak month

Source: Aries Consultants Ltd.

Although there are no helicopters based at the Airport in 1993, it is estimated that by 2015, up to three helicopters could be based at the Airport. The significant increase in the use of helicopters in the general economy for business, including agricultural uses, over recent years suggests that helicopter facilities should be taken into consideration in any planning for the Airport.

Aircraft Operations

The number of annual aircraft operations at the Gustine Municipal Airport, as presented in Table 2-5, is forecast to increase over the planning period from an estimated 1,500 in 1993 to 2,600 by 2000; to 3,400 by 2005; to 4,400 by 2010; and to 5,500 by 2015.

General Aviation. General aviation operations are forecast to continue to account for the largest share of total operations at the Gustine Municipal Airport. General aviation operations are forecast to increase from an estimated 1,500 annual operations in 1993 to 5,000 annual operations by 2015.

Itinerant operations are forecast to decrease as a percent of total general aviation aircraft operations from 90 percent (1,350 operations) in 1993 to 80 percent (4,000 operations) by 2015 but will continue to account for the largest number of general aviation operations, reflecting the continued use of the Airport for commuting and business purposes.

Local operations are forecast to increase as a percent of total general aviation aircraft operations from 10 percent (150 operations) in 1993 to 20 percent (1,000 operations) by 2015. Training operations will increase over the planning period as the Airport continues to be a desirable location for crosswind training operations for aircraft from other airports.

Air Taxi. Air taxi operations include the unscheduled operations of "for hire" air taxis carrying passengers and any operations by bank couriers or other small package carriers. The potential exists for air taxi operations at the Airport serving persons accessing the growing population and projected diversification of the City's economic base during the forecast horizon.

Air taxi operations are forecast to be initiated by the year 2000 with an estimated 200 operations annually and increase to 300 annual operations by 2005; to 400 annual operations by 2010; and to 500 annual operations by 2015.

Operations Per Based Aircraft. Operations per based aircraft is a useful planning guide to estimate the number and types of aircraft operations at a non-towered airport. Operations per based aircraft include the number of operations by visiting itinerant aircraft as well as those based at the facility. The numbers also include training operations.

Operations per based aircraft are forecast to increase from an estimated 83 operations in 1993 to 125 operations per based aircraft in 2015. The increase in aircraft operations per based aircraft reflects an increase in the utilization of aircraft for business purposes and local training operations.

Peak Period Aviation Activity. Key forecasts that affect airfield, general aviation, access and automobile parking planning are those indicating the levels of activity during the average day of the peak month. The peak hour forecasts are intended for use in the demand/capacity analysis and determining requirements for airport facilities. Peak hour aviation demand forecasts for aircraft operations during the average day of the peak month for the Gustine Municipal Airport are also presented in Table 2-5.

The peak month typically accounts for approximately 10 percent of the annual aircraft operations. The peak hour of an average day in the peak month typically accounts for approximately 25 percent of the total daily operations at an airport like Gustine.

The total peak hour aircraft operations are forecast to increase from one in the peak hour of an average day in the peak month in 1993 to four in 2015.

RECENT AVIATION FORECASTS FOR GUSTINE MUNICIPAL AIRPORT

A review of recent forecasts prepared for the Gustine Municipal Airport was made and included forecasts of based aircraft and aircraft operations prepared for the *National Plan of Integrated Airport Systems (NPIAS)*. General aviation based aircraft and aircraft operations prepared for the California Department of Transportation, Division of Aeronautics (CALTRANS) for the *California Aviation System Plan (CASP)* Update were also reviewed.

A graphic illustration comparing based aircraft forecasts for the Airport is presented on Figure 2 and discussed below. Available historical data is also presented. It should be noted that the aviation forecasts have been prepared at different points in time. As shown, FAA forecasts prepared as part of the NPIAS do not reflect recent decreases in the general aviation aircraft fleet while forecasts prepared by Caltrans essentially reflect no growth in the number of based aircraft.

National Plan of Integrated Airport Systems

Forecasts of based aircraft and total aircraft operations were prepared for the Gustine Municipal Airport as part of the NPIAS using 21 based aircraft and 1,400 (700 itinerant operations {50 percent}) aircraft operations in 1989 as the base year. Total based aircraft are forecast to be 27 during the first five-year planning period through 1994. Total aircraft operations are forecast to be 1,600 by 1994 with 800 (50 percent) as itinerant operations.

BASED AIRCRAFT FORECASTS Gustine Municipal Airport

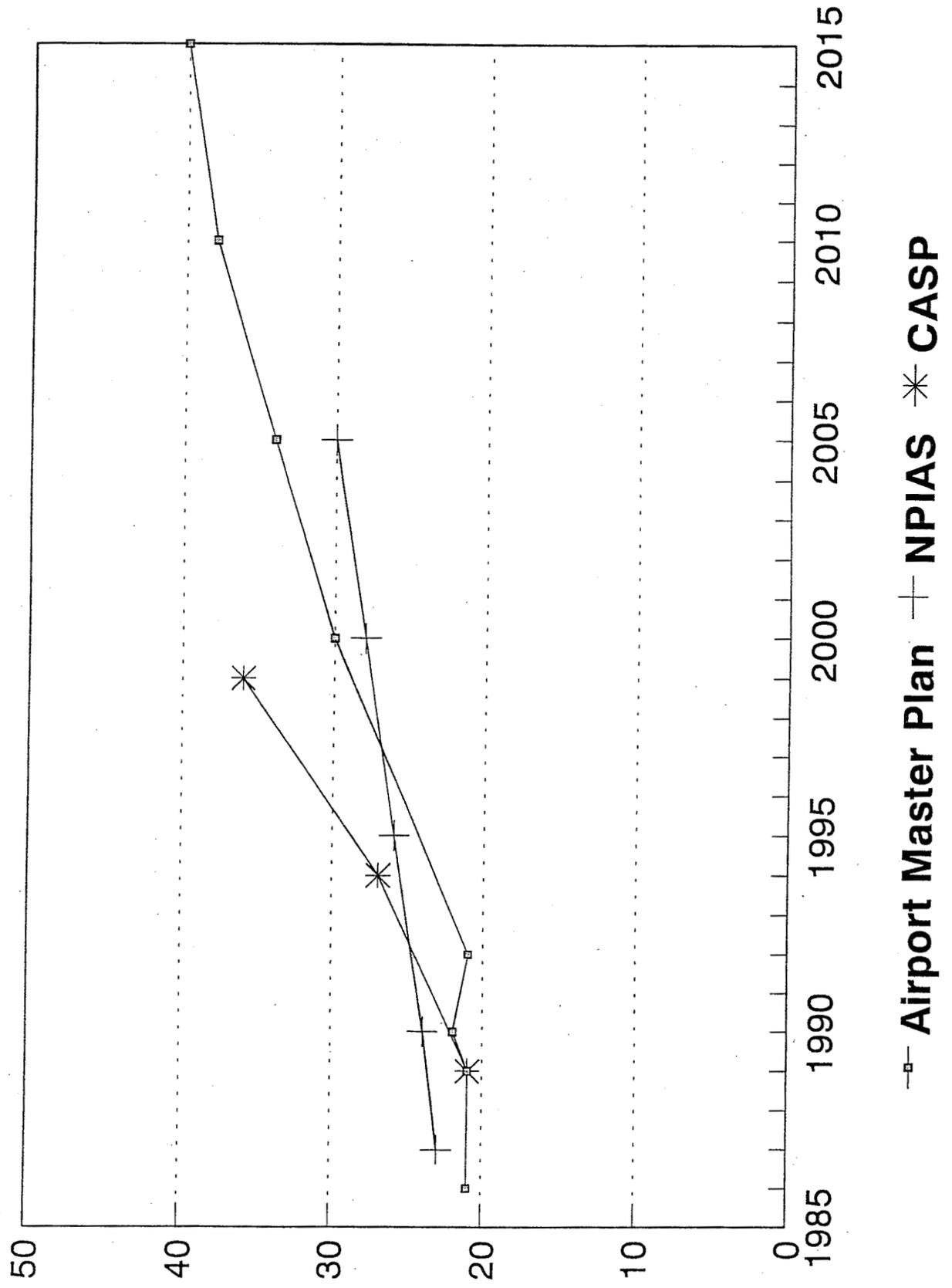


FIGURE 2

Over the ten-year planning period (through 1999) 36 aircraft are forecast to be based at the Gustine Municipal Airport with a total of 1,600 aircraft operations. Of the total operations, 800 (50 percent) are forecast as itinerant operations.

The California Aviation System Plan Update

Forecasts of based aircraft and aircraft operations for the Gustine Municipal Airport were prepared as part of the California Aviation System Plan (CASP) Update for the California Department of Transportation, Division of Aeronautics (Caltrans) in 1989. Total based aircraft are forecast to increase from 23 in the base year 1987 to 24 by 1990; to 26 by 1995; to 28 by 2000; and to 30 by 2005. Annual aircraft operations are forecast to increase from 13,650 in the base year 1987 to 14,414 by 1990; to 15,811 by 1995; to 17,326 by 2000; and to 18,885 by 2005.

It should be noted that Caltrans will be updating the CASP forecasts as part of its continuing aviation planning process. As part of the update process, the Merced County Association of Governments will work with Caltrans in updating forecasts for aviation facilities within the County. The results of this planning effort will not be available during the Gustine Municipal Airport master planning effort.

Chapter 3

EXISTING AIRPORT FACILITIES AND CONDITIONS

The Gustine Municipal Airport is geographically located in the west central portion of the County of Merced, California. The Airport is 1.5 miles east of downtown Gustine adjacent to State Highway 140. The Airport is located on about 45 acres of land at an elevation of 76 feet above mean sea level (MLS). The Airport is included in the Federal Aviation Administration's (FAA) National Plan of Integrated Airport Systems (NPIAS) as a General Aviation Airport. The FAA has established general aviation airport categories based on airport planning considerations. The Gustine Municipal Airport is classified as a Basic Utility Airport which accommodates most single-engine and many of the small twin-engine aircraft, or about 95 percent of the general aviation fleet.

The Airport is included in the California Aviation System Plan (CASP) prepared in 1989 by the State of California, Division of Aeronautics (Caltrans), as a Basic Utility, Stage I Airport. Caltrans defines the Basic Utility, Stage I airport as a facility serving 75 percent of the single-engine and small twin-engine aircraft used for personal and business purposes.

The existing facilities and conditions at the Airport that are important in the master planning process are the airfield, aviation, terminal area, general aviation, airport access and parking, airport support and utilities, other building areas and land use in the Airport environs. The existing airport facilities are presented on Figure 3, Existing Airport Facilities.

AIRFIELD

The airfield runway, taxiways, aircraft parking apron, pavement, soils and drainage conditions, and runway markings, lighting and navigational aids on the Airport are described below.

Runway

The orientation, physical dimensions and effective gradient of the runway are as follows:

<u>Runway</u>	<u>Orientation</u>	<u>Dimensions (feet)</u>	<u>Effective Gradient</u>
18-36	North-South	3,200 x 60	0.03%

Runway 18-36 is asphalt paved and painted with basic runway markings. The runway is equipped with medium intensity runway lights (MIRL). The runway bearing is north 16 degrees, 18 minutes and 30 seconds east, true.

Taxiways

The existing taxiway system provides access to and from Runway 18-36 for arriving and departing aircraft. The centerline-to-centerline distance between the parallel portion of the taxiway **and** runway is 200 feet. There is a midpoint exit taxiway from the runway and **an** exit/entry taxiway at both ends of the runway.

Pavement Strength

According to the latest FAA "Airport Master Record Form 5010-1", printed in July 1992, the runway is of asphalt construction and considered to be in good condition. The current estimated pavement strength is 12,000 pounds maximum gross weight for single-wheel landing gear configuration aircraft.

The taxiways and aircraft parking apron are considered to be in good condition.

Drainage

Because of the level terrain and high water table, drainage problems are encountered during periods of heavy rain, particularly on the north side of the **Airport**. Although the airfield itself does not flood, water encroaches on the apron area on the north side. A ditch has recently been dug along the west side of the airfield to alleviate the drainage problems on the north side. This ditch collects underground water and flows south to a pump at Carnation Road. Water is then pumped up and over a weir through a 30-foot pipe and drops into the east-west drainage ditch along the south side of the **Airport**. The ditch then extends along the east side of the **Airport** and eventually joins the east-west drainage ditch across the center of the airfield and flows east towards Santa Fe Grade Road.

A series of drains on the west side of the airfield empty into a sump just southwest of the midfield taxiway. An underground pipe then carries the water to the south side of the **Airport** property line, along Carnation Road, and then empties the water into an old inlet to connect to the City sewer system. This line collects the drainage from two drop inlets north of the wash rack and the ditch east of the hangar and taxiway area. An estimated 80 percent of the water is recovered through the pump at the south end of the airfield or stays on airport property.

AVIGATION

Avigation considerations include airspace and air traffic control, approach areas **and** obstructions, runway protection zones (formerly known as clear zones), navigational and landing aids, and meteorological conditions.

Airspace and Air Traffic Control

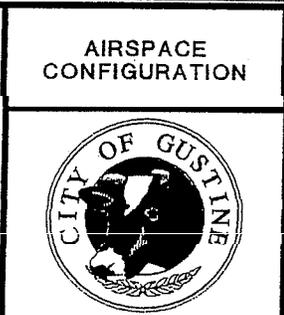
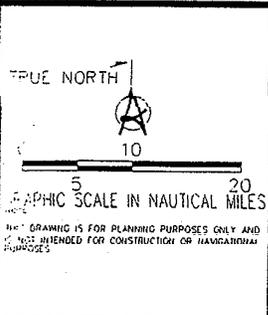
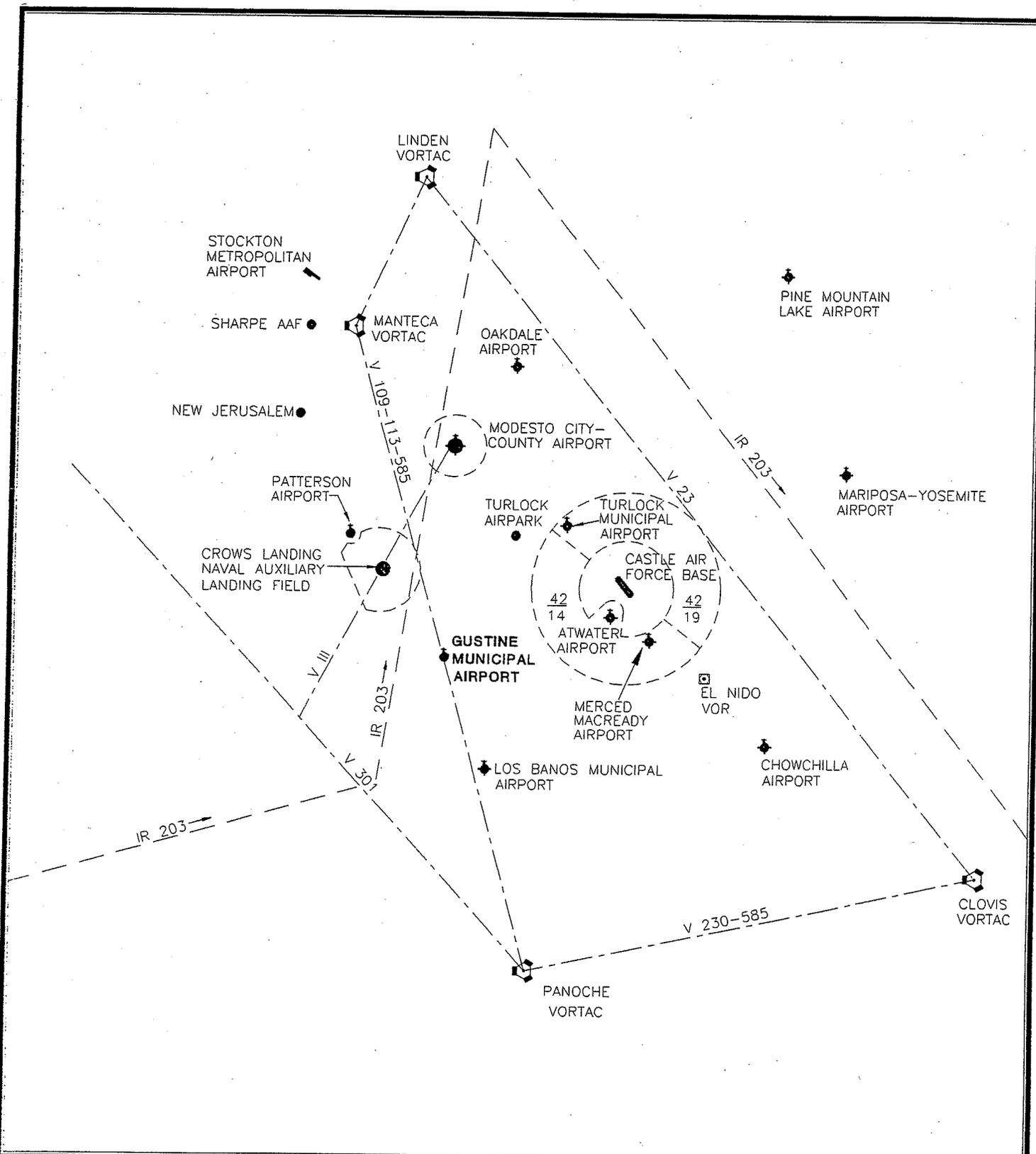
This section on Airspace and Air Traffic Control reflects the conditions existing at the time of report preparation prior to the closure of Castle Air Force Base in September 1995. Stockton Terminal Radar Approach Control (TRACON) has since assumed delegation of and Air Traffic Control (ATC) responsibilities within the airspace previously delegated to Castle Radar Approach Control (RAPCON), except for that portion east of the Victor airway V23. Therefore, wherever Castle RAPCON is referred to in this section it should read as Stockton TRACON.

In addition to the closure of Castle AFB, there has been a change of ownership at NAS Moffett Field from the U.S. Navy to NASA (now known as Moffett Federal Airfield), and Crows Landing ALF (now known as NASA Crows Landing). The Air Traffic Control Tower at Crows Landing is expected to close, leaving Crows Landing as an uncontrolled airport.

The Gustine Municipal Airport in relation to the major navigational aids, low altitude airways, low-level military training routes, IFR approaches, other airports, Airport Radar Service areas and Alert areas is shown on Figure 4.

There are several navigational aids that provide the basis of the low altitude airway structure in the area. The closest to Gustine is the Modesto VOR/DME. There are also the Manteca, Linden, Panoche and Clovis VORTACs. A VORTAC is the co-location of a very high frequency omnidirectional range station (VOR) and an ultra high frequency tactical air navigational aid (TACAN). DME means distance measuring equipment, and is provided with all TACANs. A VOR may have a DME co-located as in the case of the Modesto VOR/DME. All of these navigational aids, with the exception of Linden, are also used as the basis for instrument approach procedures to other airports in the area. Additionally, the Castle TACAN and the El Nido VOR/DME are used as the basis for instrument approach procedures for Castle Air Force Base (Castle AFB), and the El Nido VOR/DME is used as the basis for an instrument approach procedure to the Merced Municipal-Macready Field Airport.

The approximate directions and distances, in nautical miles (NM), from the Gustine Municipal Airport are as follows:



LEGEND

V 23	LOW ALTITUDE AIRWAY
IR 203	MILITARY TRAINING ROUTES
	COMBINED VOR AND TACAN (VORTAC)
42 19	EFFECTIVE ALTITUDES OF CASTLE AFB ARSA

FIGURE NO. **4**

GUSTINE MUNICIPAL AIRPORT MASTER PLAN

TRARIES CONSULTANTS LTD.

MERCED COUNTY, CALIFORNIA

NAME: GUS-04AC NO: 4120-04
DATE: 08-20-06 PLOT SCALE: 1"=10.560'

<u>NAVAID</u>	<u>Direction</u>	<u>Distance</u>
Modesto VOR/DME	North	22 NM
Manteca VORTAC	North-northwest	36 NM
Linden VORTAC	North	49 NM
Panoche VORTAC	South-southeast	34 NM
Clovis VORTAC	East-southeast	60 NM
Castle TACAN	East-northeast	20 NM
El Nido VOR/DME	East-southeast	28 NM

The Gustine Municipal Airport is 11 nautical miles (NM) south-southeast of the Crows Landing Naval Auxiliary Landing Field, 20 NM west-southwest of Castle AFB and 22 NM south of Modesto City-County Airport-Harry Sham Field.

The Gustine Municipal Airport lies below airspace that is controlled by the Oakland Air Route Traffic Control Center (ARTCC) and the Castle Radar Approach Control (RAPCON) facility at Castle AFB. The ARTCC, commonly known as the Center, provides ATC for en route IFR aircraft above and outside of Castle RAPCON's delegated airspace. RAPCON provides ATC for approach and departure of IFR aircraft within their airspace and IFR en route aircraft transiting their airspace.

The following airports within the Castle RAPCON's delegated airspace currently have published instrument approach procedures:

- Castle Air Force Base
- Crows Landing Naval Auxiliary Landing Field
- Firebaugh Airport
- Los Banos Municipal Airport
- Merced Municipal-Macready Field
- Modesto City-County Airport-Harry Sham Field

The Castle RAPCON terminal area airspace serves a wide range of civil and military aircraft operations, both IFR and VFR. The main difference between IFR and VFR is that the pilot maintains spatial orientation of the aircraft by reference to avigational instruments for IFR operations and by visual reference to the ground for VFR operations. VFR activity requires good visibility whereas flight activities conducted during poor visibility must be accomplished under IFR. Meteorological conditions that permit flight under VFR rules are prescribed in the Federal Aviation Regulations Part 91 "General Operating and Flight Rules", Paragraph 155, in terms of visibility and distance from clouds.

Gustine Municipal Airport is a VFR airport as it does not have a published instrument approach procedure. However, aircraft can be radar vectored toward the Airport at the **minimum** vectoring altitude or be cleared along the V-23 airway at the minimum en route altitude and if the pilot makes visual contact with the Airport and has basic VFR conditions, he may cancel IFR and land VFR.

In the **normal** operation of the Castle RAPCON airspace, as IFR arrival aircraft near RAPCON airspace, Oakland Center (or an adjacent TRACON) clears them to descend from en route altitudes and transfers control to Castle RAPCON as they enter RAPCON's airspace. RAPCON has the responsibility for controlling aircraft from this point to the final approach course for the airport of intended landing **while** maintaining prescribed separation from other aircraft. Radar vectoring by RAPCON controllers is the **normal** means of navigation to the **final** approach course. As aircraft near the final approach course, they are descended further **and** cleared for the approach and directed to contact the respective airport's Air Traffic Control Tower (ATCT) for clearance to land. If the airport does not have a control tower, then the pilot is cleared to use that airport's Common Traffic Advisory Frequency (CTAF) to advise other pilots in the area of his location and intention to land.

Departing IFR aircraft are sequenced and separated by RAPCON from other departing and **arriving** aircraft operating to and from all of the airports within Castle's delegated airspace. As the aircraft depart or climb above RAPCON's airspace, control is transferred to Oakland Center (or an adjacent TRACON).

Unlike IFR flights, VFR flights are not controlled by the ATC system except when flying in airspace under the jurisdiction of an operating control tower. There are three airports within Castle RAPCON's airspace with control towers. They are Castle AFB, Crows Landing Naval Auxiliary Landing Field (Crows Landing NALF) and Modesto City-County Airport-Harry Sham Field.

Castle AFB has Class C airspace (formerly ARSA). Class C airspace requires the pilot to make two-way radio contact before entering and maintain communications with the ATC facility providing services--in this case, Castle RAPCON and, as appropriate, Castle Tower. In Class C airspace, VFR aircraft are provided separation from IFR aircraft. Basic radar services are provided beyond the boundaries of the Castle AFB Class C airspace for VFR aircraft on a workload-permitting basis when requested by the pilot.

Crows Landing NALF and Modesto City-County Airports have Class D airspace (formerly Airport Traffic Areas). Class D airspace requires the pilot to make two-way radio contact before entering and maintain communications with the ATC facility providing services--in these cases, Crows Landing Tower and Modesto Tower, respectively. In Class D airspace, VFR aircraft are not provided separation from IFR aircraft and must "see and avoid" other traffic. Advisories of other traffic are provided, however.

The Class C and Class D airspace boundaries are shown on Figure 4. The Class C airspace is effective from the surface to 4,200 feet above ground level (AGL) within 5 NM of Castle AFB, except for a small area around the Atwater Airport, and from 1,400 feet AGL to 4,200 feet AGL within 10 NM southwest of Castle AFB, and from 1,900 feet AGL to 4,200 feet AGL within 10 NM to the northeast of Castle AFB. The Class D airspace for Crows Landing NALF is effective from the surface to 2,500 feet within 5 NM of Castle AFB except for an excluded area to the west and a small area around the Patterson Airport. The Class D airspace for Modesto City-County Airport is effective from the surface to 2,500 feet within 4 NM of the airport.

There is one low-level military training route (MTR) in the general area. This is IR-203, an IFR training route with aircraft traveling in a northerly direction at approximately 5 NM to the west of Gustine Municipal Airport. This same route returns with aircraft traveling in a southeasterly direction at approximately 40 NM to the northeast of the Gustine Municipal Airport. The aircraft using this route travel at high speeds between 7,000 feet MSL and 12,000 MSL. Pilots can obtain information on usage of this route by contacting either the Sacramento or Fresno Flight Service Stations (FSSs).

