Marina Municipal Airport
Comprehensive Land Use Plan

Monterey County Airport Land Use Commission
Adopted November 18, 1996
The Monterey Airport Land Use Commission adopted the Comprehensive Land Use Plan for the Marina Municipal Airport on November 18, 1996

Commissioners
Nick Ford, Chairman
Jack Barlisch
Sherman Blandin
Eugene Cabaluna
Mari Antonia Dudley
Theodore Larson
Carl Potter

Proxies to Commissioners
Jim Chappell
Denis Horn
Dave Mackie
Blaine Michaelis
Joseph Pope

Project Staff
Robert Slimmon, Jr.: Secretary to the Commission and Director of Monterey County Planning & Building Inspection
William Hopkins: Staff to the Commission and Project Manager
Gale Foss: Computer Graphics
Jim DiMaggio: Graphics
Patricia Hernandez: Administrative Support
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Chapter One-Introduction

PURPOSE AND AUTHORIZATION

The California State Aeronautics Act (Public Utility Code section 21670 et seq.) provides for the creation of local Airport Land Use Commissions (ALUCs) and conveys on ALUCs the responsibility for preparing Comprehensive Land Use Plans (CLUPs) for all public use airports within their jurisdiction. The purpose of a Comprehensive Land Use Plan is to provide for the orderly development of new land uses surrounding public use airports while at the same time protecting the health, safety, and welfare of persons who live and work around the airport.

Toward that goal this plan adopts a comprehensive set of policies designed to ensure that proposed development surrounding the Marina Municipal Airport will be compatible with the noise, safety, and overflight impacts created by the operation of the airport. In addition, by adopting policies with regard to flight hazards, the plan ensures that such development will not cause a hazard to aircraft in flight.

California Public Utilities Code (Section 21670 et seq.) sets forth the requirements for the establishment of Airport Land Use Commissions and provides the following statement of purpose for their creation:

"It is in the public interest to provide for the orderly development of each public use airport in this state and the area surrounding these airports so as to promote the overall goals and objectives of the California airport noise standards adopted pursuant to Section 21669 and to prevent the creation of new noise and safety problems."

"It is the purpose of this article to protect public health, safety, and welfare by ensuring the orderly expansion of airports and the adoption of land use measures that minimize the public's exposure to excessive noise and safety hazards within areas around public airports to the extent that these areas are not already devoted to incompatible uses."

In order to achieve the above stated purpose, the law requires each ALUC to prepare a comprehensive land use plan for each public use airport within its jurisdiction as follows:

"Each commission shall formulate a comprehensive land use plan that will provide for the orderly growth of each public airport and the area surrounding the airport within the jurisdiction of the commission, and will safeguard the general welfare of the inhabitants within the vicinity of the airport and the public in general." (PUC Section 21675)
Monterey County Airport Land Use Commission

The Monterey County ALUC is made up of seven members. Two members are appointed by the Board of Supervisors, two members by the mayors selection committee, two members selected by the managers of the public airports in the county, and one member of the general public selected by the other six commissioners. Each commissioner is required to appoint a proxy to provide for alternate representation. Although the County provides administrative and staff support to the ALUC, the Commission is its own entity; decisions made by the Commission are not appealable although they may be overruled by a two-thirds vote of the affected jurisdiction, which is the Marina City Council or Monterey County Board of Supervisors in the case of this CLUP. In addition to preparing CLUPs, the ALUC is responsible for reviewing general plan amendments and rezonings within airport planning areas, as well amendments to airport master plans. By agreement with the local jurisdiction, the ALUC may also review other land use actions related to aviation impacts and/or safety.

PLAN ORGANIZATION

This CLUP is organized into four chapters. Chapter One provides the purpose and goals of the plan as well as a description of the enabling legislation and the organization of the plan. Chapter Two uses data from the Marina Airport Master Plan to describe the airport infrastructure, proposed improvements, and predicted flight activity through the year 2015. By state law the policies in a comprehensive land use plan must be based on the airport master plan. Chapter Two also provides a short history of the Marina Municipal Airport. Chapter Three explains each of the airport compatibility issues addressed by this plan (noise, safety, flight hazards, and overflight impacts), and addresses the specific compatibility issues that exist at the Marina Airport. Chapter Four contains the Plan policies that, once implemented, will ensure that new development will be compatible with airport operations. This plan also contains an appendix containing a copy of Federal Aviation Regulations (FAR) part 77 height restrictions, a procedure for calculating persons per acre density, and a list of sources used in preparing the plan.

PLAN ADOPTION PROCESS

The Monterey County Airport Land Use Commission developed this plan through a series of public meetings held in late 1995 and early 1996. The Commission adopted the plan on November 18, 1996. After plan adoption, the commission must review the General Plans of both the City of Marina and the County of Monterey to determine the consistency of those Plans with the newly adopted CLUP. If a General Plan is found to be inconsistent with the adopted CLUP, the County and/or City then have 180 days to either amend their General Plan or overrule the ALUC’s adoption of the CLUP by a two-thirds vote of the City Council and/or Board of Supervisors. The overrule must be accompanied by findings based on substantial evidence that the City Council or Board of Supervisors action is consistent with the purpose of the State Aeronautics Act (PUC section 21676).
Chapter Two-Marina Municipal Airport

LOCATION AND SETTING

The Marina Municipal Airport is an 845.5 acre site located within the City of Marina approximately two miles from the shore of Monterey Bay and approximately 10 miles north of the City of Monterey. (See Figure 2-1 and 2-2). Development on the site consists of one 3,000 foot runway and several aviation related structures. The topography of the site ranges from flat to steep bluffs sloping down toward the Salinas River. The dominant vegetation type is annual grassland. The property contains several species of plant and animal life identified as threatened, rare, or endangered. In order to protect these biological resources, approximately 167 acres has been set aside as a habitat protection area.

HISTORY

The airport is on the site of the previous Fritschze Army Air Field which served as the airport for Fort Ord, the former U.S. Army base which was substantially downsized in 1994 as a result of post-Cold War defense cutbacks. The airfield had been used by the Army since the 1950's, primarily for helicopter training although it was also used by the U.S. Air Force and the U.S. Navy for approach training. The conversion of the airfield to civilian use is one of the key elements of the Initial Fort Ord Base Reuse Plan, approved in April, 1993 by Monterey County and local cities working together as the Fort Ord Reuse Group. In August, 1995 the 845.5 acre site was officially conveyed by the Army to the City of Marina for use as a municipal airfield.

EXISTING LAND USE

The "Airport Land Use Plan" (Figure 2-3), contained in the Master Plan for the Airport, shows the airport property to consist of 845.5 acres. The proposed use of the property is as follows:

<table>
<thead>
<tr>
<th>Use</th>
<th>Acres</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aviation</td>
<td>401.8</td>
</tr>
<tr>
<td>Non-Aviation (Revenue Producing)</td>
<td>265.0</td>
</tr>
<tr>
<td>Habitat Protection</td>
<td>167.1</td>
</tr>
<tr>
<td>FAA Lease</td>
<td>3.5</td>
</tr>
<tr>
<td>Highway Easement</td>
<td>8.1</td>
</tr>
<tr>
<td>TOTAL</td>
<td>845.5</td>
</tr>
</tbody>
</table>

1Association of Monterey Bay Area Governments, *Regional Airport System Plan*, August, 1995; p. 2

2Phase II: General Aviation Feasibility/Airport Master Plan Study for Fritzsche Field, Marina, CA; November 8, 1993; prepared for Fort Ord Economic Development Authority by P & D Aviation
THE CONTENTS DO NOT NECESSARILY REFLECT THE OFFICIAL VIEWS OR POLICY OF THE FAA. ACCEPTANCE OF THIS PLAN BY THE FAA DOES NOT IN ANY WAY CONSTITUTE A COMMITMENT ON THE PART OF THE UNITED STATES TO PARTICIPATE IN ANY DEVELOPMENT DEPICTED THEREIN NOR DOES IT INDICATE THAT THE PROPOSED DEVELOPMENT IS ENVIRONMENTALLY ACCEPTABLE IN ACCORDANCE WITH APPROPRIATE PUBLIC LAWS.
Figure 2-4 shows the existing uses of the land surrounding the airport property. With the exception of the existing improvements on the airport property itself, the site is completely surrounded by open space and/or agricultural uses. Approximately 3,500 feet south of the runway is Reservation Road, a major traffic artery for the City of Marina. The portion of Reservation Road within the Marina City limits is zoned commercial and there are several existing commercial uses along the road. South of Reservation Road are residential areas in the City of Marina. Approximately two miles to the north of the end existing runway is the Marina landfill which provides solid waste disposal services for the Monterey Peninsula.

