

SAN BERNARDINO COUNTY
PLANNING DEPARTMENT

AIRPORT COMPREHENSIVE LAND USE PLAN

BARSTOW-DAGGETT AIRPORT

PLANNING DEPARTMENT
SAN BERNARDINO COUNTY

May, 1992

TABLE OF CONTENTS

| | PAGE |
|--|------|
| I. INTRODUCTION | 1 |
| II. AIRPORT FACILITIES AND OPERATIONS | 4 |
| III. NOISE | 7 |
| IV. AIRPORT/AIRCRAFT SAFETY | 13 |
| V. PLAN BOUNDARY AND SAFETY REVIEW AREAS | 26 |
| VI. AIRPORT LAND USE COMPATIBILITY METHODOLOGY | 31 |
| VII. BARSTOW-DAGGETT AIRPORT LAND USE COMPATIBILITY | 35 |
| VIII. LAND USE REVIEW CRITERIA AND DEVELOPMENT STANDARDS | 40 |
| IX. GLOSSARY | 42 |

FIGURES AND TABLES

| FIGURE | PAGE |
|---|------|
| 1. AIRPORT LAYOUT | 6 |
| 2. 60 CNEL CONTOUR | 8 |
| 3. INTERIOR/EXTERIOR NOISE LEVEL STANDARDS - MOBILE NOISE STANDARDS | 9 |
| 4. LAND USE COMPATIBILITY FOR COMMUNITY NOISE ENVIRONMENTS | 10 |
| 5. LAND USE COMPATIBILITY FOR COMMUNITY NOISE ENVIRONMENTS - BARSTOW-DAGGETT AIRPORT | 12 |
| 6. FAR PART 77 IMAGINARY SURFACES | 14 |
| 7. FAR PART 77 IMAGINARY SURFACES – BARSTOW-DAGGETT AIRPORT | 16 |
| 8. OBJECT FREE AREAS | 20 |
| 9. SAFETY REVIEW AREAS | 27 |
| 10. OFFICIAL LAND USE DISTRICTS - BARSTOW-DAGGETT ACLUP | 36 |

TABLE

| | |
|---|----|
| 1. CIVIL AIRPORT IMAGINARY SURFACES DIMENSIONS | 15 |
| 2. LAND USE COMPATIBILITY - IMAGINARY SURFACES | 22 |
| 3. LAND USE COMPATIBILITY - OBJECT FREE AREA | 24 |
| 4. LAND USE COMPATIBILITY - AIRPORT SAFETY REVIEW AREAS | 33 |

ACKNOWLEDGEMENTS.

PLANNING DEPARTMENT

VALERY PILMER, DEPUTY DIRECTOR

INA PETOKAS, DEPUTY DIRECTOR

JULIE HEMPHILL, SENIOR PLANNER

RON RILEY, SENIOR PLANNER

RON MATYAS, SENIOR PLANNER

MAC COLEMAN, SENIOR ASSOCIATE PLANNER

MARLYN TAUB, SUPERVISING ILLUSTRATOR

BRENT EBERLE, TECHNICIAN

VICTOR CONTRERAS, ILLUSTRATOR

MARCIA TAACK, ILLUSTRATOR

MOUNTAIN - DESERT AIRPORT LAND USE COMMISSION

BOB BROWN, COMMISSIONER

BOB DOLCH, COMMISSIONER

JON MIKELS, COMMISSIONER

LEONARD MALIN, COMMISSIONER

BOB PROCHASKA, COMMISSIONER

BARBARA CRAM RIORDAN, COMMISSIONER

MARY SCARPA, COMMISSIONER

MARSHA TUROCI, COMMISSIONER

BARSTOW-DAGGETT ACLUP

INTRODUCTION

- I. Airports present unique public health and safety issues that require special land use planning efforts to preserve the public welfare. The State of California has long recognized the inherent conflict between the highly intensified and fluid environment of airports and the attraction airports have for the concentrated development of surrounding properties. Consequently, the State Legislature enacted airport land use laws which are intended to:
- Provide for the orderly development of each public use airport in the State and the area surrounding these airports so as to promote the overall goals and objectives of the adopted California Airport Noise Standards and to prevent the creation of new noise and safety problems.
 - Protect public health, safety and welfare by ensuring the orderly expansion of airports and the adoption of land use measures that minimize the public's exposure to excessive noise and safety hazards within areas around public airports to the extent that these areas are not already devoted to incompatible uses.¹

The mechanism chosen to address this sensitive dichotomy was to create local agencies entitled Airport Land Use Commissions (ALUC's). The law, as reflected in current legislation, requires each county in which there is an airport served by a scheduled airline and, with specified exception, each county with an airport operated for the benefit of the general public, to establish an Airport Land Use Commission.

Among the more significant provisions of existing State legislation is the basic requirement for the Airport Land Use Commissions to prepare and adopt Airport Comprehensive Land Use Plans (ACLUPs). The plans shall provide for the orderly growth of each public airport and the area surrounding the airport within the jurisdiction of the Commission, and will safeguard the general welfare of the inhabitants within the vicinity of the airport and the public in general.

A second significant provision of existing State legislation requires City and County General Plans to be consistent with the airport land use plans developed by ALUCs. This requirement is expected to be satisfied through General Plan amendments and amendments to applicable implementation regulations, such as development codes and building codes, if said plans are determined to be inconsistent.

¹ Public Utilities Code, Chapter 4, Article 3.5, Section 21670.

This Airport Comprehensive Land Use Plan for Barstow-Daggett Airport has been prepared to comply with State planning law and it is the primary land use document for the study area. Its purpose is fourfold:

- To promote the development of compatible land uses in the area influenced by airport operations.
- To safeguard the general welfare of the inhabitants within the vicinity of the airport by minimizing exposure to excessive noise levels.
- To safeguard the general welfare of the inhabitants within the vicinity of the airport by minimizing exposure to crash hazards associated with aircraft operations.
- To safeguard the general welfare of aviation activities within the vicinity of the airport by imposing appropriate height restrictions for the protection of aircraft operations.

Once this ACLUP is adopted by the San Bernardino County Airport Land Use Commission, development proposals within the plan area that are consistent with the plan need not be referred to the ALUC for review. However, projects within the plan area that are not consistent with this plan or proposed amendments to the texts or maps of the San Bernardino County Development Code, General Plan, Official Land Use Plan or any Specific Plan that are within the plan area shall require ALUC review by the reviewing jurisdiction using the procedures, policies and standards in this document.

Any decision of the ALUC may be overruled by the local jurisdiction if all of the following conditions are met:

1. The local governing body overrules the ALUC action or condition by a 2/3 vote and
2. The governing body makes the following findings:
 - a. The proposed use promotes the public interest to provide for the orderly development of the public-use airport and the area around the airport in such a manner to promote the overall goals and objectives of the California airport noise standards.

- b. The proposed use enhances the protection of the public health, safety, and welfare by ensuring the orderly expansion of the airport and the adoption of land use measures that minimize the public's exposure to excessive noise and safety hazards within the areas around the airport to the extent that such areas are not already devoted to incompatible uses.

In Section II, the plan provides a description of the airport facilities, existing and future, unique features, special capabilities or limitations, and a discussion of air operations. Noise and safety hazards (height and impact) and their general effect on airports and airport environs are described in Sections III and IV. Discussion of the planning area and the relationship of safety review areas, Part 77 horizontal surfaces and object free areas are described in Section V. Section VI offers a discussion of land use compatibility within the safety review areas, Part 77 imaginary surfaces and object free areas and provides the land use compatibility matrix for the Barstow-Daggett ACLUP. A discussion of existing land use districts, uses and compatibility of each within the airport safety review areas is found in Section VII. The plan concludes with the presentation of land use review criteria and development standards for the plan area.

AIRPORT FACILITIES AND OPERATIONS

- II. Barstow-Daggett Airport is a publicly owned, public use airport that is classified in the National Plan of Integrated Airport Systems as a general aviation, general utility facility that accommodates virtually all general aviation aircraft with maximum gross takeoff weights of 12,500 pounds or less. The airport is situated on 1,087 acres in an unincorporated area of San Bernardino County fifteen miles east of the city of Barstow. The airport and the surrounding area are flat. There are no topographical restrictions to expansion possibilities. However, airport growth to the south is restricted by the Atchinson-Topeka and Santa Fe Railroad and U.S. Route 66.

The airport is bounded on all sides by vacant private land. The Atchinson-Topeka and Santa Fe Railroad and U.S. Route 66, oriented east-west, run near parallel to runway 8/26 at a distance of 800 and 1300 feet respectively. Interstate 40, also oriented east-west, is located approximately one-half mile south of U.S. Route 66 and thus, about three-quarters of a mile from runway 8/26. Airport access is from either Interstate 40 or U.S. Route 66 at Hidden Springs Road. The airport is entirely fenced except at the entrances. This enclosure significantly limits airport access and reduces unwanted trespass.

Existing airport development consists of two lighted hard surface runways, various hangars, an airport office, the fixed base operator office (Daggett Aviation), a California Highway Patrol facility, a weather service facility and a large aircraft apron. The U.S. Army presently leases 3 large conventional hangars and adjacent ramp area. These facilities are used to modify and retrofit army helicopters. In the same area are 3 long nosedock hangars used to shelter aircraft. Other facilities include a group of public rental houses, airport maintenance and storage facilities, several water wells, a sewage treatment plant and a rail spur from the Santa Fe Railroad tracks. The current airport layout is shown in Figure 1.

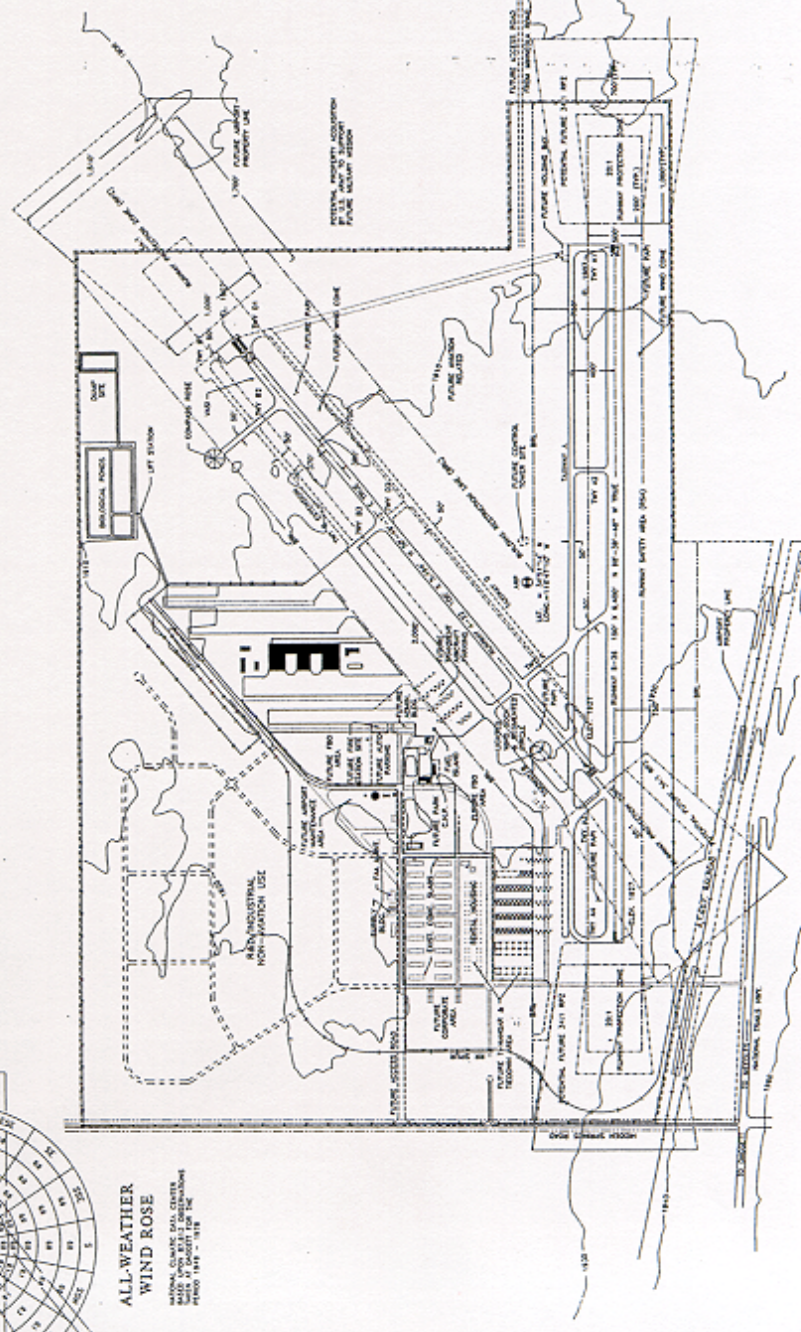
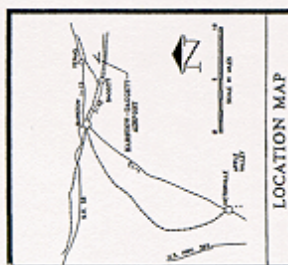
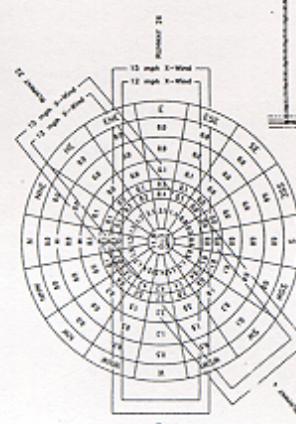
An airport master plan and environmental assessment is being prepared in an effort to plan for future development of the airport. The proposed 20 year major capital improvements program includes the demolition of the weather station, administration building, FAA maintenance building, county office, rental housing and the nosedock hangars. Improvements include the reconstruction, repair and strengthening of runway, taxiway and apron sections, extension of the parallel taxiway serving runway 4/22 to the runway 22 end, construction of a new parallel taxiway on the south side of runway 4/22, construction of a new access road and other airport circulation roads, construction of tie-down aprons and hangars for based aircraft and the construction of improved security fencing. The current airport reference code is C-II (serving aircraft with approach speeds of 121 to 140 knots and wingspans of 49 to 78 feet). The present runway lengths are adequate to accommodate the largest general aviation aircraft the airport is expected to serve over the next twenty years.

