Kern County
Regional Aviation System Plan

A Component of the
Central California Regional Aviation System Plan
Phase I

Kern Council of Governments
September, 1994

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PREFACE

This document presents the first major update of the Regional Aviation System Plan by the Kern Council of Governments since 1984. The Kern Regional Aviation System Plan is a component of the Central California Aviation System Plan (CCASP) which, in turn, is a component of the statewide California Aviation System Plan (CASP).

The Kern Regional Aviation System Plan constitutes the first phase of the Kern County portion of a three-phase project to update the CCASP. The CCASP project is an undertaking of the Division of Aeronautics of the California State Department of Transportation with the participation of the nine regional transportation agencies (RTPAs) in the Central California region. Funding for the project has been provided through a grant from the Federal Aviation Administration.

At the completion of the CCASP project, the Kern Regional Aviation System Plan will consist of the following components:

1. Regional Setting
2. Air Transportation Issues
3. Goals, Objectives, and Policies
4. Inventory Element
5. Forecast Element
6. System Requirements Element
7. Financial Plan
8. Action Plan
9. Executive Summary

This first phase of the Kern Regional Aviation System Plan consists of the first four of these components. Phases two and three will address the remaining components in 1994-95 and 1995-96, respectively.

REGIONAL SETTING

REGIONAL SETTING

BACKGROUND

Profile

Kern County is situated in south-central California covering an area of 8,710.3 square miles (5,228,992 acres).[1] It is the third largest county in the state, smaller only than San Bernardino and Inyo Counties and is larger than the states of Delaware, Connecticut and Rhode Island combined or of the entire states of Massachusetts or Hawaii.

Kern County is divided into three distinct geographical regions. The eastern third of the county is in the Mojave Desert, the middle section straddles the Southern Sierra Nevada Range and the Transverse Ranges of the Tehachapi and San Emidio Mountains. The western portion of the county is in the San Joaquin Valley, which is the southern section of the Great Central Valley of California.

The climate varies with situation and elevation. The Mojave Desert area has very warm summers, cool winters and sporadic rainfall, with the heaviest precipitation occurring during brief, but intense, summer thunderstorms. Snowstorms are rare, but not unknown. The mountainous areas of the county have elevations up to 8,800 feet and snow is common. The snowpack that accumulates is critical to the water supply during the dry summer. The San Joaquin Valley area has a nearly frost-free climate, with most moisture falling in the November to April period. Episodes of dense fog are common in the months of December, January and February.

The first residents of the county were Native Americans who subsisted by hunting game and gathering food. The first recorded visit by Europeans to the Kern region was by a group of Spanish soldiers under the command of a Colonel Fages. While chasing a band of military deserters, the Fages group viewed the San Joaquin Valley from near the summit of Tejon Pass in 1772, naming the Valley "Buena Vista". The name Kern is attributed to Edward Kern, a topographer with the Third Western Expedition of John C. Fremont in 1843-44.

Gold was discovered during the 1850s in the mountains east of what is now Bakersfield, and Kern County was organized in 1866. The first county seat was Havilah (a biblical name meaning "Land of Gold"), but in 1874 with the decline in mining, the county seat was transferred to Bakersfield.

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(1) Department of Water Resources, Statewide Planning Branch. California Statistical Abstract-1990., Page 3.

Kern County had a population of 543,477 on Census Day 1990 (April 1), registering an increase of over 140,000 since 1980.[2] Estimated population for January 1, 1991 was 559,886.[3]

According to the 1990 Census, 66.9 percent of the population is non-Hispanic White, 5.0 percent is non-Hispanic Black, 1.1 percent is Native American, 24.1 percent is Hispanic, and 0.2 percent is classified as Other.

To a great extent, the economy of the county is resource based. It is among the top oil producing areas of the nation, with nearly two-thirds of the oil production in California being extracted from Kern County oil fields. Oil production and allied occupations provide a significant employment base for the county and provides a major source of revenue to the county. Kern County oil fields produced nearly 230,000,000 barrels of oil and 125,000,000 million cubic feet of natural gas in 1990.[4]

With a nearly ideal growing climate of the San Joaquin Valley, a long frost-free growing season and massive water importation projects, agriculture is a major industry in the county. The 1990 crop valuation totaled $1.837 billion, a 12 percent increase over 1989.[5] Irrigation water is transported from the north by the Friant-Kern Canal, part of the Federal Central Valley Project, and the California Aqueduct, part of the State Water Project.

There are two primary testing and development centers of the United States Military located in the eastern desert portion of the county. Edwards Air Force Base, near the community of Rosamond, is famous for many aviation "firsts," including development and testing of the X-15 rocket-plane, flight testing of virtually every Air Force plane and more recently, the landings of the Space Shuttle. The Naval Air Weapons Station, near Ridgecrest, conducts research and development on naval aviation materiel and ordnance. In addition, the Mojave Airport is serving as a civilian flight test center owing to the same characteristics that influenced the placement of Edwards Air Force and the Naval Air Weapons Station; the ideal flying conditions found with the clear, dry climate and the high number of cloudless days.

Kern County is central within the transportation network of California and the West Coast. Major intra-and inter-state routes cross the county, including Interstate 5, U.S. 395, State Highways, 14, 33, 46, 58, 65, 99, 166 and 178, along with a number of county and local routes. Rail transportation is highly developed, with both the Southern Pacific and Atcheson, Topeka and Santa Fe having mainlines within the county.

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(2) 1990 United States Census, U.S. Department of Commerce., Bureau of the Census.

(3) California State Department of Finance. April, 1990.

(4) 1990 California Oil and Gas Production Statistics and New Well Operations-Preliminary Report, January 1991. Department of Conservation Division of Oil and Gas.

(5) Kern County Agricultural Crop Report-1990. Kern County Agricultural Commissioner, April 1991.

Tehachapi Pass, east of Bakersfield, is the first major, year-round crossing of the Sierra Nevada Range south of Donner Pass in Northern California. A significant portion of the production of the San Joaquin Valley goes over Tehachapi Pass to markets in the East either by truck or train.

Kern County shares borders with eight other counties, Los Angeles, San Bernardino, Inyo, Tulare, Kings, San Luis Obispo, Ventura and Santa Barbara, with a ninth, Monterey, being within a mile and one half of the northwestern corner of Kern County. The county has eleven incorporated cities, Arvin, Bakersfield, California City, Delano, Maricopa, McFarland, Ridgecrest, Shafter, Taft, Tehachapi and Wasco, 53 school districts, 69 county districts and 124 special districts.

Aviation

The regional airport system in Kern County includes a diverse range of aviation facilities. It is comprised of seven airports operated by the Kern County Department of Airports, four municipally owned airports, three airport districts, two privately owned public-use airports, and two major military facilities.

Scheduled air carrier and commuter airline service is provided at Meadows Field, which serves the Bakersfield Metropolitan area and surrounding air service area. Scheduled commuter services is provided at Inyokern Airport, which serves the city of Ridgecrest and the Naval Air Weapons Station, China Lake, in the northeastern area of the county.

General aviation needs are served by public-use airports, both publicly and privately owned, throughout the county. These serve the full range of business, agriculture, recreation, and personal aviation activities.

Airport Land Use Commission

The Kern Council of Governments (Kern COG) was designated as the agency responsible for carrying out the functions of the Airport Land Use Commission (AlUC) for Kern County in October 1971. This designation was based on the Kern County Board of Supervisors approval of such designation and concurrence by the mayors of all Kern County cities. These two approvals were required by the Public Utilities Code as conditions for designation of the ALUC. Kern COG accepted the duties of the ALUC on November 11, 1971.

Airport Land Use Study Areas for each of the airports in Kern County were established in June 1973. These were prepared in cooperation with the Kern County Department of Planning and reflected changes requested by the Kern County Planning Commission. In December 1974, Kern COG adopted an Airports Plan as an element of the Areawide Transportation Plan. This was followed by the Airport Land Use and Height Recommendations in March 1976.

While establishment of ALUCs was once mandated by state law, in July 1993 the law was changed to make their creation optional. Based on the change in the law in 1993, the Kern County Board of Supervisors on February 28, 1994, passed a resolution to disestablish the Kern ALUC. The County concluded that the purposes for which airport land use commissions are created could be accomplished through other local actions, including general plan policy and zoning implementation.

Kern County Airports

Seven airports are owned and operated by the County of Kern. These range in size from small airstrips with no based aircraft to Meadows Field, the county's largest commercial service airport.

Meadows Field:

Meadows Field is classified as a commercial service primary airport in the National Plan of Integrated Airport Systems (NPIAS). This facility serves both commercial and general aviation needs for Bakersfield and the southern San Joaquin Valley region. The airport is located on 1,017 acres of land four miles northwest of central Bakersfield.

The airfield consists of two parallel runways (12/30) and associated taxiways. The main runway (12L/30R) was extended over Seventh Standard Road to a length of 10,850 feet in 1987. This is a Category I Instrument Landing System (ILS) runway with Centerline Medium Intensity Runway Lighting System (MIRLS), Precision Approach Path Indicator (PAPI), and High Intensity Runway Lighting System (HIRLS). There is also an Airport Surveillance Radar (ASR) northeast of runway 12L/30R.

The airport terminal is a 16,400-square-foot complex of two story buildings. First floor activities include boarding gate access, passenger ticketing, baggage, and waiting areas, gift shop, and FAA offices. County airport administration offices and equipment are located on the second floor. A third story on one building contains FAA office space, a training room, and a control tower that was replaced in 1975. A new air traffic control tower located 1,600 feet northeast of the threshold of runway 12R provides air and ground communications and is staffed 24 hours a day.

General aviation is served on approximately 35 acres both northwest and southeast of the terminal area. A full range of fixed-base operator (FBO) services are available.

Elk Hills/Buttonwillow Airport:

This facility serves seasonal agricultural aircraft, recreational and personal aviation needs of western Kern County. It is located near the intersection of Interstate 5 and State Route 58, a rapidly developing highway-oriented commercial area.

The airport has a 3,260 foot unlighted runway, paved aircraft tiedown space for twelve aircraft, and ten automobile parking spaces. Existing land use in the vicinity of the airport is agriculture.

Kern Valley Airport:

This facility serves commercial, recreational, and occasional fire suppression activities in the Lake Isabella/Kern River Valley area. The airport is located south and east of the community of Kernville. Other nearby communities include Wofford Heights, Lake

Isabella, Bodfish, Mountain Mesa, Onyx, and Weldon. Outdoor recreation is the prime attraction in this region, and aviation activity continues to increase due to the airports proximity to Lake Isabella and the surrounding mountains.

The airport currently has a 3,500 foot runway and 30 aircraft tiedowns, 15 hangar spaces, and parking for 20 automobiles. Other facilities include gasoline sales, a fixed-base operator and a restaurant. The U.S. Forest Service currently occupies a 3 1/2 acre leased parcel outside the airport boundary adjacent to the terminal area.

Existing land use includes a small residential area northeast of the airport, farm and rangeland to the east and south, and Lake Isabella on the west. During a three-week period in 1983, the airport was unusable due to flooding from high water levels in the lake.

Lost Hills Airport:

This facility serves local and regional agricultural, business, and personal aviation needs in northwestern Kern County. It is located adjacent to the community of Lost Hills near the intersection of Interstate 5 and State Route 46. This intersection is rapidly developing as a highway-oriented commercial area. State Route 46 is the primary access to the central coast area from the southern San Joaquin Valley. The airport is an important base for agricultural aircraft operating over the area's extensive crop land.

The airport currently has a 3,020 foot runway, 12 aircraft tiedowns, and four hangar spaces. There is a fixed-base operator and an airport beacon. Existing land use around the airport is predominantly agriculture, with a small residential area northwest of the runway. The community of Lost Hills is west of the airport.

Poso Airport:

This facility is primarily used by agricultural aircraft. There is occasional recreational use in conjunction with drag racing events at an adjacent paved strip. the airstrip is leased from the federal government and would revert to federal ownership if used for any other purpose.

The airport has a 3,000 foot runway and 20 aircraft tiedowns. There are no other services or facilities available. Adjacent land use is agriculture, with a small highway-oriented commercial development to the northwest of the airport.

Wasco Airport:

This facility serves agricultural, business, and personal needs for the area around the city of Wasco. The airport is located one mile north of Wasco and 22 miles northwest of the city of Bakersfield. Services include a flight school and fuel sales. the airport is an important base for agricultural aircraft operations.

The airport has a 3,380 foot runway, 36 aircraft tiedowns, six shelters, 11 T-hangars, and four hangar spaces. The main runway has Medium Intensity Runway Lighting (MIRL) and the airport has a beacon. Existing land uses in the vicinity of the airport is agriculture.

Taft Airport:

This facility serves business and personal aviation needs for the city of Taft and southwestern Kern County. This is an area of intensive oil production and processing. While there is significant demand for an airport in this region, the existing facility has for some years been considered unsatisfactory. The runway heading is poorly oriented to wind direction, the runway gradient of 2.2 percent exceeds FAA standards, and there is insufficient land for improvements. In addition, the land is held by the county under a lease subject to 90-day cancellation notice. The county of Kern is currently evaluating options available for improving the airport.

Existing facilities include two runways, 7/25 and 2/20, with 2 and 7 used for take-offs downhill and 20 and 25 used for landings uphill. There are 18 aircraft tiedown, 22 T-hangars, and five hangar spaces. Adjacent land uses consist primarily of oilfield-type activities to the north, east, and south with the urban area of the city of Taft to the west.

Municipal Airports

In addition to the airports operated by the county of Kern, four airports are owned and operated by municipalities. These are found in the three geographic subregions of the county: San Joaquin Valley, Southern Sierra/Tehachapi Mountains, and Mojave Desert. In the Valley, municipal airports are operated by the cities of Bakersfield and Delano. The city of Tehachapi operates a municipal airport in that mountain area, and California City Municipal Airport is located north of the desert community of Mojave.

Bakersfield Municipal Airport:

This facility serves business, personal, and recreational aviation needs in the Bakersfield metropolitan area. The airport has recently completed an ambitious development program, including construction of a new 4,000 foot runway 16/34, associated taxiways, land acquisition, and construction of support facilities.

Bakersfield Municipal Airport is located in the southeast portion of the city of Bakersfield, approximately 1.5 miles south of State Route 58 and about 2 miles east of State Route 99. When purchased by the city of Bakersfield in 1985, the airport consisted of 100 acres. The city is in the process of acquiring an additional 83 acres to bring the total area to 183 acres.

Existing land use in the vicinity of the airport consists of industrial to the west and north, low-density and rural residential to the northeast and east, and rural or agricultural to the east and south. Planned land use for the areas adjacent to the airport, as depicted in the Casa Loma Specific Plan, continues the current pattern, with some extensions of industrial activity in existing undeveloped areas.

California City Municipal Airport:

This airport is used for various general aviation activities, especially recreational aviation. The airport is located northwest of downtown California City approximately 8 miles east of State Route 14 and 2 miles north of California City Boulevard.

The airport consists of a single 6,035 foot Runway 6-24 with medium intensity runway lighting and a 5,010 foot parallel taxiway. There are two dirt glider landing strips and a parachute drop zone 3/4 mile south of the airport. Existing land use in the immediate area is predominantly undeveloped desert, with developed portions of the city east of the airport.

Delano Municipal Airport:

This airport serves business, personal and recreational aviation activity in the north-central part of the county. There are extensive crop dusting and helicopter operations as well as ultralight activities at the airport. The airport is located just east of State Route 99 approximately 2 miles southeast of central Delano.

Existing facilities consist of a main Runway 14L-32R which is 5,650 feet long. A secondary Runway 14R-32L is 3,500 feet long and is a converted taxiway used by agricultural crop dusting aircraft. Runway 14L-32R has medium intensity runway lights (MIRL) and visual approach slope indicators (VASI) on both ends. There is a displaced threshold on Runway 14R with 4,010 feet available for aircraft landings.

Existing land use consists of mixed urban uses to the northwest, a golf course and park area to the northeast. industrial uses to the east and south, and State Route 99 to the west.

Tehachapi Municipal Airport:

This is a general aviation airport providing business, personal and recreational aviation services. The airport is located between State Route 58 and Tehachapi Boulevard. The airport is also adjacent to the Southern Pacific Railroad, but there is no railroad spur into the airport property.

Existing airport facilities include a 4,035 foot Runway 11-29 equipped with low intensity runway lighting (LIRL). There are VAPIs on both ends of Runway 11-29. There are also displaced thresholds on both ends of the runway.

Existing land use consists of industrial uses to the west and east and south, urban residential uses to the south, and the State Route 58 freeway on the north. North of the freeway extensive development is proposed which would be primarily commercial and office uses.

Airport Districts

Three airport districts operate airports in Kern County. Each is organized as a special district, with a board of directors and an airport manager. One district, Minter Field, is located within the boundary of an incorporated city, Shafter. The other two districts, East Kern and Indian Wells Valley, are in the eastern portion of Kern County.

East Kern Airport District: Mojave Airport:

The Mojave Airport currently offers fixed-base operator facilities for airport users from Edwards Air Force Base, Rosamond, Mojave, Tehachapi, California city, and Boron. The airport serves as a civilian flight test center for business, military, civil, and home-built aircraft development testing. It also serves as a base for modification of major military and civilian aircraft. The airport is located northeast of the community of Mojave and is within one mile of State Routes 14 and 58. A rail spur from the Southern Pacific Railroad leads into the airport.

Existing airport facilities include a 9,600 foot primary Runway 12-30 and two crosswind runways 7-25 and 4-22. Runway 12-30 is equipped with high intensity runway lights (HILL) and 7,040 Runway 7-25 is equipped with medium intensity runway lights (MIRL). Runway 4-22 is 4,900 feet long and has no lighting.

Existing land use in the vicinity consists of mixed urban uses to the east and south in the community of Mojave, industrial and highway commercial uses to the northwest, and undeveloped desert to the north and east. The airport itself includes a substantial area devoted to aviation related industrial uses.

Indian Wells Valley Airport District: Inyokern Airport:

This air carrier airport serves the Naval Air Weapons Station China Lake, the community of Inyokern, and the City of Ridgecrest with scheduled airline service to the Los Angeles basin and other areas. It also serves local general aviation needs for personal, business and recreational flying. There are several fixed-base operators providing services at the airport. The airport is located northwest of the community of Inyokern north of State Route 178 and west of State Route 14.

Existing facilities consist of three runways, the longest of which is 7,344 foot Runway 15-33. This runway and Runways 2-20, length 6,275 feet, and 10-28, length 4,153 feet are equipped with medium intensity runway lights (MIRL). There are visual approach slope indicators (VASI) for Runways 20 and 33. There are displaced thresholds on both ends of Runway 15-33 and Runway 20.

Minter Field Airport District: Minter Field:

Minter field is a general utility airport serving general aviation activities. This airport is located within the Shafter city limits at the junction of State Route 99 and Lerdo Highway. Minter Field has two main runways. Runway 12/30 is 4520 feet in length, and Runway 16/34 is 2980 feet. 30/12 is equipped with a non-standard visual slope indicator (VASI), and landing lights. A third runway, 7-25, is 2,800 feet long and is used primarily by agricultural aircraft. The airport does not have a control tower.

Minter Field is surrounded primarily by agricultural uses with a housing development and commercial campground to the south, and industrial uses to the south and east.

Private Airports

There are three privately owned and operated public use airports in Kern County. One of these, Rio Bravo, has requested a designation on the City of Bakersfield General Plan for non-aviation uses and has been so planned and rezoned by the city. While it continues to be used in the interim as an airport, it is no longer considered for system planning purposes.

Mountain Valley Airport:

Mountain Valley Airport is located approximately 2 miles southeast of the City of Tehachapi. The airport is used extensively for sailplane operations. The airfield consists of two parallel gravel/soil runways which are in good condition. Runway 9L-27R is 5,190 feet long and Runway 9R-27L is 5,420 feet long. Runway 9L-27R has a 200' displaced threshold for Runway 9R and a 380' displaced threshold for Runway 27R.

Development on the north side of the airport consists of commercial and industrial uses which are part of the airport operation. A variety of services, ranging from food service to sailplane rentals, are provided by the airport owners.

Land around the airport is sparsely developed at present. A large land development east of the airport was recently approved by Kern County. Development is also occurring on the south side of the City of Tehachapi that in time may encroach upon the airport.

Rosamond Skypark:

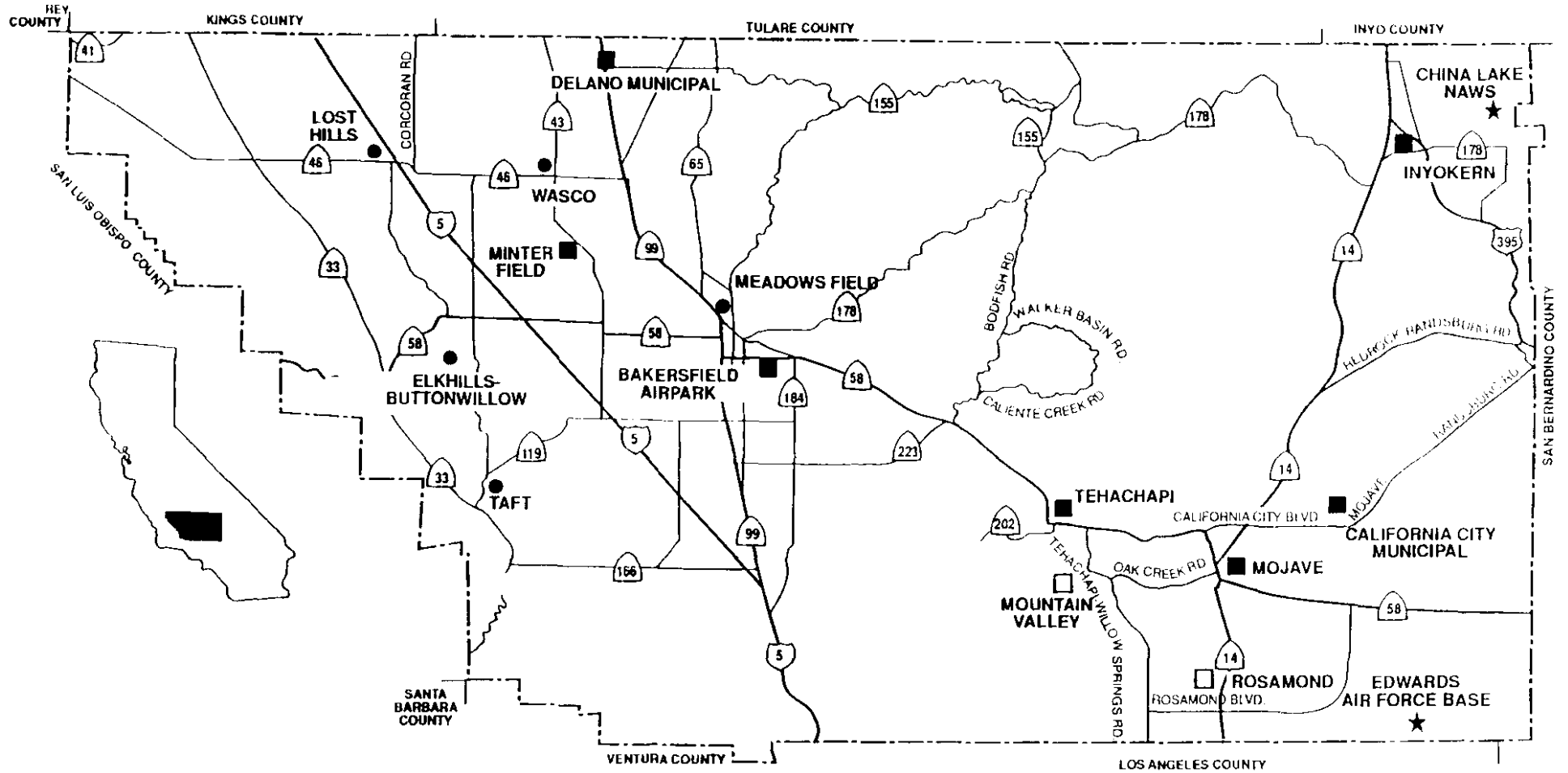
Rosamond Skypark is located in the desert community of Rosamond, approximately 14 miles south of Mojave. Originally, the airport was about two miles west of the developed area of the town. In the early 1980s property on the south side of the runway was developed as an aviation-oriented residential community. Each lot was oversized, and each had taxiway access to the airport runway.

