III. FINDINGS, POLICIES AND IMPLEMENTATION

The concerns of airport land use planning fall into three categories:

1) Height Restrictions - protecting the navigable airspace around airports for aircraft safety;
2) Noise Compatibility - minimizing the degree to which noise from aircraft affects the communities around airports; and
3) Safety of Persons on the Ground - minimizing the danger to the population around airports from aircraft accidents.

Thoughtful planning in these three areas, reflected in land use policies and regulations, will minimize the exposure of the public to noise and safety hazards, provide safer aircraft operations, and help protect airports and the public resource they represent from encroachment by incompatible land development.

At the Lake Tahoe Airport, the airport area of influence is made up of the boundaries of the three areas of major concern: height, noise and safety.

A. AIRPORT HEIGHT RESTRICTION AREA

Height restrictions are necessary to insure that objects will not impair flight safety or decrease the operational capability of the airport. Federal Aviation Regulations (FAR) Part 77, Objects Affecting Navigable Airspace, defines a series of imaginary surfaces surrounding all public use airports. In the Tahoe basin, some natural terrain features penetrate the FAA defined surfaces. Any proposed object or structure which would penetrate any of these imaginary surfaces as they apply to the Lake Tahoe Airport is considered by the Federal Aviation Administration (FAA) to be an obstruction to air navigation. While an obstruction to air navigation may not necessarily be a hazard to air navigation, the FAA presumes it to be and treats it as such until an FAA aeronautical study has determined that it does not have a substantial adverse effect upon the safe and efficient use of navigable airspace by aircraft.

While the FAA requires a project sponsor to provide notice to them if a proposed project could exceed any of the imaginary surfaces, they cannot prohibit the construction of any structure determined to be a hazard. State law goes further, however, and prohibits the construction of any structure that would penetrate an imaginary surface, unless the State Division of Aeronautics has first issued a permit allowing its construction.

The imaginary surfaces which the FAA uses to determine whether or not a structure or an object would be an obstruction to air navigation include the primary surface, approach surface, horizontal surface, conical surface and transitional surfaces. These imaginary surfaces are described in section 2.b. below and illustrated in Figure 5.

1. Objective: To assure the safe passage of aircraft in, out and around the Lake Tahoe Airport by safeguarding and preserving navigable airspace.

2. Findings:

   a. FAR Part 77.13 requires each person proposing any kind of construction or alteration to give notice to the FAA on form 7460-1 (Notice of Proposed Construction or Altermation) if such construction or alteration:

      i. Is more than 200 feet in height above the ground level at its site, or

      ii. Is of a greater height than an imaginary surface extending outward and upward at a slope of 100 to 1 for a horizontal distance of 20,000 feet from all edges of the runway surface.

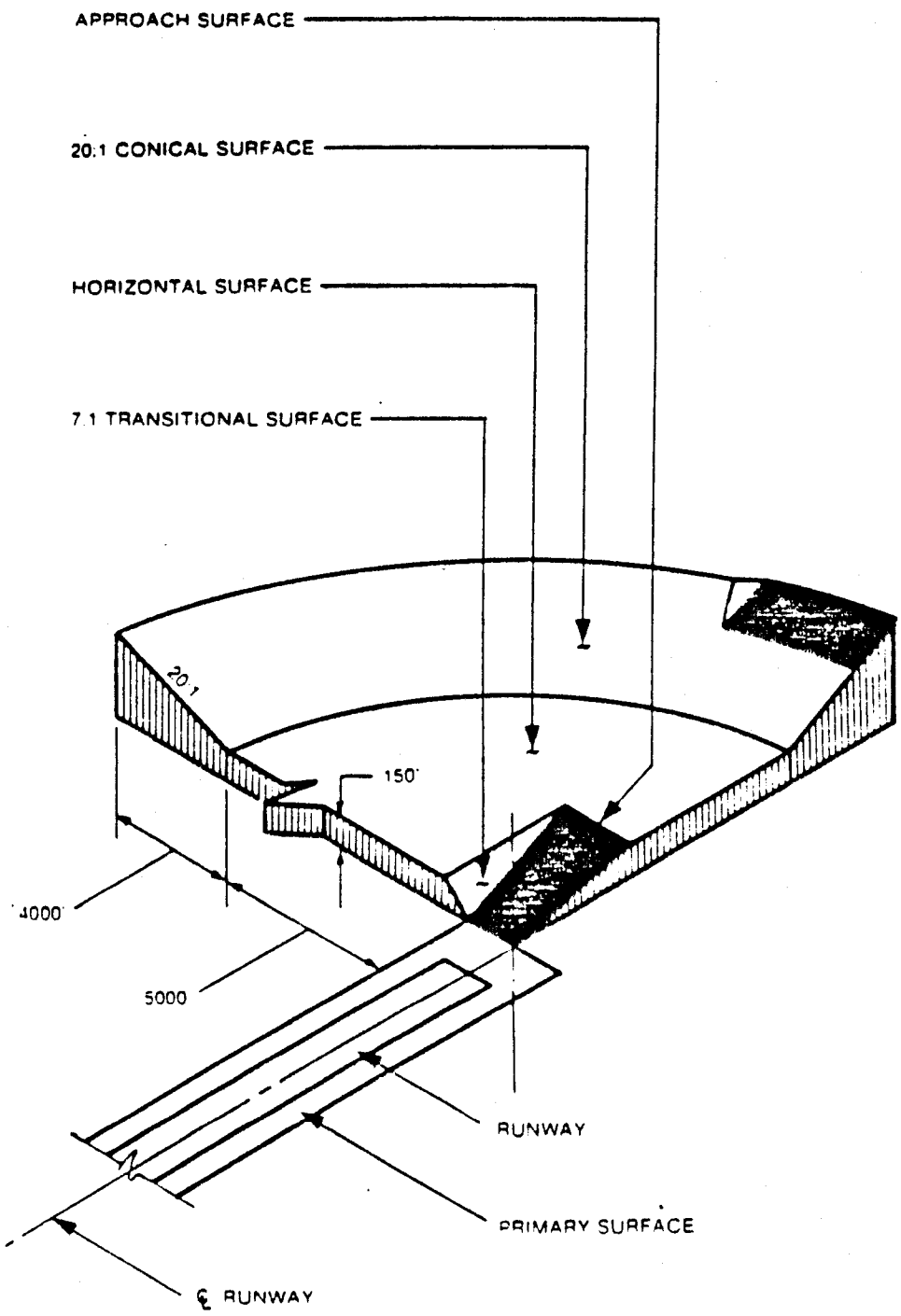
   b. Following receipt of a Notice of Construction or Alteration, the FAA determines whether or not the proposed structure is a hazard to air navigation. For the Lake Tahoe Airport, the standards used by the FAA to determine whether or not a proposed structure would be a hazard to air navigation include the following airport imaginary surfaces defined in FAR Part 77.25 and illustrated in Figure 5:

      i. Primary Surface: A surface logitudinally centered along the runway, extending 200 feet beyond each end of the paved runway and having a total width of 500 feet.

      ii. Horizontal Surface: A horizontal plane 150 feet above the established airport elevation (the highest point of usable landing area measured in feet above mean sea level), the perimeter of which is constructed by swinging arcs 5,000 feet out from the center of each end of the primary surface and connecting the adjacent arcs with lines tangent to these arcs.

      iii. Conical Surface: A surface extending outward and upward from the periphery of the horizontal surface at a slope of 20 to 1 for a horizontal distance of 4,000 feet.

      iv. Approach Surface: A surface longitudinally centered on the extended runway centerline, extending outward and upward from each end of the primary surface. An approach surface is applied to each end of the runway based upon the type of approach available or planned for that runway end. The approach surface for runway 18 has a slope of 34:1, for runway 36 it is 20:1; both have a length of 5,000 feet. The approach surface for runway 18 has an outer width of 1,500 feet while the approach surface for runway 36 has an outer width of 3,500 feet.



PART 77 CIVIL AIRPORT IMAGINARY SURFACES

Isometric View

FIGURE 5

v. Transitional Surface: A surface extending outward and upward at right angles to the runway centerline plus runway centerline extended at a slope of 7 to 1 from the sides of the primary surface and from the sides of the approach surfaces.

Note: Where imaginary surfaces overlap, such as is the case where the approach surface penetrates and continues upward and outward from the horizontal surface, the lowest surface is used to determine whether or not an object would be an obstruction to air navigation.

c. State law (California Public Utilities Code Section 21659) prohibits the construction of any proposed structure that would penetrate any of the imaginary surfaces defined above, unless:

i. The FAA has determined that the proposed structure does not constitute a hazard to air navigation, or

ii. The State Division of Aeronautics has issued a permit allowing construction of the proposed structure.

3. Policy:

Caution: Land use compatibility is determined by comparing proposed land use against height, noise, and safety guidelines. Proposed land uses must be compatible with each.

a. Any proposed structure that would penetrate any of the imaginary surfaces for the Lake Tahoe Airport, as defined in FAR Part 77.25, is deemed to be an incompatible land use, unless either the FAA has determined that the proposed structure does not constitute a hazard to air navigation or the State Division of Aeronautics has issued a permit allowing contruction of the proposed structure.

4. Implementation of Airport Heights Restriction Policy:

a. The Lake Tahoe Airport Land Use Commission or the County Land Use Commission, as appropriate, should be notified by the proponent and/or the responsible local jurisdiction of any development proposal that could result in the erection of objects which could penetrate the airport height restrictions contained in this plan. The proponent should also give notice of possible obstructions to navigable airspace to the FAA as required by FAR Part 77.

Before a proposed project that would penetrate the FAR Part 77.25 imaginary surfaces can be approved by the City and/or County, the City and/or County must take action to override the ALUC determination of

incompatibility. The action to override, including the required findings, is governed by the Airport Land Use Commission Law, Article 3.5 of the California Public Utilities Code.

b. A detailed mapping of the area boundaries should be performed by the City of South Lake Tahoe and the El Dorado County planning departments which specifically delineates those parcels impacted by restrictions.

B. AIRPORT NOISE RESTRICTION AREA

Complaints of general annoyance caused by aircraft noise are the most common concern associated with land use around airports. The annoyance is usually related to interference with personal activities such as sleeping, conversing, relaxing or watching TV. While individual responses to noise are quite varied, methods have been developed to correlate noise level with community reaction.