Currently there are 45 fixed wing aircraft and 25 military and CHP helicopters based at this airport. The most recent master record estimates that for the twelve months ending in early June, 1991, the airport supported 35,000 operations. California aviation system plan forecasts reflect only 29,000 operations in 1990 and 35,000 in 2005. The master plan has made an annual operations forecast of 48,500 in 2010. Regardless of which projection is used, additional airfield capacity will not be needed as current annual operations capacity is 273,000.

Barstow-Daggett Airport Layout

RUNWAY END COORDINATES

| END | EASTING | NORTHING | SECTION | STATUS |
|-----|-----------|-----------|---------|--------|
| 8 | 384300.00 | 118143.86 | 26 | ACTIVE |
| 9 | 384300.00 | 118143.86 | 26 | ACTIVE |
| 10 | 384300.00 | 118143.86 | 26 | ACTIVE |
| 11 | 384300.00 | 118143.86 | 26 | ACTIVE |
| 12 | 384300.00 | 118143.86 | 26 | ACTIVE |
| 13 | 384300.00 | 118143.86 | 26 | ACTIVE |
| 14 | 384300.00 | 118143.86 | 26 | ACTIVE |
| 15 | 384300.00 | 118143.86 | 26 | ACTIVE |
| 16 | 384300.00 | 118143.86 | 26 | ACTIVE |
| 17 | 384300.00 | 118143.86 | 26 | ACTIVE |
| 18 | 384300.00 | 118143.86 | 26 | ACTIVE |



LEGEND

| SYMBOL | DESCRIPTION |
|----------|---------------|
| (Symbol) | Runway |
| (Symbol) | Taxiway |
| (Symbol) | Grass |
| (Symbol) | Water |
| (Symbol) | Building |
| (Symbol) | Boundary Line |

AIRPORT DATA

| PROPERTY | VALUE |
|-------------------|---------------------|
| APPROX. LOCATION | Barstow, California |
| APPROX. ELEVATION | 1180 feet |
| APPROX. LENGTH | 3000 feet |
| APPROX. WIDTH | 100 feet |
| APPROX. SURFACE | Asphalt |
| APPROX. GRADE | Level |
| APPROX. AREA | 300,000 sq. ft. |
| APPROX. PERMITS | Active |
| APPROX. STATUS | Operational |

RUNWAY DATA

| PROPERTY | VALUE |
|----------------|-----------------|
| OFFICIAL GRADE | 1180 feet |
| PERMITS | Active |
| SURFACE | Asphalt |
| WIDTH | 100 feet |
| LENGTH | 3000 feet |
| AREA | 300,000 sq. ft. |

AIRPORT LAYOUT PLAN

BARSTOW-DAGGETT AIRPORT
BARSTOW, CALIFORNIA

COUNTY OF SAN BERNARDINO
DEPARTMENT OF AIRPORTS

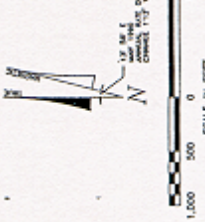
NO. DATE REVISION BY

APPROVED BY THE COUNTY OF SAN BERNARDINO

DATE

FIGURE 1

any new construction or improvement on the part of the United States is prohibited unless the same is first approved by the FAA. It is the policy of the FAA to require that any new construction or improvement on the part of the United States be in accordance with applicable public laws.



NOISE

- III. Noise is unwanted sound. Physical health, psychological stability, social cohesion, property values and economic productivity are affected by excessive amounts of noise.²

It is recognized that a given level of noise may be more or less tolerable depending on the duration of exposure and the time of day during which the noise is experienced. Many communities are affected to some degree by noise from airport operations. At lower levels, aircraft noise can interfere with sleep, conversation or relaxation. It may also disrupt school and work activities. At higher levels, airport noise may make outdoor activities impossible and may begin to raise health problems. Today's noise issues can be attributed in part to the rapid growth in aviation activity, poor land use planning and increased efforts in many communities to protect and enhance their community environment.

There are several methods available to measure noise. The California Department of Aeronautics has adopted the Community Noise Equivalent Level (CNEL). This measure weights the average noise level for the evening hours (7-10 p.m.) by 5 dB, and the late evening and early morning hours (10 p.m. to 7 a.m.) by 10 dB. The unweighted daytime noise levels are combined with these weighted levels and averaged to obtain a CNEL value.³

Airport noise levels and impact boundaries are commonly determined by one of two ways. The first method is to establish CNEL through sound monitoring and recording equipment located at strategic points within the airport environs. The accumulated data can then be converted to contours that reflect the limits of a particular noise level. The second method is to estimate CNEL contours by reference to noise studies completed by sound monitoring methodology. The following factors are included in the analysis leading to the estimation of CNEL contours.

- Airport (runway) configuration, including local terrain.
- Airport/aircraft operations, including such factors as runway utilization; frequency of aircraft operations by type aircraft; day-evening-night activity levels; and traffic patterns including approach and departure procedures.

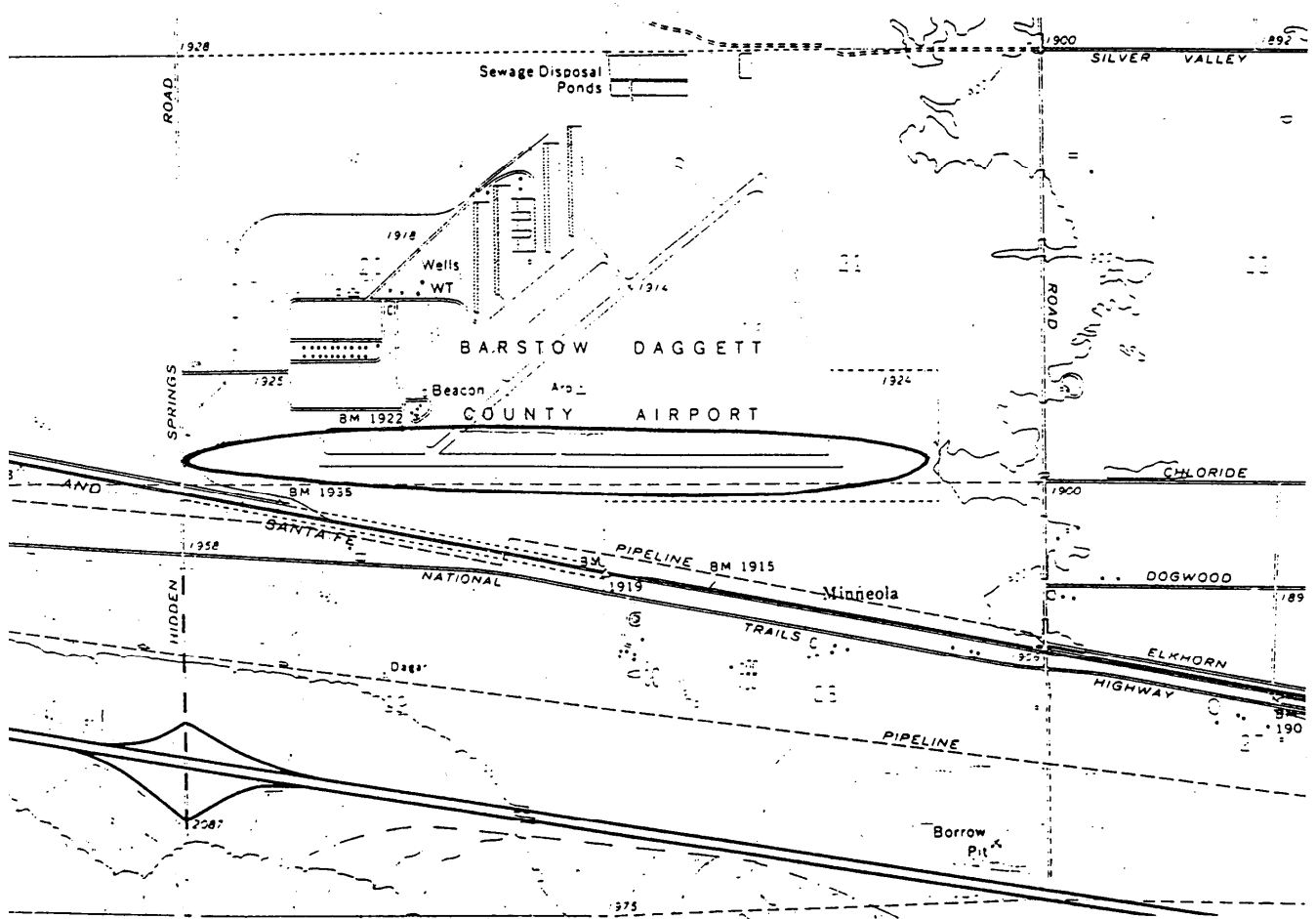
² S.B.C. General Plan, Noise Element, July 1989

³ Airport Noise Contour Evaluation for the San Bernardino County General Plan Noise Element, September 1987.

— Single event noise exposure level for specified aircraft type classifications.

A 65 CNEL contour (solid oblong line) for Barstow-Daggett Airport (Fig. 2) was estimated by examination of the noise impact studies which were prepared for Chino, Ontario International, Rialto Municipal and Cable airports and the Air Installation Compatible Use Zone studies for George and Norton AFBs. This 60 CNEL contour was adopted by the County of San Bernardino in the July, 1989 General Plan update.

FIGURE 2



The standard for an acceptable level of aircraft noise for persons living in the vicinity of airports is established to be a Community Noise Equivalent Level of 65 decibels.⁴ This noise exposure level has been determined to be reasonable for persons residing in urban residential areas where homes are of typical California construction and may have windows partially open. Illustratively, 65 dB is representative of a typical conversation (normal speech) at 3 feet.

Choosing the 65 CNEL as the maximum exterior noise exposure level for residential land uses implicitly creates a standard from which other land use activity can be judged for noise compatibility. As can be seen from the following two illustrations, the 65 CNEL figures prominently in identifying land uses that are inherently subject to noise interference and those which are not.

