VENTURA COUNTY AIRPORT AT OXNARD

COMPREHENSIVE LAND USE PLAN
FINAL REPORT

WILSEY & HAM

MAY 1975

THE VENTURA COUNTY AIRPORT AT OXNARD COMPREHENSIVE LAND USE PLAN

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SECTION I

SUMMARY

The following report has been prepared to assist the City of Oxnard in developing an airport land use study of the Ventura County Airport at Oxnard (VCA). Included in this analysis is the examination of alternative roles for the airport, its current and proposed noise and air hazard impact and the development of a methodology to achieve desirable land uses abutting the airport that are consistent with the Land Use Element of the General Plan.

It should be noted that since the study began, the Ventura County Board of Supervisors voted to examine the feasibility of transferring the administration of the VCA to the City of Oxnard. The City has made a preliminary feasibility analysis and has indicated that the transference would be beneficial to the City.

This proposed transference of administration does not change the implementation program and would, in fact, enhance it.

The program for achieving compatibility between the airport and the City of Oxnard consists of the following:

1. The transference of administration of the airport to the City of Oxnard.

    - The City should seriously consider the takeover of the VCA. As the proprietor of the airport, the City would have substantially more leverage over the airport's future. This action will also prevent the possible accommodation of the B-737 or DC-9 jet class. Moreover, State-certificated air carriers, such as the PSA or Air California will be prohibited from operating at VCA if the runway had the wheel loading capacity (strength) and appropriate length.

2. The withdrawal of the Federal Aviation Administration (FAA) certification (identification of a certain standard of safety) from the airport.

    - In the event the City of Oxnard becomes the proprietor of the airport, it has the option of withdrawing its FAA certification. This withdrawal will prohibit Civil Aeronautics Board (CAB) certificated air carriers from operating at VCA under Federal Aviation Regulations (FAR).

3. Operational strategies to reduce the noise impact.

    - Installation of a Visual Approach Slope Indicator (VASI) on runway 25.

- Restriction of touch and go operations on runway 25 left hand pattern.

- Increase departure altitudes on runway 25 from 600 feet to 1,000 feet.

- Increase the pattern altitude from 800 feet to 1,000 feet.

- Enforce the FAA regulations on maximum noise levels for aircraft.

- Maintain current wheel loading capacity.

- Implement noise monitoring of aircraft overflight and runups.

- Enforce FAA regulations on height restrictions in the approach and departure patterns.

4. Land use strategies to assist in compatible development.

   - Review all building permits within the Airport Influence Area with respect to its compatibility and airport dependency.

   - Restrict intensity of land use in the limited air hazard zone.

   - Expand the proposed airport zone to the south of airport terminal.

5. Informational strategies to assist in limiting incompatible development.

   - Disseminate airport compatibility and dependency information to developers.

   - Continue to collect noise complaint data attributable to aircraft operating at VCA.

The assumptions and bases for this study are as follows:

A. Operations Assumptions[1/]

1. Operational Level

VCA experienced an annual operational level of 179,600 for calendar year 1974. Operations for 1990 and 2000 are projected to be 284,000 annually. This 58% increase in operations is attributable to the

1/ The Ventura County Department of Airports and Harbors.

increase in the current based aircraft of 220 to the forecasted 350 in 1990. The 350 based aircraft at VCA were forecasted for the year 2000, but the Board of Supervisors decision to cancel development of the Tierra Rejada Airport required reallocation of aircraft and the resultant acceleration of the forecast for based aircraft at VCA.

2. Aircraft Mix

The current aircraft mix consists of:

85%	single engine aircraft, example - Cessna 150
14%	twin engine aircraft, example - XERO Commander 500
2%	helicopters
100%	

Additionally, there are approximately 8-12 corporate jets and two transient helicopters per month that utilize VCA.

The forecasted aircraft mix for VCA is expected to remain approximately the same.

Currently, commuter traffic is handled by the Dehavilland Twin Otter aircraft. Projected commuter operations will also be conducted by this type of aircraft, but one with a greater seating capacity.

3. Runway Utilization

The majority of the departures will be on runway 25 as will the landings.

The traffic patterns are divided into "touch and gos" and transient (cross country). The "touch and gos" currently make up 47% of the operations with the remaining 53% as transient. As operations increase, "touch and gos" are expected to be severely restricted.

4. Time Mix

Operations currently occur in the following manner:

WEEKDAY		WEEKEND	
0700-1900 -	85.5%	0700-1900 -	88.5%
1900-2200 -	14.5%	1900-2200 -	11.5%
2200-0700 -	--	2200-0700 -	--
	100.0%		100.0%

This time mix is anticipated to remain approximately the same.

B. Noise Description

Operations data were provided by the Ventura County Department of Airports and Harbors for Wilsey & Ham. The data were utilized by Bolt Beranek and Newman Inc., Acoustical Consultants, as the basis for calculations of Community Noise Equivalent Level (CNEL) for current (1975) and 1990-2000 time

frames. These noise zones were developed to reflect the 60 dB and 65 dB contour lines.

C. Air Hazard Description

Development of the air hazard zones at VCA considered and incorporated the following factors:

1. Amount of operations; type of aircraft; and the utilization of runways and flight patterns.

2. Federal Aviation Regulations Part 77 - obstructions to navigable airspace for imaginary surface.

3. Accident history.

D. Technology

Technological advancements were considered, such as retrofitting and quieter engines.

E. Noise Abatement Procedures

Procedures currently in effect include:

1. Aircraft are required to land at a point 1,382 feet west of the end of runway 25 and 756 feet east of runway 7.

2. A diamond VASI (Visual Approach Slope Indicator) on runway 25 to give the pilot a visual glide path on approach. This VASI is a symbol that is painted on the runway and is not a sophisticated piece of navigational equipment.

Procedures that have been planned and are anticipated to be in effect within half a year, include:

1. The installation of a light emitting VASI which is a series of lights in line and parallel to the runway. This system is designed so that the angle may be adjusted as desired by the airport operator. Federal air regulations require that a pilot not fly below the glide path indicated by the VASI.

2. The increase in pattern altitude from 800 feet to 1,000 feet.

Probable noise abatement procedure:[2/]

1. As the operational level approaches the 280,000 mark, touch and gos will be severely restricted.

2. The departure altitude is expected to increase from 600 feet to 1,000 feet prior to turning.

F. Population Pressures

Growth pressures to the south of the airport will continue.

G. Economics - Demand for General Aviation

Demand for general aviation in the Ventura County and specifically at VCA will continue to grow.

2/ Mr. A.M. Grisham, Airport Manager, 2/14/75.

SECTION II

BACKGROUND

A. History of the Ventura County Airport at Oxnard (VCA)

Historically, VCA was commissioned as an airport in 1934. It consisted of a 3,500 foot dirt strip until 1938 when it was paved by the County. Civil operations ceased at the airport in 1941 when all civilian flying was curtailed within 200 miles of the coast because of wartime activities. In 1946 the first scheduled airline - "Southwest" - began service in DC-3s. In 1948 the Federal government rescinded their wartime control of the airport, and the County took over as operator; an airport permit was issued shortly thereafter. In 1960 a control tower was commissioned by FAA. Federal funding allowed the runway to be extended to its present length of 5,947 feet in 1963. In 1968 the first commuter flights were initiated by Cable Airlines (later to become Golden West). In 1971 the new terminal building was dedicated. In 1973 Hughes Air West withdrew service from the airport due to lack of a profitable operation and because of Air West's phasing out of their F-27s in favor of an all-jet fleet of DC-9s (which cannot land at the airport due to weight, noise and length constraints).

B. Physical Setting

VCA lies on relatively flat terrain about 43 feet above sea level. The Ventura County Airport is located between Teal Club Road on the north, Fifth Street to the south, Ventura Road to the east, and West Road to the west, with access from Fifth Street. The site encompasses an area of 205 acres. (Refer to Vicinity Map, Figure 1.)

C. Population

According to the County of Ventura Subregional Transportation Staff and the City of Oxnard Planning Staff, the Oxnard Planning Area may experience a 78% increase in population between 1975 and 2000. Table 1 summarizes the projection for the Oxnard Planning Area.

D. Development Patterns in Surrounding Areas

The Ventura County Airport at Oxnard is situated in an area of potential growth. The undeveloped area to the south of the airport around Wooley Road is experiencing residential development. The areas to the north and east have not experienced comparable development pressures. The general surrounding area will continue to experience residential and commercial growth with the increase in population. This anticipated growth will have a direct effect on the general aviation activity at VCA, since general aviation is essentially generated by the suburban population. General aviation is rising due to the generally increased popularity of general aviation, the higher per capita and household incomes of the population, and increased leisure time and activity.

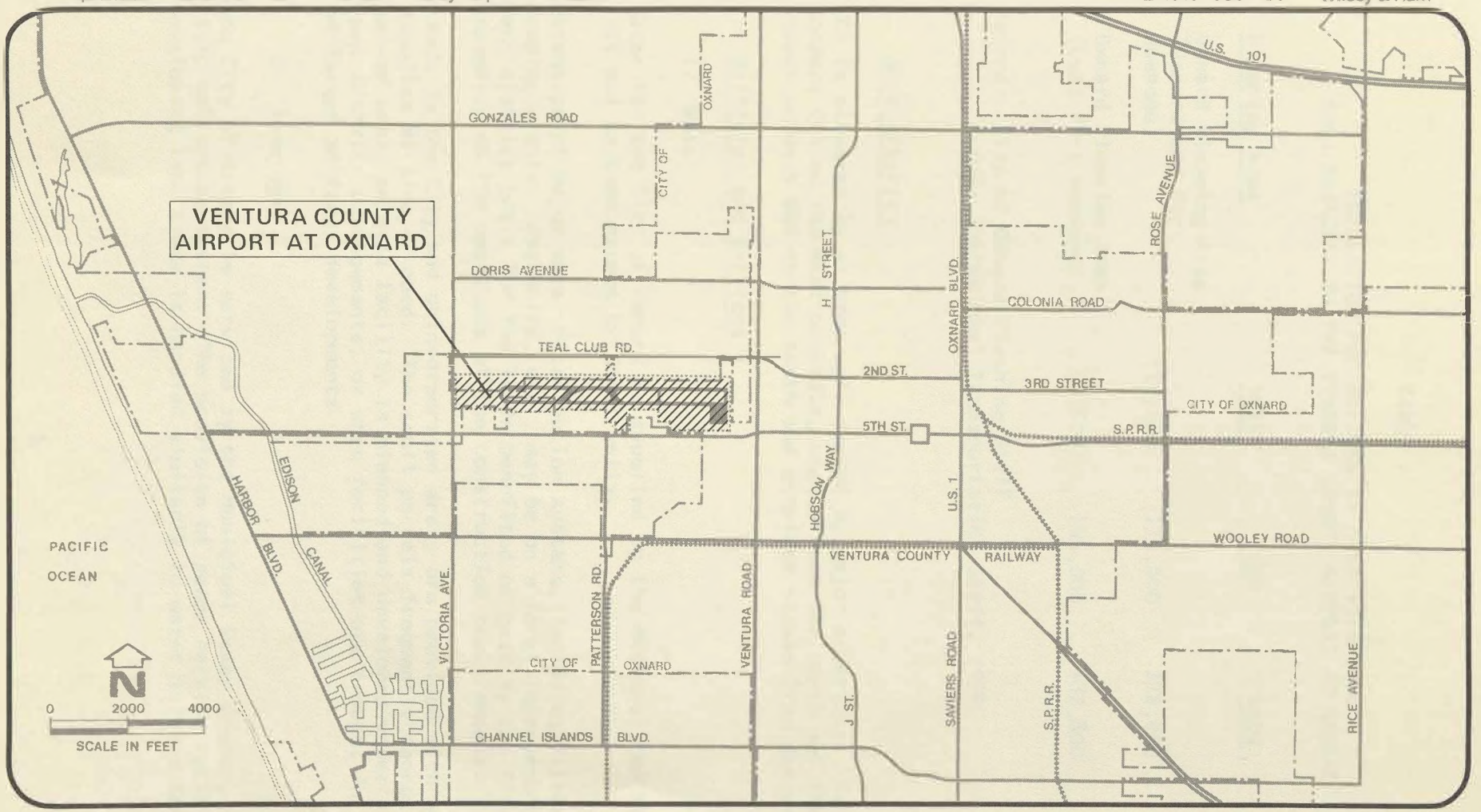


FIGURE 1
VICINITY MAP

TABLE 1

POPULATION PROJECTIONS BY AREA 1975-2000
AREA ADJACENT TO THE VENTURA COUNTY AIRPORT AT OXNARD

Planning Area	1975	1990	2000	% Growth 1975-2000
Oxnard Planning Area (Oxnard and Port Hueneme)	119,100	173,000	212,000	78.0%
Oxnard Planning Area (Less Port Hueneme)	99,600	146,000	182,800	83.5%

Source: City of Oxnard Planning Staff
County Subregional Transportation Staff, 1974

E. Accessibility

VCA is situated in an area well served by major arterials. Ventura Road borders VCA on the east providing access from the north and south. Fifth Street borders VCA on the south and provides access from the east and west.

F. Utilities and Services

1. Water

Water for the City of Oxnard is supplied by the Metropolitan Water District and to some extent by local wells.

Extension of major water distribution systems, including filtering and pumping plants, reservoirs, etc., may be on a local improvement assessment district basis for the lands benefited or paid by the first developer, depending on the magnitude of the construction requirements.

Lands in the City and unincorporated areas are provided with water supplies at time of need. The small parcels frequently cannot be served until an area facility is planned and developed under assessment district arrangements, or when facilities are brought in as part of larger adjacent developments.

2. Sewerage

The City of Oxnard is serviced by the Municipal Sewer Company with the basic collection system. The provision of sewer service facilities to developing land areas is handled similarly to water service facilities.

3. Electricity, Natural Gas and Telephone

Services are available to VCA and to Oxnard and the unincorporated areas. Gas service is provided by the Southern California Gas Co. and electricity is provided by the Southern California Edison Co. Telephone services is provided by the General Telephone Company.

G. Planning Responsibilities and Current Planning Activity

Planning for the study area is conducted by the City of Oxnard, the County of Ventura and the Ventura County Association of Governments, which act as the Airport Land Use Commission.

Noise considerations are currently discussed in several elements of the City of Oxnard's General Plan. In the General Plan, noise contour maps were illustrated for airplane flights from the Oxnard Air Force Base, Ventura County Airport, and the suggested airport location northwest and parallel to the Pt. Mugu Naval Station. The City of Oxnard and the County of Ventura have considered the issue of the VCA's impact as indicated by the noise and safety elements in the Oxnard General Plan. Upon completion of the General Plan, there were various studies culminating in a final information report in 1972 on The Proper Role for the Ventura County Airport in Oxnard.

Height considerations have been taken into consideration in developments surrounding the airport in accordance with FAA Part 77. (Refer to Appendix 4.)

H. Financial Aspects and Economic Impact

The financial aspects of VCA revolve around the financial workings of the airport, while the economic impact is concerned with the influence of VCA on the community.

1. Financial Aspects

The Ventura County Airport at Oxnard ranks in the top 160 busiest airports in the country in terms of operations and ranks 22nd in the nation with respect to the number of commuter passengers. From a financial standpoint, VCA has limited income producing resources, resulting in VCA's inability to break even in its operating budget. Operating expenses for fiscal year 1973-74 totaled $257,178, during the same period, the generated income was $159,880, thus creating a deficit of $97,298. This deficit condition has necessitated a county subsidy of the airport. Contributing to this economic situation have been the following factors:

a. VCA has had inadequate leasable building area;

b. VCA has not operated the high income producing functions of fueling and aircraft T-Hangar storage; and

c. VCA has not had a well-defined building/airfield maintenance program.

Recently, the City of Oxnard examined the financial conditions of VCA in conjunction with a possible transferring of administration from the County to the City. As a result of this preliminary investigation, the current deficit of VCA was thought to have been attributable to the cost/revenue analysis. This is a preliminary evaluation and is now being thoroughly explored.

In an effort to make VCA self-supporting, the Department of Airports and Harbors has designed a program to resolve this financial problem. This program is geared to identifying facility and operational requirements that would make the airport financially viable. Implementation of this program includes the following:

a. An acquisiton of 12 T-Hangars is scheduled for FY 1974-75.

b. Additional T-Hangar acquisition is planned when the leases expire in 1976 and 1980.

c. Control of two fueling facilities is planned when their leases expire in 1980 and 1982.

These economic improvements, plus innovative lease concepts from the development planning effort and the reduction in variable costs, may result in a self-supporting complex.

2. Economic Impact

Although the airport is operating in a deficit manner, it does have a substantial impact on the local economy in terms of employment and taxes. Specifically, VCA contributes in the following manner:

a. The County has 32 leases at the airport paying over $50,000 per year in possessory interest and personal property taxes.

b. The airport employs 130 people; VCA pays close to $1.5 million in salaries annually.

c. Assuming a 1.5 multiplier effect on services industry, total direct and indirect salaries amount to $3 million per year.

d. Money spent by commuter passengers for meals, etc. also is injected into the local economy.

Economic factors that may affect VCA are:

a. Dependence by industry on faster air service for business transportation;

Specifically =

b. The increasing recreation and tourist business (e.g., Channel Islands) associated with use of general aviation aircraft.

c. The general poor conditions of the current economy may adversely affect the growth of general aviation.

The growth level of general aviation will remain significant, in part because of the increasing leisure time available to the population, and in part because less expensive small aircraft will probably soon be made available to a wider private market. Such craft can be expected to expand general aviation activity and encourage instructional flying.

I. Airport Influence Area Methodology

1. Defining Aircraft Noise

The definition of aircraft noise at VCA was accomplished via the California Adopted Community Noise Equivalent Level (CNEL) descriptor. The CNEL describes the total aircraft noise environment over a day. Weighting factors are applied to account for increased sensitivity to noise in the evening and nighttime hours.