PROPOSED SURROUNDING LAND USES

There are three locations surrounding the airport that could see large scale development within the next 15 years:

1. The master plan designates a 265 acre area of the airport property to the north and east of the runway as "Non-aviation Revenue Producing". Anticipated uses in this area include commercial, industrial, and resort/recreation developments as well as corporate aviation uses. Most of this area is located in the Traffic Pattern Zone (TPZ).

2. The Armstrong Ranch is a 2,000 acre property located northwest of the airport, portions of which are directly under the departure/approach path of runway 29/11. Approximately 322 acres of the Armstrong Ranch are within Marina’s city limits. However, the majority of the property is currently unincorporated and is in agricultural production or is used as grazing land although it is within Marina's Sphere of Influence. The Monterey County General Plan designates the property as Permanent Grazing, 40 acres/unit with an Urban Reserve Overlay. The Marina General Plan calls for the area to be developed as a residential subdivision with associated commercial uses. This CLUP incorporates a conceptual land use plan for the Armstrong Ranch which shows the type, location, and density of uses both within and outside the Airport Planning Area boundary.

3. As part of the Fort Ord Base conversion process, the University of California has accepted land adjacent to the airport to develop the UC Monterey Bay Education, Science, and Technology Center (UC MBEST Center). The Center is "envisioned to be a multi-institutional center for science, technology, education, and policy...".³

³Draft Environmental Assessment/Environmental Impact Report: City of Marina, California, Airport Plans Permits, U.C. Technology Center, Airport Area General Plan and Zoning Amendments and Redevelopment Plan; Prepared for the City of Marina and the Federal Aviation Administration; February 21, 1995
MONTEREY COUNTY AIRPORT LANDUSE COMMISSION

Figure 2-4

Existing Surrounding Land Uses

DRAWN BY MONTEREY COUNTY
PLANNING & BUILDING INSPECTION
FAA DISCLAIMER
The contents do not necessarily reflect the official views or policy of the FAA. Acceptance of this plan by the FAA does not in any way constitute a commitment on the part of the United States to participate in any development depicted therein nor does it indicate that the proposed development is environmentally acceptable in accordance with appropriate public laws.

Figure 2-5

APPROVED BY:
[Signature]
PART 33 COMMANDER/ENGINEER AUTHORITY

MONTEREY COUNTY AIRPORT LANDUSE COMMISSION
MARINA MUNICIPAL AIRPORT
MARINA, CALIFORNIA

AIRPORT LAYOUT PLAN

DEIGNED BY: [Signature]
CHECKED BY: [Signature]
DRAWN BY: [Signature]
DATED: FEBRUARY 17, 1984
SHEET 1 OF 3
The property is located in the vicinity of the Blanco Road/Reservation Road intersection and is proposed to consist of 437 acres of developed land and 605 acres of natural habitat lands (open space). The northern portion of this site lies in the Runway Protection and Approach Protection Zones. The Master Plan Study prepared for the project proposes Outdoor Recreation/Playfields for this area.

AIRPORT INFRASTRUCTURE

The Airport Master Plan proposes a three stage capital improvement program for the airport.

**Stage One** (1995-1999) consists of the basic improvements that are necessary to operate the airfield in a safe and efficient manner. These include security lighting and fencing, approach slope indicators, and the replacement of fuel storage and distribution facilities.

**Stage Two** (2000-2004) proposes an expansion of the existing runway from 3,000' X 75' to 5,240' X 100', associated taxiway and lighting improvements, the installation of an instrument landing system using either conventional or satellite based (GPS) technology, and expanded renovation of existing structures and utilities.

**Stage Three** (2005-2009) proposes construction of an access road to the north side of the airport and development of utilities and drainage systems in that area. These developments would serve the "non-aviation revenue producing" uses proposed for that area.

Figure 2-5 contains the "Airport Layout Plan" which shows both the existing and the ultimate airport configuration. The policies in this plan are based on the implementation of the proposed airport improvements through stage three.

AIRCRAFT OPERATIONS

The Master Plan foresees 39,000 aircraft operations during the opening year of 1995, climbing to 61,000 in the year 2010. This compares to annual military operations (primarily helicopters) of 156,000 to 219,000 in the years just prior to the closing of Fritchze Field. It is expected that the phase two capital improvements planned for the years 2000-2004 (runway expansion & instrument landing system) will not only increase the number of aircraft operation but also change the mix of aircraft using the field. Table 2-2 shows the forecasted number of aircraft operation broken down by aircraft type. It should be noted that the AMBAG "Regional Airport System Plan", dated August, 1995, forecasts a significantly lower number of aircraft operations than the airport master plan. Table 2-2 includes the AMBAG forecast, however section 21675 (a) of the California Public Utility Code requires Comprehensive Land Use Plans to be based on airport master plans and therefore this CLUP uses the higher forecasts when formulating compatibility policies.

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4 Letter to ALUC staff from Graham Bice, UC MBEST Center, dated 11/27/96.
6 An aircraft operation is one take-off or landing.
FLIGHT TRACKS
In addition to showing projected CNEL noise contours, figure 4-2 shows the expected flight tracks for aircraft using the airport. Because of prevailing winds, runway 29 will be the active runway for the great majority of operations. The traffic pattern for both runways is located north of the airport which should limit noise and safety impacts south of the airport where the more developed areas of Fort Ord and the City of Marina are located. In addition, a 45 degree departure track from runway 29 is called for in the airport Master Plan in order to limit noise impacts to developed areas of Marina, however, the 45 degree track does overfly portions of the Armstrong Ranch area.
Table 2-1  
MARINA AIRPORT SPECIFICATIONS

<table>
<thead>
<tr>
<th></th>
<th>1995</th>
<th>2000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Runway Length</td>
<td>3,000'</td>
<td>5,240'</td>
</tr>
<tr>
<td>Runway Width</td>
<td>75'</td>
<td>100'</td>
</tr>
<tr>
<td>Flight Pattern¹</td>
<td>North Side of Airport</td>
<td>North Side of Airport</td>
</tr>
</tbody>
</table>
| Runway Approach Type² | Visual | Rwy. 29: Precision Instrument  
                  |        | Rwy. 11: Non-Precision Instrument |
| Airport Reference Code (ARC)³ | B-I    | B-II   |

Source: Airport Master Plan Study for Fritzche Field (11/8/93)

Notes:

1. Instrument arrivals and departures are straight-in and straight-out from runways.

2. **Nonprecision instrument runway** means a runway having an instrument approach procedure utilizing air navigation facilities with only horizontal guidance, or area type navigation for which a straight-in non precision instrument approach has been planned or approved. **Precision instrument runway** means a runway having an instrument approach procedure with both horizontal and vertical guidance for a runway where a precision instrument approach has been planned or approved.