FIGURE 3

INTERIOR/EXTERIOR NOISE LEVEL STANDARDS - MOBILE NOISE SOURCES

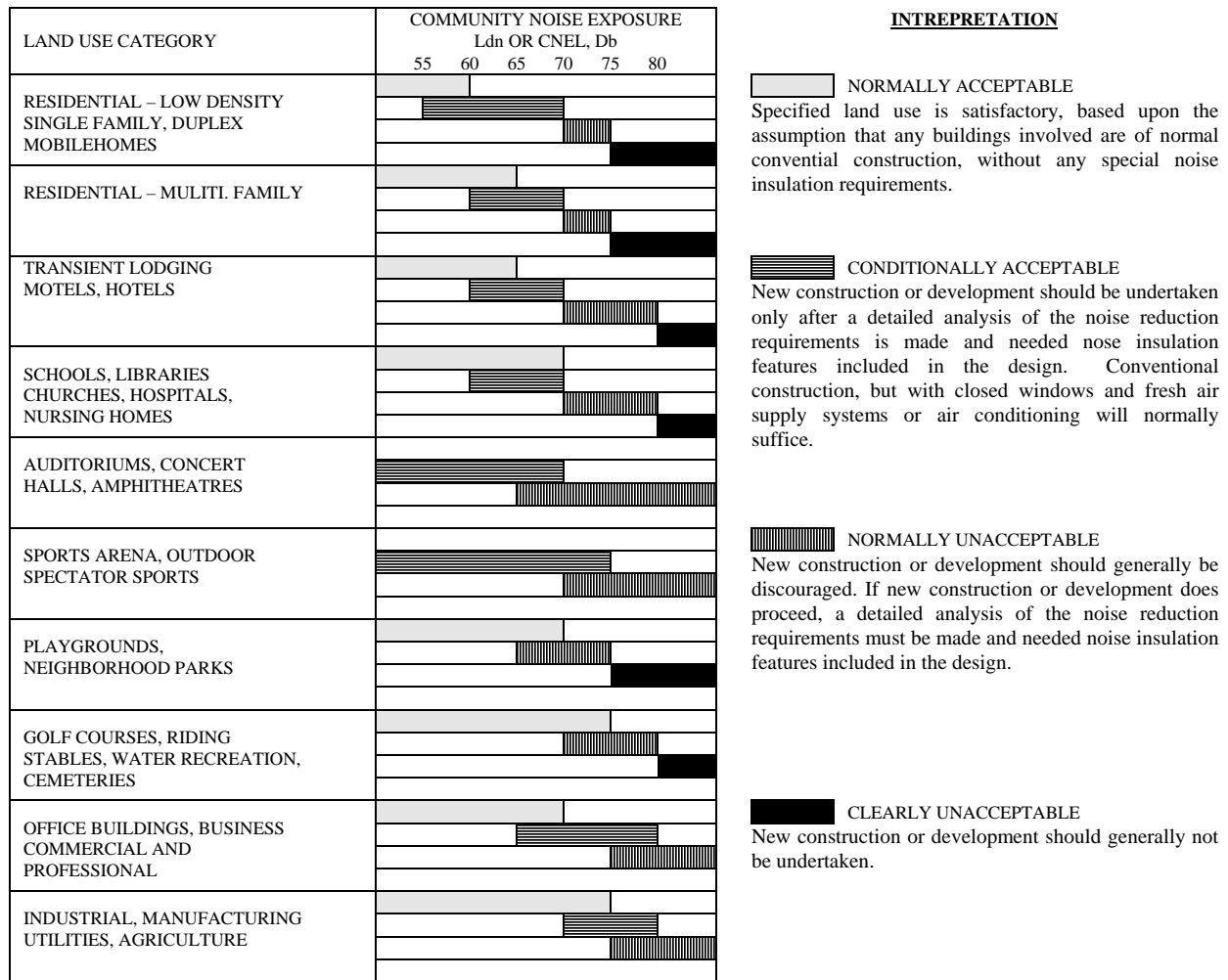
| Land Use | | Ldn (or CNEL) dB(A) | |
|--|---|----------------------------------|------------|
| Categories | Uses | Interior* | Exterior** |
| Residential | Single and multi-family, duplex, mobile homes | 45 | 60*** |
| Commercial | Hotel, motel, transient housing | 45 | 60*** |
| | Commercial retail, bank, restaurant | 50 | N/A |
| | Office building, research and development, professional offices | 45 | 65 |
| | Amphitheater, concert hall, auditorium, movie theater | 45 | N/A |
| Institutional/Public | Hospital, nursing home, school classroom, church, library | 45 | 65 |
| Open Space | Park | N/A | 65 |
| * Indoor environment excluding: bathrooms, kitchens, toilets, closets and corridors. | | | |
| ** Outdoor environment limited to: | | | |
| Private yard of single-family dwellings | | Park picnic areas | |
| Multi-family private patios or balconies | | School playgrounds | |
| Mobile home parks | | Hotel and motel recreation areas | |
| Hospital/office building patios | | | |
| *** An exterior noise level of up to 65 dB (or CNEL) will be allowed provided exterior noise levels have been substantially mitigated through a reasonable application of the best available noise reduction technology, and interior noise exposure does not exceed 45 dB Ldn (or CNEL) with windows and doors closed. Requiring that windows and doors remain closed to achieve an acceptable interior noise level will necessitate the use of air conditioning or mechanical ventilation. | | | |

⁴ California Administrative Code, Title 21, Section 5012.

Figure 3 presents San Bernardino County Interior/Exterior Noise Level Standards -Mobile Noise Sources, as adopted in the July, 1989 General Plan. The standards reflect the maximum permitted interior and exterior noise levels for specific land use categories. As shown, 65 dB is the maximum CNEL for all land use categories, except industrial/manufacturing activities, who by omission, have higher noise level thresholds.

Figure 4 presents land use compatibility standards for community noise environments.⁵ A review of the information shows that the 65 CNEL figures prominently in the determination of a land use's acceptability at a given noise level.

FIGURE 4
LAND USE COMPATIBILITY FOR COMMUNITY NOISE ENVIRONMENTS



⁵ Guidelines for the preparation and content of the Noise Element of the General Plan, Governor's Office of Planning and Research.

This ACLUP has combined the data from both the Interior/Exterior Noise Level Standards - Mobile Noise Sources chart and the Land Use Compatibility for Community Noise Environments chart to produce the Land Use Compatibility Noise Environments - Barstow-Daggett Airport chart. This noise compatibility chart was designed to illuminate the 65 CNEL as the primary reference level for land use compatibility. Modifications to the various compatibility ranges were made to achieve this goal. Generally, the “normally acceptable” and “conditionally acceptable” ranges were reduced and the “normally unacceptable” range was expanded for residential/institutional type uses. The “clearly unacceptable” range remained essentially unchanged. This noise hazard compatibility information is illustrated in Figure 5.

FIGURE 5

| LAND USE COMPATIBILITY FOR COMMUNITY NOISE ENVIRONMENTS BARSTOW-DAGGETT AIRPORT | |
|--|----------------------------------|
| LAND USE CATEGORY | COMMUNITY NOISE EXPOSURE |
| | Ldn OR CNEL, dB |
| | 55 60 65 70 75 80 |
| RESIDENTIAL – LOW DENSITY SINGLE FAMILY, DUPLEX MOBILEHOMES | |
| | |
| RESIDENTIAL – MULTI. FAMILY | |
| | |
| TRANSIENT LODGING MOTELS, HOTELS | |
| | |
| SCHOOLS, LIBRARIES CHURCHES, HOSPITALS, NURSING HOMES | |
| | |
| AUDITORIUMS, CONCERT HALLS, AMPHITHEATRES | |
| | |
| SPORTS ARENA, OUTDOOR SPECTATOR SPORTS | |
| | |
| PLAYGROUNDS, NEIGHBORHOOD PARKS | |
| | |
| GOLF COURSES, RIDING STABLES, WATER RECREATION, CEMETERIES | |
| | |
| OFFICE BUILDINGS, BUSINESS COMMERCIAL AND PROFESSIONAL | |
| | |
| INDUSTRIAL, MANUFACTURING UTILITIES, AGRICULTURE | |
| | |

INTERPRETATION

NORMALLY ACCEPTABLE

Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements.

CONDITIONALLY ACCEPTABLE

New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning will normally suffice.

NORMALLY UNACCEPTABLE

New construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design.

CLEARLY UNACCEPTABLE

New construction or development should generally not be undertaken.

AIRPORT/AIRCRAFT SAFETY

- IV. There are two basic components of airport safety - the safety of those in the aircraft and the safety of those on the ground. The first involves protection of airspace required for safe aircraft operations. The second deals with compatibility of surrounding land uses in terms of exposing people and property on the ground to crash hazards associated with aircraft operations.

SAFETY IN THE AIR

Protection of airspace is most commonly accomplished through restrictions on structure height. Under Federal Aviation Regulation (FAR) Part 77, height restrictions for development within airport approach and departure patterns were established to allow aircraft maneuvering room and to ensure that neither the operating capability of the airport nor the usable runway is adversely affected by obstructions in the surrounding airspace.⁶

Figure 6 provides an isometric view of FAR Part 77 Civil Airport Imaginary Surfaces. Dimensions of the approach, horizontal, and transitional imaginary surfaces are determined by the length of the airport runways, airport elevations, and the most precise approach - existing or planned - for each runway end. Table 1 summarizes the dimensions and slopes for each of these surfaces.

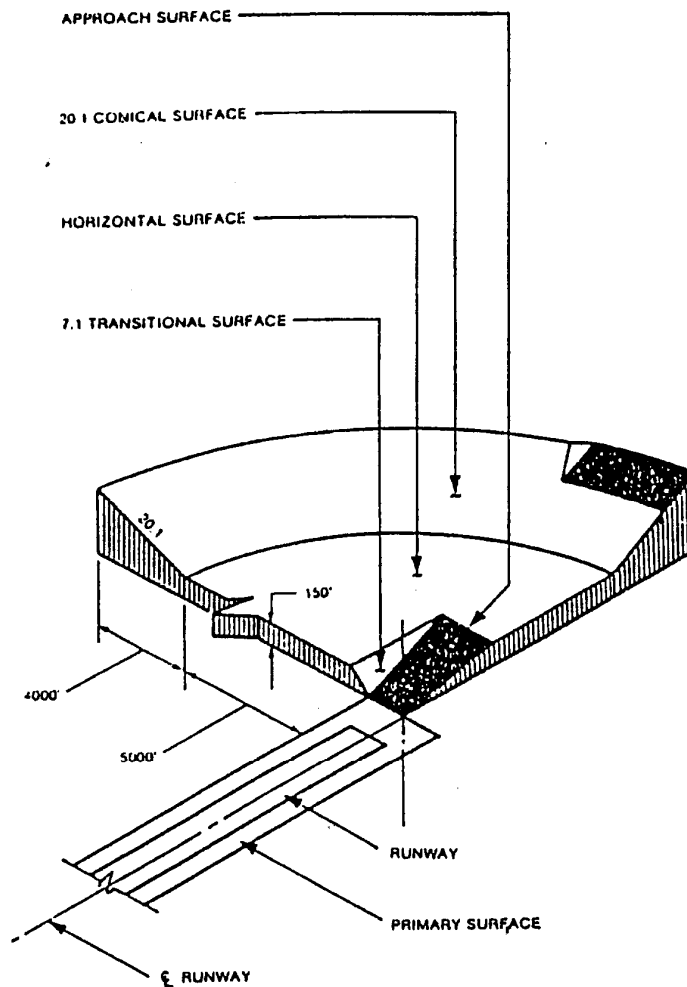
The imaginary surfaces for civil airports are described below.

- A. **Primary Surface.** A surface longitudinally centered on a runway is called a “primary surface.” When the runway is paved the primary surface extends 200 feet beyond each end of the runway. The width of the primary surface varies between 250 feet and 1,000 feet depending on the type of approach.
- B. **Horizontal Surface.** A “horizontal surface” is a horizontal plane 150 feet above the established airport elevation, the perimeter of which is constructed by swinging arcs of specified radii from the center of each end of the primary surface of each runway and connecting the adjacent arcs of lines tangent to those arcs.
- C. **Conical Surface.** A surface extending outward and upward from the periphery of the horizontal surface at a slope of 20 to 1 for a horizontal distance of 4,000 feet is known as a “conical surface.”