Castle AFB has a heavy volume of B-52 and KC-135 training flights conducting practice instrument approaches, Monday through Friday. For this reason, an Alert Area (A-251) has been established to warn pilots of heavy activity. This Alert Area is depicted on aeronautical charts. It is approximately 7 NM wide, extending approximately 5 NM to the northwest and approximately 30 NM to the southeast of Castle AFB. The Castle Class C airspace is superimposed over the northwesterly part of Alert Area A-251. The effects of this closure, particularly on air traffic control and the requirement for Class C airspace and alert area A-251, are addressed in the Airport Facility Requirements chapter later in this report.

Approach Areas and Obstructions

The FAA Airport Master Record Form 5010-1, and other maps and charts were reviewed to help identify obstructions as defined by Federal Aviation Regulations, (FAR) Part 77, "Objects Affecting Navigable Airspace." FAR Part 77 establishes imaginary surfaces, related to airports and their runways, that are used to identify obstructions.

The following data show the FAR Part 77 approach slopes, compared with existing obstacle/obstruction controlled approach slopes, and other information relative to the controlling obstacle/obstruction.

Controlling: Obstacle/Obstruction:
 Location from Runway threshold
 related to extended Runway
 Centerline

<u>Runway No.</u>	<u>Elevation</u>	<u>FAR Part 77 Slope</u>	<u>Actual Slope</u>	<u>Type of Obstruction</u>	<u>Location</u>
18	75	20:1	19:1	Road	490 feet along the extended runway centerline and 155 feet to the west
36	76	20:1	36:1	Poles	1,259 feet along the extended runway centerline on south side of Carnation Road

There are a fence, drainage ditch, 4-foot berm and 6-foot berm east of the runway centerline along the south end of the runway. The fence and berms were moved to their current locations as part of FAA ADAP Project No. 5-06-0096-01 in 1978 to extend the runway to the south. According to the Record Drawings for the construction project, and also the current FAA-approved Airport Layout Plan, the fence was to be relocated to 160 feet east of the runway centerline. However, based on recent field surveys by the City and California Department of Transportation, Aeronautics Program (Caltrans), the fence is actually located 75 feet from the runway centerline at its closest point.

The fence, drainage ditch and two berms have been in their present locations for over 17 years, and the Airport has been inspected several times since then by both FAA and Caltrans for FAA Form 5010-1 updates and State permit compliance inspections. The discrepancy was pointed out by Caltrans as a result of their March 7, 1995 airport inspection.

Runway Protection Zones

Parts of the runway protection zones (RPZs) are outside the Airport property line, as shown on Figure 3, Existing Airport Facilities. The runway protection zone for Runway 36 lies almost entirely within the property line, with a small portion extending beyond the property line to the west. Most of the RPZ for Runway 18 extends beyond the property line to the north with a portion extending across State Highway 140 to the west. The City has aviation easements over those portions of the RPZs that extend beyond the Airport property lines.

Runway protection zone dimensions are based on FAR Part 77 approach surface dimensions out from the runway to where the approach surface is 50 feet above the runway threshold. The approach surface starts at 200 feet beyond the runway threshold. For the existing runway

at the Gustine Municipal Airport, the runway protection zone dimensions are an inner width of 250 feet, a length of 1,000 feet and an outer width of 450 feet. The runway protection zone widths are centered on the extended runway centerline.

Navigational and Landing Aids

The nearest navigational aid is the Modesto VOR/DME located on the Modesto City-County Airport. The Gustine Municipal Airport underlies the V109-113-585 airway at approximately equal distance between the Manteca and Panoche VORTACs.

There are visual approach slope indicators (VASI-2) at both ends of the runway. An airport rotating beacon is located west of the runway. There is a segmented circle with lighted wind indicator located on the east side of the runway. In addition to the wind indicator at the segmented circle, there is a tetrahedron located on the west side of the runway.

Meteorological Conditions

According to the Draft Inventory Element of the Central California Aviation System Plan, weather conditions historically have been generally mild temperatures and moderate rainfall. The location of Merced County between the California coastal range and the Sierra Nevada Range contributes to its climate with mild winters and dry summers. The seasons are characterized by a short rainy period from December to February followed by a long dry period. The average annual rainfall is 8 to 12 inches. Clear skies and dry air are typical from March to November. Daytime temperatures are hot, rising to 100 degrees or above during the summer. Evening temperatures, however, can drop thirty degrees from the daytime temperatures. In the winter, the area is susceptible to significant amounts of fog. The fog is generally formed between the months of December and February. The average temperature in the County ranges from a minimum of 36 degrees Fahrenheit in January to a maximum of 96 degrees Fahrenheit in July with the mean maximum temperature of the hottest month of the year being 79 degrees Fahrenheit. The average minimum monthly rainfall is a trace occurring in July and the maximum being 2.5 inches occurring in January. The average rainfall amounts to approximately 11 inches annually.

The winds during all weather conditions at Gustine Municipal Airport are generally from the north and north-northwest with speeds averaging 7 to 8 knots. Stronger winds averaging more than 10 knots are generally from the north-northwest. The strongest winds have been recorded at 22 to 27 knots from the northwest. The winds are calm approximately 24 percent of the time.

The existing runway alignment provides approximately 93 percent coverage. This includes allowable crosswinds of 10.5 knots for the width of the existing runway (less than 75 feet) based on a wind rose diagram prepared from correlated wind data taken at Castle AFB and Los Banos Municipal Airport.

During instrument weather conditions, the winds are generally from the northwest with speeds ranging from 4 to 7 knots. Weather conditions describing "instrument class" are: ceiling 200 feet to 1,400 feet with visibility 1/2 mile or more and/or visibility 1/2 mile to 2-1/2 miles with ceiling 200 feet or more. Stronger winds during these conditions range from 17 to 21 knots with the strongest recorded speeds being in the range of 22 to 27 knots. Also during these conditions the winds are calm approximately 48 percent of the time.

Weather conditions which were at or below VFR weather minimums occurred approximately 11 percent of the time during the period 1968 to 1970 and 1973 to 1980 based on data from Castle AFB. VFR weather minimums require ceilings equal to or greater than 1,000 feet and visibilities equal to or greater than 3 miles. Weather conditions classified as Marginal VFR weather occurred approximately 7 percent of the time during the same period. Marginal VFR weather is defined as ceilings 1,000 to 3,000 feet and visibilities 3 to 5 miles inclusive.

GENERAL AVIATION

There is one tiedown apron area on the Airport. This aircraft parking apron is west of the center of the runway and provides space for six tiedowns. Transient aircraft can park at any available tiedown space. Space is available for an estimated 19 aircraft in hangars.

There are no fixed base operator facilities on the Airport. Ham's Flying Services provide cropdusting services to surrounding agriculture properties.

A 60 foot by 60 foot aircraft wash pad was recently installed south of the taxiway and hangar area. Water from the wash pad is recaptured through a drain that carries runoff to the sump on the south side of the wash pad.

AIRPORT ACCESS AND PARKING

Access to the Airport from the City of Gustine is via State Highway 140, a distance of about 1-1/2 miles.

Automobile parking is available along the fence line west of the aircraft parking apron. An estimated 30 spaces are provided. A number of these spaces are reserved during duck hunting season as a major duck and geese flyway is located east of the Airport.

AIRPORT SUPPORT

Airfield maintenance is performed by City employees under the City Parks and Recreation Department on an as-required basis when time and resources permit.

The nearest fire station is staffed by the California Department of Forestry and is located approximately 1-1/2 miles away in the City of Gustine. The City also has an all-volunteer fire department located next to City Hall in downtown Gustine 1-1/2 miles from the Airport.

Fuel is stored in an underground 12,000-gallon fuel tank located just north of the midfield taxiway. 100-octane av gas is available through a keylock system. Prior notification must be given to access the fuel. Ham's Flying Services provide access to the keylock system on weekends.

Water is provided by a well located in a pumphouse located north of the aircraft parking apron. There is potable water on the An-port. There is one portable restroom on the Airport.

Electrical power is provided by Pacific Gas & Electric (PG&E). A pay telephone is serviced by Pacific Bell.

Security is provided by the City of Gustine Police Department. The airport is entirely fenced along the property line. There are three gates providing access from State Highway 140. However, the north and south gates are closed at all times with access to the Airport provided through the center gate north of the aircraft parking apron.

OTHER AREAS

There is radio controlled model aircraft activity currently operating on the Airport at the north end of the runway by the Gustine RC Club.

Chapter 4

AIRPORT FACILITY REQUIREMENTS

The major elements of the Airport, which were described in Chapter 3, must be analyzed individually and balanced in relation to one another as part of the airport layout and master planning process for the Gustine Municipal Airport. These major elements are:

- Airfield
 - a Avigation
- General Aviation Facilities
 - a Airport Access and Parking
 - a Airport Support and Other Facilities

The existing facilities must be evaluated, and their ability to satisfy forecast aviation demand throughout the planning period, as set forth in Chapter 2, must be determined. From these evaluations, the requirements for any additional facilities and improvements can be established. These requirements will, in turn, provide the basis for the recommended 2015 Airport Master Plan.

A summary of the major requirements for facilities and improvements at the Airport through the year 2015 is presented in Table 4-1. Existing facilities are also listed for purposes of comparison.

AIRFIELD

The following analysis of airfield requirements covers runway and taxiway dimensions, airfield pavement, and airfield capacity.

Airport Reference Code

According to FAA planning criteria, Gustine Municipal Airport is classified as a General Aviation Basic Utility Stage II Airport in the National Plan of Integrated Airport Systems (NPIAS). A Basic Utility Stage II Airport is intended to serve 75 percent of the single-engine and small twin-engine aircraft used for personal and business purposes.

FAA Advisory Circular (AC) 150/5300-13, "Airport Design," establishes an airport reference code (ARC) to identify specific design criteria appropriate for the types of aircraft expected to be accommodated at a particular airport. The ARC has two components. The first is a letter referring to the "aircraft approach category" in terms of approach speed. The second is a Roman numeral referring to the "airplane design group" in terms of wingspan.

Table 4-1

EXISTING FACILITIES AND FUTURE REQUIREMENTS
Gustine Municipal Airport
1996-2015

	<u>Existing</u> <u>1996</u>	<u>2000</u>	<u>2005</u>	<u>2010</u>	<u>2015</u>
AIRFIELD					
<u>Runway 18-36</u>					
Length (feet)	3,200	3,200	3,700	3,700	3,700
Width (feet)	60	60	60	60	60
Pavement strength (pounds)					
- Single-wheel aircraft	12,000	12,500	12,500	12,500	12,500
- Dual-wheel aircraft	---	12,500	12,500	12,500	12,500
<u>Taxiways</u>					
Width (feet)	30	30	30	30	30
GENERAL AVIATION FACILITIES					
Hangars (spaces)	19	22	24	28	32
Tiedowns (spaces)	6	9	12	15	18
AIRPORT ACCESS AND AUTOMOBILE PARKING					
Access roadway lanes (2-way)	2	2	2	2	2
Automobile parking spaces	30	35	45	55	60

Source: Aries Consultants Ltd.

According to the airport reference code (ARC) definitions contained in AC 150/5300-13, the existing airfield dimensions meet the criteria for ARC B-I. Approach Category B includes aircraft with approach speeds of less than 121 knots. Airplane design group I accommodates aircraft with wingspans up to 49 feet.

However, some Approach Category C aircraft, with approach speeds of 121 knots and above use, and are expected to continue to use, the Airport on an occasional basis. These aircraft would be within design group 1. FAA AC 150/5300-13 recommends a runway centerline to taxiway centerline separation of 300 feet for airplanes in ARC C-I. The existing centerline-to-centerline separation is 200 feet which is 50 feet more than the requirements for aircraft in ARC B-I. Appendix 8 of FAA AC 150/5300-13, "Runway Design Rational," may allow for a waiver of the standard criteria for **ARC** C-I because these aircraft will not penetrate the Runway Object Free Zone (OFZ).

Representative airplanes for the above ARCs are as follows:

B-I	Cessna Citation I Gates Learjet 28/29 Beech King Air F90/B100
C-I	Gates Learjets 24, 25, 54, 55 and 56 HS 125 series 400A, 600A and 700A Rockwell Saberliner 75A

Based on the existing and expected percentages of usage by airplane types and the potential of the Airport to meet standard criteria, an ARC of B-I should be used for the Master Plan. This would allow occasional usage by airplanes in ARC of C-I.

Runway Length

FAA AC 150/5325-4A, "Runway Length Requirements for Airport Design," provides design standards and guidelines for determining recommended runway length. For airplanes of 60,000 pounds or less, runway length curves are provided for families of airplanes. The FAA has derived these curves with data from FAA approved aircraft flight manuals and assumed loading conditions.

According to FAA AC 150/5325-4A, the recommended runway length to accommodate 95 percent of small airplanes (less than 12,500 pounds maximum gross weight) at the Gustine Municipal Airport is 3,200 feet. To accommodate 100 percent of this fleet would require 3,700 feet. This is the practical limit within the existing airport boundary. These runway lengths are corrected for elevation (76 feet) and temperature (93° F).

For aircraft between 12,500 pounds and 60,000 pounds maximum gross weight, FAA AC 150/5325-4A indicates a recommended runway length of 6,000 feet to accommodate 75 percent of the fleet (i.e., Cessna Citation II, III and Beech Airliner) with 60 percent useful load and 7,500 feet to accommodate 100 percent of the fleet (i.e., Canadair-CL-600 and Lockheed 1329 Jetstar) with 60 percent useful load.

Useful load consists of passengers and baggage, cargo, and useful fuel. The 6,000 and 7,500 feet lengths are corrected for elevation (76 feet), mean **maximum** temperature (93° F) and runway gradient (0.03 percent).

The existing runway length of 3,200 feet will accommodate the aircraft listed under ARC B-I. The Gates Learjet 28 or 29 would be weight restricted at times. Although the Learjet 24 is listed under ARC C-I it can operate from the existing runway most of the time without a weight restriction. A runway length of 3,700 feet can accommodate 100 percent of the small airplane fleet and, in addition, some aircraft listed under ARC C-I could operate on an occasional basis with less weight restrictions.

Therefore, on the basis of analysis and discussions regarding the types of aircraft using and expected to use the Airport, a runway 3,700 feet long and 60 feet wide should ultimately be planned for during the twenty-year planning period.

Airfield Pavement

The estimated existing airfield pavement strength is 12,000 pounds (gross weight) for single-wheel aircraft. The estimated airfield pavement strengths, by aircraft landing gear configuration, should be planned for up to 12,500 pounds (gross weight) for single-wheel and dual-wheel aircraft. These pavement strengths would **accommodate** all current and forecast aircraft operations through the year 2015. If heavier than 12,500 pound aircraft were introduced at the Airport, runway pavement overlays would be required.

Airfield Capacity

The FAA technique for estimating airfield capacity (FAA Advisory Circular 150/5060-5, "Airport Capacity and Delay") was used to compute hourly capacity and annual service volumes for both the existing airfield and potential improvements evaluated as part of this study.

A single runway airfield, with a full-length parallel taxiway has an hourly capacity of about 90 operations during visual flight rule (VFR) conditions and zero operations during instrument flight rule (IFR) conditions without an IFR approach procedure. With a potential future

nonprecision instrument approach, the hourly capacity is estimated to be about **30** to 40 operations an hour during IFR conditions depending on the configuration of a future approach procedure.

The peak hour demand is forecast to be less than 5 operations per hour by the end of the planning period.

Annual service volume (ASV) is a reasonable estimate of an airport's annual capacity in terms of aircraft operations that may be used as a reference in airport planning. The ASV is the annual volume of aircraft operations beyond which the average delay to each aircraft increases rapidly with relatively small increases in aircraft operations (and beyond which the levels of service on the airfield deteriorate).

The **annual** service volume of a single runway airfield is about **230,000** operations. By comparison, according to the forecasts presented in Table 2-5, air **traffic** is expected to reach a level of only 5,500 operations by the year 2015.

Therefore, a single **runway** airfield will provide adequate capacity to accommodate the forecast demand throughout the year 2015 planning period.

Taxiways

The existing section of parallel taxiway should be extended to the north along the full length of the existing runway, and to the south for any future runway extension. A taxiway width of at least 25 feet is required to **accommodate** the forecast aircraft types. The existing taxiways are 30 feet wide and this width should be maintained.

The parallel taxiway **centerline** should remain at least 200 feet **from** the existing **runway** centerline for ARC B-I aircraft. The minimum distance **from** a taxiway centerline to a fixed or movable object should be at least 45 feet.

Crosswind Runway

Based on **an** analysis of available wind data, Runway 18-36 provides **93** percent crosswind coverage for winds of 12 MPH (10.5 knots) or less. However, based on discussions with airport users, adverse crosswinds are relatively frequent. A runway alignment of about 60 degrees counterclockwise of the existing **alignment** would provide 98 percent coverage. A runway alignment of 20 degrees counterclockwise would provide 97 percent coverage. However, either realignment has serious implications in terms of cost and other considerations, in particular the impact on the duck ponds adjacent to the east of the airport boundary. In addition, given that the existing runway alignment provides **93** percent coverage, it is unlikely that a crosswind, or realigned, runway would warrant FAA funding.

Other Airfield Dimensions

Based on-current FAA design criteria, **runway** safety areas 120 feet wide and runway object free areas 250 feet wide, centered on the runway, and extending 240 feet beyond the physical ends of the runway should be provided for airports with an ARC of B-I with visual or nonprecision approaches.

The runway object free area (OFA) is a relatively new criteria effective September 29, 1989, with the publishing of FAA AC 150/5300-13. The OFA is a rectangular area at ground level surrounding and centered on the runway and the same length as the runway safety area (RSA). There should be no objects within the OFA, according to FAA AC 150/5300-13, except objects fixed by a required aeronautical function.

To be in compliance with current airport design standards, FAA, in their January 19, 1996 letter, has recommended the fence, the 4-foot **berm**, and 6-foot **berm** to the east of the runway be relocated by the City to the original specified distance (at least 160 feet **from** the runway centerline) as required by FAA ADAP Grant 5-06-0096-01. The drainage channel pipe, under the center of the runway, should extend out at least 60 feet from the runway centerline to the edges of the runway safety area. The drainage channel pipe should also extend out 40 feet from the taxiway centerline to the edges of the taxiway safety area.

The recommended building restriction line (BRL) should be at least 370 feet **from** the runway **centerline** to accommodate small airplanes (less **than** 12,500 pounds) on a runway with visual or nonprecision approaches with visibility minimums of more than 3/4 statute mile.

The existing BRL of 250 feet was established in accordance with previous criteria (FAA Advisory Circular 150/5300-4B) and no buildings penetrate the existing BRL. Because only a few hangars that are in poor condition would penetrate a BRL of 370 feet, consideration should be given to establishing a new BRL of 370 feet to the west of the runway for any future development.

AVIGATION

Avigation considerations include, (1) airspace and air traffic control, (2) approach areas and obstructions, and (3) navigational and landing aids.

Airspace and Air Traffic Control

Castle AFB closed in September 1995 and with the closure the requirement for Class C airspace and Alert Area A-251 no longer exists. The Class C airspace has reverted to Class E airspace and Alert Area A-251 is gone. The Class E airspace over Castle Airport does not

extend from the surface, but from a floor of 700 or 1,200 feet upward to overlying or adjacent controlled airspace. The Castle Airport is now an uncontrolled airport as it no longer has an Air Traffic Control Tower.

Since the end of October 1995, Stockton TRACON has been providing ATC for the upper half of what used to be Castle RAPCON airspace. In November 1995, testing began for Stockton TRACON to provide ATC for the lower half of the airspace. The testing has been completed and Stockton TRACON's airspace now abuts the northwestern boundary of Fresno TRACON's airspace and the northern boundary of NAS Lemoore Radar Air Traffic Control Facility's (RATCF) airspace.

Existing airspace procedures and facilities provide for safe, orderly, and expeditious flow of air traffic. The aviation demand forecasts indicate activity levels will remain below the requirement for an Air Traffic Control Tower (ATCT).

In the vicinity of the Gustine Municipal Airport, existing procedures stated in the Airmen's Information Manual (AIM), published by the FAA, in paragraph 157 titled "Traffic Advisory Practices at Airports Without Operating Control Towers," subparagraph (f) titled "Self Announce Position and/or Intentions," are adequate for present and forecast traffic levels. This subparagraph provides procedures and phraseology for pilots to use over a Common Traffic Advisory Frequency (CTAF) to advise other pilots of their position and intentions. The Gustine Municipal Airport CTAF is published in the Airport/Facility Directory, published by the U.S. Department of Commerce, National Oceanic and Atmospheric Administration.

The Airport is within a migratory bird flyway. Duck ponds abut the eastern boundary of the Airport and extend some five (5) miles to the east. Extreme caution during migratory seasons is warranted.

Approach Areas and Obstructions

There is presently only one minor obstruction within the approach surfaces to Runways 18 or 36, as stated in Chapter 3. A very small segment of State Highway 140 is not quite 15 feet below the nearest westerly part of the Runway 18 approach surface. In the past, the end of Runway 18 was relocated to the south to provide the 15-foot clearance. If this existing condition has not been grandfathered or waived by FAA, then it could require a further relocation of the Runway 18 threshold by about 10 feet to the south. If the runway is to be extended to the south, the east-west power lines south of the Airport along Carnation Road will have to be put underground.

The land area within the existing Airport boundary is not sufficient to provide for significant runway extension and the associated runway protection zones at each end. When evaluating land acquisition requirements, consideration should be given to providing adequate runway

protection zones (RPZ) within the Airport boundary. To protect the greatest potential for the Airport, land sufficient to provide RPZs for small aircraft should be considered at both ends. These would be 1,000 feet long, 250 feet inner width and 450 feet outer width.

Navigational and Landing Aids

It may be desirable to establish an instrument procedure for the Airport. Nonprecision approach procedures appear feasible. An approach to the Airport could probably be designed based on the Modesto VOR/DME. However, it would be more desirable and useful to provide a nonprecision approach with straight-in minimums. This could be accomplished by using a new navigational aid such as a localizer or TVOR located on the Airport. If the Global Positioning System (GPS) proves successful for nonprecision approaches then a GPS approach to Runway 18 or 36 should be considered.

New medium intensity runway lights (MIRL) should be planned for any extension of Runway 18-36. Medium intensity taxiway lights (MITL) should be planned for both the existing and any new taxiways. The VASI-2 on Runway 36 will require relocation if the runway is extended to the south. The tetrahedron will require relocation if the parallel taxiway is extended to the north.

GENERAL AVIATION

On the basis of the general aviation activity forecasts presented in Table 2-5, it is estimated that space will be required for about 40 based aircraft by the year 2015. Up to four-fifths (32) of the based aircraft should be planned to be accommodated in T-hangars or conventional hangars on approximately 3 acres in the long-range plan. Ideally, the aircraft storage hangars should be consolidated in the same general area.

Provision for one-fifth (8) of the based aircraft in tiedown spaces should be planned for which would require approximately one (1) acre. A tiedown area of up to one (1) acre should be provided for up to 10 itinerant aircraft near the existing and future aircraft parking areas and the potential new terminal/administration building. It would be desirable to park any occasional large aircraft (over 12,500 pounds) using the Airport on a separate tiedown area away from the small aircraft.

Adequate space should be provided for at least two (2) lease plots for fixed base operator/commercial aviation activity. The plots should have expansion capability and access to the airfield and provide adequate automobile parking space for employees and patrons. In addition, sufficient areas should be reserved for other aviation related activities including aircraft refueling, aircraft wash rack and automobile parking areas.

AIRPORT ACCESS AND PARKING

The access road from State Highway 140 to the Airport will be adequate to serve the forecast traffic through the planning period.

Automobile parking spaces should be provided near the existing and future aircraft parking areas and any potential administrative/terminal facilities area for public and employee parking. Up to 60 automobile parking spaces should be provided for public and employee use on the An-port.

AIRPORT SUPPORT

An-port support facilities, depending on the level of activity, include City airport administration/terminal and maintenance facilities, fuel storage, utility systems and reservation of space for any potential future facility such as aircraft rescue and firefighting (ARFF) facilities.

Space should be provided for a future administration/terminal facility and for the storage and maintenance of City-owned airport maintenance equipment.

There is no current or forecast requirement for an ARFF facility on the Airport for general aviation activity.

The existing underground fuel storage tank will have to be replaced with an above ground tank by 1998.

Additional utility systems (electrical power, gas supply, water, sewer and telephone) extensions will be required to serve any new areas that may be developed on the Airport based on the selected airport development concept. Based on recent tests, there is potable water available at the Airport.

The existing drainage system will require modification based on the selected long-range Master Plan.

Chapter 5

RECOMMENDED AIRPORT MASTER PLAN

The recommended year 2015 Airport Master Plan (the Plan) for the Gustine Municipal Airport is illustrated on Figure 5. The Terminal Area and Access Plan is shown in more detail on Figure 6. The Plan integrates long-term airfield and terminal area requirements with forecast aviation demand and airport access and parking needs. It represents a guide for airport development through the year 2015 planning period.

Several airport development concepts were formulated and evaluated for review prior to the City's selection of the recommended long-range Airport Master Plan. These alternatives are presented in Appendix A of this report. The alternative development concepts were presented and discussed with the Gustine Municipal Airport Commission on January 23, 1995. As a result of this meeting, the Commission recommended that Alternative Airport Development Concept 2 be used as the basis for formulating the 2015 Airport Master Plan. A Public Hearing on the recommended Airport Master Plan was held on June 12, 1995.

The primary functional areas of the Plan, as illustrated on Figure 5, are:

- Airport Property
- Airfield
- Avigation
- General Aviation
- Airport Access and Parking
- Airport Support
- Other Areas

General adherence to the land use recommendations and circulation pattern shown on Figure 5 will ensure that continuing development of the Airport may take place in an orderly manner within the framework of long-range potential development.