3. **Airport Reference Code B-I** designates a runway designed to accommodate aircraft with approach speeds between 91 and 121 knots and a wingspan of less than 49 feet. **Airport Reference Code B-II** designates a runway designed to accommodate aircraft with approach speeds between 91 and 121 knots and a wingspan between 49 and 79 feet. The Master Plan indicates that the airport will serve aircraft less than 12,500 pounds gross take-off weight.
Table 2-2

General Aviation Operations Forecast at Marina Municipal Airport (1995 to 2010)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>General Aviation Forecast (Annual Operations)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SE Propeller</td>
<td>29,200</td>
<td>33,000</td>
<td>34,000</td>
<td>35,000</td>
</tr>
<tr>
<td>ME Propeller</td>
<td>7,800</td>
<td>11,000</td>
<td>14,000</td>
<td>17,000</td>
</tr>
<tr>
<td>Turbo Prop</td>
<td>1,000</td>
<td>1,500</td>
<td>2,500</td>
<td>3,600</td>
</tr>
<tr>
<td>Turbo Jet</td>
<td>0</td>
<td>0</td>
<td>2,000</td>
<td>2,400</td>
</tr>
<tr>
<td>Helicopter</td>
<td>1,000</td>
<td>2,000</td>
<td>2,500</td>
<td>3,000</td>
</tr>
<tr>
<td>TOTAL</td>
<td>39,000</td>
<td>47,500</td>
<td>55,000</td>
<td>61,000</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>General Aviation Forecast for Marina Airport</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SE Propeller</td>
<td>10,590</td>
<td>9,490</td>
<td>8,840</td>
<td>8,660</td>
</tr>
<tr>
<td>ME Propeller</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>520</td>
</tr>
<tr>
<td>Turbo Prop</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Turbo Jet</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Helicopter</td>
<td>0</td>
<td>1,000</td>
<td>2,000</td>
<td>2,500</td>
</tr>
<tr>
<td>TOTAL</td>
<td>10,590</td>
<td>10,490</td>
<td>10,840</td>
<td>11,680</td>
</tr>
</tbody>
</table>

Note: Numbers represent forecast take-offs and landings
Chapter Three-Compatibility Issues

There are four types of compatibility issues associated with land uses around airports.

1. **Noise**
   Noise is the most common complaint regarding airports. Its impact can range from slight annoyance to severe interference with everyday activities.

2. **Safety**
   The risk of an aircraft accident is greater in the vicinity of an airport than in other areas. Because of this risk, it is important that land uses surrounding an airport be restricted to ensure that risks are limited for both humans and structures.

3. **Flight Hazards**
   Flight hazards consists of land uses that have the potential to interfere with aircraft in flight.

4. **Overflight Impacts**
   Overflight impacts are noise and safety impacts occurring outside precisely defined noise and safety zones. Some people are unaffected by overflight impacts while others may find that the impacts cause extreme annoyance or even fear. Because of the varying effect on different people, overflight impacts are difficult to measure.

This chapter examines each of these impacts in detail and describes the specific comparability issues that exist at the Marina Municipal Airport.

1. **NOISE**
   Aircraft noise is the most pervasive and noticeable impact of airport activity because of its constant nature. As long as an airport is in operation, there will be noise impacts. Airport noise impacts are measured using the Community Noise Equivalent Level (CNEL) method. This method calculates the average noise generated by aircraft over a 24 hour period, giving extra weighting to noise occurring during the evening and night hours. CNEL levels are based on existing and/or forecast aircraft operations and are usually depicted in the form of contours around the subject airport.

   Noise impacts on humans vary widely, however several studies have been conducted which identify generally accepted noise compatibility levels for humans. Figure 3-1 contains guidelines indicating which types of uses are considered acceptable at each CNEL noise level. Almost all compatibility standards set CNEL 65 dB as the maximum level for residential areas. The California Airport Land Use Planning handbook recommends a limit of CNEL 55 dB for rural areas, 60 dB for suburban areas, and 65 dB for urban areas. The Marina General Plan sets a limit of CNEL 60 dB for single-family residential uses within the City and 65 dB for multi-family uses.

   **Noise Impacts at the Marina Municipal Airport**
   Figure 4-2 shows the projected CNEL noise contours for the Marina airport for the year 2010.
### Characteristics of Noise / Chapter 6

#### Table 6.C

<table>
<thead>
<tr>
<th>Day-Night Average Sound Level (Decibels)</th>
<th>Hearing Loss (Qualitative Description)</th>
<th>Annoyance (^2) (Percentage of Population Highly Annoyed)</th>
<th>Average Community Reaction (^1)</th>
<th>General Community Attitude Toward Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>≥75</td>
<td>May begin to occur</td>
<td>37%</td>
<td>Very severe</td>
<td>Noise is likely to be the most important of all adverse aspects of the community environment.</td>
</tr>
<tr>
<td>70</td>
<td>Will not likely occur</td>
<td>22%</td>
<td>Severe</td>
<td>Noise is one of the most important adverse aspects of the community environment.</td>
</tr>
<tr>
<td>65</td>
<td>Will not occur</td>
<td>12%</td>
<td>Significant</td>
<td>Noise is one of the important adverse aspects of the community environment.</td>
</tr>
<tr>
<td>60</td>
<td>Will not occur</td>
<td>7%</td>
<td>Moderate to Slight</td>
<td>Noise may be considered an adverse aspect of the community environment.</td>
</tr>
<tr>
<td>≥55</td>
<td>Will not occur</td>
<td>3%</td>
<td></td>
<td>Noise considered no more important than various other environmental factors.</td>
</tr>
</tbody>
</table>


2. A summary measure of the general adverse reaction of people to living in noisy environments that cause speech interference; sleep disturbance; desire for tranquil environment; and the inability to use the telephone, radio or television satisfactorily.

3. The percentage of people reporting annoyance to lesser extents are higher in each case. An unknown small percentage of people will report being "highly annoyed" even in the quietest surroundings. One reason is the difficulty all people have in integrating annoyance over a very long time. USAF Update with 400 points (Finegold et al. 1992)

4. Attitudes or other non-acoustic factors can modify this. Noise at low levels can still be an important problem, particularly when it intrudes into a quiet environment.

NOTE: Research implicates noise as a factor producing stress-related health effects such as heart disease, high blood pressure and stroke, ulcers and other digestive disorders. The relationships between noise and these effects, however, have not as yet been conclusively demonstrated. (Thompson 1981; Thompson et al. 1989; CHABA 1981; CHABA 1982; Hattis et al. 1980; and U.S. EPA 1981)

Source: Federal Interagency Committee on Noise (1992)
This figure indicates that the areas with the greatest noise impact (CNEL 65 dB +) are located entirely on the airport property and that portions of the CNEL 55 dB and 60 dB extend off the airport property. This does not result in any compatibility conflicts on the land to the east since that area is expected to remain in agricultural use for the foreseeable future. To the west of the airport, portions of the Armstrong Ranch property are located between the 55 dB and 60 dB CNEL contours, and, although currently used as grazing land, the Marina General Plan designates the ranch area as being developed for residential and neighborhood commercial use. The area of the Armstrong Ranch between CNEL 65 dB contour and the CNEL 60 dB contour is currently designated single-family residential by the Marina General Plan, but may be limited to multi-family use because of noise policies. Policy 2.1.2 in the next chapter sets a standard for single-family residential development around the Marina Airport at CNEL 60 dB and at CNEL 65 dB for multi-family development.

2. SAFETY
Ensuring the safety of persons and/or structures on the ground is a critical component of all comprehensive land use plans. While certainly not as obvious as noise impacts the safety impacts of an airport are no less important, and ignoring these issues has the potential to lead to tragedy. To ensure safety, land surrounding an airport is first divided into different zones, each containing a different level of risk. Land use policies addressing that risk are then developed for each zone.

The establishment of risk zones surrounding an airport is based on the number of aircraft operations, type of aircraft, and the location of flight tracks. In addition, the California Airport Planning Handbook contains the results of a national study that shows which areas in the vicinity of airports have in the past had the greatest concentrations of aircraft accidents. Special attention should be paid to these areas of accident concentrations when establishing safety zones.

The State Aeronautics Act provides very little specific guidance as to the content and format of comprehensive land use plans, and Airport Land Use Commissions are given a great deal of latitude in determining how to ensure the safety of persons and structures surrounding an airport. This comprehensive land use plan divides the land surrounding the Marina airport into 4 safety zones: 1) the Runway Protection Zone (RPZ), 2) the Approach Protection Zone (APZ), 3) the Traffic Pattern Zone (TPZ), and the Overflight Protection Zone (OFPZ). Each of these zones is discussed in detail below. Their location is shown on figure 4-1. Specific land use policies for each of these zones can be found in policy section 2.2 (Safety Compatibility Policies) of this plan.