Over time, development at the airport served as a catalyst for residential development on adjacent lands. Growth in the Rosamond area accelerated significantly in the late 1980s as the area became popular as a low-cost alternative to the Palmdale-Lancaster area in Los Angeles county. The airport now is in a situation of urban encroachment, in particular residential development, on three sides.

Military Aviation Facilities

The Naval Air Weapons Station (NAWS) China Lake and Edwards Air Force Base are located in an area known as the R-2508 complex, which is used for the advancement of weapons systems technology and tactical training. The R-2058 complex, which consists of several restricted airspace areas, is approximately 110 miles wide and 140 miles long, and covers approximately 16,000 square miles. The nature of operations conducted within this airspace creates a flight hazard to non-military aircraft. The R-2508 area was established in 1955 to prevent accidents and protect military activities.

In addition to NAWS and Edwards Air Force Base, other military activities utilize this air space, including: the 831st Air Division at George Air Force Base, The Army's Fort Irwin Military Reservation and Air Force Plant #42 at Palmdale.



KERN COUNTY AIRPORTS

LEGEND

- 101 U.S. HIGHWAY
- 5 INTERSTATE
- 119 STATE HIGHWAY
- PRIVATE (Public access)
- PUBLIC
- MILITARY
- KERN COUNTY AIRPORT SYSTEM

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Kern Council of Governments

DATE:

MAP NO:

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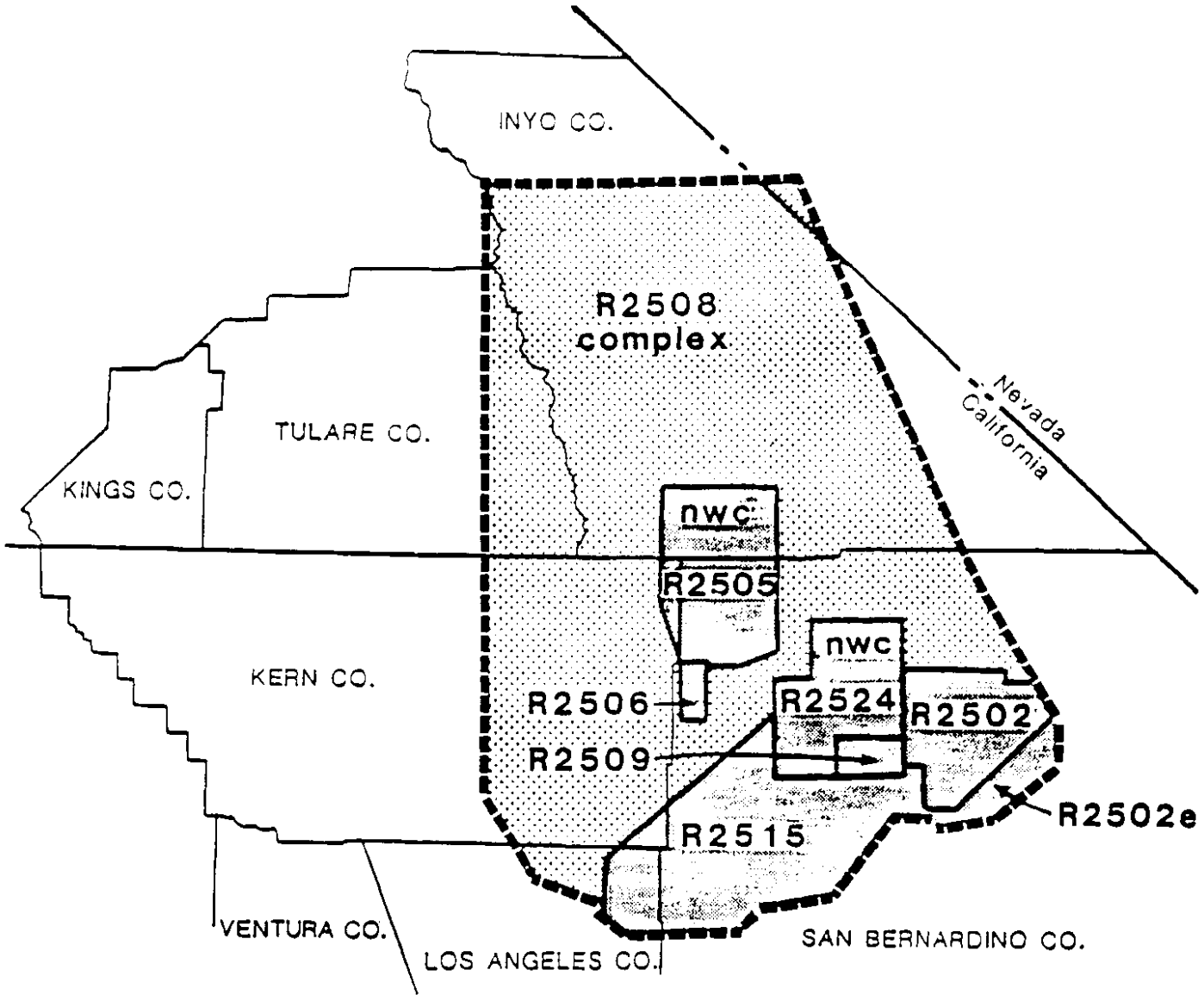
MILES



MILITARY RESTRICTED AIRSPACE
R-2508

0 MILES 30

Kern Council of Governments

REGIONAL AVIATION ISSUES

REGIONAL AVIATION ISSUES

ENVIRONMENTAL

Noise

Noise issues are generally a function of urban encroachment in the vicinity of an airport. In Kern County, virtually all of the airports were originally developed in areas that were some distance from other development. Frequently, the very success of the airport served as the catalyst for development in the surrounding area. Since the purpose of an airport is to facilitate the flying of aircraft, and since aircraft make noise, conflicts over noise are an early indicator that an airport is facing the broader issue of urban encroachment.

Noise contour maps have been prepared through various programs for all of the airports in Kern County. All of these have been prepared using the FAA Integrated Noise Model. For a number of airports, the noise analysis has been part of preparing an Airport Master Plan. Noise contours were also prepared for airports as part of various ALUC studies. The current Airport Land Use Compatibility Plan reviewed the status of current and future noise data for each airport. Noise contour maps are included for each public-use airport in the county.

A Part 150 Study has also been prepared for Meadows Field due to its situation as a major commercial carrier airport in the Bakersfield Metropolitan Area. The Part 150 Study used the FAA Integrated Noise Model to analyze current and future noise patterns at Meadows Field. Results of the analysis revealed minimal noise problems.

For the most part, noise is not currently considered to be a significant problem at any of the airports in the county. At Meadows Field, for example, reconfiguration of the main runway together with quieter aircraft have minimized noise complaints. In 1993, a total of 31 calls concerning noise were received by the airport, a total considered by the airport to be insignificant. If urban encroachment to the north and west of the airport can be controlled through appropriate planning by both Kern County and the City of Bakersfield, Meadows Field should remain in a favorable situation, so far as noise is concerned, well into the future.

Inyokern Airport is in a relatively good situation for noise compatibility, but does get an occasional complaint. In this situation, the problem may be more a matter of the airport's predominantly rural location. Complaints are more common in the rural area north of the airport and much less common in the more populous community of Inyokern which is closer to the airport.

A possible mitigating factor for Inyokern also is activity at the adjacent Naval Air Weapons Station (NAWS), China Lake. Due to the prominence of NAWS in the Indian Wells Valley area, and the importance of NAWS to the local economy, there may be a general acceptance of occasional aircraft noise. Much of the testing is performed by high-performance aircraft in high-speed, low-level approaches to the base's ranges. While such activity is somewhat infrequent, and would be classified as single-event noise, it nonetheless may result in an overall tolerance of occasionally high levels of aircraft noise.

Bakersfield Municipal Airport, in the southeast portion of the metropolitan area, has occasional noise complaints, but, as in the case of Inyokern, these generally come from the rural areas. With recent runway improvements, industrial site development, and the capability to handle larger general aviation aircraft, Bakersfield Municipal could see increased noise issues in the future. Recent proposals for new multi-family residential development north of the airport could create future noise conflicts for the airport.

Agricultural aircraft operations are the major source of noise at several airports in the San Joaquin Valley portion of the county. At Delano Municipal this includes some helicopter traffic. Delano also has had some noise problems from training flights using the airfield for touch-and-go early in the morning. The noise problem appears to be due to the aircraft type and flight patterns. Since Delano is experiencing significant growth, careful planning will be required to ensure that future problems do not occur.

There is significant agricultural aircraft activity at Minter Field, but for the present the airport has been able to protect itself from urban encroachment through ongoing cooperation and planning with the City of Shafter. There is also a developing trend at Minter Field for conversion of fixed-wing agricultural aircraft from piston to turbine engines. While this is expensive, the primary benefits for the operator are increased power, higher payloads, better reliability, and lower maintenance. A side benefit is a reduction in noise levels created by the turbine-powered aircraft. While numbers are not currently available, the noise level reduction is reported to be quite noticeable.

Both of the remaining two municipal airports, California City and Tehachapi, report no current noise problems. In the case of California City, projected development patterns would appear favorable for minimal problems in the future. In Tehachapi, urbanization is much more intensive in the vicinity of the airport. Future noise problems could occur if operations increased significantly or types of aircraft using the airport change.

Mojave Airport does not consider noise a significant issue at present. While the airport has a great deal of testing activity, actual operations are somewhat infrequent. Generally, the airport will receive 5 or 6 calls a year regarding noise.

Future development at the airport could change this situation, however. Development proposed by Pegasus Technologies, Inc., on land leased from the airport could employ several hundred people within a year. Ultimately, up to 25 aircraft could be in production at the same time, with employment of several thousand people.

Aircraft operations would increase, both from aircraft in transit and aircraft being tested. While initial development would pose no problem, impacts of full development are unknown.

Most of the smaller general aviation airports have minimal noise impact. For many of these, such as Lost Hills, Poso, or Elk Hills, the noise contours do not extend far beyond the actual runway. Many of these smaller airports also have minimal development in the vicinity to create conflicts.

Air Quality

In November, 1993, the Environmental Protection Agency (EPA) published its final rule for determining conformity of general federal actions to state or federal air quality implementation plans (40 CFR Parts 6, 51, and 93). These rules require that federally-funded plans, programs, and projects be found to conform to the CAAA. While many of the implications of this rule have yet to be fully understood, it is likely that there will be some future impact on airport facilities.

Kern County is included within the boundaries of two air basins. The dividing line between the two is generally the crest of the Sierra Nevada Range. On the west is the San Joaquin Valley Air Basin; to the east is the Southeast Desert Air Basin. Jurisdiction for the two is divided between the Kern Air Pollution Control District (KCAPCD) and the San Joaquin Valley Unified Air Pollution Control District (SJVUAPCD).

Currently, Kern County is classified under the Federal Clean Air Act Amendments of 1990 (CAAA) as "Serious" for ozone, with attainment required by November 1999. This classification is designated for the entire county due to the fact that the entire county is defined as a Metropolitan Statistical Area.

The Bakersfield urbanized area is designated under the CAAA as "Not Classified" for carbon monoxide. A "Not Classified" area is an area that retained its nonattainment designation at the time of enactment of the CAAA, but for which data are not available to conclude whether or not the area violated the standard for CO during the 2-year period from 1988-89. Unless such areas are redesignated to attainment, certain provisions are required no later than 3 years from the date of designation. Staff of the SJVUAPCD have indicated that there have been no recent CO excedances in the Bakersfield area.

The San Joaquin Valley and portions of the Southeast Desert are also designated as "Moderate" nonattainment for airborne particles with an aerodynamic diameter of 10 micrometers or less (PM-10). The SJVUAPCD anticipates that the PM-10 standard will not be met in the San Joaquin Valley by the December 31, 1994 deadline, and that this will result in reclassification to "Serious". The KCAPCD anticipates attainment by the deadline with the implementation of rules regarding dust from unpaved roads, wind erosion, and construction/demolition.

For most airports in the county, air quality will not be an issue unless significant increases in airport capacity or new aircraft types are proposed. Air quality is a concern that would have to be addressed in environmental analysis required for a runway extension or other capacity enhancement.

Delano Municipal has discontinued operation of a fuel truck and reduced the number of fueling services in order to facilitate compliance with Phase I vapor recovery requirements. Overall, however, fuel sales at the airport have increased and the net effect has not been adverse.

Bakersfield Municipal experienced a fairly significant dust problem following construction of its' new runway. For the most part, however, the problem has been mitigated through the use of dust palliatives and revegetation.

Mojave Airport does not have a problem at this time, but future development of the Pegasus facility could be an issue. Not only would the impact of the industrial development have to be evaluated, but the impacts of a large workforce using surface transportation would also be a consideration. While the regulatory impact would primarily fall on the industrial development itself, the airport would ultimately be affected as well.

Uncertainty over the potential impact of air quality regulations in the future is generally regarded as an issue in itself by the airport operators. This includes the concern that all affected parties, such as airports, are not adequately informed when changes in air quality regulations are considered. Most of the airports in the county have limited staff, and are unable to monitor regulatory activities that are removed from the airport's day-to-day activities. A number of airport managers expressed concern that they might be unaware of potential regulations or their impact.

Energy

From a regional system planning standpoint, energy for airport operations does not appear to be a significant issue. Adequate sources of energy are available for anticipated future needs.

Costs associated with energy will continue to be a concern in the future. As in the past, strategies for energy conservation and cost reduction will be accomplished by individual airport operators rather than through regional programs. Energy conservation activities at present vary greatly from airport to airport, but all require maximum energy efficiency in new construction.

Meadows Field has backup power generators for runway lighting. The FAA tower and navigation aids also have backup power. The Kern County Airports Department also has implemented an energy efficiency program at all county airports, including Meadows Field. Runway lights are pilot activated after normal operating hours at Meadows Field, Taft, and Wasco, the three county airports with lighted runways.

Inyokern Airport completed an energy audit conducted by Southern California Edison, and has implemented a number of programs as a result. The airport has pilot activated runway lights, and its two VASIs are pilot activated from low- to high-intensity. The airport also has emergency switching of its electrical supply to the Navy's Coso geothermal plant, including surge protection when the switch is made. The airport also includes the requirement of water meters in its' energy conservation effort.

Runway, PAPI, beacon, and security lights at Minter Field are activated at dusk by photocells. Runway and PAPI lights are switched off by timer after midnight, at which time they become pilot activated. The airport also reduced energy consumption when it switched to the City of Shafter water system. This allowed the airport to discontinue the operation of two wells.

Runway lights at Delano Municipal are automatically turned on at low-intensity, and are pilot activated to high. The VASI at Delano is also pilot activated.

California City Municipal has three 45KW generators as an alternative power source. The airport also has pilot activated runway lights.

Mojave Airport emphasizes energy efficiency in new construction which, given the level of industrial development at the airport, is quite significant. The airport also has a backup power source for its' tower, and has pilot activated runway lights.

Other Environmental Factors

A number of environmental factors are of concern to airports, some unique to airports and others more broadly applicable to the region.

In the San Joaquin Valley portion of the county, environmental concerns related to agricultural aircraft operations have significant impact on several airports. Groundwater contamination problems resulting from past practices have for the most part been resolved. Current Ag aircraft operations at airports such as Minter Field or Delano Municipal are carried out with proper safeguards in place.

Another groundwater contamination source is underground fuel storage tanks. A number of the airports in the county were formerly military airfields. While airport operators have generally identified and removed old leaking tanks, there are occasions where previously unknown tanks are found which must be corrected. Meadows Field at one time had six underground fuel farms. Three have now been removed and one new one installed above ground. Most of this work at Meadows was done at the initiative of the airports' FBOs.

Surface contamination due to stormwater runoff has been an issue in the past at several airports. In most cases, this has adequately been addressed by airport operators. At this point, no regional activity is anticipated.

Endangered species of wildlife are found throughout the county. In the San Joaquin Valley, it is common to encounter the San Joaquin Kit Fox and the Blunt-Nosed Leopard Lizard. In the eastern portion of the county, the Mojave Ground Squirrel is an issue. There are also other endangered species of birds and of vegetation that may be present at various locations in the county. These must be addressed in the environmental review for airport projects and any adverse impacts identified and mitigated.

Aviation Safety and Regulation

Aviation safety issues are largely a function of location of an activity relative to an airport. Safety is also viewed from two basic perspectives. First, there is the aircraft itself and its relationship to everything around it, whether on the ground or in the air. Second, there are human activities on the ground that can range from a high level of interaction with aircraft to virtually no interaction with aircraft. Within this universe lies the range of aviation safety issues.

From the aircraft perspective, most safety concerns are addressed by the Federal Aviation Administration (FAA). This includes both the aircraft itself, and the way in which the aircraft is operated. As a motor vehicle, aircraft are highly regulated to ensure safe operation. Similarly, the area within which aircraft operate, or airspace, is highly regulated by the FAA.

Airports are owned and operated by a variety of entities, ranging from private enterprises to a variety of public agencies. Regardless of ownership, all are regulated for safe operation through the permit process administered by Caltrans Division of Aeronautics. In addition to the required permits for airports or heliports, the Division of Aeronautics conducts annual safety inspections of each airport's physical facility, approach and departure zones, and traffic patterns.

A much more complex situation is encountered in the area surrounding an airport. More often than not, an airport with any significant level of aviation activity will have some type of development in its vicinity. Typically, this development consists of urbanization. As activity at an airport becomes more intensive, urban encroachment becomes more significant. The end result is an increased risk that an unsafe situation will be created, either for aircraft or people on the ground.

At the federal and state levels, two sets of regulations exist for airport safety. These are the Federal Aviation Regulations, Part 77 (FAR 77), and the State Aeronautics Act. Broadly stated, the FAR 77 addresses the airspace to and from an airport, and the State Aeronautics Act addresses the airport and its immediate environs.

Local regulation of land uses around airports is a function of the county, an incorporated city, or a combination of both. The four municipal airports in Kern County, Delano, Bakersfield, Tehachapi, and California City, all are surrounded by a combination of both city and county jurisdiction. Similarly, three of the County airports, Meadows Field, Taft, and Wasco, are surrounded by a combination of jurisdictions. Minter Field, one of three airport districts in the county, is within the Shafter city limits but is largely surrounded by county jurisdiction. Mountain Valley Airport, a privately-owned public use airport, is within the county but is also affected by growth in the city of Tehachapi.

Of the airports surrounded solely by county jurisdiction, three are located i: urbanized communities. Inyokern, a commercial carrier airport operated by the Indian Wells Valley Airport District, is located in the community of Inyokern. Mojave, operated by the East Kern Airport District, is located in the community of Mojave. Rosamond Skypark, a privately-owned public use airport, is in the rapidly growing community of Rosamond.

Air Space

Airspace in Kern County serves a wide range of airports, including both civil and military facilities. Low-altitude (Victor) airways cross the area as well as military training routes and special-use airspace. Two approach control facilities are located in the county, one at Edwards Air Force Base (EAFB) and the other at Meadows Field. No significant current airspace issues were identified by any of the airports.

Use of airspace in the county is significantly influenced by mountainous terrain. This includes the southern Sierra Nevada Range, the Tehachapi Mountains, and the Temblor Range. Peaks in excess of 8,000 feet are within 30 nautical miles (NM) east of and 40 NM south of Meadows Field. On an east-west axis, airports are located on both sides of the Sierra Nevada. Three airports, Kern Valley, Tehachapi, and Mountain Valley, are located in mountainous terrain.

In the western portion of the county the primary weather factor affecting airspace usage is the winter fog condition prevalent in the San Joaquin Valley. The primary air carrier in this region, Meadows Field, has an instrument approach. However, under severe conditions, even Meadows Field can be restricted. At such times commercial passenger flights are delayed or cancelled. Some general aviation operations, such as package express flights, can use airports in fog-free mountain or desert areas, but runway sizes and distance from the Bakersfield metropolitan area limit this option.

Most of the eastern half of the county lies within the miliary R-2508 Restricted Airspace Complex. The R-2508 Complex includes Restricted Areas R-2502, R-2505, R-2506, R-2509, R-2515, and R-2524. In addition to the restricted airspace, four of ten Military Operating Areas (MOA) associated with the R-2508 Complex are located within Kern County. There are also training routes which provide low-level, high-speed training for military pilots. These include both IFR and VFR routes.

An issue for Inyokern Airport is the fact that an ILS is not permitted inside of an MOA. This regulation affects Inyokern, since air carriers are not willing to utilize larger, more expensive aircraft without an operating ILS.

While there do not appear to be significant airspace problems at this time, several potential issues should be noted. First, the changing environment for the U.S. military could affect the R-2508 Complex and associated training routes.

Of particular concern would be several of the high-speed, low-level approaches to Edwards AFB and Naval Air Weapons Station (NAWS) China Lake that could be adversely impacted by urbanization. Given the unique national value of these two installations, local support of both the physical facilities and their related airspace has been a high priority in the communities of eastern Kern County.

Another issue of potential concern is the FAA interpretation of its airspace role and airport land use compatibility. Historically, FAA has maintained a position of neutrality with regards to local land use decisions, even when those decisions may affect airspace. There have been several recent local cases in which FAA Part 77 review found proposed obstructions in proximity to airports to not adversely affect airspace. From a local land use standpoint, the obstructions were not considered compatible with aviation activities. In each case, the neutrality expressed by FAA resulted in an undermining of local efforts to maintain land use compatibility.

Landing and Navigational Aids

Landing and navigational aids are reasonably adequate for present needs of aviation in the region. Meadows Field, the primary air carrier facility in the region, has an instrument landing system (ILS) for Runway 30R. The airport also has a Level 3 FAA air traffic control tower based on an activity of 20-59 IFR operations per hour. Nationally, FAA has begun disposal of Level 1 towers through privatization, and has discussed privatization of Level 2 towers. At this time, there are no indication that the Level 3 towers might be privatized.

Global positioning system (GPS) non-precision approaches will be added to the current instrument approaches at Meadows Field during federal fiscal year 1995. An Automated Surface Observation System (ASOS) will also be added by the end of federal fiscal year 1996.

Minter Field has a non-precision approach using the Shafter VOR. The airport also has a PAPI and a beacon. The Shafter VOR is also used for a non-precision approach for Bakersfield Municipal airport.

Inyokern Airport is scheduled to have a restricted non-precision GPS approach for commercial operations by fall of 1994. This system will add to the capabilities of the airport, especially in light of airspace coordination required by the adjacent Naval Air Weapons Station. The GPS approach will be available for use by any company or agency obtaining a letter of agreement with the Naval Air Weapons Station. The Navy has been supportive of getting the system installed at Inyokern.

Inyokern also is scheduled to have an ASOS installed by 1997, but indicated that there may be a delay. In the meantime, American Airlines has installed weather observation equipment that will make observations between 6 a.m. and 10 p.m. daily.