From a physical planning standpoint, an important consideration is to reserve sufficient land area now (before the surrounding land is fully developed) for the development of airport facilities capable of accommodating possible long-range air traffic requirements associated with potential demand. Future adjacent development can then be guided by the long-range air traffic potential so that the Airport will be protected from encroachment by incompatible land uses, and the surrounding area will be protected from airport operations. Actual physical facilities should be constructed only as the demand arises.

In addition to the Airport development described in this Chapter, the master planning process should properly provide for the reservation of sufficient land to accommodate facilities that may be required beyond the year 2015. The purpose is to preserve the long-range development potential of the Airport, thereby guaranteeing the longevity of the Airport beyond the current planning period.

There are several reasons for planning in this manner. If air traffic demand increases more rapidly than is forecast in this report, facilities beyond those recommended herein through the year 2015 may be needed. Conversely, if air traffic demand increases more slowly than is forecast, the construction of facilities may be deferred until the demand develops.

The basic elements of the Plan are described below.

AIRPORT PROPERTY

Portions of the future runway protection zone for Runway 36 will extend beyond the physical boundaries of the Airport when the runway is extended by 500 feet to a length of 3,700 feet. Ideally, the City should acquire in fee all the land within the future Runway 36 runway protection zone. However, the expanded runway protection zone south of Carnation Road is over a portion of the 500 acres of land the City is acquiring for the expansion of the City's Wastewater Treatment Facility. It is recommended that an avigation easement be recorded for that portion (about 3.6 acres) of the runway protection zone that will be required for the future extension of the runway. In addition, the City should increase the area already included in the existing avigation easement over a portion of private land north of Carnation Road for the expanded runway protection zone by about 0.2 acres. Obtaining avigation easements with adequate land interest now will ensure the unobstructed overflight of aircraft landing or taking off when the runway is extended and also provide for the safety of people on the ground.

AIRFIELD

The recommended year 2015 airfield configuration, illustrated on Figure 5, provides for the extension of Runway 18-36 to the southwest with a full-length parallel taxiway. The runway extension provides adequate length to handle the forecast air traffic demand. The Plan is intended to accommodate aircraft primarily in Airport Reference Code B-I with occasional use by larger C-I aircraft.

Runway 18-36

The Plan recommends extending Runway 18-36 by 500 feet to the south to 3,700 feet to accommodate the aircraft that would be expected to use the Airport during the planning period. The existing runway width of 60 feet is retained and planned for the full length of

the extended runway. Runway safety areas 120 feet wide and runway object free areas 250 feet wide, both extending 240 feet beyond each end of the runway, are also provided.

Taxiways

The parallel taxiway is retained at 200 feet centerline-to-centerline from the runway. The taxiway is extended 500 feet to the south and also 1,450 feet to the north to connect to the existing taxiway from the current hangar and tiedown area. The taxiway is retained and extended at 30-foot width. An entry/exit taxiway is planned for the future extension of the runway. Holding aprons are provided at each end of the extended runway.

Airfield Pavement

The airfield pavement should be designed to accommodate single- and dual-wheel aircraft with 12,500 pounds maximum gross weight. The existing airfield pavement strength (12,000 pounds gross weight) is planned for an overlay for operations by aircraft currently using and expected to use the airfield. Additional runway pavement overlays would be required if aircraft over 12,500 pounds maximum gross weight are to use the Airport.

AVIGATION

Avigation considerations in the Plan include airspace and air traffic control, approach areas and obstructions, runway protection zones (formerly called clear zones), navigational and landing aids.

Airspace and Air Traffic Control

The weather at the Airport is below VFR minimums approximately 11 percent of the time. Between the months of December and February, significant amounts of fog can exist at times for several days or weeks at a time. Based on available data and the air traffic forecasts, the provision of a nonprecision instrument approach procedure would substantially enhance the utility of the Airport. It is anticipated that Stockton TRACON will provide approach and departure control for the Gustine Municipal Airport in the future instead of Castle RAPCON.

Approach Areas and Obstructions

Runway protection zones for small aircraft (1,000 feet long, 250 feet inner width and 450 feet outer width), with approach visibility minimums not less than one (1) mile and an approach surface slope of 20:1, are provided for Runways 18 and 36.

A building restriction line (BRL) at 370 feet to the west of the Runway 18-36 centerline is recommended. The BRL is retained at 250 feet east of the Runway 18-36 centerline for future control of development on the east side of the Airport.

FAA should be requested to determine whether the threshold of Runway 18 should be relocated by approximately another 10 feet to the south to provide the required 15-foot clearance over State Highway 140 or if the existing conditions can be grandfathered or waived. The east-west power lines south of the Airport along Carnation Road are recommended to be put underground for the extension of Runway 18-36 to the south.

The California Department of Transportation, Aeronautics Program (Caltrans) conducted a site visit to the Airport on March 7, 1995 to update the FAA Airport Master Record Form 5010-1 and to perform the State permit compliance inspection. In the Caltrans March 10, 1995 letter to the City on the findings of their inspection several items were noticed to the City including the following:

"There is an irrigation canal and low embankment in the runway safety area (RSA). The embankment has been graded since our last inspection and is safer than before. However, the canal and embankment are not allowable in the RSA and should be relocated to be at least 60 feet from the runway centerline.

There are a fence, a four-foot berm and a six-foot berm approximately 75 feet east of the runway centerline along the south end of the runway. These objects penetrate the runway primary surface and should be evaluated by the Federal Aviation Administration (FAA) to determine if they are hazards to air navigation".

The irrigation canal pipe and relocation of the fence and berms were to be accomplished as part of a project funded by an FAA ADAP Grant 5-06-0096-01 in 1978. The May 1978 construction plan "Record Drawing" indicated that 120 feet of 18-inch RCP was to be installed under the runway and 80 feet of 18-inch RCP was to be installed under the parallel taxiway. These lengths of piping would have satisfied both the runway and taxiway safety area criteria for Airplane Design Group B-I aircraft if they had been installed as planned. Based on the recent Caltrans survey, it is recommended that the irrigation canal (drainage ditch) pipe be extended across at least the 120-foot wide runway safety area and 80-foot taxiway safety area and preferably to the west side of the Airport property line.

The May 1978 construction plan "Record Drawing" for realigning the fence, ditch and levee in this area indicated the fence was to be relocated 160 feet from the runway centerline. Based on recent field checks by City and Caltrans representatives the fence was actually only relocated to 75 feet from the runway centerline at the closest point to the runway.

The irrigation canal, fence and berms have been in their present location for over 17 years and the Airport has been inspected several times since then by both FAA and Caltrans. The current FAA approved Airport Layout Plan also indicates these features as shown on the 1978 construction plan "Record Drawing".

In response to the March 10, 1995 letter from Caltrans, the City filed a Form 7460-1, "Notice of Proposed Construction or Alteration" with FAA on June 23, 1995 as requested by Caltrans. The FAA, in their January 19, 1996 response, recommended that the fence, the 4-foot berm, and the 6-foot berm be relocated by the City of Gustine to the original specified distance, of at least 160 feet from the runway centerline, as required by FAA ADAP Grant 5-06-0096-01. The City needs to resolve these two issues with FAA as soon as possible after adoption of the Airport Master Plan.

Navigational and Landing Aids

The Plan provides for medium intensity runway lights (MIRL) to be installed on the Runway 18-36 extension. Medium intensity taxiway lights (MITL) are planned to be installed on both the existing and planned for parallel taxiway extensions and on the new entry/exit taxiway for Runway 36.

The **VASI-2** on Runway 36 will require relocation when the runway is extended. The Plan provides for supplemental wind cones to be erected at each end of the runway, in addition to the existing lighted wind cone located at the segmented circle. The tetrahedron should be relocated to east of the parallel taxiway.

It is recommended that the City request the FAA to evaluate the feasibility of establishing Differential Global Positioning System (DGPS) procedures for both Runways 18 and 36. If approved Runway 18-36 should be painted with nonprecision markings.

GENERAL AVIATION

A new general aviation area is planned on the southwest side of the Airport, as illustrated on Figures 5 and 6, with space reserved for new hangars and tiedowns. The existing hangar area on the west side of the Airport alongside State Highway 140 is to be gradually phased out over time as new hangars are constructed and the older deteriorating hangars are demolished. Hangars within the recommended 370-foot building restriction line are also to be phased out.

Future aircraft storage hangar development should be consolidated west of the end of Runway 36. About 5 acres are provided and can be developed to accommodate up to 50 hangar spaces. The four hangars currently located on the apron should be relocated to the new hangar area. Space for commercial aviation/fixed-base operator (FBO) leases and executive hangar storage is also reserved west of the runway in the existing hangar area.

Aircraft parking apron areas for itinerant aircraft and based aircraft **tiedowns** are retained in the present area in the short-term but in the long-term would be expanded to the area southwest of the runway. Additional taxiway access to the new **tiedown** and hangar areas is planned west of Runway 18-36.

An area for a future general aviation terminal/administration building is reserved adjacent to the midfield taxiway in the long-term.

It is assumed that Ham's Flying Service (**Machado**) will continue to be a through-the-fence operation.

The public-use aircraft wash rack is retained in its existing location.

AIRPORT ACCESS AND PARKING

It is recommended that the southerly airport access road, which enters the Airport terminal area **from** State Highway 140, become the principal access point to serve the Airport through the planning period. This is to minimize interaction between aircraft and vehicular **traffic** on the Airport.

A new service road is proposed south of the proposed **Airport** access point to serve the recommended development on the southwest side of the Airport. A perimeter road is proposed inside the **Airport** property line.

Automobile **parking** spaces should be provided in the terminal area for public and employee **parking**. **Parking** for visitors and employees of commercial aviation/FBO lease holders should be provided within individual lease plot boundaries.

AIRPORT SUPPORT

The Plan provides space for additional airport support facilities.

An **Administration/Terminal** building is proposed south of the midfield taxiway as illustrated on Figures 5 and 6. Adjacent vehicular **parking** space is also provided. Space is reserved for a maintenance baseyard, located west of the proposed service road and south of the midfield taxiway, to serve the Airport during the planning period. Airfield maintenance is performed by the City of Gustine with equipment currently stored on the Airport.

While there is no current requirement for an Aircraft Rescue and Firefighting (**ARFF**) facility on the Airport, the City should establish written response procedures with the City of Gustine Fire Department and California **Department** of Forestry for any emergency at the Airport.

The existing underground fuel storage tank located north of the midfield taxiway will have to be removed by 1998. An above-ground fuel tank is proposed on the north side of the midfield taxiway next to the present underground tank. A fuel dispensing system operated through a "card lock" system is proposed to provide fuel service during non-business hours. A card lock system allows fuel to be dispensed using one of several credit cards 24 hours a day.

The utility systems are generally adequate to serve any additional development on the west side of the Airport. When the southwest side of the Airport is developed, utilities will require extension into this area. The City sewer system extends along Carnation Road to the south and the Airport is already connected to this system. Alternatively, new septic tanks will have to be provided.

The drainage channel pipe under the center of the airfield is recommended to be extended to satisfy the runway and taxiway safety area criteria as well as the new development south of the midfield taxiway. A lift pump is proposed at the east end of the east-west drainage channel under the airfield.

Any additional improvements will increase the storm water runoff because of the increase in the area of pavement, concrete, and roof surfaces which do not allow water to soak into the ground. Additional improvements may require new or increased size of drainage ditches and channels.

The City of Gustine Police Department should be informed of future development in order that it can plan for any additional resources necessary to continue to provide security at the Airport.

OTHER AREAS

The present radio-controlled model aircraft activities should be relocated to an area off the Airport. In the event the City allows the Club to remain on the Airport, a memorandum of understanding should be signed between the City and Club members addressing the Club activities such as time of day, location on the Airport, flight area with respect to the traffic pattern and other areas of concern.

AIRPORT LAYOUT PLAN AND AIRSPACE PLAN

The recommended Airport Master Plan serves as the basis for the Airport Layout Plan. The Airport Layout Plan and the Airspace Plan for the Gustine Municipal Airport, derived from all the foregoing plans and analyses, are presented on Figures 7 and 8, respectively.

Chapter 6

IMPLEMENTATION PLAN

The Phased Development and Capital Improvement Program for the Gustine Municipal Airport and the estimated costs of the airport improvements recommended as part of the Airport Master Plan discussed in Chapter 5 are presented in this chapter. A financial analysis has been prepared to ascertain the ability of the Airport fund to meet the requirements for funding the Capital Improvement Program from operating sources.

PHASED DEVELOPMENT AND CAPITAL IMPROVEMENT PROGRAM

A three-phase Capital Improvement Program has been developed to meet estimated short-range (Phase I, 1996 through 2000), intermediate-range (Phase II, 2001 through 2005), and long-range (Phase III, 2006 through 2015) airport requirements. Phasing of the program reflects an assessment of the relative priorities of various proposed projects and the approximate timing of the anticipated requirements.

Phase I projects are considered to be the highest priority items and should be implemented as soon as practicable to meet the Phase I forecast requirements for facilities and to preserve the capability for future airport expansion. Phase II and III projects should be undertaken only as the actual needs are demonstrated by the demand for airport facilities and services and as financing arrangements are made.

The phasing of these capital improvements is presented on Figure 9, Phased Development Plan. An approximate planning cost estimate for each improvement for the recommended three-phase Capital Improvement Program is presented in Table 6-1. A summary of the total Capital Improvement Program through 2015 is presented in Table 6-2.

Total costs for all projects included in the Program are estimated expressed in 1996 dollars. These costs would be incurred as follows:

Phase I	\$1,672,800
Phase II	1,721,400
Phase III	<u>1,584,000</u>
TOTAL	<u>\$4,978,200</u>

The estimated net project costs to the City of Gustine for the three-phase Program are \$506,500 after recognition of the receipt of Federal Grants-in-Aid for eligible projects and other sources.

Table 6-1

**CAPITAL IMPROVEMENT PROGRAM
Gustine Municipal Airport
1996-2015**

<u>Project Description</u>	<u>Total Costs</u>	<u>City</u>	<u>FAA'</u>	<u>Caltrans²</u>	<u>Other</u>
PHASE I IMPROVEMENTS (1996-2000)					
<u>Airfield</u>					
- Overlay existing Runway 18-36	\$ 385,000	\$21,200	\$346,500	\$17,300	\$ -0-
- Develop taxiways to new hangar area	154,000	8,500	138,600	6,900	-0-
- Enclose east-west drainage ditch and install lift pump at east end	40,000	2,200	36,000	1,800	-0-
- Relocate fence, berms and drainage ditch east of runway ³	80,000	4,400	72,000	3,600	-0-
<u>Navigational Aids</u>					
- Install wind cone at end of Runway 18	500	500	-0-	-0-	-0-
<u>Terminal Area</u>					
- Develop new hangars to south (22 hangars)	530,000	-0-	-0-	-0-	530,000
- Develop new aircraft apron area to north and remove underground fuel storage tank	160,000	8,800	144,000	7,200	-0-
- Develop new service road to south	1,500	1,500	-0-	-0-	-0-
- Develop vehicular parking to south	13,000	13,000	-0-	-0-	-0-
<u>Airport Support and Infrastructure</u>					
- Extend utilities (electricity, water, telephone) to south side of Airport	20,000	1,100	18,000	900	-0-
- Connect new development to City sewer system	10,000	550	9,000	450	-0-
Subtotal	\$1,394,000	\$61,750	\$764,100	\$38,150	\$530,000
Contingencies (20 percent)	<u>278,800</u>	<u>12,350</u>	<u>152,800</u>	<u>7,650</u>	<u>106,000</u>
TOTAL PHASE I IMPROVEMENTS	<u>\$1,672,800</u>	<u>\$74,100</u>	<u>\$916,900</u>	<u>\$45,800</u>	<u>\$636,000</u>

CAPITAL IMPROVEMENT PROGRAM -- continued

<u>Project Description</u>	<u>Total Costs</u>	<u>City</u>	<u>FAA¹</u>	<u>Caltrans²</u>	<u>Other</u>
PHASE II IMPROVEMENTS (2001-2005)					
<u>Airfield⁴</u>					
- Extend Runway 18-36 by 500 feet to south and provide runway safety area; extend parallel taxiway 500 feet to the south and build new entry/exit taxiway (includes drainage and subgrade)	\$ 875,000	\$48,100	\$ 787,500	\$39,400	\$ -0-
- Add taxiways to serve hangars	64,000	3,500	57,600	2,900	-0-
<u>Navigational Aids</u>					
- Install medium intensity runway Lights (MIRL) on the runway extension	15,000	800	13,500	700	-0-
- Install medium intensity taxiway lights (MITL) for both existing and new taxiways	140,000	7,700	126,000	6,300	-0-
- Relocate VASI-2 on Runway 36	15,000	-0-	15,000	-0-	-0-
- Install GPS for nonprecision approach	50,000	2,700	45,000	2,300	-0-
- Install wind cone at end of Runway 36	500	500	-0-	-0-	-0-
<u>Terminal Area</u>					
- Expand new hangars to south (8 hangars)	190,000	-0-	-0-	-0-	190,000
<u>Airport Support and Infrastructure</u>					
- Underground PG&E lines along Carnation Road	85,000	4,700	76,500	3,800	-0-
Subtotal	\$1,434,500	\$68,000	\$1,121,100	\$55,400	\$190,000
Contingencies (20 percent)	<u>286,900</u>	<u>13,600</u>	<u>224,200</u>	<u>11,100</u>	<u>38,000</u>
TOTAL PHASE II IMPROVEMENTS	<u>\$1,721,400</u>	<u>\$81,600</u>	<u>\$1,345,300</u>	<u>\$66,500</u>	<u>\$228,000</u>

CAPITAL IMPROVEMENT PROGRAM -- continued

<u>Project Description</u>	<u>Total Costs</u>	<u>City</u>	<u>FAA¹</u>	<u>Caltrans²</u>	<u>Other</u>
PHASE III IMPROVEMENTS (2006-2015)					
<u>Airfield⁴</u>					
- Extend the parallel taxiway 1,450 feet to the north	\$ 277,000	\$ 15,200	\$ 249,300	\$ 12,500	\$ -0-
- Overlay existing airfield (runway and taxiways) pavement	564,000	31,000	507,600	25,400	-0-
- Additional taxiways to serve hangars	56,000	3,100	50,400	2,500	-0-
<u>Navigational Aids</u>					
- Extend medium intensity taxiway lights (MITL) for parallel taxiway extension to north	37,000	2,000	33,300	1,700	-0-
- Relocate tetrahedron	1,000	1,000	-0-	-0-	-0-
<u>Terminal Area</u>					
- Develop Administrative/Terminal building	150,000	150,000	-0-	-0-	-0-
- Expand and pave parking lot	70,000	70,000	-0-	-0-	-0-
- Expand new hangars to south (6 hangars)	145,000	-0-	-0-	-0-	145,000
<u>Airport Support and Infrastructure</u>					
- Provide space for City maintenance and storage	20,000	20,000	-0-	-0-	-0-
Subtotal	\$1,320,000	\$292,300	\$ 840,600	\$ 42,100	\$ 145,000
Contingencies (20 percent)	<u>264,000</u>	<u>58,500</u>	<u>168,100</u>	<u>8,400</u>	<u>29,000</u>
TOTAL PHASE III IMPROVEMENTS	<u>\$1,584,000</u>	<u>\$350,800</u>	<u>\$1,008,700</u>	<u>\$ 50,500</u>	<u>\$ 174,000</u>
TOTAL ALL PHASES	<u>\$4,978,200</u>	<u>\$506,500</u>	<u>\$3,270,900</u>	<u>\$162,800</u>	<u>\$1,038,000</u>

Footnotes:

1. Assumes FAA Grants-in-Aid will be available at 90 percent funding for all eligible projects.
2. Assumes Caltrans grants will be available for 5 percent of Federal grants.
3. The relocation of the fence, berms and irrigation canal will be subject to flood plain requirements and approval by all appropriate jurisdictional agencies.
4. Actual construction costs for airfield will require refinement based on soils testing for any new pavement and engineering assessment for extension and **overlay** of Runway 18-36.

Source: Aries Consultants Ltd.

Table 6-2

SUMMARY OF CAPITAL IMPROVEMENT PROGRAM
Gustine Municipal Airport
1996-2015

Project Description	Total Costs	City	FAA	Caltrans	Other
PHASE I IMPROVEMENTS (1996-2000)					
- Airfield	\$ 659,000	36,300	593,100	29,600	-0-
- Navigational Aids	500	500	-0-	-0-	-0-
- Terminal Area	704,500	23,300	144,000	7,200	530,000
- Airport Support and Infrastructure	30,000	1,650	27,000	1,350	-0-
- Contingencies (20 percent)	278,800	12,350	152,800	7,650	106,000
TOTAL PHASE I IMPROVEMENTS	\$1,672,800	\$ 74,100	\$ 916,900	\$ 45,800	\$ 636,000
PHASE II IMPROVEMENTS (2001-2005)					
- Airfield	\$ 939,000	\$ 51,600	\$ 845,100	\$ 42,300	\$ -0-
- Navigational Aids	220,500	11,700	199,500	9,300	-0-
- Terminal Area	190,000	-0-	-0-	-0-	190,000
- Airport Support and Infrastructure	85,000	4,700	76,500	3,800	-0-
- Contingencies (20 percent)	286,900	13,600	224,200	11,100	38,000
TOTAL PHASE II IMPROVEMENTS	\$1,721,400	\$ 81,600	\$1,345,300	\$ 66,500	\$ 228,000
PHASE III IMPROVEMENTS (2006-2015)					
- Airfield	\$ 897,000	\$ 49,300	\$ 807,300	\$ 40,400	\$ -0-
- Navigational Aids	38,000	3,000	33,300	1,700	-0-
- Terminal Area	365,000	220,000	-0-	-0-	145,000
- Airport Support and Infrastructure	20,000	20,000	-0-	-0-	-0-
- Contingencies (20 percent)	264,000	58,500	168,100	8,400	29,000
TOTAL PHASE III IMPROVEMENTS	\$1,584,000	\$350,800	\$1,008,700	\$ 50,500	\$ 174,000
TOTAL ALL PHASES					
- Airfield	\$ 2,495,000	\$137,200	\$2,245,500	\$112,300	\$ -0-
- Navigational Aids	259,000	15,200	232,800	11,000	-0-
- Terminal Area	1,259,500	243,300	144,000	7,200	865,000
- Airport Support and Infrastructure	135,000	26,350	103,500	5,150	-0-
- Contingencies (20 percent)	829,700	84,450	545,100	27,150	173,000
TOTAL CAPITAL IMPROVEMENT PROGRAM	\$4,978,200	\$506,500	\$3,270,900	\$162,800	\$1,038,000

Source: Aries Consultants Ltd.

FINANCIAL PLAN

This section describes the financial considerations of the Phased Development Plan recommended for the Gustine Municipal Airport and the Airport fund's (City) ability to meet estimated Phase I (1996-2000), Phase II (2001-2005) and Phase III (2006-2015) capital improvement funding requirements. Because of the uncertainties involved in forecasting financial data and precise implementation dates of capital improvement projects, detailed financial planning is usually limited to three to five years. Therefore, only the initial phase of the recommended airport development plan is discussed in detail. The financial implications of proceeding with the development plan beyond Phase I are discussed in general terms at the end of this section.

The financial analysis is initially presented as a statement of historical revenues and expenses from Fiscal Year 1990 to Fiscal Year 1996. The historical financial data presented have been prepared on the basis of information and assumptions set forth in the text. These rely on information and assumptions from the sources indicated without further verification of such data. The historical operating and nonoperating revenues and expenses have been prepared based on information provided by the City.

Forecast revenues and expenses are presented later in this section. Although the information and assumptions used for the financial forecasts constitute reasonable bases for preparation of the forecasts, the achievement of any financial projection may be affected by fluctuating conditions and is dependent on the occurrence of future events which cannot be assured. Therefore, the actual results achieved may vary from the projections, and such variation could be material.

The financial information is based on the City's fiscal year (FY) (July 1 through June 30) unless otherwise noted.

Table 6-3 presents a summary of historical operating revenues and expenses from FY1990 to FY1996. The purpose of the table is to summarize the historical annual operating results of the Gustine Municipal Airport fund and to provide a basis for assessing the ability of the Airport to meet future requirements to fund the Capital Improvement Program from operating sources.

Historical Operating Revenues and Expenses

Historically, the Airport has essentially operated on a breakeven basis although fluctuating on an annual basis. An annual operating surplus of over \$19,000 occurred in FY1995 while an annual loss of over \$13,000 was reported in FY1992.