Runway Protection Zone: The Runway Protection Zone is a trapezoidal shaped area defined by the Federal Aviation Administration that begins 200 feet off the end of each runway. Its size is based on the category of runway and type of approach being used at the airport. At Marina Airport the RPZ at the east end of the runway is 2,500’ x 1,000’ x 1,750’. At the west end the dimensions are 1,700’ x 1,000’ x 1,425’. The RPZ is a high risk area subject to frequent overflight by low flying aircraft and high noise levels. Only very low density land uses, such
as parks, golf courses, and other open space uses are allowed in this area.

**Approach Protection Zone:**

The Approach Protection Zone maintains the same shape of the Runway Protection Zone while extending further from the runway. It is an area of moderate risk that incorporates areas of the airport traffic pattern where aircraft would normally be turning from base leg to final leg and descending toward the runway. Uses allowed in this zone include low density commercial and/or industrial uses, and very limited residential uses.

**Traffic Pattern Zone:**

The Traffic Pattern Zone is the area under which aircraft normally fly while approaching the airport to land. Generally, aircraft are at 1,000' AGL in this area. The traffic pattern for the Marina Airport is located solely to the north of the field. It is an area of minimal accident risk, however adequate levels of open space should be maintained in this area to allow for emergency landings. Uses allowed in this area include commercial, industrial, and low density residential uses. High concentrations of people and uses whose occupants would have low mobility are not allowed.

**Overflight Zone:**

The Overflight Zone is the area subject to overflight impacts. It encompasses all the land within the Airport Planning Area. All new developments in this area are required to provide notification to buyers regarding potential airport impacts.

**Safety Issues at Marina Airport**

As is indicated in figure 2-4, the Marina Municipal Airport is currently surrounded by open space and/or agricultural land. This makes for a high degree of safety compatibility. The Runway Protection Zone at the west end of the runway is owned by the City of Marina and is entirely on the airport property and is therefore protected from development. The Approach Protection Zone to the west partially overlies the Armstrong Ranch and may restrict the use of this residentially designated property. The Runway Protection Zone to the east of the runway extends off the airport property over Blanco Road to the east. The potential hazard to vehicles on the road is minimal because, at that location, Blanco Road is in a depression about 50 feet below adjacent terrain. Further to the east, the RPZ is partially protected by approach easement. The remaining land in the eastern Runway Protection and Approach Protection zones is primarily agricultural although several existing structures are located in this area, as is the northern portion of the U.C. Technology Center property.

The majority of the land under the Traffic Pattern Zone is currently undeveloped; however, the area
is identified as “non-aviation revenue producing” in the Airport Master Plan. Portions of the Armstrong Ranch Property also lie in the TPZ.

This comprehensive land use plan addresses safety hazards primarily by limiting the population density in specific zones. Policy section 2.2 specifies the maximum allowable density in each zone as well as the allowable and prohibited land uses. Residential uses are not permitted in the Runway Protection Zone and are allowed at limited densities in the Approach Protection Zone and the Traffic Pattern Zone. Hospitals, schools, daycare centers, and other uses whose occupants have limited mobility are permitted only in the Overflight zone.

3. FLIGHT HAZARDS

Flight hazards consist of structures, activities, and uses occurring on the ground that may cause hazards to aircraft in flight. Federal Aviation Regulations, Part 77 (Objects Affecting Navigable Airspace) describes a series of “Imaginary Surfaces” which set standards for the maximum height of objects around airports and require that the FAA be notified of any proposed construction that exceeds those standards. Policies in this CLUP prevent the construction of new structures that penetrate the FAR part 77 surfaces. In addition, policy 1.3.5 requires ALUC review of any proposal for a structure over 35 feet in the Runway Protection and Approach Protection Zones, and over 45 feet in the Traffic Pattern and Overflight Zones. Figure 4-3 shows the FAR part 77 surfaces for the Marina Airport.

Other flight hazard issues include activities that have the potential to create interference to aircraft such as the creation of glare, smoke, radio emissions or bird hazards.

Flight Hazards at the Marina Airport

The area in the immediate vicinity of the Marina airport is generally free of flight hazards although some potential hazards can be found within 2 miles of the airport.

- **Ground Hazards**

  The primary potential ground hazard is the Marina Landfill which is located approximately 7,000 feet to the northwest of the airport runway. Landfills usually attract large numbers of birds which have the potential to be a significant flight hazard. There is no evidence that a hazard exists at the present level of airport operation. However, both the airport operator (City of Marina) and the landfill operator (Monterey Regional Waste Management District) have recognized that airport expansion may lead to increased hazard potential. Consequently, these parties have entered into a “Memorandum of Agreement”, dated August 31, 1995, requiring a “Bird Hazard Study” before the airport runway is expanded. Policies in this CLUP require the implementation of any necessary mitigation measures that may be identified by the study.

Policies also prohibit the establishment of new uses that have a potential to create a hazard to aircraft in flight. This potentially includes the establishment of new landfills and other uses that would create glare, smoke, radio emissions, or other uses that may interfere with aircraft operation.

- **Height Hazards**

  There are two existing radio towers with a height of 369 feet above mean sea level (MSL) (349'
AGL) located approximately 7,500 feet to the west of the airport runway. The FAR part 77 horizontal surface' elevation is 285 feet MSL which means that the towers penetrate the surface by 84 feet. These towers have the potential to present a hazard to low flying aircraft arriving or departing the airport, and their presence needs to be taken into account when establishing a non-precision instrument approach for the airport. Both of these towers are lit with aircraft warning lights. On the airport itself, approximately 2,000 feet south of the runway, is located a 281 foot high (MSL) water tower, which is just 4 feet below the elevation of the horizontal surface.

4. OVERFLIGHT IMPACTS
Overflight impacts consist of the potential annoyance that aircraft create even when outside areas of identified noise contours or safety zones. These usually occur under flight tracks when aircraft transit to and from the airport. Overflight impacts are somewhat subjective because the level of annoyance varies significantly with each person.

Overflight Impacts at the Marina Airport
The Master Plan for the Marina Airport identifies a traffic pattern that is exclusively on the north side of the airport. This restriction should eliminate most overflight impacts to the developed portions of the City. In this comprehensive land use plan, the overflight impact zone consists of all areas within the airport planning area (figure 4-1). This area is currently used as agricultural or grazing land although it does include portions of the proposed Armstrong Ranch and the U.C. MBEST Center. Policies in this CLUP require that buyers of new developments be notified of potential aircraft impacts.

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7 The "Horizontal Surface" is an imaginary plane located 150' above the elevation of the airport runway and extending in a 10,000 foot arc from the end of the runway. Appendix C contains the full text of FAR part 77.
Figure 4-1

Monterey County Airport Landuse Commission
MARINA MUNICIPAL AIRPORT
PLANNING AREA
Adopted 1/22/96
Chapter Four-Plan Policies

1. GENERAL POLICIES

1.1 Planning Area

1.1.1 The Airport Planning Area consists of all the land which may be adversely impacted by present or future aircraft operations at the Marina Municipal Airport. The specific boundaries of the planning area are shown in figure 4-1.

1.2 Types of Impacts Addressed

1.2.1 The Monterey County Airport Land Use Commission and the Comprehensive Land Use Plan for the Marina Airport are concerned only with the potential impacts related to aircraft noise, land use safety, flight hazards to aircraft, and overflight impacts.

1.3 Review Criteria

1.3.1 Pursuant to Public Utility Code section 21676(a) the Commission shall review the General Plans, Area Plans, and Specific Plans for the County of Monterey and the City of Marina to determine if such plans are consistent with the policies of this comprehensive land use plan. Such review shall take place within 180 days of the adoption of this comprehensive land use plan. In addition, the Commission shall review the final Fort Ord Base Reuse Plan, as soon as it is completed, and determine its consistency with this comprehensive land use plan.