Although not scheduled for an installation, Delano Municipal has also expressed interest in the potential for a GPS non-precision approach. GPS technology could provide a number of GA airports the opportunity for a system that is superior to the current VOR systems at a relatively low cost as compared to conventional ILS.

Delano also has recently upgraded its Automated Weather Observation System (AWOS) to AWOS-3. In addition to reporting altimeter, wind data, temperature, dewpoint, density altitude, and visibility, the system now provides cloud and ceiling data up to 12,000 feet. The new system will allow the airport to provide much more precise weather information to charter and corporate aircraft using the airport.

California City raised the issue of the difficulty smaller GA airports have in getting current information on the types of navigation aids that are becoming available. This would include information on new technology and potential uses, as well as alternative means of financing.

Aviation Research and Development

Airports in the region will no doubt continue to benefit from future technology. In recent years, quieter commercial jets have significantly reduced noise problems. Similar future benefits to air navigation will be gained from developments in global positioning systems (GPS) and automated weather observation systems (AWOS). Technological advances such as these will ultimately benefit aviation in subtle ways that most users will be unaware of.

What is significant in the Kern Region is the contribution of aviation in the region to aviation research and development. The Kern region is unique in that there are a number of facilities that have made, and will continue to make, important contributions to aviation technology. These range from the experimental aircraft being produced at Bakersfield Municipal Airport and the championship air racers at Minter Field to the premier military research facilities in the Mojave Desert.

On the military side, both Edwards Air Force Base (EAFB) and Naval Air Weapons Station (NAWS) China Lake are world-renowned research facilities. In addition to the Air Force Flight Test Center, EAFB is home to NASA's Ames Research Center/Dryden Flight Research Facility. The facility is also popularly known as the west coast landing site for the Space Shuttle. Each of these facilities has played a key role in United States military and aerospace research, and will continue to do so in the future.

Civilian aviation research and development is well represented by facilities such as those at Mojave Airport, which bills itself as a "Civilian Flight Test Center". Over the years a variety of commercial and military aviation research and development has taken place at Mojave. At present, approximately 100 companies operate at Mojave Airport. Of these, an estimated 75% are involved in R&D. In addition, the test pilot school based at the airport currently has 44 aircraft and anticipates the addition of more classes if demand continues.

Recently, Orbital Sciences Corporation (OSC) based its' modified Lockheed L-1011 Tristar at Meadows Field. This aircraft will be used as the launch vehicle for the Pegasus XL air-launched space booster which is attached beneath the aircraft's fuselage. Pegasus is billed as the world's first privately-developed earth-to-orbit vehicle. It is designed to deliver up to 1,000 pounds to low-earth orbits. According to OSC, launching Pegasus at 40,000 feet bypasses 90% of earth's atmospheric density. As a result, launch costs are 1/7th of the cost of a ground launch. The initial test of the Meadows-based Tristar was successful for the air-launch vehicle, but the rocket was destroyed before attaining orbit. When fully operational, OSC anticipates a launch rate of one Pegasus per month.

The critical factor in each of the primary R&D facilities, Edwards, NAWS, and Mojave, is that each of these sites is relatively free of encroachment by incompatible land uses. This is largely reflective of the relatively isolated desert location of these facilities. In recent years, however, improvements in transportation and communication have made the region very accessible and economically attractive. It is important that future development recognize the significance of maintaining the viability of these facilities as future growth occurs.

Commercial and General Aviation Service

There are two commercial air carrier airports in Kern County. Meadows Field, operated by the County of Kern, serves the Bakersfield metropolitan area and the southern San Joaquin Valley. Inyokern Airport, operated by the Indian Wells Valley Airport District, serves the eastern, desert portion of the county including the nearby City of Ridgecrest and the Naval Air Weapons Station, China Lake.

With dereguation of the airline industry, provision of service to markets such as Kern County became more problematic. Fares for travellers have at times been inordinately higher than those for comparable service from major hubs. Maintaining a competitive position has been a major challenge for the operators of the county's commercial carrier airports. Strategies such as code-sharing agreements have enabled commuter airlines to connect passengers to major airlines at competitive prices.

Inyokern currently averages ten commercial flights per day, with service by United Express and American Eagle. The airport has attractive terminal facilities and provides convenient access to national and international connections.

Meadows Field currently averages 30 flights per day. Service at Meadows is provided by a national carrier, American Airlines, and four regional carriers, American Eagle, United Express, Skywest/Delta, and Air LA. The regional carriers have code-share agreements with their primary carriers. American Airlines provides daily non-stop service to Dallas-Fort Worth. It also began daily service to Chicago through Orange County in September, 1994.

For airports such as Meadows Field, the primary commercial aviation issue is the inability to attract new carriers. The airport has adequate ramp availablilty, gates, and counterspace. Nonetheless, of the 245,000 potential passengers in the Meadows Field service area, approximately half fly from airports in the Los Angeles area. While the airport is working with the carriers on common fare rates to equalize the cost of travel to passengers, the service problem remains.

Air Cargo

Potential for air cargo activities are significant, particularly at the commercial airports. Meadows Field, as the major service provider to the Bakersfield Metropolitan Area, currently handles a variety of air cargo. This includes both the package express services such as UPS, Airborne Express, Federal Express, DHL, and other more specialized air cargo. With the recent designation of a foreign trade zone designation north of the airport, air cargo activity at Meadows Field could increase in the future.

In addition to airline package services, Inyokern Airport is currently served by UPS and Federal Express. With the exception of the airlines, a similar situation exists at Mojave Airport. Federal Express currently has a ground facility at Mojave, and it is anticipated that a facility will also be constructed at Inyokern later this year.

General aviation facilities generally have limited levels of air cargo activity. Delano Municipal, Minter Field, and Bakersfield Municipal all have commercial or industrial activity, either on-airport or adjacent, that could take advantage of air cargo accessibility.

For many of the region's airports, air cargo is one of the better prospects for future economic development. This is especially true for the general aviation facilities that have experienced limited non-commercial aviation growth. Airports that have industrial property should be in a good competitive position as various governmental support programs become more limited.

Rotor Craft

Helicopters are the primary form of rotor craft currently in use. Another form of rotor craft, the tiltrotor, is not currently commercially available. The tiltrotor combines the vertical lift characteristics of a helicopter with the speed and range of a fixed-wing craft. While the operating characteristics of the tiltrotor free the aircraft from runway and other land requirements, these same characteristics could also result in airspace management problems if use of the aircraft became extensive. In any event, the tiltrotor to date has seen a very slow transition from research vehicle to commercial use.

Conventional helicopters are currently used in a wide variety of applications. High-profile helicopter uses often are related to public safety, such as law enforcement, air ambulance, and fire suppression. Other less visible uses include agricultural applicators, pipeline and utility maintenance surveys, air taxi and corporate uses. Most issues concerning helicopters are related to noise and safety.

Airports in the region that have fueling facilities generally have some itinerant helicopter use. Helicopters are also based at Meadows Field, Minter Field, Delano Municipal, and Mojave.

Meadows Field currently has seven helicopters based at the airport. In the past, a number of military flights also stopped at the airport en route from locations such as Fort Ord, near Monterey, to the desert training bases at Fort Irwin and Twentynine Palms. With the closure of bases such as Fort Ord, this activity has decreased steadily in the last few years.

Minter Field currently has four helicopters used for agricultural application. There is also the possibility that a helicopter repair facility may locate at the airport in the near future.

Delano Airport has based helicopters both for agricultural application and flight training. Training activity at the airport has been ongoing for some time. Loading of agricultural helicopters is restricted at the airport. This means that the helicopters must be loaded at field locations, where the chemicals are actually used, rather than at the airport.

Mojave Airport has had varying levels of helicopter activity. At present, the test pilot school has several helicopters and an airport business has one. In the past, the airport has also had work involving helicopter modification and testing.

In addition to itinerant fueling, Inyokern Airport is also designated for emergency basing for firefighting in the surrounding area. The airport also has authorization to obtain water from the Navy for use in firefighting. Helicopters are routinely used by agencies such as the Bureau of Land Management and the U.S. Forest Service for personnel transport and water drops in combatting wildland fires.

Military Airports

For most military bases throughout the country, the primary issue at present is the federal governments' Base Realignment and Closure Program (BRAC). Both military bases in Kern County, Edwards Air Force Base (EAFB) and the Naval Air Weapons Station, China Lake may be affected BRAC, but whether the end result will be positive or negative remains to be seen.

Since the 1940s, Edwards has been the Air Force's premier flight test facility. From the breaking of the sound barrier by Chuck Yeager in the X-1, to the training of lunar landing astronauts in the 1960s and "70s, and the first landing of the space shuttle in 1981, Edwards has been fundamental to the U.S. aerospace program. Current programs include the C-17 cargo plane and development of the F-22 advanced tactical fighter.

Of the 470 square miles that comprised the base, approximately 70%, or 327 square miles, lie within Kern County. The principal developed portion of the base, on the west side of Rogers Dry Lake, lies entirely within the county. Access to the installation from the desert communities in the county is by State Route 58, North Gate, and State Route 14, West Gate.

Current trends show Edwards benefitting from the transfer of aircraft-testing functions from other base closures. While other installations are downsizing, Edwards' budget has increased to $457-million and it employees number approximately 15,000. This past spring, a 950-member air wing was transferred to Edwards from Wright-Patterson air Force Base. Transfer of the 4950th Test Wing, including 26 aircraft, cost $42 million.

A similar situation exists with the Naval Air Weapons Station (NAWS), China Lake. China Lake is the Navy's primary research, development, test and evaluation facility for air-launched weapons. While the total land area of the base encompasses portions of Inyo, Kern, and San Bernardino counties, the base facilities and most of the test range installations lie within Kern County. The City of Ridgecrest lies adjacent to the main facility and is integrally linked to activities at the base.

China Lake is the largest employer in the Indian Wells Valley, with approximately 4,600 civilian and 1,080 military employees. The unique research and testing role of the base compliments, rather than competes with, military programs and operations conducted by Edwards, Fort Irwin, Twentynine Palms, Fallon, Lemoore NAS, and Nellis AFB. The immense tri-service military complex in the California Desert and western Nevada represents an aggregate asset for the development and testing of weapon systems, in particular air weapons systems, that cannot be replicated elsewhere.

While both Edwards and China Lake have fared well thus far under BRAC, the future remains at risk as further reductions take place. Currently, a Department of Defense Test and Evaluation Board is examining the consolidation of all test bases into one Department of Defense test facility. Of particular concern to proponents of both Edwards and China lake is the Naval Air Test Center at Patuxent River, Maryland. One extreme scenario would consolidate all of the facilities at Patuxent River, while another would consolidate all of the facilities at Edwards. Given the importance of each of these installations, the political drama that will determine their future will be quite interesting.

Capacity and Expansion of Airport Facilities

Capacity of airport facilities consists of an airports' ability to meet the demand for aircraft operations. At the most fundamental level, this would mean adequate runways for aircraft to land, and adequate land to park the aircraft once on the ground. In a broader context, airport capacity includes such things as runway size, taxiways, aprons, tiedowns, hangars, surface access, parking, terminal facilities, fixed base operators, and navigational aids.

Airports in the Kern region currently are meeting the needs of aviation. None of the airports are unable to meet current aviation demand. In fact, quite the opposite is the case. A common issue is the airport's ability to utilize current capacity. This is a problem that affects both commercial and general aviation airports.

Meadows Field is currently operating at approximately half of its capacity, both in terms of air traffic and passengers. Trends to date have not been upward. Commercial aviation activity at the airport remains well below the levels prior to deregulation, despite aggressive promotion and marketing of the airport.

A key disadvantage faced by Meadows is the proximity of the Bakersfield Metropolitan Area to Los Angeles. Potential passengers are less than two hours to airports in the Los Angeles basin, including Los Angeles International. Code sharing has been used to mitigate the cost differential to a certain extent, but the time and convenience of direct access to a major hub makes for a difficult competitive situation.

The current airport master plan for Meadows calls for relocating the main terminal and parking facilities. This would include new gates, access and parking for airlines serving the terminal. At current activity levels, however, terminal relocation is not being pursued.

Like other airports, Meadows has emphasized development of airport-related enterprises that will increase revenue. An example is the International Flight Training Academy (IFTA) operated by All Nippon Airways. Not only is the IFTA a significant facility by itself, it has also served as a catalyst for generating interest in other facilities at Meadows Field.

Inyokern Airport does not have as much of an excess capacity problem. Development to accommodate commercial aviation at the airport has somewhat kept pace with the demand. At this time, the airport has a variety of projects planned, and is attempting to do as much as possible on a pay-as-you-go basis. Inyokern has also emphasized continued development of general aviation and airport-related industrial facilities to ensure long-term economic growth.

Improvements at most of the general aviation airports are directed more toward safety and maintenance than to capacity enhancement. For the most part, the airports have adequate capacity for currently forecast operations.

Minter Field intends to extend runway 12/30 to 6,000 feet. Included with this would be the acquisition of runway protection zones (RPZ). Acquisition would be through a combination of fee title and avigation easements.

Delano Municipal also has a runway expansion planned. The recently adopted Airport Master Plan for the airport calls for extending runway 32 approximately 1,640' to the south. This will increase safety and reduce noise concerns at the north end of the airport. The airport is actively working on a land exchange for the area of the extension and the RPZ.

Long range development plans for Tehachapi Municipal would relocate development to the north side of the runway. This would include FBO activity, industrial development, and possibly a terminal facility. Key to this program would be creation of new access on the north side, and modification of access to State Route 58 at the Dennison overpass.

Mountain Valley is currently operating below capacity. The airport is in need of infrastructure improvement, but funding remains a problem. As a private enterprise, the airport is entirely dependent on commercial funding sources.

California City will be extending the taxiway for runway 6 to the end of the runway. The airport is also completing a new Airport Master Plan, and may be adding improvements as the plan is implemented.

Mojave Airport hopes to add taxiways to relieve activity on its runways within five or six years. At present, aircraft using runway 12/30 must taxi on the runway. Taxiways are needed to allow aircraft to taxi without occupying the runway. The airport also will increase the width and weight capacity of runway 7/25.

At present, runway 12/30 is the only runway capable of handling heavy aircraft. Heavy aircraft comprise a large segment of the airport's modification, testing, and storage inventory.

Proposed development by Pegasus Technologies, Inc., at Mojave could change the need for expansion at Mojave significantly. As currently designed, both airside and landside improvements would be required to provide access to the company's plant facilities. If the number of employees envisioned by the company materializes, access to the local and regional surface transportation system would also require modification and improvement. A number of issues would have to be addressed in the development process.

Capital Improvement Planning

Funding for airport improvements and expansion has been, and will continue to be, an issue for all of the airports in the region. Though there are a variety of sources for funding and financing for publicly-owned airport facilities and improvements, actual funds available are quite limited. Conventional sources of funding include federal grants, state grants and loans, airport sponsor self-funding, and private investment. Commercial service airports such as Meadows Field and Inyokern Airport are also eligible to collect a Passenger Facility Charge.

General aviation airports rely primarily on federal, state, and local revenues for project funding. Inyokern Airport, while having extensive general aviation activity, is classified as a commercial service airport and no longer qualifies for state aid and must rely on federal and airport-generated funding.

FAA grants are available to both commercial service and general aviation airports, but both require a local match of funds. These grants include "Entitlement Funds" which are only available to commercial service airports such as Meadows Field and Inyokern Airport. "Discretionary Funds" and "State Apportionment Funds" are available for use by the general aviation airports.

An issue identified by virtually all of the airports is the difficulty of generating the required match for the grants. As staff of Meadows Field expressed it, there is a lot of FAA 90% money available, but virtually no 10% matching source. Increasingly difficult times for local governments are not anticipated to change this situation any time soon

The state Annual Grant Program provides eligible airports $10,000 per year to fund small projects or operations and maintenance. The California Transportation Commission may also allocate funds to match federal Airport Improvement Program grants for "airport and aviation purposes". Meadows Field and Inyokern Airports, because of their commercial service status, are ineligible for either of these programs, despite the fact that a significant portion of their activity is general aviation. In contrast, the $10,000 annual grant is a significant portion of the budget for a number of smaller general aviation airports, such as those operated by the Kern County Airports Department.

With disappearing public revenues, most of the more active airports have indicated a greater reliance on self-funding, with an increasing variety of enterprises being used. California City, Delano, Inyokern, Meadows Field, and Minter Field have all installed automated fueling systems which have resulted in increased revenues from that source. Inyokern has promoted significant activity in commercial filming using airport sites and facilities, with similar efforts taking place at California City and Mojave.

Airport-related industrial use has also become increasingly important. Inyokern, Minter Field, and Mojave each control industrial development on airport properties. While each has measured some level of success, Mojave has become a world-class example of airport industrial and commercial enterprise.

The California Aviation System Plan has been designed as a means for integrating airport needs assessment, prioritization, and funding. In practice, however, there have been difficulties in making the system work. While, in concept, airport needs are compiled and prioritized at the regional level, the regional role has thus far been difficult to design and implement.

A further complication is that, thus far, the capital improvement programming of state and federal funding is not clearly integrated. The FAA has its CIP process, Caltrans has its CIP process, but the regions have no consistent statewide process and the airports frequently are left to their own resources.

From the airports' perspective the most consistent sources of revenue ar e FAA grants and self-funding. This is especially true in light of the limited funding available from the state.

Added to the witches' brew of funding options is the variety of airport ownership and the options, or restrictions, unique to each. In the Kern region, airports are owned and operated by the County, municipalities, special districts, and private enterprises. Coordinating all of the variables, funding source, funding type, funding agency (or lack thereof), airport type, airport ownership, and the internal processes of a variety of local, state and federal agencies may be more than one process can handle.

Transportation Planning Process

Aviation has not played a significant role in the regional transportation planning process. In the past, airport representatives dealt directly with state and federal governments to obtain funding assistance. There were no requirements for aviation projects to be included in the Regional Transportation Plan (RTP), the Regional Transportation Improvement Program (RTIP), or the Federal transportation Improvement Program (FTIP), which are all completed at the regional level. In order for projects to be eligible for state funding they are required to be included in the Capital Improvement Program of the California Aviation System Plan. In order for aviation projects to be eligible for federal funding they are required to be included in the National Plan for Integrated Airport Systems (NPIAS).

Within the California Aviation System Plan, the Capital Improvement Program is the first attempt to incorporate greater cooperation among the state, the Regional Transportation Planning Agencies, and airport operators. The additional contact has facilitated communication to include aviation as a part of the multi-modal planning process. The first step has been to require the inclusion of state aviation projects in the RTIP. The RTIP is each region's seven-year program of state and federally funded transportation projects. The RTIP must also be consistent with the RTP.

The RTP is a twenty-year plan that outlines the regional goals, transportation improvements, and funding sources. The RTP is the first step in the regional transportation planning process. The Kern County Aviation System Plan, and the Capital Improvement Program, will be incorporated into the RTP. The RTIP must be consistent not only with the RTP, but also the road improvements included in the Congestion Management Plan (CMP). The CMP for Kern County is prepared by Kern COG. Projects included in the CMP must be incorporated into the FTIP.

A federal version of the RTIP is the FTIP, which contains all federally-funded surface transportation projects at the state and regional levels. Projects in the RTIP that are programmed by the California Transportation Commission (CTC) into the State Transportation Improvement Program (STIP) and local projects become the basis for the FTIP. The basic difference between the FTIP and the RTIP is that the FTIP is financially constrained, while the RTIP is an unconstrained needs assessment document.

Currently there is no requirement that federally funded, FAA, aviation projects be incorporated into the FTIP. The FAA is the only federal transportation funding agency in this situation. Given the fact that FAA grants are the predominant funding source for aviation CIP projects, the reason for the failure to develop a successful regional aviation CIP becomes apparent.

Regional transportation agencies must formally adopt findings that projects contained in the RTP and the FTIP conform to federal air quality standards mandated by the Clean Air Act Amendments of 1990 (CAAA). The conformity findings must be based on the

most recently approved State Implementation Plan (SIP). Projects in Kern County must conform to SIPs prepared by two agencies, the Kern Air Pollution Control District for the desert portion of the county, and the San Joaquin Unified Air Pollution Control District for the valley portion of the county.

Aviation System Planning

Aviation system planning addresses the relationship and interdependence between commercial service, general aviation, air cargo and military operations. System planning, using current conditions as its foundation, projects future aviation needs and defines the importance of an airport relative to the state's aviation system. It determines if the current or planned system is adequate to accommodate projected demand, identifies deficiencies, and includes recommendations. to eliminate those deficiencies.

System planning begins with the airports themselves. Ideally, when airports prepare master plans, portions of those plans are incorporated into the aviation components of the RTP. The aviation components are then incorporated into the California Aviation system Plan. Portions of the California Aviation System Plan should be included into the National Plan of Integrated Airports Systems prepared by the FAA.

As indicated in the discussion of aviation CIP issues, there should also be a linkage between the Regional Aviation System Plan and the RTP for long-range planning. For programming of aviation projects at the regional level, projects should be programmed and prioritized in the RTIP based on their inclusion in the RTP. This should then be used as input into the STIP and FTIP, where state and federal programming and reconciliation of priority conflicts would occur.

Given the increasing emphasis on intermodalism, aviation system planning should be a part of a system planning process that facilitates integration of the various transportation modes. Aviation includes a multitude of activities. It is the task of system planning to bring all of these activities together so that the system becomes a whole, rather than an assemblage of disjointed parts.

Airport Ground Access

Ground access is primarily of concern to the commercial airports. Both Meadows Field and Inyokern currently have reasonably good access by surface roads. For Inyokern, this will probably be adequate for some time into the future. Meadows Field, however, could be significantly impacted by future transportation system issues in the Bakersfield Metropolitan Area.

At present, Meadows Field has good access to State Route 99 as well as local streets and the Golden Empire Transit system. Future transportation, however, includes the potential for light rail serving the Metropolitan Area and high-speed rail connecting Bakersfield to San Francisco and Los Angeles. Future growth at the airport could also

increase the need for better access not only to State Route 99, but also State Routes 58, 178, and Interstate 5. It is essential that future planning ensure that a truly intermodal transportation system in the Bakersfield Metropolitan Area is integrated with Meadows Field.

Inyokern Airport has reasonably good access for anticipated future needs. The airport has convenient access to State Routes 14 and 178, as well as U.S. 395. Surface access to the City of Ridgecrest and the Naval Air Weapons Center is also satisfactory.

Minter Field currently has good access to State Route 99, but with anticipated industrial development surface access to the airport on Lerdo Highway may need some improvement. There is also good potential for increased rail access to the industrial properties at the airport. The potential for air, rail, and highway access presents a number of intermodal opportunities at Minter Field.

Mojave Airport has adequate ground access at present, but proposed future development, if it becomes a reality, would necessitate a variety of improvements. There would no doubt be impacts on the regional surface system. These impacts have not been studied in detail, but would need to be addressed as current proposals become more clearly defined.

Intermodal Systems

Both high-speed rail in the San Joaquin Valley and light rail in the Bakersfield metropolitan area are currently being studied. Both could have potential impact on Meadows Field. Light rail should include access to the airport and should connect to key destinations in the metropolitan area. High-speed rail locations are being considered which would probably require access by other modes, such as light rail, to the airport.

The ultimate objective of the intermodal system is to provide a "seamless" means of travel that does not necessarily include the automobile. At present, this can only be considered to be a goal. As is commonly the case, the primary mode of transportation is the automobile.

At present, the only airport served by fixed-route bus service are Meadows Field and Bakersfield Municipal. The City of Delano is preparing to implement a fixed-route system, and airport access may be considered as a part of that system. A similar system is planned for Taft, but implementation will occur some time later. The Taft system would serve a large commercial development that is also close to the airport, so the needs of both could reasonably be served.