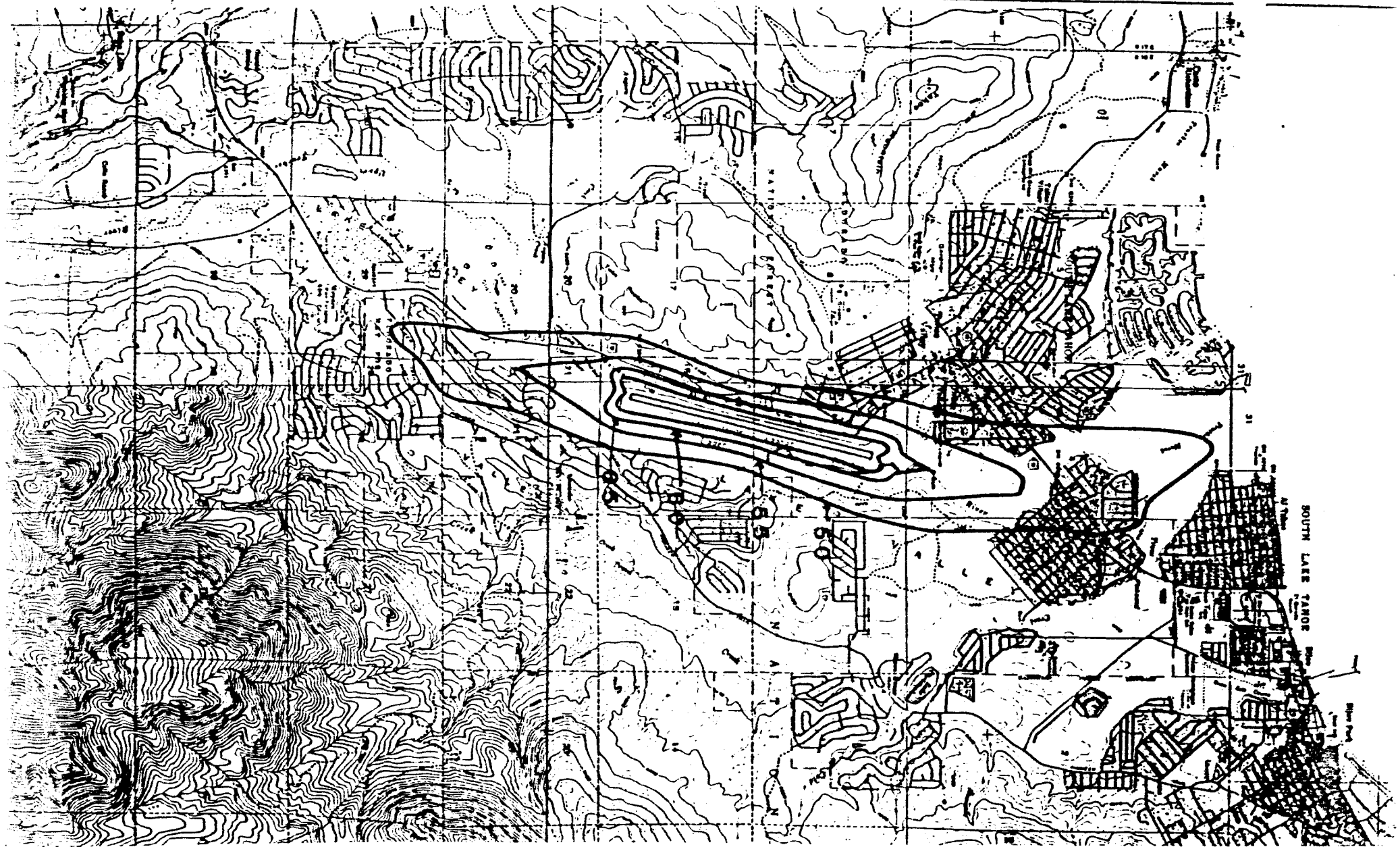
The boundary for an airport noise area is determined by noise contours developed according to noise standards for California airports as defined by California Administrative Code, Title 21, Sections 5000 et. seq. This standard uses the Community Noise Equivalent Level (CNEL) method to determine noise level boundaries. These state regulations establish as a general standard that single-family and multi-family dwellings, mobile homes and schools of standard construction are incompatible with noise levels above 65 CNEL. In addition, California Noise Insulation Standards (California Administrative Code, Title 25, Section 28) require acoustical analysis of residential structures, other than detached single-family dwellings, within a 60 CNEL noise contour. The Tahoe Regional Planning Agency further reduces the allowed annual noise to 55 dB.

The most recent noise contours for Lake Tahoe Airport were prepared as a part of the Master Plan Scenario Analysis, Figure 6. 1980, 1984, and estimated 1990 contours are presented as Figures 7, 8 and 9 from the unadopted 1984 Master Plan Study.

The worst case or most extensive noise contours were those based upon projected year 2000 levels of air traffic at the airport and were prepared in the unadopted 1979 ANCLUC Study. See Figure 10. Areas determined to be noise sensitive in the study are outlined in Figure 11. As new noise contours are developed, they will be included in this plan.

1. Objective:

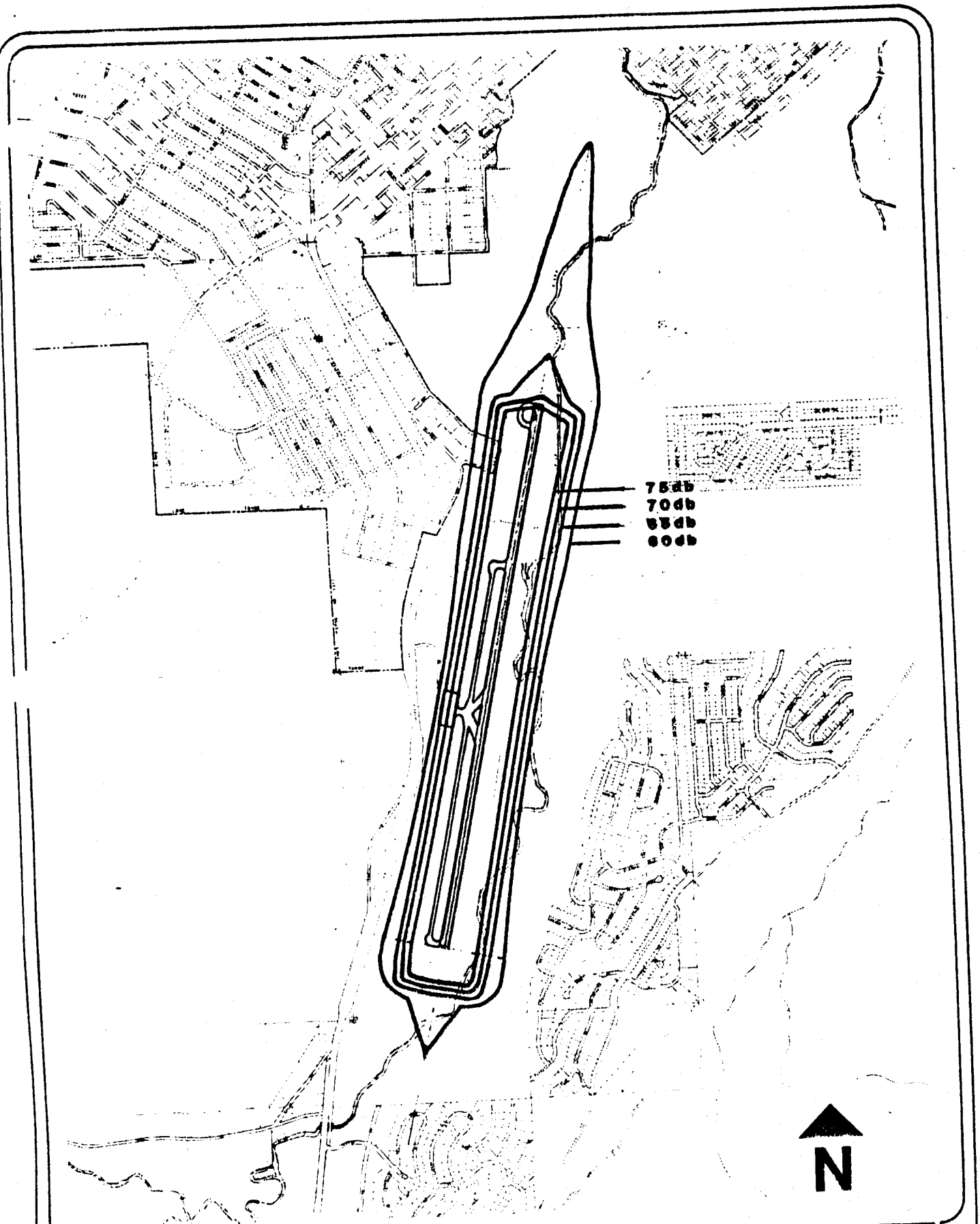
To promote the overall goals and objectives of the California Airport Noise Standards (California Administrative Code, Title 21, Section 5000 et. seq.) and the California Noise Insulation Standards (California Admin. Code, Title 25, Section 28), to prevent the creation of new noise problems around the Airport, and to minimize the public's exposure to excessive aircraft generated noise.