1.3.2 Until such time as the Airport Land Use Commission has determined that the General Plans, Area Plans, and Specific Plans, of the County and the City are consistent; or until the County or the City has overruled the Commission's determination, all discretionary permits shall be referred to the Commission for a consistency determination, pursuant to Public Utility Code section 21676.5.

1.3.3 The Commission shall review all subsequent amendments to the General Plans, Area Plans, and Specific Plans, and all adoptions of zoning and building regulations, that may affect land use in the airport planning area. The Commission shall determine if the amendments and/or adoptions are consistent or inconsistent with this comprehensive land use plan. (Public Utility Code section 21676(b).

1.3.4 The Commission shall review any modification to the Marina Airport Master Plan to determine consistency with this comprehensive land use
plan. (Public Utility Code section 21676.c)

1.3.5 In addition to the referrals required by policy 1.3.3, the ALUC shall review all the following actions within the Airport Planning Area:

For Projects within the Runway Protection and Approach Protection Zones:

1. Proposals for residential subdivisions or Planned Unit Developments consisting of 5 or more units with in the airport planning area;

2. Proposals for transient lodging facilities consisting of more than 10 units;

3. Proposals for commercial development that will result in a density of more than 100 persons per acre;

4. All requests for structures over 35 feet in height within the airport planning area;

5. Any proposed land use action that may involve a question of compatibility with airport activities.

For Projects within the Traffic Pattern and Overflight Zones:

1. Proposals for residential subdivisions or Planned Unit Developments consisting of 30 or more units;

2. Proposals for transient lodging facilities consisting of more than 100 units;

3. Proposals for commercial development that will result in a density of more than 150 persons per acre;

4. All requests for structures over 45 feet in height;

5. Any proposed land use action that may involve a question of compatibility with airport activities.

When reviewing the above proposals the ALUC should determine the project’s consistency with the policies of the Comprehensive Land Use Plan and also, if necessary, provide recommendations for changes in the project that would enhance the project’s compatibility with the airport. Such recommendations shall be based on the guidelines found in the California Airport Land Use Planning Handbook.
1.4 Review Process

1.4.1 The proposed actions referred to in section 1.3 shall be referred to the Commission at the earliest possible time in order that the Commission's findings may be considered by the local agency prior to finalizing the proposed action.

1.4.2 When reviewing a proposed land use action, the ALUC may find a proposal either, 1) consistent with the comprehensive land use plan, or 2) inconsistent with the comprehensive land use plan. If the Commission finds a proposal to be inconsistent it may state under which conditions the proposal would be consistent.

In the interest of promoting the public health and safety, the ALUC may recommend additional changes for projects that come before the Commission and have been deemed consistent with this comprehensive land use plan.

1.4.3 The Commission must take action on a request for a consistency determination within 45 days of the referral. If the determination is not made within 45 days, the proposal shall be deemed consistent with the comprehensive land use plan.

1.4.5 The Airport Land Use Commission may, at the request of the local jurisdiction or interested party, provide an interpretation of any of the policies found in this comprehensive land use plan.

2. COMPATIBILITY POLICIES

2.1 Noise Compatibility Policies

2.1.1 Noise impacts shall be evaluated using the noise contours depicted in Figure VI-1 of the Marina Airport Master Plan (1993), a copy of which is shown as figure 4-2 in this comprehensive land use plan. These contours show the expected noise impacts from the airport at 60,000 annual operations, a level expected to be reached in the year 2010. The Commission shall review updated noise contours when they become available, and if appropriate, use the updated contours when evaluating noise impacts.

2.1.2 The Noise Compatibility Policies, as shown in Table 4-1, shall be used to determine if a specific use is compatible.
2.2  Safety Compatibility Policies

2.2.1 The location of the Runway Protection Zone, Approach Protection Zone, Traffic Pattern Zone, and the Overflight Area are shown on the diagram depicting the Airport Planning Area (figure 4-1). A more precise map, showing the location and exact dimensions of the zones is shown in figure 4-4.

The location and configuration of these zones were established based on the expected completion of the airport improvements as envisioned by the Airport Master Plan, as well as the projected flight tracks, type of aircraft, and number of aircraft operations expected. The location and configuration of these zones should be reevaluated if more precise data becomes available or if any of these components change. The location and configuration of these zones shall be changed only by the Airport Land Use Commission subject to the plan amendment process described in Public Utility Code section 21675.

2.2.2 The Land Use Compatibility Policies, as shown in Table 4-2, shall be used to determine if a specific use is compatible.

2.2.3 The primary method of limiting risk to persons on the ground is to limit the number of persons allowed in a given area. For this reason, each zone is assigned a maximum allowable density in Table 4-2. The density limits shown in the table may be adjusted pursuant to policy 2.2.6.

2.2.4 Uses whose primary occupants are persons of impaired mobility shall not be allowed in the Runway Protection Zone, the Approach Protection Zone, or the Traffic Pattern Zone. Such uses include, but are not limited to, hospitals, schools, day care centers, and nursing homes.

2.2.5 Unless directly related to the operation of aircraft, the above ground storage of large quantities of flammable materials or other hazardous materials shall not be permitted in the Runway Protection Zone, the Approach Protection Zone, or the Traffic Pattern Zone.

2.2.6 Potential aircraft accidents can often be avoided if large areas of open space are preserved around airports in order to allow for emergency landings. Open space can generally be defined as an area measuring at least 75 by 300 feet that is free of obstructions such as trees, power lines, and fences.

In order to preserve as much open space as possible in the environs of the Marina Airport, the following design criteria shall be applied to all new development projects:

1. Development should be clustered and contiguous landscaped
Figure 4-2
PROJECTED FLIGHT TRACKS AND NOISE EXPOSURE
(60,000 ANNUAL OPERATIONS)

City of Marina, California
P&D Aviation/MoCoPBI/gf APRIL 7, 1993

LEGEND
- PROPOSED RUNWAY CONFIGURATION (5240 X 100)
- PROJECTED AIRCRAFT FLIGHT TRACKS
- PROPOSED HELIPAD
- MARINA CITY LIMITS
- NOISE CONTOUR (CNEL 55 dB)
- NOISE CONTOUR (CNEL 60 dB AND ABOVE)

SCALE
0 3000 FEET

NORTH
and parking areas should be provided. The population and housing unit densities for individual projects in the Traffic Pattern and Approach Protection Zones, as required by policy 2.2.3, may be increased if it can be demonstrated that such an increase results in the provision of substantial open space. In no case shall the density increase be more than 250% of the normally allowable density. If a density increase is allowed in the Approach Protection Zone, the open space provided must be located along the extended airport runway centerline. Before allowing such an increase the local jurisdiction shall refer the proposal to the ALUC for review and recommendation.

2.2.7 The Airport Operator shall make every effort to acquire control of land located in the Runway Protection Zone. This control may take the form of outright purchase, lease, acceptance of an easement, or any other workable method that would allow the Airport Operator to enforce the policies of this plan related to the placement of structures in the Runway Protection Zone.

2.2.8 If the implementation of policy 2.2.7 is not feasible, non-residential structures may be allowed in the Runway Protection Zone provided that the population density levels contained in policy 2.2.3 are maintained. Such structures must be located at least 250 feet away from the extended airport runway centerline and no part of the structure may extend above the plane of the airport runway.

2.3 Flight Hazard Policies

2.3.1 A structure or object that penetrates the Federal Aviation Regulations part 77 surfaces is an incompatible land use.

2.3.2 New uses which may cause a hazard to aircraft in flight are not permitted within the airport planning area. Such uses include electrical interference, high intensity lighting, bird attractions, and activities that may produce smoke, dust, or glare.

2.3.3 Any land use permits granted for the expansion of the Marina Landfill shall include conditions to ensure that appropriate measures are taken to limit bird attraction to the site.