Table 6-3

HISTORICAL OPERATING REVENUES AND EXPENSES
Gustine Municipal Airport
1990-1996

Description	Fiscal Year Ending						
	1990	1991	1992	1993	1994	1995	1996
OPERATING REVENUES							
Hangar leases/tiedowns/telephone	\$11,829.24	\$12,174.65	\$13,030.54	\$14,815.02	\$16,921.70	\$16,692.17	\$16,585.48
Aviation fuel sales	17,236.78	18,983.24	17,513.60	13,519.56	14,203.77	16,991.61	13,032.21
Fuel expense	<u>(6,752.25)</u>	<u>(19,707.82)</u>	<u>(14,433.34)</u>	<u>(-0-)</u>	<u>(12,610.27)</u>	<u>(1,788.39)</u>	<u>(12,203.98)</u>
Total Operating Revenues	\$12,313.77	\$11,450.07	\$16,110.80	\$28,334.58	\$18,515.20	\$21,895.39	\$17,413.71
OPERATING EXPENSES							
Salaries and Wages	\$ 2,492.64	\$ 5,182.15	\$ 5,276.84	\$7,270.44	\$ 4,527.10	\$ 4,143.76	\$ 3,968.13
Department operating supplies	3,762.18	6,711.37	2,733.66	1,817.58	4,157.33	1,477.14	4,292.42
Uniform expense	51.59	19.58	49.49	47.53	71.41	50.69	45.02
Telephone	384.05	418.40	413.59	459.28	462.76	477.67	447.86
Liability insurance	4,393.50	3,590.87	3,573.00	2,525.00	5,064.06	3,986.56	3,962.00
Electricity	2,206.67	3,081.95	3,614.60	3,244.40	2,491.80	1,905.52	1,831.78
Other contract services	<u>-0-</u>	<u>-0-</u>	<u>2,660.00</u>	<u>714.00</u>	<u>2,275.00</u>	<u>3,453.16</u>	<u>3,115.61</u>
Total Supplies and Other Services	\$10,797.99	\$13,822.17	\$ 13,044.34	\$ 8,807.79	\$14,522.36	\$11,350.74	\$13,694.69
Total Operating Expenses	\$13,290.63	\$19,004.32	\$ 18,321.18	\$16,078.23	\$19,049.46	\$15,494.50	\$17,662.82
Operating Surplus/Loss	\$ (976.86)	\$ (7,554.25)	\$ (2,210.38)	12,256.35	(534.26)	6,400.89	(249.1 1)
Annual State Grant	\$ 5,000.00	\$ 5,000.00	\$ 5,000.00	\$ 5,000.00	\$10,000.00	\$10,000.00	\$10,000.00
Interest	801.87	1,315.24	602.55	95.44	130.81	988.48	1,795.62
Insurance Refund	<u>-0-</u>	<u>-0-</u>	<u>-0-</u>	<u>-0-</u>	<u>-0-</u>	<u>2,478.25</u>	<u>-0-</u>
	\$ 5,801.87	\$ 6,315.24	\$ 5,602.55	\$ 5,095.44	\$10,130.81	\$13,466.73	\$11,795.62
Capital Outlay/Improvements	-0-	-0-	16,768.00	6,315.07	-0-	-0-	13,901.77
Net revenue available to finance the Capital Improvement Program	<u>\$ 4,825.01</u>	<u>\$(1,239.01)</u>	<u>\$(13,375.83)</u>	<u>\$11,036.72</u>	<u>\$ 9,596.55</u>	<u>\$19,867.62</u>	<u>\$(2,355.26)</u>

Operating Revenues. The major source of revenue to the Airport has been from hangar leases and tiedown fees which have gradually increased from \$12,000 in FY1990 to close to \$17,000 in FY1996. In total, these revenues have averaged 84 percent of total revenues over the seven-year historical period. The second major source of revenue to the Airport has been from the sale of aviation fuel which has averaged over \$3,000 annually since FY1990.

Operating Expenses. Historically, operating expenses have remained fairly consistent, averaging \$17,000 on an annual basis. Salaries and wages, liability insurance and electricity have accounted for an average of 66 percent of total expenses over the seven-year historical period.

Forecast Revenues and Expenses

Table 6-4 presents the projections of airport financial operations for the initial five-year Phase I development period reflecting a set of assumptions under which there would be no major changes or improvements in tenant/user rates and charges or leasing policies except as noted. Specifically, the projections of revenues and expenses are based on the following data and assumptions:

- All sources of income derived from airport users will be credited to the Airport fund and will be used only for maintaining, operating and improving the Airport as required by Federal Grant Assurances.
- No major capital improvement projects will be undertaken during the five-year forecast period other than those presented in the Capital Improvement Program.
- The projected dollars are based on 1996 dollar values.
- Overall aviation demand forecasts presented in Chapter 2 will be realized.
- The development of facilities recommended in this report will be developed and managed to produce the maximum net revenue to the City consistent with providing reasonable levels of public facilities and services.
- Grants-in-Aid have not been considered as part of this financial analysis.
- All present agreements will continue in force with no major changes in their financial provisions.
- Aircraft parking revenues (hangars and tiedowns) will increase consistent with an increase in based aircraft.

Table 6-4

FORECAST OPERATING REVENUES AND EXPENSES
Gustine Municipal Airport
1997-2001

Description	Fiscal Year Ending				
	Budget 1997	1998	1999	2000	2001
OPERATING REVENUES					
Hangar leases/tiedowns/telephone	\$14,025	\$17,000	\$19,000	\$21,000	\$23,000
Aviation fuel sales	13,000	18,000	20,000	22,000	24,000
Fuel expense	<u>(12,000)</u>	<u>(15,700)</u>	<u>(17,500)</u>	<u>(19,200)</u>	<u>(20,800)</u>
Total Operating Revenues	\$15,025	\$19,300	\$21,500	\$23,800	\$26,200
OPERATING EXPENSES					
Salaries and Wages	\$ 3,889	\$ 4,200	\$ 4,600	\$ 5,000	\$ 5,500
Department operating supplies	1,000	4,000	4,200	4,400	4,600
Uniform expense	50	100	100	100	100
Telephone	450	500	500	600	600
Liability insurance	4,000	4,400	4,800	5,300	5,800
Electricity	2,000	2,100	2,200	2,400	2,600
Other contract services	2,600	3,000	3,000	3,000	
Total Supplies and Other Services	\$10,100	\$14,100	\$14,800	\$15,800	\$16,700
Total Operating Expenses	\$13,989	\$18,300	\$19,400	\$20,800	\$22,200
Operating Surplus/Loss	\$ 1,036	\$ 1,000	\$ 2,100	\$ 3,000	\$ 4,000
Annual State Grant	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000
Interest	1,500	1,500	1,600	1,700	1,800
	\$11,500	\$11,500	\$11,600	\$11,700	\$11,800
Capital Outlay/Improvements	31,200	-0-	-0-	-0-	-0-
Net revenue available to finance the Capital Improvement Program	<u>\$(18,664)</u>	<u>\$12,500</u>	<u>\$13,700</u>	<u>\$14,700</u>	<u>915,800</u>

- Fuel sales typically correspond directly with aircraft operations, and the forecast revenue for fuel is estimated to be in line with an increase in aircraft operations and increased sales of aviation fuel with the installation of a 24-hour card lock system.
- Salaries and wages will increase at an estimated 9 percent per year. The City will allocate sufficient personnel time and expenses to adequately manage and account for the future development and operation of the Airport.
- Departmental operating supplies will increase annually to adequately provide for the maintenance of existing airfield facilities.
- Uniform and telephone expenses are not projected to change considerably during the forecast period.
- Insurance premiums are forecast to increase by an estimated 10 percent annually as airport facilities are expanded and improved.
- Utility expenses are assumed to increase an average of 4 percent annually with additional airport facilities.
- Other contract expenses are projected to be consistent with historical expenditures.

The Airport operating revenues, as presented in Table 6-4, are projected to gradually increase from an estimated \$15,025 beginning in FY1997 to \$26,200 by FY2001. Operating expenses are projected to increase from an estimated \$13,989 in FY1997 to \$22,200 by FY2001.

After recognition of the \$10,000 annual State grant and interest on investments, it is projected that the Airport will operate with an annual surplus averaging \$11,000 through FY2001 as presented in Table 6-4.

Based on the above, the total surplus available to fund the Capital Improvement Program over the initial phase is estimated to be over \$38,000. When added to the estimated \$28,000 balance in the Airport fund, an estimated \$66,000 will be available for financing the initial phase of the Capital Improvement Program.

Summary and Recommendations of the Financial Analyses

Based on the projections of revenues and expenses, the Airport **fund** will operate slightly short of sufficient surplus revenues over the initial five-year period to finance the recommendations of the Capital Improvement Program. The total surpluses are estimated to be \$66,000. Based on the assumption that Caltrans will fund 5 percent of total Federal grants for a total of \$45,800, the City's share of funding the initial five-year Capital Improvement

Program is estimated to be \$74,100 which will be approximately \$8,000 short (an estimated \$1,600 annually) of the requirement to implement Phase I of the Capital Improvement Program. Therefore, the feasibility of development of the Airport may be based on the willingness of the City to provide direct financial support to the Airport. Alternatively, the Phase I development could be refined to reflect available financing.

The Gustine Municipal Airport's surplus revenues are directly related to aviation activity and are projected to increase from \$12,500 in FY1997 to \$15,800 by FY2001. The major source of revenue to the Airport has been from hangar agreements and tiedown fees representing over 84 percent of total revenues during the seven-year historical period. These sources of aviation revenue will continue to be important during the five-year projected period and represent 88 percent of total revenues by FY2001.

A variable of particular importance in financial analysis for a program of this type is the level of user fees and rental rates upon which projections of operating revenues are based. Future user rates and charges based on existing agreements are assumed in the analysis; however, it is appropriate to consider the estimated impact of new and improved facilities and services at the Airport. A gross analysis of rental income derived from airport hangar leases and tiedown fees are commensurate with the facilities and services provided at the Airport. It will be necessary for the City to make investments in the Airport in order to realize any significant increases in airport revenues. Of particular importance is the installation of a 24-card lock system for fueling which is included in the FY1997 budget. Another significant capital improvement project is the initiation of developing the new hangar area on the southwest side of the Airport. It is assumed that as new hangars are privately developed on the southwest side, the City will negotiate land leases according to the Lease Policy Guidelines presented in Appendix B.

Another source of additional revenues could occur with the City's investment in a new vehicular parking facility on the south side of the Airport that would enhance revenues from paid parking patrons accessing the duck flyway east of the Airport.

The City needs to determine what investments to make in the Airport in order to attract aviation users to the Airport.

Alternative Methods of Financing Airport Capital Improvements

There are a variety of sources from which potential financing for airport facilities may be obtained, including Federal Grants-in-Aid, State grants and loan programs, the City's general fund, private financing, and in some instances, the sale of general obligation and/or revenue bonds.

The major financial resources available to the City, representing alternative means of financing airport development, are described below. Any of the following alternative methods of financing or any combination of the following methods, may be considered by the City.

Federal Grants-in-Aid. The current grant program, known as the Airport Improvement Program (AIP), was established by the Airport and Airway Improvement Act of 1982. It provides funding for airport planning and development under a single program, unlike the prior 1970 Airport and Airway Development Act. The Airport and Airway Trust Fund, which was established by the Airport and Airway Revenue Act of 1970, provides the revenues used to fund AIP projects. Taxes or user fees are collected from the various segments of the aviation community and placed in the Trust Fund. The 1982 Act, as amended in 1987, 1990, 1992 and 1994, authorizes the use of monies from the Airport and Airway Trust Fund to make grants under the Airport Improvement Program.

The Gustine Municipal Airport is eligible for AIP grants under the "Other Airport" category and, while not specifically defined in the Act, these other airports are referred to as general aviation airports. Projects eligible for FAA AIP funding at the current level of 90 percent are identified in Table 6-1, Capital Improvement Program. The City should submit a Reapplication for Federal Assistance to include Phase I projects as soon as practicable following formal adoption of the Airport Master Plan.

State Grants and Loans. The State of California provides four financial assistance programs. The first is the Department of Transportation, Aeronautics Program annual grant which increased from \$5,000 to \$10,000 beginning in FY94/95; the second allows the California Transportation Commission (CTC) to allocate funds to match Federal Airport Improvement (AIP) grants for airport and aviation purposes; the third is the acquisition and development grants administered by the State Transportation Improvement Program (STIP); and the fourth is the Airport Loan Program.

The State provides annual non-matching \$10,000 grants to airports that have not been designated as a "reliever" or "commercial service" airport by the FAA and which may be used for both capital improvements and maintenance and operations. The annual grant may be accumulated for up to five years, or a maximum of \$50,000, and used as matching funds for an AIP grant.

State funds can be allocated by the CTC to match an FAA AIP grant once an airport sponsor has accepted the AIP grant from the FAA beginning in October 1994. The State match is available to airports that have been designated as general aviation or reliever airport by the FAA. Only those projects that are included in the State's Capital Improvement Program (CIP) are eligible to receive matching grants. The State match will be an amount equal to 5 percent of the AIP grant.

Any publicly-owned, public-use airport may apply for a STIP grant through a structured approval process. STIP projects are evaluated and prioritized by an evaluation matrix and an airport rating form with runway maintenance projects receiving the highest priority for **funding**. An airport's request may range from a minimum of \$10,000 to a maximum of \$500,000 per fiscal year. The City should submit the Phase I Capital Improvement **Program** to the Merced County Association of Governments for inclusion in the State's Ten-Year Capital Improvement Program.

The State Airport Loan Program provides financial assistance in the **form** of loans, repayable over a period not to exceed 25 years. The interest rate is based on the most recent issue of State of California bonds sold prior to the issuance of a loan agreement. Loans can be obtained for matching funds (**i.e.**, a Federal AIP grant) and for revenue-generating facilities (**i.e.**, hangars and fuel facilities).

General Fund. Financing airport improvements by direct appropriation **from** the City's general fund may be **the most** realistic method of financing development not eligible for Federal Grants-in-Aid or for matching the 10 percent City requirement for grants as such financing may eliminate any interest payments. For airport capital improvements, general **fund** appropriations would be made through the regular budgeting process or as a special budget item on an as-required basis.

General fund appropriations can be justified by the City on the basis that the Airport provides certain direct economic and social benefits to the Community and local taxpayers as well as the possessory interest, personal property and other **tax** increments generated by airport tenants and users.

Private Financing. The importance of the Airport to local economic development is enhanced with active involvement on the part of both public officials and the private business community.

The City may require that all exclusive-use facilities such as hangars, fueling facilities, tie-downs, fixed base operations, and other commercial aviation facilities be provided and financed by the tenant. The City would receive ground rental while the leaseholder would receive the gross revenues and be responsible for the operational expenses and debt service obligation. Private financing places the burden of financing on the tenant **while** increasing the value of the Airport which **will**, in turn, add to its economic attractiveness.

Financial Considerations of the Phase II and Phase III Capital Improvement Program

Beyond Phase I, it is assumed that development of the Airport will proceed according to the priorities proposed in **the** recommended phased development plan.

It is also assumed that the implementation of Phase II and Phase III projects will be arranged to be compatible with the financing sources and capability of the Airport, as identified at the time of implementation, without regard to the technical requirements that may be demonstrated.

It should be recognized that the financial feasibility of projects in the later stage will be linked to the overall management of the Airport in the short-term, the provisions of existing leases and agreements in effect, funding levels and participation rates of Federal Grants-in-Aid programs and periodic review by the City of its lease policies and rates and charges policies.

Appendix A

ALTERNATIVE AIRPORT DEVELOPMENT CONCEPTS

This appendix describes the alternative airport development concepts considered for the long-range development of the **Gustine** Municipal Airport.

FORMULATION OF ALTERNATIVE AIRPORT DEVELOPMENT CONCEPTS

Alternative airport development concepts to reflect the aviation demand forecasts and associated facility requirements were prepared. These were reviewed with the Airport Commission on September 26, 1994. These alternatives were prepared to illustrate the range of alternatives to be analyzed and subject to agency, airport user and public review.

The recommended Airport Master Plan concept was based on the comments received from the City of **Gustine**, Airport Commission, Federal Aviation Administration, Caltrans, airport users and public review of the alternatives.

A summary of the principal features of each alternative is presented below. The alternatives are illustrated on Figures A-1 and A-2 at the end of this Appendix.

ALTERNATIVE AIRPORT DEVELOPMENT CONCEPT 1 - Minimum Expansion

- No land acquisition.
- Acquire additional aviation easement on private property for runway protection zone to south.
- Provide runway protection zones for visual approaches by small aircraft (i.e., up to 12,500 pounds maximum gross weight).
- Extend Runway 18-36 to the south to 3,700 feet.
- Provide 120-foot wide runway safety area extending 240 feet beyond the runway ends.
- Extend the 30-foot wide parallel taxiway at 200 feet centerline-to-centerline from the runway to the south.
- Retain building restriction line at 250 feet to the west of the Runway 18-36 centerline.

- Develop available area between the east-west taxiway and drainage ditch for additional hangar facilities **and** retain existing hangar area.
- Develop additional **hangar** and **tiedown** areas to the west of the **runway centerline**, and north **of** the east-west taxiway.
- Relocate **underground** fuel storage **tank**.
- Relocate utility line to south along **Carnation** Road.

ALTERNATIVE AIRPORT DEVELOPMENT CONCEPT 2 - Moderate Expansion

- No land acquisition.
- Acquire additional aviation easement on private property for runway protection zone to south.
- Provide runway protection zones for visual approaches by small aircraft (up to 12,500 pounds maximum gross weight).
- Extend Runway 18-36 to the south to 3,700 feet.
- Provide 120-foot wide runway safety area extending 240 feet beyond the runway ends.
- Extend to a full-length, at 30-foot width, the **parallel** taxiway at 200 feet centerline-to-centerline**from** the runway.
- Develop a new general aviation area to the south of the east-west taxiway and drainage ditch.
- Establish building restriction line at 370 feet to the west of the runway centerline and 250 feet to the east of the Runway 18-36 centerline.
- Over time phase out hangar area on west side of Airport alongside SR 140.
- Relocate hangars on apron to new hangar area.
- Relocate underground fuel storage tank.
- Relocate utility line to south along Carnation Road.

ALTERNATIVE AIRPORT DEVELOPMENT CONCEPT 3 - "Do Nothing"

- No land acquisition.
- Provide runway protection zones for only visual approaches for small aircraft (i.e., less than **12,500** pounds maximum gross weight).
- Retain Runway **18-36** at present **3,200** foot length.
- No runway safety areas.
- Retain **building** restriction line (BRL) at 250 feet to the west of the runway centerline.
- Retain current hangar and **tiedown** facilities west of Runway **18-36**.
- No taxiway improvements, including no extension of the parallel taxiway to the north.
- Develop available area north of east-west drainage ditch for additional facilities.

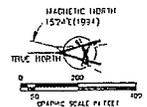


GUSTINE
MUNICIPAL AIRPORT
MASTER PLAN

ALTERNATIVE AIRPORT
DEVELOPMENT CONCEPT 1

LEGEND	
	STRUCTURE
	AIRPORT FIELD/APRON PAVEMENT
	AIRPORT PROPERTY LINE
	BUILDING RESTRICTION LINE
	FENCING
	AIRPORT REFERENCE POINT
	DRAINAGE CHANNEL
	DITCH
	PIPELINE
	CENTER LINE OF BERM
	RUNWAY LIGHTS
	THRESHOLD LIGHTS
	WIND SOCK
	FUEL TANKS
	ULTRAHIGH PRESSURE TRANSFORMER
	TAXIWAY EXIT SIGN
	GATE
	DRAINAGE INLET
	POWER LINE

EXISTING FACILITY SCHEDULE	
1	RUNWAY PROTECTION ZONE (250'x450'x1000')
2	APPROACH SURFACE 20:1
3	SEGMENTED CIRCLE AND LIGHTED WIND CONE
4	LIGHT POLES
5	HANGARS
6	ROTATING BEACON
7	ELECTRICAL VAULT
8	PUMP HOUSE
9	APPARATUS ESSENTIAL TO FUEL PUMPS AND UNDERGROUND STORAGE TANK
10	FUEL PUMPS AND UNDERGROUND STORAGE TANK
11	SEPTIC TANK
12	WASH PAD



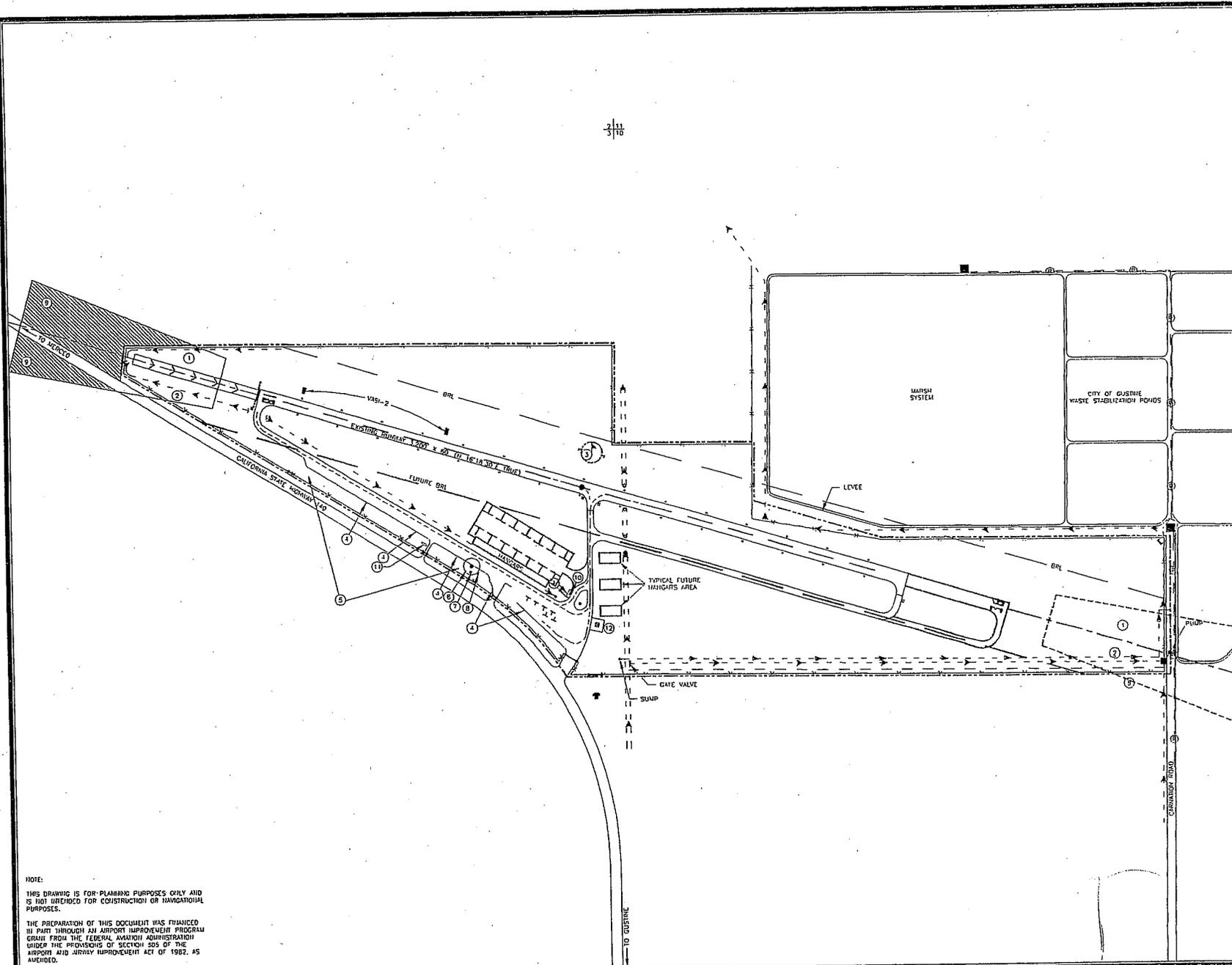
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VARIES CONSULTANTS LTD.