Lake Tahoe Airport

LAKE TAHOE AIRPORT 1987 NOISE CONTOURS - SCENARIO ANALYSIS

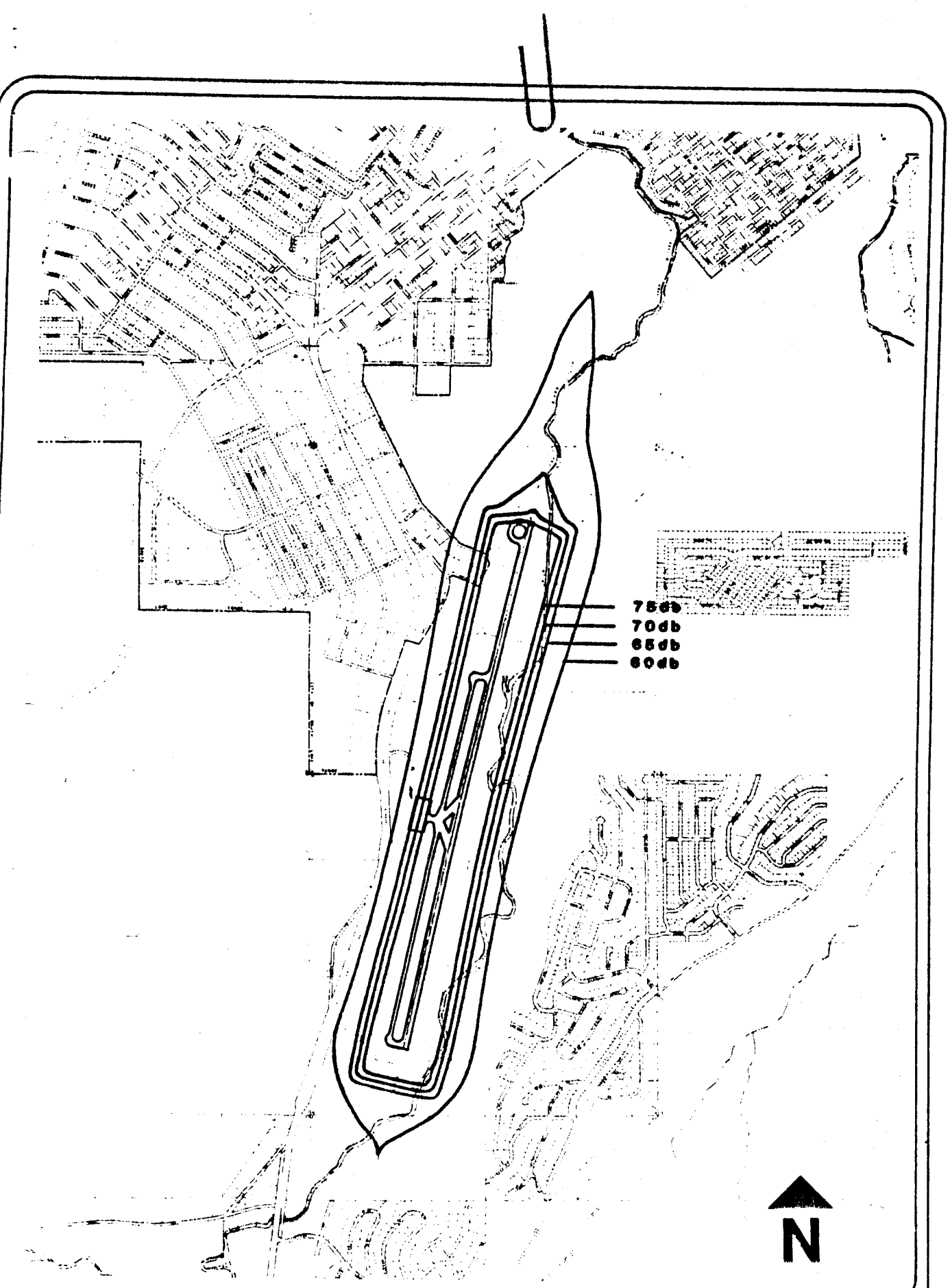
FIGURE 6



QUAD PROJECT TEAM

LAKE TAHOE AIRPORT
1980 CNEL CONTOURS

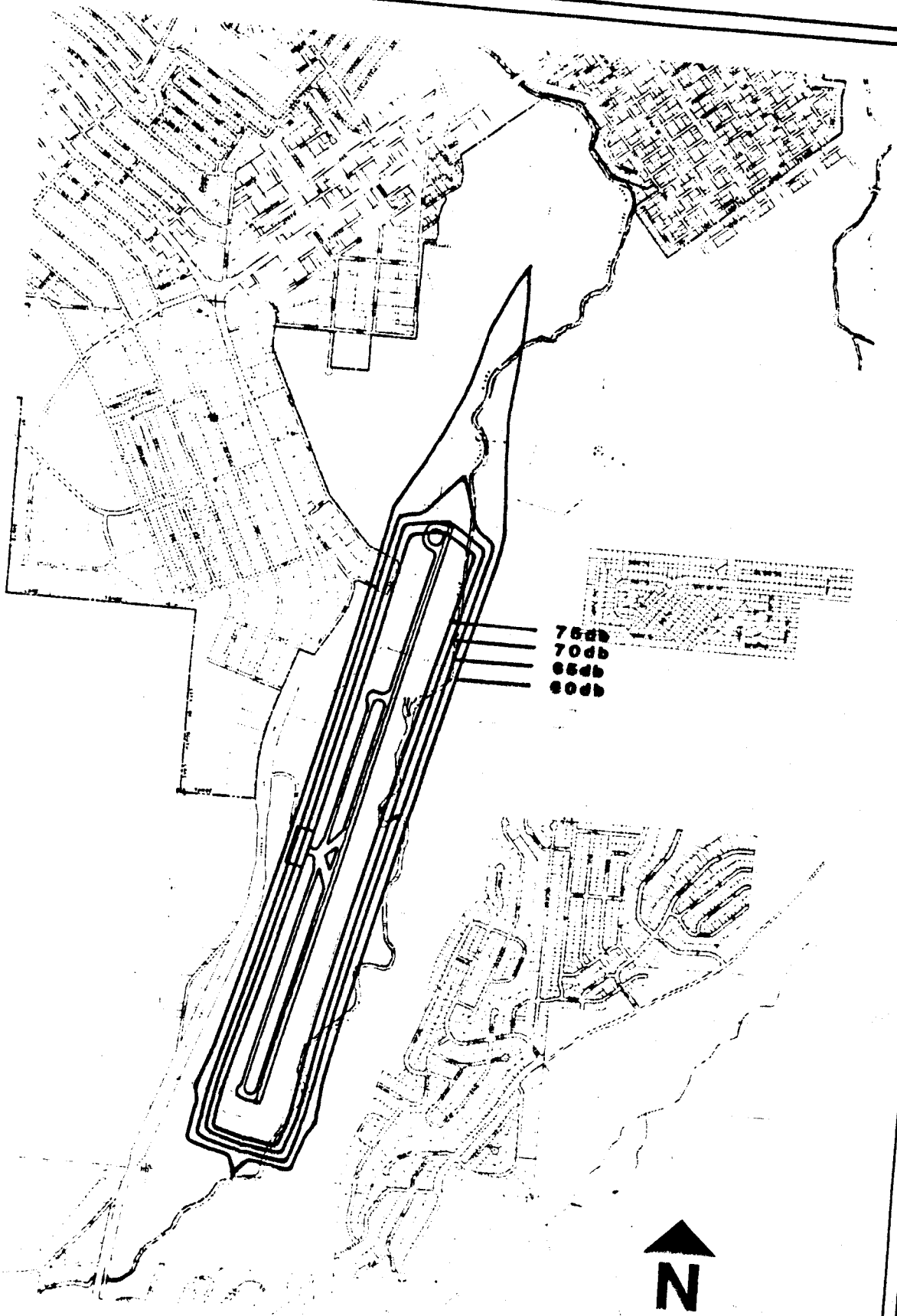
FIGURE 7



QUAD PROJECT TEAM

LAKE TAHOE AIRPORT
1984 CNEL CONTOURS

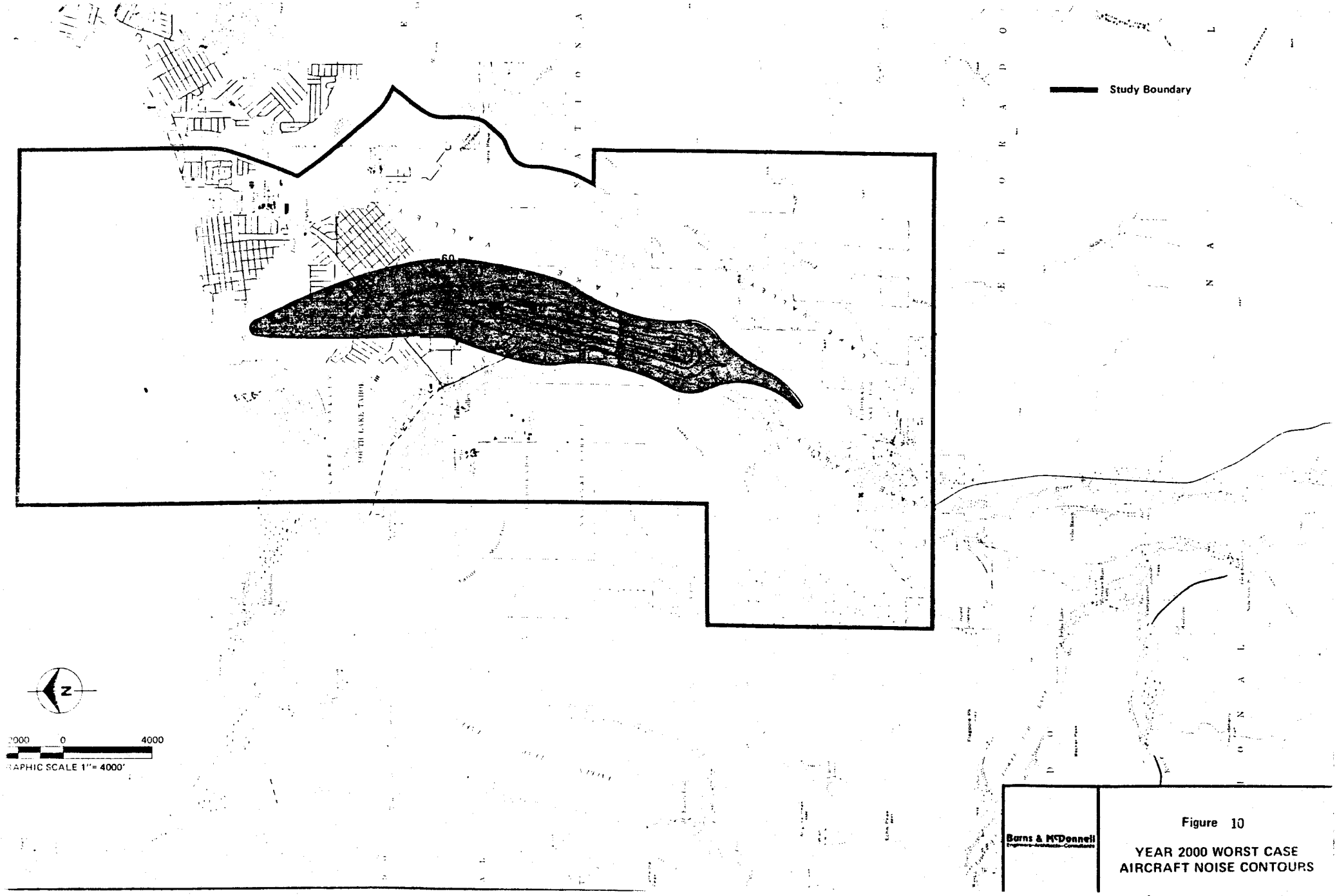
FIGURE 8



QUAD PROJECT TEAM

LAKE TAHOE AIRPORT
1990 CNEL CONTOURS

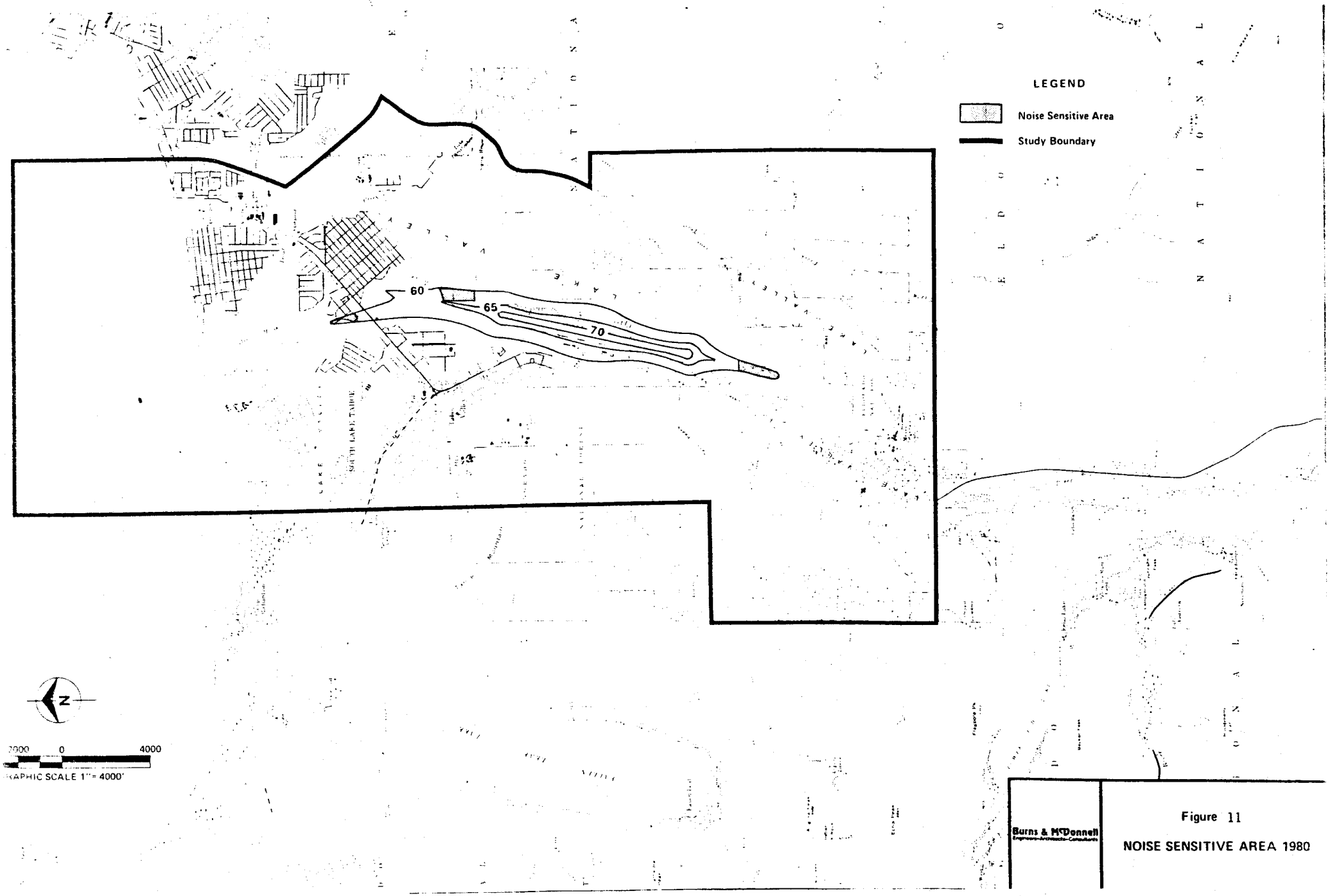
FIGURE 9



Barns & McDonnell

Figure 10

YEAR 2000 WORST CASE
AIRCRAFT NOISE CONTOURS



Burns & McDonnell

Figure 11

NOISE SENSITIVE AREA 1980

2. Findings:

   a. The impact of aircraft generated noise can be influenced in several ways:

      i. Noise emitted can be reduced at the source by technological advancements and revisions to the aircraft.

      ii. Aircraft operational procedures can be implemented to reduce or select the ground area impacted by the noise emitted.

      iii. Special acoustical treatment of structures can reduce interior noise levels.

   b. The California Division of Aeronautics has established the Community Noise Equivalent (CNEL) noise rating method for use in measuring noise around airports.

   c. The California Airport Noise Standards establish 65 CNEL as a guideline for the maximum amount of airport noise in residential communities.

   d. The California Noise Insulation Standards require an acoustical analysis of proposed residential structures, other than detached single-family dwellings, located within a 60 CNEL noise contour.

3. Policy:

Caution: Land use compatibility is determined by comparing proposed land use against height, noise, and safety guidelines. Proposed land uses must be compatible with each.

   a. The CNEL method of rating noise impact is adopted for general guidance by the ALUC.

   b. The creation of new residential parcels in the Lake Tahoe basin is prohibited by the Tahoe Regional Planning Agency.

   c. On existing single-family parcels within the 55 CNEL contours, new residential structures shall be designed to limit intruding noise such that interior noise levels shall not exceed 45 CNEL in any habitable room.

   d. The Land Use Compatibility Chart for Aircraft Noise, presented in Figure 14 A, B and C, is adopted as an aid for the general determination of noise compatible land uses in the area surrounding the Lake Tahoe Airport.

   e. Restriction of night operations by loud aircraft.

4. Implementation of Airport Noise Policies:

   a. Within the established 60 CNEL noise contour restricting residential development established by this plan, the City of South Lake Tahoe and El Dorado County should submit for ALUC review any proposed land use changes including general plan or specific plan adoptions or amendments, prezonings, rezonings, use permits, variances, and to the extent possible, all new construction withint the established noise zone, except for detached single-family dwellings on existing parcels zoned for single-family uses.

   b. For any residential development occurring between the 55 CNEL noise contour and the 60 CNEL noise contour, the City of South Lake Tahoe and El Dorado County should evaluate the impact of aircraft noise on such development and consider the implementation of appropriate mitigation measures such as noise insulation standards (mandatory within the 60 CNEL contour), a buyer notification requirement to inform potential buyers of the exterior noise levels projects by the CNEL method at their property, and the attachment of a noise easement (Figure 15) to title of all property sold in the areas affected by aircraft noise.

   c. For existing residential development and future residential development, if any, allowed by this plan within the 65 CNEL contour, buyer notification programs, and noise easements (Appendix B) shall be implemented.

   d. A detailed mapping of the CNEL noise contours should be performed by the city and county planning departments which specifically delineates those parcels impacted by noise restrictions.