2.3.4 Prior to any expansion of the airport runway, a “Bird Hazard Study” shall be prepared pursuant to the “Memorandum of Agreement” between the City of Marina and the Monterey Regional Water Management District, which became effective on August 31, 1995. If that study concludes that additional measures are necessary to reduce bird strike hazards, such measures shall be incorporated into the conditions of any land use permit approvals for the
FAA DISCLAIMER

The contents do not necessarily reflect the official views or policy of the FAA. Acceptance of this plan by the FAA does not in any way constitute a commitment on the part of the United States to participate in any development depicted therein nor does it indicate that the proposed development is environmentally acceptable in accordance with appropriate public laws.

MARINA MUNICIPAL AIRPORT
MARINA, CALIFORNIA

F. A. R. PART 77

Figure 4-3

MARINA MUNICIPAL AIRPORT COMPREHENSIVE LAND USE PLAN

PROPOSED SAFETY ZONES MAP

LEGEND

- AREA REQUESTED FOR PUBLIC BENEFIT CONVEYANCE
- MARINA CITY LIMITS
- AIRFIELD PERIMETER/FENCING
- HIGHWAY EASEMENT
- RUNWAY CENTERLINE
- IMPROVED PAVED ROAD

NOTE:

SEE POLICY SECTION 2.2 FOR SAFETY ZONE COMPATIBILITY POLICIES.

Figure 4-4
Armstrong Ranch
Site Constraints Map OCTOBER 1996
runway extension.

2.3.5 All new exterior lighting within the Airport Planning Area shall be designed so as to create no glare or interference with aircraft in flight. Such lighting shall be constructed and located so that only the intended area is illuminated and off-sight glare is fully controlled. The lighting shall be arrayed in such a manner that it can not be mistaken for airport approach or runway lights by pilots.

2.4 Overflight Policies

2.4.1 All new uses within the airport planning area shall provide an avigation easement to the City of Marina or the current owner of the airport. The text of the easement shall be mutually agreeable to the Airport Land Use Commission, the City of Marina (or current airport owner), and the land owner. The language of the easement may differ depending on which safety zone the affected property is located.

2.4.2 Local jurisdictions shall establish a method of notifying buyers of new developments within the airport planning area of potential airport impacts. The notification may take the form of avigation easements, deed noticing, or real estate disclosures. A copy of the method(s) to be used for such notification shall be forwarded to the Airport Land Use Commission.

2.4.3 Local jurisdictions are encouraged to provide for the same type of notice required in policy 2.4.2 for existing uses.

2.5 Armstrong Ranch Planning Area

2.5.1 Figure 4-5 shows a constraints map and Figure 4-6 shows a conceptual land use plan for the Armstrong Ranch properties. The constraints map and conceptual land use plan include properties of the Armstrong Ranch both within and outside the Airport Planning Area. The type, location, and density of the land uses within the Airport Planning Area shown on this plan are incorporated into this Comprehensive Land Use Plan. Changes in this conceptual land use plan may be allowed so long as the land uses resulting from the changes are consistent with the policies of this Comprehensive Land Use Plan.

2.5.2 The Flight Hazard policies (Section 2.3) and the Overflight policies (Section 2.4) shall apply only to the portions of the Armstrong Ranch Planning Area that fall within the Airport Planning Area.
<table>
<thead>
<tr>
<th>LAND USES</th>
<th>CNEL LEVEL (in decibels)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>55-60</td>
</tr>
<tr>
<td>single family, mobile home parks, nursing homes</td>
<td>Y</td>
</tr>
<tr>
<td>multi-family residential</td>
<td>Y</td>
</tr>
<tr>
<td>hotels, motels, bed &amp; breakfasts</td>
<td>Y</td>
</tr>
<tr>
<td>schools and daycare facilities</td>
<td>Y</td>
</tr>
<tr>
<td>hospitals</td>
<td>Y</td>
</tr>
<tr>
<td>churches, libraries, indoor auditoriums</td>
<td>Y</td>
</tr>
<tr>
<td>parking lots, cemeteries</td>
<td>Y</td>
</tr>
<tr>
<td>professional and business offices, research facilities</td>
<td>Y</td>
</tr>
<tr>
<td>retail stores and shopping centers, indoor restaurants, movie theaters</td>
<td>Y</td>
</tr>
<tr>
<td>outdoor restaurants</td>
<td>Y</td>
</tr>
<tr>
<td>service businesses</td>
<td>Y</td>
</tr>
<tr>
<td>manufacturing, warehousing, wholesale trade</td>
<td>Y</td>
</tr>
<tr>
<td>cropland and grazing</td>
<td>Y</td>
</tr>
<tr>
<td>golf courses and stables</td>
<td>Y</td>
</tr>
<tr>
<td>neighborhood parks, playgrounds, and zoos</td>
<td>Y</td>
</tr>
<tr>
<td>outdoor arenas</td>
<td>Y</td>
</tr>
</tbody>
</table>

Y = Permitted Use  
N = Not Permitted  
C = Conditionally permitted provided measures to achieve an interior noise level of CNEL 45 dB are incorporated into the design and construction of all portions of the structure where people may be located.
Table 4-2
Safety Compatibility Policies for Marina Municipal Airport

<table>
<thead>
<tr>
<th>SAFETY ZONE</th>
<th>CHARACTERISTICS</th>
<th>MAXIMUM ALLOWABLE DENSITIES(^8)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Residential</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Non-Residential</td>
</tr>
<tr>
<td>Runway Protection Zone</td>
<td>area of high risk; frequent overflight by low flying aircraft; high noise levels</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>10 persons per acre</td>
</tr>
<tr>
<td>Approach Protection Zone</td>
<td>area of moderate risk; frequent overflight area where aircraft are normally turning and descending or climbing</td>
<td>1 Dwelling Unit/40 acres(gross)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>50 persons/acre</td>
</tr>
<tr>
<td>Traffic Pattern Zone</td>
<td>Area of lower risk; Frequent overflight by aircraft at 1000' AGL</td>
<td>4 to 6 Dwelling Units per acre (gross)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>150 persons/acre</td>
</tr>
<tr>
<td>Overflight Zone</td>
<td>Area of low risk; may be overflown by aircraft in transit to or from the airport</td>
<td>N/A</td>
</tr>
<tr>
<td></td>
<td></td>
<td>N/A</td>
</tr>
</tbody>
</table>

(continued on next page)

\(^8\) Densities may be adjusted pursuant to policy 2.2.6.
<table>
<thead>
<tr>
<th>SAFETY ZONE</th>
<th>NORMALLY ALLOWABLE USES</th>
<th>PROHIBITED USES</th>
<th>DEVELOPMENT CONDITIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Runway Protection Zone</td>
<td>open space, agriculture, golf courses</td>
<td>All residential uses, new structures (except as allowed by policy 2.2.8), assemblages of people, hazards to flight</td>
<td>Avigation easement per policy 2.4.1</td>
</tr>
<tr>
<td>Approach Protection Zone</td>
<td>all uses in Runway Protection Zone; Industrial uses; Other non-residential uses of limited density</td>
<td>Most residential uses, day care facilities, schools, hospitals, nursing homes, shopping centers</td>
<td>Development should be located as far from the runway center line as possible; development should be clustered to provide open space; avigation easement per policy 2.4.1</td>
</tr>
<tr>
<td>Traffic Pattern Zone</td>
<td>all uses in Approach Protection Zone; residential uses</td>
<td>Schools, day care facilities, hospitals, nursing homes. Some residential uses</td>
<td>Development should be clustered to provide open space; avigation easement per policy 2.4.1</td>
</tr>
<tr>
<td>Overflight Protection Zone</td>
<td>all permitted uses</td>
<td>N/A</td>
<td>Avigation easement per policy 2.4.1; buyer notification</td>
</tr>
</tbody>
</table>
Appendix A

Methods of Calculating Density and Building Occupancy

The safety policies for non-residential areas in this comprehensive land use plan limit the persons per acre in certain safety zones. This appendix is intended to provide a methodology for determining if a proposed project meets these density standards. The following steps should be taken to determine if a project is consistent with the density limitations:

1. **Determine the maximum number of persons the proposed project is likely to attract.**

Determining the maximum number of persons likely to occupy a structure is not an exact science; however, there are a number of methods that can be used to provide a reasonable estimate of how many persons will use a proposed facility:

a) **Parking Ordinance:** Most jurisdictions have parking regulations which specify how many parking spaces are required for particular types of uses. Once an assumption is made regarding the number of persons per car, an estimate can be made of the maximum number of persons that could occupy the structure. The assumption of persons per car must be based on the type(s) of use. For example, if the structure is an office, one could assume there would be one person per car. If the use is a restaurant, 3 or more might be a reasonable figure.

b) **Number of Seats:** If the proposed use provides seating for its patrons, such as a restaurant or theater, it is relatively easy to determine the maximum number of people that could occupy the structure.

c) **Uniform Building Code:** The Uniform Building Code (UBC) specifies a certain number of square feet per occupant that are required for certain uses. This number can be determined by contacting the local building department. The problem with this method is that buildings are rarely occupied at maximum capacity. In fact, a survey conducted by the City of Sacramento found that many office and retail uses are generally occupied at 50% of their maximum occupancy levels, even at the busiest times of day.\(^1\)

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\(^1\) Napa County Airport Land Use Commission, *Airport Land Use Compatibility Plan*, adopted April 22, 1991, (amended through 1994), Appendix D
this method is used, it would be reasonable to adjust the maximum occupancy figure to a number that more accurately reflects reality.

d) **Survey of Similar Uses:** If the use of the proposed structure is similar to other structures, a survey of those uses can be used to determine building occupancy.

2. **Determine the size of the project in gross acres.** This normally would consist of the individual parcel or parcels on which the project is located.

3. **Divide the maximum number of persons expected by the size, in acres, of the project site.**

4. **The resulting number is the maximum number of persons per acre the project will attract.**

**Example 1 (Monterey County):**

**Proposed project:** 55,000 square foot office building (50,000 sf net floor area) on a 1.5 acre parcel.

**Parcel Size:** 1.5 Acres

**Estimated Occupancy:** 200 persons (The Monterey County Zoning Ordinance requires one parking space for every 250 square feet of net\(^2\) floor area in an office building. It is likely that some cars would contain more than one person, however it is also likely that not every parking space would be filled. Therefore, it would be reasonable to estimate occupancy at one person per 250 square feet.

\[
50,000 \text{ sf} / 250 = 200 \text{ persons maximum occupancy}
\]

**Density:** 200 persons/1.5 acres = 133.33 persons per acre

---

\(^2\) **Net Floor Area** is the area of a structure excluding areas used for restrooms, utilities, stairways, mechanical rooms, and elevator rooms.
Example 2 (City of Marina):

Proposed Project: 60,000 square foot office building;

Parcel Size: 1.5 acres;

Estimated Occupancy: 200 Persons (The Marina Zoning Ordinance requires one parking space for every 300 square feet of gross floor area in an office building. It is likely that some cars would contain more than one person, however it is also likely that not every parking space would be filled. Therefore, it would be reasonable to estimate occupancy at one person per 300 square feet. 60,000 sf./300 = 200 persons.)

Density: 133.33 Persons per acre (200 persons/1.5 acres)
Appendix B

Federal Aviation Administration
Runway Approach Protection Standards

Federal Aviation Regulations
Part 77 — Objects Affecting Navigable Airspace

Subpart A — General

§ 77.1 Scope.
This Part—
(a) Establishes standards for determining obstructions in navigable airspace;
(b) Sets forth the requirements for notice to the Administrator of certain proposed construction or alteration;
(c) Provides for aeronautical studies of obstructions to air navigation, to determine their effect on the safe and efficient use of airspace;
(d) Provides for public hearings on the hazardous effect of proposed construction or alteration on air navigation; and
(e) Provides for establishing antenna farm areas.

§ 77.2 Definition of terms.
For the purpose of this Part:
“Airport available for public use” means an airport that is open to the general public with or without a prior request to use the airport.
“A seaplane base” is considered to be an airport only if its sea lanes are outlined by visual markers.
“Nonprecision instrument runway” means a runway having an existing instrument approach procedure utilizing air navigation facilities with only horizontal guidance, or area type navigation equipment, for which a straight-in nonprecision instrument approach procedure has been approved, or planned, and for which no precision approach facilities are planned, or indicated on an FAA planning document or military service military airport planning document.
“Precision instrument runway” means a runway having an existing instrument approach procedure utilizing an Instrument Landing System (ILS), or a Precision Approach Radar (PAR). It also means a runway for which a precision approach system is planned and is so indicated by an FAA approved airport layout plan; a military service approved military airport layout plan; any other FAA planning document, or military service military airport planning document.

“Utility runway” means a runway that is constructed for and intended to be used by propeller driven aircraft of 12,500 pounds maximum gross weight and less.
“Visual runway” means a runway intended solely for the operation of aircraft using visual approach procedures, with no straight-in instrument approach procedure and no instrument designation indicated on an FAA approved airport layout plan, a military service approved military airport layout plan, or by any planning document submitted to the FAA by competent authority.

§ 77.3 Standards.
(a) The standards established in this Part for determining obstructions to air navigation are used by the Administrator in—
(1) Administering the Federal-aid Airport Program and the Surplus Airport Program;
(2) Transferring property of the United States under Section 16 of the Federal Airport Act;
(3) Developing technical standards and guidance in the design and construction of airports; and
(4) Imposing requirements for public notice of the construction or alteration of any structure where notice will promote air safety.
(b) The standards used by the Administrator in the establishment of flight procedures and aircraft operational limitations are not set forth in this Part but are contained in other publications of the Administrator.
§ 77.5 Kinds of objects affected.

This Part applies to—

(a) Any object of natural growth, terrain, or permanent or temporary construction or alteration, including equipment or materials used therein, and apparatus of a permanent or temporary character; and

(b) Alteration of any permanent or temporary existing structure by a change in its height (including appurtenances), or lateral dimensions, including equipment or materials used therein.

Subpart B—Notice of Construction or Alteration

§ 77.11 Scope.

(a) This subpart requires each person proposing any kind of construction or alteration described in § 77.13(a) of this chapter to give adequate notice to the Administrator. It specifies the locations and dimensions of the construction or alteration for which notice is required and prescribes the form and manner of the notice. It also requires supplemental notices 48 hours before the start and upon the completion of certain construction or alteration that was the subject of a notice under § 77.13(a).

(b) Notices received under this subpart provide a basis for—

(1) Evaluating the effect of the construction or alteration on operational procedures and proposed operational procedures;

(2) Determinations of the possible hazardous effect of the proposed construction or alteration on air navigation;

(3) Recommendations for identifying the construction or alteration in accordance with the current Federal Aviation Administration Advisory Circular AC 70/7460-1 entitled “Obstruction Marking and Lighting,” which is available without charge from the Department of Transportation, Distribution Unit, TAD 484.3, Washington, D.C. 20590;

(4) Determining other appropriate measures to be applied for continued safety of air navigation; and

(5) Charting and other notification to airmen of the construction or alteration.

§ 77.13 Construction or alteration requiring notice.

(a) Except as provided in § 77.15, each sponsor who proposes any of the following construction or alteration shall notify the Administrator in the form and manner prescribed in § 77.17:

(1) Any construction or alteration of more than 200 feet in height above the ground level at its site.

(2) Any construction or alteration of greater height than an imaginary surface extending outward and upward at one of the following slopes:

(i) 100 to 1 for a horizontal distance of 20,000 feet from the nearest point of the nearest runway of each airport specified in subparagraph (5) of this paragraph with at least one runway more than 3,200 feet in actual length, excluding heliports.

(ii) 50 to 1 for a horizontal distance of 10,000 feet from the nearest point of the nearest runway of each airport specified in subparagraph (5) of this paragraph with its longest runway no more than 3,200 feet in actual length, excluding heliports.