MERCED COUNTY, CALIFORNIA

NAME: GUS-A1AL (PLOT SCALE: 1=200)
DATE: 08-20-96 (NO: 4120-08)

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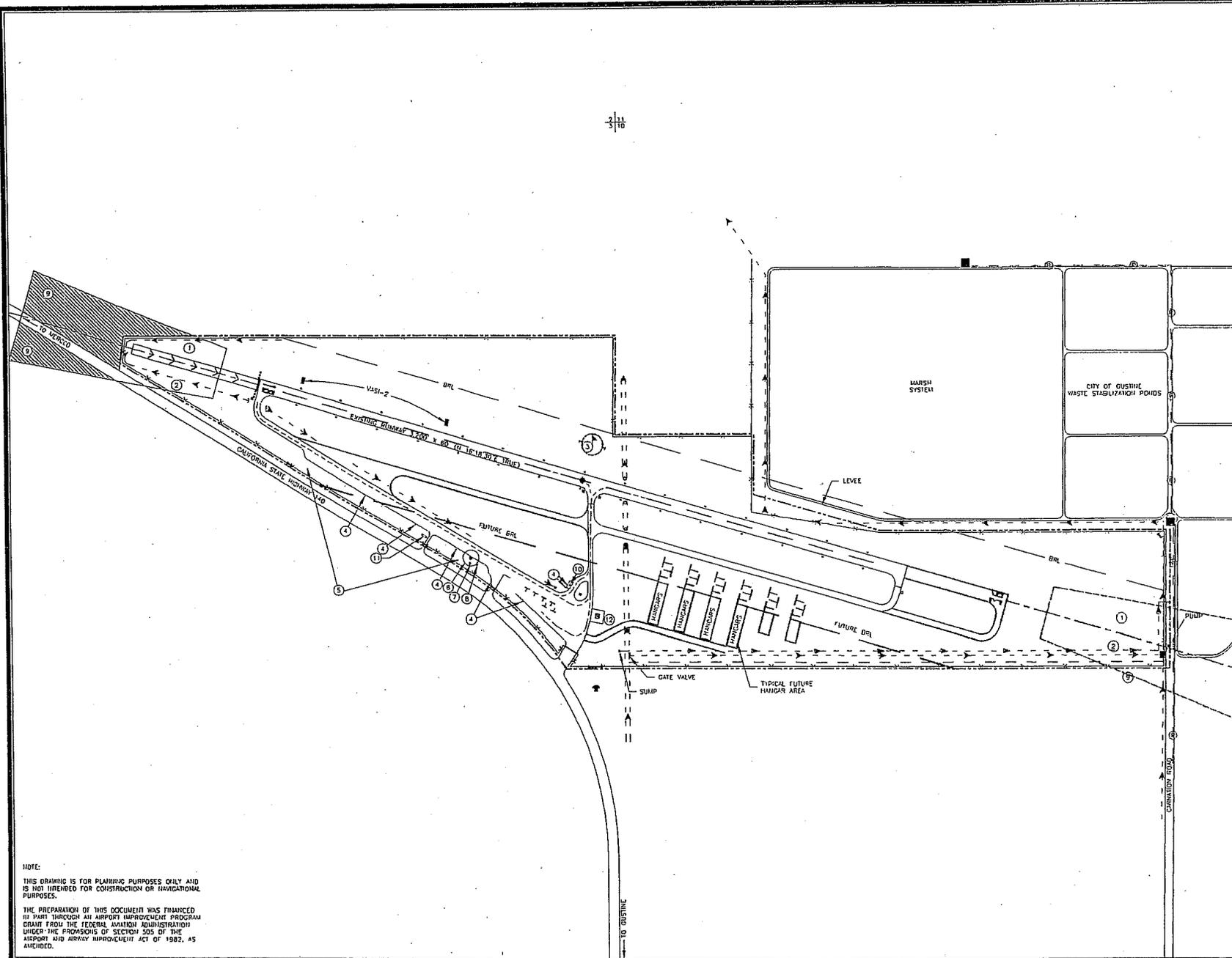


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GUSTINE
MUNICIPAL AIRPORT
MASTER PLAN

ALTERNATIVE AIRPORT
DEVELOPMENT CONCEPT 2



LEGEND	
[Symbol]	STRUCTURE
[Symbol]	AIRFIELD/APRON PAVEMENT
[Symbol]	AIRPORT PROPERTY LINE
[Symbol]	BUILDING RESTRICTION LINE
[Symbol]	FENCING
[Symbol]	AIRPORT REFERENCE POINT
[Symbol]	PERMITS CHANNEL
[Symbol]	DITCH
[Symbol]	PIPELINE
[Symbol]	CENTER LINE OF BERM
[Symbol]	RUNWAY LIGHTS
[Symbol]	THRESHOLD LIGHTS
[Symbol]	WIND SOCK
[Symbol]	FUEL TANKS
[Symbol]	VEHICLE/PERSON
[Symbol]	TAXIWAY EXIT SIGN
[Symbol]	GATE
[Symbol]	ORANGE ISLET
[Symbol]	POWER LINE

EXISTING FACILITY SCHEDULE	
1	RUNWAY PROTECTION ZONE (250'x250'x1000')
2	APPROACH SURFACE ZONE
3	SIGNIFIED CIRCLE AND LIGHTED WIND CONE
4	LIGHT POLES
5	MARKERS
6	ROTATING BEACON
7	ELECTRICAL VAULT
8	FUEL TANKS
9	AVIATION EASEMENT
10	FUEL PUMPS AND UNDERGROUND STORAGE TANKS
11	SEWER TANK
12	WASH PAD



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MERCED COUNTY, CALIFORNIA
FIGURE NO. **A-2**

NAME: GUS-A2A1 PLOT SCALE: 1=200
DATE: 08-20-96 NO: 4120-08

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APPENDIX B

**EVALUATION OF AIRPORT AGREEMENTS
AND RECOMMENDED LEASE POLICY GUIDELINES**

Appendix B

EVALUATION OF AIRPORT AGREEMENTS AND RECOMMENDED LEASE POLICY GUIDELINES

This Appendix presents an evaluation of the agreements currently in effect at the Gustine Municipal Airport. Recommended Lease Policy Guidelines for the future administration of the Airport are also presented.

AIRPORT LEASES

The areas of existing leases and agreements for airport use are illustrated on Figure B-1, the Airport Lease Map. Leases for City-owned hangars and property underlying tenant-owned hangars are renewed on an annual basis.

EVALUATION OF EXISTING AGREEMENTS

Overall, the City has a standard rental agreement for City-owned hangars and property underlying tenant-owned hangars that is renewed on an annual basis for each tenant. Although the agreements are consistent among tenants, they are silent as to a number of covenants included in the following recommended Lease Policy Guidelines. Of significance is the absence of insurance requirements, maintenance obligations and privileges granted and prohibited.

The City should have the rental agreement revised according to the following recommended Lease Policy Guidelines.

Through-the-fence Operations

The Federal Aviation Administration defines a "through-the-fence" operation as the use of a public landing area by aircraft based on land adjacent to, but not a part of the airport property. Such operations are considered encumbrances on airport property and may preclude the land interest requirements for a federal aid project unless the City retains the legal right to, and in fact, requires the offsite property owners to conform in all respects to the requirements of any existing or proposed grant agreement.

The City entered into a "Through-the-Fence" agreement in January 1994 with a "License to Use" granted to Florence M. and Joseph Mark Machado. Although the License to Use is specific regarding a chain link fence and access gate to Airport property, the License is silent as to compensation to the City for use of the Airport.

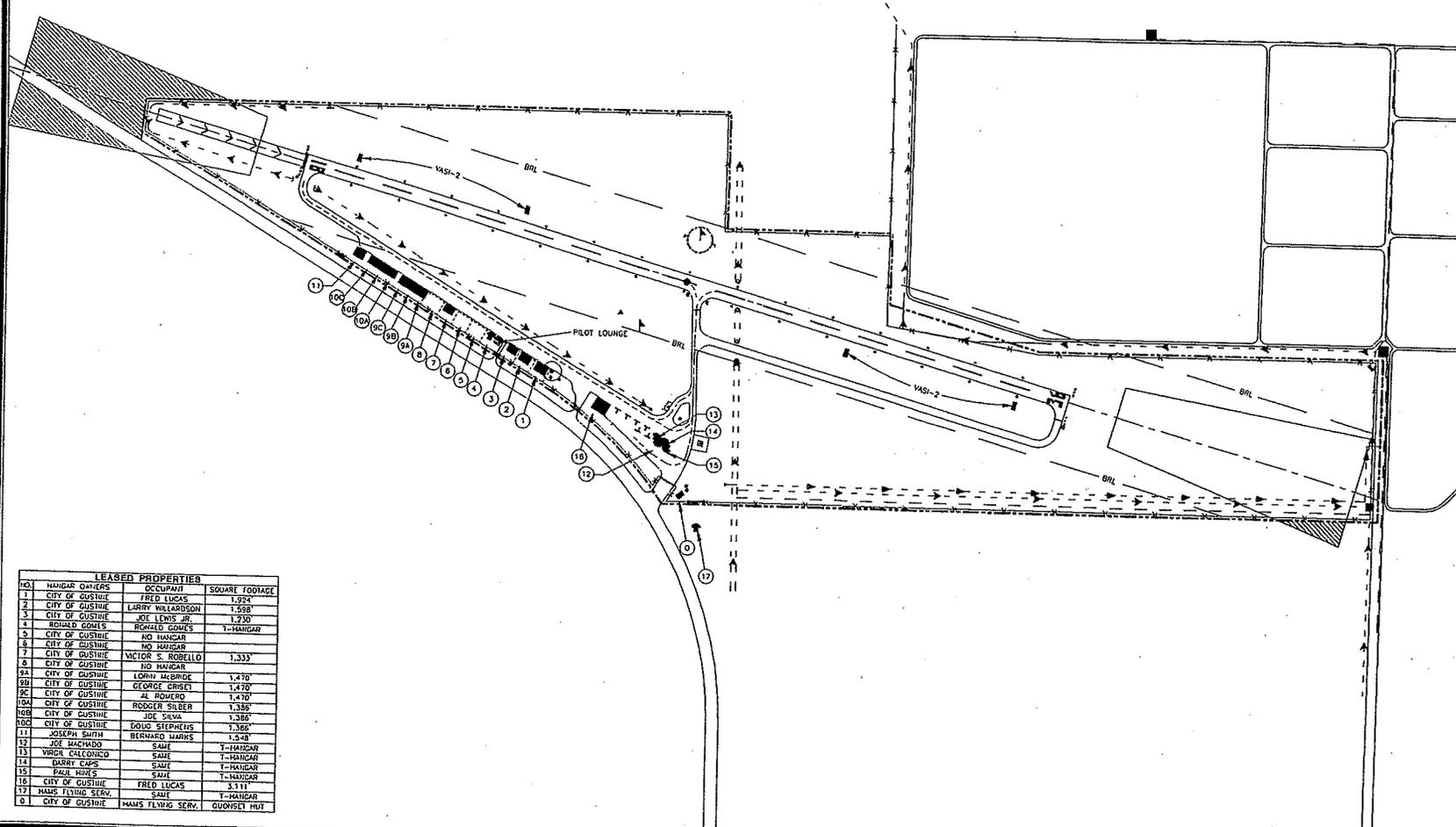
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GUSTINE MUNICIPAL AIRPORT MASTER PLAN

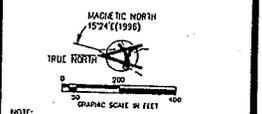
AIRPORT LEASE MAP



LEGEND	
[Symbol]	STRUCTURE
[Symbol]	AIRFIELD/APRON PAVEMENT
[Symbol]	AIRPORT PROPERTY LINE
[Symbol]	BUILDING RESTRICTION LINE
[Symbol]	FENCING
[Symbol]	AIRPORT REFERENCE POINT
[Symbol]	DRAINAGE CHANNEL
[Symbol]	DITCH
[Symbol]	PIPELINE
[Symbol]	CENTER LINE OF BERM
[Symbol]	RUNWAY LIGHTS
[Symbol]	THRESHOLD LIGHTS
[Symbol]	FUEL TANKS
[Symbol]	TETRAHEDRON
[Symbol]	TAXIWAY EXIT SIGN
[Symbol]	DATE
[Symbol]	DRAINAGE INLET
[Symbol]	POWER LINE

EXISTING FACILITY SCHEDULE	
1	RUNWAY PROTECTION ZONE (250 X 450 X 1000')
2	APPROACH SURFACE 20:1
3	SEGMENTED CIRCLE AND LIGHTED WIND CONE
4	LIGHT POLES
5	HANGARS
6	ROTATING BEACON
7	ELECTRICAL VAULT
8	PUMP HOUSE
9	AVIATION EASEMENT
10	FUEL PUMPS AND UNDERGROUND STORAGE TANK
11	SEPTIC TANK
12	WASH PAD

LEASED PROPERTIES		
NO.	HANGAR OWNERS	SQUARE FOOTAGE
1	CITY OF GUSTINE FRED LUCAS	1,924'
2	CITY OF GUSTINE LARRY WALLARSON	1,558'
3	CITY OF GUSTINE JOE LEWIS JR.	1,230'
4	RONALD GOMEZ RONALD GOMEZ	1-HANGAR
5	CITY OF GUSTINE NO HANGAR	
6	CITY OF GUSTINE NO HANGAR	
7	CITY OF GUSTINE VICTOR S. ROBELLO	1,333'
8	CITY OF GUSTINE NO HANGAR	
9A	CITY OF GUSTINE LORRY MCGURKE	1,470'
9B	CITY OF GUSTINE GEORGE CRISSEL	1,470'
9C	CITY OF GUSTINE AL POWERS	1,470'
9D	CITY OF GUSTINE RODGER SILBER	1,388'
9E	CITY OF GUSTINE JOE SILVA	1,388'
10C	CITY OF GUSTINE DOLG STEPHENS	1,388'
11	JOSEPH SMITH BERNARD MARNS	1,548'
12	JOE MACHADO	SAME
13	VIRGA CALCONICO	SAME
14	DARRY CAPS	SAME
15	PAUL HINES	SAME
16	CITY OF GUSTINE FRED LUCAS	1,111'
17	HAMS FLYING SERV.	SAME
18	CITY OF GUSTINE HAMS FLYING SERV.	QUONSET HUT



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MERCED COUNTY, CALIFORNIA

FIGURE NO. **B-1**

NAME: GUS-BILL NO. 4120-07
DATE: 08-26-98 PLOT SCALE: 1=200

The City is obligated to make the Airport available for the use **and** benefit of the public, and FAA mandates that the City must operate the Airport **in** a safe **and** serviceable condition. **In** addition, the City is entitled to recover its initial and continuing costs of providing a public landing area. The City should try to reach an agreement with the off-airport user to abide by the minimum standards established for on-airport tenants and compensate the City for use of the facility.

FAA requests that all access onto the Airport property be shown on the Airport Layout Plan, and before any future access is permitted onto the Airport, it must be submitted to FAA for approval.

RECOMMENDED LEASE POLICY GUIDELINES

The **purpose** of an airport lease policy is to provide a sound, consistent basis upon which Airport management can attract stable and financially responsible tenants to the Airport and can administer tenant leaseholds in a fair and uniform manner. In this way, each prospective tenant knows that **he/she will** be treated like all other tenants.

The following sets forth recommended lease policy guidelines for the **future** development of the Gustine Municipal Airport. It should be noted that although the City does not currently have an **administrative/terminal** building, guidelines have been provided for a terminal as one is included in the capital improvement program.

Operating Agreements Required

No person, firm, or organization should be permitted to operate on the Airport without a valid lease, sublease, or operating permit. This premise is the foundation of fair and uniform property administration and risk management and protects the investment and attendant privileges of all of the operators on the Airport.

Standardized Leases

One of the basic tenets of an airport lease policy should be that all leases be **standardized** as among tenants of a particular type. The City should establish its leasing policies on the basis of the types of tenants it has now and will have in the future (in accordance with the recommended Airport Master Plan). Each type of tenant on the Airport should be governed by the same terms, conditions, covenants, and standards. For example, all commercial aviation operators should be treated alike, all noncommercial aviation operators should be treated alike, **etc.**

Uses, Rights, and Obligations

The uses and rights **granted** to any tenant should be specifically defined and should be consistent with the land uses designated on the Airport Master Plan. Each class of lessee should be expressly prohibited from conducting any activity at the Airport other than that provided by agreement. Only in this manner will the value and integrity of each tenant on the Airport be maintained as a valuable property right.

Minimum Improvement and Investment Standards

Any tenant who enters into a lease with the City with the intention of constructing its own facilities should be obligated to construct such facilities within the time specified and in accordance with plans approved by the City. Failure to construct within this time should constitute a default under the lease. **All** facilities should meet a minimum improvement standard expressed in **terms** of square feet and a **minimum** investment standard expressed in terms of dollars to be expended. Inclusion of **minimum** improvement and investment standards ensures the development of desirable facilities on airport property, and serves to protect the investment of operators who contribute their resources to the development of the Airport. These **minimum** standards should be determined on an identical basis for each type of tenant.

Leased Areas

In all cases, the tenant should lease all areas made available for its exclusive use and should pay rental for the entire area leased, including (in the building and grounds area) automobile parking areas, apron area, the land underlying any existing buildings, and any other areas exclusively used.

Term (Duration) of Lease

The term (duration) of airport lease agreements should be determined on the following basis:

1. All agreements should be of sufficient length to **permit** any Airport tenant making a substantial capital investment, either in building facilities or in building area improvements, to **permit** reasonable **financing** of the project, and to fully-amortize the capital investment over the duration of the lease. Generally, a lessee may depreciate his investment over the term of the agreement, although the useful life of the improvements may be longer. A lease term in excess of that required to amortize tenant capital investment should be avoided. No residual value to improvements constructed should remain at the end of the term of the agreement.

2. All agreements for use of the terminal building or the building area which do not involve **substantial** capital investment on the part of the tenant should have a maximum lease term of three to five years.
3. All agreements with a term in excess of three years should provide a suitable means for adjusting rates and charges at stated periods.
 - a. For building and **airfield** use agreements, such adjustments should be on a negotiated basis with the actual capital and operating costs used as the basic criterion for the rate adjustment.
 - b. For hangar, building, and leased site area tenants, the basic criterion for readjustment should be either by the market value of the land (as determined by periodic independent appraisal) or by an increase in a specific Cost of Index.

Options/Rights of First Refusal

As a general rule, options and rights of first refusal to lease additional premises at some future date should be avoided. Tenants should be required to lease all areas they require and pay ground rental for the entire area. Except in the most unusual circumstances, the term of the leases should be related only to the time required for amortizing investment. Options for extensions to lease fully-amortized buildings owned by the City should be strictly avoided.

Maintenance and Operational Obligations

A basic premise of sound **Airport** financial management is reduction of costs, since reduced costs, together with revenues based on fair and reasonable rates and charges, are the primary basis for financial stability.

Therefore, lease agreements should be explicit with regard to the maintenance and operational obligations of both the City and each lessee. The lack of **and/or** inclusion of certain clauses in lease agreements can obligate the **Airport** to **perform** many costly services. When new agreements are drafted, each clause should be **carefully** evaluated, since the cumulative total of the expenses created by such covenants may contribute substantially to the financial performance of future airport fiscal operations.

The major source of operating costs is maintenance of property and facilities. To hold these costs at a minimum, the following maintenance policy should be adopted for the various users of the **Airport**:

Airfield. In the airfield, the City should be obligated for full maintenance of all public-use runways, taxiways, and aprons. Exclusive-use aprons, taxiways, or ramps should be maintained by the lessee.

Terminal Building. In the **terminal** building, the City should provide structural maintenance and heat and light, but should not be required to provide janitorial service, **relamping**, or other day-to-day services in any tenant's exclusive space unless compensated for such services.

Building and Grounds Area. In the building and grounds area, the lessee should be required to provide all maintenance for the gross area leased and for any buildings on the leased land. All leases of City-owned buildings should be negotiated on a "triple net" basis. Under the terms of "triple net" leases, **building** area tenants are required to assume the responsibility for providing their own heating, air conditioning, lighting, and other day-to-day services and should be totally responsible for maintenance, upkeep, and operation of the leased premises. The obligation of the tenant to maintain the structure, including roof, walls and foundation should be specifically excluded.

The use of triple net leases in the building and grounds area will result in minimum operational costs to the City since only the **terminal** building and the airfield will require maintenance service by airport employees.

Maintenance provisions are necessarily difficult to enforce. Therefore, a clause should be included in each lease stipulating that the City shall be the sole judge of the quality of maintenance and that upon written notice, the City may require the lessee to **perform** necessary maintenance. In the event that such maintenance is not undertaken as requested, the lease should provide the City with the right to perform such maintenance and to bill the cost of the maintenance to the lessee, plus a percent for administrative **override**.

Performance and Operating Standards

All leases which grant commercial privileges on the **Airport** (such as commercial aviation/fixed base operator, etc.) should include clauses which govern the hours of operation, the type of operation, the extent of services required and permitted to be offered, personnel requirements, and the quality of performance which will be required of the lessee.

Remedy clauses in the event of inadequate performance also should be included in commercial leases, the quality of which should be determined at the discretion of the City.

Insurance

All agreements should require the lessee to provide at its own cost, insurance coverage in an amount and form acceptable to the City and **underwritten** by a **financially** responsible insurance company.

The City should be named as an additional insured and require the insurance company underwriting such coverage to give **30** days prior written notice to the City of cancellation, non-renewal, or alteration of coverage. This provision from an insurance **underwriting** standpoint should help to **minimize** the City's insurance premium expense because the City will be defended by the lessee's insurance company if the City is named as a co-defendant.

The City should reserve the right to restrict the lessee **from** conducting **any** activity or storing **inflammable** materials or substances which would increase the City's insurance rate or cause any insurance agreement of the City be non-renewed or canceled.

Relocation of Improvements

To protect the long-term interests of both the City and a lessee, a clause should be included in all leases whereby the City **has** the right to relocate or replace the lessee's improvements at another generally comparable location on the Airport in the event the City requires any portion of Airport property for development or expansion of the Airport.

Rights Upon Termination

Upon the termination of any lease, except for default by the City, the lessee should be required to remove any lessee-constructed improvements and restore the ground to its original condition. Alternatively, the City should have the right, at its option, to take title to any such improvements.

The requirement for removal will preclude the City from becoming liable for acceptance of obsolete facilities and the potential attendant financial obligation for removing such improvements. If at the termination of any lease there is any service life remaining in a tenant's physical improvements, the City may then negotiate with the lessee for an extension of the lease. As a general policy, the City should not take title to lessee-constructed improvements unless there is an extremely sound reason for doing so.

With regard to disposing of personal property, removal by the lessee should always be required.

Performance Bonds

Each lessee **making** tenant improvements on the Airport should be required to maintain a mechanics' and **materialmen's** bond and a **performance** bond to guarantee the structure or facility will be **free from** any liens **and** completed in a timely manner according to specifications. In addition, the lessee should indemnify and hold the City **harmless** from any claims, liabilities or damages arising **from** such construction.

The bonds serve in lieu of a lien by **the** City on **the** lessee's leasehold interest and are not objectionable from the standpoint of mortgage financing. Generally, such bonds are drawn in a sum equal to the **full** amount of the construction contract awarded, guarantee the faithful performance of the necessary construction and protect the City against any losses and liability. State law and local practices usually prescribe the conditions of such bonds.

Encumbrances

Leases for all uses should **permit** the lessee to subordinate the leasehold estate for financing purposes, with the mortgagee approved by the City. To protect the mortgagee's interest, the mortgagee should be granted the right to cure any default on the part of the lessee in the payment of rent and, in the event of default, to assume the lessee's position under the lease. The encumbrance clause assists private investment in financing capital improvements, protects the mortgagee's interests, and does not endanger the City's interests.

Subleasing

Subleasing should not be **permitted** without prior written approval of the City as to both the sublessee and the sublease that will be entered into (particularly with regard to the privileges and obligations to be granted). The lessee should remain liable for performance of the sublessee, and the conditions of the sublease should be subject to the conditions of the prime lease.

Cancellation Clauses

In addition to the usual cancellation clauses by the City for default of the lessee, any aviation class of tenant should properly be given the right to cancel his lease if the Airport is permanently abandoned as an air transportation facility, if the use of the Airport is restricted in such a manner that the lessee cannot operate on the **Airport** for a period of 90 days, or if the City defaults in any of the covenants or agreements of the lease.

Assignment or Transfer

Assignment or transfer of a lease should be permitted only with the prior approval of the City. As a matter of policy, the City should be entitled to protection against a lessee's escape from liability through a specious assignment to an undesirable party who has little or no experience or financial responsibility. However, because of heavy **tax** or other **financial** obligations, a lessee can many times accrue considerable savings by formal transfer or sale of a lease to another financially responsible party, corporation or partnership. In such instances, approval of such assignment or transfer should not be unreasonably withheld. Once an approved assignment **has** been made, the lessee's liability should cease.

Federal Aviation Administration Requirements

Airport owners subject to Federal Grant or Surplus Property Instrument obligations are required to include specific provisions in all leases, permits, contracts, **etc.** between the owner and entities who use or perform work on airport premises for aeronautical or non-aeronautical purposes. These provisions address requirements of Title VI of the Civil Rights Act of 1964, Exclusive Rights prohibitions, and **Affirmative** Action items contained in Title 14 Code of Federal Regulations Part 152.

RATES AND CHARGES

The principle underlying the establishment of rates and charges is that each tenant on the Airport and each user of the airfield should pay an appropriate rate or fee for such tenancy or use. At a **minimum**, Airport use fees and facility rentals should be based on actual, fully allocated costs of providing, operating, and maintaining the facilities occupied and used, **including** reasonable interest charges. To assure the calculation of accurate rates and charges, the City should utilize **data** generated by an airport cost accounting system to serve as a basis for negotiating rates and charges. With regard to the various users of the Airport, the following policies should apply:

Terminal Building

All terminal building space occupants should pay standard rates per square foot per year for similar types of terminal building space exclusively leased. This rate should be determined on the basis of actual, fully-allocated costs incurred by the City in providing, operating, and maintaining the terminal building.

Airfield Use

All users of the airfield should pay a field use fee regardless of any other space or ground rentals which they may be paying on the Airport. For general aviation aircraft users, a use charge can most easily be obtained through a fuel flowage fee. As long as the **Gustine Municipal Airport** remains a general aviation airport, the fuel flowage fee serves as the airfield use fee.

Ground Rental Rates

In order to establish uniform ground rental rates in the **future** for various parcels of Airport property, the City should use a method based upon periodic independent appraisal of the current market value of the **land**. For **future Airport** tenants, the annual ground rental should be established on the basis of a given percentage of the appraised market value of the given parcels. The percentage used for this **determination** should be consistent with other ground leasing practices in the City and should be consistently applied to all tenants.

As an **alternative**, the City could set basic ground rental rates for various types of property on the Airport at current levels. *All* airport land area could then be appraised as to its current market value, and future increases in ground rentals could be based on subsequent future appraisals, with the rental rate adjusted in proportion to the increase in appraised value for the area in question.

All lease agreements should provide for readjustment of rentals at periodic intervals (every three years) so that the Airport may at all times receive income appropriate to the increasing value of the land.

Rental of Fully-Depreciated Buildings

In leasing buildings which have been fully depreciated, the current ground rental rate should be charged, with the building rental established in accordance with current market demand conditions. If there is only one prospective tenant for occupancy of a given building, the **rental** can be negotiated. If there is more than one tenant desiring to lease a given building, a lease not exceeding three to five years should be awarded on a bid or proposal basis. Building rental rates received for **essentially** identical facilities of this type can vary to a great degree. However, as previously stated, ground rental should be charged at the going rate for the area in which the building is located.

Hangar and Building Area

All hangar and building area tenants should be required to pay a ground rental for the gross area leased. In addition, any tenant of an City-owned building should be required to pay a building rental.

All leases should identify ground rentals and building rentals separately, as well as any other use fees or charges.