   e. Restriction of night operations by loud aircraft is accomplished by Airport Order #85-100A (Figure 13), by which the Airport is closed to aircraft operations exceeding 77.1 dB Lmax from 8 p.m. to 8 a.m. Government, emergency and mercy flights are excepted from the closure period. Examples of exempt aircraft are listed on Figure 12.

REPRESENTATIVE LIST OF AIRCRAFT WHICH
MEET NIGHT OPERATION NOISE LIMITS
LAKE TAHOE AIRPORT

MANUFACTURER	AIRPLANE	ENGINE	GR WGT. 1000 LBS.	EST. DBA
BEECH	A36 (2 BL.)	IO-520-B	3.6	73.0
BEECH	35-B33	IO-470-K	3.0	73.0
CESSNA	320C	TSIO-470-D	5.2	73.0
CESSNA	337H	IO-360-G	4.6	73.0
IAI	1124 WESTWIND	TFE731-3-1G	22.9	72.2
BEECH	V35B	IO-520-B	3.4	72.0
BEECH	35-C33A	IO-520-B	3.3	72.0
BEECH	F33A	IO-520-B	3.4	72.0
GATES LEARJET	LEARJET 35	TFE731-2	17.0	72.0
GATES LEARJET	LEARJET 36	TFE731-2	17.0	72.0
GATES LEARJET	LEARJET 35A	TFE731-2	18.0	71.6
GATES LEARJET	LEARJET 36A	TFE731-2	18.0	71.6
GATES LEARJET	LEARJET 36	TFE731-2	17.0	71.4
GATES LEARJET	LEARJET 35	TFE731-2	17.0	71.4
CESSNA	T210L	TS10-520-R	3.8	71.0
CESSNA	340	TS10-520-K	6.0	71.0
CESSNA	310Q	IO-470-VO	5.2	71.0
EMBRAER	EMB 110-P2	PT6A-34	12.5	71.0
PIPER	PA-31-310	TIO-540-A2C	6.5	71.0
PIPER	PA32KT-300	IO-540-K1G-5D	3.6	71.0
SWEARINGEN	SA226-T	TPE-331-3U-303G	12.5	71.0
SWEARINGEN	SA226-TC	TPE-331-30W-303G	12.5	71.0
SWEARINGEN	SA226-AT	TPE-331-3U-303G	12.5	71.0
BEECH	B80	IGSO-540-AID	8.8	70.0
CESSNA	T310R	TSIO-520-B	5.5	70.0
PIPER	PA-32-300	IO-540-KIA5	3.4	70.0
TED SMITH	601	IO-540-SIA5	6.0	70.0
BEECH	B60	TIO-541-E1C4	6.8	69.0
CESSNA	TU206G	TS10-520-M	3.6	69.0
CESSNA	T210M	TSIO-520-R	3.8	69.0
CESSNA	185F	IO-520-D	3.4	69.0
CESSNA	401	TSIO-520-E	6.3	69.0
CESSNA	414	TSIO-520-N	6.8	69.0
DEHAVILLAND	DHC-7	PT6A-50	43.5	69.0
PIPER	PA-23-250	IO-540-C1A	5.2	69.0
PIPER	PA-28B-235	O-540-B4B5	2.9	69.0
CESSNA	182Q	O-470-U	3.0	68.0
DASSAULT BREGUET	FALCON 10	TFE731-2	18.7	67.6
BEECH	E55	IO-520-C	5.3	67.0
CESSNA	180	O-470-U	2.8	67.0
DEHAVILLAND	DHC-6	PT6A-27	12.5	67.0
PIPER	PA-34-200T	TSIO-360-E	4.8	67.0

FIGURE 12

MANUFACTURER	AIRPLANE	ENGINE	GR WGT. 1000 LBS.	EST. DBA
ROCKWELL INTERNATIONAL	680FL	IGSO-540-81A	8.5	67.0
BEECH	99A	PT6A-27	10.4	66.0
BEECH	58	IO-520-C	5.4	66.0
CESSNA	177RG	IO-360-A186	2.8	66.0
MITSUBISHI	MU-2B-36A	TPE-331-5-252M	11.0	66.0
PIPER	PA-42	PT6A-41	10.5	66.0
BEECH	A24R	IO-360-A186	2.8	65.0
BELLANCA	17-30A	IO-540-T4B5D	3.3	65.0
BEECH	C90	PT6A-21	9.7	64.0
MITSUBISHI	MU-2B-26A	TPE-331-5-252M	10.0	64.0
MOONEY	M20C	O-360-AID	2.6	64.0
ROCKWELL INTERNATIONAL	112	IO-360-C1D6	2.6	64.0
AEROSPATIALE	SN601 CORVETTE	JT15D-4	13.9	63.8
CESSNA	404	GTS10-520-M	8.4	63.0
GRUMMAN AMERICAN	GA-7	O-320-D1D	3.8	63.0
PIPER	PA-24-260	IO-540-R1A5	3.2	63.0
PIPER	PA-28-200	IO-360-C1C	2.7	63.0
BEECH	A100	PT6A-28	11.5	62.0
CESSNA	421B	GTSIO-520-L	7.5	62.0
PIPER	PA31T	PT6A-28	9.0	62.0
CESSNA	500	JT15D-1	11.5	61.1
BEECH	C23	O-360-A4K	2.5	60.0
CESSNA	170B	O-300-A	2.2	60.0
GRUMMAN AMERICAN	AA-5	O-320-E2G	2.2	60.0
PIPER	PA-28-140	O-320-E2A	2.2	60.0
BELLANCA	8GCBC	O-360-C2E	2.2	59.0
CESSNA	172	O-320-A	2.3	58.0
MOONEY	M20J	IO-360-A1B6D	2.7	58.0
GRUMMAN AMERICAN	AA-1A	O-235-62C	1.6	57.0
CESSNA	152	O-235-L2C	1.7	55.0
CESSNA	150	O-200-A	1.6	55.0
PIPER	PA-18-150	O-320-A2B	1.8	54.0
ROCKWELL INTERNATIONAL	690B	TPE-331-5-251K	10.3	54.0
BELLANCA	7GCAA	O-320-A2B	1.7	51.0

SOURCE: FAA ADVISORY CIRCULAR 36-3A

Let Make a New Sheet w/ Both TKOS & Landing DB

LAKE TAHOE AIRPORT

ORDER NO. 85-100A AIRPORT CURFEW

This order is issued pursuant to Article II, Section 3 of the City of South Lake Tahoe Airport ordinance to continue in effect until adoption by the City Council of the Airport Master Plan, the presently existing interim curfew at South Lake Tahoe Airport.

The City ordinance which adopted said curfew expired by its term one year after the adoption thereof. This order is intended to extend the interim curfew during the period between that expiration and the adoption of the Master Plan, anticipated to be in October 1990.

This order is adopted to protect, in so far as is practicable and lawful, the peace and quiet of residential areas which would be impacted by aircraft operations during the nighttime hours.