Specifically, the CNEL measurement is a cumulative measure of a noise exposure at any given point and accounts for the magnitude and duration of noise for each aircraft operation as well as the total number. The measurement includes a weighting factor for time of day which causes airport operations during the evening to count three times as much as during the day time (7:00 a.m. - 7: p.m.) and night time flights (10:00 p.m. - 7:00 a.m.) to count 10 times as much as day time flights.

The CNEL measurement by itself does not measure the noise level of a single flight. It does not account for the maximum accumulation of noise. The maximum noise level of a single flight is controlled by specifying a noise limit on single events.

2. Compatibility of Land Uses With Aircraft Noise

The many characteristics of aircraft noise and the many ways it interferes with activities combine to pose a complex problem of defining compatibility with the many human activities that make up any common land use classification. This problem has been approached in two ways. The first of these is the basis for most existing land use interpretation guidelines commonly published with NEF, CNR, or CNEL contours and is based primarily on complaint experience from various land uses compared to measurements of noise levels at airports where the complaints occur. This method defines acceptability by what people are willing to tolerate in terms of noise impact.

The second method uses a detailed analysis of a number of human activities and the ways they may be affected by noise impact. These activities are then related to land uses. The land use sensitivity is defined by weighting the sensitivity of the various activities according to their importance to the proper function of the land use as a whole, their ability to be relocated or insulated, etc.

Both of these methods were combined in the noise impact assessment methodology developed for Aircraft Noise Impact, Planning Guidelines for Local Agencies prepared by Wilsey & Ham and Bolt Beranek and Newman for HUD. The summary table relating land uses to aircraft noise developed in this report has been modified from the HUD study to reflect the CNEL used in the Oxnard Study. Emphasis of interpretation of the noise levels has been changed from an orientation to complaints expected, as used in previous interpretive tables, to an assessment of the degree of suitability of the land use in the noise environment. Figure 2 describes the sensitivity of a number of different land uses to aircraft noise environments.

The third step in the process of defining noise impact is to identify the nature and extent of actual noise conflicts at VCA. This analysis is the subject to Section III-C. Further examination of noise is described in Appendix I.

3. Development of Air Hazard Zones

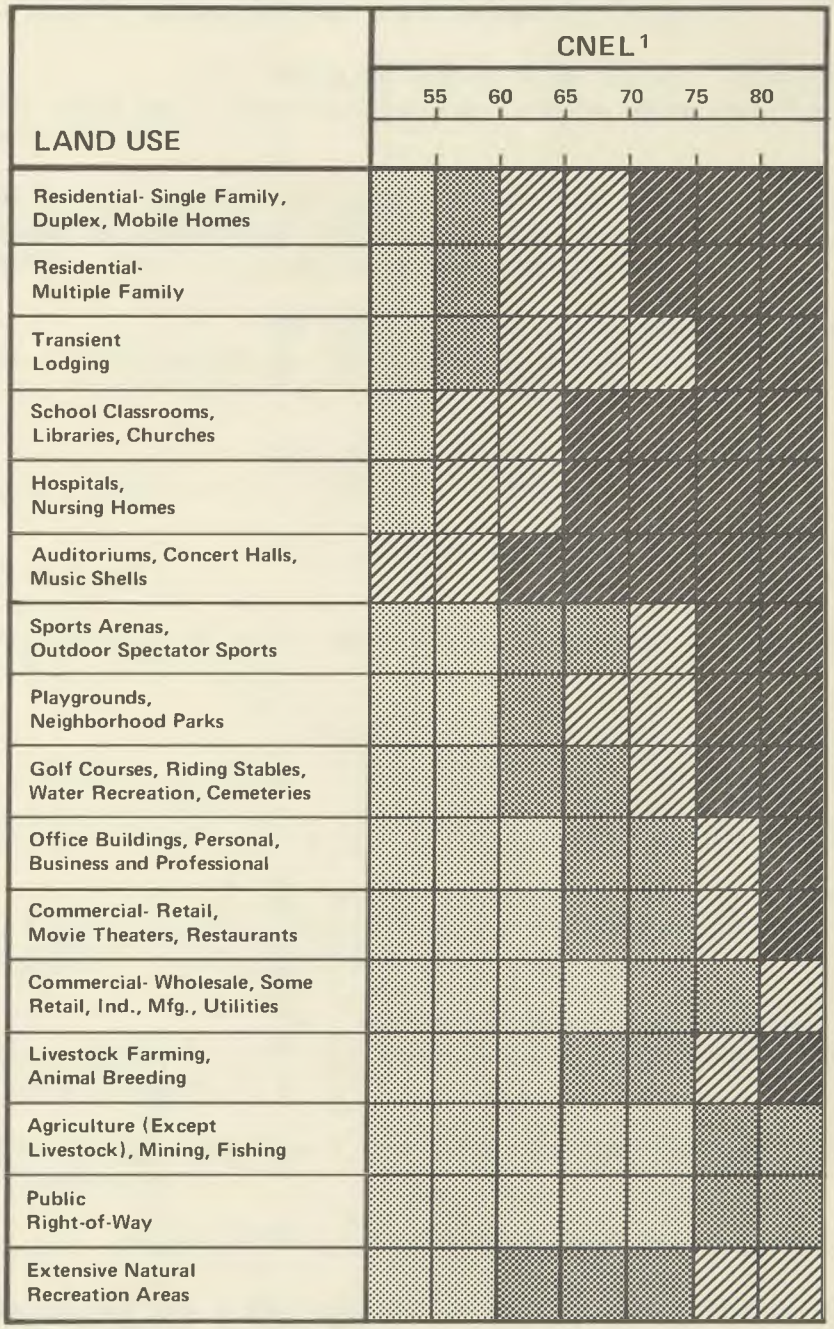
a. Defining the Air Safety Problem

The impact of aircraft accidents and the predictability of the accident location varies with the type of aircraft , accident history, number of operations, and runway and flight pattern utilization. Identifying the location, dimensions and configurations of the air hazard zones requires an analysis of recorded data.

Causes for the accidents have been identified and delineated into separate categories.[3/] By far the most common type of accident involved (39.1% of the total) is the engine failure accident. Only 29% of these are attributed to mechanical causes while 25% are classified as undetermined cause. The remainder (46%) are caused by a variety of pilot errors, mainly fuel exhaustion and fuel mismanagement. Engine failure does not normally result in loss of control. Engine failure accidents are really unsuccessful emergency landings and need not occur at all if acceptable options are available to the pilot. The pilot can usually be relied upon to prevent ground injuries and to minimize damage to property if alternate courses of action are available.

3/ Assembly Commission on Natural Resources and Conservation, Aircraft Accidents in the Vicinity of Airports (prepared by James L. McElroy, Air Safety Publications, 31 January 1973).

FIGURE 2
LAND USE SUITABILITY IN NOISE IMPACT AREAS



INTERPRETATION

CLEARLY ACCEPTABLE

The noise exposure is such that the activities associated with the land use may be carried out with essentially no interference from aircraft noise.

NORMALLY ACCEPTABLE

The noise exposure is great enough to be of some concern, but common building construction will make the indoor environment acceptable, even for sleeping quarters.

NORMALLY UNACCEPTABLE

The noise exposure is significantly more severe so that unusual and costly building construction is necessary to insure adequate performance of activities.

CLEARLY UNACCEPTABLE

The noise exposure is so severe that construction costs to make the indoor environment acceptable for performance of activities would be prohibitive.

[1] Community Noise Equivalent Level

SOURCE: Wilsey & Ham, 1975

b. Definition of Air Hazard Zones

Determining the acceptability of development in areas exposed to risk of aircraft accidents involves two basic steps:

(1) Defining the risk of death, injury and property damage for each point surrounding the airport where accident probability is significant.

Defining the risk of death, injury and property damage is determined based on historical information about general aviation accidents. To define this risk, one must know the following:

(a) The pattern of accidents around the airport; that is, if we assume an accident will occur, what is the relative probability that it will occur at a given location?

(b) The probability of an accident occurring for a given number of aircraft operations.

(c) The average impact of an accident in terms of life and property.

Methodology by which air hazard zones were developed for Oxnard are discussed in Appendix 2.

(2) Defining a level of risk that is acceptable to residents, the airport, or the agency responsible for planning and development.

To determine acceptability of risk, one can take a number of approaches:

(a) Keep total death, injury and property damage for a given airport below some value considered acceptable by the airport operator or local community.

(b) Keep the number of individuals exposed to some given level of personal risk below a value considered acceptable by the local community.

Methodology by which acceptable risk was defined is further described in Appendix 2.

4. Compatibility of Land Uses with Air Hazard Zones

Standards for compatibility in hazard zones are developed with two objectives in mind. First is the objective of reducing the probability of any death or injury resulting from an aircraft accident. This objective is achieved by reducing the gross density in the potential accident area. The second objective is reducing the likelihood that a large number of casualties would be associated with a given accident. This objective is achieved by controlling the densities of assembly that may occur in the hazard zones.

Air Hazard Zones are delineated into three categories: extreme, considerable and limited. Objectives for land uses in these hazard zones are recommended as follows:

- Extreme Hazard: No construction involving extensive investment or life risk. County or City ownership of land.

- Considerable Hazard: No residential construction or facilities involving large assemblages of people, except necessary transportation routes. County or City ownership or highly restrictive control of land uses, such as restrictive use easements.

- Limited Hazard: Low density residential uses permitted. No uses involving large assemblages of people at times when aircraft are in operation.

5. Airport Influence Area Definition

The airport influence area for VCA is an integration of noise and air hazard zones.

CNEL Contours and the Hazard Zones were combined in the following manner to provide the basis for the Airport Influence Area. The alpha-numeric designation for each area of influence was designed to reflect the sensitivity of land uses to noise and to accident potential. This method facilitated the defining of impact and consequently enabled the consultant to examine the suitability of City and County proposed land uses. Figure 3 displays the different impact zones with the corresponding acceptable land uses. This list identifies six zones of decreasing need for protection in the Airport Influence Area applicable to VCA.

A3 Limited Air Hazard, more than 65 dB CNEL

A2 Limited Air Hazard, 60-65 dB CNEL

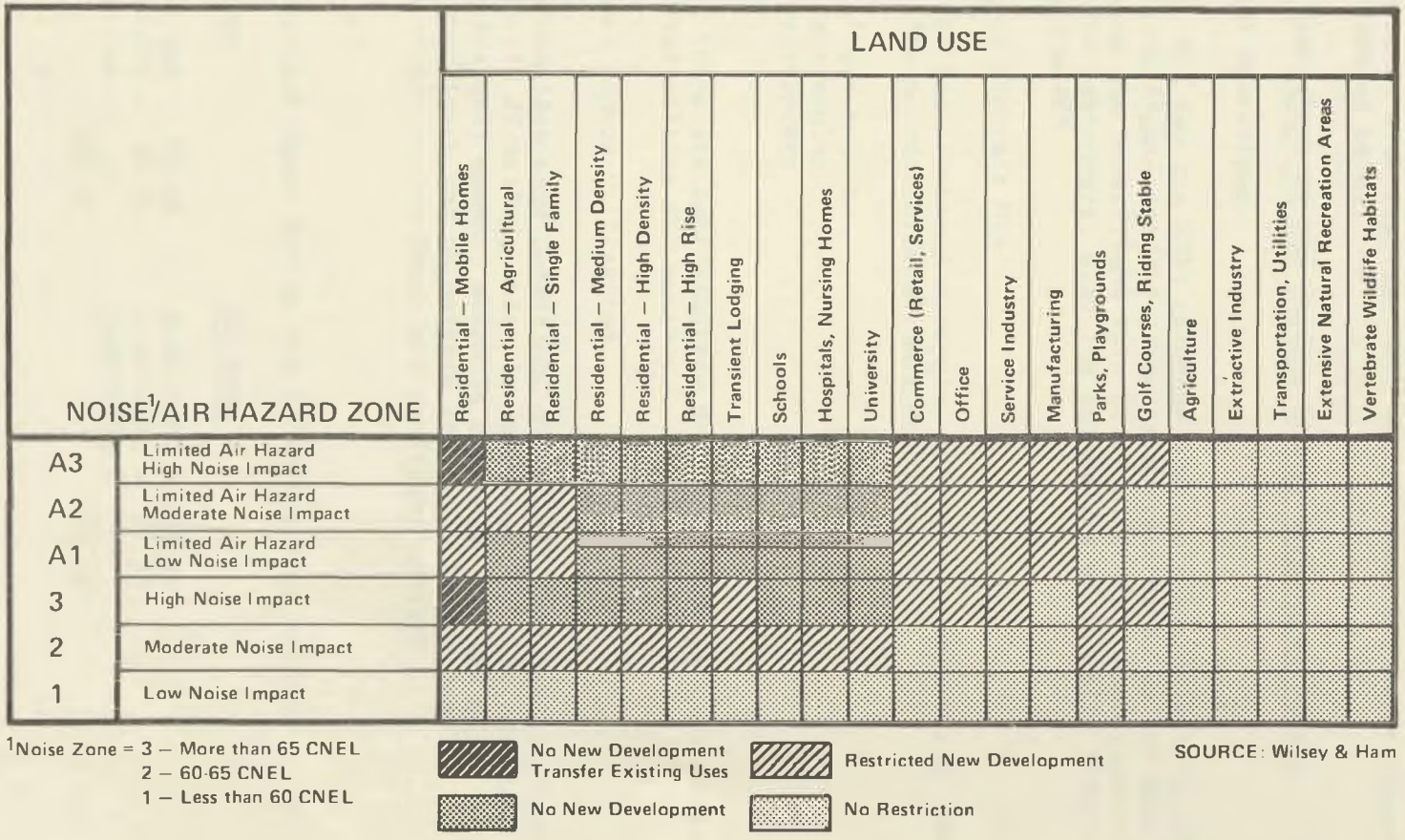
A1 Limited Air Hazard, less than 60 dB CNEL

3 More than 65 dB CNEL

2 60-65 dB CNEL

1 Less than 60 dB CNEL

FIGURE 3
AIRPORT INFLUENCE AREA IMPACT ZONES–LAND USE OBJECTIVES



SECTION III

AIRCRAFT OPERATIONS AND IMPACT

Section III applies the methodology outlined in Section II to current and projected conditions at the Ventura County Airport at Oxnard. Operation patterns with resultant air hazard zones and noise impact areas are discussed below.

A. Current Operations at the Ventura County Airport at Oxnard

1. Annual Operations

Operations at VCA for the 1974 calendar year were approximately 179,600. Included in this figure are the commuter operations by Golden West Airlines utilizing the Dehavilland Twin Otter aircraft. Approximately 50,000 commuter passengers, availing themselves of 14 daily flights, annually utilize VCA.

2. Current Aircraft Mix

As of 1974, VCA had 220 based aircraft, making up a majority of the operations. The current aircraft mix consists of:

84%	single engine
14%	twin engine
2%	helicopters
100%	

Additionally, there are approximately 8-12 corporate jets and two transient helicopters that utilize VCA monthly.

3. Current Runway Utilization

Due to the prevailing wind condition, 95% of all landings and takeoffs are in a westerly direction, which is on runway 25. The remaining 5% are in an easterly manner, which is on runway 7. The major pattern is the left hand touch and go pattern on runway 25. Currently, 47% of all takeoffs remain in the touch and go flight pattern.

4. Time Mix

Aircraft operations occur during the following time periods:

WEEKDAY		WEEKEND	
0700-1900 -	85.5%	0700-1900 -	88.5%
1900-2200 -	14.5%	1900-2200 -	11.5%
2200-0700 -	--	2200-0700 -	--
	100.0%		100.0%

5. Current Flight Patterns

Figure 4 illustrates the current flight patterns for VCA. These patterns were mapped in cooperation with the Department of Airports and Harbors.

On runway 25, practice landings or touch and go's (T & G), constitute a sizable amount of the operations. In this pattern, aircraft make a turn to the south approximately 1,000 feet from Victoria Road, climb to an 800 foot pattern, turn into the downwind leg approximately 500 feet north of Wooley Road, turn into the base at about 1,500 feet east of Ventura Road and then proceed to the final approach which begins at approximately 2,000 feet from the runway end or 3,780 feet from the displaced threshold. The faster heavier aircraft fly the same direction, but operate in the extended pattern. Additionally, the majority of itinerant operations follow the same departure pattern and continue to the south at Wooley and Victoria rather than continuing in the pattern. The majority of itinerant aircraft intercept the T & G pattern from the south and follow the pattern to land.

Operations are conducted under Visual Flight Rules (VFR) 90% of the time, with the remaining 10% under Instrument Flight Rules (IFR). Currently, the runways 25 and 07 are nonprecision, but an Instrument Landing System (ILS) is planned for runway 25 within six months.

6. Airspace

The current condition of airspace in the Oxnard/Port Hueneme area is relatively congested, due to the close proximity of several airports within this area. Operating procedures at VCA are somewhat constrained by these neighboring airfields.

Local development has also contributed to airspace conflicts. Specifically, it was necessary to displace the threshold on runway 25 1,382 feet because of a church spire which protruded into navigable airspace and because of the close proximity of Oxnard High School (2,000 feet from the runway end). This displacement resulted in a usable runway surface of 4,565 feet when landing to the west. Runway 7 was also displaced 756 feet for navigational reasons.