Notice of Preparation

To: Office of Planning and Research
(Agency)
1400 Tenth Street, Room 121
(Address)
Sacramento, California 95814

Subj: Notice of Preparation of a Draft Environmental Impact Report

Lead Agency:

Agency Name City of Gustine
Street Address 682 Third Avenue
City/State/Zip Gustine CA 95322
Contact Mark D. Melville
City Manager (209) 854-6471

Consulting Firm (If applicable):

Firm Name Aries Consultants Ltd.
Street Address 16360 Monterey Road, Ste. 27
City/State/Zip Morgan Hill CA 95037
Contact R. John Sanders (408) 779-5776

The City of Gustine will be the **Lead Agency** and will prepare an environmental **impact** report for the project identified **below**. We need to **know** the views of your agency as to the **scope** and content of **the environmental** information which is germane to your agency's statutory responsibilities in connection with the proposed **project**. Your agency will need to use the EIR prepared by our agency **when** considering **your permit** or **other approval** for **the** project.

The project description, **location**, and the **potential** environmental effects are contained in the attached **materials**. A copy of the Initial Study (is is not) attached.

Due to the time limits mandated by State law, **your response** must be sent at the earliest possible date but **not** later than **30** days after receipt of this notice.

Please send your **response** to Mark Melville at the address shown above. We **will** need the name for a contact person in your **agency**.

Project Title: Gustine Municipal Airport Master Plan

Project Location: Gustine
City (nearest) _____ County _____

Project Description: (brief)

SEE ATTACHED

Date 2/22/96

Signature 

Title City Manager

Telephone (209) 854-6471

Initial Study and Checklist

Title of Proposal: Gustine Municipal Airport Master Plan

Date Checklist Submitted: 2-22-96

Agency Requiring Checklist: Office of Planning and Research

Agency Address: 1400 Tenth Street, Room 121

City/State/Zip: Sacramento, California 95814

Agency Contact _____ Phone: (916) 322-4245

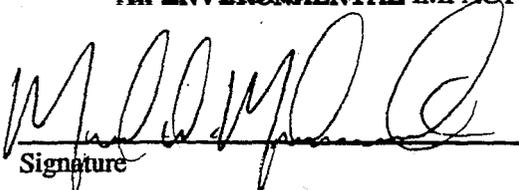
DETERMINATION

On the basis of this initial evaluation:

- a) I find that the proposed project could not have a significant effect on the environment, and
A NEGATIVE DECLARATION will be prepared

- b) I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because the mitigation measures described on an attached sheet have been added to the project.
A NEGATIVE DECLARATION will be prepared

- c) I find the proposed project may have a significant effect on the environment, and
An ENVIRONMENTAL IMPACT REPORT is required


Signature

Mark D. Melville
Print Name

City of Gustine
For

Date 1/22/96

ENVIRONMENTAL CHECKLIST FORM

PROJECT LOCATION: Gustine Merced
 City County

PROJECT ADDRESS: City of Gustine, 682 Third Avenue
Gustine, California 95322-0016

DESCRIPTION OF PROJECT: Environmental Analysis to support adoption of the Gustine Municipal
Airport Master Plan.

ENVIRONMENTAL IMPACTS:

		<u>YES</u>	<u>MAYBE</u>	<u>NO</u>
I.	EARTH. Will the proposal result in:			
a.	Unstable earth conditions or in changes in geologic substructures?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b.	Disruptions , displacements, compaction a overcovering of the soil?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c.	Change in topography or ground surface relief features?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d.	The destruction, covering, or modification of any unique geologic or physical features?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e.	Any increase in wind or water erosion of soils, either on or off the site?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
f.	Changes in deposition or erosion of beachsands , or changes in siltation , deposition, or erosion which may modify the channel of a river or stream or the bed of the ocean or any bay, inlet, or lake?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g.	Exposure of people or property to geologic hazards such as earthquakes, landslides, mudslides , ground failure, or similar hazards?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

- II. AIR.** Will the proposal result in:
- a.** Substantial **air emissions** ~~a~~ **deterioration** of ambient air **quality**?
 - b.** ~~The creation~~ of objectionable **odors**?
 - c.** **Alteration** of air **movement, moisture,** ~~a~~ temperature, ~~a~~ my **change** in climate, either **locally** ~~a~~ regionally?

- III. WATER.** Will the proposal result in:
- a.** **Changes in currents,** ~~a~~ **the** course or **direction** of water **movements,** in either marine or fresh **waters**?
 - b.** Changes in absorption rates, drainage patterns, or ~~the~~ rate and **amount** of **surface runoff**?
 - c.** **Alterations** to the **course** or flow of flood waters?
 - d.** **Change** in **the amount** of surface water in any water body?
 - e.** Discharge into surface waters, or in any **alteration** of **surface water** quality, including but **not limited** to, **temperature,** dissolved oxygen, ~~a~~ turbidity?
 - f.** Alteration of the **direction** or rate of flow of **groundwaters**?
 - g.** **Change in the** quantity of **groundwaters,** either **through** direct additions or withdrawals, or through interception of an aquifer by cuts or excavations?
 - h.** Substantial reduction in the amount of water otherwise available for public water supplies?
 - i.** Exposure of people or property to water related hazards such as flooding or tidal waves?

- IV. PLANT LIFE.** Will the proposal result in:
- a.** Change in the diversity of species, or number of any species of plants (including trees, shrubs, grass, crops, and aquatic plants?)
 - b.** Reduction of the **numbers** of any unique, rare, or endangered species of plants?

c. Introduction of **new** species of plants into an area, or in a barrier to the **normal** replenishment of existing species?

d. Reduction in acreage of any agricultural crop?

V. ANIMAL LIFE. Will the proposal result in:

a. Change in **the** diversity of species, or numbers, of **any** species of animals (birds, **land** animals, including reptiles, fish and **shellfish**, benthic organisms, **or insects**)?

b. Reduction of **the numbers** of any unique rare, or endangered species of animal?

c. Introduction of **new** species of animals into an area, or result in a barrier to the migration or movement of animals?

d. Deterioration **to** existing fish **or** wildlife habitat?

VI. NOISE. Will the proposal result in:

a. Increases in existing noise levels?

b. **Exposure** of people to severe noise levels?

VII. LIGHT and GLARE. Will the proposal:

a. **Produce new light and glare?**

VIII. LAND USE. Will the proposal result in:

a. Substantial alteration of the present or planned land use of an **area**?

IX. NATURAL RESOURCES. Will the proposal result in:

a. **Increase in the rate of use** of any natural resources?

X. RISK of UPSET. Will the proposal involve:

a. A **risk** of an explosion **or** the release of hazardous substances (including, but **not limited to**, oil, pesticides, chemicals, or radiation) in the event of an **accident** or upset conditions?

b. Possible interference with an emergency response-plan or an emergency evacuation plan?

XI. POPULATION. Will the proposal:

- a Alter the **location, distribution**, density, or growth rate of the human **population of an area?**

XII. HOUSING. Will the proposal:

- a) **Affect existing housing, or create** a demand for additional housing?

XIII. TRANSPORTATION/CIRCULATION, Will the proposal result in:

- a **Generation of** substantial additional vehicular movement?
- b **Effects on** existing **parking** facilities, or demand for new parking?
- c. **Substantial** impact upon **existing** transportation **systems?**
- d. Alterations to present **patterns** of circulation or movement of people **and/or** goods?
- e. Alterations to **waterborne**, rail, or air traffic?
- f. **Increase in traffic** hazards to motor vehicles, bicyclists, or pedestrians?

XIV. PUBLIC SERVICES. Will the proposal have an effect upon, or result in a need for a new or altered governmental services in any of the following areas:

- a **Fire** protection?
- b **Police** protection?
- c Schools?
- d Parks or other recreational facilities?
- e Maintenance of public facilities, including roads?
- f Other governmental services?

XV. ENERGY. Will the proposal result in:

- a. Use of substantial amounts of fuel or energy?
- b. Substantial increase in demand upon existing sources of energy,
a require development of new sources of energy?

XVI. UTILITIES. Will the proposal result in a need for new systems, or substantial alterations to the following utilities?

- a. Power a natural gas?
- b. Communications systems?
- c. Sewer or septic tanks?
- d. Water?
- e. Storm water drainage?
- f. Solid waste and disposal?

XVII. HUMAN HEALTH. Will the proposal result in:

- a. Creation of any health hazard or potential health hazard
(excluding mental health)?
- b. Exposure of people to potential health hazards?

XVIII. AESTHETICS. Will the proposal result in:

- a. The obstruction of any scenic vista or view open to the public?
- b. The creation of an aesthetically offensive site open to public view?

XIX. RECREATION. Will the proposal result in:

- a. An impact upon the quality or quantity of existing recreational opportunities?

XX. CULTURAL RESOURCES. Will the proposal:

- a. Result in the alteration of or the destruction of a prehistoric or historic archaeological site?

- b Result in adverse physical or aesthetic effects to a prehistoric or historic **building, structure, a** object?
- c Have the potential to cause a physical change which would affect unique ethnic cultural **values**?
- d **Will** the proposal restrict existing religious or sacred uses within the **potential** impact area?

XXI. MANDATORY FINDINGS OF SIGNIFICANCE.

- a **Potential to degrade:** **Does** the **project** have the potential to degrade the quality of **the** environment, **substantially** reduce the habitat of a fish or wildlife **species**, cause a fish **or** wildlife population to drop below self-sustaining levels, threaten to **eliminate** a plant or animal **community**, reduce **the** number or restrict the range of a rare or endangered plant **or** animal **or eliminate important** samples of the major periods of California history or prehistory?
- b Short-term: **Does** the project have the potential to achieve short-term, to **the** disadvantage of long-term, environmental goals? (A short-term impact on the environment is one which **occurs** in a relatively brief, definitive period of time. Long-term impacts will endure well into the future.)
- c **Cumulative:** **Does** the project have impacts which are individually limited, but cumulatively considerable? (A project may impact on two or more separate resources where the impact on each resource is relatively small, but where the effect on the total of those impacts on the environment is **significant**.)
- d **Substantial adverse:** Does **the** project have environmental effects which will cause substantial adverse effects on human beings, either directly **or indirectly**?

GUSTPNE MUNICIPAL AIRPORT MASTER PLAN PROJECT DESCRIPTION

LOCATION

The Gustine Municipal **Airport** is geographically located in the west central portion of the County of **Merced**, California. The Airport is 1.5 miles east of downtown Gustine adjacent to State Highway 140 as illustrated on Figure 1. The Airport is located on about 45 acres of **land** at an elevation of 76 feet above mean sea level (MSL). The Airport is included in the **Federal** Aviation Administration's (**FAA**) National Plan of Integrated Airport Systems (**NPIAS**) as a General Aviation **Airport**.

The existing facilities and conditions at the Airport that are important in the master planning **process are** the **airfield**, avigation, terminal **area**, general aviation, airport access and parking, airport support **and** utilities, other building areas **and** land use in the Airport environs. The existing **airport** facilities are presented on Figure 3, Existing **Airport** Facilities.

PROJECT DESCRIPTION

The **Gustine** Municipal Airport Master Plan describes current Airport usage and facilities, forecasts of aviation activity, facility requirements, **future** airport land uses, capital improvement program, and financing recommendations for the **Airport**.

The recommended year 2015 Airport Master Plan (the Plan) for the Gustine Municipal Airport is illustrated on Figure 5. The Plan integrates long-term **airfield** and **terminal** area requirements with forecast aviation demand and airport access and parking needs. It represents a guide for airport development through the year 2015 planning period.

Several airport development concepts were formulated and evaluated for review prior to the City's selection of the **recommended** long-range Airport Master Plan. The alternative development concepts were presented and discussed with the Gustine Municipal Airport Commission on January **23**, 1995. **A** public meeting **on** the recommended Airport Master Plan was held on June 12, 1995.

A three-phase Capital Improvement Program has been developed to meet estimated **short-range** (Phase I, 1995 through 2000), intermediate-range (**Phase II**, 2001 through 2005), and long-range (Phase III, 2006 through 2015) airport requirements. Phasing of the program reflects an assessment of the relative priorities of various proposed projects and the approximate **timing** of the anticipated requirements. The phasing of these capital improvements is as follows:

† **PHASE I IMPROVEMENTS (1995-2000)**

Land Acquisition

Acquire **avigation** easement for **6** acres to the south for Runway **18-36** extension and runway protection zone.

Airfield

Slurry seal existing Runway **18-36**

Develop taxiways to new hangar area

Enclose east-west irrigation **canal** under runway and taxiway and install lift pump at east end

Relocate fence **and berms** east of runway

Navigational Aids

Install wind cone at end of Runway **18**

Terminal Area

Develop new hangars to south (**22** hangars)

~~Develop new aircraft apron area to north and~~ remove underground fuel storage tank

Develop new service road to south

Develop vehicular parking to south

Airport Support and Infrastructure

~~Install above-ground fuel tank and card lock system~~

Extend utilities (electricity, water, telephone) to south side of Airport

Connect new development to **City** sewer system

• **PHASE II IMPROVEMENTS (2001-2005)**

Airfield

- Extend Runway 18-36 by 500 feet to south and provide runway safety area; extend parallel taxiway 500 feet to the south and build new **entry/exit** taxiway (includes drainage and subgrade)

Additional taxiways to serve hangars

Navigational Aids

- Install medium intensity runway lights (MIRL) on the runway extension
- Install medium intensity taxiway lights (MITL) for both existing and new taxiways
- Relocate VASI-2 on Runway **36**
- Install **GPS** for **nonprecision** approach
- Install wind cone at end of Runway **36**

Terminal Area

Expand new hangars to south (8 hangars)
Extend service road to south

Airport Support and Infrastructure

- Underground PG&E lines along Carnation Road
- **PHASE III IMPROVEMENTS (2006-2015)**

Airfield

- Extend the parallel taxiway 1,450 feet to the north
- Overlay existing airfield (runway and taxiways) pavement
- Additional taxiways to serve hangars

Navigational Aids

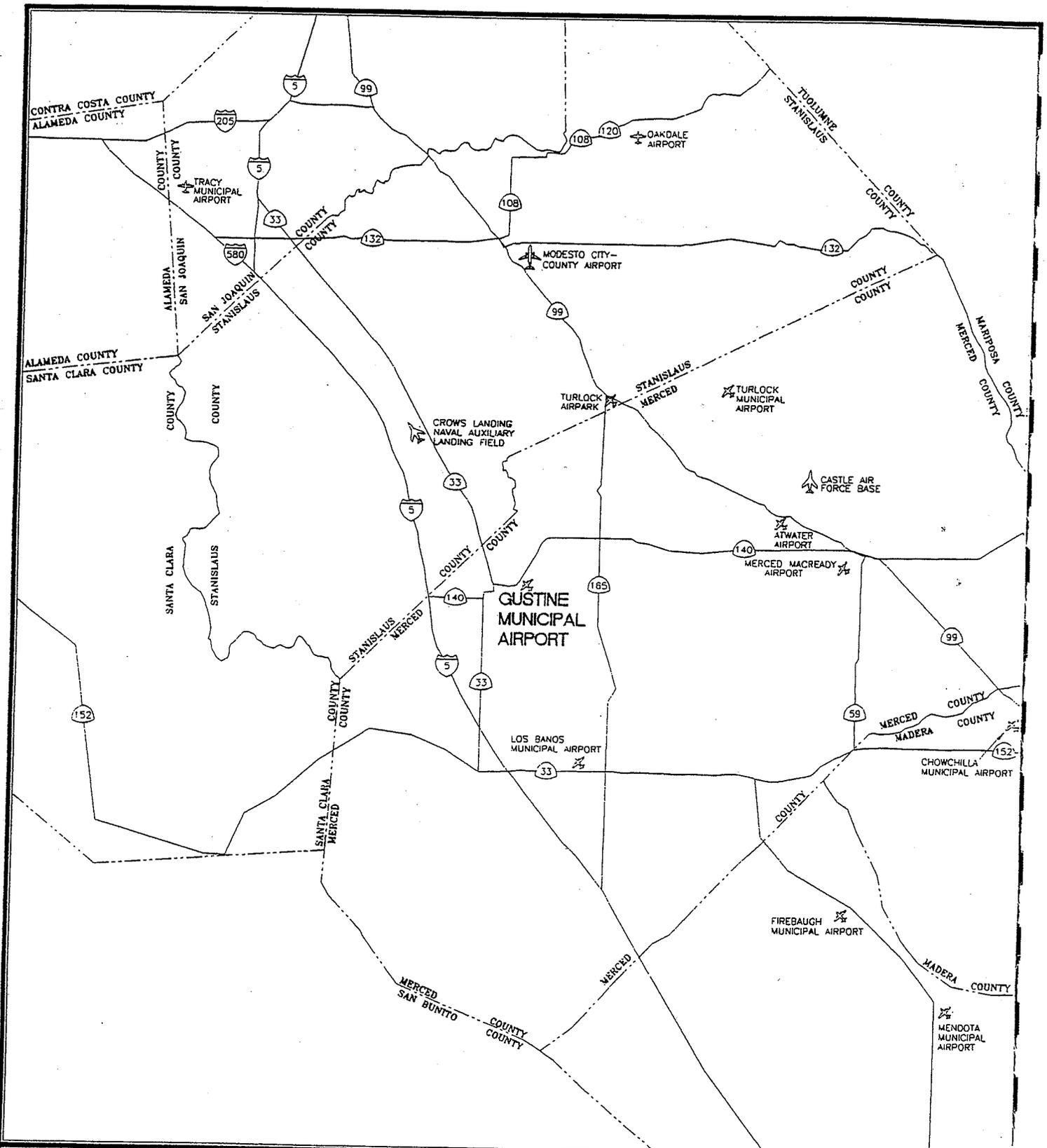
Extend medium intensity taxiway lights (MITL) for parallel taxiway extension to north
Relocate tetrahedron

Terminal Area

Develop **Administrative/Terminal** building
Expand and pave parking lot
Expand new hangars to south (6 hangars)

Airport Support and Infrastructure

Provide space for City maintenance and storage



TRUE NORTH

0 5 10

GRAPHIC SCALE IN MILES

NOTE:
THIS DRAWING IS FOR PLANNING PURPOSES ONLY AND IS NOT INTENDED FOR CONSTRUCTION OR NAVIGATIONAL PURPOSES.

LOCATION MAP

LEGEND	
	INTERSTATE HIGHWAY
	CALIFORNIA STATE HIGHWAY
	AIR CARRIER AIRPORT
	GENERAL AVIATION AIRPORT
	MILITARY AIRPORT

FIGURE NO. **1**

GUSTINE MUNICIPAL AIRPORT MASTER PLAN

TARIES CONSULTANTS LTD.

MERCED COUNTY, CALIFORNIA

NAME: GUS-011 (MINO: 11-22-04)
DATE: 09-18-2010 FILED: 05-27-11

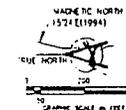


GUSTINE MUNICIPAL AIRPORT MASTER PLAN

EXISTING AIRPORT FACILITIES

LEGEND	
[Symbol]	STRUCTURE
[Symbol]	ASPHALT/CONCRETE PAVEMENT
[Symbol]	AIRPORT PROPERTY LINE
[Symbol]	BUILDING RESTRICTION LINE
[Symbol]	FENCING
[Symbol]	AIRPORT REFERENCE POINT
[Symbol]	DRAINAGE CHANNEL
[Symbol]	DITCH
[Symbol]	PIPELINE
[Symbol]	CENTER LINE OF RUNWAY
[Symbol]	RUNWAY LIGHTS
[Symbol]	THRESHOLD LIGHTS
[Symbol]	WIND SOCK
[Symbol]	FUEL TANKS
[Symbol]	UTILITY STRUCTURE
[Symbol]	LATWAY EXIT SIGN
[Symbol]	GATE
[Symbol]	DRAINAGE INLET
[Symbol]	POWER LINE

EXISTING FACILITY SCHEDULE	
1	RUNWAY PROJECTION CONC. (250'x150'x1000')
2	APPROACH SURFACE CONC.
3	SEGMENTED CIRCLE AND LIGHTED WIND CONE
4	LIGHT POLES
5	HANDCAPS
6	ROTATING BEACON
7	ELECTRICAL VAULT
8	PUMP HOUSE
9	AVIATION EASEMENT
10	FUEL PUMPS AND UNDERGROUND STORAGE TANKS
11	SEPTIC TANK
12	WASH PAD

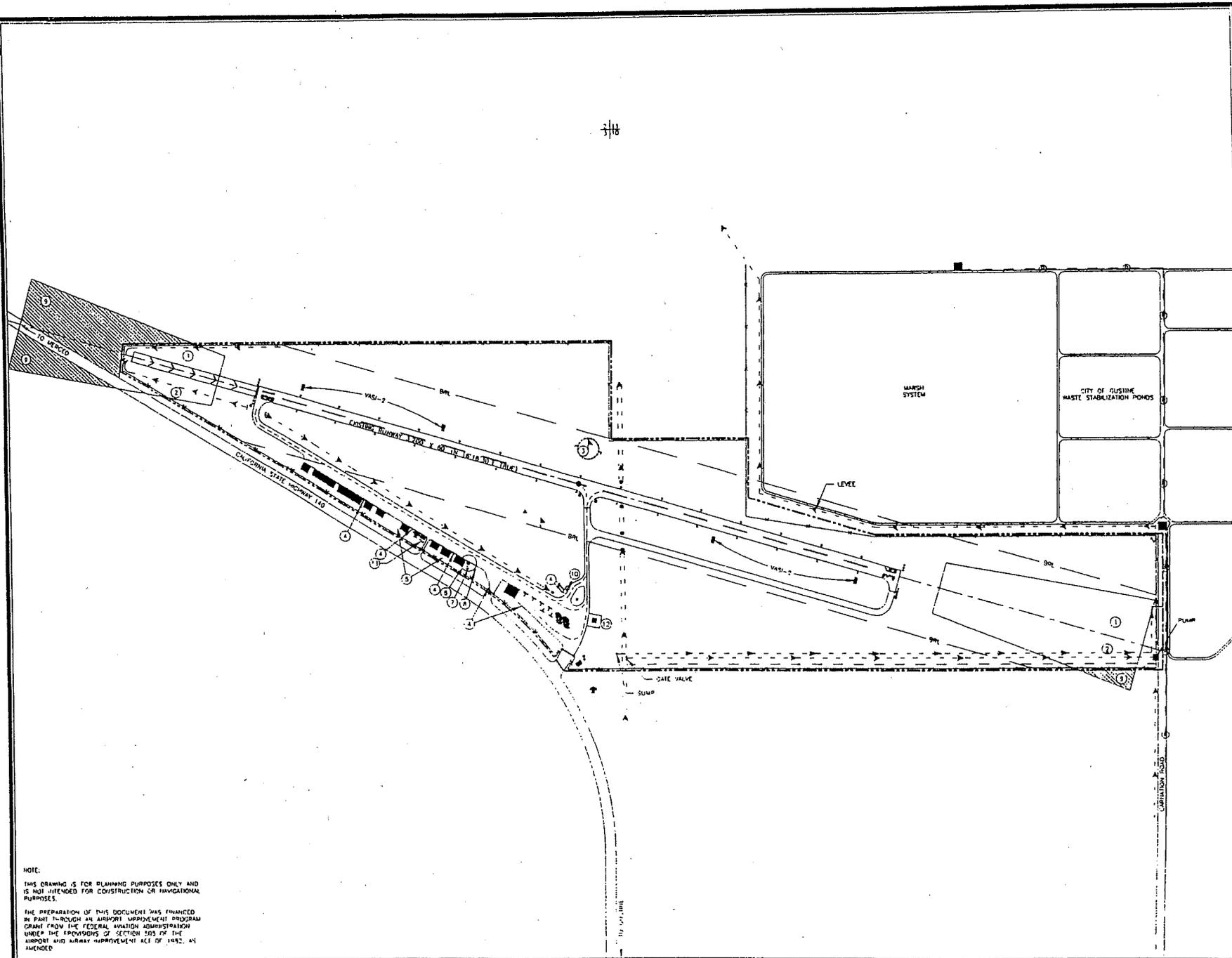


NOTE:
THIS DRAWING IS FOR PLANNING PURPOSES ONLY AND IS NOT INTENDED FOR CONSTRUCTION OR NAVIGATIONAL PURPOSES.

T ARIES CONSULTANTS LTD.

MERCED COUNTY, CALIFORNIA **3**

DATE: 11/11/11



NOTE:
THIS DRAWING IS FOR PLANNING PURPOSES ONLY AND IS NOT INTENDED FOR CONSTRUCTION OR NAVIGATIONAL PURPOSES.
THE PREPARATION OF THIS DOCUMENT WAS FINANCED IN PART THROUGH AN AIRPORT IMPROVEMENT PROGRAM GRANT FROM THE FEDERAL AVIATION ADMINISTRATION UNDER THE PROVISIONS OF SECTION 202 OF THE AIRPORT AND AIRWAY IMPROVEMENT ACT OF 1982, AS AMENDED.

XXII. DISCUSSION OF ENVIRONMENTAL EVALUATION AND LAND USE IMPACTS

This section presents additional discussion and/or information relative to environmental topics marked "Yes" or "Maybe" in the INITIAL STUDY (attached). This narrative is included for the purpose of clarifying the reasons for inclusion or omission of the topics to be discussed in the proposed environmental documentation.

Some of the construction projects recommended in the proposed Airport Master Plan may require additional environmental documentation under the California Environmental Quality Act (CEQA), providing reviewing agencies with additional opportunities to determine the significance of each individual improvement. The proposed runway extension **will** require a Federal Environmental Assessment under the National Environmental Policy Act (NEPA). Appropriate additional mitigation measures would be identified at that time.