IT IS THEREFORE ORDERED THAT:

1. The South Lake Tahoe Airport shall be closed to all operations between the hours of 8:00 p.m. and 8:00 a.m. local time daily. Exempted from this curfew are: 1) emergency and mercy flights, 2) military and governmentally-owned aircraft in performance of governmental functions, 3) any aircraft which will not result in a single event L_{max} reading exceeding 77.1 under the FAA Advisory Circular 36-3 series.

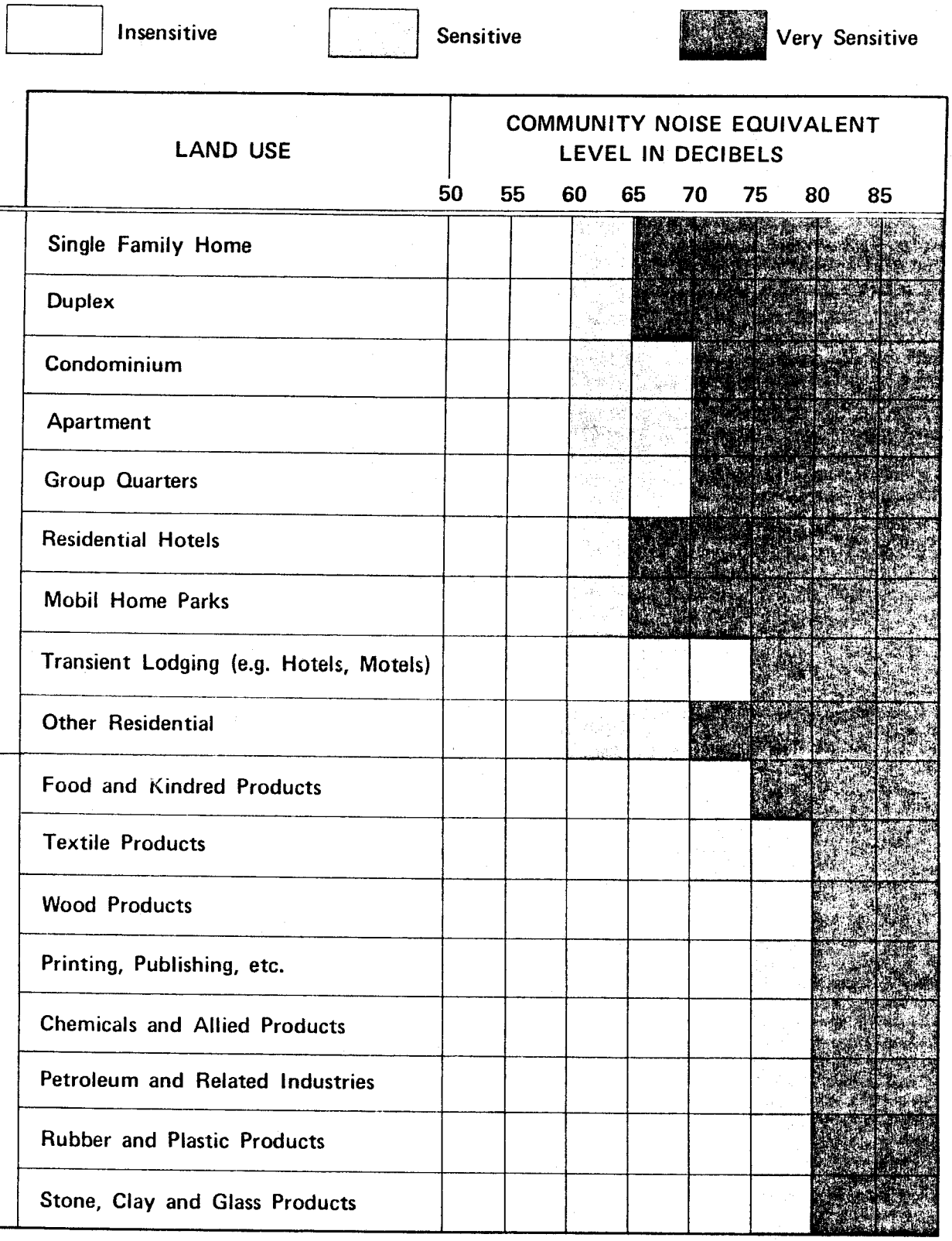
2. In addition to any other penalty provided by law, any person, firm, corporation, or aircraft owner or operator which violates this order or allows this order to be violated shall, upon reasonable written notice, and a subsequent violation after such notice, be denied use of the Airport and its facilities.

DATED: 11-16-89

RICHARD D. FRENCH, AAE
Airport Director

This Order supercedes Airport Order No. 85-100 issued August 22, 1985

FIGURE 13

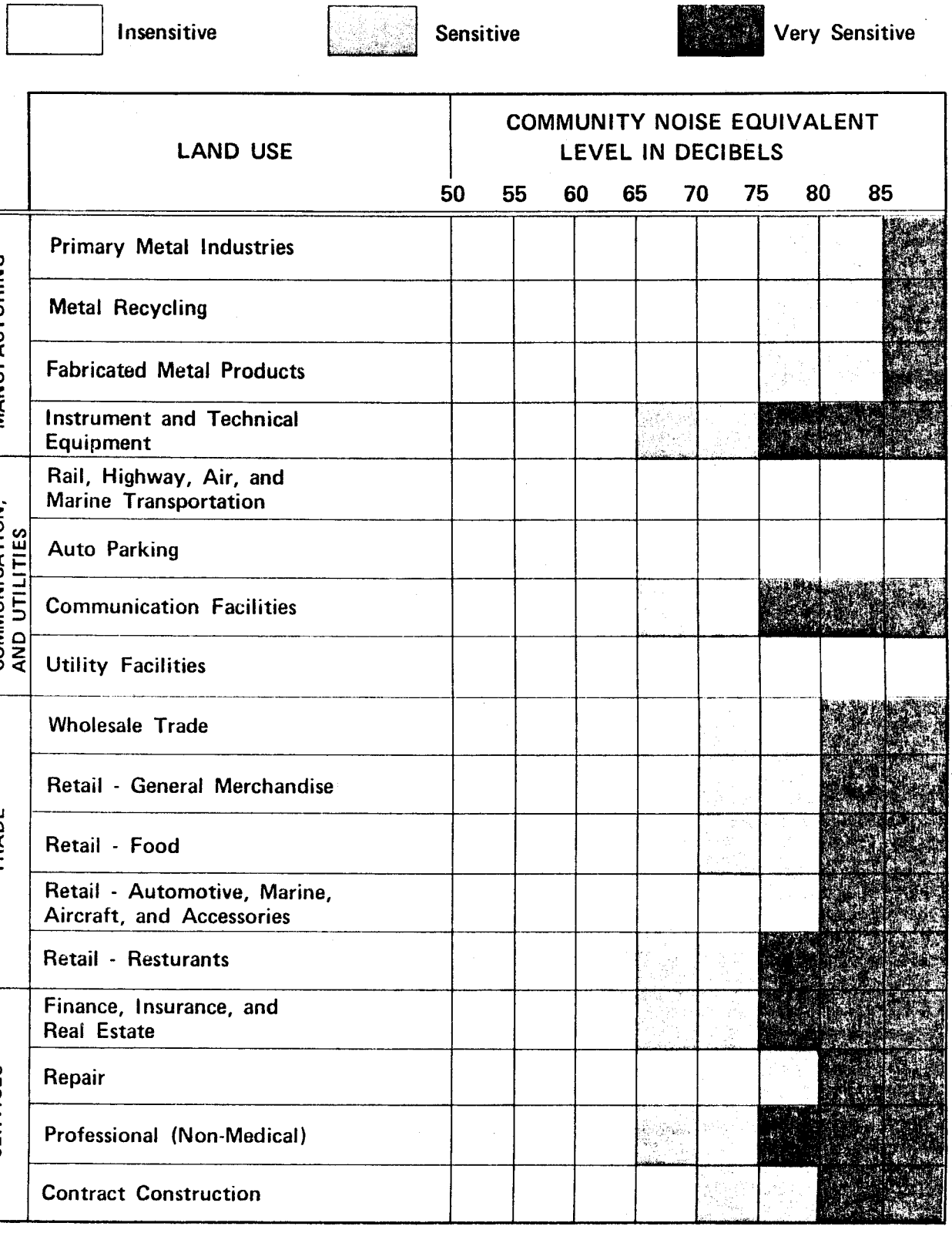


Burns & McDonnell
Engineers-Architects-Consultants

Figure 14A

LAND USE NOISE SENSITIVITY MATRIX

TAHO 79-045-4



Burns & McDonnell
Engineers-Architects-Consultants

Figure 14B

LAND USE NOISE SENSITIVITY MATRIX

TAHO 79-045-4

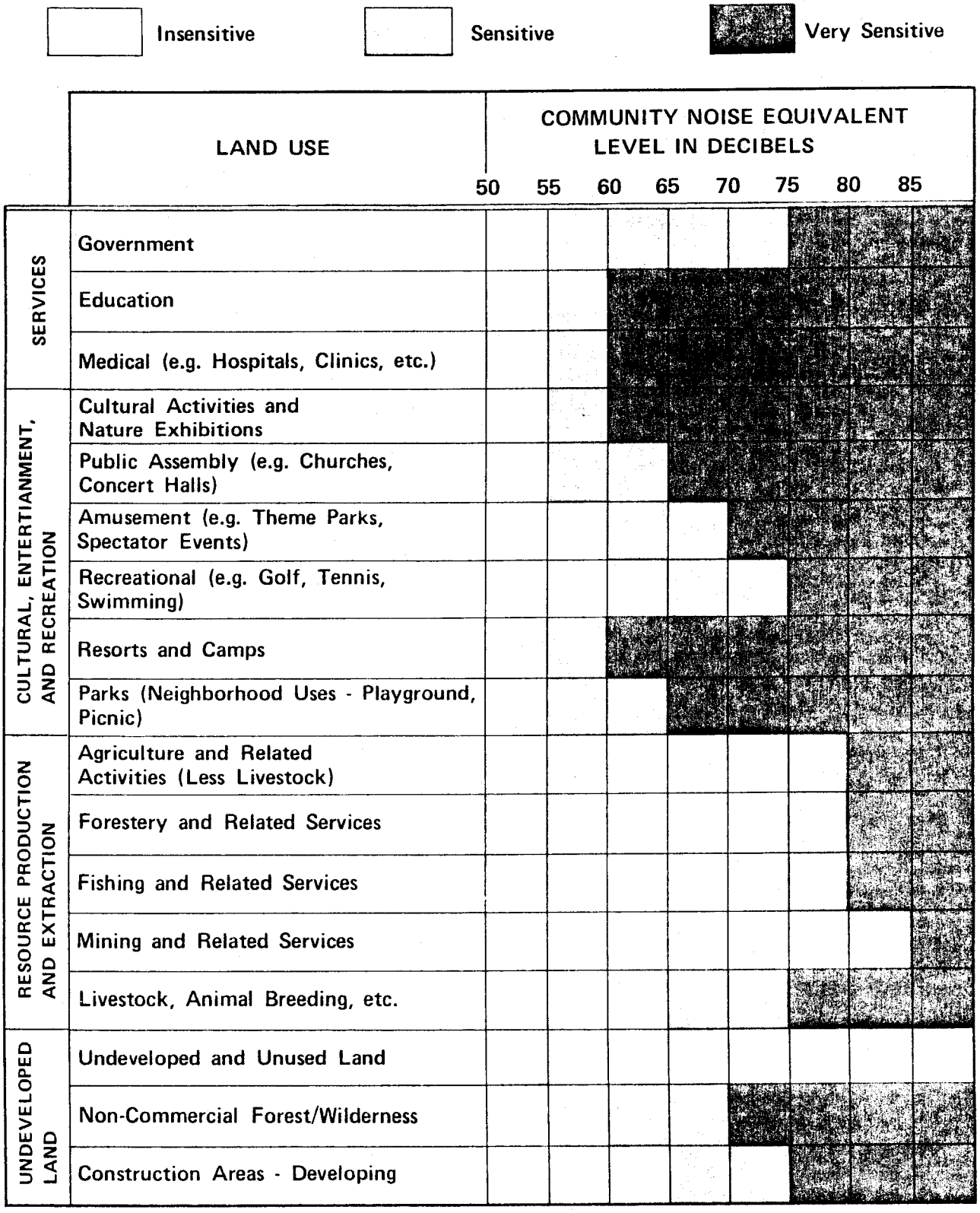


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Figure 14C

LAND USE NOISE SENSITIVITY MATRIX

TAHO 79-045-4

C. AIRPORT SAFETY RESTRICTION AREA:

The most important concern for airport land use planning is the safety of persons on the ground. While the safety record of general aviation is quite good, accidents do happen and they must be considered in land use planning around airports.