⁶ San Bernardino County General Plan Update, Background Report, Man-made Hazards, Airport Safety Issue.

- D. Approach Surface. A surface longitudinally centered on the extended runway centerline and extending outward and upward from each end of the primary surface is called an "approach surface." It is applied to each end of a runway based on the type of available or planned approach.
- E. Transitional Surfaces. These surfaces extend outward and upward at right angles to the runway centerline plus runway centerline extended at a slope of 7 to 1 from the sides of the primary surface and from the sides of the approach surfaces.

FIGURE 6



Representations of these imaginary surfaces show the permissible height of objects and structures at different locations within the surfaces. Figure 7 shows these surfaces for Barstow-Daggett Airport, the dimensions of which, are based on a FAR Part 77 Runway Classification of "Visual-A/Visual-NP and Visual-B."⁷

⁷ Barstow-Daggett Airport Master Record, November 10, 1986.

Table 1

Dimensions of Civil Airport Imaginary Surfaces
(Feet)

| | | PART 77 APPROACH SURFACE | | | | |
|-------------------|------------------------------|--------------------------|-------------|-------------|---|--|
| TYPE OF RUNWAY | RADIUS OF HORIZONTAL SURFACE | SLOPE | INNER WIDTH | OUTER WIDTH | LENGTH | SLOPE OF TRANSITIONAL/ CONICAL SURFACE |
| VISUAL – A | 5,000 | 20:1 | 250 | 1,250 | 5,000 | 7:1/20:1 |
| VISUAL – B | 5,000 | 20:1 | 500 | 1,500 | 5,000 | 7:1/20:1 |
| NONPRECISION –A | 5,000 | 20:1 | 500 | 2,000 | 5,000 | 7:1/20:1 |
| NONPRECISION –B1 | 10,000 | 34:1 | 500 | 3,500 | 10,000 | 7:1/20:1 |
| NONPRECISION – B2 | 10,000 | 34:1 | 1,000 | 4,000 | 10,000 | 7:1/20:1 |
| PRECISION | 10,000 | 50:1/ 40:1 | 1,000 | 16,000 | 10,000 @ 50:1 then 40,000 @ 40:1 | 7:1/20:1 |

- Legend:
- A - Utility runways
 - B - Larger than utility
 - 1 - Visibility minimum greater than 3/4 mile
 - 2 - Visibility minimum less than 3/4 mile

Definitions

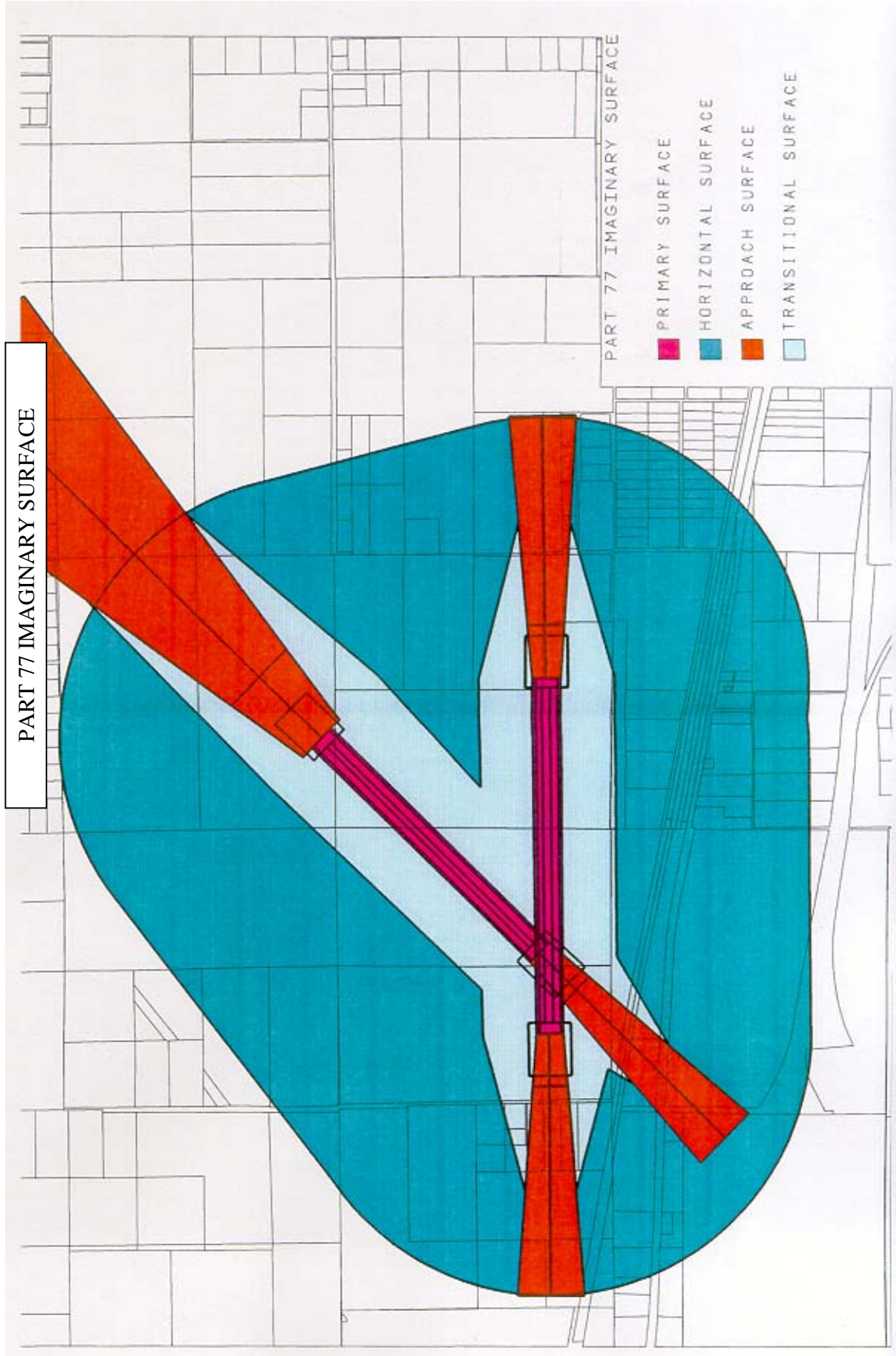
Visual Runway - A runway intended solely for operation of aircraft using visual approach procedures.

Utility Runway - A runway constructed for and intended to be used by propeller-driven aircraft weighing 12,500 lbs. or less.

Nonprecision Instrument Runway –
A runway having instrument approach equipment that provides horizontal course guidance or area type navigation to touchdown or a plan on file with FAA for such installation.

Precision Instrument Runway –
A runway having an existing approach procedure utilizing an Instrument Landing System (ILS) that provides horizontal and vertical course guidance to touchdown or a plan on file with the FAA for such an installation.

PART 77 IMAGINARY SURFACE



PART 77 IMAGINARY SURFACE

- PRIMARY SURFACE
- HORIZONTAL SURFACE
- APPROACH SURFACE
- TRANSITIONAL SURFACE

Figure 7

SAFETY ON THE GROUND

A major concern for airport land use plans is the potential for an aircraft accident at any given location within the plan area. No effort to apply aircraft accident probability formulas is included in this plan because abundant and reliable national historical data identifies some areas within the plan boundaries as more prone to aircraft accidents than other areas. For the years 1974-1979, which is an accurate representation of any recent review period, of all recorded general aviation accidents, 45% occurred on the airport property and 15% occurred in the traffic pattern or within one mile of the airport boundary.⁸

Protection of people and property outside the airport boundaries is most commonly accomplished by restricting density population and land uses involving critical substances or facilities under heavily used flight paths leading to and from the airport. It is assumed that the degree of hazard associated with different land uses is related to the intensity of human occupancy, and possibly with the inherent volatility associated with some uses. Consideration must be given to the potential for property damage, as well as risk caused by obstacles which might interfere with emergency landings.⁹ The area outside the airport that has the highest exposure to aircraft operations is immediately off the approach/departure end of each runway. It is here that a significant number of aircraft accidents have occurred because the segment of a flight immediately after takeoff or immediately preceding landing is generally the most critical phase of flight. Special land use consideration is normally given to this area.

Protection of people and property on the airport is achieved indirectly through the application of object clearing criteria. Safe and efficient operations at an airport require that certain areas on and near the airport be clear of objects or restricted to objects with a certain function, composition, and/or height. These restrictions are intended to protect both airborne and ground activities and therefore are commonly located adjacent to or superimposed over taxiways, runways and thresholds. Object clearing criteria, in effect, results in open space in areas where accident potential is highest. Within these areas there is little opportunity for people and structures to be impacted by an aviation accident.

⁸ NTSB "Annual Review of Aircraft Accident Data - U.S. General Aviation," annual reports from 1974-1979.

⁹ San Bernardino County General Plan Update, Background Report, Man-made Hazards, Airport Safety Issue.

The titles and brief descriptions of the object free areas are presented below:

- **Runway Protection Zone (RPZ)** - Trapezoidal in shape and centered about the extended runway centerline. The RPZ dimensions are functions of the design aircraft, type of operations and visibility minimums. Land uses should be prohibited which might create glare and misleading lights or lead to the construction of residences, fuel handling and storage facilities, smoke generating activities and places of public assembly. (Previously referred to as the Clear Zone)
- **Runway Object Free Area (OFA)** - Two dimensional ground area located within the RPZ. The runway OFA clearing standard precludes parked airplanes and objects, except objects whose location is fixed by function, such as wind socks, lighting and NAVAIDS.
- **Obstacle Free Zone (OFZ)** - Three dimensional volume of airspace centered above the runway which supports the transition of ground to airborne aircraft operations and vice versa. The OFZ clearing standard precludes taxiing and parked airplanes and object penetrations, except for frangible NAVAIDS whose location is fixed by function.

The size of these object free locations is determined by Airplane Design Group, type of operation and visibility minimums. Airplane Design Group is a grouping of airplanes based on wingspan. For example, Group I is aircraft with wingspans up to but not including 49 feet; Group II is from 49 feet up to but not including 79 feet; etc. Barstow-Daggett Airport is classified as a utility airport, serving predominantly Groups I and II type aircraft. Dimensions of the three object free areas at Barstow-Daggett Airport are illustrated in Figure 8 and detailed below:

- **Runway Protection Zone** - Barstow-Daggett Airport is provided instrument capability from an off-site VOR. Current and future instrument procedures permit a straight-in nonprecision approach to runway 4/22. Not instrument capability is provided to runway 8/26. The airport visibility minimums are nonprecision – B1 to runway 4/22 and visual to runway 8/26. The resulting RPZ dimensions are a 1,000 foot length (1700 feet for runway 22), a 500 foot inner width and a 700 foot outer width (1000 and 1510 feet respectively for runway 22).¹⁰
- **Runway Object Free Area** - Barstow-Daggett Airport serves Aircraft Approach Category C and Airplane Design Group I and II type aircraft. OFA dimensional standards for facilities that serve these category airplanes are an 800-foot and a 1000-foot length.¹¹

¹⁰ FAA Advisory Circular 150/5300-13, Table 2-5, September 29, 1989.

¹¹ FAA Advisory Circular 150/5300-13, Table 3-1, September 29, 1989.

- **Obstacle Free Zone** - The dimension standards are a function of aircraft size and approach speeds. For airports serving large and small airplanes the runway OFZ extends 200 feet beyond each end of the runway and its width is 400 feet.¹²

¹² FAA Advisory Circular 150/5300-13, Chapter 3, Paragraph 306, September 29, 1989.