B. Projected Operations at the Ventura County Airport at Oxnard

1. Annual Operations

Aircraft operations are anticipated to increase from the current 179,600 to 284,800 annual operations in the years 1990 and 2000. Projected annual operations were calculated based on two reports published by the Ventura County Department of Airports and Harbors dealing with the demand and economic forecast for general aviation airports in the County. The initial study examined demand for the County airport system under several possible aviation system configurations by utilizing the State of California Department of Transportation's general aviation Demand Forecasting

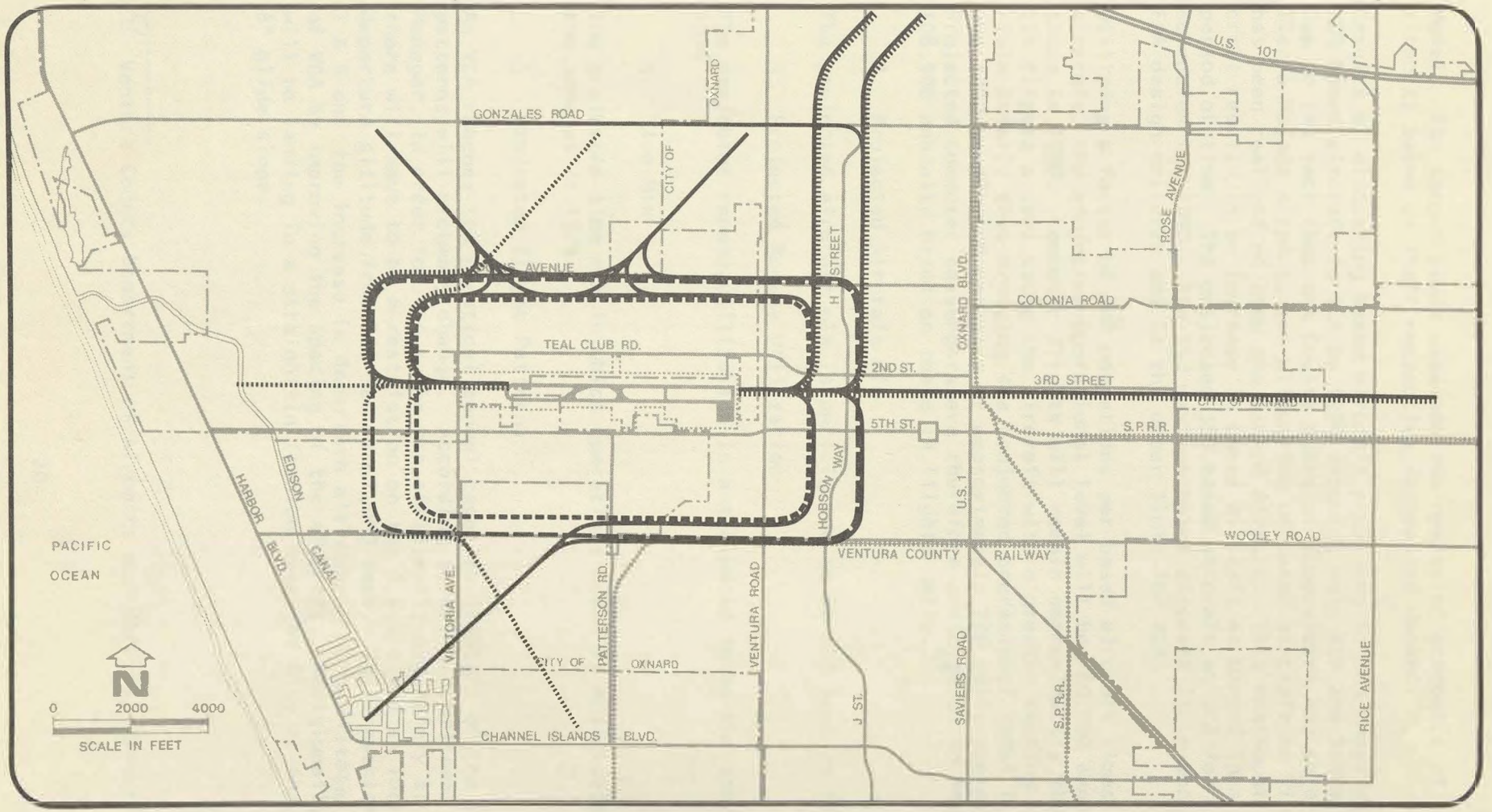


FIGURE 4
OXNARD FLIGHT PATTERNS

SOURCE: Ventura County Department of Airports and Harbors

- City Limits
- Approach
- Departure
- Light Slow Aircraft - Touch & Go
- Fast Heavy Aircraft - Touch & Go

Model. The second study examined the operating economics of the various airports based on their respective forecasted demand.

Results of allocating based aircraft according to the model distributed 350 based aircraft to VCA by 1990 assuming only VCA and Santa Paula. Due to the fact that the County Board of Supervisors has rejected the Tierra Rejada Airport, the allocation of based aircraft to Tierra Rejada has been reallocated into the Oxnard Airport. This reallocation of aircraft results in an increase in based aircraft at Oxnard in a shorter period of time. The projected 350 based aircraft at VCA for 2000 is now scheduled for 1990. The 350 maximum based aircraft is in accord with the FAA design criteria and is the upper limit for VCA.

Utilizing a factor of 800 operations per based aircraft times 350 based aircraft, the projected operational level will be 280,000 annual operations in 1990. Commuter flights will remain approximately the same (14 flights a day) using the aircraft with a greater seating capacity (Twin Otter), thus bringing the projected operational total for 1990 and 2000 to 284,800 annually or approximately 770 daily operations. Projected commuter passengers are therefore anticipated to reach 108,500 annually based on these 14 flights daily.[4/]

2. Projected Aircraft Mix

The projected aircraft mix is anticipated to be the same as in 1974.

3. Projected Runway Utilization

The projected runway utilization is anticipated to be the same as in 1974.

4. Time Mix

The projected time mix in which operations occur is anticipated to be the same as in 1974.

5. Projected Flight Patterns

As VCA reaches the practical annual capacity (PANCAP) of the runway, the patterns will probably change. According to Mr. A.M. Grisham, Airport Manager, in order for VCA to be run efficiently and safely at PANCAP, there will have to be a restriction on the T & G's and an increase in departure altitude from 600 feet to 1,000 feet. This restriction in T & G and the increase in departure altitude will facilitate the management of VCA by improving the spacing of the aircraft. Additionally, aircraft will be landing in a straight-in fashion over the City at the enforced 6° glide slope.

4/ Ventura County Department of Airports and Harbors, January 10, 1975.

C. Noise Contours

An integral part of defining the airport influence area is the description of the noise environment. For the State of California, the Community Noise Equivalent Level (CNEL) has been adopted to describe the aircraft noise environment and act as the basis for determining the compatibility of land uses in the vicinity of the airport.

CNEL noise contours were plotted to reflect the existing, 1990 and 2000 time frames for the operations at the Ventura County Airport at Oxnard (VCA). These contours were developed by the acoustical consulting firm of Bolt Beranek and Newman Inc. based on data provided by Wilsey & Ham and confirmed by the Ventura County Department of Airports and Harbors.

1. Current Noise Impact

The single engine general aviation aircraft make up the majority of operations at VCA and consequently are the prime factor in defining the current noise impact.

Figure 5 illustrates the 1974 CNEL contours in 60 and 65 dB CNEL, as well as noise complaints attributable to aircraft operations. The contours indicate that at an annual operational level of 179,600, the 65 dB CNEL contour (the State adopted noise compatibility standard for single family dwellings, hospitals, schools and churches) does not adversely impact such existing land uses.

The 60 dB CNEL impacts the single family housing adjacent to runway 25 near the northeast corner of the airport.

From the standpoint of adequately assessing the CNEL noise environment in the Oxnard area, the 60 dB CNEL will be used to identify the area of normally unacceptable noise for low density housing, schools, churches and hospitals. This was selected primarily due to the low ambient noise level in the Oxnard area.

With respect to the existing zoning, the 65 dB CNEL impacts some City and County R-1 zoning. The 60 dB CNEL does impact some R-1 zoning (City of Oxnard) to the east of Ventura Road and R-1 and R-A zoning (County of Ventura) to the north of Teal Club Road. The zoning and noise contours are illustrated in Figure 6. Explanation of the City zoning is in Figure 7. County residential zones R-1 and R-A are low density zones with minimum lot sizes of 7,000 to 43,560 square feet, respectively.

2. Projected Noise Impact

a. 1990 Time Frame

The projected 1990 and 2000 65 dB CNEL contours are compatible with the 1990 land use plan. Examination of the 60 dB CNEL as illustrated in Figure 8 shows that the contour impacts proposed low density residential areas to the east of Ventura Road, and south of 5th Street between Victoria Avenue and Ventura Road.

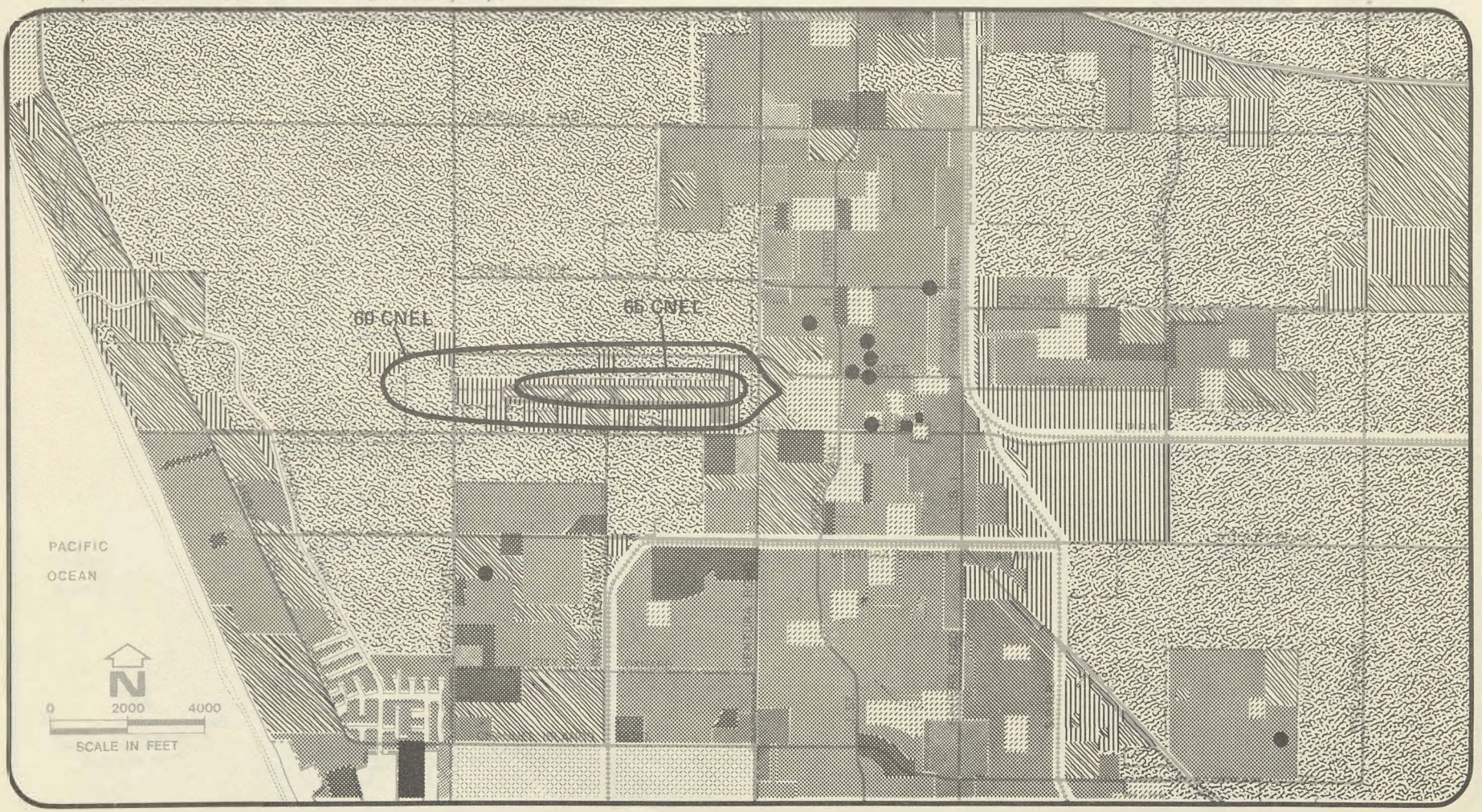


FIGURE 5
1974 CNEL CONTOURS
AND NOISE COMPLAINTS
WITH EXISTING LAND USE

- City Limits
- Low Density Residential
- Medium Density Residential
- High Density Residential
- Developed Commercial
- Developed Industrial
- Developed Public
- Agriculture
- Vacant
- Military
- Noise Complaint

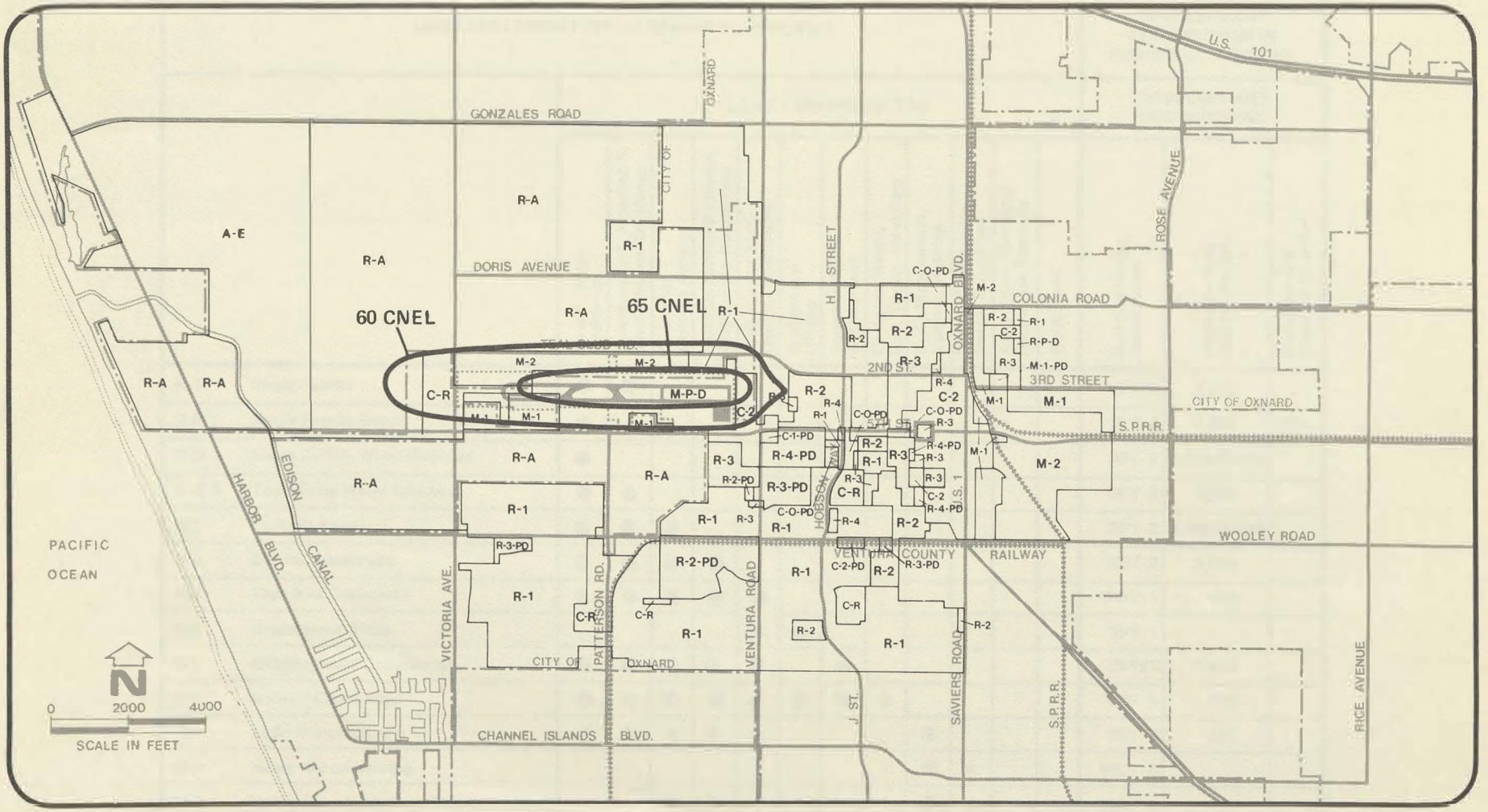


FIGURE 6
1974 CNEL CONTOURS
WITH EXISTING
LOCALIZED ZONING

FIGURE 7
ZONING MATRIX, CITY OF OXNARD

LAND USES PERMITTED IN ZONING CATEGORIES														DEVELOPMENT RESTRICTIONS IN ZONING CATEGORIES		
		LAND USES PERMITTED												DEVELOPMENT RESTRICTIONS		
		Single Family Residence	Townhouses & Attached & Semi-attached Dwellings	Duplex or Multiple Family	Multiple Family Dwellings And Garden Apartments	High Rise or High Density Apartments	Professional Offices	Specified Small Retail Shops	Complete Retail, Bars, Hotels, Used Cars	Light Manufacture, Lumber, Welding	Heavy Manufacture, Autos, Foundries	Agriculture, Ranching, Recreation Facilities	Agriculture	Building Height (feet/stories)	Minimum Area (Sq. ft.) Per DU	Maximum Lot Coverage (interior)
R-1	Single Family	●	■											25'/ 2	6,000	
R-B-1	Single Family Beach	●												25'/ 2	4,000	60%
R-W-1	Single Family Water Oriented	●												30'/ 2	4,000/6,000	
R-W-2	Townhouse Water Oriented	●	●											35'/ 2	2,800	
R-2	Multiple Family	●	●	●										25'/ 2	3,000/2,000	
R-3	Garden Apartment	●	●	●	●									25'/ 2	1,500	
R-4	High Rise Residential	●	●	■	■	●								100'/11	600	
C-0	Commercial Office					▲	●							15'/ 1		
C-1	Neighborhood Commercial	●	●	●	●	■		●						35'/2½	1,650	
C-2	General Commercial	●	●	●	●	■	●	●	●					75'/ 6	600	
M-1	Light Manufacturing	▲	▲	▲	▲	▲				●				35'/ 2	600	
M-2	Heavy Manufacturing									●	▲			100'/ 8		
M-3	Heavy Manufacturing -- Group Housing			■	■					●	▲			100'/ 8		
C-R	Community Reserve											●		25'/ 2		25%
RPD	Residential Planned Development	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲			
CPD	Commercial Planned Development	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲			
MPD	Manufacturing Planned Development	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲			

● Permitted Use
▲ Special Use Permit Required for Certain Uses
■ Special Use Permit Required (approval of Planning Commission)

This table is not a legal definition of zones and is intended only as a guide to complete definitions found in the City Zoning Ordinance.