Recorded data on nationwide general aviation accidents from 1974-1979 showed that 45 percent of accidents occurred on airport property, 15 percent were in the traffic pattern or within one mile of the airport boundary. Considering just those accidents within one mile of the airport boundary, 33 percent were within 1/4 mile and 29 percent occurred in the traffic pattern. This data suggests that land use off the immediate ends of the runway and under the airport traffic pattern is a significant safety concern in preparing airport land use safety zones.

1. Objective:

   To protect the safety and general welfare of people in the vicinity of the Lake Tahoe Airport by minimizing the public exposure to airport-related safety hazards.

2. Findings:

   a. Controls over aircraft operating procedures and hazardous land uses around airports can greatly reduce the likelihood of aircraft accidents around airports. These precautions, however, cannot guarantee absolute safety. Policies can be established to prevent development of land use related hazards to air navigation and to limit casualties on the ground in the event of a crash.

   b. Nationwide studies of air accidents indicate that:

      i. Almost half of all accidents occur on airport property.

      ii. An additional 15 percent of aircraft accidents occur outside airport property but within one mile of the airport runway(s).

      iii. A substantial concentration of aircraft accidents occur within the initial climbout and the final approach sectors of airports.

   c. Land uses and developments that can create hazards to air navigation are objects that exceed FAR Part 77 height standards, attract large concentrations of birds within approach/departure areas, produce smoke, have flashing lights, reflect light or generate electronic interference.

3. Policy:

Caution: Land use compatibility is determined by comparing proposed land use against height, noise, and safety guidelines. Proposed land uses must be compatible with each.

a. The ALUC designates airport safety areas identified as Safety Area 1 (Clear Zone), Safety Area 2 (Approach/Departure Zone), and Safety Area 3 (Overflight Zone). These safety areas are illustrated in Figure 15, detailed in Figure 17 and have the following dimensions:

i. Safety Area 1 (Clear Zone) - Runway 18: begins 200 feet beyond the end of the runway surface, and is centered along the extended runway centerline. Safety Area 1 for runway 18 has an inner width of 500 feet, and outward length of 1,700 feet and an outer width of 1,010 feet.

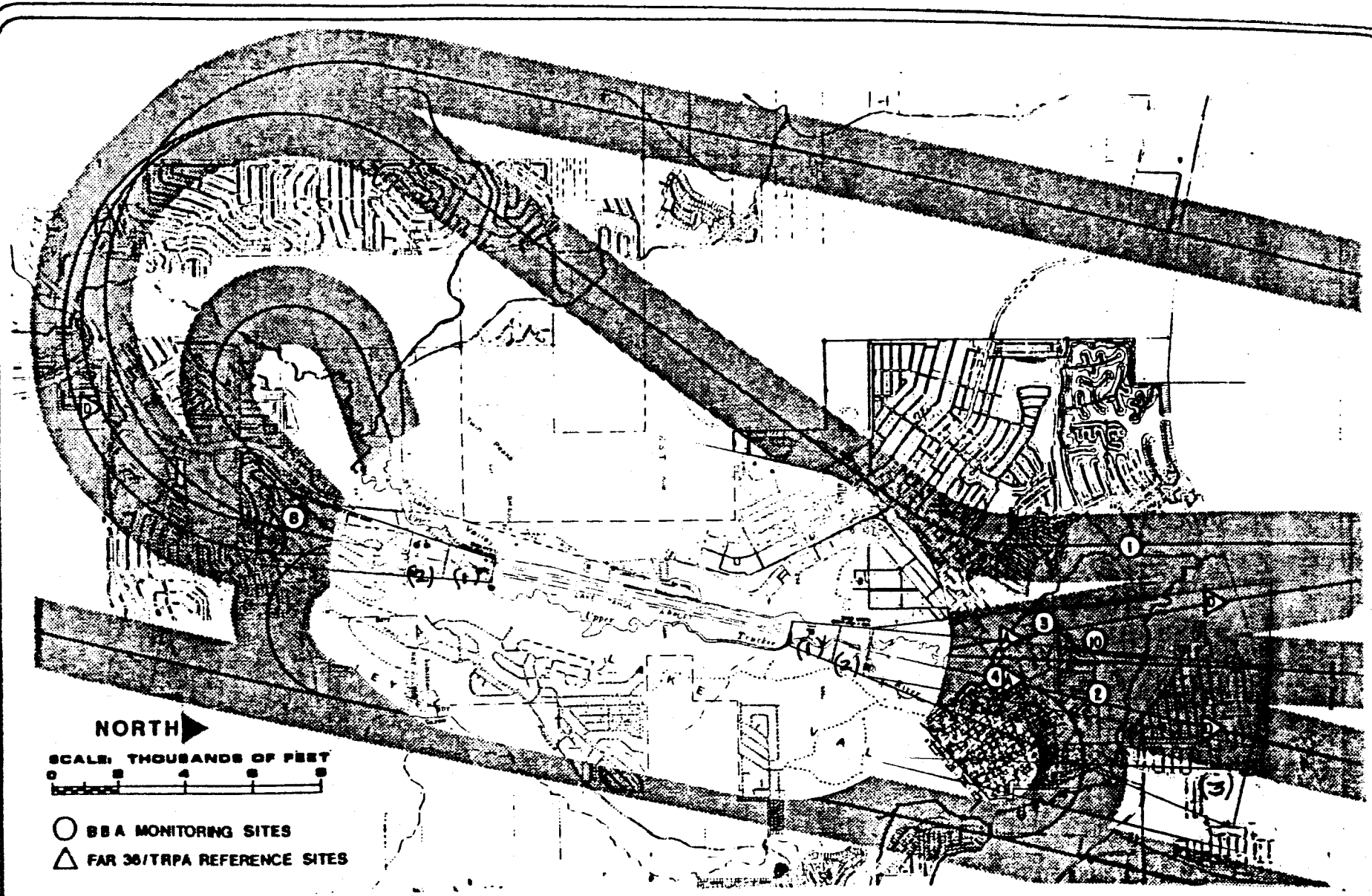
ii. Safety Area 1 (Clear Zone) - Runway 36: begins 200 feet beyond the end of the runway surface, and is centered along the extended runway centerline. Safety Area 1 for runway 36 has an inner width of 500 feet, and outward length of 1,000 feet and an outer width of 700 feet.

iii. Safety Area 2 (Approach/Departure Zone) - Runway 18: begins at the outer end of Safety Area 1 and is centered along the extended runway centerline, has an inner width of 1,010 feet, an outward length of 10,000 feet and an outer width of 3,500 feet.

iv. Safety Area 2 (Approach/Departure Zone) - Runway 36: begins at the outer end of Safety Area 1 and is centered along the extended runway centerline. Safety Area 2 from runway 36 has an inner width of 700 feet, extends outward for a length of 5,000 feet, and has an outer width of 1,500 feet.

v. Safety Area 3 (Overflight Zone): generally coincides with the area overflown by aircraft during traffic pattern procedures but consists only of that area underlying the horizontal surface (figure 5) which is outside of Safety Area 1 and Safety Area 2. For the Lake Tahoe Airport, the perimeter of the Overflight Zone is constructed by swinging arcs of 5,000 foot radii from the center of each end of the primary surface of the runway and connecting these arcs by lines tangent to the arcs.

Note: Safety area dimensions for each runway end are different because runway 18 has visual omnidirectional range (VOR) and localizer (LOC-LDA) approaches which allow for non-precision instrument approaches. See Figure 16 for detail.



Lake Tahoe Airport

LAKE TAHOE AIRPORT SAFETY ZONES AND GENERALIZED FLIGHT TRACKS

FIGURE 15

(1) Safety Area 1 - Clear Zone (2) Safety Area 2 - Approach/Departure Zone (3) Safety Area 3 - Overflight Zone

AIRPORT SAFETY AREAS 1 AND 2 (DETAIL)