OBJECT FREE AREAS

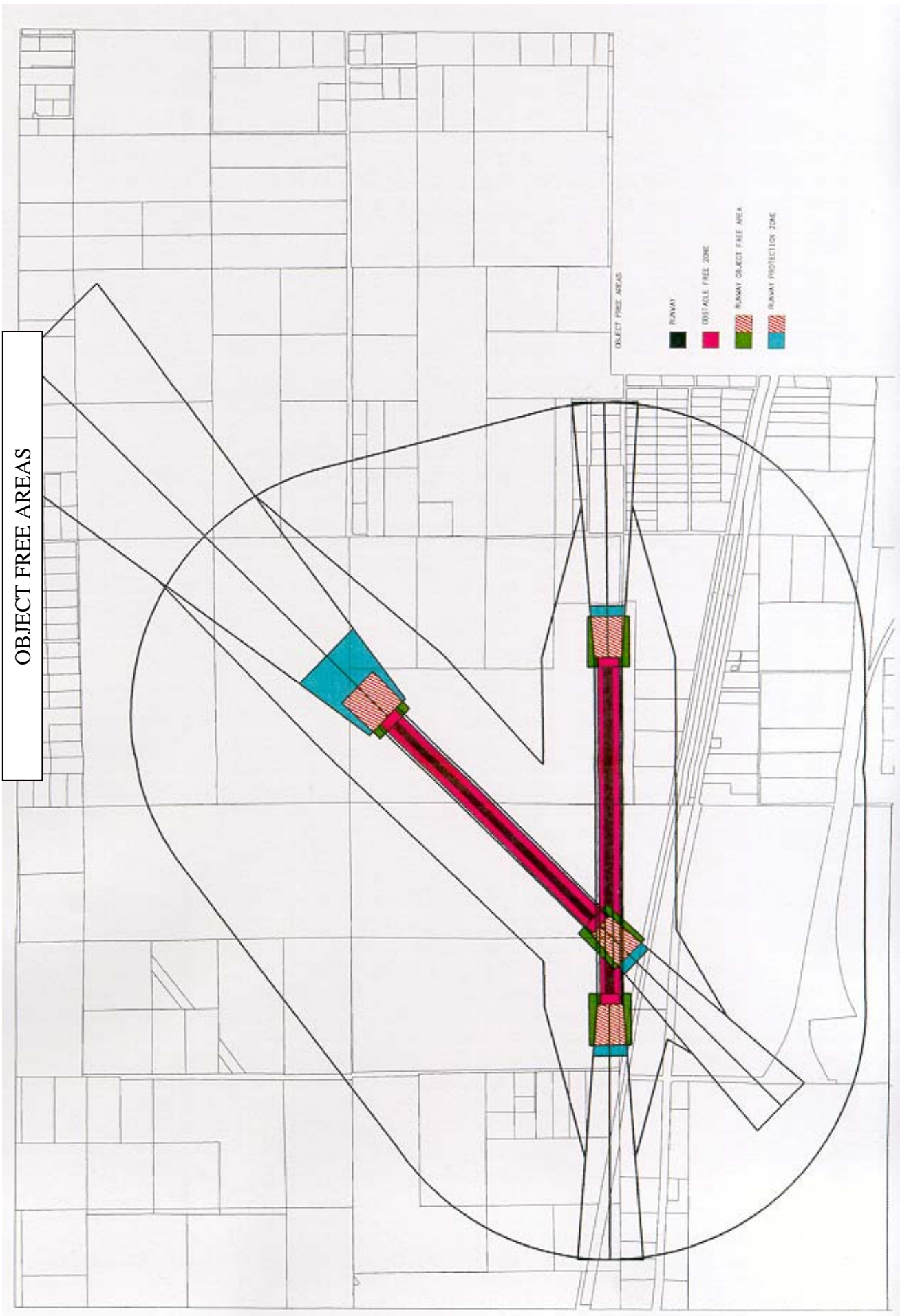


Figure 8

COMPATIBILITY

The imaginary surfaces and object free areas are but half the airport aviation safety equation. Equally significant is the type of land use permitted below these surfaces and within these areas. Population densities and development activities must be such that they are not exposed to an unacceptable aviation related risk, have no potential to compromise protected airspace and do not violate object clearing criteria. The following charts reflect the suitability of a specific land use type below each imaginary surface and within each object free area. The appropriateness of each land use was determined after comparing the development/density opportunities for the land use with the risk and/or effect aircraft operations have on the land use activity.

Table 2 illustrates land use compatibility beneath the airport imaginary surfaces.

Table 3 illustrates land use compatibility within the object free areas.

TABLE 2

LAND USE COMPATIBILITY – IMAGINARY SURFACES

| LAND USE CATEGORY | APPROACH | TRANSITIONAL | HORIZONTAL |
|---|------------------------------------|--------------------------|----------------------------------|
| RESIDENTIAL – SINGLE FAMILY, DUPLEX, MOBILEHOME | NORMALLY UNACCEPTABLE | CONDITIONALLY ACCEPTABLE | NORMALLY ¹ ACCEPTABLE |
| RESIDENTIAL – MULTIFAMILY | NORMALLY UNACCEPTABLE | CONDITIONALLY ACCEPTABLE | NORMALLY ¹ ACCEPTABLE |
| TRANSIENT LODGING – MOTELS, HOTELS | NORMALLY UNACCEPTABLE | CONDITIONALLY ACCEPTABLE | NORMALLY ACCEPTABLE |
| SCHOOLS, LIBRARIES, CHURCHES, HOSPITALS, NURSING HOMES | NORMALLY UNACCEPTABLE | NORMALLY UNACCEPTABLE | NORMALLY ACCEPTABLE |
| AUDITORIUMS, CONCERTN HALLS, AMPHITHEATERS | NORMALLY UNACCEPTABLE | CONDITIONALLY ACCEPTABLE | NORMALLY ACCEPTABLE |
| SPORTS AREANS, OUTDOOR SPECTATOR SPORTS | NORMALLY UNACCEPTABLE | CONDITIONALLY ACCEPTABLE | NORMALLY ACCEPTABLE |
| PLAYGROUNDS, NEIGHBORHOOD PARKS | NORMALLY UNACCEPTABLE | CONDITIONALLY ACCEPTABLE | NORMALLY ACCEPTABLE |
| GOLF COURSES, RIDING STABLES, WATER RECREATION, CEMETERY | NORMALLY ACCEPTABLE | NORMALLY ACCEPTABLE | CLEARLY ACCEPTABLE |
| OFFICE BUILDINGS, BUSINESS COMMERCIAL, PROFESSIONAL | NORMALLY UNACCEPTABLE | CONDITIONALLY ACCEPTABLE | NORMALLY ACCEPTABLE |
| MANUFACTURING, TRANSPORTATION SERVICES, CONTRACT CONSTRUCTION | NORMALLY ² UNACCEPTABLE | CONDITIONALLY ACCEPTABLE | NORMALLY ACCEPTABLE |
| WHOLESALE/WAREHOUSE SALVAGE OPERATIONS | NORMALLY ² UNACCEPTABLE | CONDITIONALLY ACCEPTABLE | NORMALLY ACCEPTABLE |
| UTILITIES | NORMALLY ² UNACCEPTABLE | CONDITIONALLY ACCEPTABLE | NORMALLY ACCEPTABLE |
| AGRICULTURE | NORMALLY ACCEPTABLE | NORMALLY ACCEPTABLE | CLEARLY ACCEPTABLE |
| LIVESTOCK, ANIMAL BREEDING | NORMALLY ACCEPTABLE | NORMALLY ACCEPTABLE | NORMALLY ACCEPTABLE |
| RETAIL TRADE/COMMERCIAL SERVICES | NORMALLY UNACCEPTABLE | CONDITIONALLY ACCEPTABLE | NORMALLY ACCEPTABLE |

DENSITY CRITERIA

| | | | |
|-----------------------|-------------|-------------|----------|
| MAXIMUM GROSS DENSITY | 10 PPA | 10 PPA | NO LIMIT |
| MAXIMUM ASSEMBLY | 100 PERSONS | 100 PERSONS | NO LIMIT |

LAND USE COMPATIBILITY CHART
FOR IMAGINARY SURFACES

(continued)

- | | |
|---------------------------|--|
| CLEARLY UNACCEPTABLE: | New construction/development should not occur. Existing uses should be relocated. |
| NORMALLY UNACCEPTABLE: | New construction/development should not occur. |
| CONDITIONALLY ACCEPTABLE: | New construction/development may be permitted. Community character and/or unique development patterns may justify approval. Uses require ALUC review and are subject to restrictions and mitigation for purposes of public safety. |
| NORMALLY ACCEPTABLE: | New construction/development permitted. Uses subject to restrictions and mitigation for purposes of public safety. |
| CLEARLY ACCEPTABLE: | New construction/development permitted. No public safety restrictions envisioned. |
-
1. Residential development underneath airport VFR traffic patterns shall be discouraged. If development occurs, maximum density shall be limited to 1 dwelling unit per acre.
 2. Land uses satisfying density criteria may be acceptable.

**TABLE 3
LAND USE COMPATIBILITY – OBJECT FREE AREAS**

| LAND USE CATEGORY | RUNWAY PRTECTION ZONE | RUNWAY OBJECT FREE AREA | OBSTACLE FREE ZONE |
|---|--------------------------------------|--|-------------------------------|
| RESIDENTIAL – SINGLE FAMILY, DUPLEX, MOBILEHOME | CLEARLY UNACCEPTABLE | CLEARLY UNACCEPTABLE | CLEARLY UNACCEPTABLE |
| RESIDENTIAL – MULTIFAMILY | CLEARLY UNACCEPTABLE | CLEARLY UNACCEPTABLE | CLEARLY UNACCEPTABLE |
| TRANSIENT LODGING – MOTELS, HOTELS | CLEARLY UNACCEPTABLE | CLEARLY UNACCEPTABLE | CLEARLY UNACCEPTABLE |
| SCHOOLS, LIBRARIES, CHURCHES, HOSPITALS, NURSING HOMES | CLEARLY UNACCEPTABLE | CLEARLY UNACCEPTABLE | CLEARLY UNACCEPTABLE |
| AUDITORIUMS, CONCERTN HALLS, AMPHITHEATERS | CLEARLY UNACCEPTABLE | CLEARLY UNACCEPTABLE | CLEARLY UNACCEPTABLE |
| SPORTS AREANS, OUTDOOR SPECTATOR SPORTS | CLEARLY UNACCEPTABLE | CLEARLY UNACCEPTABLE | CLEARLY UNACCEPTABLE |
| PLAYGROUNDS, NEIGHBORHOOD PARKS | CLEARLY UNACCEPTABLE | CLEARLY UNACCEPTABLE | CLEARLY UNACCEPTABLE |
| GOLF COURSES, RIDING STABLES, WATER RECREATION, CEMETERY | CLEARLY UNACCEPTABLE | CLEARLY UNACCEPTABLE | CLEARLY UNACCEPTABLE |
| OFFICE BUILDINGS, BUSINESS COMMERCIAL, PROFESSIONAL | CLEARLY UNACCEPTABLE | CLEARLY UNACCEPTABLE | CLEARLY UNACCEPTABLE |
| MANUFACTURING, TRANSPORTATION SERVICES, CONTRACT CONSTRUCTION | CLEARLY UNACCEPTABLE | CLEARLY UNACCEPTABLE | CLEARLY UNACCEPTABLE |
| WHOLESALE/WAREHOUSE SALVAGE OPERATIONS | CLEARLY UNACCEPTABLE | CLEARLY UNACCEPTABLE | CLEARLY UNACCEPTABLE |
| UTILITIES | CLEARLY UNACCEPTABLE | CLEARLY UNACCEPTABLE | CLEARLY UNACCEPTABLE |
| AGRICULTURE | NORMALLY ¹ ACCEPTABLE | NORMALLY UNACCEPTABLE | CLEARLY UNACCEPTABLE |
| LIVESTOCK, ANIMAL BREEDING | CLEARLY UNACCEPTABLE | NORMALLY UNACCEPTABLE | CLEARLY UNACCEPTABLE |
| RETAIL TRADE/COMMERCIAL SERVICES | CLEARLY UNACCEPTABLE | CLEARLY UNACCEPTABLE | CLEARLY UNACCEPTABLE |

DENSITY CRITERIA

| | | | |
|-----------------------|--------|---|--------|
| MAXIMUM GROSS DENSITY | .5 PPA | 0 | 10 PPA |
| MAXIMUM ASSEMBLY | 10 | 0 | 25 |

LAND USE COMPATIBILITY CHART
FOR OBJECT FREE AREAS

(continued)

CLEARLY UNACCEPTABLE: New construction/development should not occur.
Existing uses should be relocated.