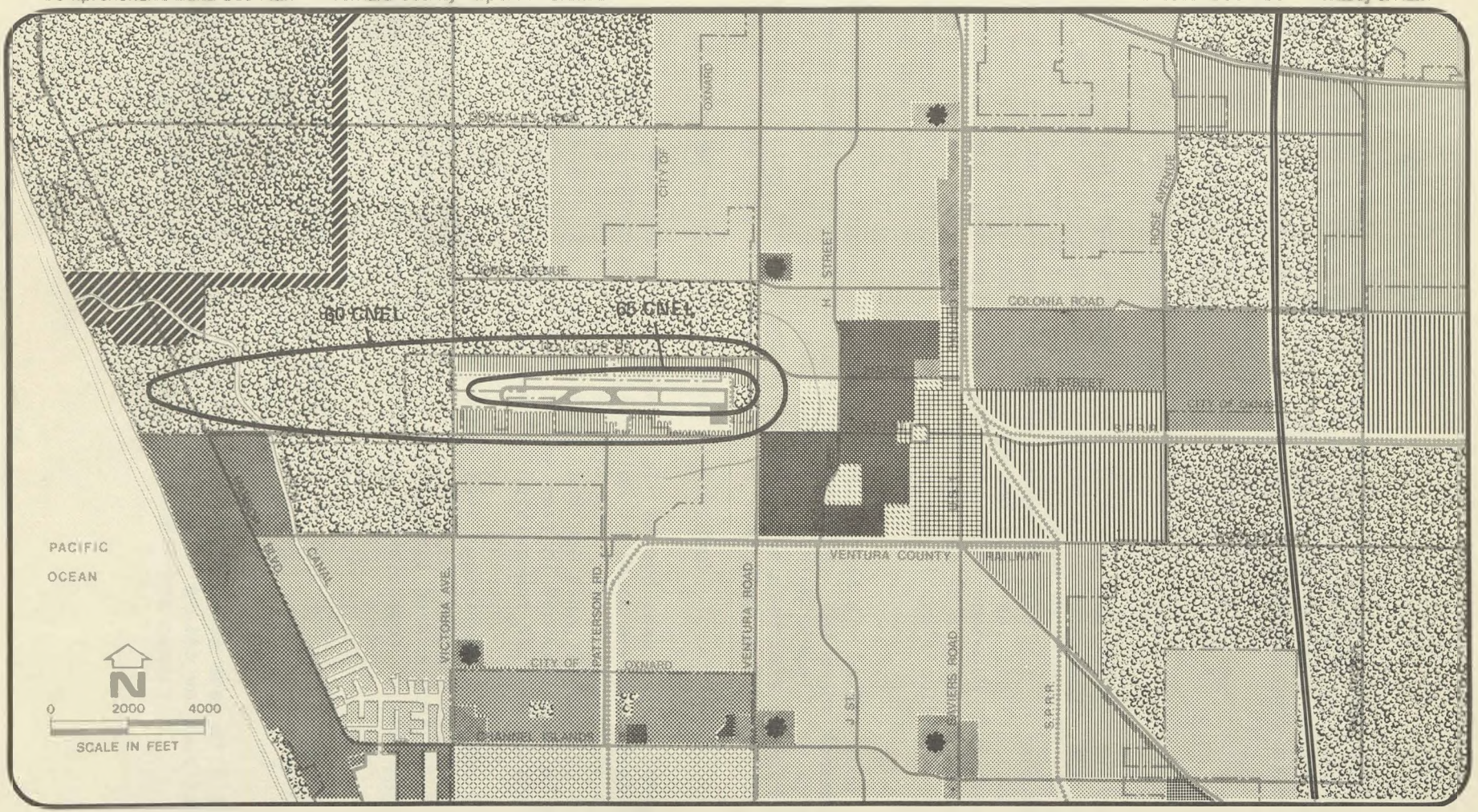


FIGURE 8
1990-2000 CNEL CONTOURS
WITH 1990 PROPOSED LAND USE

- City Limits
- Upper Low Density 6 DU/Acre
- Lower Medium Density 12 DU/Acre
- Upper Medium Density 20 DU/Acre
- Central Business District
- Community Commercial
- Public/Semi-Public
- Light Industrial
- Limited Industrial
- Public Utility
- Parks & Open Space
- Proposed Freeway
- Military

b. 2000 Time Frame

The projected 1990 and 2000 65 dB CNEL contours are compatible with the General Plan for the City of Oxnard. The 60 dB CNEL, as illustrated in Figure 9, impacts high density residential to the east of Ventura Road and on proposed low density residential developments just south of 5th Street.

D. Air Hazard Zone Impact

1. Current Air Hazard Zone

Currently, VCA's operational level, aircraft mix, pattern utilization and accident history generate a limited air hazard zone. The elongation of this zone to the east, as illustrated in Figure 10, is attributable to the interception of the runway 25 straight-in landing pattern by the heavily utilized touch and go and transient traffic from the south and the greater probability of an accident on approach than departure. Additionally, the bulging effect of the area is a result of pilot tendency and centrifugal force to pull the aircraft outboard of centerline in a turn.

As indicated in Figure 10, the current limited air hazard zone is relatively compatible with the existing land use. The major incompatibility with this current zone is the Oxnard Union High School. In terms of the existing zoning, the current air hazard zone adversely impacts the R-2 and R-3 zones east of Ventura Road, as indicated in Figure 11.

2. Projected Air Hazard Zone (1990/2000)

a. The 1990/2000 projected air hazard zone is straightened out with the expected severe reduction in touch and go operations and the resultant primary straight in approach. The incompatible impact, as indicated with the proposed 1990 Land Use Plan, Figure 12, is with the proposed public facilities to the east of Ventura Road, as well as the upper medium residential density development further to the east.

b. The projected air hazard zone superimposed on the Oxnard General Plan, Figure 13, illustrates that the proposed high density residential development and a portion of the Central Business District are impacted. The high density residential development is the major area of conflict.

E. Airport Influence Area Impact

1. Current Airport Influence Area

Figure 14 illustrates the current airport influence area with the existing Land Use Map. Based on the compatibility of the various land uses in the respective zones, the following conflicts occur:

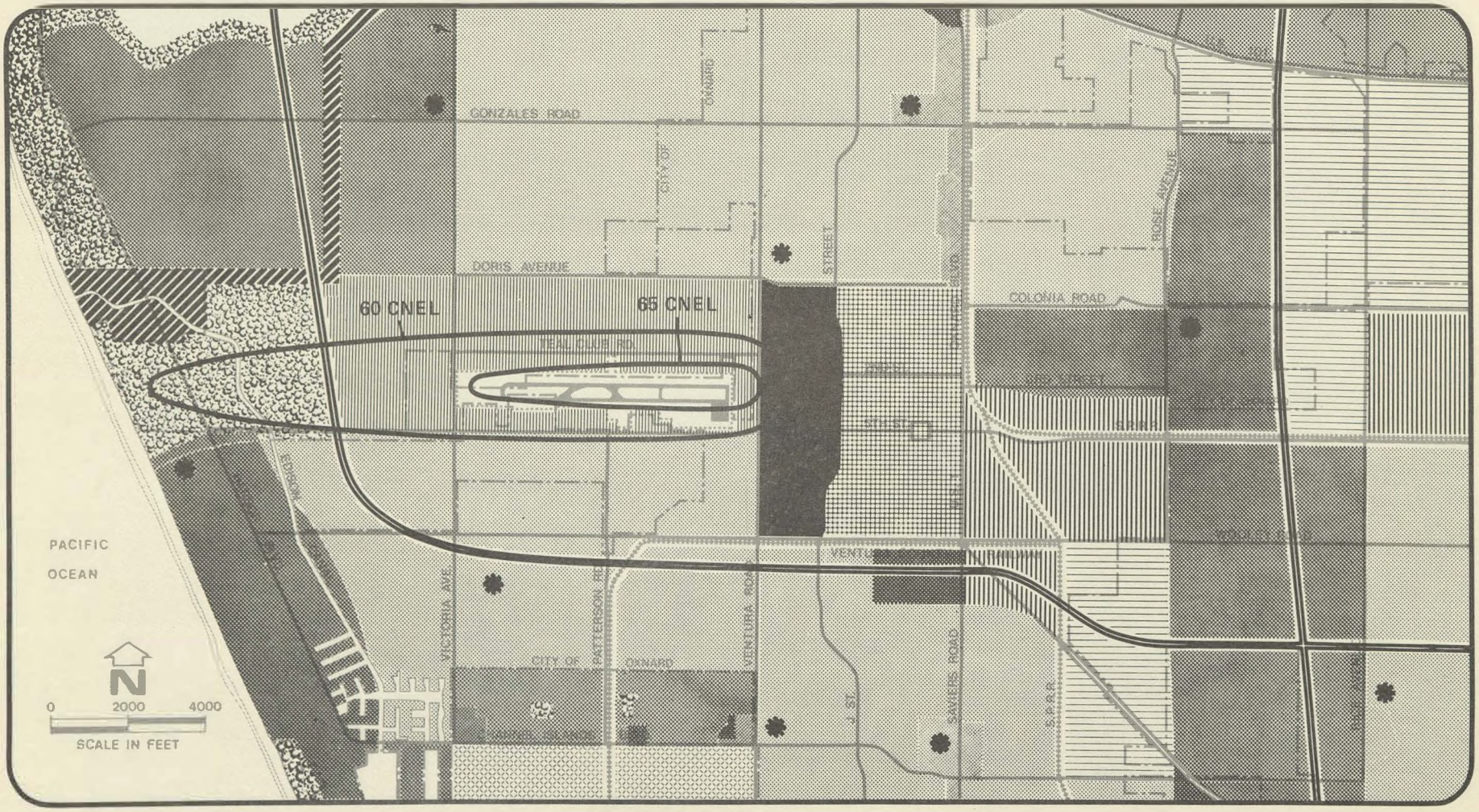


FIGURE 9
1990-2000 CNEL CONTOURS
WITH GENERAL PLAN - 2000

- City Limits
- Upper Low Density 7 DU/Acre
- Lower Medium Density 13 DU/Acre
- Upper Medium Density 20 DU/Acre
- High Density 42 DU/Acre
- Central Business District
- Community Commercial
- Light Industrial
- Limited Industrial
- Special Airport Related
- Public Utility
- Parks & Open Space
- Military
- Proposed Freeway

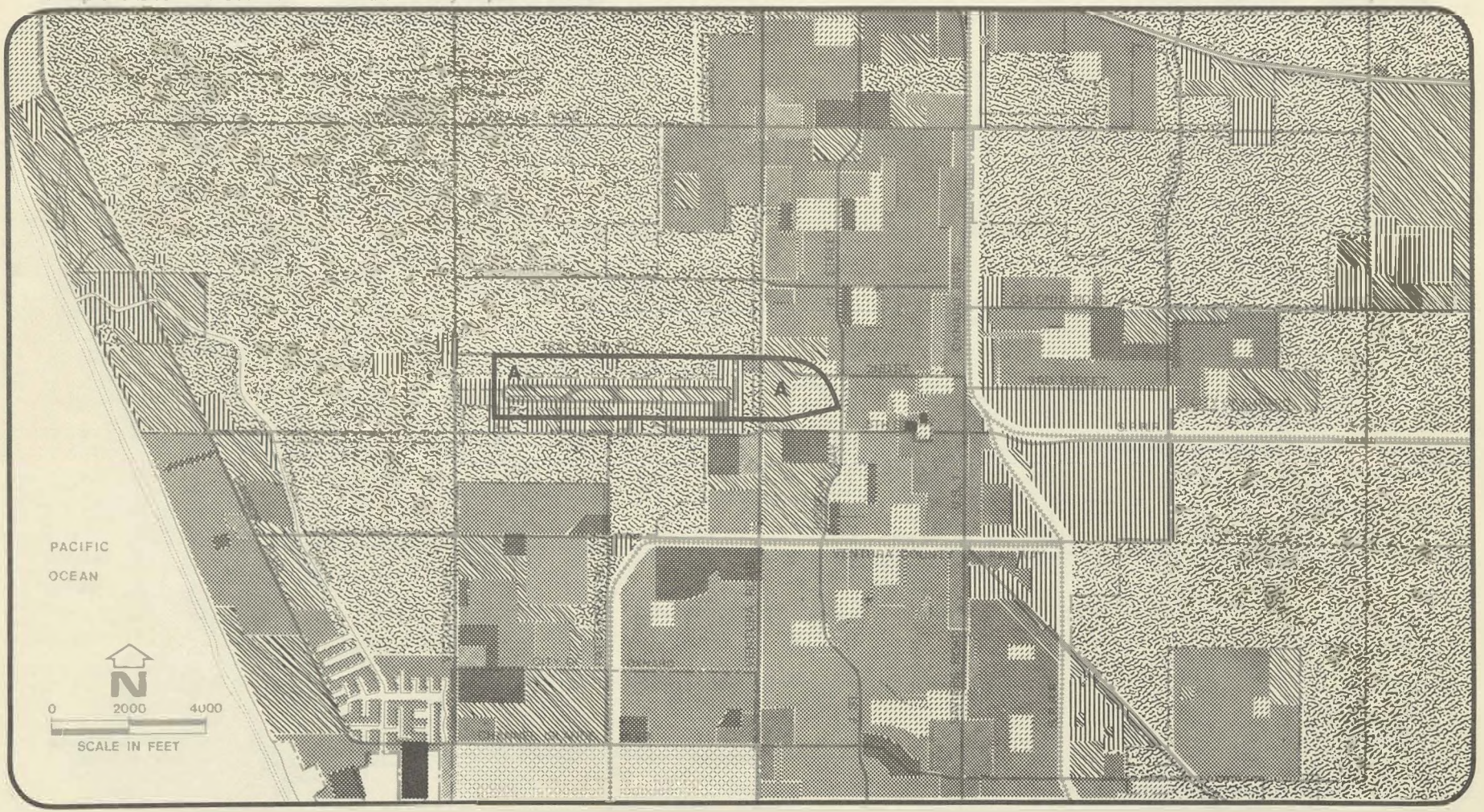


FIGURE 10
1974 AIR HAZARD ZONE
WITH EXISTING LAND USE

City Limits
Low Density Residential
Medium Density Residential
High Density Residential
Developed Commercial
Developed Industrial
Developed Public
Agriculture
Vacant
Military