Transportation System Management

In 1991, the United States Congress enacted the Intermodal Surface Transportation Efficiency Act (ISTEA). On of the requirements of ISTEA is for each state to develop

and begin implementing a series of six management systems by 1995. The six management systems are for highway bridges, highway pavement, highway safety, traffic congestion, public transportation and intermodal transportation.

Under ISTEA, development of the Intermodal Transportation Management System (ITMS) is to be a cooperative effort. The purpose is to provide state and regional planning agencies with the information necessary to make informed decisions regarding the development and operation of an efficient transportation system.

Each state is required by ISTEA to develop and implement the six management systems in cooperation with regional and local planning agencies. ISTEA also requires that the ITMS output be considered for project evaluation. The ITMS is intended as a tool for public and private transportation agencies and the private sector to use when evaluating intermodal transportation infrastructure investment or when developing transportation improvement programs (TIPS).

The initial application of the ITMS focusses on transportation systems and facilities such as: Corridors of statewide significance including roads, rail, air, pipelines, telecommunications and water; intermodal transfer facilities such as seaports and airports, rail/trucking transfer facilities and major transit stations; and areas of statewide significance. The ITMS element includes intermodal data on a computerized database, and inventory, forecasts for passenger travel and goods movement by corridors of statewide significance; and analysis methodology, and performance measures such as mobility, financial costs, environmental impacts, economic impacts, safety, and quality of life.

Demand can shift from one mode to another based on changes in travel preference, and new performance measures can be prepared given these shifts in demand. Ultimately, the ITMS will provide an inventory of major intermodal transfer facilities, allow identification of major bottlenecks on corridors of statewide significance, and evaluated the effectiveness and efficiency of different transportation improvements and investments relative to one another.

Because of the availability of travel demand data varies greatly, development of the ITMS will be an iterative process. The consultant team is collecting secondary data with Caltrans as their principal data source. Data collected from existing sources and current planning efforts are diverse, ranging from the Interregional Road System (IRRS) to the California Aviation System Plan.

To support the required analysis, the consultant team will have to standardize the data. In addition, although person movement data and modeling tools are prevalent, they may not include all travel modes nor cover all areas of the state. Goods movement data is even more limited and less precise. As data improves in the coming years, the information can be updated and calibrated, allowing analysis of a greater range of projects or improvements. In the meantime, missing or incomplete data that is essential to the analysis will be estimated.

When completed in 1995, the ITMS results can be incorporated into future CTPs along with the other management systems required under ISTEA. The ITSM will also provide intermodal information and data to the federal Office of Intermodalism and Research Program. More importantly, the ITMS element will allow public and private transportation interests to evaluate different transportation investment decisions. Developed in conjunction with federal, state, and regional agencies, the ITMS will assist in determining the best intermodal transportation investment choices for California.

Thus far, implementing Transportation System Management strategies for airports has not been a high priority in the region. The current demand for services in the region is not high enough to invest a high level of local effort and funding for such a small percentage of the population.

Airport Comprehensive Land Use Planning

Until early 1994, development in the vicinity of airports was reviewed by the Kern Airport Land Use Commission (ALUC). In 1973, Airport Planning Areas were formally established around each airport and projects which required local agency planning or zoning action were referred to the ALUC for airport land use compatibility review.

The State Aeronautics Act was revised in 1993 to make the creation of an ALUC optional, rather than mandatory, for local jurisdictions. In response to this legislation, the Kern County Board of Supervisors chose in early 1994 to eliminate the Kern ALUC. As a result of this action, issues of airport land use compatibility review are now the responsibility of the local jurisdiction, be it county or city or both.

Prior to the elimination of the ALUC, Caltrans Division of Aeronautics had funded a major revision to the ALUC Airport Land Use Compatibility Plan. While the ALUC no longer exists, the Airport Land Use Compatibility Plan remains as a useful resource for local jurisdictions to use in their own planning processes. While this should go far in ensuring that public safety in the vicinity of airports is addressed, it remains to be seen how interjurisdictional issues are resolved. Absent a lead agency to disseminate information on interjurisdictional airport land use compatibility matters, airports must ensure that they individually monitor activities in the vicinity of each airport. Airports must then rely on their local jurisdiction to ensure that requirements for land use compatibility are met.

Thus far, only the City of Delano has officially adopted a Comprehensive Land Use Compatibility plan (CLUP). In the case of Delano, the CLUP was considered as part of a new Airport Master Plan. Delano has also indicated that it will seek adoption of the relevant policies of the new countywide Airport Land Use Compatibility Plan once it is in final form.

Economic Significance of Airports

It is important that the public and their representatives recognize the economic significance of airports and continue to support them. In California, airports provide a variety of benefits, including contribution to the local economy, promotion of fast and efficient movement of people and goods, and enabling California to maintain a competitive position i Pacific Rim trade.

Economic activity attributed, directly and indirectly, to the operation of an airport denotes the importance of aviation to the local economy. The presence of an airport and the types of services it provides are important considerations in the siting of business and industrial facilities. Large airports attract office parks, hotels, and other development. Smaller airports help to attract industry to small- and medium-sized communities.

Aviation is an important employer. Nationwide, the total industry employment was 84 million in 1988, representing 13% of the national employment and generating a payroll of $2.8 billion. An Office of Economic Research study estimated that California exports generated a total of 840,000 jobs. Since about 65% of all exports go by air, this would yield over one-half million jobs spread throughout the states local communities.

Edwards Air Force Base alone employed 11,357 military and civilian personnel in 1993, with a payroll of $434 million. The Naval Air Weapons Station in the same period employed 4,600 civilian and 1,081 military personnel with an annual payroll of $228 million.

General aviation contributes to the local economy as general aviation aircraft are used for commercial activities such as agricultural crop dusting, air taxi and charter services. Recreational uses such as sail planes or sky-diving also provide airport revenue. A general aviation airport in a metropolitan area acting as a reliever airport provides access to the surrounding area and reduces delays at commercial airports.

Mojave Airport has over 100 businesses operating at the airport. California City Municipal has estimated that businesses at the airport generate about $4 million a year for the local economy. ALG Enterprises based its decision to locate a new cold storage plant in Delano on the availability of the municipal airport. Virtually every actively managed airport in the county has a similar case of the airport serving as a catalyst for economic development.

Region's Relationship to Other Areas

In examining regional relationships, it is first necessary to recognize the three distinct regions that comprise Kern County. These consist of the San Joaquin Valley, the

southern Sierra Nevada Range and Tehachapi Mountains, and the Mojave Desert. Each of these regions is geographically distinct, each has a unique economic base, and each has a particular perspective of its role in the county and California.

The San Joaquin Valley portion of the county is oriented to the communities of the Valley and the adjacent metropolitan regions, particularly the Los Angeles basin. The Valley perceives the mountain region as being adjacent, as opposed to being a part of , the Valley. Aviation has a major role in the economy of the Valley.

The Mountain region regards itself as separate from the Valley. Aviation is limited, largely due to terrain. Nonetheless, three airports, Kern Valley, Tehachapi Municipal, and Mountain Valley, plan a vital role in the well-being of their respective mountain communities.

The Desert region is even more unique. It is difficult to separate the identity of the desert from aviation. With the exception of the U.S. Borax mine and the gold mines of the Randsburg/Johannesburg district, the history of the desert in Kern County is the history of China Lake and Edwards. Orientation of the Desert region is north to the Owens Valley, west to the mountains, east to Las Vegas, and south to the LA basin. For many desert residents, the San Joaquin Valley might well be a foreign country.

It is important to recognize these characteristics when dealing with aviation issues. Regional issues can be intra- as well as interregional.

Airport Financing

Providing a stable and reliable funding source for aviation development is vital to the future of the nation's transportation system and the economic well-being of the country. there are three primary sources of revenue for airports in California: Federal, state, and local sources.

Federal Funding Sources:

The Airport and Airway Trust Fund is a federal funding source that comes from user taxes such as the 10% tax on airline tickets, fuel taxes paid solely by general aviation users, international travel fees and taxes on air cargo. The fund pays for 75% of the FAA's operating and maintenance budget and it also pays for the Airport Improvement Program (AIP) which provides federal grants to airports for capacity, security and safety projects. There are limitations on the use of AIP funds. For example, AIP funds cannot be used for the expansion of revenue-producing facilities such as gates.

The AIP is funded from the Airport and Airways Trust Fund for airports which is included in the National Plan of Integrated Airport Systems (NPIAS). An airport must be in the NPIAS to be eligible for federal grants. The main problem for airports that wish to participate in grant programs is the difficulty in providing the local match.

Historically, federal funds have covered about 10% of larger airports' funding needs and 80% of smaller airports' funding needs. To help bridge this gap, Passenger Facility Charges (PFCs) were implemented in 1991. PFCs consist of an additional $1 to $3 on each one way trip. Small and non-hub facilities may impose PFCs while retaining 100% of the AIP entitlement funds. Large and medium hubs that impose PFCs are required to forego up to 50% of their AIP entitlement grant. These monies go into a small airport fund which pays for general aviation, small hub and non-hub commercial service airport projects.

Currently, Inyokern Airport is using a PFC. Meadows Field will be implementing a PFC later this fiscal year.

PFCs were proposed to help alleviate the shortfall in federal funding for airport development. If approved by FAA, PFCs could fund projects eligible for federal dollars, but for which federal funds are not available, projects that are not eligible for federal funds such as capacity expansion projects, and environmental studies and mitigation measures. PFC funds cannot be used for off-airport projects such as intermodal projects that could relieve capacity constraining access problems.

State Funding Sources:

Another source of funding for airports in California is the state. Caltrans Division of Aeronautics administers three financial assistance programs that primarily fund projects at general aviation airports: California Aid to Airports Program (CAAP) $10,000 annual grant, CAAP acquisition and development program, and an airport loan program. The revenue sources are an 18 cents per gallon general aviation gas fuel tax, and a general aviation jet fuel tax of two cents per gallon.

California Aid to Airports Program

The CAAP provides annual grants of $10,000 to each general aviation airport. These funds may be used for capital, maintenance, or operations projects. There is no match requirement. Funds may be accumulated for up to five years for large projects and may be used as the 10% match required for FAA grants. General aviation airports in the Kern region use these funds for a variety of airport programs.

California Aid to Airports Acquisition and Development Program

CAAP funds are also available through an acquisition and development program. These funds are available on a competitive basis to publicly-owned and some privately-owned airports. They require a 10% match and are required to be used for capital improvement projects. These projects are part of the Aeronautics Program that is adopted by the California Transportation Commission (CTC).

State Airport Loan Program

The airport loan program provides low interest funds to airports. The first priority use of these funds is for the 10% match for FAA grants. The second priority is for revenue-producing projects, and the third priority is for projects that would help an airport become "self-sustaining". A number of airports in the Kern region have used the state loan program over the years to fund a variety of projects. This has been considered by many of the airports to be one of the more useful state funding sources because of its timeliness and flexibility.

Like the federal program, the state's program has not been able to keep up with the funding needs of the state's aviation system. The state's own budgetary problems have exacerbated the shortfall. The 1992-93 Budget Act diverted interest earned on special funds to the General Fund. This reduced the loan program by on-half its expected level. Projects in the Aeronautics Program were delayed and the date when new projects could be programmed was extended when monies were transferred from the Aeronautics Account to the General Fund.

Local Funding Sources:

The final funding source for airports is local funds. Conventional funds generated by airports include landing fees, terminal leases, hangar rentals, and auto parking fees. Airports also generate funds from fuel sales, development and leasing of industrial and commercial properties, and a variety of airport enterprises. Inyokern Airport has had considerable success in marketing itself as a desirable site for commercial filming. Other airports are actively seeking similar niche markets.

Many small airports receive some funding from their local government general funds. However, as budgets become tighter, local governments are being forced to withdraw or reduce their support. Large airports often have the option of signing "master agreements" with airlines and concessionaires. These agreements give airports a guaranteed revenue stream that can be used to secure bonds for major capital improvements. Neither Meadows Field nor Inyokern Airports' activity can support these agreements at present.

Small publicly-owned airports are eligible to receive a $10,000 CAAP grant each year. In raising the grant from $5,000 to $10,000, however, the legislature also restricted eligibility of these funds to general aviation airports. This eliminated Inyokern Airport's eligibility, since it provides commercial service.

Financing Airport Ground Access:

While the funding of ground access, in terms of the total surface transportation system, is a major problem throughout the region, most airports do not consider access in their immediate situation to be a problem. Most airports are primarily concerned with on-airport issues. Surface access is, for the most part, seen as adequate.

Institutional Relationships

Airports in the region generally regard their institutional relationships as consisting of three components. First, and first in priority, is the relationship with any funding agencies that provide revenue to the airport. Second is the relationship with any other enterprise or entity that provides revenue for the airport. Third is the relationship with agencies or other entities that result in expenditures that do not directly benefit the airport.
Local jurisdictions having authority over land use are generally identified as being important to airports. Normally this would mean a city or the county. There are other entities, however, such as utility districts or the military, that have similar characteristics with respect to the airports.

Most airports indicated that they felt that they had a positive working relationship with representatives of their local jurisdictions.

Privately-owned airports are a frequently overlooked issue in discussions of institutional relationships. Much of the regulatory environment is structured in response to airports owned and operated by governmental entities. Airports operated as private enterprises are at a disadvantage in coping with the same regulatory burden as publicly-supported facilities.

Public Participation

Public awareness of the importance of airports is recognized as being vital to the future of aviation. In the Kern region, airports have attempted to meet this need in several ways.

Meadows Field, as a commercial carrier airport, has sought to alleviate noise problems through the creation of several committees. The airport has for some time had a Noise Advisory Committee. When the airport initiated a Part 150 noise study, it also created a Part 150 advisory committee.

Three airports are operated by airport districts: East Kern Airport District (Mojave Airport), Indian Wells Valley Airport District (Inyokern Airport), and Minter Field Airport District (Minter Field). Each district has an elected board of directors which holds regularly scheduled public meetings. The boards for Indian Wells Valley meets monthly. The East Kern and Minter Field boards meet twice a month.

Two of the municipal airports, Delano and Tehachapi, have Airport Commissions. These are established, and members appointed, by the city councils. The commissions meet monthly at regularly scheduled public meetings.

The other two municipal airports, Bakersfield and California City, have Airport Advisory Committees. The California City Airport Advisory Committee meets twice monthly and functions very much as a commission. The Bakersfield Municipal Airport Advisory Committee meets every other month. Both committees conduct their business as a public meeting.

For the publicly-owned airports owned by Kern County and the four cities, the Board of Supervisors and the city councils also meet in regularly scheduled public meetings where the needs of the airports in their respective jurisdictions are addressed.

Aviation Awareness and Education

Airports in the region have devised a number of programs to promote aviation awareness. These range from school tours to newsletters.

Meadows Field conducts over 40 school tours a year. Last year, more than 1,000 students toured the airport. The Airports Department also publishes a newsletter discussing activities at the County's airports, along with numerous public presentations on aviation and transportation. The Department staff is also active in both the North of the River and Bakersfield Chambers of Commerce, and serves on various subcommittees.

Minter Field hosts an annual "Warbirds in Action" airshow, emphasizing the airports heritage as a military training facility. Up to 15,000 have attended the event. The airport manager also maintains a schedule of presentations to local civic organizations regarding the airport and aviation. A bi-monthly newsletter provides information concerning future events and recent actions. The airport also participates in "Students in Business Day" in cooperation with the local high school.

Inyokern Airport maintains active participation in the Convention and Visitors Bureau and the Inyokern Commerce Committee. In addition to publishing a newsletter and a variety of brochures, the airport maintains an active school tour program. The school tours include programs for the handicapped. Inyokern also has the following programs: Annual elementary school art contest, with over 1,300 entries in 1993; bi-monthly Pilot Safety Seminar; annual teen scholarship to EAA summer workshop; active Explorer Post on-field; presentations to civic groups; publication of the brochure "Taking Off" for the general public; sponsorship of the Young Eagles program.

California City Municipal works closely with California City Promotions, a city economic development and promotion organization, to publicize the airport. School tours are offered twice a year for students up to the sixth grade. The airport also works with the local Boy Scouts.

Mojave Airport provides frequent presentations to civic organizations, and offers tours of the airport facilities. The airport also receives a large number of tourist visits as a result of the airports' international reputation. For the same reason, the airport receives a great deal of newspaper, magazine, and electronic media coverage.

Mountain Valley Airport also hosts school tours. The airport also supports a quarterly program of Elder Hostel, in which the airport provides lectures, tours of sailplanes, as well as rides. A youth club is also being set up as a non-profit organization for youth ages 14 to 19. This is being coordinated with the national youth scholarship program of the Soaring Society of America.

Local Assistance

The level of technical expertise available to the region's airports is generally adequate for the regions' air service requirements. The airports in the Kern region represent a full range of diversity in aviation. Each airport, regardless of type, is actively working to fulfill the needs of aviation in a particular context. Local assistance is both provided and received by airports, private enterprise, local, state, and federal agencies in the region.

GOALS, OBJECTIVES, AND POLICIES

GOALS, OBJECTIVES, POLICIES

Aviation goals, objectives, and policies are identified as a means of promoting consistency of action among federal, state, regional, and local agencies. The Regional Aviation System Plan serves to facilitate incorporation of both short- and long-range programs of airport development into the framework of the regional transportation planning process.

GOAL 1: PROVIDE FOR AVIATION SAFETY

OBJECTIVE 1.1: Prepare and update on a 5-year cycle a county-wide Airport Land Use Compatibility Plan.

POLICIES

1.11 Assist local cities and the County of Kern to ensure that local land use regulations are consistent with Airport Land Use Compatibility Plan standards.

1.12 Upon request by local agencies, assist in review of projects adjacent to airports to identify aviation safety concerns.

1.13 Assist both local agencies and airports in analysis of aviation safety issues related to any airport expansion.

OBJECTIVE 1.2: Provide for funding of aviation safety improvements in the biennial updates of the Regional Transportation Plan and Regional Transportation Improvement Program.

POLICIES

1.21 Work with airport operators to identify projects that mitigate safety deficiencies or provide safety improvements.

1.22 Give higher priority in Regional Aviation Capital Improvement Program funding for those projects that mitigate existing safety deficiencies or provide safety improvements.

GOAL 2: MITIGATE AVIATION NOISE

OBJECTIVE 2.1: Protect airports from encroachment by noise-sensitive land uses and minimize noise impacts of airports on adjacent communities.

POLICIES

2.11 Evaluate noise contour data and standards in periodic updates to the Regional Aviation System Plan.

2.12 Assist airports and local agencies, as requested, in evaluating noise impacts.

GOAL 3: FACILITATE AVIATION SYSTEM PLANNING

OBJECTIVE 3.1: Maintain a Regional Aviation System Plan.

POLICIES

3.11 Provide input into the regional transportation planning process through incorporation of analyses developed in the Regional Aviation System Plan.

3.12 Ensure that the Regional Aviation System Plan adequately represents aviation needs in the California Aviation System Plan.

OBJECTIVE 3.2: Coordinate Aviation System Planning With Other Modes.

POLICIES

3.21 Incorporate analyses and recommendations of the Regional Aviation System Plan into the Regional Transportation Plan.

3.22 Develop projects in the Regional Transportation Improvement Program based on the needs assessment of the Regional Aviation System Plan.

GOAL 4: PROMOTE AVIATION FACILITIES AND SERVICES

OBJECTIVE 4.1: Promote preservation and maintenance of the regions existing facilities.

POLICIES

4.11 Ensure that projects submitted for state funding through the Regional Transportation Improvement Program that preserve or maintain existing aviation facilities receive a high priority.

OBJECTIVE 4.2: Promote enhancement of regional aviation facilities and services.

POLICIES

4.21 Include projects that seek to enhance existing aviation facilities in the Regional Transportation Improvement Program.

4.22 Assist airport operators to include airport land use compatibility concerns in preparing or updating Airport Master Plans.

4.23 Provide favorable comments as requested on reviews of grant applications for projects that seek to enhance existing aviation facilities.

GOAL 5: PROMOTE ADEQUATE AIRPORT ACCESS AND MOBILITY

OBJECTIVE 5.1: Protect the existing system of ground access to the region's airports.

POLICIES

5.11 Include ground access requirements for airports in the comprehensive transportation planning program.

5.12 Include appropriate ground access improvements in the Regional Transportation Improvement Program.

OBJECTIVE 5.2: Meet the mobility needs of airport users while facilitating development of the most efficient and effective transportation system possible.

POLICIES

5.21 Include transportation control measures in the project funding process that will improve transportation system operation and minimize vehicle demand.

5.22 Include for funding projects that are shown to reduce congestion without the construction of new facilities for single-occupant vehicles.

5.23 Assist transit providers to develop transit service to adequately serve airport user needs in the region.

5.24 Assist airports and local agencies in marketing alternative modes of transportation for airport users.

GOAL 6: PROVIDE FOR ADEQUATE AVIATION FACILITY FUNDING

OBJECTIVE 6.1: Promote adequate funding levels for aviation planning and facility needs.

POLICY

6.11 Seek adequate and stable funding sources for regional aviation system planning, local airport land use compatibility planning and review, comprehensive land use plan preparation, and airport master planning.

OBJECTIVE 6.2: Promote adequate funding for aviation facility maintenance and enhancement.

POLICIES

6.21 Work with airport operators to include aviation maintenance and enhancement projects in the Regional Transportation Improvement Program.

6.22 Support efforts to obtain stable funding for aviation facility maintenance and enhancement.

INVENTORY ELEMENT

INVENTORY ELEMENT

INTRODUCTION

The Inventory Element consists of a compilation of information on aviation facilities, aircraft, and characteristics of aviation in the Kern region. It includes the most recent information available from the FAA, Caltrans Division of Aeronautics, and airports in the region.

The structure of the inventory is as follows:

- A map of each airport and surrounding land uses. Each airport map includes the airport's area of influence and land use designations.
- A landing and navigation aids section which describes current communications facilities, runway lighting characteristics, and associated navigational aids for all public-use airports in the County.
- A physical facilities and services section describing the level of service and physical characteristics of facilities for all public-use airports in the County.
- An airport ownership section listing the identifier code, associated city, airport operator, and type of ownership for all public-use airports in the County.
- An air carrier characteristics section describing commercial service airports, passenger enplanements and deplanements, and services provided.
- A section describing the status of military air facilities in the County.
- A description of based aircraft, aircraft type, and annual operations for each public-use airport in the County.
- A description of heliports currently under permit.
- A listing of registered general aviation aircraft.
- A discussion of airspace classifications for public-use airports in the County.
- A listing of the number and type of active pilots in the County.
- A listing of fuel usage at each public-use airport in the County.