NORMALLY UNACCEPTABLE: New construction/development should not occur.

NORMALLY ACCEPTABLE: New construction/development permitted. Uses
subject to restrictions and mitigation for purposes of
public safety.

CLEARLY ACCEPTABLE: New construction/development permitted. No
public safety restrictions envisioned.

1. Agricultural land uses are considered acceptable provided no structures are proposed/
developed.

PLAN BOUNDARY AND SAFETY REVIEW AREAS

V. A major consideration in developing an airport comprehensive land use plan is determining the size and limits of the area that is to be reviewed. A variety of methods have been used to define planning boundaries, the most common of which are:

- Major transportation facilities and geographic features that include, as a minimum, the noise and safety impact areas.
- Existing or projected noise contours.
- FAR Part 77 horizontal and conical surfaces.
- Separate maps showing noise, safety and height restriction zones.

The planning boundary for this ACLUP is the airport's horizontal surface, as defined in the FAR Part 77 (Figure 7). The horizontal surface was selected because it provided an adequate review area, provided finite horizontal and vertical limits, and simplified review areas within the planning area boundaries.

Within this planning area there are three San Bernardino County ALUC developed Safety Review Areas. They are defined as follows:

- Safety Review Area 1 - those areas at either end of a runway that correspond with the FAA designated runway protection zones.
- Safety Review Area 2 - those areas within the 65 CNEL (community noise equivalency level) noise contours.
- Safety Review Area 3 - the area within the boundaries of the horizontal surface, excepting Safety Review Areas 1 and 2.

Each safety review area reflects a particular level and type of aviation related hazard or risk within its defined borders. Figure 9 shows the alignment of these safety review areas and illustrates their relationship to the study area.

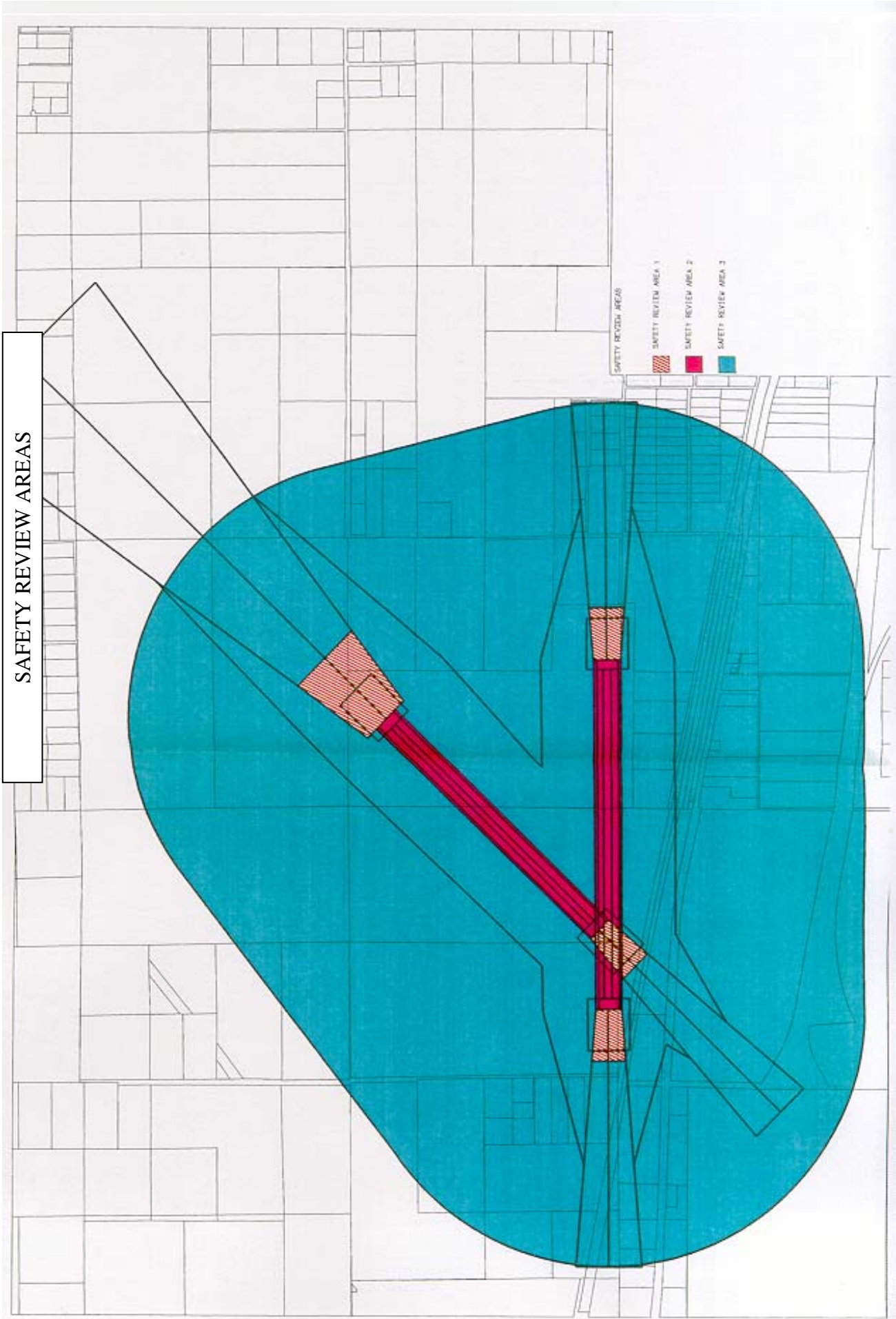


Figure 9

Safety Review Area 1 is designed to provide protection to people and property on the ground and to provide protection to airborne aircraft. The area is centered about the extended runway centerline, beginning at the primary surface and extending outward horizontally 1000 feet (1700 feet for runway 22). Its width expands from 500 feet at the primary surface boundary to 700 feet (1000 to 1510 feet for runway 22) at the outer limit. Within the area are two object free areas and a section of one FAR Part 77 imaginary surface layered one upon the other. The two object free areas are the runway object free area (OFA) and the runway protection zone (RPZ) and the imaginary surface is the approach surface.

The purpose of the runway object free area is to identify and preserve areas on or near airports that for reasons of ground or flight safety are required to be clear of objects or restricted to objects with a certain function, composition, and/or height, such as wind socks, lighting and NAVAIDS. The runway OFA is rectangular in shape, beginning at the end of the runway and extends along an extension of the runway to 1000 feet. The width is a constant 800 feet.

The intention of the runway protection zone is to identify and preserve an area off each runway end that has significant potential for aircraft crashes during takeoffs and landings. The RPZ is trapezoidal in shape, beginning at 200 feet beyond the end of the area usable for takeoff or landing and extends along an extension of the runway to 1000 feet. The width varies from 500 feet at the inner limit to 700 feet (1000 to 1510 feet for runway 22) at the outer limit.

The approach surface provides protection to aircraft operations by establishing standards for determining obstructions in the navigable airspace. This surface is an imaginary surface longitudinally centered on the extended runway centerline and extends outward and upward from each end of the primary surface. The dimensions are a 5,000 foot length (10,000 feet for runway 22), a 500 foot inner width, and a 1,250 foot outer width (3500 feet for runway 22). That section of the approach surface that overlays Safety Review Area 1 begins at the end of the primary surface and extends to 1000 feet (1700 feet for runway 22). The width varies from 500 feet at the inner limit to 700 feet at the outer limit (1000 to 1510 feet for runway 22).

Safety Review Area 2 also furnishes protection to both people on the ground and to aircraft operations. The area is centered over the runway, extending outward to the 65 CNEL noise contour. Figure 2 shows the 65 CNEL contour and illustrates its relationship with runway 8/26 and the airport property boundaries. No noise contour has been developed for runway 4/22. It is reasonable to assume, however, that noise contours for this runway resemble those of runway 8/26 since runway 4/22 accommodates similar aircraft types. From this figure and from the assumption that the runway 4/22 contour is similar to that of runway 8/26, the plan concludes the 65 CNEL contour is very closely aligned with the primary surfaces. Consequently, this plan assumes that they are coterminous and thus defines Safety Review Area 2 as that area within the primary surfaces.

In addition to the 65 CNEL noise contour, a single object free area, the Runway Obstacle Free Zone (OFZ), lies mostly within the safety review area. The OFZ is a three dimensional volume of airspace centered above the runway, extending 200 feet beyond each end. It is 400 feet wide.

The intention of the 65 CNEL contour is to identify areas within the airport environment that are exposed to noise levels that are considered annoying, disruptive and potentially physiologically harmful to people.

The purpose of the OFZ is to support the transition of ground to airborne and airborne to ground aircraft operations by establishing a clearing standard for object penetrations, except for frangible NAVAIDS whose location is fixed by function.

Safety Review Area 3, coterminous with the horizontal surface, provides protection to people, property and aircraft. The area is centered over the airport, extending outward in all directions from the primary surfaces. The perimeter is established by swinging a 5000 foot arc from the center of each end of the primary surfaces of each runway and connecting the adjacent arcs of lines tangent to those arcs. Within this safety review area are three airport imaginary surfaces - the transitional surfaces, the horizontal surface, and the approach surfaces.

The purpose of the transitional surfaces is to provide graduated obstruction clearance criteria from the primary surface to the base of the horizontal surface, thus providing aircraft with sterile maneuvering airspace within the immediate vicinity of the runway. This surface extends outward and upward at right angles to the runway centerline plus runway centerline extended at a slope of 7 to 1 from the sides of the primary surface and from the sides of the approach surfaces.

The purpose of the horizontal surface is to extend obstruction clearance criteria outward from the approach and transitional surfaces to the base of the conical surface. The perimeter is established exactly the same as that for the safety review area and therefore the two perimeters are coterminous. A plane, 150 feet above the established airport elevation, imposes vertical restrictions on land uses below this imaginary surface.

The purpose of the approach surfaces is to extend obstruction clearance criteria outward from the primary surfaces to the base of the horizontal surface. These surfaces extend outward and upward from the ends of the primary surfaces at a slope of 20:1 (34:1 for runway 22).

AIRPORT LAND USE COMPATIBILITY METHODOLOGY

- VI. The Barstow-Daggett Airport Comprehensive Land Use Plan establishes land uses for the plan area. As previously defined, the plan area (FAR Part 77 Horizontal Surface) has been divided into three safety review areas, each of which reflects a particular level and type of hazard or risk within its borders. Safety Review Area 2 has the highest exposure to aircraft operations and therefore, the highest potential to be impacted by aviation related hazards. Conversely, Safety Review Area 3 has the lowest exposure to aircraft operations and consequently, the lowest potential to be impacted by aviation related hazards.

The principal land use planning goals for an airport comprehensive land use plan are to minimize potential harm to people and property, to protect aircraft operations, and to provide for the viability of the airport. These objectives are generally accomplished by limiting land use densities and restricting land use activity in the areas with the highest potential to be affected by aircraft operations or aircraft accidents.

As a method of identifying support for the goals of the plan, land uses within the plan area are categorized as compatible or non-compatible. Compatible uses are those which have little or no consequence on aircraft operations, those which have densities or uses such that the risk of an aircraft accident is proportional to the effect an aircraft accident will have on people or property, and those which are not adversely affected by aviation produced noise. Non-compatible uses are those not qualifying as a compatible use and can be considered a potential threat to the airport, its aircraft or to itself. Non-compatible uses in Safety Review Areas 1 and 2 may result in serious compromises to safety.