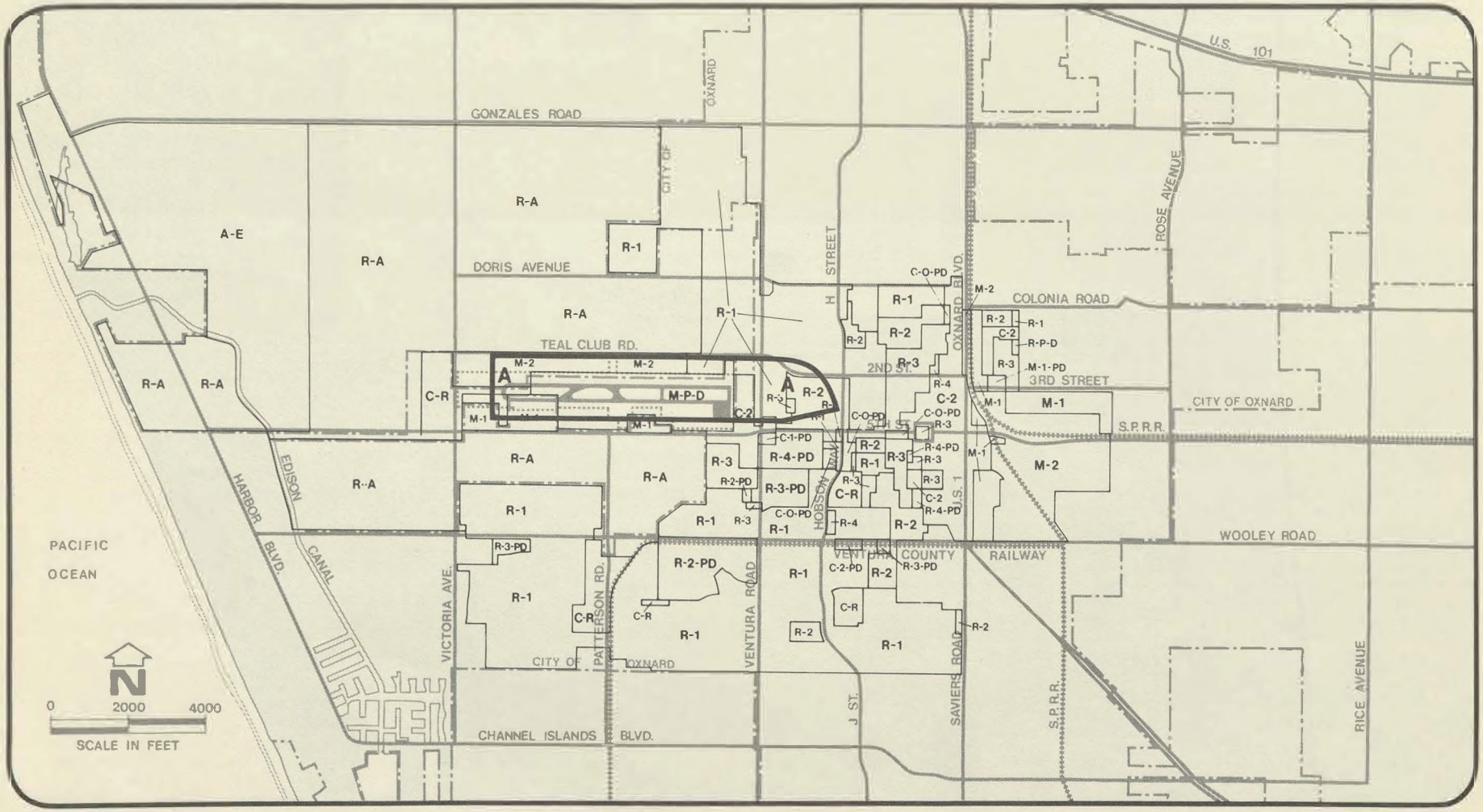


FIGURE 11
1974 AIR HAZARD ZONE
WITH LOCALIZED
EXISTING ZONING

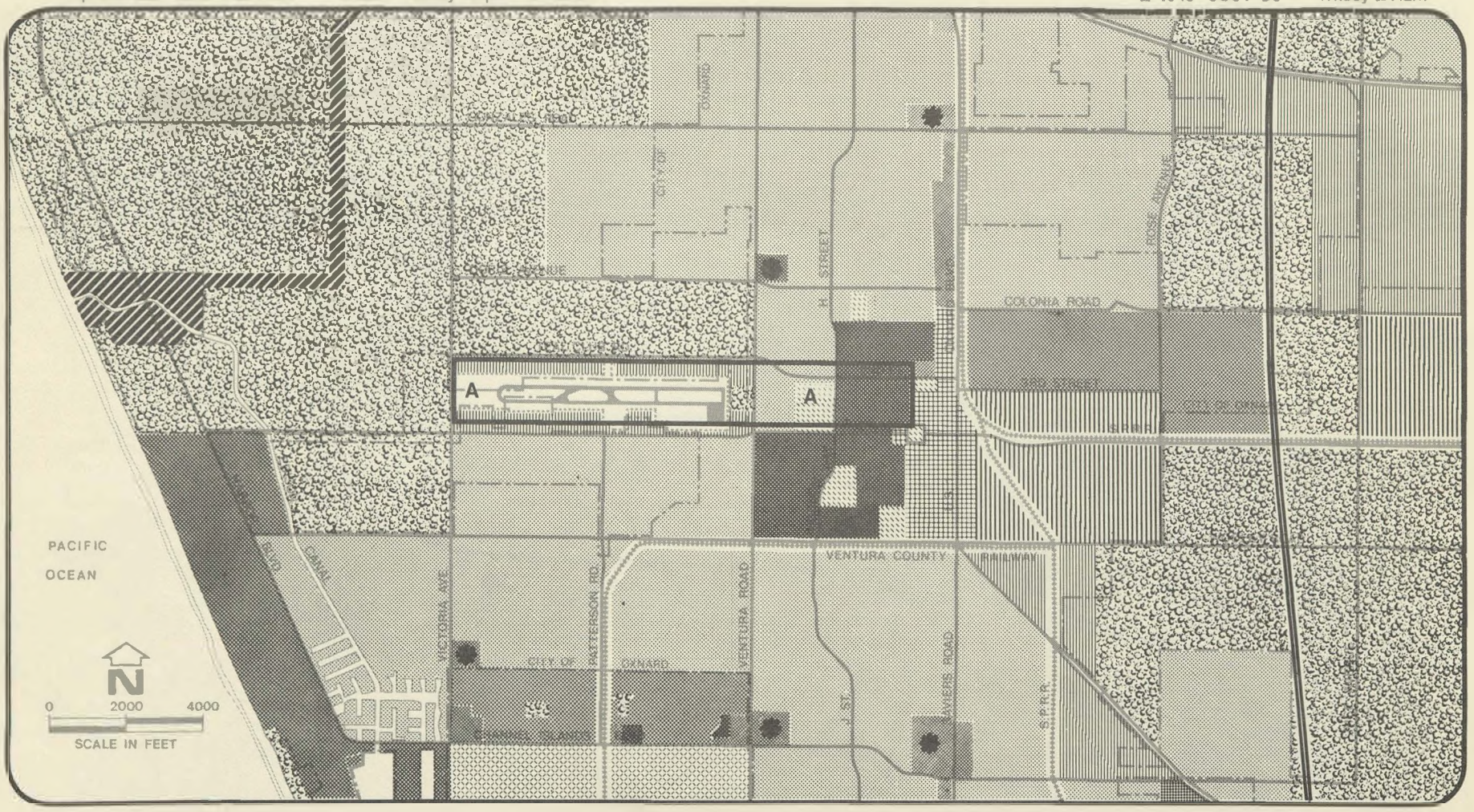


FIGURE 12
1990-2000 AIR HAZARD ZONE
WITH 1990 PROPOSED LAND USE

- City Limits
- Upper Low Density 6 DU/Acre
- Lower Medium Density 12 DU/Acre
- Upper Medium Density 20 DU/Acre
- Central Business District
- Community Commercial
- Public/Semi-Public
- Light Industrial
- Limited Industrial
- Public Utility
- Parks & Open Space
- Proposed Freeway
- Military

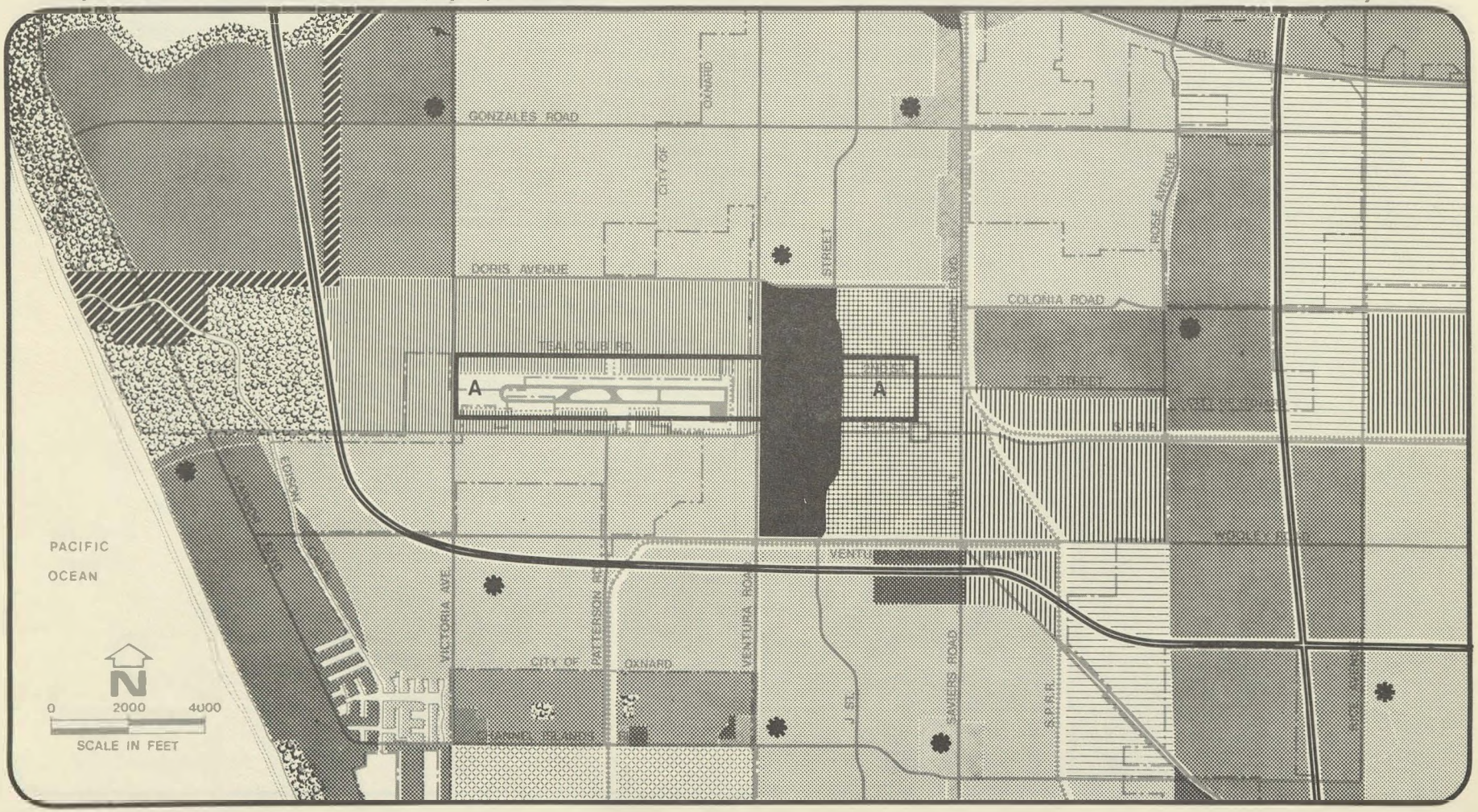


FIGURE 13
1990-2000 AIR HAZARD ZONE
WITH GENERAL PLAN - 2000

- City Limits
- Upper Low Density 7 DU/Acre
- Lower Medium Density 13 DU/Acre
- Upper Medium Density 20 DU/Acre
- High Density 42 DU/Acre
- Central Business District
- Community Commercial
- Light Industrial
- Limited Industrial
- Special Airport Related
- Public Utility
- Parks & Open Space
- Military
- Proposed Freeway

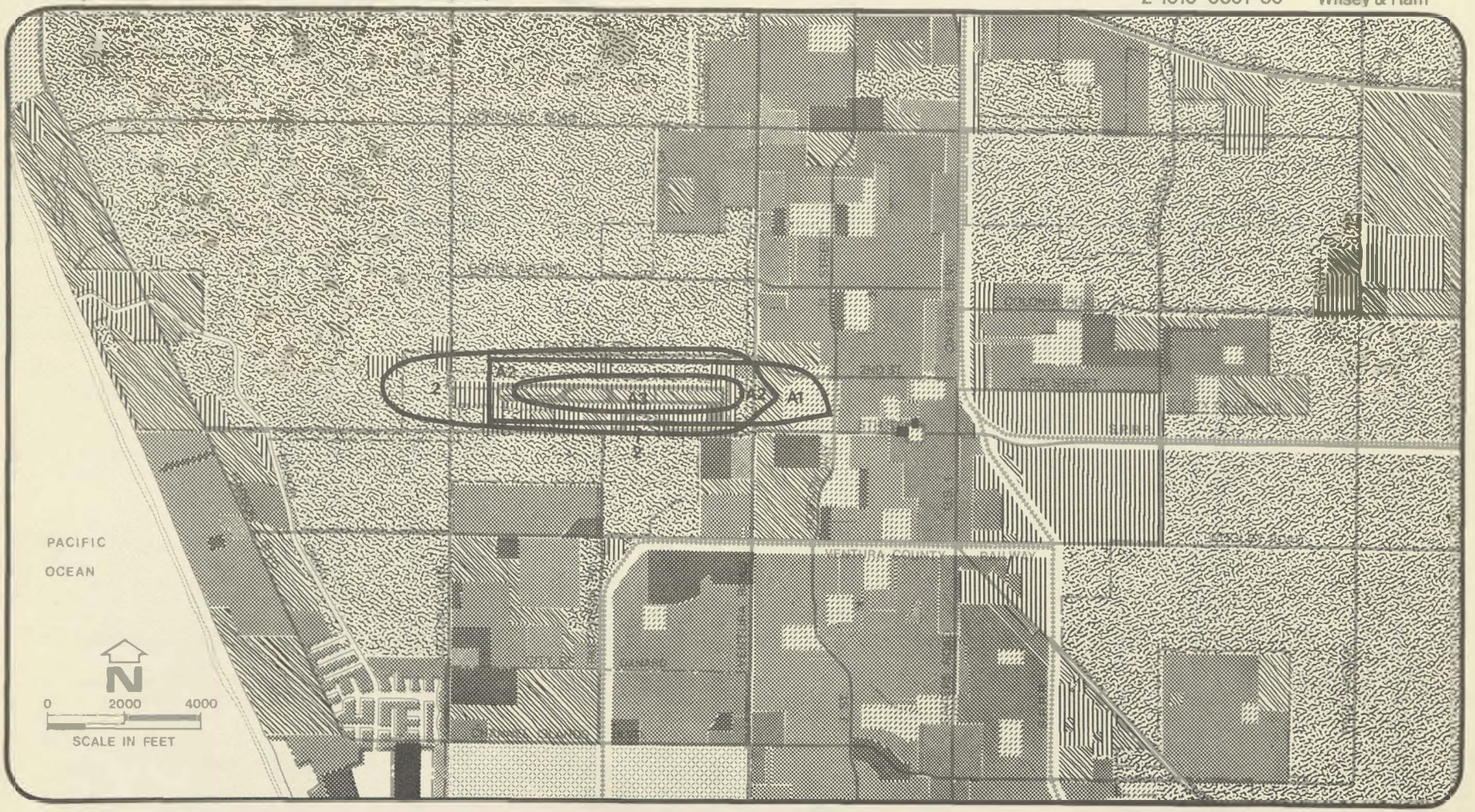


FIGURE 14
1974 AIRPORT INFLUENCE AREA
WITH EXISTING LAND USE

A-3 no conflict
A-2 low density residential adjacent to the northeast corner of the airport
A-1 Oxnard Union High School
3 no conflict
2 no conflict
1 no conflict

The difference in conflicts between the existing zoning and the existing land use is attributable to the current land use versus the potential development.

Figure 15 illustrates the conflict with the existing zoning accordingly:

A-3 R-1 north of the airport
A-2 R-1 east of Ventura Road
A-1 R-3 east of Ventura Road
3 no conflict
2 R-A
1 no conflict

2. Projected Airport Influence Area

A comparison between the projected airport influence area and the proposed land use plan illustrated in Figure 16 reveals the following conflicts:

A-3 no conflict
A-2 low density residential east of Ventura Road
A-1 Oxnard Union High School, upper medium density residential
3 no conflict
2 low density residential south of 5th and east of Ventura Road
1 no conflict

The 1990/2000 projected airport influence area with the General Plan, Figure 17, illustrates the following conflicts:

A-3 no conflict
A-2 high density residential east of Ventura Road
A-1 high density residential, Central Business District
3 no conflict
2 low density south of 5th, high density northeast of 2nd
1 no conflict

Based on this analysis, Wilsey & Ham has examined policies and strategies to alleviate conflicts between the airport and the City. The following section examines potential strategies.