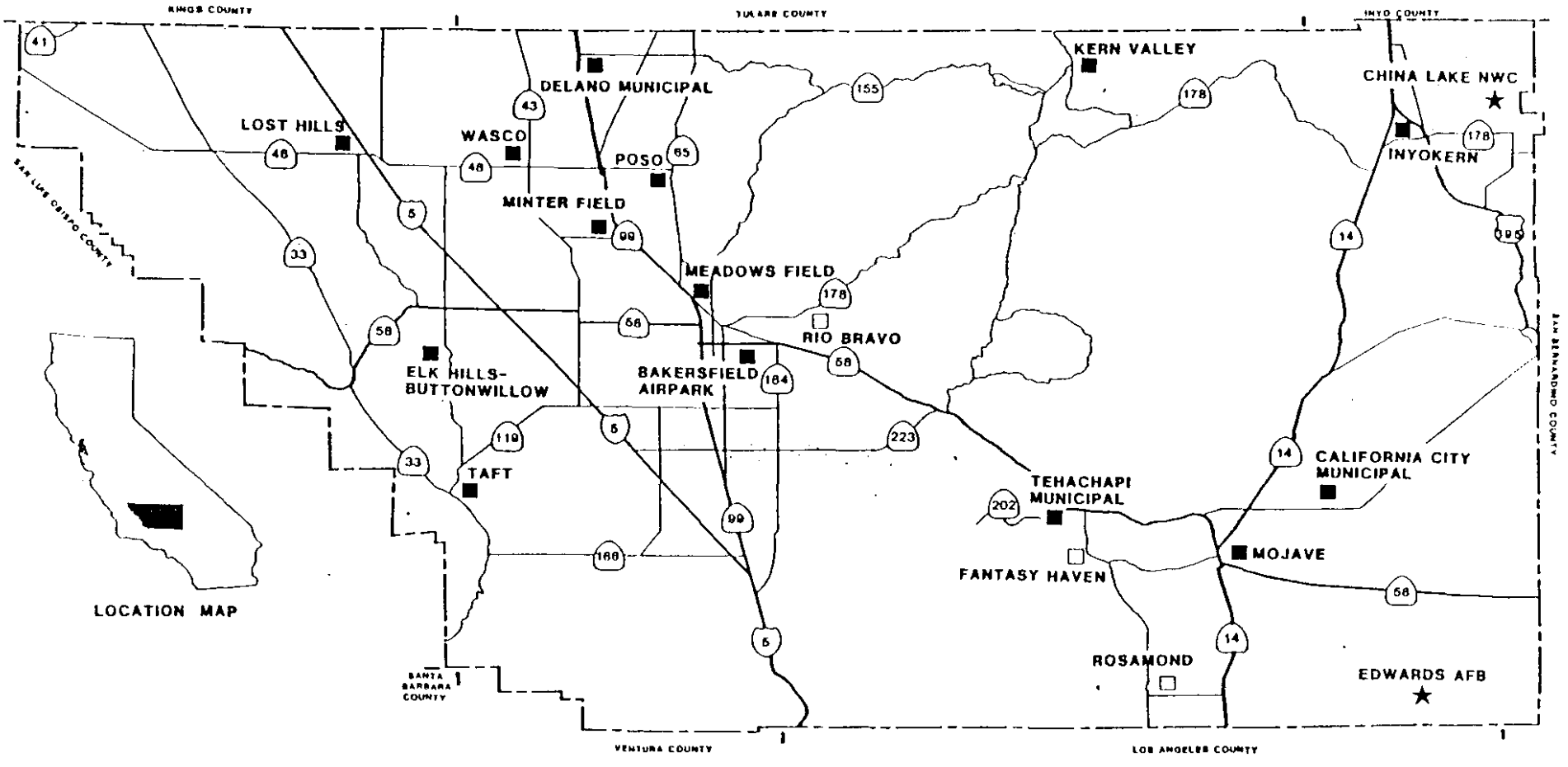
- A section describing the status of air cargo in the County.
- A section describing meteorological conditions in the County.
- A description of the status of airport land use planning documents for each public-use airport in the County.

AIRPORT LOCATIONS

There are sixteen public-use airports and two military bases located in Kern County and discussed in this report:

- Bakersfield Municipal Airport
- California City Municipal Airport
- Delano Municipal Airport
- Elk Hills-Buttonwillow Airport
- Inyokern Airport
- Kern Valley Airport
- Lost Hills-Kern County Airport
- Meadows Fields Airport
- Mojave Airport
- Mountain Valley Airport
- Poso-Kern County Airport
- Rosamond Skypark Airport
- Shafter Airport- Minter Field
- Taft Airport
- Tehachapi Municipal Airport
- Wasco Airport
- Edwards Air Force Base
- Naval Air Weapons Station, China Lake

The following map shows the locations of the sixteen public-use airports and two military airports discussed in this report. Major highways and railroads are also shown.



KERN REGION AIRPORTS

LEGEND:

- (5) INTERSTATE HIGHWAY
- (99) STATE HIGHWAY
- (395) FEDERAL HIGHWAY
- □ PRIVATE (Public access)
- ■ PUBLIC
- ★ MILITARY

N

DATE: June 1990

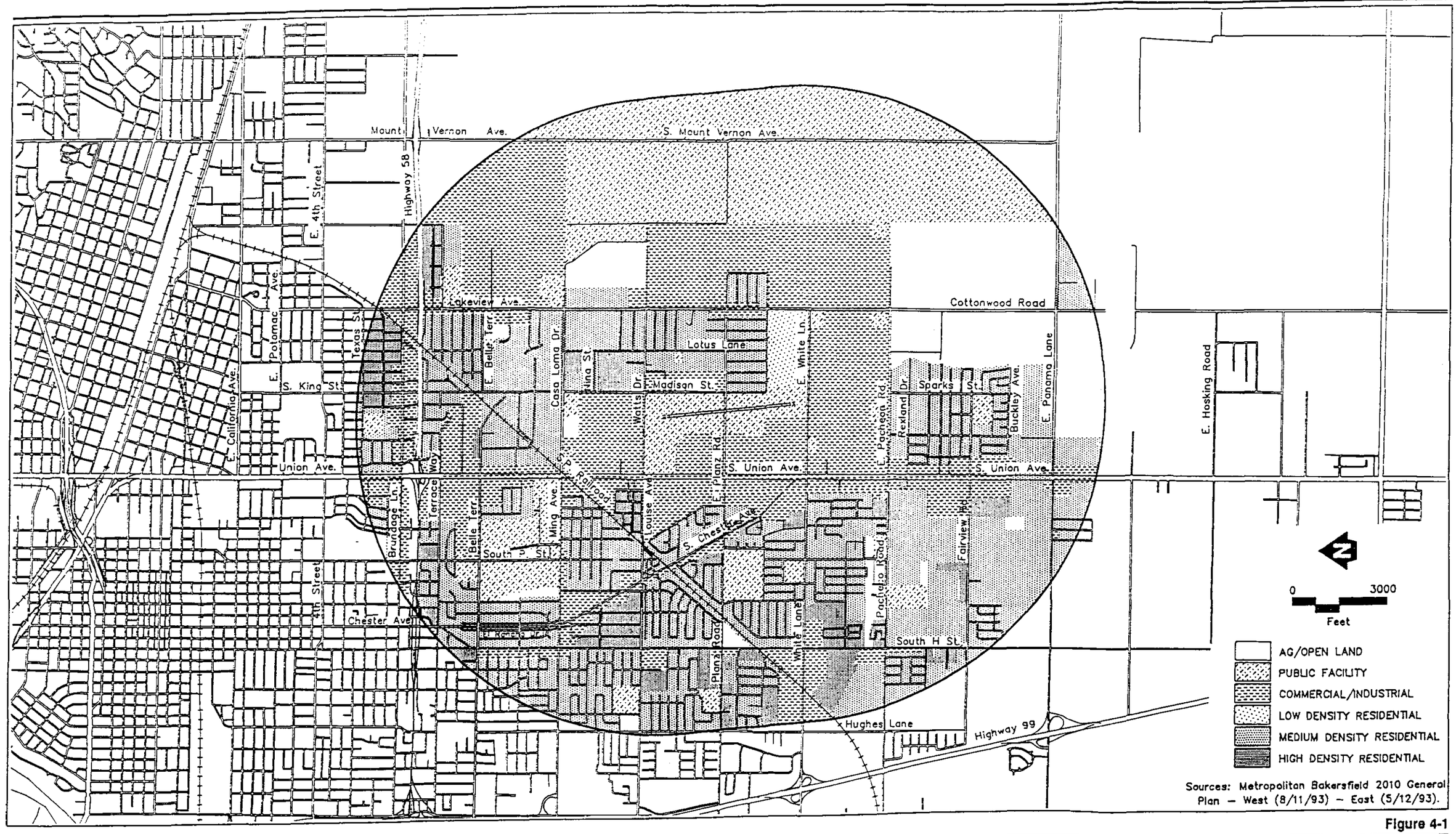
MAP NO. 5-1

MILES

KERN COG

KERN COUNTY AIRPORTS AND SURROUNDING LAND USES

The next sixteen maps identify the detailed land uses around the public-use airports in Kern County.



Sources: Metropolitan Bakersfield 2010 General Plan – West (8/11/93) – East (5/12/93).