The land use compatibility chart for the safety review areas is derived from the data reflected in the Object Free Area Compatibility chart (Table 3), the Airport Imaginary Surfaces Compatibility chart (Table 2) and the Land Use Compatibility for Community Noise Environments - Barstow-Daggett Airport chart (Fig. 5). Compatibility was determined through a repetitive, discretionary process of selecting a land use category, locating the selected land use on the Object Free Area, Imaginary Surface and/or Community Noise Compatibility charts, noting the acceptability of the use in each area and/or surface, and determining the suitability in the respective safety review area. As an example, the following process was used to determine the compatibility of riding stables in Safety Review Area 1. First, the selected land use (riding stables) was located on the Object Free Area Compatibility chart. Second, the review proceeded horizontally to the Runway Protection Zone and Runway Object Free Area columns (both areas are within this safety review area). Each object free area reflected that this land use is clearly unacceptable. Third, the selected land use was located on the Imaginary Surfaces Compatibility chart. The review proceeded horizontally to the Approach Surface column

(the inner 1000 feet of this imaginary surface is layered over the Runway Object Free Area and the Runway Protection Zone). The imaginary surface chart reflected that this land use is normally acceptable. No reference to the noise compatibility chart was made because Safety Review Area 1 does not include the noise hazard area. Since these object free areas and the imaginary surface are layered over the same area, the conclusion was that the more restrictive compatibility should prevail and therefore, this land use was determined to be clearly unacceptable.

Table 4 illustrates land use compatibility in the airport safety review areas.

LAND USE COMPATIBILITY - AIRPORT SAFETY REVIEW AREAS

TABLE 4

| LAND USE CATEGORY | SAFETY REVIEW AREA 1 | SAFETY REVIEW AREA 2 | SAFETY REVIEW AREA 3 |
|---|----------------------------------|-----------------------------|------------------------------------|
| RESIDENTIAL – SINGLE FAMILY, DUPLEX, MOBILEHOME | CLEARLY UNACCEPTABLE | CLEARLY UNACCEPTABLE | NORMALLY ^{1,2} ACCEPTABLE |
| RESIDENTIAL – MULTIFAMILY | CLEARLY UNACCEPTABLE | CLEARLY UNACCEPTABLE | NORMALLY ^{1,2} ACCEPTABLE |
| TRANSIENT LODGING – MOTELS, HOTELS | CLEARLY UNACCEPTABLE | CLEARLY UNACCEPTABLE | NORMALLY ² ACCEPTABLE |
| SCHOOLS, LIBRARIES, CHURCHES, HOSPITALS, NURSING HOMES | CLEARLY UNACCEPTABLE | CLEARLY UNACCEPTABLE | NORMALLY ² ACCEPTABLE |
| AUDITORIUMS, CONCERTN HALLS, AMPHITHEATERS | CLEARLY UNACCEPTABLE | CLEARLY UNACCEPTABLE | NORMALLY ² ACCEPTABLE |
| SPORTS AREANS, OUTDOOR SPECTATOR SPORTS | CLEARLY UNACCEPTABLE | CLEARLY UNACCEPTABLE | NORMALLY ² ACCEPTABLE |
| PLAYGROUNDS, NEIGHBORHOOD PARKS | CLEARLY UNACCEPTABLE | CLEARLY UNACCEPTABLE | NORMALLY ² ACCEPTABLE |
| GOLF COURSES, RIDING STABLES, WATER RECREATION, CEMETERY | NORMALLY UNACCEPTABLE | CLEARLY UNACCEPTABLE | CLEARLY ACCEPTABLE |
| OFFICE BUILDINGS, BUSINESS COMMERCIAL, PROFESSIONAL | CLEARLY UNACCEPTABLE | CLEARLY UNACCEPTABLE | NORMALLY ² ACCEPTABLE |
| MANUFACTURING, TRANSPORTATION SERVICES, CONTRACT CONSTRUCTION | CLEARLY UNACCEPTABLE | CLEARLY UNACCEPTABLE | NORMALLY ² ACCEPTABLE |
| WHOLESALE/WAREHOUSE SALVAGE OPERATIONS | CLEARLY UNACCEPTABLE | CLEARLY UNACCEPTABLE | NORMALLY ² ACCEPTABLE |
| UTILITIES | CLEARLY UNACCEPTABLE | CLEARLY UNACCEPTABLE | NORMALLY ² ACCEPTABLE |
| AGRICULTURE | NORMALLY ³ ACCEPTABLE | NORMALLY UNACCEPTABLE | NORMALLY ACCEPTABLE |
| LIVESTOCK, ANIMAL BREEDING | NORMALLY UNACCEPTABLE | NORMALLY UNACCEPTABLE | NORMALLY ACCEPTABLE |
| RETAIL TRADE/COMMERCIAL SERVICES | CLEARLY UNACCEPTABLE | CLEARLY UNACCEPTABLE | NORMALLY ² ACCEPTABLE |

DENSITY CRITERIA

| | | | |
|-----------------------|--------|---|----------|
| MAXIMUM GROSS DENSITY | .5 PPA | 0 | NO LIMIT |
| MAXIMUM ASSEMBLY | 10 | 0 | NO LIMIT |

LAND USE COMPATIBILITY
IN AIRPORT SAFETY
REVIEW AREAS
(continued)

CLEARLY UNACCEPTABLE: New construction/development should not occur.
Existing uses should be relocated.

NORMALLY UNACCEPTABLE: New construction/development should not occur.

CONDITIONALLY ACCEPTABLE: New construction/development may be permitted.
Community character and/or unique development
patterns may justify approval. Uses require ALUC
review and are subject to restrictions and mitigation
for purposes of public safety.

NORMALLY ACCEPTABLE: New construction/development permitted. Uses
subject to restrictions and mitigation for purposes of
public safety.

CLEARLY ACCEPTABLE: New construction/development permitted. No
public safety restrictions envisioned.

1. Residential development underneath airport VFR traffic patterns shall be discouraged. If development occurs, maximum density shall be 1 dwelling unit per acre.
2. Development of this land use category below the approach surfaces is normally unacceptable and below the transitional surfaces is conditionally acceptable. The development of schools, libraries, churches, hospitals and nursing homes below the transitional surfaces is normally unacceptable.
3. Agricultural land uses are considered acceptable provided no structures are proposed/developed.

BARSTOW-DAGGETT AIRPORT LAND USE COMPATIBILITY

- VII. San Bernardino County General Plan Official Land Use Districts surrounding Barstow-Daggett Airport are low density single family residential and agriculture. Low density residential is the principle land use district within the plan area.

As previously noted, general aviation aircraft accidents occur most often on airport property. The accident rate in the traffic pattern or within a mile of the airport also accounts for a substantial portion of total incidents. This data suggests people and property on the airport and within its environs are exposed to hazards associated with the aviation industry. The degree of risk or level of exposure is reflected in the sectioning of the airport comprehensive land use plan into three safety review areas (Fig. 9). Safety Review Area 2 is most vulnerable and Safety Review Area 3 is least vulnerable. The risk and/or exposure in Safety Review Area 1 lies between that of Safety Review Areas 2 and 3, but is judged to be only slightly less hazardous than Safety Review Area 2. Figure 10 reflects the land use districts beneath each safety review area.

LAND USE DISTRICTS

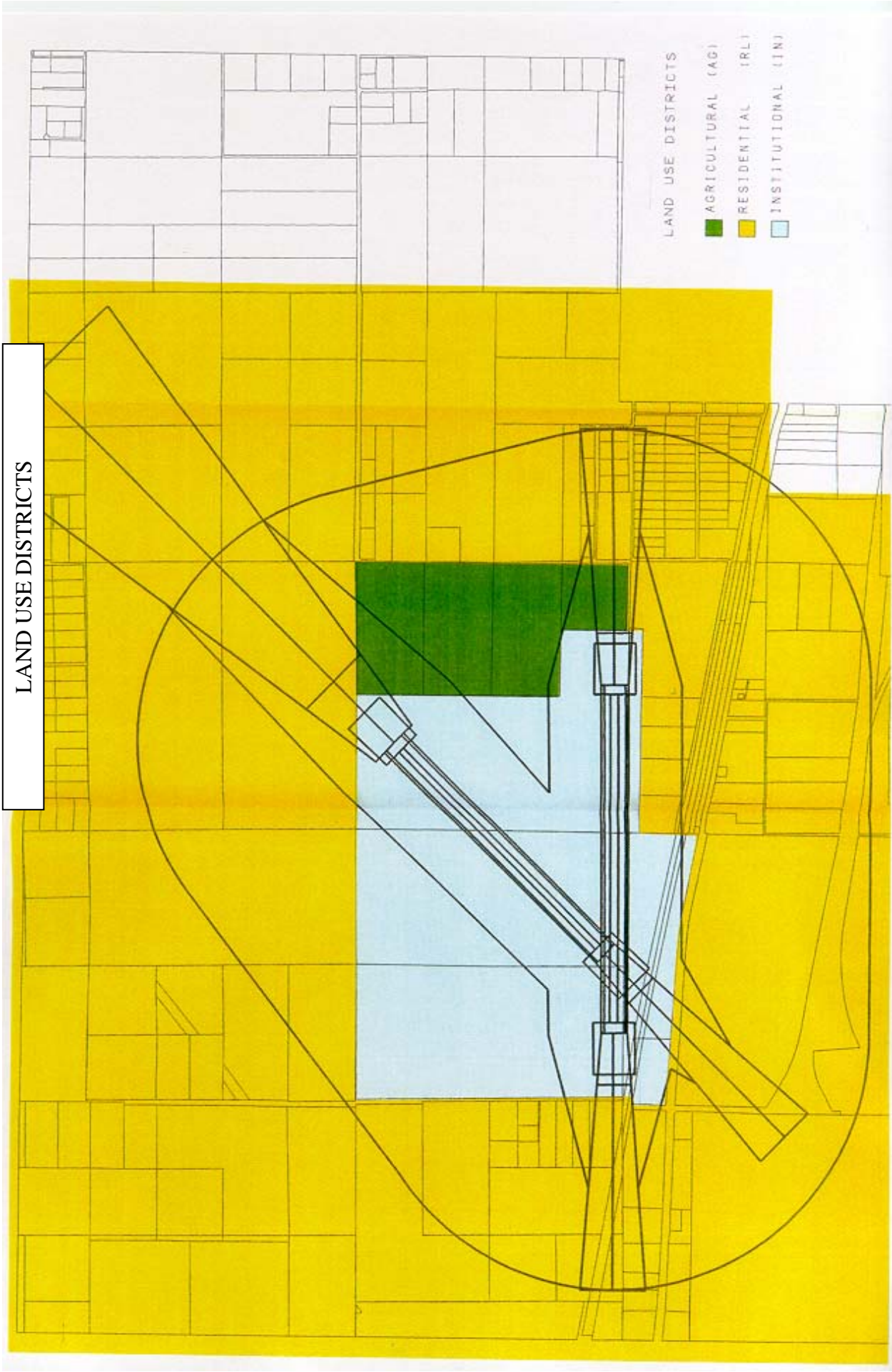


Figure 10

Safety Review Area 2 consists of a single land use district – Institutional. The purpose of the institutional land use district is to identify existing lands and structures committed to public facilities and to public needs. Recalling that this plan concluded that Safety Review Area 2 and the primary surfaces are coterminous, the existing land district is compatible with the aviation activity of the airport.

Safety Review Area 1 overlays an institutional land use district at the approach end of runways 4, 8 and 26 (within airport boundary) and overlays an institutional district and residential district at the approach end of runway 22 (partially within airport boundary). While it is desirable to clear all objects from Safety Review Area 1, uses such as agricultural operations, provided they do not propose structures or attract birds, and golf courses are normally acceptable outside the object free area. Land uses that prohibit occupancy or the encroachment of any structure are clearly acceptable in Safety Review Area 1. Consequently, the institutional districts are compatible in that they are uniquely airport property and development would not be expected. The residential land use district is not considered appropriate.

Safety Review Area 3 reflects reduced exposure to aircraft operations and aviation hazards. The land use districts within this area are low density single family residential and agriculture. Two areas within this safety review area that require special consideration are beneath the extension of the approach surface (outer 4000 feet) and beneath the transitional surfaces. Land use districts below the approach surfaces to runways 4, 8, 22 are institutional and low density single family residential. Land use districts below the approach surface to runway 26 is low density single family residential, institutional and agriculture. Land use districts under the transitional surfaces are low density single family residential, institutional, and agriculture.