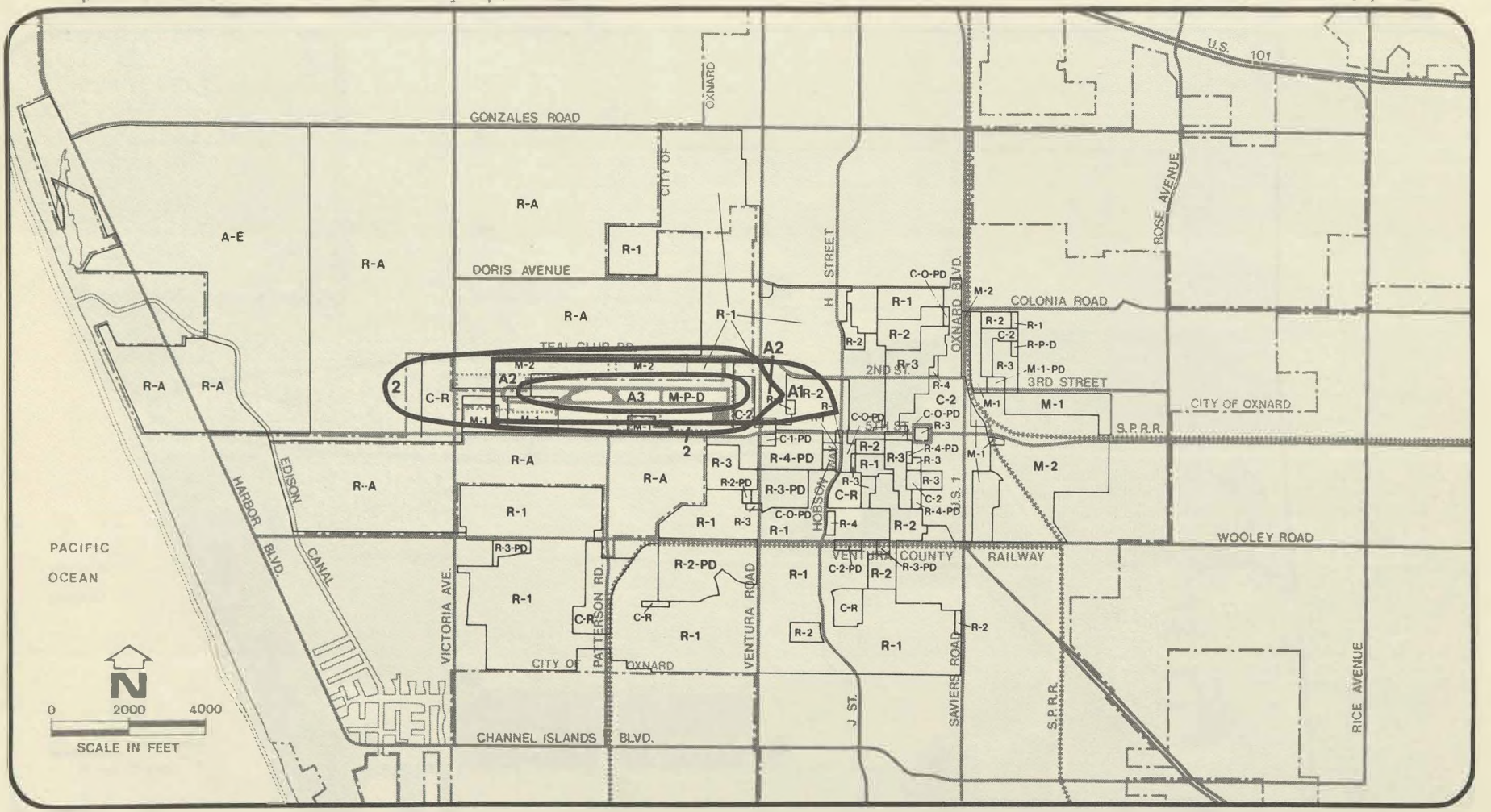


FIGURE 15
1974 AIRPORT INFLUENCE AREA
WITH LOCALIZED
EXISTING ZONING

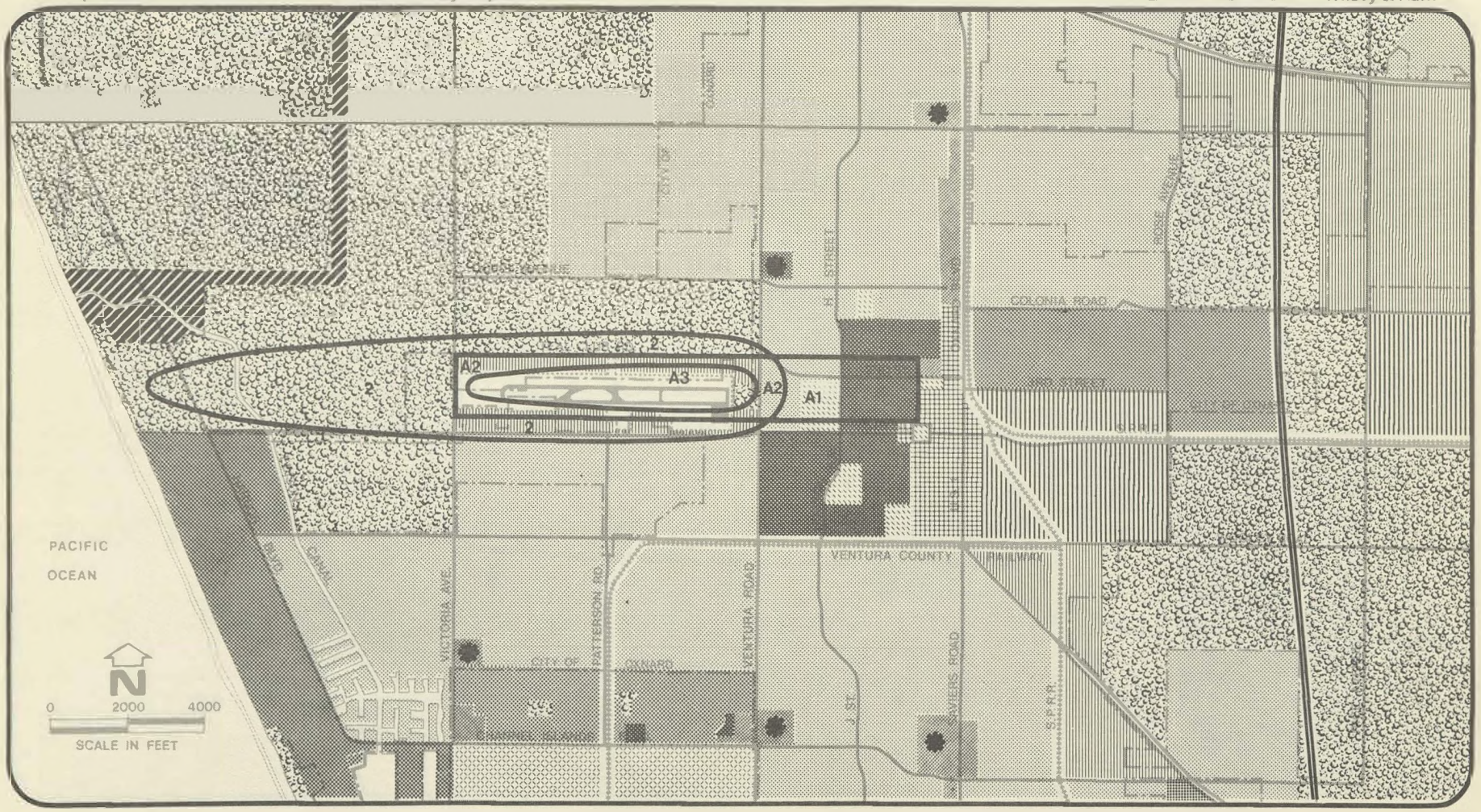


FIGURE 16
1990-2000 AIRPORT INFLUENCE AREA WITH 1990 PROPOSED LAND USE

- City Limits
- Upper Low Density 6 DU/Acre
- Lower Medium Density 12 DU/Acre
- Upper Medium Density 20 DU/Acre
- Central Business District
- Community Commercial
- Public/Semi-Public
- Light Industrial
- Limited Industrial
- Public Utility
- Parks & Open Space
- Proposed Freeway
- Military

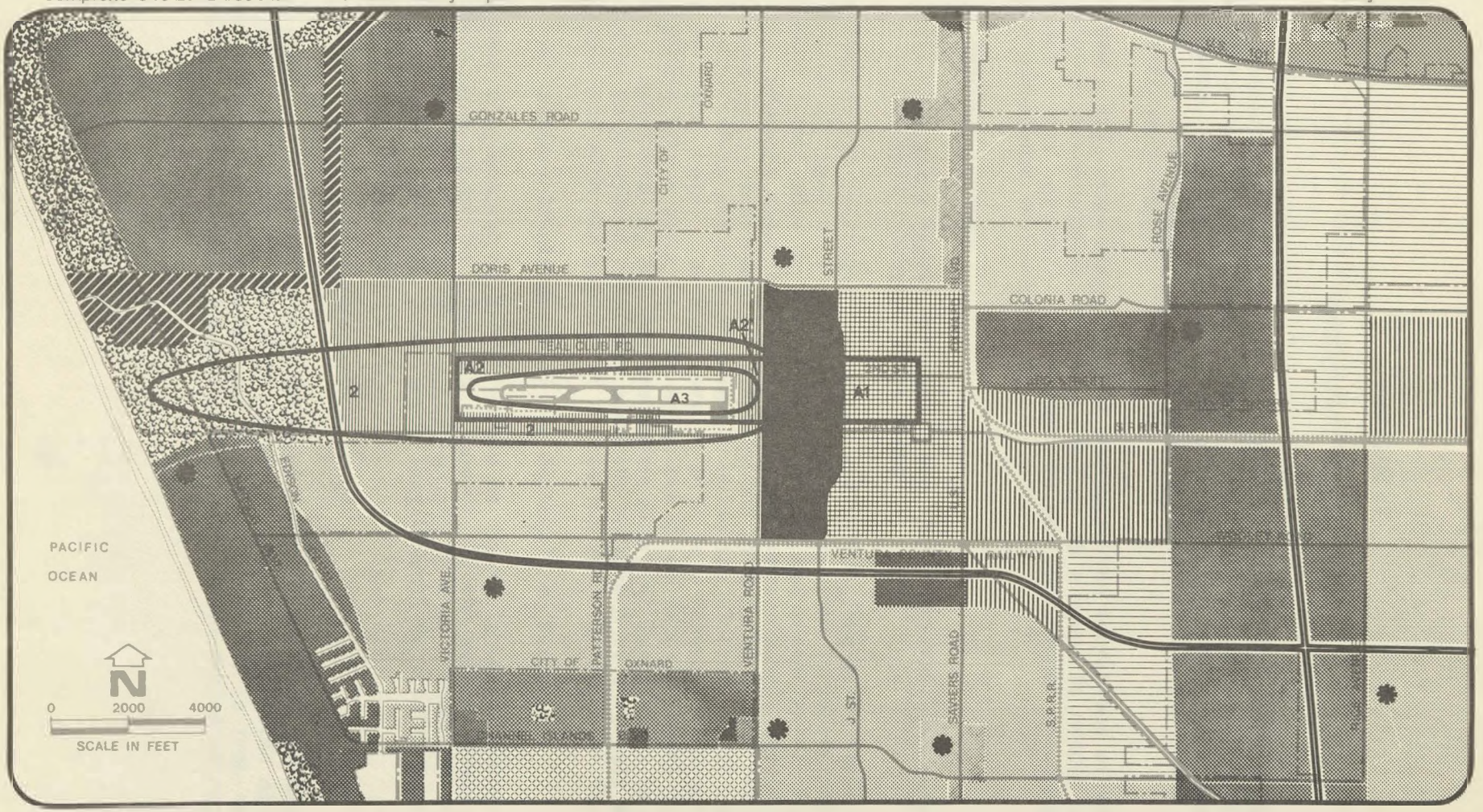


FIGURE 17
1990-2000 AIRPORT INFLUENCE
AREA WITH GENERAL PLAN - 2000

- City Limits
- Upper Low Density 7 DU/Acre
- Lower Medium Density 13 DU/Acre
- Upper Medium Density 20 DU/Acre
- High Density 42 DU/Acre
- Central Business District
- Community Commercial
- Light Industrial
- Limited Industrial
- Special Airport Related
- Public Utility
- Parks & Open Space
- Military
- Proposed Freeway

SECTION IV

OPERATIONAL ALTERNATIVES

Operational strategies have the fundamental objective of reducing conflicts between land use and air operations by changing the pattern of impact. Changes may reduce the area of noise and hazard impact or shift the impact from areas with severe conflict to areas where lesser conflict would result.

Wilsey & Ham, after compiling and analyzing the operations at VCA, explored several operational alternatives as a means to reduce community impact. This section briefly describes all operational changes which were considered in the analysis.

A. Approach Changes

1. Install a Visual Approach Slope Indicator (VASI) on Runway 25 - Maintain a Steeper Glide Slope

Increasing the altitude on approach via raising the glide slope decreases the area of impact. Currently, the 6° glide slope is determined by the diamond symbol VASI on the runway. The planned installation of the visual approach slope indicator (VASI) on runway 25 will enable the Ventura County Department of Airports and Harbors to adjust the glide slope to safely and more efficiently guide the aircraft in at the 6° glide slope angle. The VASI carries with it a Federal Air Regulation requiring that a pilot not fly below the glide path indicated by the VASI. Additionally, the Ventura County Board of Supervisors has recently adopted an ordinance requiring aircraft to adhere to the newly adjusted glide slope with the issuing of a citation upon violation of the 6° angle.

2. Further Displacement of the Threshold on Runway 25

Further displacement of the threshold on runway 25 would reduce the impact on approach to runway 25. However, if the usable runway were to be reduced by approximately 700 feet or half of the current displacement of 1,382 feet, the runway length would be insufficient for most twin engine aircraft.

3. Further Utilization of Runway 07

Further utilization of runway 07 would definitely reduce the impact area adjacent to runway 25 approach. However, the wind direction dictates the operation of the aircraft and the prevailing wind is from the ocean and not inland, thereby thwarting the further utilization of runway 07.

4. Restriction of Touch and Go's on Runway 25 Left Hand Pattern

Restriction of touch and go's on runway 25 left hand pattern would reduce air hazard and overflight. This restriction on touch and go's is anticipated as the operational level reaches the 280,000 mark, due to the management of a single runway. In other words, the operation of the airport with a single runway will require additional spacing between aircraft and thus will not accommodate touch and go's which operate in a smaller area.

B. Departure Changes

1. Shift Departures from Runway 25 to the Northerly Right Hand Pattern (Counter Clockwise to Clockwise)

Shifting the current departure route for transient aircraft and touch and go's to a right hand pattern from runway 25 would reduce the impact to the south of 5th Street. The implementation of this alternative is feasible, provided the aircraft using Oxnard Air Force Base do not land on runway 06 or execute a straight out departure on runway 24. Since the pilot controls the aircraft from the left hand side of the aircraft, executing a northerly right hand turn would present a visibility problem and a resultant natural tendency to extend the downwind and cross wind leg. This procedure increases the pilot's workload and thus is a deterent to shifting the pattern.

2. Increase in Departure Altitude on Runway 25 from 600' Prior to Turning to 1,000' before Turning

Increasing the departure altitude on runway 25 from 600 feet to 1,000 feet would reduce the noise and hazard impact for 1990 operations. Implementation of this procedure would not affect the current 60 dB contour.

The shift in departure procedure for the 1990 and 2000 operational level would reduce the impact from the proposed residential conflict south of 5th and west of Victoria in the General Plan to the special airport related area to the west.

C. In-Flight Changes

1. Increase Pattern Altitude from 800' to 1,000'

Increase in the pattern altitude would reduce the impact of overflight and of noise around the Wooley Road area.

D. Aircraft Mix/Operations Level Limitations

Restriction of aircraft to slower, quieter aircraft would reduce noise impact to a small degree. However, since the CNEL contour at VCA is primarily attributable to single engine planes, reduction would not be

significant. Limitation of the operational level to 200,000 per year (roughly 71% of the 280,000 practical annual capacity) would considerably reduce both noise and air hazard impacts, assuming the current aircraft mix. Accomplishment of this limitation implies either curtailment of various support facilities in an effort to suppress demand or provision for 80,000 general aviation operations elsewhere.

Addressing this issue requires consideration of the problems and trade-offs. Economically, the viability of the airport may further suffer if there are restrictions imposed upon the utilization of the facility. On the other hand, limiting growth may result in a less burdensome situation for the airport administrators and thus place less of a demand on the facility. Environmentally, the decreased operational level allows for a more compatible arrangement with neighboring residential developments. However, it is unlikely that an acceptable location for the 80,000 "surplus" operations will be readily available.

Attempting to control aircraft mix and level of operations poses a potential legal conflict with the federal government, which has jurisdiction over airspace and its use. Legal precedent (City of Burbank v. Lockheed Air Terminal, Inc.), (American Airlines, Inc., v. The Village of Cedarhurst) has left local governments with little regulatory power over airport operations. Any program of this kind would require the approval and direction of the FAA.

This section examined operational alternatives for VCA. Section V will examine alternative roles for VCA which directly affects certain operational alternatives, such as the runway length and wheel loadings.

A well coordinated program with adequate publicity to concerned parties, especially pilots, may reduce the usage of the airport by noisy aircraft.

E. Engine/Air Frame Technology

Strict enforcement of the Federal Aviation Administration's new regulation on maximum noise levels for propeller-driven small aircraft would marginally reduce the level of noise created by the prop aircraft.

The FAA rule sets maximum noise levels ranging according to weight from 68-82 dBA for props applying for type certification after October 10, 1973, to 68-80 dBA for those applying after January 1, 1975.

Violation of this regulation affects the type certification of the aircraft. All aircraft must be type certificated in order to operate.

F. Relocate Non-Conforming FAR Part 36[5/] Jets to the Oxnard Air Force Base

Relocation of non-conforming jet aircraft would marginally decrease the noise impact at VCA currently and in the future. As previously mentioned, the single engine aircraft is the predominant factor in creating the CNEL.

5/ For explanation of FAR Part 36, see Appendix 3.)

Since the Ventura County Board of Supervisors has recently withdrawn its application to utilize the now defunct Oxnard Air Force Base as an airport, its viability as an alternative airport is not very good.

G. Runway Extension and Displaced Threshold

Relocation of the runway would most certainly reduce the impact of residential and other incompatible uses. Relocation of the runway 1,200 feet to the west, making it immediately adjacent to Victora Avenue, would reduce the impact on approach to runway 25. However, Victoria Avenue would act as a constraint for westerly operations, considering the height restrictions needed in the approach and departure pattern. However, this problem may be alleviated by grade separation between the runway and Victoria Avenue. Additionally, the relocation of the runway 1,200 feet to the west may pose a problem for the air controllers in that the tower must be in a position to see both ends of the runways. The air controller may be able to see both ends of the runway, but with this shift in runway length, the ease with which the controller previously saw both ends may be lost. Economically, the feasibility of runway relocation and required airport facilities may make it extremely prohibitive.

H. Runway Shortening

Shortening the runway length would marginally decrease the noise impact in that the majority of aircraft utilizing VCA are of the general aviation categories under 12,500 pounds and are capable of operating on a shorter runway. Specifically, there are three basic categories of general aviation airports that can accommodate aircraft under 12,500 pounds as identified by the FAA: 1) Basic Utility Stage 1; 2) Basic Utility State 2; 3) General Utility. The next major category after the General Utility is the Basic Transport.

1. Basic Utility - Stage 1

a. Accommodation: 75% of the propeller aircraft under 12,500 pounds.

b. Intention: serve low-activity locations,remote recreational areas.

c. Examples of aircraft types:

(1) Cessna 150, 170, 180, 210

(2) Mooney M-19C

(3) Piper PA-20

2. Basic Utility - State 2

a. Accommodation: about 95% of propeller aircraft under 12,500 pounds.

b. Intention: serve medium size population with diversity of usage.

c. Examples of aircraft types:

(1) Aero (Commander) 500 series

(2) Beech (Baron) A.S-5

(3) Cessna (Twin Cessna) 310

(4) Piper (Super Cub) PA-12

3. General Utility

a. Accommodation: substantially all propeller aircraft under 12,500 pounds.

b. Intention: serve communities on fringe of a metropolitan area or a relatively larger population community remote from a metropolitan area.

c. Examples of aircraft types:

(1) Beech (King Air) 90

(2) Dehavilland (Dove) 104

(3) Piper (Commanche) PA-24"180"

4. Basic Transport Airports

Airports that accommodate general aviation airplanes heavier than 12,500 pounds are usually referred to as basic transport airports. The runway design standards for these types of airports are illustrated in Figure 18.

The table is utilized in the following manner:

a. Select the appropriate category of airport.

b. Determine the hottest month of the year.