Figure 4-1

Land Use Designations

Bakersfield Municipal Airport

Figure 4-5

Land Use Designations

California City Municipal Airport

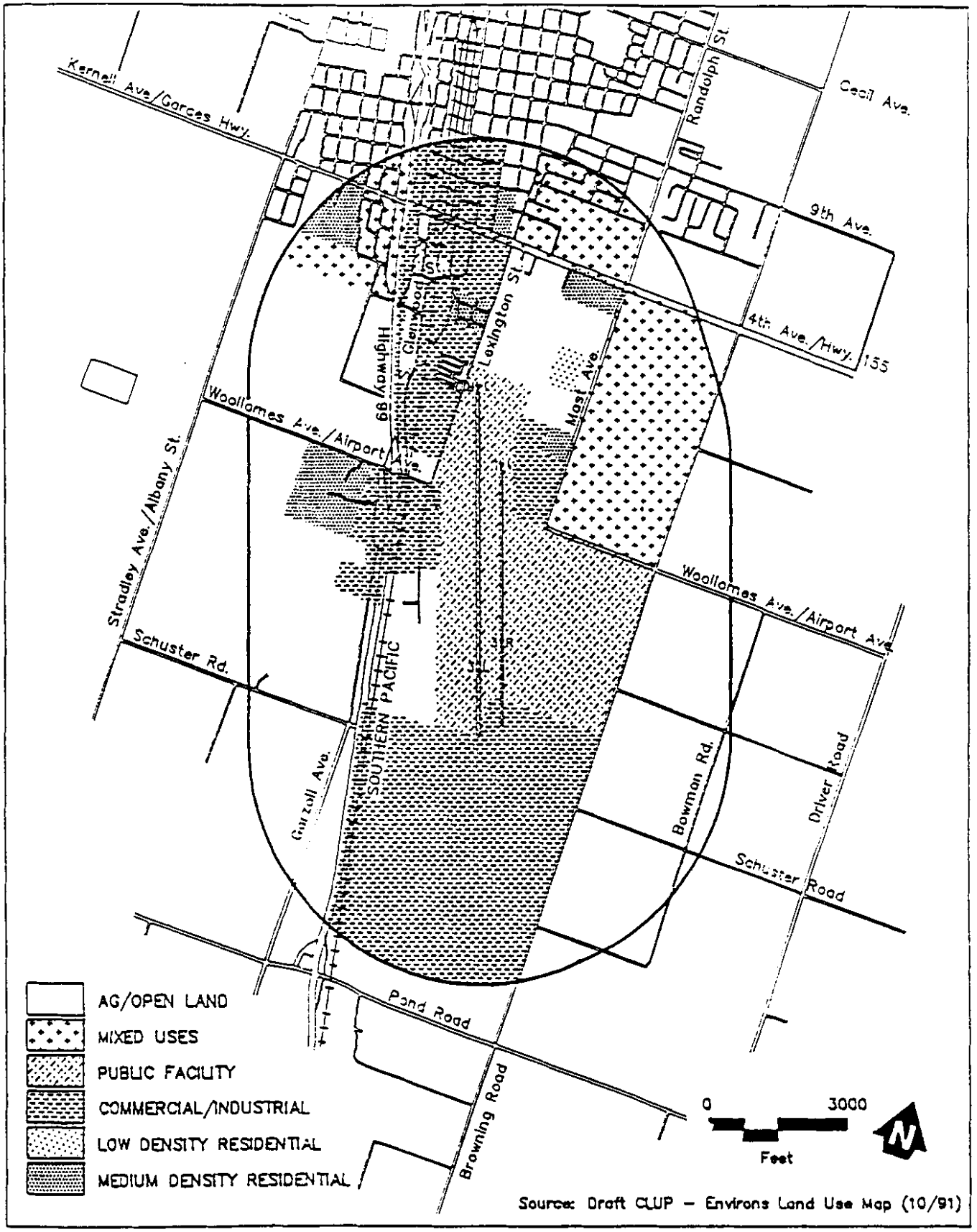


Figure 4-9

Land Use Designations

Delano Municipal Airport

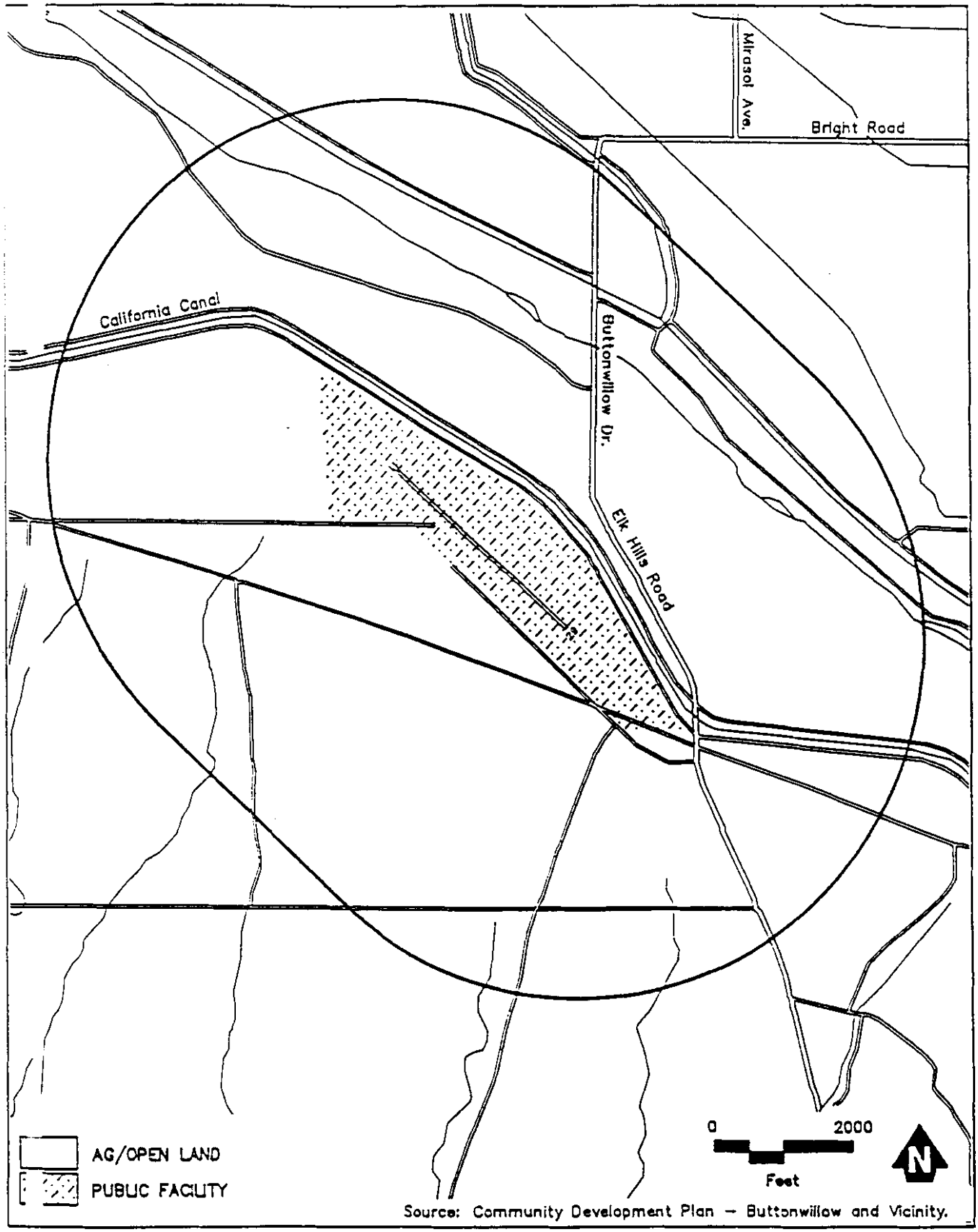


Figure 4-13

Land Use Designations

Elk Hills-Buttonwillow Airport

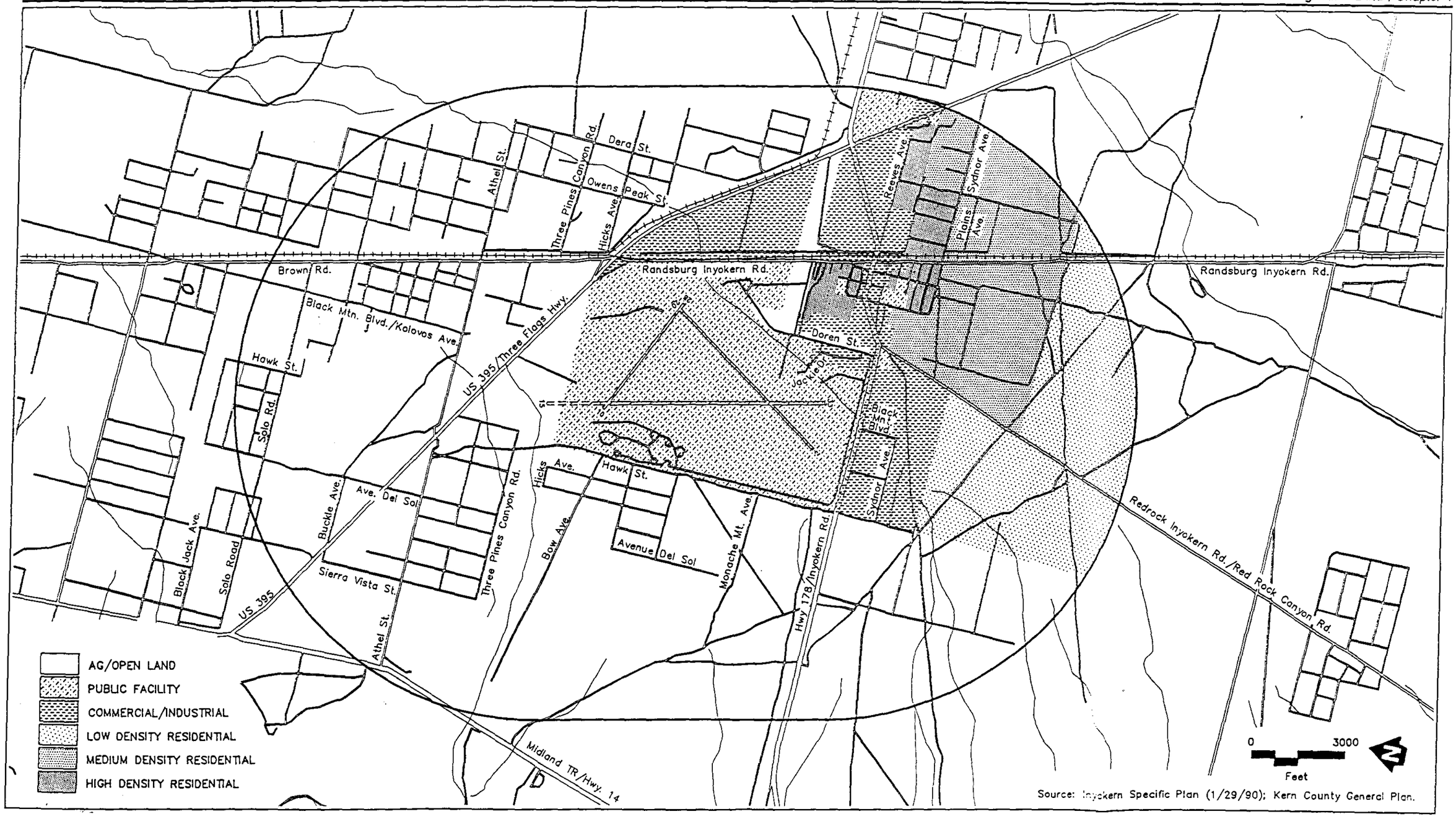


Figure 4-17

Land Use Designations

Inyokern Airport

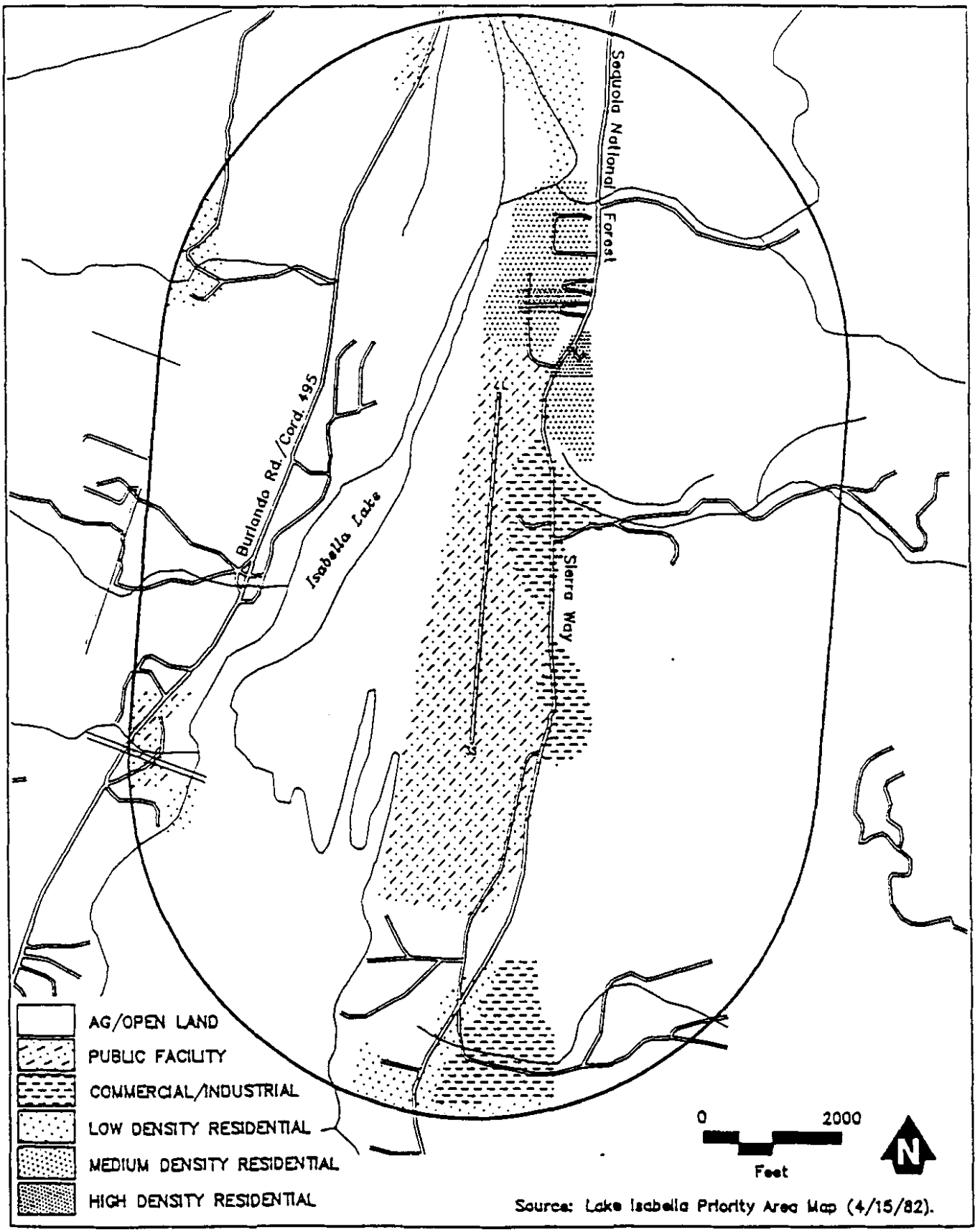


Figure 4-21

Land Use Designations

Kern Valley Airport

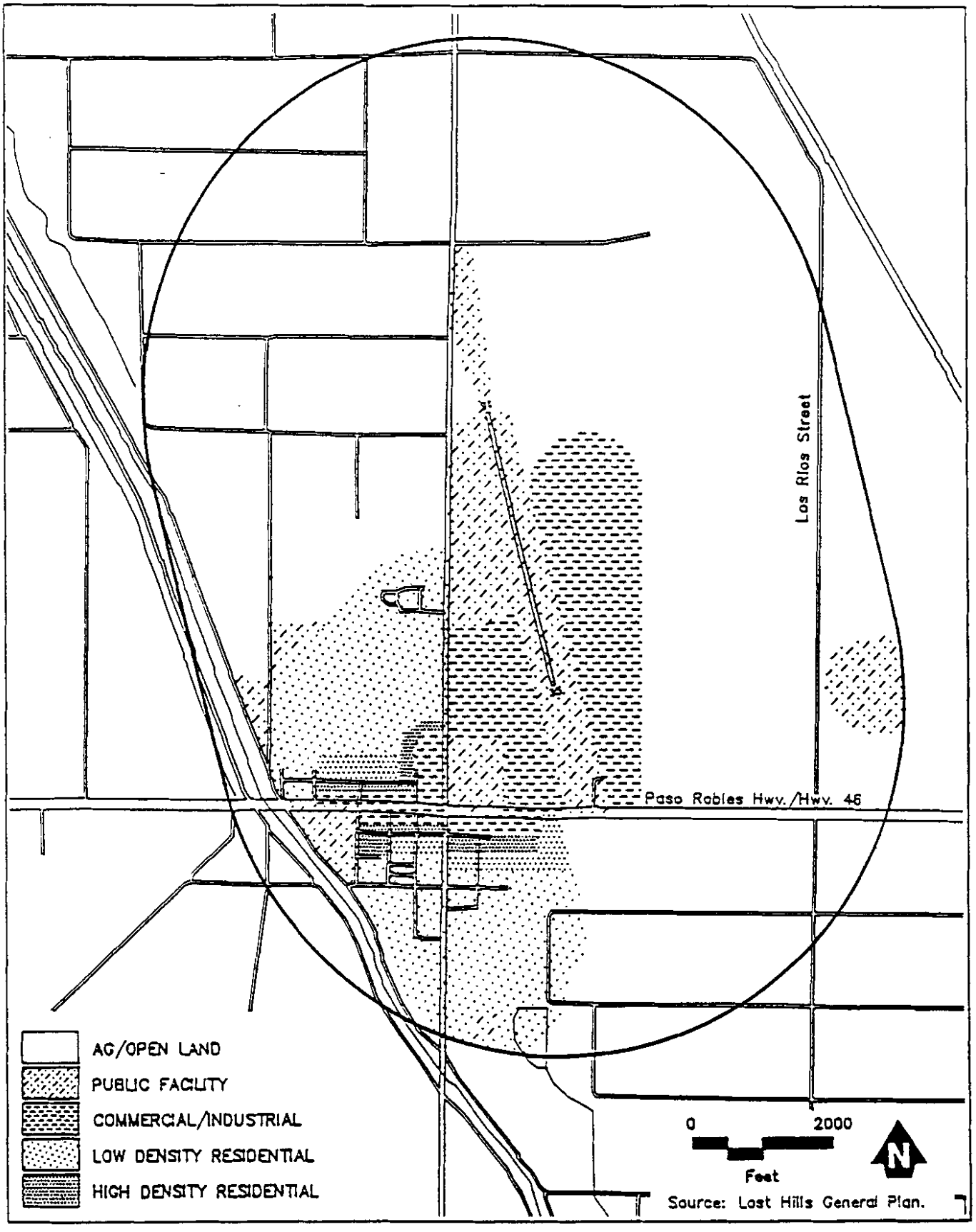
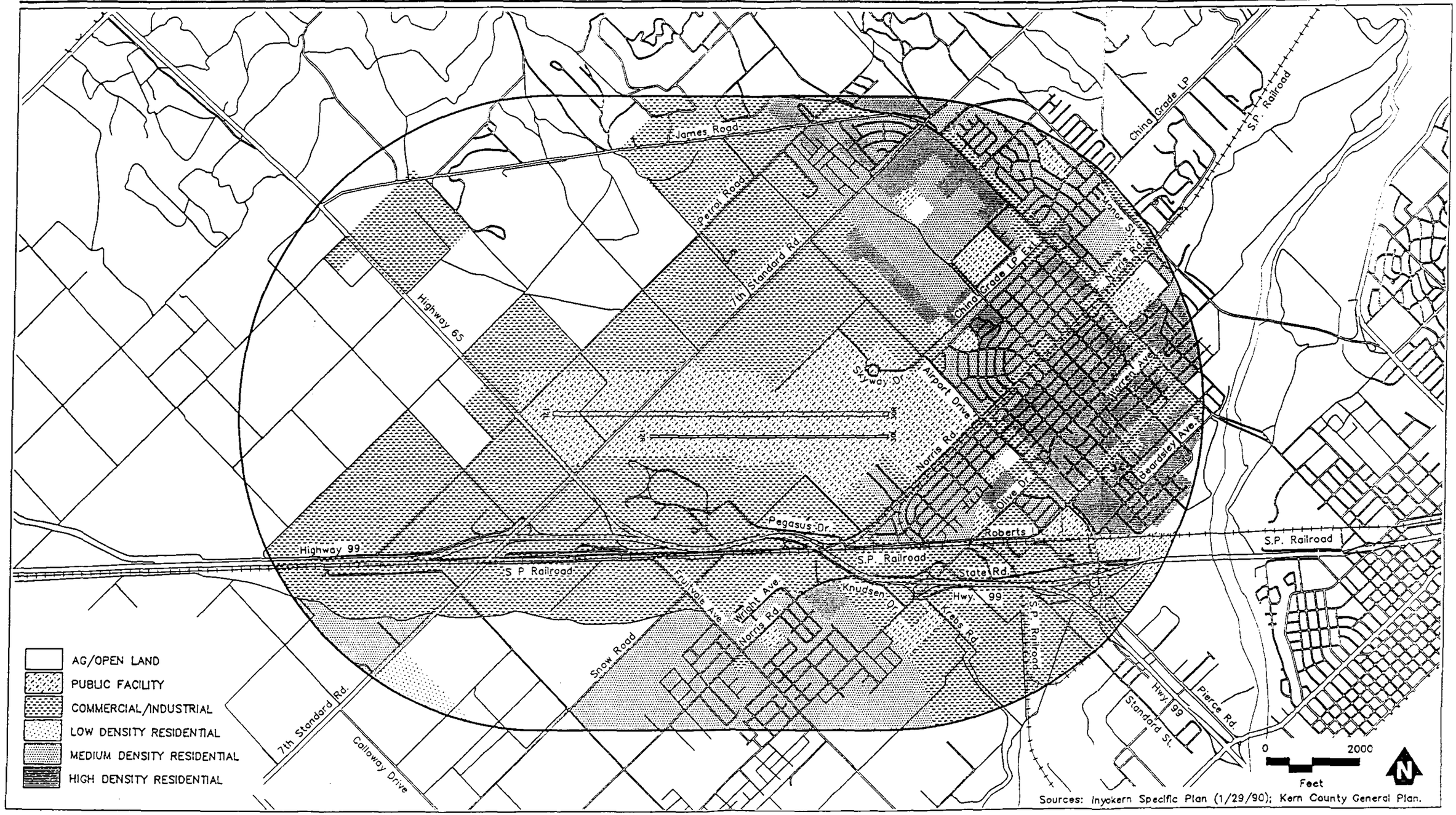


Figure 4-25

Land Use Designations

Lost Hills-Kern County Airport

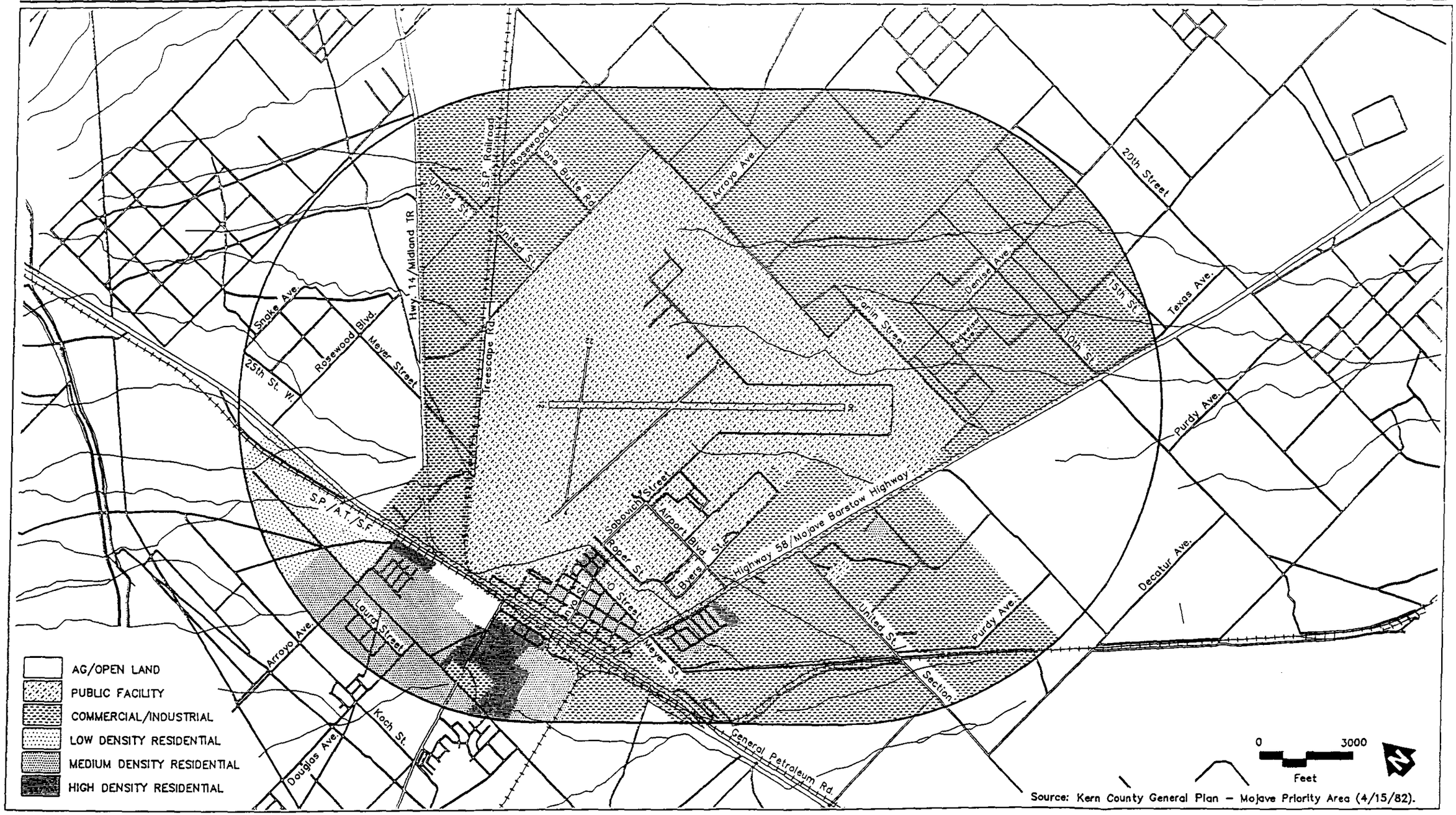


Sources: Inyokern Specific Plan (1/29/90); Kern County General Plan.

Figure 4-29

Land Use Designations

Meadows Field Airport



Source: Kern County General Plan – Mojave Priority Area (4/15/82).

Figure 4-33

Land Use Designations

Mojave Airport

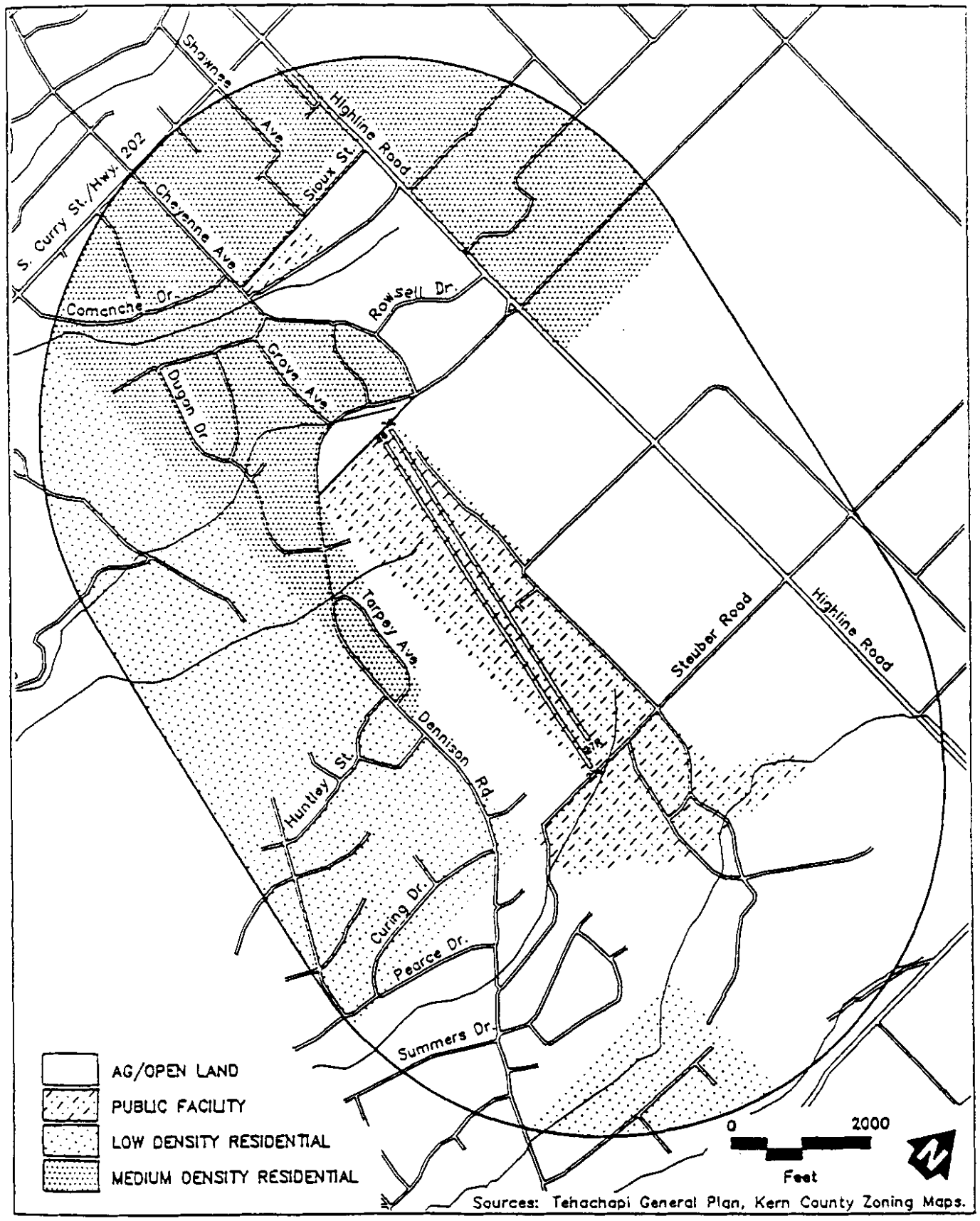


Figure 4-37

Land Use Designations

Mountain Valley Airport

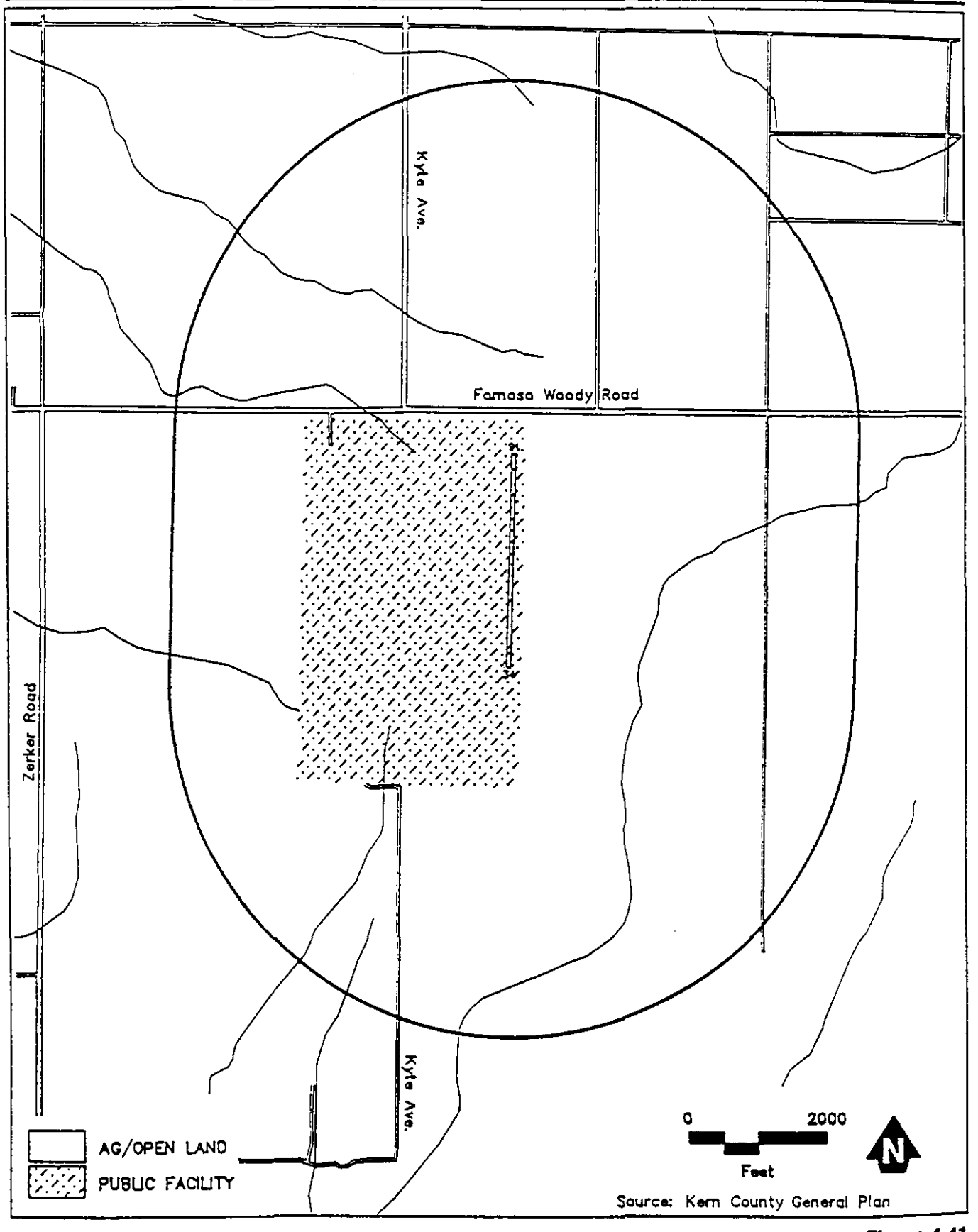
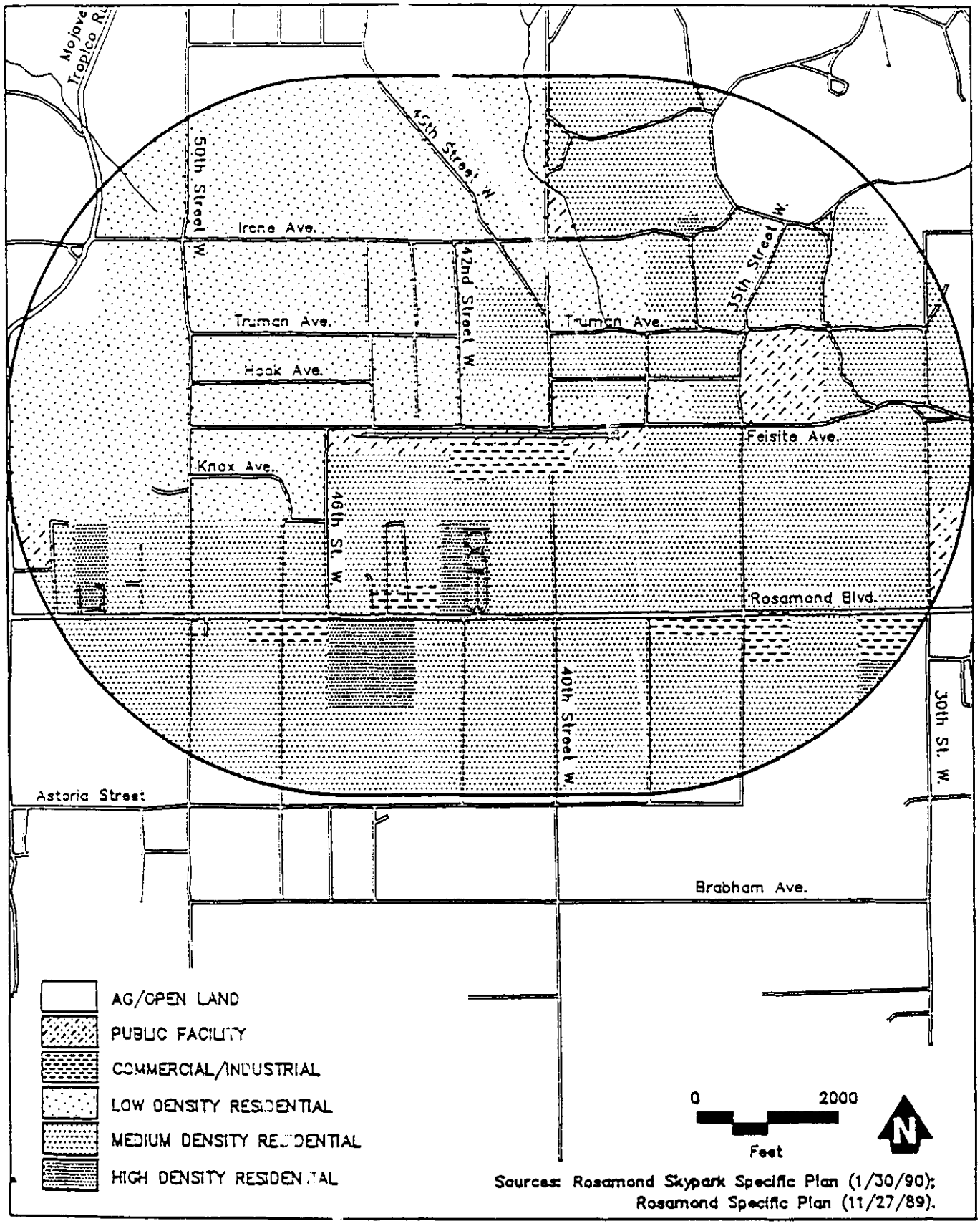


Figure 4-41

Land Use Designations

Poso-Kern County Airport



Sources: Rosamond Skypark Specific Plan (1/30/90); Rosamond Specific Plan (11/27/89).