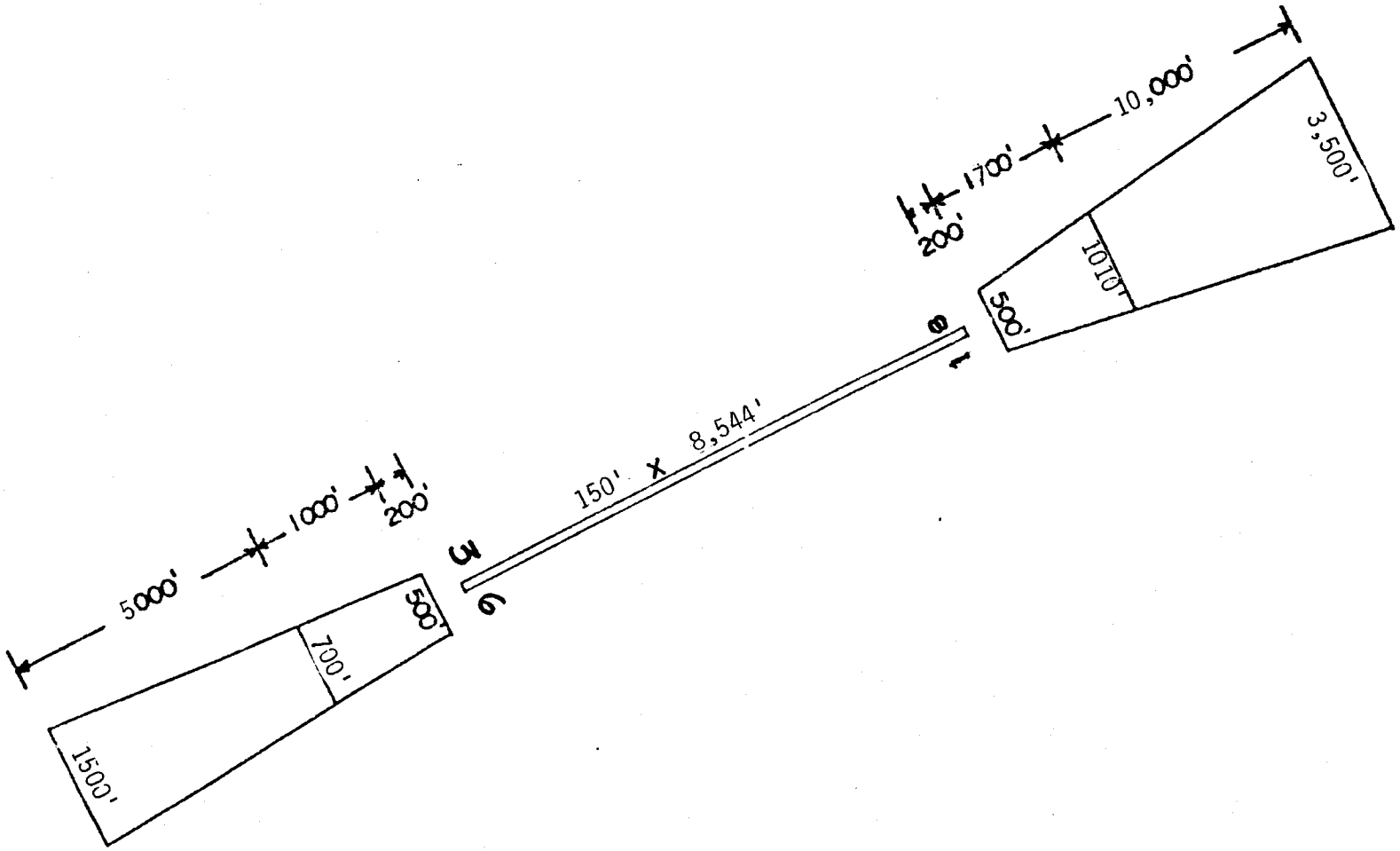
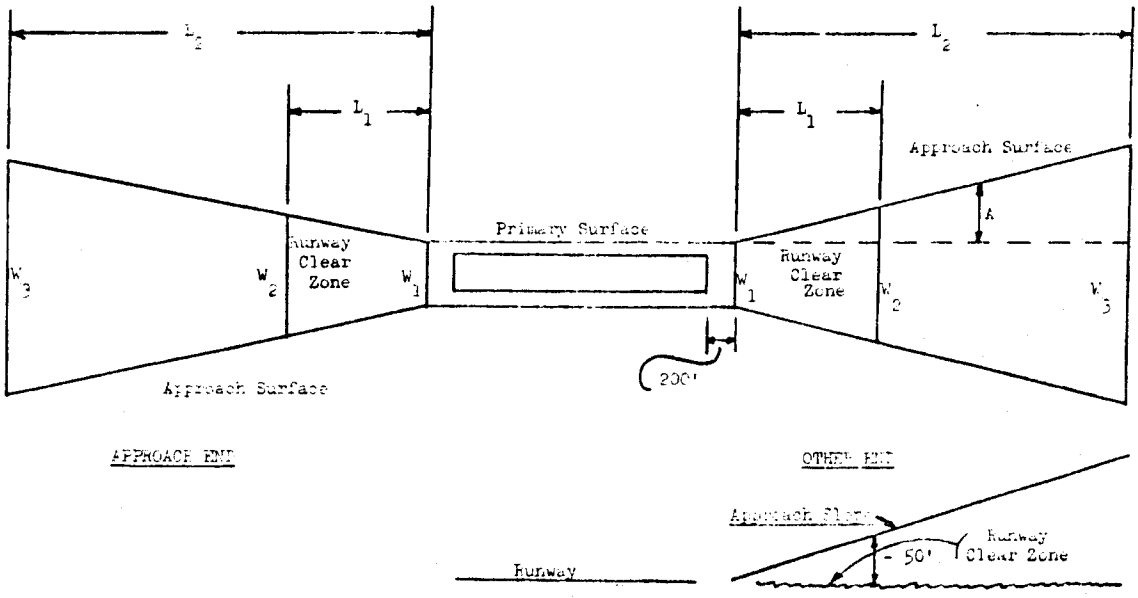


FIGURE 16

FIGURE 17A - RUNWAY CLEAR ZONE DIMENSIONS



R/W TYPE	SET NO.	RUNWAY END		DIMENSIONS (FEET)						R/W OS AREA	FLARE RATIO A
		APPROACH	OTHER	L 1	L 2	W 1	W 2	W 3	SLOPE		
UTILITY RUNWAYS	1	V		1,000	5,000	250	450	1,250	20:1	8.03[illegible]	.1:1
			V	1,000	5,000	250	450	1,250	20:1	8.03[illegible]	.1:1
	2	V		1,000	5,000	500	650	1,250	20:1	13.200	.075:1
			N.P.	1,000	5,000	500	800	2,000	20:1	14.922	.15:1
	3	N.P.		1,000	5,000	500	800	2,000	20:1	14.922	.15:1
			N.P.	1,000	5,000	500	800	2,000	20:1	14.922	.15:1
OTHER THAN UTILITY RUNWAYS	4	V		1,000	5,000	500	700	1,500	20:1	13.77	.1:1
			V	1,000	5,000	500	700	1,500	20:1	13.77	.1:1
	5	V		1,000	5,000	500	700	1,500	20:1	13.77	.1:1
			N.P. 3/4+	1,700	10,000	500	1,010	3,500	34:1	29.465	.15:1
	6	V		1,000	5,000	1,000	1,100	1,500	20:1	21.105	.05:1
			N.P. 3/4	1,700	10,000	1,000	1,510	4,000	34:1	48.978	.15:1
	7	V		1,000	5,000	1,000	1,100	1,500	20:1	21.105	.05:1
			P	2,500	50,000	1,000	1,750	16,000	50:1/40:1	78.914	.15:1
	8	N.P. 3/4+		1,700	10,000	500	1,010	3,500	34:1	29.465	.15:1
			N.P. 3/4+	1,700	10,000	500	1,010	3,500	34:1	29.465	.15:1
	9	N.P. 3/4+		1,700	10,000	1,000	1,425	3,500	34:1	47.320	.125:1
			N.P. 3/4	1,700	10,000	1,000	1,510	4,000	34:1	48.978	.15:1
	10	N.P. 3/4+		1,700	10,000	1,000	1,425	3,500	34:1	47.320	.125:1
			P	2,500	50,000	1,000	1,750	16,000	50:1/40:1	78.914	.15:1
	11	N.P. 3/4		1,700	10,000	1,000	1,510	4,000	34:1	48.978	.15:1
			N.P. 3/4	1,700	10,000	1,000	1,510	4,000	34:1	48.978	.15:1
	12	N.P. 3/4		1,700	10,000	1,000	1,510	4,000	34:1	48.978	.15:1
			P	2,500	50,000	1,000	1,750	16,000	50:1/40:1	78.914	.15:1
	13	P		2,500	50,000	1,000	1,750	16,000	50:1/40:1	78.914	.15:1
			P	2,500	50,000	1,000	1,750	16,000	50:1/40:1	78.914	.15:1

ABBREVIATIONS USED IN THE ABOVE CHART

V = Visual approach
N.P. = Non-precision approach
N.P. 3/4+ = Non-precision approach with visibility minimums greater than 3/4-mile
N.P. 3/4 = Non-precision approach with visibility minimums as low as 3/4-mile
P = Precision instrument approach

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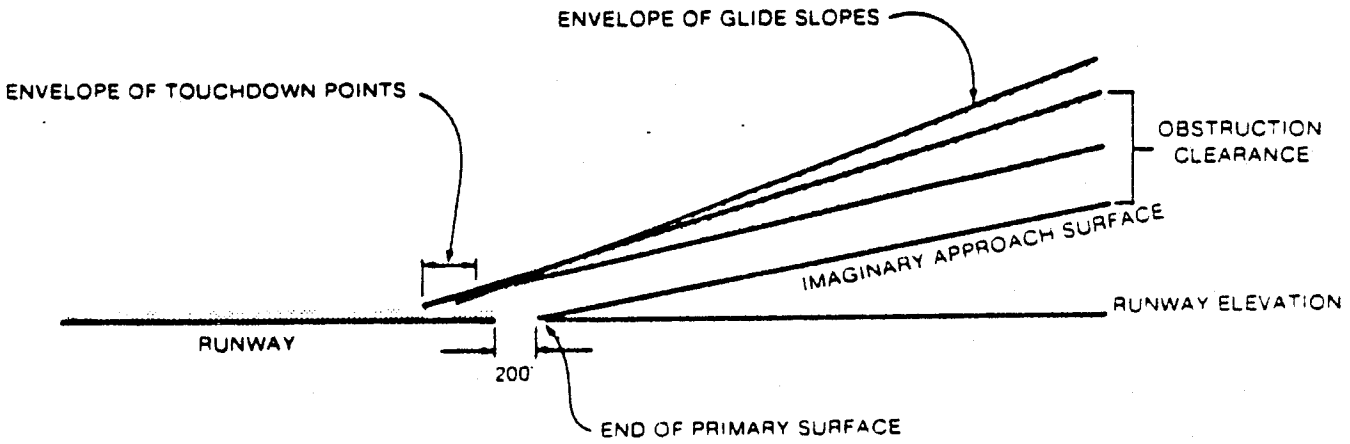
Theoretical Clearances For VFR And IFR Approaches
(Feet)

Imaginary Surface Slope	Type of Aircraft/Approach	Distance from End of Runway 0'	200'	1/4 mi.	1/2 mi.	3/4 mi.	1 mi.
20:1	General Aviation/VFR						
	- Single engine	30-50	45-70	65-125	90-190	110-260	130-325
	- Multi-engine	35	50	80	110	140	175
	- VASI approach	25	35	40	42	45	50
50:1	General Aviation/IFR	50'	60	100	140	185	225
	Air Carrier/IFR	50'	60	100	140	185	225
	Military/IFR	40-50	50-60	80-100	110-140	140-185	170-225
	Military/VFR	30	40	85	135	190	240

Assumptions

Type of Aircraft/Approach	Glide Slopes (Degrees)
General Aviation:	
- Single engine aircraft	3.8° to 5.7°
- Multi-engine aircraft	4.2°
- VASI approach	3°
- IFR approach	3°
Air Carrier/Military:	
- Air carrier IFR approach	3°
- Military IFR approach	2.5° to 3.0°
- Military VFR apporach	3.4°
- STOL (Short Takeoff and Landing)	8.1° to 9.5°
Helicopter	11.3° to 18.4°

FIGURE 17B



THEORETICAL OBSTRUCTION CLEARANCES PROVIDED BY PART 77 IMAGINARY APPROACH SURFACES

FIGURE 17C

Aircraft Climb Rates with All Engines Operating

Type of Aircraft	Representative Climb Rates
General Aviation[1]	
- Single Engine	660 feet/ naut. mi.
- Twin Engine	860 feet/ naut. mi.
- Twin Engine Turboprop	1125 feet/ naut. mi.
- Business Jet	4100 feet/min.
Air Carrier[2]	
- Twin Engine	960 feet/ naut. mi.
- Three Engine	580 feet/ naut. mi.
- Four Engine	465 feet/ naut. mi.