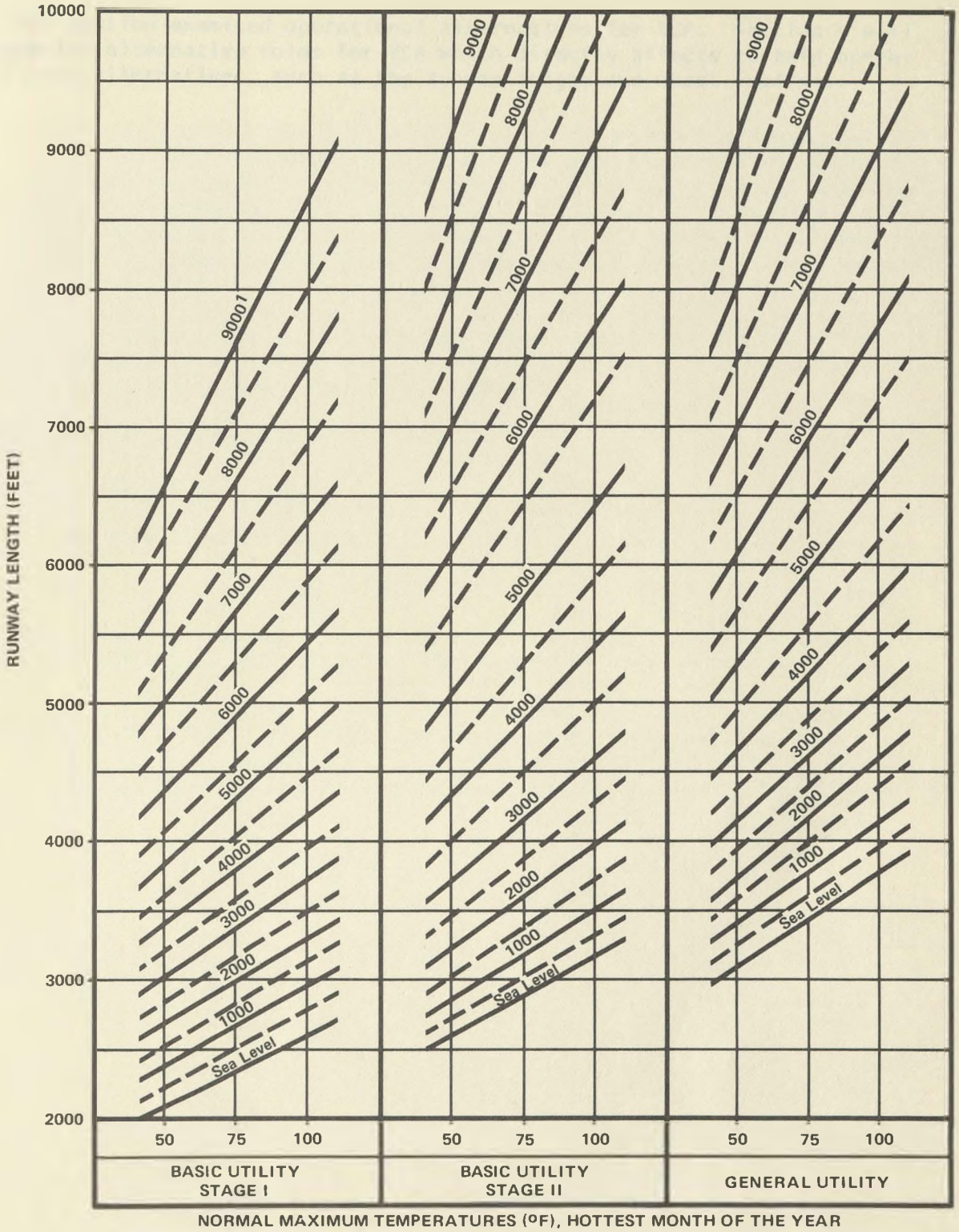
c. Determine the elevation of the airport.

d. Connect the appropriate temperature and elevation lines and read across to determine the runway length.

It should be noted that these curves do not account for wind and slippery conditions. Therefore, a contingency should be added to account for these factors.

Reduction of the runway to accommodate only single engine aircraft would only marginally reduce the CNEL by approximately 0.6 dB CNEL.

FIGURE 18
RUNWAY LENGTH CURVES



EXAMPLE: Temperature – 59°
Elevation – Sea Level
Runway Length –
Basic Stage I – 2200'
Basic Stage II – 2700'
Gen. Utility – 3200'

SOURCE: Federal Aviation Administration Advisory Circular 150/5300-4A

[1]Airport Elevation (Feet)

This section examined operational alternatives for VCA. Section V will examine alternative roles for VCA which directly affects certain operational alternatives, such as the runway length and wheel loadings.

SECTION V

ALTERNATIVE ROLES

Section III defined the current, 1990 and 2000 airport influence areas at VCA. By superimposing the airport influence areas over the existing zoning and land use, and 1990 and 2000 land use plans, the current and potential incompatibilities were identified. Section IV explored several operational alternatives to mitigate the impact. Section V will examine alternative roles for VCA based on environmental considerations, economic demand and airport capability.

Based on VCA's current and projected operational level and operational procedures in relation to the surrounding land use and zoning, the following alternative roles were examined:

- Air Carrier Facility;
- No airport; and
- General Aviation airport.

A. Identification of the Airport

Prior to exploring the alternative roles for VCA, the many aspects of identifying an airport should be discussed.

An airport is designated from a role or runway category standpoint. The role is a function of the airport and the runway category is a function of its capability to accommodate different aircraft by length and weight. The role and runway designations are basically broken down as follows:

Airport Classification

Role

Air Carrier
General Aviation
Military

Runway

Basic Stage 1
Basic Stage 2
General Utility
Basic Transport
General Transport

These classifications are further delineated based on operational activity, navigational equipment, regional significance, etc.

1. General Aviation

A general aviation airport is one that is non-FAA certificated or does not experience State certificated air carrier or military operations. The certification is basically for safety purposes as it determines the maximum allowable length of an aircraft permitted to operate at the facility based on the available fire fighting equipment.

The issue as to what an air carrier airport is becomes more complicated.

2. Air Carrier

a. Federal

An air carrier is federally identified as an airline that is certificated by the Civil Aeronautics Board (CAB) and conducts interstate operations. The type of aircraft does not affect the air carrier classification, it does however, determine the airport it can utilize. Additionally, a CAB-certificated air carrier can only operate at FAA certificated airports, unless otherwise authorized by the Administrator. Therefore, an air carrier airport is federally defined as FAA-certificated to accommodate CAB-certificated air carriers.

b. State of California

On the other hand, the State, specifically California, via the Public Utilities Commission (PUC), certificates an air carrier if it operates intrastate. Golden West, for example, is a PUC certificated air carrier, but is regarded as General Aviation by the federal government since it doesnot operate interstate. However, PSA, which operates jet aircraft of the General Transport category, is required to utilize FAA certificated airports, even though it is not a CAB-certificated air carrier. The role of the VCA, as far as California is concerned, is an air carrier.

3. VCA's Current Status

With this in mind, VCA is currently designated in the National Airport System Plan (NASP), which identifies the role of the airports in this country, as an air carrier facility. This designation is attributable to Hughes Air West, a CAB-certificated air carrier, that utilized VCA with its turboprop F-27's. In 1973, Hughes withdrew from VCA and requested from the CAB a deletion of its route. The CAB did not grant a full deletion, but rather an "indefinite suspension of service" status, possibly due to the potential demand by a CAB-certificated air carrier. This CAB decision affects VCA in the following manner:

a. VCA is still designated as an air carrier airport by the NASP until CAB grants a full deletion, at which time, the role of VCA would probably revert to a general aviation facility of a Basic Transport category.

b. The current runway classification is that of Basic Transport. The airport's runway length is sufficient to satisfy the operational requirements of approximately 100% of the basic transport fleet at 60% useful load. The useful load consists of passengers, cargo, and usable fuel.

c. VCA is regarded by the FAA certification branch as a general aviation facility, since it no longer handles scheduled CAB-certificated air carriers and consequently, its Airport Development Aid Program (ADAP) funding comes from the general aviation portion of the law. VCA is currently FAA certificated for CAB-certificated non-scheduled air carriers.

4. The County of Ventura elected to retain its FAA-certification after the CAB decision, enabling it to handle CAB-certificated non-scheduled air carriers. If the County had elected to discontinue its FAA-certification, CAB-certificated scheduled and non-scheduled air carrier service would have been prohibited, thus in practice changing the role of the airport to general aviation. The NASP would probably have had to review its designation of VCA's role.

With these definitions in mind the analysis of possible roles for VCA follows below.

B. Future Roles for VCA

1. Air Carrier Facility

As the County of Ventura continues to grow, the attractiveness and commercial feasibility of an air carrier airport of a General Transport category there increases. The City of Oxnard is among the more attractive sites because of its location in an area of population concentration and economic activity. These same factors, however, diminish its desirability as a potential site. The fact that population is already concentrated in the Oxnard area also implies that increased operations would produce noise contours and air hazard zones which would adversely impact many acres which are already developed.

A study by Wyle Laboratories showed that operation of turbofan aircraft at VCA would extend the 60 dB CNEL contour outward over several hundred acres. Although technological advancements such as noise mufflers do exist and do decrease sound from aircraft such as the DC-9 and B-373 (which do not conform to FAR Part 36), cost of modifying these aircraft is prohibitive. Because of potential increased noise and air hazard, and because of existing community opposition to this option, the role of air carrier facility of General Transport category for VCA is not appropriate. This opposition has been expressed not only by the City of Oxnard, but also by the County of Ventura's Department of Airports and Harbors.

2. No Airport

Environmentally, the phasing out of VCA would eliminate the impact created by the airport. However, the airport currently contributes to the local economy as discussed in Section II.

However, as previously mentioned, this contribution is affected by the negative aspect of the airport's existence - its budget deficit. This deficit of approximately $100,000 annually is currently being made up by County subsidy. However, in an effort to make VCA self-supporting, the Department of Airports and Harbors has designed a program to resolve this economic condition.

This program is geared to identifying facility and operational requirements that would make the airports financially viable, as discussed in Section II.

Based on our findings, the airport's economic contribution outweighs the current financial deficit of the airport. Again, it should be mentioned that the current method of cost/revenue analysis may be the cause of the "deficit" and is currently under investigation. Considering the current program to resolve the economic problem it is our recommendation that closure for economic reasons is not justifiable. Moreover, closure for environmental reasons is not warranted considering the extent of the current impact.

a. Future General Aviation Activity

Future operations levels at VCA are strongly affected not only by continued and rising demand for services and facilities, but also by the gradual foreclosure of other airport alternatives in Ventura County. Rejection of the use of Oxnard Air Force Base and of the Tierra Rejada Site by the County Board of Supervisors, in the absence of a new regional airport north of Point Mugu, focus general aviation demand on VCA.

Noise impact from 1990/2000 60 dB CNEL contours affects some proposed residential development in the 1990 Land Use Plan and General Plan, but is for the most part compatible with projected development. The projected air hazard zone at 280,000 operations severely impacts a proposed high density residential development adjacent to the airport east of Ventura Road. This proposed development, however, would be impacted even if the current operations level were maintained. The City should consider a density decrease for this area regardless of operations level.

b. Implications of Future Operations

Limitation of annual operations to a ceiling of 200,000, with a severe restriction on the amount of touch and go operations, will reduce the impact over the City on approach. This limitation is environmentally advantageous but legally rather difficult. As mentioned in Section IV, the FAA has jurisdiction over the airport, pre-empting all local government control over the facility. The FAA will be very reluctant to limit operations below the PANCAP at VCA, especially if no alternative

site exists for the "surplus" 80,000 operations. The City of Oxnard, if it wishes to pursue this alternative both for environmental quality and land use compatibility purposes, should strongly advocate development of a regional airport on the Point Mugu site.

Sections IV and V examined alternatives to the current situation and Section VI establishes an implementation program for the recommended alternative.

SECTION VI

IMPLEMENTATION

The implementation program represents a combination of operational, land use and informational strategies which will be effective in achieving a compatible relationship between VCA and the City of Oxnard and County of Ventura.

A. General Aviation Role

1. Strategy for the Ventura County Airport at Oxnard

The City of Oxnard should seriously consider the takeover of the VCA. As the proprietor of the airport, the City would have substantially more leverage over the airport's future. This will also prevent the possible accommodation of the B-737 or DC-9 jet category. Moreover, State-certificated air carriers, such as PSA or Air California will be prohibited from operating at VCA if the runway had the loading capacity and appropriate length.

2. FAA Certification

In the event the City of Oxnard becomes the proprietor of the airport, it has the option of withdrawing its FAA certification. This withdrawal will prohibit CAB-certificated air carriers from operating at VCA under Federal Aviation Regulations.

B. Operational Strategies

Based on their relative effectiveness and practicality, the following strategies are recommended:

1. Approach Changes

a. Installation of a VASI on runway 25, as currently planned by the Department of Airports and Harbors.

b. Restriction of touch and go operations on runway 25 left hand (counter clockwise) pattern.

2. Departure Changes

Increase departure altitude on runway 25 from 600 feet to 1,000 feet prior to turning before entering the pattern.

3. Inflight Changes

Increase the pattern altitude from 800 feet to 1,000 feet, as proposed by the Ventura County Department of Airports and Harbors.

4. Engine/Air Frame Technology

Enforce the FAA regulation on maximum noise levels for propeller-driven small aircraft, (Appendix 3. FAR Part 36.)

5. Runway Wheel Loading

Maintain wheel loading (strength of runway) to accommodate current mix of aircraft and to prevent aircraft types in excess of 60,000 pounds.

6. Noise Monitoring

Implement noise monitoring to allow better evaluation of the noise impact of operations and operational alternatives. Monitoring will assist in defining climatic conditions that increase or decrease noise impact thus enabling airport officials to control operations during periods of higher impact.

7. Height Restrictions

Stringently enforce height restrictions, in accordance with FAR Part 77.

C. Land Use Strategies

1. Review of all building permits within the Airport Influence Area. Review should focus on the compatible Airport Dependent Land Uses in the Airport Influence Area (Table 3) found in Section VII, and with the Airport Influence Area Land Use Objectives, Figure 3 (found in Section II).

2. Restrict intensity of land use in Limited Air Hazard Zone by zoning, clustered residential development or restrictive easements.

3. Expand the Airport Zone to south of the airport terminal as a means to increase the proposed airport industrial park and maintain a compatible land use compatible with aircraft noise.

D. Informational Strategies

1. Dissemination of airport compatibility information to developers and public agencies.

2. Collection of complaint data should be continued at VCA and an effort be made to record specific incidents associated with complaints to provide better information on the nature of operations resulting in complaints.

Based on these recommendations, Section VII will offer methodology of determining compatible dependent land uses in the vicinity of the airport.

SECTION VII

RECOMMENDED LAND USES IN AIRPORT INFLUENCE AREA

A. Recommendations Concerning Land Use

Consistent with the City's Land Use Element of the General Plan, Wilsey & Ham has developed, in conjunction with the City of Oxnard, a methodology to determine types of desirable land uses abutting the airport.

The analysis and recommendation of land uses in the airport related zones were subsequent to:

- analyzing the current and projected airport influence areas;
- analyzing operational alternatives;
- recommending operational alternatives;
- analyzing alternative roles for VCA; and
- recommending an appropriate role for VCA based on compatibility, capability and demand.

This analysis was undertaken to determine what land uses needed to be located at the airport and the compatibility of these uses with the airport influence areas. By utilizing this dualism concept, it enabled us to incorporate the economic and environmental factors of airport land use planning. Therefore, the concept of an airport related use utilized two principles:

- The principle of dependency upon the airport.
- The principle of compatibility with the airport.

B. Concept Development

1. Dependency

There has been considerable recent discussion about the economic viability of the Ventura County Airport at Oxnard. The Planning Department agrees with the County staff that every opportunity must be offered to maximize the revenues generated by the operation of the Ventura County Airport. The City of Oxnard feels it is imperative that the land around the airport be developed in a manner to complement the airport operation, not only physically but economically as well. Direct access to the airport by either vehicles or aircraft is not only a major asset of properties abutting the airport, but the provision of this direct access provides income to the airport through the collection of fees for the use of access to on-base airport facilities.

Conversely, parcels which have proximity to the airport should be increased in value and should be more valuable for those potential users who would benefit from proximity with and/or direct access to the airport and its facilities. This requires that priorities be established relative to airport uses on the various parcels situated within the airport related zone.

a. Priority

(1) Land uses that can only locate at the airport are the most dependent and take the first priority in planning land uses in and around the airport.

(2) Land uses that could locate in non-airport locations, but depend on the airport for transportation, other services or exposure take the second priority in planning land uses in and around the airport.

(3) Land uses that can logically locate in other zones or locations within the City of Oxnard, take the last priority in planning land uses in and around the airport.

The following is a delineation of airport dependent land uses by priority:

TABLE 2

AIRPORT DEPENDENT LAND USES

1st Priority Can Only Locate in an Airport	2nd Priority Could Locate in Non-Airport Locations but Needs Airport Exposure and Access	3rd Priority Can Logically Locate in Other Zones or Locations
· Navigational equipment · Control tower · Hangars · Aircraft sales and rentals · Aircraft maintenance · Airport terminal and parking	· Car rental · Airport related offices · Limited manufacturing · Aircraft parts · Aircraft supply · Air freight · Hotels, motels - airtels · Airport Restaurant	· Warehouse - general storage · Electronics - low employee density · Industrial park - manufacturing

Those properties which abut the airport or which could have access to the airport through a coordinated system of runways or taxiways should be reserved for first or second priority uses only. Those land uses indicated by Priority 3 should be permitted only on those properties which do not have the ability for direct access to the airport. Example of property in the 3rd priority is that airport-related property shown west of Victoria and north of Teal Club Road.

2. Compatibility

Those uses which are built around the airport should be such that they receive a minimum adverse impact from the airport operation. Uses built within the airport-related zone (in addition to observing necessary clear

zones and setbacks from runways, navigational equipment, and other on-base operations) should be compatible with both the sound generation and potential hazards created by the airport.

Section III identified the zones of decreasing sensitivity in the airport influence area. Table 3 delineates airport dependent land uses by priority and their compatibility with the airport influence area impact zones.