Figure 4-45

Land Use Designations

Rosamond Skypark

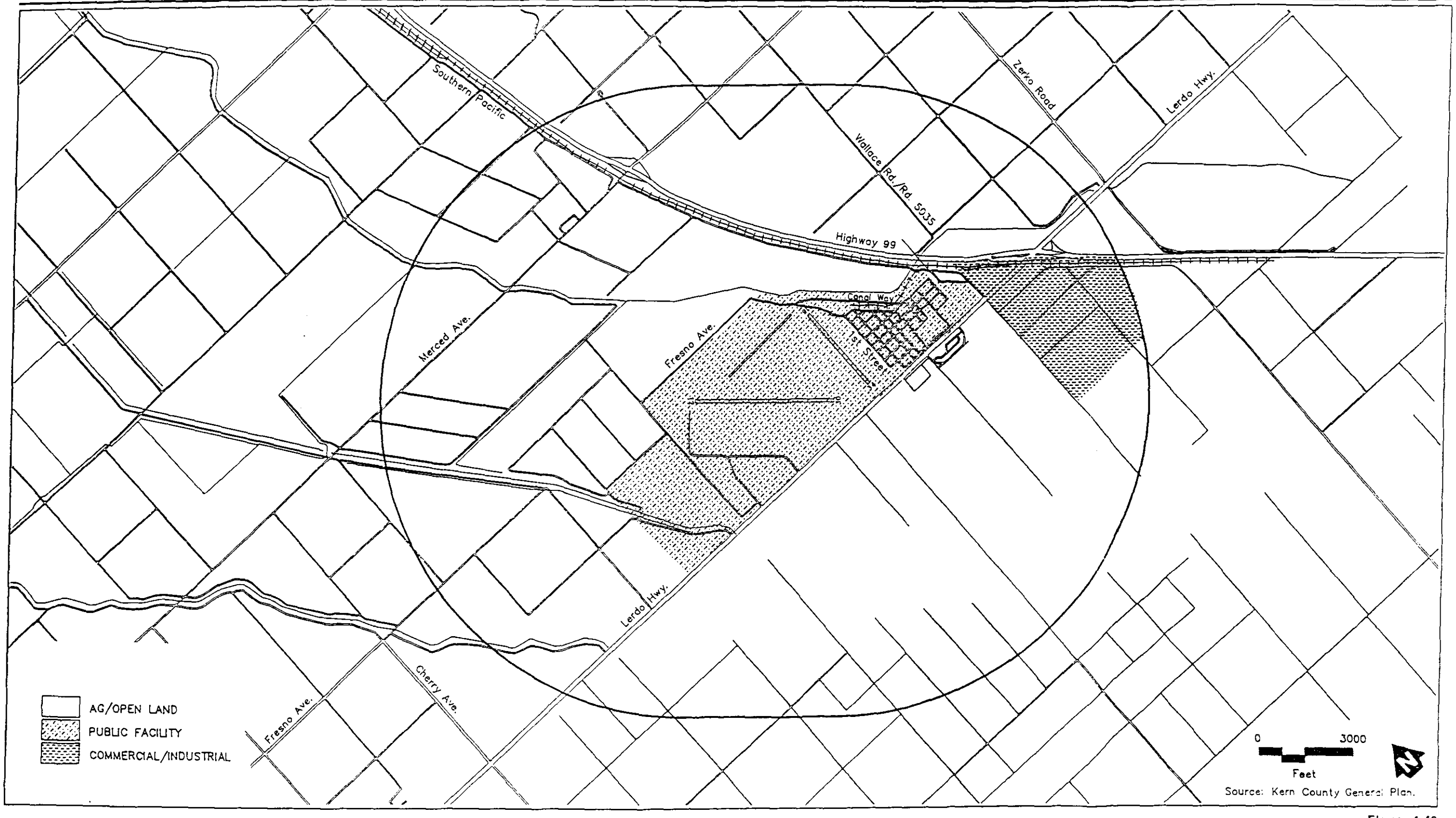


Figure 4-49

Land Use Designations

Shafter Airport-Minter Field

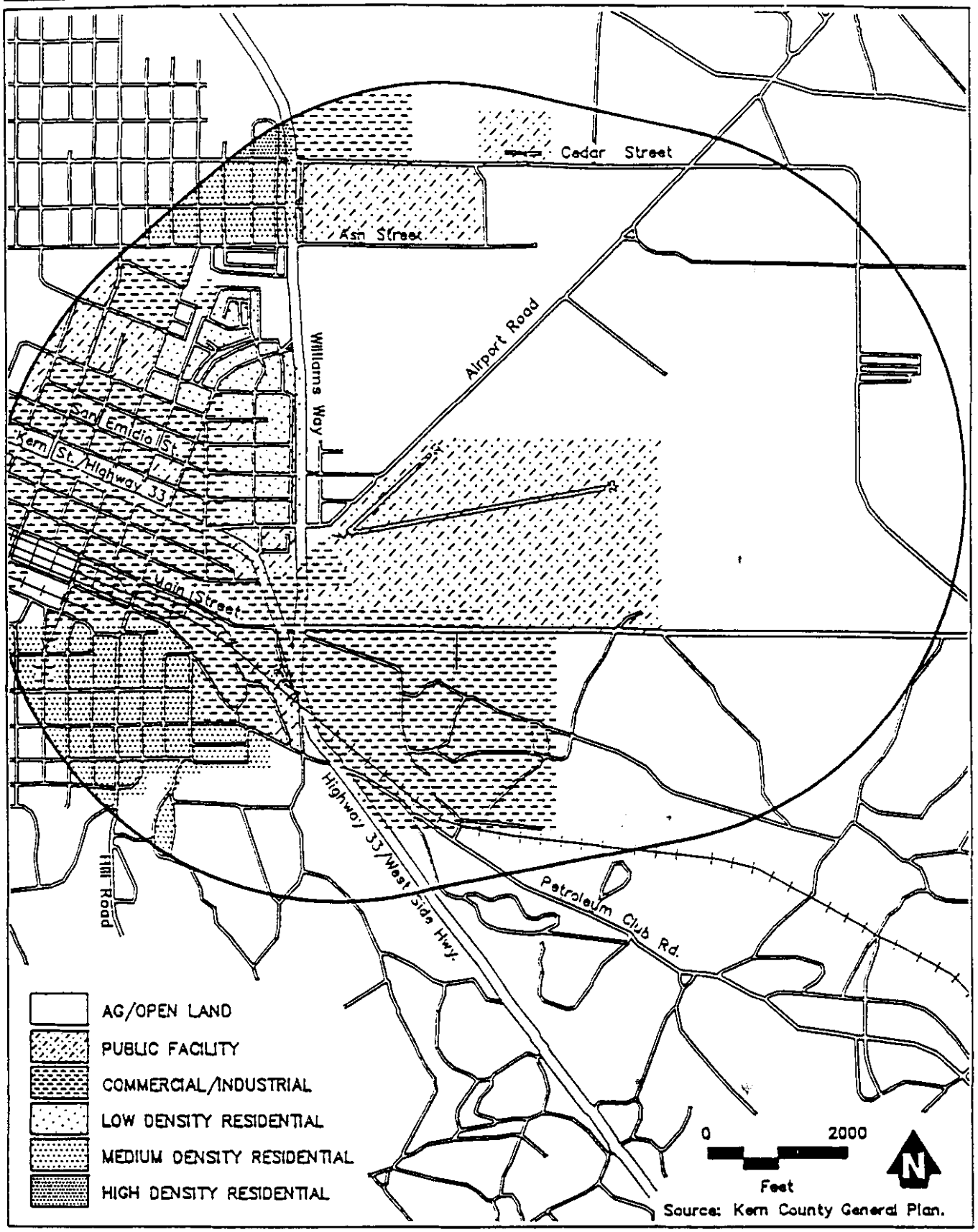


Figure 4-53

Land Use Designations

Taft-Kern County Airport

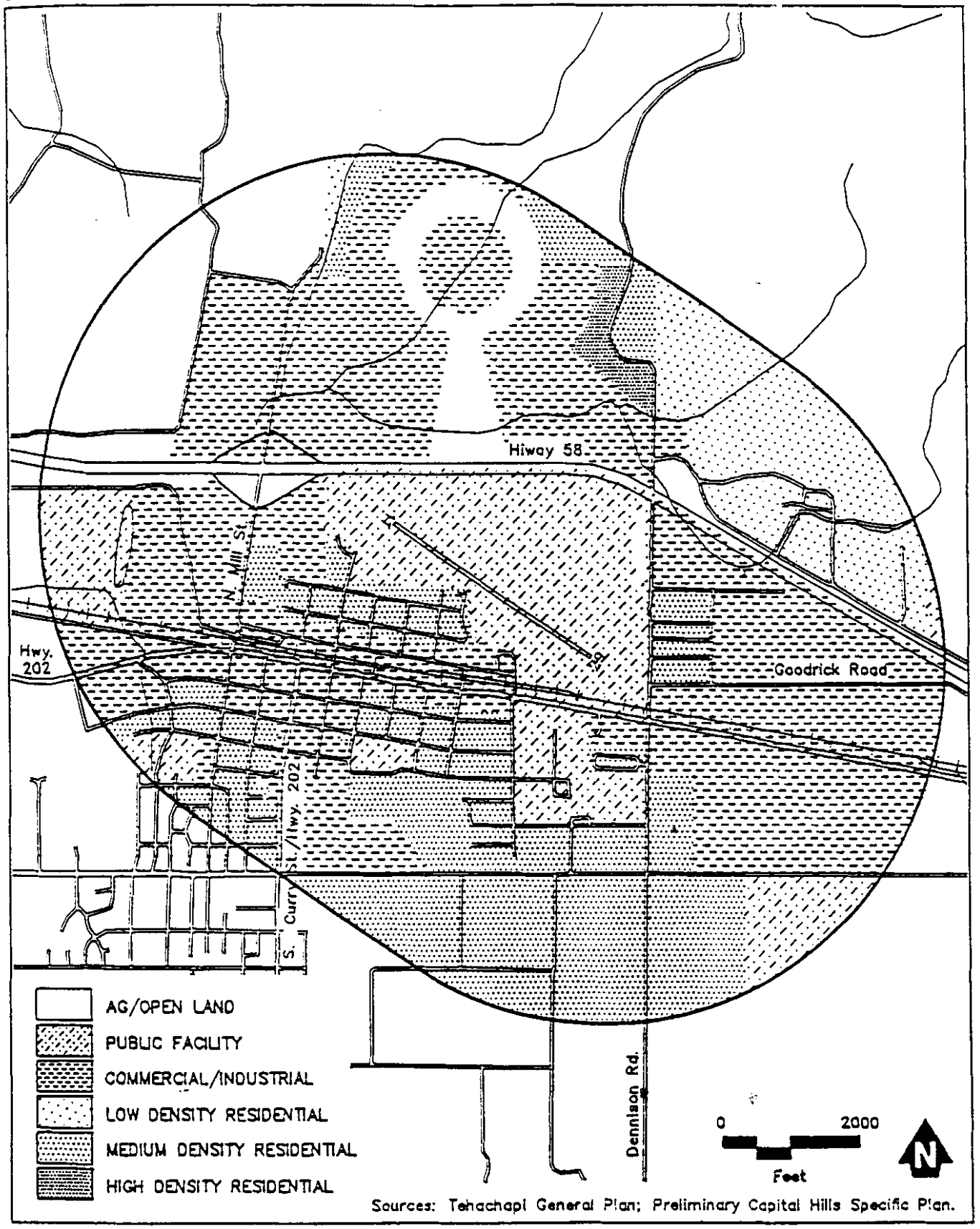


Figure 4-57

Land Use Designations

Tehachapi Municipal Airport

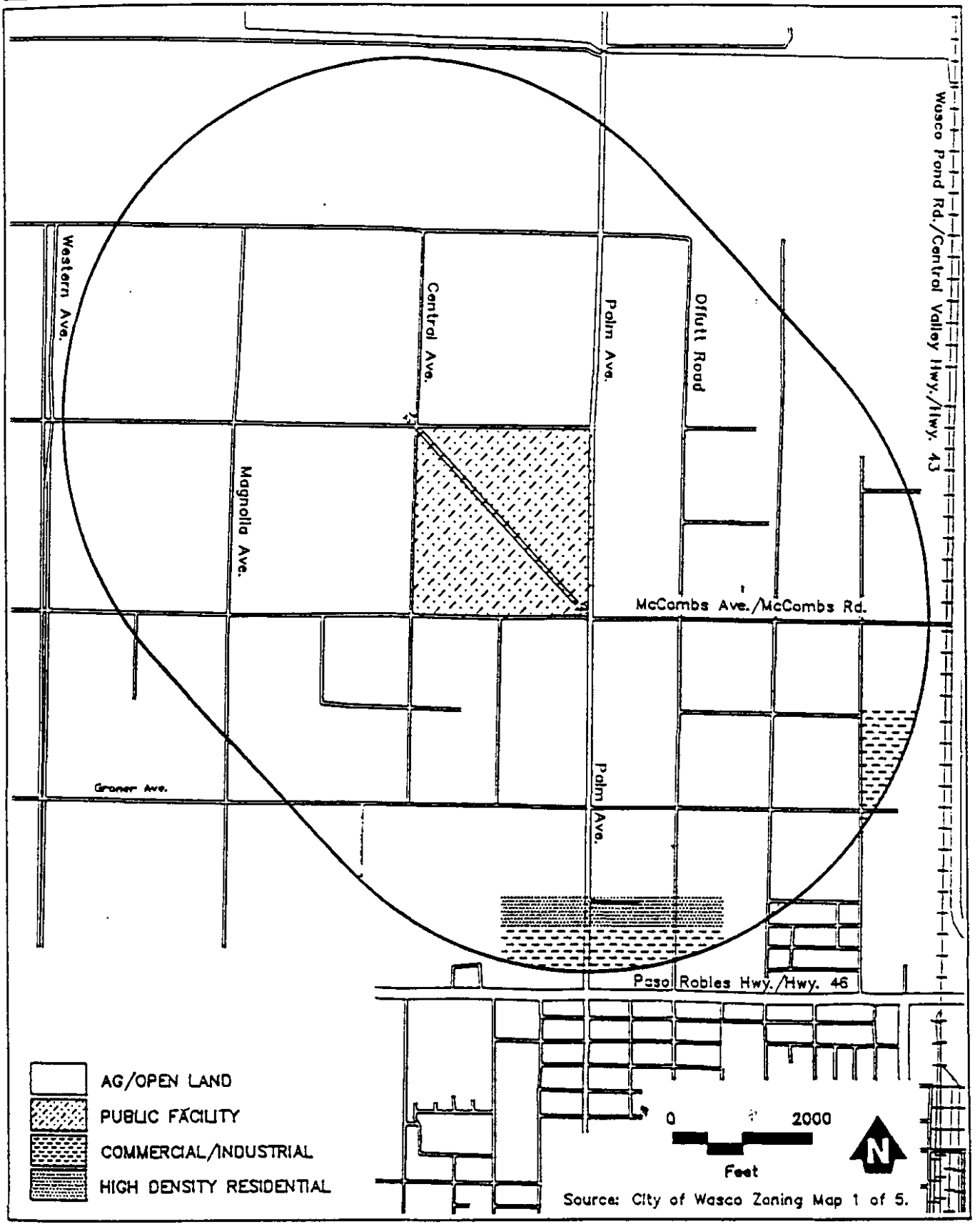


Figure 4-61

Land Use Designations

Wasco-Kern County Airport

LANDING AND NAVIGATION AIDS

Airport landing and navigation aids are essential to an airport in terms of accessibility, safety, and usability. More complex navigation aids increase operational capability and capacity potential.

Types of landing and navigation aids include communication facilities, such as flight service stations; air traffic control towers or airport unicoms for nontowered airports; visual glide slope and runway end identification lighting; and associated navigational aids, such as instrument landing systems and omni-range (VOR) facilities.

Table I-1, Landing and Navigation Aids, is a current listing of communication facilities, runway lighting characteristics, and associated navigational aids for all public-use airports in the Kern region.

Definitions

Automated Surface Observation System (ASOS)- An automated data system located at specific airports designed to collect and disseminate weather information to pilots.

Automated Weather Observation System (AWOS)- An automated data system located at specific airports designed to collect and disseminate weather information to pilots.

DME/ILS/NDB/VOR/LOC/LDA- Facilities providing precision and nonprecision instrument approach positioning.

Flight Service Station (FSS)- A facility operated by the Federal Aviation Administration (FAA) designed to provide pilots with assistance and information regarding flight operations. Primary focus is collection, dissemination, and distribution of weather information. Other functions include airport and air traffic advisory services, fight planning services, assistance to lost aircraft, and reporting the status of the operation and maintenance of airport lighting and navigation aids. General aviation flights plans are filed with the FSS.

Precision Approach Path Indicator (PAPI)-A runway lighting system producing a well-defined corridor or corridors of light to provide visual approach slope information.

Runway End Identifier Lights (REIL)- A runway lighting system providing rapid and positive identification of the end of a runway.

UNICOM- Nongovernmental radio communications facility which provides pilots with pertinent airport information.

Visual Approach Slope Indication (VASI)- A runway lighting system producing a well-defined corridor or corridors of light to provide visual approach slope information.

Key

Communication Facilities

FSS	Flight Service Station
ASOS	Automated Surface Observation System
AWOS	Automated Weather Observation System
TOWER	Air Traffic Control Facility
UNICOM	Nongovernmental Airport Advisory Radio Facility

Runway Lighting Aids

VASI	Visual Approach Slope Indicator
PAPI	Precision Approach Path Indicator
REIL	Runway End Identifier Lights

Associated Navigational Aids

DME	Distance Measuring Equipment
ILS	Instrument Landing System
LDA	Localizer Type Directional Aid
LOC	Localizer
NDB	Nondirectional Beacon
VOR	Very High Frequency Omnidirectional Radio Signal
VORTAC	VOR & Tactical Air Navigation Aid (TACAN)

Criteria for on Field Navigation Aids
Those navigation aids which are listed in the Airport/Facility Directory as "at fld".

Criteria for off Field Navigation Aids
Those navigation aids which are listed in the Airport/Facility Directory and are associated with a published instrument approach in the U.S. TERMINAL PROCEDURES Southwest (SW) vol. 2 of 2.

Table I-1: LANDING AND NAVIGATIONAL AIDS

								ASSOCIATED NAVAIDS	
	FSS	AWOS	ASOS	TOWER	UNICOM	VASI/PAPI	REIL	On Field	On Field
BAKERSFIELD MUNICIPAL AIRPORT	NO	NO	NO	NO	YES	YES	YES	NO	NO
CALIFORNIA CITY MUNICIPAL AIRPORT	NO	NO	NO	NO	YES	NO	NO	NO	NO
DELANO MUNICIPAL AIRPORT	NO	YES	NO	NO	YES	YES	YES	NO	VORTAC
ELK HILLS-BUTTONWILLOW AIRPORT	NO	NO	NO	NO	NO	NO	NO	NO	NO
INYOKERN AIRPORT	NO	NO	NO	NO	YES	YES	NO	NO	NO
KERN VALLEY AIRPORT	NO	NO	NO	NO	YES	NO	NO	NO	NO
LOST HILLS- KERN COUNTY AIRPORT	NO	NO	NO	NO	NO	NO	NO	NO	NO
MEADOWS FIELD AIRPORT	YES	NO	NO	YES	YES	YES	NO	ILS/DME	VORTAC/NDB
MOJAVE AIRPORT	NO	NO	NO	NO	YES	NO	NO	NO	NO
MOUNTAIN VALLEY AIRPORT	NO	NO	NO	NO	YES	NO	NO	NO	NO
POSO-KERN COUNTY AIRPORT	NO	NO	NO	NO	NO	NO	NO	NO	NO
ROSAMOND SKYPARK AIRPORT	NO	NO	NO	NO	NO	NO	NO	NO	NO
SHAFTER AIRPORT - MINTER FIELD	NO	NO	NO	NO	YES	YES	NO	NO	VORTAC
TAFT AIRPORT	NO	NO	NO	NO	YES	YES	NO	NO	NO
TEHACHAPI MUNICIPAL AIRPORT	NO	NO	NO	NO	YES	YES	NO	NO	NO
WASCO AIRPORT	NO	NO	NO	NO	YES	YES	NO	NO	NO

AIRPORT PHYSICAL FACILITIES AND SERVICES

Information regarding the physical airport facilities and related services has been divided into two specific categories; Airport Services and Airport Facilities. Airport services are noted by role, based on the type of aircraft the facility can accommodate; by service level, based on factors such as number of passenger enplanements; airport congestion, if the facility is designated to handle general aviation aircraft; and by services available.

Airport facility information includes airport elevation, airport acreage, and runway data. Runway data includes all operational runways by identification number, length and width, type and condition of runway surface, and runway lighting intensity. These characteristics may not directly relate to the Federal National Plan of Integrated Airport Systems (NPIAS) or the Airport Design Guide definitions, but reflect the definitions used by Caltrans, Division of Aeronautics. A functional classification of California airports is currently being developed and will result in changes to these definitions.

Table I-2, Physical Facilities & Services, lists the airport service and facility information for the Kern region.

Definitions:

Airport role

(<BU I) Basic Utility, Stage I- A facility that does not meet the requirements of BU I.

(BU I) Basic Utility, Stage I- A facility serving 75 percent of the single-engine and small twin engine aircraft used for personal and business purposes. Precision approach operations not anticipated.

(BU II) Basic Utility, Stage II- A facility serving all BU I aircraft, plus small business and air taxi-type twin-engine aircraft. Precision approach operation not anticipated.

(GU) General Utility- A facility serving turbojet-powered aircraft. Use focuses on business, corporate, or executive jet aircraft.

(BT) Basic Transport- A facility serving turbojet-powered aircraft. Use focuses on business, corporate, or executive jet aircraft.

(GT) General Transport- A facility serving general aviation transport category aircraft greater than 60,000 pound gross weight.

Airport Service Level

(PR) Primary- A commercial service air carrier airport enplaning more than 10,000 passengers annually.

(CM) Commercial- A commercial service air carrier airport enplaning more than 2,500 but less than 10,000 passengers annually.

(RL) Reliever- A general aviation facility located near a metropolitan area and designated by the Federal Aviation Administration (FAA) to reduce congestion at larger commercial and primary airports by providing an alternate landing site for general aviation aircraft.

(GA) General Aviation- A facility without scheduled air carrier service and serving only general aviation aircraft.