The compatibility of these land uses depends upon their location within the safety review area. All the land use districts within Safety Review Area 3, excluding those beneath the outer segment of the approach surface and those beneath the transitional surfaces, are compatible with the airport's activities. The residential land use district is not considered an appropriate use below the outer segments of the approach surfaces. The agricultural district is compatible within this sector of the plan. The residential land use district below the transitional surfaces are considered to be conditionally compatible with airport operations. For the purpose of this plan, conditionally compatible means certain uses may be permitted because community character and/or unique development patterns may justify approval of future projects. The institutional land use district is considered compatible because any development would be aviation related and support airport operations and the agricultural district is considered compatible if land use is limited to agricultural or other open space type activity.

Development within the plan area consists of very sparse residential uses and a single, small scale commercial salvage activity. Some dwelling units are located beneath the outer limits of the approach surface to runway 26 and are not compatible uses. All of the other residences are located such that they are compatible with airport operations. The commercial use is located under the south transition zone for runway 8/26 and is considered conditionally compatible. A nonstructural land use within the plan area is alfalfa farming and it is viewed as a compatible use.

Existing, non-residential incompatible buildings and structures may be continued and maintained, provided there are no structural alterations except as provided for in this ACLUP. Existing non-residential incompatible uses may also be continued, provided that the use shall not be increased, enlarged, extended or altered except as provided for in this ACLUP. Changes or modifications to these non-residential incompatible uses may be approved provided all of the following findings can be satisfied:

- The proposed alteration shall not prolong the normal life of the existing incompatible use.
- The alteration of the existing incompatible use shall not be detrimental to nor prevent the attainment of objectives, policies, general land use and programs specified in the San Bernardino County General Plan and this ACLUP.
- The alteration to the incompatible use shall not be substantially detrimental to the public health, safety or welfare, or harmful to the property or improvements in the vicinity and district in which the use is located.
- The alteration shall not change the primary use of the land nor increase the intensity of that use.
- The existing incompatible use shall comply with all existing San Bernardino County regulations, including, but not limited to, those applicable to and enforced by the County Department of Environmental Health Services, Office of Building and Safety, and the County Sheriff's Department.

The provisions of this plan shall not prevent the reconstruction, repairing or rebuilding and continued use of any incompatible building or buildings damaged by any natural or man-made catastrophe subsequent to the adoption date of this plan, wherein the cost of such reconstruction, repairing or rebuilding does not exceed seventy-five percent (75%) of the reasonable value of such building or buildings constituting a single enterprise at the time such damage occurred.

Recognizing that this plan is directed towards the protection of areas around airports to the extent such areas are not already devoted to incompatible uses and recognizing that residential development in areas previously subdivided for such use is ministerial, this ACLUP exempts residential structures, and/or, residentially developed or vacant residential land use districts existing at the time of plan adoption from the provisions of incompatibility. However, this ACLUP prohibits any further subdividing of property within the residential land use districts below either the approach or transitional surfaces.

LAND USE REVIEW CRITERIA AND DEVELOPMENT STANDARDS

VIII. Generally, airports do not own or control all the land necessary to ensure the safety of their operations and/or people and property on the ground. Consequently, airport comprehensive land use plans are prepared to provide for the orderly growth of a public use airport and to provide for the general health, safety and welfare of the public. Land use planning law provides local jurisdictions (city or county) the opportunity to examine projects within airport comprehensive land use plan areas for consistency with said plan, and to apply development standards where necessary to achieve plan objectives. The public hearing ALUC review is initiated by the following criteria:

- All discretionary projects, as defined by CEQA, to include any size expansion or modification of an existing facility or use, in Safety Review Area 3 if the project is not consistent with this ACLUP. (Consistency is determined by compatibility with airport operations and the textual provisions of this plan.)
- All discretionary projects, as defined by CEQA, that are determined to be conditionally acceptable.
- All expansions, revisions or establishment of airport facilities.
- All discretionary projects, as defined by CEQA, to include any size expansion of existing facility or use, requiring a major variance.
- All proposed amendments to the text or maps of the San Bernardino County General Plan, Development Code or any Specific Plan, or changes in the existing permitted land use or building standards in Safety Review Areas 1, 2, or 3.
- All projects, to include any size expansion of existing facility or use, in Safety Review Areas 1 and 2.
- All changes in use or type of occupancy for any existing structure in Safety Review Areas 1 and 2.
- All projects, to include any size expansion of existing facility or use, with a construction foundation elevation of 2043' MSL or greater.
- All projects, to include any size expansion of existing facility or use, that involves a structure or portion thereof that exceeds thirty-five (35) feet in height.

Projects that are determined to be consistent with the ACLUP do not need to be reviewed by the ALUC and are processed according to application type.

Projects that require ALUC review may or may not be appropriate for the safety review area. Each project must be judged on its impact to the airport and aviation activities, compliance with local ordinances and compliance with the development standards of this ACLUP.

All proposed projects within the ACLUP area are subject to the following development standards:

- The proposed structures and the normal mature height of any vegetation shall not exceed the height limitations provided by Federal Aviation Regulations, PART 77, Objects Affecting Navigable Airspace.
- Development of residential or other noise sensitive land uses shall require interior noise exposure levels of 45 CNEL or less with windows and doors closed. Noise sensitive land uses include residential uses, schools, hospitals, nursing homes, churches and libraries. Interior noise exposure levels for retail commercial, banks and restaurants and industrial uses shall be 50 and 55 CNEL respectively.
- The proposed use or structure shall not reflect glare, emit electronic interference or produce smoke that would endanger aircraft operations.
- The proposed use does not involve the storage or dispensing of volatile or otherwise hazardous substances that would endanger aircraft operations.
- The proposed use or structure complies with the San Bernardino County Development Code Standards specified by each official land use district.
- The short or long term concentration of people for a proposed use or structure shall not exceed the maximum gross density or maximum assembly limits specified by the density criteria of the land use compatibility in the airport Safety Review Area chart.
- The proposed use or structure shall not attract large concentrations of birds.

GLOSSARY

AIRPORT COMPREHENSIVE LAND USE PLAN (ACLUP)

A specific plan formulated by the Airport Land Use Commission (ALUC) that provides for the orderly growth of each public use airport and the area surrounding the airport within the jurisdiction of the ALUC.

AIRPORT LAND USE COMMISSION

A state authorized body existing in each county having the responsibility to develop plans for achieving land use compatibility between airports and their environs.

AIRPORT LAYOUT PLAN

A plan depicting existing and proposed airport facilities and land uses, their locations, and the pertinent clearance and dimensional information required to show conformance with the applicable standards.

AIRPORT MASTER PLAN

A plan providing guidelines for future development of an airport which will satisfy aviation demand and be compatible with the environment, community development, other modes of transportation and other airports.

AIRFIELD CAPACITY

The maximum number of aircraft operations that can take place in a given time under specific conditions of airspace, ceiling and visibility, runway layout and use, aircraft mix, and proportion of arrivals and departures.

APPROACH SURFACE

An imaginary surface longitudinally centered on the extended centerline of the runway, beginning at the end of the primary surface and rising outward and upward to a specified height above the established airport elevation.

BASED AIRCRAFT

General aviation, air carrier and other aircraft which use an airport as a "residence" or home base.

BASIC UTILITY AIRPORT, STAGE I

An airport with a runway(s) designed to accommodate aircraft with wingspans of forty-nine (49) feet or less.

BASIC UTILITY AIRPORT, STAGE II

An airport with a runway(s) designed to accommodate the aircraft in the stage I airport, and a broader spectrum of small business and are taxi type twin-engine airplanes.

COMMUNITY NOISE EQUIVALENT LEVEL

An average daily noise level, averaged for each of the 24 hours, and weighted more heavily during evening and nighttime hours to account for the lower tolerance of persons to noise during those hours.

CROSSWIND RUNWAY

A runway additional to the primary runway to provide for wind coverage.

DISPLACED THRESHOLD

A runway threshold that is located at a point other than the designated beginning of the runway.

DIVISION OF AERONAUTICS

A division of the California Department of Transportation with responsibility for the safety and enhancement of all public use airports located within the state.

FEDERAL AVIATION ADMINISTRATION (FAA)

A federal agency charged with regulating air commerce to promote its safety and development, encouraging and developing civil aviation, air traffic control, and air navigation and promoting the development of a national system of airports.

FEDERAL AVIATION REGULATIONS (FAR)

Regulations issued by the FAA to regulate air commerce.

FLIGHT SERVICE STATION (FSS)

FAA facility which provides pilot briefings on weather, airports, altitudes, routes and other flight planning information.

GENERAL AVIATION (GA)

Agricultural, industrial, private business, recreational, air charter, air ambulance service, aerial photography, police patrol, fire control and federal, state and local government aviation.

GENERAL AVIATION AIRPORT

An airport which does not have scheduled service and which only serves general aviation aircraft.

IMAGINARY SURFACES

Surfaces established relative to each runway to provide standards or determining “obstructions” in the navigable airspace.

INSTRUMENT APPROACH

An aircraft approach to an airport solely by reference to instruments.

INSTRUMENT FLIGHT RULES (IFR)

Rules governing the procedures for conducting instrument flight.

INSTRUMENT RUNWAY

A runway specially marked and lighted and served by instruments for landing or takeoff under IFR conditions.

LOCAL OPERATIONS

An operation performed by aircraft that remain in airspace controlled by the air traffic control tower and include aircraft operating in the local traffic patterns and aircraft departing for, or arriving from, local practice areas.

NAVIGATION AID (NAVAID)

Any visual or electronic device (airborne or on the surface) which provides point-to-point guidance information or position data to aircraft in flight. Frangible NAVAIDS are NAVAIDS whose properties allow it to fail structurally at a specified impact load.

NOISE CONTOURS

Lines drawn about a noise source indicating constant energy levels of noise exposure.

NONPRECISION INSTRUMENT APPROACH PROCEDURE

An airport with a published instrument approach procedure, but which does not provide electronic glideslope information.

OBJECT FREE AREA (OFA)

A two dimensional ground area surrounding runways, taxiways and taxilanes which is clear of objects except objects whose location is fixed by function.

OBSTACLE FREE ZONE (OFZ)

A three dimensional volume of airspace centered above the runway which supports the transition of ground to airborne aircraft operations and vice versa.

OBSTRUCTION

Any object of natural growth, terrain or permanent or temporary construction or alteration, including equipment or materials used therein the height of which exceeds the obstruction standards of FAR PART 77, "Objects Affecting Navigable Airspace."

OPERATION

An aircraft takeoff or landing.

PLANNING BOUNDARY

The area designated by the ALUC surrounding each airport in which the ACLUP applies.

PRECISION INSTRUMENT APPROACH PROCEDURE

A runway with a published instrument approach procedure which provides electronic directional and glideslope information.

PUBLIC USE AIRPORT

Publicly or privately owned airport that offers the use of its facilities to the public without prior notice or special invitation or clearance, and that has been issued a California Airport permit by the Division of Aeronautics of the California Department of Transportation.

RUNWAY

A defined area on a land airport, prepared for the landing and takeoff of aircraft.

RUNWAY PROTECTION ZONE (RPZ)

A two-dimensional trapezoidal ground area centered about the extended runway centerline with significantly restricted land uses in order to provide safety to aircraft operations and to people and property on the ground.

STRUCTURE

An object, including a mobile object, constructed or installed by man, including but without limitation, buildings, tower cranes, smokestacks, earth formation, and overhead transmission lines.

TRAFFIC PATTERN

Projection on the ground of the aerial path associated with an aircraft on the crosswind, downwind, base, and final approach legs of the approach/departure process:

- Crosswind Leg. A flight path at right angles to the landing runway off its upwind end.
- Downwind Leg. A flight path parallel to the landing runway in the direction opposite to landing. The downwind leg normally extends between the crosswind leg and the base leg.
- Base Leg. A flight path at right angles to the landing runway off its approach end. The base leg normally extends from the downwind leg to the intersection of the extended runway centerline.
- Final Approach. A flight path in the direction of landing along the extended runway centerline. The final approach normally extends from the base leg to the runway. An aircraft making a straight-in approach VFR is also considered to be on final approach.

VISUAL APPROACH

An approach where an aircraft on a IFR flight plan or operating in VFR conditions under the control of an air traffic control facility and having an air traffic control authorization may proceed to the airport of its destination in VFR conditions.