I. EARTH

- b&c** The existing airport site is relatively flat. Grading associated with various proposed runway, taxiway and apron improvements will incrementally disrupt the soil covering in certain portions of the property. Minor topographic changes may also occur to facilitate drainage. No unusual or substantial quantities of grading are involved.
- e** During the construction period associated with each of the various development projects, there is a potential for wind or water erosion of soils. See discussion under **IIa** for airborne erosion. With respect to water erosion, best management practices (BMPs) will be employed as directed by City/County agencies. BMPs for erosion and sedimentation control could include checkdams, straw bale barriers, sandbag barriers, sediment traps and basins, and vegetative stabilization including seeding, planting and mulching.

II. AIR

- a** The **Gustine Municipal Airport** is located in the **San Joaquin Valley** and air quality issues in this area are managed by the **San Joaquin Valley Unified Air Pollution Control District (SJVUAPCD)** located in **Modesto**.

The principal sources of air pollution emissions from the various proposed projects are:

- Pollutant emissions from aircraft operations;
- Dust raised by earth moving and other construction activities;
- Pollutants emitted from construction vehicles and workers' vehicles;

- Pollutants emitted **from** increases in ground traffic associated with additional trip making to and from the Airport.

The expected growth of the Airport, as reflected in increased aircraft operations and increased ground **traffic**, is already included in regional transportation plans, **and** associated long-term air **quality** impacts have been evaluated in that context. **The** impacts of the additional growth are presumed to be less than significant.

Without mitigation there could be **substantial** impact from fugitive dust created during grading and earth moving construction activities. Of particular concern **are** dust particles less than 10 microns (PM-10).

The **SJVUAPCD** operates two monitoring sites in Merced County at Los Banos and Merced. Both sites monitor only **PM-10** concentrations. Over the period 1987 to 1991, PM-10 concentration exceeded the California 24-hour standard on 18 to 25 days of the year. Since 1991 the number of days per year when the standard **is** exceeded has continued on the high side of that range because residential and commercial development continues to occur in the area and extensive **agricultural** operations are also a major contributor to this condition. As a result, the central **San Joaquin** Valley is considered to be a non-attainment area with respect to the State's PM-10 standards. The federal government has also classified the entire San Joaquin Valley as non-attainment with respect to the federal PM-10 standards.

The SNUAPCD has promulgated rules governing fugitive dust mitigation measures. These are commonly referenced as Regulation VIII Rules which are intended to reduce the amount of fine particulate matter (PM-10) entrained in the ambient air. Several rules **within** Regulation VIII are **applicable** to the proposed construction activities involved in implementing the Master Plan. In addition to the **general** applicability of Rule 8010, the following additional rules are expected to apply:

<u>Rule Number</u>	<u>Related Activities</u>
8020	Ground scraping, excavation, digging, trenching and onsite travel
8030	Stockpiled soil and other bulk materials
8060	Accumulated dirt and mud on adjacent public paved roads
8070	Unpaved parking areas, to the extent that construction equipment and construction worker vehicles require more than one acre of parking

The largest of the proposed development improvements, new hangars in Phase I, would cover less than three acres of ground. At the EPA standard emission rate of 1.2 tons of fugitive dust per acre of disturbed soil per month (approximately 80 pounds per day per acre), and assuming the entire site is uncovered for a period of about 1-1/2 months, a total of about five (5) tons of fugitive dust would be expected to be created. The mitigation measures associated with the various Regulation VIII rules can be expected to reduce this impact by at least 50 percent. This level of dust emissions is considered not **significant**.

Assuming one tracked dozer, one wheeled loader and approximately ten construction employees, PM-10 emissions for these activities would be less than three pounds per day. Construction equipment and construction employee work trip PM-10 emissions are considered to be **insignificant**.

The San Joaquin Valley is also in **non-attainment** for both federal and State ambient air quality standards with respect to ozone (O₃). Ozone is a secondary pollutant that is created in the air as a result of chemical combination with direct emitted pollutants such as carbon monoxide, nitrogen dioxide and reactive organic compounds. Construction equipment and employee work trips are expected to produce approximately one-third pound of reactive organic compounds, one-third pound of nitrogen oxides, and 4.8 pounds of carbon monoxide per day. These emission levels are insignificant but can be reduced by tuning construction equipment to manufacturers' specifications.

Cumulatively, all of the construction activities add pollutants to an area that already exceeds **State** and federal ambient air quality standards. These impacts are individually insignificant, but cumulatively **cannot** be reduced to a level that does not contribute to air quality degradation.

III. WATER

b&e The proposed runway, taxiway and apron improvements are expected to result in minor changes to the existing drainage system. Approximately two (2) acres of additional runway and taxiway pavement are suggested in the proposed improvements to the Airport. An additional area of about eight (8) acres is to be paved for hangars and aircraft parking aprons. The existing drainage pattern would be maintained with some improvements to ditches and pumps.

Water quality is not expected to be significantly affected by the essential doubling of operations and activity at the Airport. No additional agricultural spraying activities are expected and the existing water channels, which currently flow water either around almost the entire perimeter of the Airport or across the Airport, provide natural cleansing for stormwater runoff. Since

the City is expected to obtain federal funding for the planned improvements, additional environmental studies leading to a federal environmental assessment will provide the basis for more detailed environmental analysis in advance of the construction of the **runway** and taxiway pavement extensions.

IV. & V. PLANT AND ANIMAL LIFE

- b **Historically, the** northern **San** Joaquin Valley (San Joaquin, Merced and Fresno Counties) was a large floodplain of the San Joaquin River and supported vast expanses of permanent and seasonal marshes, lakes and riparian areas. The **Airport** site was part of the vast mosaic of upland, grasslands and seasonally flooded wetlands and riparian areas of the northern San Joaquin Valley. Almost 70 percent of the San Joaquin Valley has been converted to irrigated land for agriculture. As a result, local and regional biological resources have been extensively altered since the onset of agriculture. In particular, the construction of canals, ditches and levees and the consequent modification of drainage **patterns** have resulted in loss of wetlands and habitat for many wildlife species. Based on an environmental assessment for the City of Gustine Wastewater Treatment Master Facilities Plan, prepared by the Environmental Protection Agency (EPA) and the City of **Gustine**, soils in the area of the **Airport** have limited potential for agricultural production because they tend to be poorly drained. They are currently managed as winter waterfowl habitat that is grazed by cattle in the summer. The **Airport** itself, and areas to the west and south, have been effectively drained and are in use for irrigated agriculture or urban uses.

The **Airport** is bounded on the east by the Grasslands Resources Conservation District (RCD), which comprises approximately 74,700 acres of private and public lands, and nearby Kesterson and San Luis National Wildlife Refuges. These combined State, federal and private wetlands comprise the largest contiguous block of wetland habitat remaining in the Central Valley. Wetlands of the northern **San** Joaquin Valley currently support more than 30 percent of the waterfowl that winter along the Pacific flyway. Current Grassland RCD management objectives focus on natural food plant production and wetland habitat protection. Seasonal marshes, grasslands, alkali sinks, riparian forests, permanent pastures, seasonally flooded native pastures, and agricultural crops constitute the current range of habitat available within nearby areas. **Special-**status wildlife species known to occur in the Grassland RCD include giant garter snakes, Aleutian Canada geese, **Swainson's** hawks, bald eagles, American peregrine falcons, greater **sandhill** cranes and **San** Joaquin kit foxes.

Most of the area proposed for airport improvements (taxiway extensions, aprons, hangars, and roadway improvements) is located between the existing runway and **State** Highway 140. Aircraft currently move through much of this

area influencing the adaptation of wildlife to the Airport. The Airport itself is not seasonally flooded, although species of special concern could be found in the ditches and **drainageways** of the Airport site. Areas proposed for the taxiways, hangars and apron already have a **substantial** amount of fill material in place. The proposed runway and taxiway extension to the south would extend across a relatively undeveloped area of the Airport and the loss of natural communities that provide habitat for wildlife **as well as** the potential disruption of **natural** wildlife movement **corridors** is possible. However, this area is currently overflowed by aircraft at very low altitudes landing or **taking** off to the south. Existing species in that area have already had to adapt to these low aircraft overflights. At the time federal funding for the runway extension is applied for, a biological field survey and assessment will be needed.

The Gustine Municipal Airport is located just to the north and west of the existing Gustine Wastewater Treatment Plant. The City is preparing a Wastewater Treatment Facilities Master Plan (see attached Figure B). There is a potential inconsistency between the proposed **Airport** Master Plan and planned improvements to the City of Gustine Wastewater Treatment Plant. The Draft Environmental **Assessment/Initial** Study (**Draft EMS**) Wastewater Treatment Facilities Plan states that "Short-term uses as a result of implementation of the proposed EPA (**Environmental** Protection Agency) action include such benefits as --creation of waterfowl nesting habitat." Waterfowl nesting habitats could be inconsistent with airport and aircraft operations this close to both the **existing** runway and planned-for runway extension. **Aircraft** approach and departure areas along the extended runway centerline pass directly over the proposed wastewater treatment facilities expansion. (See attached Figure B).

Approaching and departing aircraft will be at low altitudes as they pass over these facilities. Noise preceding the **aircraft** could flush out any waterfowl up into the **flight** path of the **aircraft** creating a-hazardous condition. The relationship of any land use that attracts birds or other wildlife just off the end of a runway is discouraged by both the Federal Aviation Administration (**FAA**) and the State Department of Transportation (**Caltrans**), Aeronautics Program.

In addition, the Airport Land Use Commission (ALUC) of Merced County was asked to review the Draft Wastewater Treatment Facilities **EA/IS** for consistency with the ALUC's policies regarding development within an **Airport's** area of influence. The ALUC expressed concern that this project could adversely affect the **Airport** (see attached October 19, 1995 letter).

As a result, and at the request of the City of Gustine, a biologist from the United States Department of the Interior, Fish and Wildlife Service, was asked to review whether the plans to integrate wildlife habitat within the City of **Gustine** Wastewater Treatment Facilities project would, or would not, interfere with plans to lengthen the airport runway. (See attached November 20, 1995 letter)

The proposed runway extension would extend the runway **approach/departure** area over approximately one-half of the 198 acre (Phase 1) section of irrigated **pasture** meant to provide bird habitat and cattle grazing. This **approach/departure** area will involve airspace above two future storage ponds **as** well.

It is recommended that the majority of the irrigated pasture system involved with Phase 1 (at least the portion below the aircraft **approach/departure** area) remain largely **ungrazed**. The ground-nesting birds that will be attracted to this taller vegetation should not reach a concentration that would potentially **interfere** with the aircraft. Nesting birds also tend to hold very close to the nest, even during disturbance events, so chances of flushing the birds with aircraft are remote.

Higher concentrations of avian wildlife would very well occur on grazed portions of the irrigated pasture. For this reason, it is recommended that grazing only occur outside of the aircraft **approach/departure** area.

According to the biologist, having both grazed and **ungrazed** sections **within** this system will provide a diverse habitat mosaic that should benefit many wildlife species during various important events involved with their life cycles.

The storage ponds involved with the Wastewater Treatment Facilities expansion plans should be constructed to discourage bird use as there are likely to be higher bird concentrations in these units **as** compared to the pasture habitats. Pond borders should be steep and shallow water depths (less than 18 inches) should be avoided.

The biologist notes that if the guidelines are followed, potential problems should be minimized. Therefore, based on this analysis, it is believed this issue can be mitigated in response to the **ALUC's** concern.

VI. NOISE

- a Increases in aircraft operations at the Gustine Municipal Airport will incrementally raise the noise levels perceived in the area. Noise contours prepared as a part of the Airport Master Plan indicate that anticipated noise

levels, due to aircraft operations, throughout the 20-year planning period will not impact any incompatible land uses. The 55 CNEL noise contour for forecast 2015 aircraft operations is almost entirely within the airport property (See **attached** Figure 10). Construction activities will generate localized, short-~~tem~~ noise levels within the Airport area and are not considered to be **significant**.

X. RISK OF UPSET

- a** Continued use of the Airport by agricultural aircraft will continue to present the potential for leakage or spillage of pesticide materials. The operator of this service is physically located off the Airport property and has access to the Airport under a "through the fence" agreement with the City. The operator is a State-licensed certified handler of pesticide materials. It is required that the certification be maintained as a condition for using the Airport. Existing **control/containment** procedures will remain in force. Based on current trends in agricultural development, this activity is not expected to substantially grow and the impacts are considered less than significant.

XIII. TRANSPORTATION/CIRCULATION

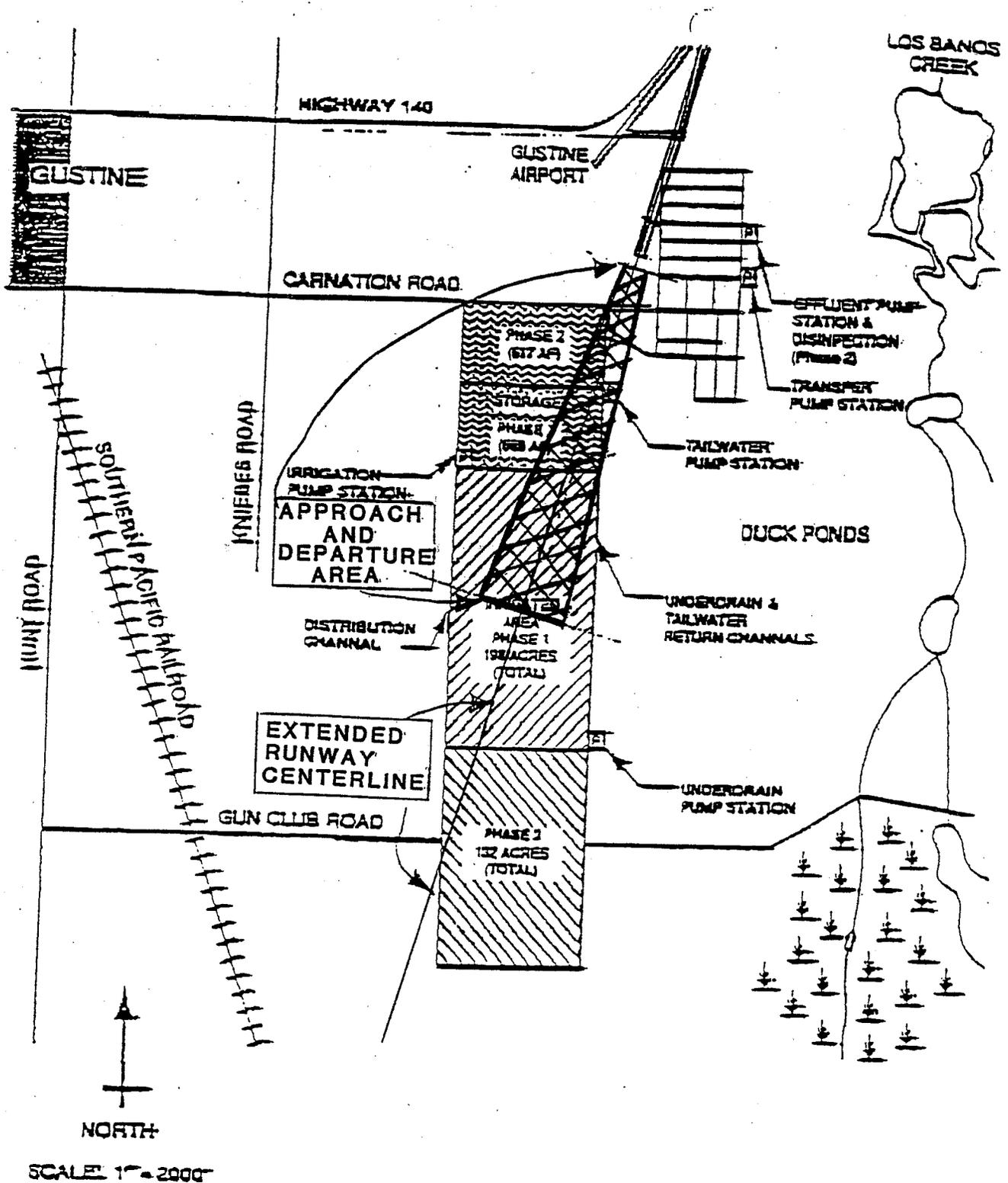
- b** The existing Airport activity is estimated to produce less than 50 trips per day. The proposed doubling of activities is estimated to increase daily trip making to about 100 trips. This level of increased trip making is considered less **than significant** individually and cumulatively. Additional parking facilities will be provided within the existing Airport property.

XIV. PUBLIC SERVICES

- a,b,e &f** Increased usage of the Airport within the 20-year planning period may generate incremental service demand requirements for certain public services, and the impacts are considered less than significant.

XVI. UTILITIES

- a to f** Improvements to the Airport may require the extension of existing utility service lines and/or systems. Substantial increases in utility services are not required, and the impacts are considered less than significant.



Source: City of Gustine Wastewater Treatment Facilities Master Plan.

Jones & Stokes Associates, Inc.

Figure 2-3
Proposed Action
Year-Round Irrigation

FIGURE B

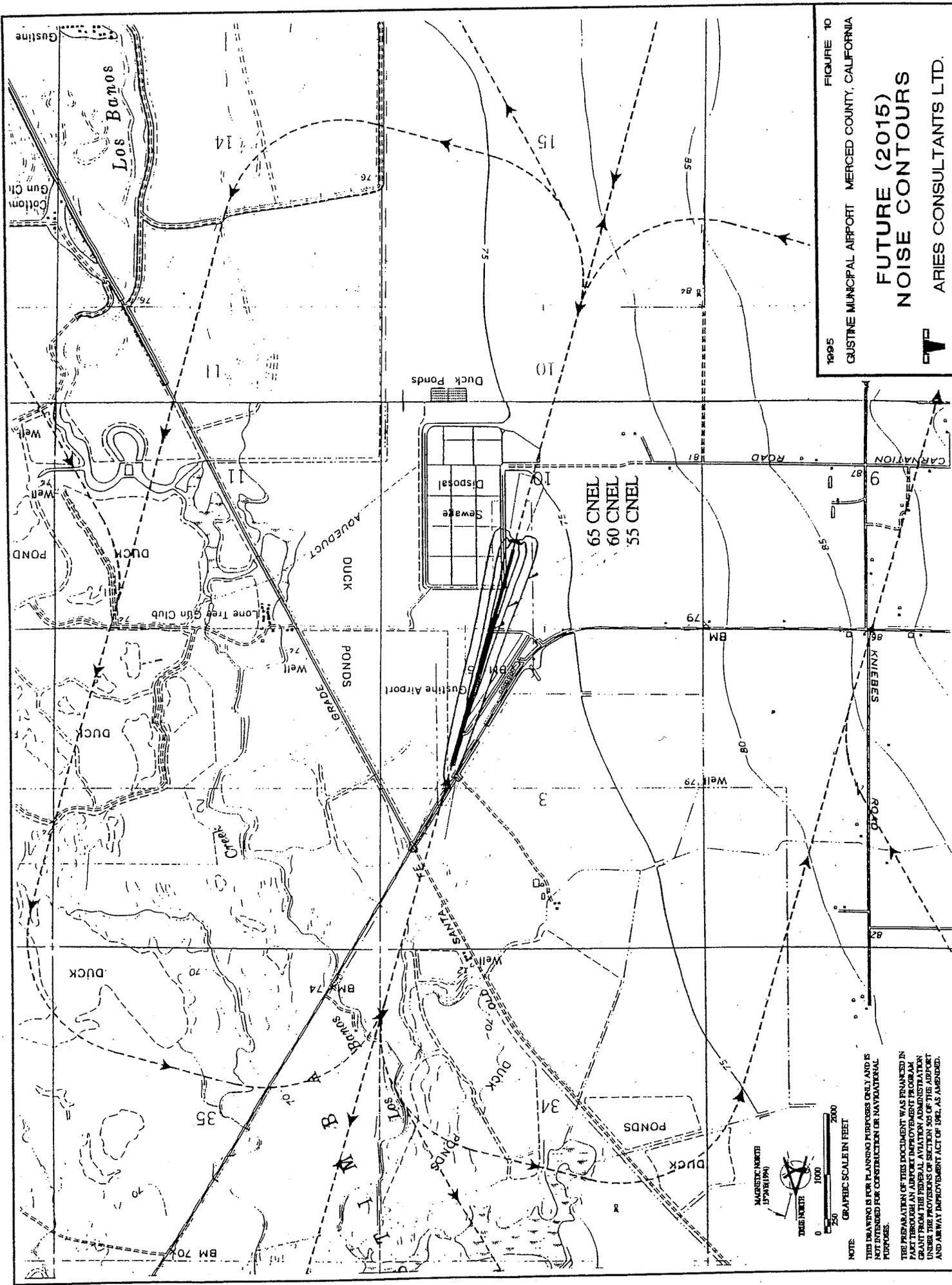


FIGURE 10
 GUSTINE MUNICIPAL AIRPORT MERCED COUNTY, CALIFORNIA
**FUTURE (2015)
 NOISE CONTOURS**
 ARIES CONSULTANTS LTD.

NOTE: GRAPHIC SCALE IN FEET
 0 500 1000 2000
 MAGNETIC NORTH (17°W/191°)
 TRUE NORTH
 THIS DRAWING IS FOR PLANNING PURPOSES ONLY AND IS NOT INTENDED FOR CONSTRUCTION OR NAVIGATIONAL PURPOSES.
 THE PREPARATION OF THIS DOCUMENT WAS FINANCED IN WHOLE OR IN PART BY THE FEDERAL AVIATION ADMINISTRATION UNDER THE PROVISIONS OF SECTION 205 OF THE AIRPORT AND AIRWAY IMPROVEMENT ACT OF 1962, AS AMENDED.



AIRPORT LAND USE COMMISSION

c/o PLANNING DEPT.

2222 "M" STREET
TELEPHONE (AREA CODE 209) 255-7854
MERCED, CALIFORNIA 95349

October 16, 1995

Matt Harris, Planner
City of Gustine
Post Office Drawer 16
Gustine, California 95322

Re: Gustine Waste Water Treatment Plant Expansion

Dear Mr. Harris:

As you know, the Merced County Planning Department has reviewed the Environmental Assessment for the City of Gustine Waste Water Treatment Plant prepared by the Environmental Protection Agency (EPA) and the City of Gustine. We understand that the proposed project will involve the construction of new ponds and irrigation areas in the vicinity of the Gustine Airport. Figure 2.3 of the Environmental Assessment Document sites these proposed ponds approximately 2000 feet south of the southerly end of the Gustine Airport runway. The document further states that these ponds would be utilized to attract water fowl.

The Merced County Airport Land Use Commission is concerned that this project could adversely effect the Gustine Airport. As you may be aware, bird strikes are a major safety hazard to aircraft, particularly operating in the vicinity of airports close to the ground. Airport Land Use Commission Staff would therefore request that the City of Gustine institute measures that would prevent the expansion of the Waste Water Treatment Plant and associated ponds from creating safety hazards in the vicinity of the Gustine Airport and therefore reduce the utility of that airport.

Thank you for the opportunity to provide these comments. I request that you inform ALUC Staff of what measures the City intends to incorporate into this project to address this concern. If you have any questions, please do not hesitate to let me know.

Sincerely,

Robert E. Smith
Planning Director

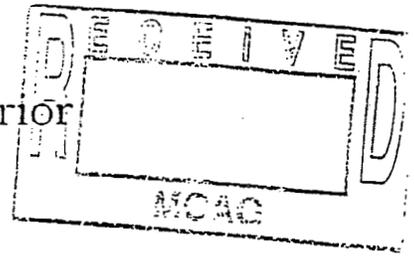
RES/mh



IN REPLY REFER TO:

United States Department of the Interior

FISH AND WILDLIFE SERVICE



San Luis National Wildlife Refuge Complex
P.O. Box 2176
Los Banos, California 93635
(209) 826-3508

November 20, 1995

Mr. Matthew C. Harris
Planner, Community Development
Merced County Association of Governments
1770 'M' St.
Merced, CA 95340

Subject: Gustine Wastewater Facility Expansion

At our October 30 meeting, you asked me to review whether your plans to integrate wildlife habitat with the City of Gustine wastewater project would or would not interfere with plans to lengthen the local airport runway. This letter is intended to address this request.

The runway expansion proposal would extend the runway safety zone over approximately one-half of the 198 acre (phase 1) section of irrigated pasture meant to provide bird habitat and cattle grazing. This safety zone will involve air space above two storage ponds as well.

I anticipate that avian wildlife use of the irrigated pasture will involve predominately ground-nesting birds (ducks, pheasants, meadowlarks and etc.) on un-grazed portions of the field during the spring (March-June). Grazed areas could attract feeding ducks (partially in spring), feeding water birds (white-faced ibis, long-billed curlew, egrets, herons etc.) throughout much of the year, and feeding geese (white-fronted geese, cackling Canada geese) and Sandhill cranes in winter months (November-February). With the safety of air traffic in mind, I recommend that the majority of the irrigated pasture system involved with phase 1 (at least the portion within the flight safety zone) remain largely ungrazed. The ground-nesting birds that will be attracted to this taller vegetation should not reach a concentration that would potentially interfere with the planes. Nesting ducks (mallards, gadwall, and cinnamon teal breed locally) are territorial during the breeding season and pairs tend to separate themselves from one-another. For instance, in similar habitat that I managed during my tenure with Tri Valley Growers, I found duck nesting

concentration to never exceed one nesting female per acre. Nesting birds also tend to hold very close to the nest, even during disturbance events, so chances of flushing their birds with planes are remote.

Higher concentrations of avian wildlife could very well occur on grazed portions of the irrigated pasture. Geese and cranes prefer this short-grass habitat structure for feeding; breeding season ducks utilize newly-irrigated habitats to gather protein-rich invertebrates; waterbirds use irrigated pastures heavily for feeding. For this reason, I **recommend** that grazing only occur outside of the flight safety zone.