Key

Role Information		Service Level		Services		Runway	
<BU I =	Less than BU I	PR =	Primary	0 =	No Services	ASPH =	Asphalt
BU I =	Basic Utility I	CM =	Commercial	1 =	Fuel	CONC =	Concrete
BU II =	Basic Utility II	RL =	Reliever	2 =	Airframe Repairs	GRVL =	Gravel
GU =	General Utility	GA =	General Aviation	3 =	Pwr Plant Repairs	GT =	General
BT =	Basic Transport	NO =	Not Defined	4 =	Bottled Oxygen		
GT=	General Transport			5 =	Bulk Oxygen	P =	Poor
				6 =	Itinerant Parking	F =	Fair
				7 =	Other Services	G =	Good

Table I-2: PHYSICAL FACILITIES & SERVICES

	AIRPORT SERVICES			AIRPORT FACILITIES						
	Role	Service Level	Services	Elevation	Acres	ID No.	Length	Width	Surface	Lights
BAKERSFIELD MUNICIPAL AIRPORT	BU I	GA	1,2,3,6,7	376	190	16/34	4000	75	ASPH-G	MEDIUM
CALIFORNIA CITY MUNICIPAL AIRPORT	GU	NO	1,2,3,4,6,7	2437	245	06/24	6035	55	ASPH-G	MEDIUM
DELANO MUNICIPAL AIRPORT	GU	GA	1,2,3,6,7	316	546	14R/32L	5650	75	ASPH-F	MEDIUM
						14L/32R	3500	50	ASPH-F	NONE
ELK HILLS-BUTTONWILLOW AIRPORT	BU I	NO	6	326	216	11/29	3260	50	ASPH-F	NONE
INYOKERN AIRPORT	GT	PR	1,2,3,5,6,7	2457	1347	15/33	7344	75	ASPH-G	MEDIUM
						02/20	6273	75	ASPH-G	MEDIUM
						10/28	4152	75	ASPH-G	MEDIUM
KERN VALLEY AIRPORT	BU I	GA	1,2,3,6,7	2614	270	17/35	3500	50	ASPH-G	NONE
LOST HILLS- KERN COUNTY AIRPORT	BU I	GA	6	274	390	15/33	3020	60	ASPH-F	MEDIUM
MEADOWS FIELD AIRPORT	GT	PR	1,2,3,6,7	507	1107	12L/30R	10857	150	ASPH-G	HIGH
						12R/30L	3700	75	ASPH-G	MEDIUM
MOJAVE AIRPORT	GU	GA	1,2,3,6,7	2787	2998	12/30	9600	2000	ASPH/CONC-F	HIGH
						07/25	7040	75	ASPH-G	MEDIUM
						04/22	4900	50	ASPH-F	NONE
MOUNTAIN VALLEY AIRPORT	BU I	NO	,2,3,4,5,6,	4220	170	9R/27L	5420	60	GRVL/SOIL-G	NONE
						9L/27R	5190	60	GRVL-G	NONE
POSO-KERN COUNTY AIRPORT	BU I	NO	0	635	400	16/34	3000	60	ASPH-F	NONE
ROSAMOND SKYPARK AIRPORT	BU I	NO	1,2,3,6,7	2415	100	07/25	3600	50	ASPH-G	LOW
SHAFTER AIRPORT - MINTER FIELD	GU	GA	1,2,3,6,7	422	1223	12/30	4520	100	ASPH-F	MEDIUM
						16/34	2980	100	CONC-F	NONE
TAFT AIRPORT	BU I	GA	1,2,3,6,7	875	71	07/25	3970	60	ASPH-F	LOW
						03/21	1640	60	ASPH-F	NONE
TEHACHAPI MUNICIPAL AIRPORT	BU I	GA	1,2,3,6,7	4002	264	11/39	4035	50	ASPH-F	LOW
WASCO AIRPORT	BU II	GA	1,6,7	313	158	12/30	3380	60	ASPH-G	MEDIUM

OWNERSHIP

Table I-3, Ownership and Contact Information, identifies the airport name and identifier code, associated city, airport operator and type of ownership.

Table I-3:OWNERSHIP AND CONTACT INFORMATION

	Airport ID	Associated City	Operator	Ownership
BAKERSFIELD MUNICIPAL AIRPORT	L45	BAKERSFIELD	CITY	PUBLIC
CALIFORNIA CITY MUNICIPAL AIRPORT	L71	CALIFORNIA CTY	CITY	PUBLIC
DELANO MUNICIPAL AIRPORT	DLO	DELANO	CITY	PUBLIC
ELK HILLS-BUTTONWILLOW AIRPORT	L62	BUTTONWILLOW	COUNTY	PUBLIC
INYOKERN AIRPORT	IYK	INYOKERN	DISTRICT	PUBLIC
KERN VALLEY AIRPORT	L05	KERNVILLE	COUNTY	PUBLIC
LOST HILLS- KERN COUNTY AIRPORT	L84	LOST HILLS	COUNTY	PUBLIC
MEADOWS FIELD AIRPORT	BFL	BAKERSFIELD	COUNTY	PUBLIC
MOJAVE AIRPORT	MHV	MOJAVE	DISTRICT	PUBLIC
MOUNTAIN VALLEY AIRPORT	L94	TEHACHAPI	PRIVATE	PRIVATE
POSO-KERN COUNTY AIRPORT	L73	FAMOSO	COUNTY	PUBLIC
ROSAMOND SKYPARK AIRPORT	L00	ROSAMOND	PRIVATE	PRIVATE
SHAFTER AIRPORT - MINTER FIELD	MIT	SHAFTER	DISTRICT	PUBLIC
TAFT AIRPORT	L17	TAFT	COUNTY	PRIVATE
TEHACHAPI MUNICIPAL AIRPORT	TSP	TEHACHAPI	CITY	PUBLIC
WASCO AIRPORT	L19	WASCO	COUNTY	PUBLIC

AIR CARRIER CHARACTERISTICS BY AIRPORT

Inyokern and Meadows Field Airports are the only airports that provide commercial air carrier service within Kern County. Table I-4, Air Carrier Characteristics by Airport, lists the specific services provided at each airport in the Kern region.

Table I-4:AIR CARRIER CHARACTERISTICS BY AIRPORT

	SERVICES:								
	Commercial	Passenger	Passenger	Flight	FBO Services				
	Service	Enplanements	Deplanements	Insurance	Sales	Rentals	Charter	Repairs	Other
BAKERSFIELD MUNICIPAL AIRPORT	NO	N/A	N/A	NO	NO	YES	NO	YES	YES
CALIFORNIA CITY MUNICIPAL AIRPORT	NO	N/A	N/A	YES	NO	YES	NO	YES	YES
DELANO MUNICIPAL AIRPORT	NO	N/A	N/A	NO	NO	NO	NO	YES	YES
ELK HILLS-BUTTONWILLOW AIRPORT	NO	N/A	N/A	NO	NO	NO	NO	NO	NO
INYOKERN AIRPORT	YES	19,863	25,137	YES	NO	YES	NO	YES	YES
KERN VALLEY AIRPORT	NO	N/A	N/A	YES	NO	YES	YES	YES	YES
LOST HILLS- KERN COUNTY AIRPORT	NO	N/A	N/A	NO	NO	NO	NO	NO	NO
MEADOWS FIELD AIRPORT	YES	109,102		YES	YES	YES	YES	YES	YES
MOJAVE AIRPORT	NO	N/A	N/A	NO	NO	NO	NO	NO	YES
MOUNTAIN VALLEY AIRPORT	NO	N/A	N/A	YES	YES	YES	NO	YES	YES
POSO-KERN COUNTY AIRPORT	NO	N/A	N/A	NO	NO	NO	NO	NO	NO
ROSAMOND SKY PARK AIRPORT	NO	N/A	N/A	NO	NO	NO	NO	YES	YES
SHAFTER AIRPORT - MINTER FIELD	NO	N/A	N/A	NO	NO	NO	NO	YES	YES
TAFT AIRPORT	NO	N/A	N/A	NO	NO	YES	NO	YES	YES
TEHACHAPI MUNICIPAL AIRPORT	NO	N/A	N/A	YES	NO	YES	NO	YES	NO
WASCO AIRPORT	NO	N/A	N/A	NO	NO	NO	NO	NO	NO

Table I-4 continued:

	Food	Restrooms	Public Phones	Rental Cars	Public Transit	Taxi	Motels	CFR on A/P
BAKERSFIELD MUNICIPAL AIRPORT	YES	YES	YES	YES	YES	YES	YES	NO
CALIFORNIA CITY MUNICIPAL AIRPORT	YES	YES	YES	NO	NO	YES	YES	NO
DELANO MUNICIPAL AIRPORT	YES	YES	YES	YES	YES	NO	YES	NO
ELK HILLS-BUTTONWILLOW AIRPORT	NONE	NO	NO	NO	NO	NO	NO	NO
INYOKERN AIRPORT	YES	YES	YES	YES	NO	YES	NO	NO
KERN VALLEY AIRPORT	YES	YES	YES	YES	NO	NO	YES	NO
LOST HILLS- KERN COUNTY AIRPORT	NONE	NO	NO	NO	NO	NO	NO	NO
MEADOWS FIELD AIRPORT	YES	YES	YES	YES	YES	YES	YES	YES
MOJAVE AIRPORT	YES	YES	YES	YES	YES	YES	NO	YES
MOUNTAIN VALLEY AIRPORT	YES	YES	YES	NO	NO	NO	YES	NO
POSO-KERN COUNTY AIRPORT	NONE	NO	NO	NO	NO	NO	NO	NO
ROSAMOND SKY PARK AIRPORT	YES	YES	NO	NO	NO	NO	NO	NO
SHAFTER AIRPORT - MINTER FIELD	YES	YES	YES	NO	NO	NO	NO	NO
TAFT AIRPORT	NONE	YES	YES	NO	NO	YES	NO	NO
TEHACHAPI MUNICIPAL AIRPORT	YES	YES	YES	NO	NO	NO	YES	YES
WASCO AIRPORT	NONE	YES	NO	NO	NO	NO	YES	NO

MILITARY AIRPORTS

There are two military bases located in Kern County: Naval Weapons Center/China Lake and Edwards Air Force Base. These military airports are not scheduled for closure at this time.

Edwards Air Force Base is primarily used as a flight testing and flight research center. Edwards has also played a vital role in the nation's space program. The NASA Space Shuttle has utilized the Edwards Center as its landing and ferrying site following missions in space.

There are two primary lakebeds that are utilized as part of Edwards' runway system. Rogers Dry Lake is approximately 60 miles of marked and maintained runways on a lake that is about 12½ miles long by 5 miles wide. Rosamond Dry Lake is approximately 8 miles of marked and maintained runways on a lake that is about 5 miles long and 5 miles wide. The land area composing the Flight Test Center includes 470 square miles (301,000 acres) of real estate.

BASED AIRCRAFT & ANNUAL OPERATIONS

Table I-5, Based Aircraft & Annual Operations, list aircraft information for all public-use airport in the Kern region.

Table I-5: BASED AIRCRAFT & ANNUAL OPERATIONS

	Single Piston Engine	Multi-Engine	Jet	Rotorcraft	Other	Total Based Aircraft	Annual Operations	Tower
BAKERSFIELD MUNICIPAL AIRPORT	103	4	0	1	2	110	50,000	NO
CALIFORNIA CITY MUNICIPAL AIRPORT	23	0	4	0	50	77	35,000	NO
DELANO MUNICIPAL AIRPORT	35	0	0	16	0	51	19,000	NO
ELK HILLS-BUTTONWILLOW AIRPORT	0	0	0	0	0	0	650	NO
INYOKERN AIRPORT	75	5	0	0	7	87	39,100	NO
KERN VALLEY AIRPORT	33	2	0	0	0	35	10,500	NO
LOST HILLS- KERN COUNTY AIRPORT	0	0	0	0	0	0	3,500	NO
MEADOWS FIELD AIRPORT	155	63	7	7	0	232	125,029	YES
MOJAVE AIRPORT	75	30	15	3	0	123	24,789	YES
MOUNTAIN VALLEY AIRPORT	6	0	0	0	80	86	54,700	NO
POSO-KERN COUNTY AIRPORT	0	0	0	0	0	0	1,000	NO
ROSAMOND SKYPARK AIRPORT	69	3	0	0	9	81	30,000	NO
SHAFTER AIRPORT - MINTER FIELD	71	4	0	2	4	81	45,000	NO
TAFT AIRPORT	28	5	0	0	0	33	12,200	NO
TEHACHAPI MUNICIPAL AIRPORT	58	7	0	0	0	65	9,730	NO
WASCO AIRPORT	13	1	0	0	0	14	7,000	NO

HELIPORTS

All permanent heliport sites located outside of airport property are required to have a heliport permit issued by the State Division of Aeronautics. Temporary sites intended for use for a limited period of time, not to exceed 180 consecutive days, are exempt from the permit requirements. Information on temporary sites is not available. Table I-6 identifies the heliports within Kern County.

Table I-6: HELIPORTS

	Associated City	Ownership	Use	Helipad Area	Elevation	Weight Limitation
BURROUGHS	WASCO	PRIVATE	PRIVATE	65 x 65	262	NONE
DENIO	BAKERSFIELD	PRIVATE	PRIVATE	60 x 60	398	5,000
KERN MEDICAL CENTER	BAKERSFIELD	PUBLIC	PRIVATE	66 x 66	500	NONE
KERN VALLEY HOSPITAL	LAKE ISABELLA	PRIVATE	PRIVATE	66 x 66	2704	NONE
MEMORIAL HOSPITAL-BAKERSFIELD	BAKERSFIELD	PRIVATE	PRIVATE	50 x 50	500	10,000
ROSSI FARMS	OLD RIVER	PRIVATE	PRIVATE	30 x 80	340	12,000
SAN JOAQUIN COMMUNITY HOSPITAL	BAKERSFIELD	PRIVATE	PRIVATE	36 x 36	480	15,000
WESTSIDE DISTRICT HOSPITAL	TAFT	PRIVATE	PUBLIC	40 x 40	875	NONE
RIDGECREST COMMUNITY HOSPITAL	RIDGECREST	PRIVATE	PRIVATE	77 DIA	2290	15,000
SCE RIDGECREST SERVICE CENTER	RIDGECREST	PRIVATE	PRIVATE	20 x 20	2280	NONE

REGISTERED GENERAL AVIATION AIRCRAFT

Table I-7, Registered General Aviation Aircraft, shows the number of registered aircraft by type within the Kern region.

Table I-7: REGISTERED AIRCRAFT BY OWNERSHIP TYPE

	Individual	Partnership	Corporation	Co-Owner	Government	Other	Total
KERN COUNTY	571	64	207	230	33	2	1107

AIRSPACE

The purpose of this section is to identify those airports and areas that have or will have capacity constrains as a result of airspace. Airspace within Kern County is limited by the location of two approach facilities, Edwards Air Force Base and Meadow Field. Most of the eastern half of the county lies within the military R-2508 Restricted Airspace Complex. The R-2508 Complex includes Restricted Areas R-2502, R-2505, R-2509, R-2515 and R-2524. In addition to the restricted airspace, four of ten Military Operating Areas (MOA) associated with the R-2508 Complex are located within Kern County. There are also training routes which provide low-level, high-speed training for military pilots. These include both IFR and VFR routes.

The airspace classifications for Kern County airports are indicated in Table I-8.

Table I-8: AIRSPACE

	CLASS C	CLASS D	CLASS G	Alert Area 251	Transition Area which starts @ 700' AGL	@1200' AGL	Uncontrolled Airspace	Published Instrument Approach	STAR	SID
BAKERSFIELD MUNICIPAL AIRPORT	NO	NO	NO	NO	YES	NO	NO	NO	NO	NO
CALIFORNIA CITY MUNICIPAL AIRPORT	NO	NO	NO	NO	NO	YES	NO	NO	NO	NO
DELANO MUNICIPAL AIRPORT	NO	NO	NO	NO	YES	NO	NO	VOR	NO	NO
ELK HILLS-BUTTONWILLOW AIRPORT	NO	NO	NO	NO	NO	YES	NO	NO	NO	NO
INYOKERN AIRPORT	NO	NO	YES	NO	NO	YES	NO	NO	NO	NO
KERN VALLEY AIRPORT	NO	NO	NO	NO	NO	NO	YES	NO	NO	NO
LOST HILLS- KERN COUNTY AIRPORT	NO	NO	NO	NO	NO	YES	NO	NO	NO	NO
MEADOWS FIELD AIRPORT	NO	YES	NO	NO	NO	NO	NO	ILS, LOC, VOR, NDB	NO	YES
MOJAVE AIRPORT	NO	NO	NO	NO	YES	NO	NO	NO	NO	NO
MOUNTAIN VALLEY AIRPORT	NO	NO	NO	NO	NO	YES	NO	NO	NO	NO
POSO-KERN COUNTY AIRPORT	NO	NO	NO	NO	YES	NO	NO	NO	NO	NO
ROSAMOND SKY PARK AIRPORT	NO	NO	NO	NO	NO	YES	NO	NO	NO	NO
SHAFTER AIRPORT - MINTER FIELD	NO	NO	NO	NO	YES	NO	NO	VOR	NO	NO
TAFT AIRPORT	NO	NO	NO	NO	NO	YES	NO	NO	NO	NO
TEHACHAPI MUNICIPAL AIRPORT	NO	NO	NO	NO	NO	YES	NO	NO	NO	NO
WASCO AIRPORT	NO	NO	NO	NO	NO	YES	NO	NO	NO	NO

ACTIVE PILOTS

Table I-9 identifies the number of active pilots holding student, recreational private, commercial, airline, transport, and miscellaneous (helicopter, glider, lighter-than-air) ratings, as of December 31, 1992. The number of flight instructors within the county is also listed.

Table I-9: ACTIVE PILOTS FOR KERN COUNTY

PILOTS TOTAL	STUDENT	REC.	PRIVATE	COMMERCIAL	AIRLINE TRANSPORT	MISC.	FLIGHT INSTRUCTOR
1870	303	0	904	447	147	69	164

FUEL CONSUMPTION

Table I-10 lists the type and amount of fuel consumed at each airport in Kern County.

Table I-10: FUEL CONSUMPTION (gal/month)

	80	100	100LL	AUTO	JET
BAKERSFIELD MUNICIPAL AIRPORT	1,680	N/A	6,720	N/A	N/A
CALIFORNIA CITY MUNICIPAL AIRPORT	1,665	N/A	10,835	N/A	5,830
DELANO MUNICIPAL AIRPORT	N/A	N/A	2,980	N/A	N/A
ELK HILLS-BUTTONWILLOW AIRPORT	N/A	N/A	N/A	N/A	N/A
INYOKERN AIRPORT	1,400	N/A	3,600	N/A	7,900
KERN VALLEY AIRPORT	N/A	N/A	850	N/A	N/A
LOST HILLS- KERN COUNTY AIRPORT	N/A	N/A	N/A	N/A	N/A
MEADOWS FIELD AIRPORT	N/A	N/A	44,910	N/A	85,600
MOJAVE AIRPORT	N/A	N/A	4,000	N/A	180,000
MOUNTAIN VALLEY AIRPORT	1,000	N/A	N/A	N/A	N/A
POSO-KERN COUNTY AIRPORT	N/A	N/A	N/A	N/A	N/A
ROSAMOND SKYPARK AIRPORT	N/A	N/A	N/A	N/A	N/A
SHAFTER AIRPORT - MINTER FIELD	N/A	N/A	12,132	N/A	N/A
TAFT AIRPORT	N/A	N/A	850	N/A	N/A
TEHACHAPI MUNICIPAL AIRPORT	793	N/A	1,975	N/A	N/A
WASCO AIRPORT	N/A	N/A	1,200	N/A	N/A

AIR CARGO

Table I-11 illustrates the tonnage and type of cargo transferred by air from Inyokern Airport and Meadows Field Airport.

Table I-11: AIR CARGO

	Cargo Tonnage	Type
BAKERSFIELD MUNICIPAL AIRPORT	N/A	N/A
CALIFORNIA CITY MUNICIPAL AIRPORT	N/A	N/A
DELANO MUNICIPAL AIRPORT	N/A	N/A
ELK HILLS-BUTTONWILLOW AIRPORT	N/A	N/A
INYOKERN AIRPORT	250	MISC.
KERN VALLEY AIRPORT	N/A	N/A
LOST HILLS- KERN COUNTY AIRPORT	N/A	N/A
MEADOWS FIELD AIRPORT	360	MISC.
MOJAVE AIRPORT	N/A	N/A
MOUNTAIN VALLEY AIRPORT	N/A	N/A
POSO-KERN COUNTY AIRPORT	N/A	N/A
ROSAMOND SKYPARK AIRPORT	N/A	N/A
SHAFTER AIRPORT - MINTER FIELD	N/A	N/A
TAFT AIRPORT	N/A	N/A
TEHACHAPI MUNICIPAL AIRPORT	N/A	N/A
WASCO AIRPORT	N/A	N/A

METEOROLOGICAL CONDITIONS

Weather conditions play an important role in the planning and development of an airport. Temperature is an important factor in determining runway length. Prevailing wind direction is used in determining the optimum runway orientation. The percentage of time that visibility is impaired due to cloud coverage or other conditions is a major factor in determining the need for navigational aids and airport lighting.

The topography of Kern County varies tremendously, being divided roughly into three geographic regions. The three regions are the San Joaquin Valley, the Sierra Nevada Mountains and western Mojave Desert. Elevations range from a low of 206 feet above sea level near the city of Delano, to over 8,800 feet on the extreme souther border of the county on the flanks of Mt. Pinos in the San Emidio range.

Climate is related to elevation and physical situation. The average annual rainfall in the Valley portion of the County is less than six inches, with the majority of the precipitation occurring during the mild winter period from November to March. Snowfall is very rare, but periods of dense 'Tule' fog are common. The mountains do receive snow fall with occasional heavy accumulations. The desert areas of the county receive sporadic precipitation, being located in the rain shadow of the Sierra Nevada. Brief, but intense thunder storms are common during the summer.

LAND USE PLANNING DOCUMENT STATUS

Table I-12 lists the planning document status for each airport in Kern County.

Key

D = Draft Document
I = Interim Document
R = Revised Document
U = Included under CLUP "Umbrella" Document for Specific Airports
IP = Plan development In Progress

ALUC = Airport Land Use Commission
AAC = Airport Advisory Commission

CPC = County Planning Commission
LTC = Local Transportation Commission
RTPA = Regional Transportation Planning Agency
CTC = County Transportation Commission

CLUP = Comprehensive Land Use Plan
AMP = Airport Master Plan
ALP = Airport Layout Plan

DEIR = Draft Environmental Impact Report
FEIR = Final Environmental Impact Report
EIR/S = Environmental Impact Report/Statement
NOP = Notice of Preparation
ND = Negative Declaration
RND = Revised Negative Declaration
EA = Environmental Assessment
INC = Included Under CLUP Environmental Document

Table I-12: LAND USE PLANNING DOCUMENT STATUS

	Designated Airport Land Use Planning Org.	CLUP Document Status	AMP Document Status	ALP Document Status	AMP Env. Doc Staus	CLUP Env. Doc Status
BAKERSFIELD MUNICIPAL AIRPORT	NONE	D 1/94	8/88	5/93	8/88	NONE
CALIFORNIA CITY MUNICIPAL AIRPORT	NONE	D 1/94	NONE	6/78	4/77	NONE
DELANO MUNICIPAL AIRPORT	NONE	D 1/94	1991	7/75	DEIR 10/91	1991
ELK HILLS-BUTTONWILLOW AIRPORT	NONE	D 1/94	NONE	5/86	NONE	NONE
INYOKERN AIRPORT	NONE	D 1/94	6/89	1993	FEIR 10/91	NONE
KERN VALLEY AIRPORT	NONE	D 1/94	1991	3/82	FEIR 7/91	NONE
LOST HILLS- KERN COUNTY AIRPORT	NONE	D 1/94	NONE	11/84	NONE	NONE
MEADOWS FIELD AIRPORT	NONE	D 1/94	1981	12/88	ND 9/88	NONE
MOJAVE AIRPORT	NONE	D 1/94	NONE	3.81	NONE	NONE
MOUNTAIN VALLEY AIRPORT	NONE	D 1/94	3/75	NONE	NONE	NONE
POSO-KERN COUNTY AIRPORT	NONE	D 1/94	NONE	3/68	NONE	NONE
ROSAMOND SKYPARK AIRPORT	NONE	D 1/94	NONE	8/86	NONE	NONE
SHAFTER AIRPORT - MINTER FIELD	NONE	D 1/94	4/90	4/90	NOP 9/89	NONE
TAFT AIRPORT	NONE	D 1/94	NONE	1/68	NONE	NONE
TEHACHAPI MUNICIPAL AIRPORT	NONE	D 1/94	1988	8/82	DEIR 3/88	NONE
WASCO AIRPORT	NONE	D 1/94	4/88	6/85	NONE	NONE