1. Average climb gradients for currently manufactured aircraft

2. Calculated from formula provided by FAA for maximum gross weights

FIGURE 17D

b. The Land Use Noise Sensitivity Matrix (Figure 14) and the Land Use Compatibility Guidelines for Safety (Figure 18), are adopted as the criteria to be used when reviewing projects in Safety Areas 1, 2 and 3. The Guidelines list potential uses and indicate compatibility, conditional compatibility or noncompatibility for each safety area. In the event compatibility cannot be determined through use of the Guidelines, the ALUC should be contacted by the local jurisdiction to make a determination. The guidelines address safety concerns only, and noise or height restrictions may also apply to specific projects under review.

c. In addition to the uses specified in the Land Use Compatibility Guidelines for Safety, the following generalized land uses are defined as non-compatible for the Lake Tahoe Airport:

i. Safety Areas 1 and 2 Combined (Clear and Approach/Departure Zones):

a) Any use which would direct a steady light or flashing light of white, red, green or amber color toward an aircraft engaged in an initial straight climb following takeoff or toward an aircraft engaged in a straight final approach toward a landing at the airport, other than an FAA approved navigational signal light or visual approach slope indicator (VASI).

b) Any use which would cause sunlight to be reflected toward an aircraft engaged in an initial straight climb following takeoff or toward an aircraft engaged in a straight final approach toward a landing at the airport.

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

d) Any use which would generate electrical interference that may be detrimental to the operation of aircraft and/or airport instrumentation.

e) Any hazardous installations such as above-ground oil, gas or chemical storage facilities, excluding facilities for non-commercial, private domestic or private agricultural use.

i. Safety Area 1 (Clear Zones):

a) Permanent structures (not necessarily including such items as roads or underground vaults).

b) Residential development.

c) Any use resulting in a gathering of more than ten persons per acre at any time.

iii. Safety Area 2 (Approach/Departure Zones):

a) Any new residential development which would result in a building density of greater than two dwelling units per acre excepting, however, minor alteration to existing structures and the construction of new structures on single-family residential lots created by residential subdivision maps recorded prior to the date this plan is adopted.

b) Any use which would result in concentrations of people such as, but not limited to, shopping centers, restaurants, schools, factories, hospitals, office complexes or stadiums.

iv. Safety Area 3 (Overflight Zone):

a) Schools not satisfying the requirements of Section 39005 of the Education code, stadiums, arenas, spectator sports facilities, auditoriums, concert halls, outdoor amphitheaters, concert shells, and theaters.

4. Implementation of Airport Safety Policies:

a. The Land Use Compatibility Guidelines (Figure 18) provide the basis for determining compatibility of a particular land use with ALUC safety policies for Lake Tahoe Airport. Basic compatibility may be determined by first identifying the safety area within which a project is located, and then finding the use category on the guidelines chart. If a "yes" is indicated for the use in the particular zone, the project is compatible with ALUC policy. A "no" indicates incompatibility. A "yes" with a footnote indicates a conditional compatibility depending upon the size and intensity of use. In the event that a particular parcel lies close to any safety area boundary, the City or County planning department should be contacted to determine precisely which safety area the parcel in question is located within.

b. In the case of a safety area line splitting a parcel, the parcel may be developed to split uses and densities as long as the individual portions of the parcel are consistent with the land use policies for the safety zone in which they lie.

c. Upon adoption of this plan by the ALUC, existing land uses which are inconsistent may be continued; however, inconsistent land uses, buildings and structures may not be expanded or changed to another inconsistent use.

FIGURE 18
LAND USE COMPATIBILITY GUIDELINES FOR SAFETY*

LAND USE CATEGORY	COMPATIBILITY WITH SAFETY AREA		
	1 CLEAR ZONE	2 APPROACH ZONE	3 OVERFLIGHT ZONE
RESIDENTIAL			
Single family	No	Yes[1]	Yes
Two family	No	Yes[1]	Yes
Multi-family dwelling	No	No	Yes
Group quarters	No	No	Yes
Mobile home parks or courts	No	No	Yes
Custodial care facilities	No	No	Yes[6]
INDUSTRIAL/MANUFACTURING			
Food and kindred product	No	Yes[2]	Yes
Textile mill products	No	Yes[2]	Yes
Apparel	No	Yes[2]	Yes
Lumber and wood products	No	Yes[2]	Yes
Furniture and fixtures	No	Yes[2]	Yes
Paper and allied products	No	Yes[2]	Yes
Printing, publishing	No	Yes[2]	Yes
Chemicals and allied products	No	No	Yes
Petroleum refining & related industries	No	No	No
Rubber and miscellaneous plastic	No	No	No
Stone, clay and glass products	No	Yes[2]	Yes
Primary metal industries	No	Yes[2]	Yes
Fabricated metal products	No	Yes[2]	Yes
Miscellaneous manufacturing	No	Yes[2]	Yes
Warehousing/storage	No	Yes[2]	Yes
TRANSPORTATION, COMMUNICATIONS AND UTILITIES			
Railroad	Yes[3]	Yes	Yes
Highway and street ROW	Yes[3]	Yes	Yes
Auto parking lots/airplane parking areas	No	Yes[2]	Yes
Communications	Yes[3]	Yes[2]	Yes
Utilities	Yes[3]	Yes[2]	Yes
Other trans., comm., and util.	Yes[3]	Yes[2]	Yes

1. Single-family residential is a compatible land use only if the building density is two or less dwelling units per acre.
2. Uses compatible only if they do not result in a large concentration of people. A large concentration of people is defined as a gathering of individuals in an area that would result in an average density of greater than 25 people per acre during a 24 hour period, not to exceed 50 persons per acre at any time. (see Appendix 1 for a suggested method of determining concentrations of people).
3. No building, structures, fences, above-ground transmission lines, or storage of flammable or explosive material above ground, and no uses resulting in a gathering of more than 10 persons per acre at any time.
4. No high-intensity use or facilities, such as structured playgrounds, ballfields, or picnic pavillions.
5. Uses compatible only if they do not result in a possibility that a water area may cause ground fog or result in a bird hazard.
6. No more than six persons under care.
7. If the requirements of Section 39005 of the Education Code have been satisfied.

* Note: These guidelines define only those land uses which are compatible within safety areas. Where proposed land uses fall within the established noise contours or may penetrate any of the height imaginary surfaces, additional restrictions apply as contained in the height and noise policy sections of this plan.

LAND USE CATEGORY	COMPATIBILITY WITH SAFETY AREA		
	1 CLEAR ZONE	2 APPROACH ZONE	3 OVERFLIGHT ZONE
COMMERCIAL/RETAIL TRADE			
Wholesale trade	No	No	Yes
Building materials-retail	No	No	Yes
General merchandise-retail	No	No	Yes
Food-retail	No	No	Yes
Automotive service, sales or repair	No	No	Yes
Apparel and accessories-retail	No	No	Yes
Eating and drinking places	No	No	Yes
Furniture, home furnishing-retail	No	No	Yes
Other retail trade	No	No	Yes
Residential hotels	No	No	Yes
Transient lodging-hotels, motels	No	No	Yes
PERSONAL AND BUSINESS SERVICES			
Finance, insurance and real estate	No	Yes[2]	Yes
Personal services	No	Yes[2]	Yes
Business services	No	Yes[2]	Yes
Repair services	No	Yes[2]	Yes
Contract construction services	No	Yes[2]	Yes
Indoor recreation services	No	Yes[2]	Yes
Other services	No	Yes[2]	Yes
PUBLIC AND QUASI-PUBLIC SERVICES			
Hospital, custodial care, preschool	No	No	Yes[6]
Government services	No	No	Yes
Schools	No	No	Yes[7]
Cultural activities inc. churches, libraries	No	No	Yes
Medical and other health clinics	No	No	Yes
Cemeteries	No	Yes[2]	Yes
Other public and quasi-public services	No	No	Yes
RECREATION			
Neighborhood parks	No	Yes[2,4]	Yes
Community and regional	No	Yes[2,4]	Yes
Nature exhibits	No	Yes[2]	Yes
Spectator sports, stadiums, arenas	No	No	No
Golf course, riding stables	No	Yes[2]	Yes
Water based recreational areas	No	Yes[2,4,5]	Yes
Resort and group camps	No	No	Yes
Auditoriums, concert halls, theaters	No	No	No
Outdoor amphitheaters, music shells	No	No	No
RESOUPCE PRODUCTION, EXTRACTION AND OPEN SPACE			
Agricultural production (except livestock)	Yes[3,5]	Yes[5]	Yes
Permanent open space	Yes[3,5]	Yes[5]	Yes
Water areas	Yes[3,5]	Yes[5]	Yes
Wholesale horticultural production	Yes[3,5]	Yes[2,5]	Yes
Livestock farming, animal breeding	No	Yes[2]	Yes

When an existing inconsistent land use sustains damage or destruction of 50 percent of the value of the building or structure, subsequent use of the land must comply with the policies set forth in this plan.

d. Strict applications of the Land Use Compatibility Guidelines for Safety may create undue hardships which outweigh interests of public health and safety. Deviation from the guidelines through an overrule by the City of South Lake Tahoe or El Dorado County should be approved only upon a finding that such hardships clearly outweigh the public health, safety and welfare objectives of this plan.

e. The City of South Lake Tahoe and El Dorado County should implement the airport safety policies established by this plan through such actions as preparing and adopting an airport safety area zoning ordinance (Figure 15), the preparation and adoption of a specific plan for the airport area of influence, or inclusion of appropriate standards in the general plan for each jurisdiction.

f. Within the safety areas established by this plan, the City of South Lake Tahoe and El Dorado County will submit for ALUC review any proposed land use change including general plan or specific plan adoptions or amendments, prezonings, rezonings, use permits or variances.

g. A detailed mapping of the safety area boundaries should be performed by the City of South Lake Tahoe and El Dorado County which specifically delineates those parcels impacted by safety restrictions.

D. COMPREHENSIVE LAND USE PLAN IMPLEMENTATION PROCESS

1. Adoption of this plan sets in motion a 180 day period, within which the City of South Lake Tahoe and El Dorado County must take one of two possible actions:

   a. The first option is to amend the city and county general plans and other land use controls and regulations, where necessary, to be consistent with this plan.

   b. The second options, if the city or county does not concur with provisions of this plan, is to overrule that portion of the plan it does not agree with. The overruling must, however, be by two-third (2/3) vote of the governing body and must be based on findings that the action to overrule is consistent with Section 21670 of the California Public Utilities Code.

Section 21670 of the California Public Utilities Code makes it clear that the purpose of the California Airport Land Use Commission Law is to protect the public health, safety, and welfare by ensuring the orderly expansion of airports and the adoption of land use measures that minimize the public's exposure to excessive noise and safety hazards.

2. Prior to the amendment of the general plans or specific plan, or the adoption or approval of a zoning ordinance or building regulations that would affect land that lies within the airport area of influence, the proposal must be submitted to the Airport Land Use Commission for review and determination of compatibility. The city and county are responsible for submitting such proposals to the ALUC.

3. It is perceived that there are no contradictions between this plan and the plan area statement by the Tahoe Regional Planning Agency for the Lake Tahoe Airport (Appendix F) and its environs. This plan shall be submitted to the TRPA prior to adoption and said agency's recommendations for modification considered.