Having both grazed and **ungrazed** sections within this system **will** provide a diverse habitat mosaic that should benefit many wildlife species during various important events involved with their life cycles.

The storage ponds involved with your expansion plans should be constructed to discourage bird use. You are likely to see higher bird concentrations in these units as compared to the pasture habitats. The Los Banos facility, for example, **typically** holds thousands of waterfowl during the winter months. I do not expect to see these types of numbers on the **Gustine** ponds due to their smaller size and perimeter location along the Grassland Ecological Area; however, concentrations could occur. Pond borders should be steep and shallow water depths (less than 18 inches) should be avoided.

Of course, nobody can **gaurantee** that problems will not occur between airplanes and the many birds that use the Grasslands area. If the guidelines are **followed**, potential problems **should be minimized**.

I commend your interest in integrating wildlife with your plans. It is important that society looks for ways to blend its activities with **local** natural systems. The **Gustine** Wastewater Project is a good example for others to follow.

I hope these comments are **helpful**. Please call if you have any questions.



Randy Riviere
Wildlife Biologist
Easement Program Manager

**COMMENTS AND RESPONSES TO COMMENTS
ON THE INITIAL STUDY**



PETE WILSON
GOVERNOR

State of California

GOVERNOR'S OFFICE OF PLANNING AND RESEARCH

1400 TENTH STREET
SACRAMENTO 95814

FILE AIRPORT
MASTER PLAN



LEE GRISSOM
DIRECTOR

DATE: February 26, 1996
TO: Reviewing Agencies
RE: GUSTINE MUNICIPAL AIRPORT MASTER PLAN
SCH# 96022094

RECEIVED FEB 28 1996

Attached for your comment is the Notice of Preparation for the GUSTINE MUNICIPAL AIRPORT MASTER PLAN draft Environmental Impact Report (EIR).

Responsible agencies must transmit their concerns and comments on the scope and content of the NOP, focusing on specific information related to their own statutory responsibility, within 30 days of receipt of this notice. We encourage commenting agencies to respond to this notice and express their concerns early in the environmental review process.

Please direct your comments to:

MARK MELVILLE
CITY OF GUSTINE
682 THIRD AVENUE
GUSTINE, CA 95322

with a copy to the Office of Planning and Research. Please refer to the SCH number noted above in all correspondence concerning this project.

If you have any questions about the review process, call Kristen Derscheid at (916) 445-0613.

Sincerely,

ANTERO A. RIVASPLATA
Chief, State Clearinghouse

Attachments

cc: Lead Agency

RECEIVED

MAR 23 1996

ARIES CONSULTANTS LTD.

DEPARTMENT OF TRANSPORTATION

AERONAUTICS PROGRAM
1130 K STREET - 4th FLOOR
MAIL: P.O. BOX 942873
SACRAMENTO, CA 94273-0001
(916) 322-3090
TDD (916) 654-4014
FAX (916) 327-9093



RECEIVED MAR 15 1996

March 15, 1996

Mr. Mark Melville
City of Gustine
682 Third Avenue
Gustine, CA 95322

Dear Mr. Melville:

The City of Gustine's NOP for the Gustine Municipal Airport Master Plan
SCH# 96022094

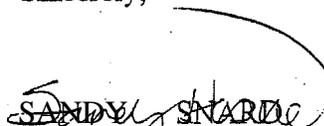
The California Department of Transportation's Aeronautics Program has reviewed the above-referenced document with respect to CEQA. The following comments are offered for your consideration.

Included in the Gustine Municipal Airport Master Plan is a proposal to extend the runway to the south. This extension will result in the need for an amended State airport permit by the Aeronautics Program. For assistance with the amended airport permit requirements, please call the Aeronautics Program's Aviation Consultant for Merced County, Mr. Chris Ryan, at 916/322-9960. ①

As part of the amended airport permit process, the Aeronautics Program must make a determination that the proposal is in full compliance with CEQA. If the Master Plan EIR will be the only environmental document prepared for the runway extension, potential impacts related to the runway extension will need to be thoroughly addressed. Prior to issuing the amended permit, we will also need copies of the Final EIR and the Notice of Determination. We would also like to take this opportunity to request a copy of the Master Plan as well. ②

Thank you for the opportunity to review and comment on this proposal. We look forward to reviewing the Draft EIR. If you have any questions regarding our comments, please call me at 916/324-1833.

Sincerely,


SANDY HESNARD
Environmental Planner

cc: Merced County ALUC
State Clearinghouse

**Response to California Department of Transportation, Aeronautics Program,
March 15, 1996**

1. The **runway** extension to the south is not proposed until the 2001 to 2005 period at which time an amended State airport permit **will** be requested by the City.
2. The Initial Study is for adoption of the Airport Master Plan. As noted on Page 7 of the Initial Study in Section **XXII**, Discussion of Environment Evaluation and Land Use Impacts, the proposed runway extension will require a Federal Environmental Assessment under **NEPA**, as well as additional environmental documentation under **CEQA**, if federal **funds** are needed. A copy of the Airport Master Plan **will** be forwarded upon completion.

DEPARTMENT OF TRANSPORTATIONP.O. BOX 2048 (1976 E. CHARTER WAY)
STOCKTON, CA 95201

TDD (209) 948-7773

(209) 948-7906

RECEIVED MAR



March 19, 1996

10-Mer-140-7.76
Gustine Municipal Airport
Master Plan
City of Gustine
SCH# 96022094Mr. Mark Melville
City of Gustine
682 Third Avenue
Gustine, CA 95322

Subject: Caltrans Review of the City of Gustine Notice of Preparation of a Draft Environmental Impact Report and Initial Study

Dear Mr. Melville:

Thank you for the opportunity to review and comment on these materials. Caltrans understands this proposal is for the phased improvements of the Gustine Airport under the conditions of the Master Plan. The Gustine Airport is located north and east of the town of Gustine on the south side of Highway 140. Bill Costa of our Transportation Planning Division has discussed this document with Paul Cavanaugh of our Traffic Department. Caltrans has the following comments:

- o Caltrans will need to review the improvements for each development phase of the Master Plan. These improvements may involve encroachment into Caltrans right of way, modifications to driveways or entry ways, addition of a left turn lane on Highway 140, etc. ①
- o The ultimate corridor for Highway 140 is to have a 100 foot right of way width. Set backs should be implemented to insure the right of way necessary for this future facility. ②

If you have any questions or wish to discuss these comments, please call Bill Costa of my staff at (209) 948-7115.

Sincerely,

A handwritten signature in black ink that reads "Dana Cowell".

DANA COWELL
Senior Transportation
Planner - Valley Countiescc: Mr. Antero A. Rivasplata, State Clearinghouse
Attn: Ms. Kristen Derscheid
SCH# 96022094Mr. Mathew Harris
c/o Merced County Association of Governments

Response to California Department of Transportation, March 19,1996

1. The Master **Plan** does not involve any improvements that encroach **into** the existing **Caltrans** 80-foot right-of-way. Any improvements that might impact State Highway 140 will be coordinated by the City with Caltrans with respect to encroachment into Caltrans right-of-way, **modifications** to driveways or **entryways**, or the addition of a left-turn lane.
2. The airport property line is based on an 80-foot right-of-way with **the** State Highway 140 right-of-way abutting the airport property. An ultimate right-of-way of 100 feet widened only to the east would require City of **Gustine** property and relocation of the existing airport fencing, hangars and other facilities on the west side of the Airport.

A 100-foot right-of-way widened only on the west side of State Highway 140 would **allow** for a better curve for drivers.



PLANNING DEPARTMENT

2222 'M' STREET
MERCED, CALIFORNIA 95340
TELEPHONE (209) 385-7654
FAX (209) 726-1710

ROBERT E. SMITH
Director
WILLIAM
NICHOLSON
Assistant Director

RECEIVED MAR 21 1996

Mark Melville, City Manager
City of Gustine
682 Third Street
Gustine, California 95814

March 21, 1996

RE: CEQA NEGATIVE DECLARATION FOR THE GUSTINE AIRPORT MASTER PLAN

Dear Mr. Melville:

This correspondence is in response to the recent Airport Master Plan Draft Negative Declaration referred to our office by the City of Gustine. I offer the following comments:

Page 10 of the initial study describes the high-value habitat areas east and south of Gustine Municipal Airport. Page 11 explains that the southerly Master Plan runway and taxiway extensions will result in the loss of habitat and possible wildlife movement corridors. Page 2 states that avigation easements will be acquired for this area. The initial study further states that aircraft presently overfly this area at low altitudes, and that wildlife have adapted to this condition. The analysis concludes that future studies will be conducted at time of federal funding of the runway extension. ①

The analysis appears to find that wildlife surrounding the extension area, and further south, will adapt to the project as it has adapted to existing conditions. There is no evidence that wildlife has adapted, or that significant effects have not and will not again occur. It is more likely that wildlife has been displaced or otherwise adversely affected. Also, we believe that it is impermissible to postpone a required study that can be conducted at the plan stage. An appropriately scoped study may recommend a project modification which should be reflected in the Master Plan goals. ② ③

Since project improvements are located within the City corporate boundary, it would appear that a General Plan consistency determination by the County would not be needed. However, as evidenced by the project need to acquire additional avigation area, the project may influence land uses outside the project boundary. Unincorporated lands affected by aircraft overflights are designated Agricultural by the County General Plan. Appropriate uses in this category are crop production, pasture and open space. Although at least one crop duster utilizes the airport, this is not the primary function of the facility. Additionally, the proposal may be inconsistent with Open Space/Conservation policies. The relationship to the County General Plan Open Space/Conservation Chapter may be negative. The project's relationship to General Plan Circulation goals may be positive. In order for the project to be consistent with the General Plan and further its goals, runway extension with no impact to wildlife would need to be accomplished. ④ ⑤

Sincerely,

Desmond Johnston, Environmental Coordinator

Response to Merced County Planning Department, March 21, 1996

1. At present the land in the future runway protection zone, south of Carnation Road, is privately owned and acquisition of an avigation easement would be recommended as noted on page 2 of the **Initial Study**. However, the City of Gustine is proposing to acquire this land for **the** Wastewater Treatment Plant expansion and an avigation easement may not be required. An additional avigation easement may only be required for only a small 0.3-acre parcel which is adjacent to **an** area with an existing avigation easement, fi-om the same **land** owner, north of Carnation Road.
2. The September 1995 EA/IS for the Wastewater Treatment Master Facilities Plan **determined** there would be no significant effect on fish or wildlife resources or wetlands and there would be no effect on rare or endangered species of plants or animals. As part of the biological investigation for the **EA/IS**, biologists conducted a reconnaissance level field survey of the existing wastewater treatment plant and the proposed 550-acre expansion to determine the habitats present and potential special-status plants and animals that could occur based on habitat suitability. These two areas abut the eastern and southern sides of the Airport.
3. The Initial Study is for adoption of the Airport Master Plan. As noted on Page 7 of the Initial Study in Section XXII, Discussion of Environment Evaluation and Land Use Impacts, the proposed runway extension will require a Federal Environmental Assessment under **NEPA** as well as additional **environmental** documentation under CEQA. The runway extension is proposed for the 2001 to 2005 time period, subject to FAA funding being available, at which time an EA/EIR will be prepared. The Initial Study also states, on page 11, "At the time federal funding for the runway extension is applied for, a biological field survey and assessment will be needed."
4. If the City acquires the **additional** avigation easement area it will only involve an additional **0.3** acres, as noted in Response 1 above, and will not influence land uses outside the project boundary. The unincorporated lands **affected** by future aircraft overflights are generally the same as for existing aircraft activity.
5. The Initial Study acknowledges that it is possible that the runway and taxiway extension could result in the loss of natural communities that **provide** habitat for wildlife as **well** as the potential disruption of natural wildlife movement corridors. The significance of these impacts will be addressed in the future **EA/EIR** for the runway extension, as noted in Response 3 above, including a biological field survey and assessment.

There are no improvements in the Airport Master Plan proposed on County land. The airport improvements may be considered inconsistent with the County Open Space/Conservation policy C1.A.2, "Continue to regulate the location, density and design of development to minimize adverse impacts and encourage enhancement of rare and endangered species habitats." However, based on the Wastewater Treatment Master Facilities Plan EA/IS there are probably no significant impacts to rare and endangered species as noted in Response 2 above. The airport improvements are consistent with Open Space/Conservation Objective 3A, and Policy 3.A.1, with respect to "recreational lands are available for local and regional needs" as the Airport serves local and recreational flying activity.



AIRPORT LAND USE COMMISSION

c/o PLANNING DEPT.

2222 "M" STREET
TELEPHONE (AREA CODE 209) 385-7654
MERCED, CALIFORNIA 95340

March 22, 1996

RECEIVED MAR 22 1996

Mark Melville, City Manager
City of Gustine
682 Third Street
Gustine, California 95814

RE: CEQA NEGATIVE DECLARATION FOR GUSTINE AIRPORT MASTER PLAN

Dear Mr. Melville:

Thank you for referring the initial study/draft negative declaration on the Gustine Municipal Airport master plan to our office. It was a little unclear whether the City plans to prepare an environmental impact report or adopt a negative declaration, since both are indicated within the first two pages. However, our staff has spoken with your consultant, John Sanders, and he has stated that a negative declaration is the intent. The distinction between these two types of CEQA documents is important to make at this time since, as a negative declaration, there will be no further opportunity to comment in the context of CEQA.

The initial study identifies at least one potentially significant impact, and describes how it may be mitigated, but does not conclusively state that this action will be implemented. It is usual to draft a mitigation measure in specific terms, with a performance standard, and provide a monitoring mechanism. In this instance, this impact and mitigation measure are of particular import to the Merced County Airport Land Use Commission (ALUC), since it pertains to an issue that the ALUC questioned during environmental review of the City's wastewater treatment plant (WWTP) expansion. The issue is the effect upon aircraft safety and long-term airport utility as a result of possible birdstrikes due to waterfowl habitat enhancement at the WWTP at the approach end of Runway 36. ①

Frequently, a CEQA document is circulated simultaneously, or under a single cover, with a proposed plan document. An advantage you have in not approaching the project this way is that you may build recommended mitigation into the draft plan policies, rather than maintain a separate mitigation monitoring plan. We look forward to reviewing the draft airport master plan when it is available. However, we are concerned that the offsite impact that is identified cannot be adequately mitigated by this project, and should be resolved as part of the WWTP project. The response letter from U.S. Fish and Wildlife Service is appreciated. Mr. Riviere notes that the increased presence of ducks due to the WWTP project should not reach a concentration that would interfere with aircraft. However, any increase in bird numbers should be viewed as a significant risk exposure, since a single birdstrike represents a threat to life and property. The potential for birdstrikes will be further aggravated by the southerly runway extension into waterfowl habitat. ②

Any project to **develop** and enhance airport **facilities** for the safe and efficient operation of aircraft would be in **conformity** to the **ALUC** Policy Plan. The WWTP project, as it **has** been presented to us, is not consistent with ALUC Safety Policy No. 3. The **Airport** Master Plan proposed southerly runway extension, due to the existing WWTP and proposed expansion, **may** not be in conformance with the Policy Plan.

3

Sincerely,



Robert E. Smith
Planning Director

RES/DJ/ah

Response to Airport Land Use Commission, March 22, 1996

1. The area of concern is due to the "creation of waterfowl nesting habitat" proposed in the Wastewater Treatment Master Facilities Plan ~~Draft~~ EA/IS. The proposed nesting area is **within an** 198-acre irrigated area proposed for Phase I of the Wastewater Treatment Master Facilities Plan facility expansion. The proposed nesting area is within the Airport Land Use Commission (ALUC) Safety Zones **2** and **3** for both the existing 3,200-foot runway and extended 3,700-foot runway lengths.

The ALUC Airport Safety Policy 3 states in part, "Within airport safety areas, the ALUC defines non-compatible land uses as **follows -- any** use which could attract large concentrations of birds."

This nesting habitat proposal is identified as an area of concern in the **Airport Master Plan Initial Study** which notes **that** the relationship of **any** land use that attracts birds or other wildlife just off the end of the runway is discouraged **by** both FAA and **Caltrans** as well as the **ALUC's** expressed concerns. To minimize these concerns the US Fish & Wildlife Service biologist, who visited the site, recommended that the majority of the 198-acre Phase I irrigated pasture system area, below the aircraft **approach/departure** area, remain largely ungrazed. The biologist also recommended that the borders of the new Wastewater Treatment Facilities storage ponds to the north of the ungrazed area, and immediately south of the Airport, be steep and shallow water depths (less than 18 inches) be avoided.

In order to reduce the potential for safety **hazards from** bird strikes in the vicinity of the **Gustine Municipal Airport**, the following mitigation measures are recommended:

Mitigation Measure 1 EPA and the City of **Gustine** will ensure that the majority of the 198 acres of irrigated pasture will remain ungrazed to minimize any potential for bird habitat and airport expansion conflicts.

Mitigation Measure 2 The proposed storage pond 12 **will** be designed to have steep slopes and be operated to minimize the time during which the water depth will be less than 18 inches to discourage waterfowl use of the pond.

2. This **offsite** impact should be resolved as part of the Wastewater Treatment Master Facilities Plan project, as noted in the response to Comment 1.

3. ALUC Safety Policy No. 3 includes the following:

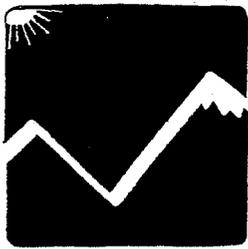
"Within airport safety areas, the ALUC defines noncompatible land uses as follows:

All Safety Areas:

- Any use which would generate smoke or which could attract large concentrations of birds or which may otherwise affect safe air navigation within this area."

The proposed nesting area is within the ALUC Safety Zones 2 and 3 for both the existing 3,200-foot runway and extended 3,700-foot runway lengths.

The US EPA should address the **conformity/consistency** of the Wastewater Treatment Master Facilities Plan project with the ALUC Safety Policy **No. 3** in their response to the ALUC as part of the Wastewater Treatment Master Facilities Plan EA/IS process.



San Joaquin Valley Unified Air Pollution Control District

March 26, 1996

Mark Melville
City Manager
City of Gustine
682 Third Avenue
Gustine, CA 95322

RECEIVED MAR 28 1996

SUBJECT GUSTINE MUNICIPAL AIRPORT MASTER PLAN

Dear Mr. Melville:

The San Joaquin Valley Unified Air Pollution Control District has reviewed the proposed project and offers the following comments:

San Joaquin Valley's air quality has been designated serious nonattainment by the EPA and severe nonattainment by the California Air Resources Board (CARB) for O₃ (ozone). PM₁₀ (fine particulate matter, dust) has been designated serious nonattainment by the EPA and nonattainment by the CARB. The Federal Clean Air Act (CAA) and the California Clean Air Act require areas that are designated nonattainment to reduce emissions until standards are met.

Based on the information provided, this project could have a significant effect on the environment. However, with the implementation of mitigation measures presented in the Initial Study in conjunction with the following comments, a Mitigated Negative Declaration is appropriate from an air quality perspective.

PHASE I IMPROVEMENTS -- AIRPORT SUPPORT AND INFRASTRUCTURE

Regarding the installation of the above-ground fuel tank and card lock system, an Authority To Construct (ATC) and Permit To Operate (PTO) may be required for this type of use. The applicant is advised to contact the Permit Services Division to obtain appropriate approvals prior to construction.

①

PHASE III IMPROVEMENTS -- AIRFIELD

District Rule 4641 (Cutback, Slow Cure, and Emulsified Asphalt, Paving and Maintenance Operations) applies to the planned overlay of existing airfield

②

David L. Crow

Executive Director/Air Pollution Control Officer

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Northern Region

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Southern Region

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(runway and taxiways) pavement. The purpose of Rule 4641 is to limit VOC emissions by restricting the application and manufacturing of certain types of asphalt for paving and maintenance operations. Please refer to the enclosed copy of this Rule.

2

DISCUSSION OF ENVIRONMENTAL EVALUATION AND LAND USE IMPACTS: II. AIR

(page 7)

Air quality issues in the San Joaquin Valley are managed by the San Joaquin Valley Unified Air Pollution Control District (SJVUAPCD). The central office is located in Fresno, however, the Northern Regional office for the District (serving San Joaquin, Stanislaus, and Merced Counties) is located in Modesto.

3

(page 9)

The third paragraph (second to last sentence) should read, "Construction equipment and employee work trips are expected to produce approximately one-third pound of reactive organic compounds, one-third pound of nitrogen oxides, and 4.8 pounds of carbon *monoxide* per day."

4

Thank you for the opportunity to comment.

Sincerely,



David J. Stagnaro
Environmental Planner
Northern Region

APCD REF # 960074

RULE 4641 CUTBACK, SLOW CURE, AND EMULSIFIED ASPHALT, PAVING AND MAINTENANCE OPERATIONS (Adopted April 11, 1991, Amended September 19, 1991, Amended ~~December~~ 17, 1992)

1.0 Purpose

The purpose of this rule is to limit VOC emissions by restricting the application and manufacturing of certain types of asphalt for paving and maintenance operations.

2.0 Applicability

This rule applies to the manufacture and use of cutback asphalt, slow cure asphalt and emulsified asphalt for paving and maintenance operations.

3.0 Definitions

3.1 Asphalt- a dark-brown to black refined liquid or solid cementitious material of which the main constituents are bitumens suitable for use in the manufacture of paving materials or dust palliatives.

3.2 Cutback Asphalt: paving grade asphalt liquified with petroleum distillate and conforming to specification of the American Society for Testing & Materials (ASTM) as following

3.2.1 Rapid cure type: ASTM D2028-76 (Reapproved 1981)

3.2.2 Medium cure type: ASTM D2027-76 (Reapproved 1981)

3.3 Dust Palliative: any light application of cutback asphalt, slow cure asphalt or emulsified asphalt for the express purpose of controlling loose dust.

3.4 Emulsified Asphalt: any asphalt liquified with water containing an emulsifier. The two kinds of emulsions most pertinent are the anionic and cationic types.

3.5 Organic Compound: any compound which contains VOCs.

3.6 Paving and Maintenance Operations: all activities involved in the new construction and maintenance of roadways and parking areas.

3.7 Penetrating Prime Coat: any application of asphalt to an absorptive surface to penetrate and bind the aggregate surface and promote adhesion between it and the new superimposed construction. Prime coats do not include dust palliative or tack coats.

3.8 Road Oils: shall be synonymous with slow cure asphalt.

- 3.9 San Joaquin Valley Air Basin: ail of San Joaquin, Stanislaus, Merced, Madera, Fresno Counties and the San Joaquin Valley ~~Portion~~ of Kern County.
- 3.10 Slow Cure Asphalt: paving ~~grade~~ asphalt conforming to ~~specification~~ of the ASTM D2026-72 (Reapproved 1979).
- 3.11 Tack Coat: any application of asphalt applied to an ~~existing~~ surface to provide a bond ~~between new surfacing and existing surface~~ and to ~~eliminate~~ ~~slippage~~ planes where the new and existing surfaces ~~meet~~.

4.0 Exemptions

- 4.1 The requirements of Section 5.0 shall not apply to the ~~manufacture~~ of cutback asphalt or ~~emulsified~~ asphalt in the ~~manufacturing~~ of paving materials where ~~such~~ materials are for ~~shipment~~ and use outside of the District .
- 4.2 ~~The requirements~~ of Section 5.12 shall not apply to ~~the use~~ of medium cure asphalt where the National Weather Service ~~official~~ forecast of the high temperature for the 24 hour period following application is below 50°F.

5.0 Requirements

- 5.1 A person shall not ~~manufacture~~ for sale nor use any of the following for penetrating prime coat, tack coat, dust palliative, or other paving and maintenance operations:
 - 5.1.1 Rapid cure cutback asphalt;
 - 5.1.2 Medium cure cutback asphalt;
 - 5.1.3 Slow cure asphalt which as produced for application, contains more than one-half (05) percent of organic compounds which evaporate at 500°F or lower.
 - 5.1.4 Emulsified asphalt containing organic compounds, in excess of three (3) percent by volume, which evaporate at 500°F or lower.

6.0 Administrative Requirements

6.1 Recordkeeping

- 6.1.1 The manufacmrer of cutback, slow cure or emulsified asphalt for dust palliative, or any other road paving and maintenance operations shall maintain records showing the types and amounts of cutback asphalt

slow cure asphalt and emulsified asphalt which contain organic compounds produced and the destination of these **products**.

6.1.2 The **users** of **cutback** slow cure or emulsified asphalt for penetrating prime coat, tack coat, dust palliative, or other paving and maintenance operations shall maintain records showing the types, amounts received, and amounts used.

6.13 **Such** records shall be maintained **daily** and retained and **available** for inspection by the **APCO** for the previous 24 month period.

6.2 Test Methods

6.2.1 **Analysis** of cutback **asphalt** samples for **VOC** content shall be in accordance with ASTM Method D402-76 (**Reapproved** 1987).

6.2.2 **Analysis** of emulsified asphalt samples for **VOC** content shall be in accordance with ASTM Method D244-88.

6.23 Analysis for halogenated exempt compounds shall be by ARB Method 432.

7.0 Compliance Schedule

All manufacturers and users of cutback, slow cure, and emulsified asphalt which are subject to this rule shall be in full compliance with the provisions of this rule by November 1, 1991.

**Response to San Joaquin Valley Unified Air Pollution Control District,
March 26, 1996**

1. The City will contact the Permit Services Division to obtain appropriate approvals prior to construction of the above ground fuel tank and card lock system.
2. The City will apply District Rule 4641 to the planned overlay of existing airfield pavement.
3. "Fresno" has been changed to "Modesto" on page 7.
4. "Dioxide" has been changed to "Monoxide" on page 9.