TABLE 3

COMPATIBLE AIRPORT DEPENDENT LAND USES IN THE AIRPORT INFLUENCE AREA

Noise/Air Hazard Zone	Land Uses that Can Only Locate in an Airport	Land Uses that Could Locate in Non-Airport Locations, but Need Airport Exposure & Access	Land Uses Which Can Logically Locate in Other Locations
Within airport building clearance line	· Only navigation equipment and control tower		
A3	· Hangars · Support facilities · Aircraft sales and rentals · Instruction · Aircraft maintenance	· Airport related offices · Car Rental · Limited manufacturing a. aircraft parts supply b. air freight	· Warehouse — general storage · Electronics — low employee density · Industrial park — manufacturing and all above
A2	· Hangars · Support facilities · Aircraft sales and rentals · Instruction · Aircraft maintenance	· Airport related offices · Car Rental · Limited manufacturing a. aircraft parts supply b. air freight	· Warehouse — general storage · Electronics — low employee density · Industrial park — manufacturing and all above
A1	· Hangars · Support facilities · Aircraft sales and rentals · Instruction · Aircraft maintenance	· Airport related offices · Car Rental · Limited manufacturing a. aircraft parts supply b. air freight	· Warehouse — general storage · Electronics — low employee density · Industrial park — manufacturing and all above
3	· Hangars · Support facilities · Aircraft sales and rentals · Instruction · Aircraft maintenance	· Airport restaurant · Hotel, motel — airtels and all above	· Warehouse — general storage · Electronics — low employee density · Industrial park — manufacturing and all above
2	· Hangars · Support facilities · Aircraft sales and rentals · Instruction · Aircraft maintenance	· Airport restaurant · Hotel, motel — airtels and all above	· Warehouse — general storage · Electronics — low employee density · Industrial park — manufacturing and all above
1	· Hangars · Support facilities · Aircraft sales and rentals · Instruction · Aircraft maintenance	· Airport restaurant · Hotel, motel — airtels and all above	· Warehouse — general storage · Electronics — low employee density · Industrial park — manufacturing and all above

To illustrate the application of this table to the proposed land use, refer to Figure 19.

SOURCE: Wilsey & Ham

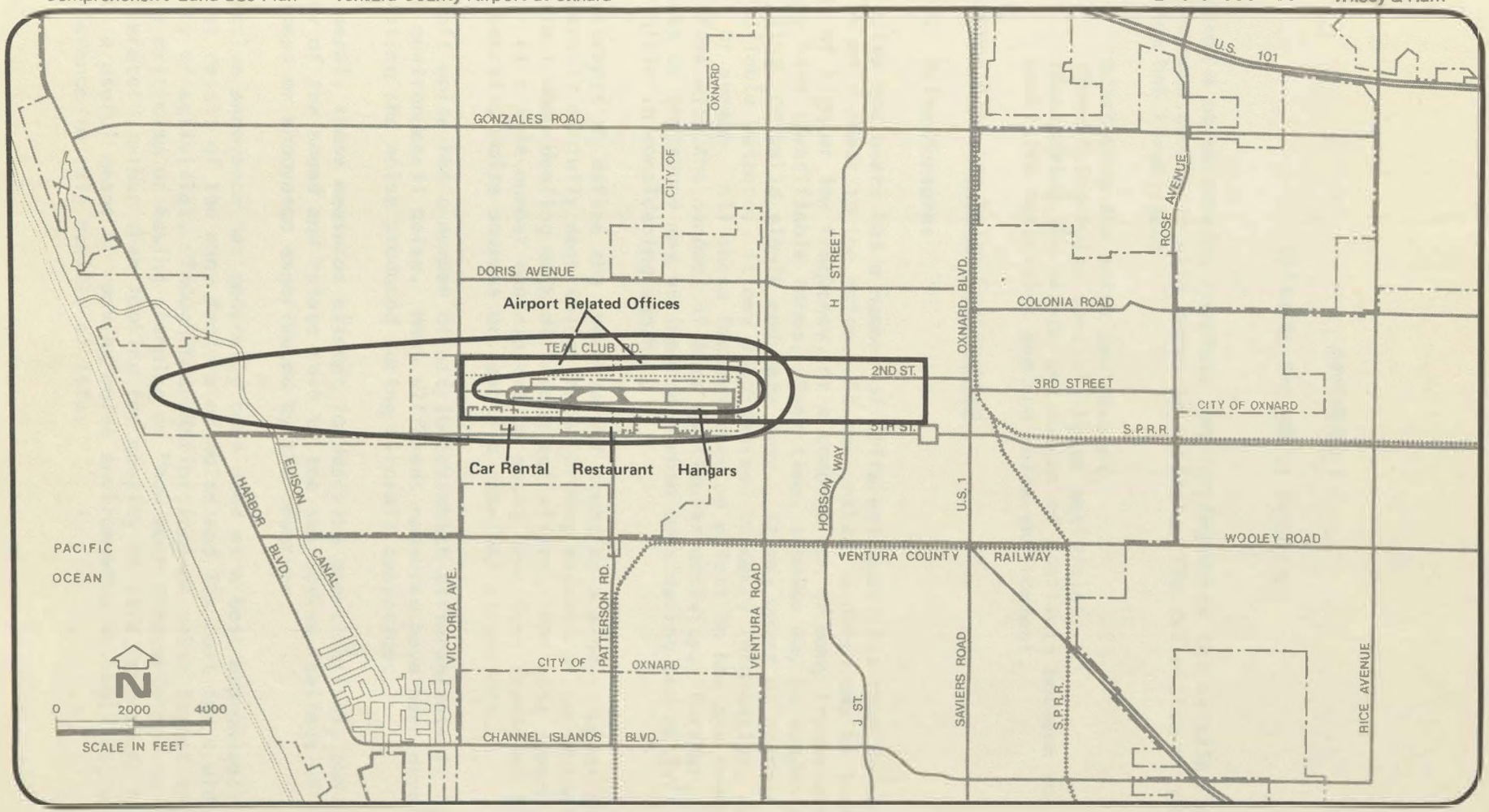


FIGURE 19
ILLUSTRATIVE PLAN
WITH 1990-2000 AIRPORT
INFLUENCE AREA AND
1990 PROPOSED LAND USE

APPENDIX 1

DEFINING THE NOISE PROBLEM

Defining a noise problem involves identifying where the existing noise environment conflicts with human activities. The definition of the noise problem has three steps:

- Describing the noise environment;
- Identifying noise sensitivity of activities;
- Identifying the nature and extent of conflicts between noise-sensitive activities and the noise environment.

A. Describing the Noise Environment

1. Noise Measures

Any noise one hears has a number of different qualities that determine how he will react to the noise. At any instant a noise may be loud or soft, of high or low frequency, or a combination of many frequencies. It may have identifiable tones. Over time, a noise may be sudden and startling, or build slowly and fade away. It may waver or contain an identifiable pattern. It may be organized to carry information, such as music or speech. All these factors have an effect on how the sound will interfere with the conduct of some particular activity. Further, some aspects of the sound may be important when considering one activity, but negligible in considering another.

All attempts to define the character of sound by a single number give up the benefit of fully describing these varying aspects of sound that are important when dealing with different activities. For this reason, a number of single number descriptors of sound have been developed for use with specific noise sources or specific receiver situations.

Aircraft noise has a number of attributes which differentiate it from other environmental noise. Many different measures have been developed for rating the noise produced during aircraft operations.

In general, these measures attempt to describe quantitatively the acoustic energy of the sound and relate this to the subjective feelings of loudness, noisiness or annoyance experienced by the observer.

Subjective annoyance has generally been used as a best approximation to the net result of the many factors of noise and its cost for a wide variety of activities. Though such definitions of noise impact are subject to the criticism of basing planning on "how much annoyance are we willing to tolerate?" rather than looking for quality of life, annoyance has proven a useful means of ranking noise environments by their degree of interference in this quality of life.

Noise descriptors have been developed for various purposes:

a. Noise Level Descriptors

The base measure of noise, which is the level occurring at a given instant.

b. Noise Event Descriptors

Integrates the noise level descriptor over the duration of time of the noise event.

c. Noise Environment Descriptors

A measure describing the total aircraft noise environment over a day or longer period. Weighting factors are applied to account for increased sensitivity to noise in the evening and nighttime hours. Three noise environment descriptors are currently in wide use: the Composite Noise Rating (CNR); the Community Noise Equivalent Level (CNEL); and, the Noise Exposure Forecast (NEF). The CNEL is used only in California.

B. Noise Sensitivity of Activities and Land Uses

1. Effects of Noise on People

The response to aircraft noise is varied and complex, and depends on a number of psychological and social factors as well as physiological response to noise. Three aspects of noise response have been used to judge levels of interference with people's activities:

- Physiological effects, both temporary (e.g., startle reactions and temporary hearing threshold shifts) and enduring (e.g., permanent hearing damage or the cumulative physiological effects of prolonged sleep loss).

- Behavioral effects involving interference with on-going activities such as speech, learning, TV-watching, sleep or the performance of various tasks.

- Subjective effects, described by such words as "annoyance," "nuisance," "dissatisfaction," "disturbance," etc., as a result of behavioral and physiological effect.

The upper limits of aircraft noise, considering the levels and durations encountered away from the immediate vicinities of runways and maintenance areas, are generally not severe enough to produce measurable long-term physiological effects. For example, the noise levels produced by aircraft flyovers even at community positions relatively close to the runways, are not intense enough to cause permanent loss of hearing. Thus the last two categories of noise effects -- behavioral and subjective -- provide the most usable guides for establishing aircraft noise criteria.

2. Effect of Climatic Conditions on Noise Impact

Climatic conditions which influence noise include temperature, wind conditions, humidity and inversion layers. Wind conditions determine the layout of runways and usage of runways. This, in turn, determines the areas affected by aircraft noise. High humidity decreases the rate of absorption of sound by air, increasing noise impact, particularly at a distance, and temperature and total effects. Inversion layers reflect sound back to ground and also increase areas of noise impact. These last two climatic effects are generally seasonal and will vary noise impact by the time of year.

APPENDIX 2

METHODOLOGY FOR DETERMINATION OF AIR HAZARD ZONES

A. Defining Risk of Death, Injury and Property Damage Associated with an Aircraft Accident

Defining the pattern of accidents can be determined by looking at safety records of general aviation airports. Since there have been no accidents within one mile of VCA in the last five years, no meaningful statistical analysis can be performed based on information from VCA alone. However, information is available from other general aviation airports and from military airports to assist in developing probable accident patterns for Oxnard.

In analyzing accident patterns, it was assumed that the relative probability of a crash at a given location relative to a given flight track was related to two factors:

1. Distance from point of touchdown or start of takeoff roll as measured along the flight track.

2. Perpendicular distance to the left or right of the flight track.

A history of 18 accidents at Gillespie Field, a general aviation airport near San Diego, was used to estimate the pattern of accidents for Oxnard. Crashes at Gillespie to left and right of the flight track assumed an approximately normal statistical distribution with mean at .077 miles (407 feet) to the right of the flight track and a standard deviation of .2388 miles (1261 feet). For crashes within 1 mile of touchdown or start of takeoff roll, standard deviation was .1 mile (528 feet), and for crashes more than 2 miles from the zero point, standard deviation was .36 miles (1901 feet).

Probability of crashes along the flight track is less similar to a normal distribution. However, because military crashes did assume a normal distribution and the sample size available at Gillespie was relatively small to reliably predict the nature of this distribution, a normal distribution was assumed for distance along the flight track as well. For Gillespie, mean distance was .8 miles along the takeoff segment with a standard deviation of 1.7 miles.

Crash frequency estimates are also based on historical records. Records of operations indicate that crash frequency was approximately 1 per 200,000 operations at Gillespie. Records at other general aviation airports illustrate a similar frequency. Van Nuys and Orange County airports each have accident frequencies of 1/175,000 to 1/250,000 in recent years. Because safety of general aviation operations is improving and because VCA's recent safety record has been excellent, a probability of one

accident per 250,000 operations was assumed for development of current Air Hazard Zones, and a probability of one accident per 300,000 operations was used for 1990 AHZs.

Once crash frequency and crash pattern are known, the remaining task is to identify the probable impact of each crash to determine level of risk from a given operations pattern. Because impact information was not found for general aviation aircraft, information from crashes of large civil aircraft was adapted to small aircraft. For large aircraft, impact in terms of non-occupant fatalities is found to be approximately:

$$I = .0015\ wd$$

where I is impact in non-occupant deaths;
w is aircraft weight in thousands of pounds; and
d is gross density of development in persons per acre.

Since general aviation aircraft are likely to impact the ground at lower speeds, an estimating formula of $I = .0008\ wd$ was used for general aviation aircraft. Thus for an aircraft weighing 2000 lbs. crashing in an area developed at 30 persons per gross acre, one would expect .05 deaths per accident on the average, or one death in 20 accidents.

Crash probability at a given location is then:

$$P = P_o \times O_t \times \frac{1}{\sigma_L\sqrt{2\pi}} e^{\frac{-x^2}{2\sigma_L^2}} \times \frac{1}{\sigma_w\sqrt{2\pi}} e^{\frac{-y^2}{2\sigma_w^2}}$$

where P = probability of a crash at the given location in crashes per square mile per year.
P_o = probability of a crash per 100,000 operations.
O_t = number of operations on flight track in hundreds of thousands.
σ_L = standard deviation along flight track, miles.
σ_w = standard deviation left or right of flight track, miles.
x = distance from mean along flight track, in miles.
y = distance from mean to left or right of flight track, in miles.

In addition, since deviation to left and right of the flight track increases, the standard deviation to left and right of the flight track is adjusted in the estimating equation to increase by $2\frac{1}{2}^o$ from the centerline. The estimating equation then becomes, for general aviation aircraft at Oxnard:

$$P = .4 \times O_T \times \frac{1}{4.25} e^{\frac{-x^2}{5.75}} \times \frac{1}{.60} e^{\frac{-y^2}{2(.15 + x \tan 2.5°)}}$$

for current Air Hazard zones. For projected AHZ's .4 is decreased to .333, reflecting the decreased probability of accident.

From this equation, one can develop a "probability surface" showing probabilities of an accident in all areas around the airport. By drawing a line through all points of a given probability, one can establish zones where the probability of an accident exceeds the given probability.

The level of risk to an individual of being a nonoccupant fatality in an aircraft accident is a function of the probability of a crash at his location and the potential fatal impact area of a crash. The fatal impact area can be determined from the accident impact prediction relationship:

$$I = .0008\ wd$$

If one assumes one crash occurs somewhere in the square mile where the individual is located, the likelihood of death[1] is then $I = .0008\ w \times 1/640$ or $I = .0008 \times 1.5 \times 1/640 = 1.88 \times 10^{-6}$ for a typical light aircraft crash. Risk of death as a function of crash probability[P] is then $P \times 1.88 \times 10^{-6}$.

B. Defining the Acceptable Level of Risk

Definition of acceptable risk involves confrontation with community values or the subject of death - "thinking the unthinkable" in terms of what constitutes an appropriate likelihood of fatality in relation to airport operations. Acceptable risk for a major military air station was considered to be one non-occupant fatality every ten years. Crash hazard zones based on this level of risk had probabilities of accident as follows:

Extreme Hazard: greater than 2 per square mile per year
Considerable Hazard: greater than .05 per square mile per year
Limited Hazard: greater than .0125 per square mile per year

General aviation has a safety record superior to that of military aircraft. To define a risk of death ($I = .008 \times 1.5 \times \frac{1}{640} = 1.88 \times 10^{-6}$) equal to that of military aircraft, a much greater number (25 times greater) of accidents would have to occur within each zone. Hazard zones at general aviation thus have crash risks defined as follows:

Extreme Hazard: greater than 5 accidents per square mile per year
Considerable Hazard: greater than 1.25 accidents per square mile per year
Limited Hazard: greater than .3125 accidents per square mile per year

VCA exhibits only a Limited Air Hazard Zone due to its safety record.

Risk to an individual in these zones is thus determined by combining risk of crash with risk of death from a given crash:

Extreme Hazard Zone:	9.4×10^{-6}/year
Considerable Hazard Zone:	2.4×10^{-6}/year
Limited Hazard Zone	5.9×10^{-7}/year

APPENDIX 3

AIRCRAFT NOISE STANDARDS

A. Federal Aviation Administrations Noise Standards for Prop Driven Small Aircraft - FAR PART 36

The Federal Aviation Administration has recently adopted a new regulation setting maximum noise levels for propeller-driven small aircraft.

The FAA rule set maximum noise levels ranging, according to weight, from 68 to 82 decibels (A-weighted) for propeller-driven small airplanes applying for type certification after October 10, 1973, and 68 to 80 db(A) for those applying for type certification after January 1, 1975.

The FAA rule is aimed primarily at stopping escalation of noise by new propeller-driven small airplane types.

FAA's rule affects all propeller-driven airplanes under 12,500 pounds in the normal, utility, transport and restricted categories.

B. Federal Aviation Administration Noise Standards: Aircraft Type Certification - FAR PART 36 (Turbojets and Turbofans)

The FAA adopted noise standards via aircraft type certification in 1969. The standard concerned turbojets and turbofans receiving certification after 1969. These aircraft are required to meet noise standards based primarily on the function of weight.

Enforcement of these standards is via the certification of the aircraft. The noise levels for jet aircraft under 25,000 pounds, which is relevant to VCA, are as follows:

Approach	102	EPNdB
Takeoff	93	EPNdB

As an example of the new generation of business jets, the Cessna Citation 500 generates the following noise levels:

Approach	87	EPNdB
Takeoff	78	EPNdB

APPENDIX 4

FEDERAL AVIATION REGULATION FAR PART 77
OBSTRUCTIONS TO NAVIGABLE AIRSPACE

The Federal Aviation Administration sets standards for the height of structures and hills near airports, which are aimed at preventing accidents by assuring a clear airspace. The FAA can only enforce its regulations at public airports, but the State Department of Aeronautics, which has similar standards, can refuse certification to private airports used by the public. In addition, the County and Oxnard have ordinances restricting the height of structures around airports.

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