(iii) 25 to 1 for a horizontal distance of 5,000 feet from the nearest point of the nearest landing and takeoff area of each heliport specified in subparagraph (5) of this paragraph.

(3) Any highway, railroad, or other traverse way for mobile objects, of a height which, if adjusted upward 17 feet for an Interstate Highway that is part of the National System of Military and Interstate Highways where overcrossings are designed for a minimum of 17 feet vertical distance, 15 feet for any other public roadway, 10 feet or the height of the highest mobile object that would normally traverse the road, whichever is greater, for a private road, 23 feet for a railroad, and for a waterway or any other traverse way not previously mentioned, an amount equal to the height of the highest mobile object that would normally
traverse it, would exceed a standard of paragraph (1) or (2) of this section.

(4) When requested by the FAA, any construction or alteration that would be in an instrument approach area (defined in the FAA standards governing instrument approach procedures) and available information indicates it might exceed a standard of Subpart C of this part.

(5) Any construction or alteration on any of the following airports (including heliports):

(i) An airport that is available for public use and is listed in the Airport Directory of the current Airman’s Information Manual or in either the Alaska or Pacific Airman’s Guide and Chart Supplement.

(ii) An airport under construction, that is the subject of a notice or proposal on file with the Federal Aviation Administration, and, except for military airports, it is clearly indicated that the airport will be available for public use.

(iii) An airport that is operated by an armed force of the United States.

(b) Each sponsor who proposes construction or alteration that is the subject of a notice under paragraph (a) of this section and is advised by an FAA regional office that a supplemental notice is required shall submit that notice on a prescribed form to be received by the FAA regional office at least 48 hours before the start of the construction or alteration.

(c) Each sponsor who undertakes construction or alteration that is the subject of a notice under paragraph (a) of this section shall, within 5 days after that construction or alteration reaches its greatest height, submit a supplemental notice on a prescribed form to the FAA regional office having jurisdiction over the region involved, if—

(1) The construction or alteration is more than 200 feet above the surface level of its site; or

(2) An FAA regional office advises him that submission of the form is required.

§ 77.15 Construction or alteration not requiring notice.

No person is required to notify the Administrator for any of the following construction or alteration:

(a) Any object that would be shielded by existing structures of a permanent and substantial character or by natural terrain or topographic features of equal or greater height, and would be located in the congested area of a city, town, or settlement where it is evident beyond all reasonable doubt that the structure so shielded will not adversely affect safety in air navigation.

(b) Any antenna structure of 20 feet or less in height except one that would increase the height of another antenna structure.

(c) Any air navigation facility, airport visual approach or landing aid, aircraft arresting device, or meteorological device, of a type approved by the Administrator, or an appropriate military service on military airports, the location and height of which is fixed by its functional purpose.

(d) Any construction or alteration for which notice is required by any other FAA regulation.

§ 77.17 Form and time of notice.

(a) Each person who is required to notify the Administrator under § 77.13(a) shall send one executed form set (four copies) of FAA Form 7460–1, Notice of Proposed Construction or Alteration, to the [Manager], Air Traffic Division, FAA Regional Office having jurisdiction over the area within which the construction or alteration will be located. Copies of FAA Form 7460–1 may be obtained from the headquarters of the Federal Aviation Administration and the regional offices.

(b) The notice required under § 77.13(a) (1) through (4) must be submitted at least 30 days before the earlier of the following dates—

(1) The date the proposed construction or alteration is to begin.

(2) The date an application for a construction permit is to be filed.
However, a notice relating to proposed construction or alteration that is subject to the licensing requirements of the Federal Communications Act may be sent to the FAA at the same time the application for construction is filed with the Federal Communications Commission, or at any time before that filing.

(c) A proposed structure or an alteration to an existing structure that exceeds 2,000 feet in height above the ground will be presumed to be a hazard to air navigation and to result in an inefficient utilization of airspace and the applicant has the burden of overcoming that presumption. Each notice submitted under the pertinent provisions of this Part 77 proposing a structure in excess of 2,000 feet above ground, or an alteration that will make an existing structure exceed that height, must contain a detailed showing, directed to meeting this burden. Only in exceptional cases, where the FAA concludes that a clear and compelling showing has been made that it would not result in an inefficient utilization of the airspace and would not result in a hazard to air navigation, will a determination of no hazard be issued.

(d) In the case of an emergency involving essential public services, public health, or public safety that requires immediate construction or alteration, the 30-day requirement in paragraph (b) of this section does not apply and the notice may be sent by telephone, telegraph, or other expeditious means, with an executed FAA Form 7460-1 submitted within five days thereafter. Outside normal business hours, emergency notices by telephone or telegraph may be submitted to the nearest FAA Flight Service Station.

(e) Each person who is required to notify the Administrator by paragraph (b) or (c) of § 77.13, or both, shall send an executed copy of FAA Form 117-1, Notice of Progress of Construction or Alteration, to the [Manager], Air Traffic Division, FAA Regional Office having jurisdiction over the area involved.

§ 77.19 Acknowledgment of notice.
(a) The FAA acknowledges in writing the receipt of each notice submitted under § 77.13 (a).
(b) If the construction or alteration proposed in a notice is one for which lighting or marking standards are prescribed in the FAA Advisory Circular AC 70/7460–1 entitled “Obstruction Marking and Lighting,” the acknowledgment contains a statement to that effect and information on how the structure should be marked and lighted in accordance with the manual.

(c) The acknowledgment states that an aeronautical study of the proposed construction or alteration has resulted in a determination that the construction or alteration—

   (1) Would not exceed any standard of Subpart C and would not be a hazard to air navigation;
   
   (2) Would exceed a standard of Subpart C but would not be a hazard to air navigation; or
   
   (3) Would exceed a standard of Subpart C and further aeronautical study is necessary to determine whether it would be hazard to air navigation, that the sponsor may request within 30 days that further study, and that, pending completion of any further study, it is presumed the construction or alteration would be a hazard to air navigation.

Subpart C—Obstruction Standards

§ 77.21 Scope.
(a) This subpart establishes standards for determining obstructions to air navigation. It applies to existing and proposed manmade objects, objects of natural growth, and terrain. The standards apply to the use of navigable airspace by aircraft and to existing air navigation facilities, such as an air navigation aid, airport, Federal airway, instrument approach or departure procedure, or approved off-airway route. Additionally, they apply to a planned facility or use, or a change in an existing facility or use, if a proposal therefor is on file with the Federal Aviation Administration or an appropriate military service on the date the notice required by § 77.13(a) is filed.

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(b) At those airports having defined runways with specially prepared hard surfaces, the primary surface for each such runway extends 200 feet beyond each end of the runway. At those airports having defined strips or pathways that are used regularly for the taking off and landing of aircraft and have been designated by appropriate authority as runways, but do not have specially prepared hard surfaces, each end of the primary surface for each such runway shall coincide with the corresponding end of the runway. At those airports, excluding seaplane bases, having a defined landing and takeoff area with no defined pathways for the landing and taking off of aircraft, a determination shall be made as to which portions of the landing and takeoff area are regularly used as landing and takeoff pathways. Those pathways so determined shall be considered runways and an appropriate primary surface as defined in § 77.25(c) will be considered as being longitudinally centered on each runway so determined, and each end of that primary surface shall coincide with the corresponding end of that runway.

(c) The standards in this subpart apply to the effect of construction or alteration proposals upon an airport if, at the time of filing of the notice required by § 77.13(a), that airport is—

(1) Available for public use and is listed in the Airport Directory of the current Airman's Information Manual or in either the Alaska or Pacific Airman's Guide and Chart Supplement; or,

(2) A planned or proposed airport or an airport under construction, that is the subject of a notice or proposal on file with the Federal Aviation Administration, and, except for military airports, it is clearly indicated that that airport will be available for public use; or,

(3) An airport that is operated by an armed force of the United States.

(d) [Deleted]

§ 77.23 Standards for determining obstructions.

(a) An existing object, including a mobile object, is, and a future object would be, an obstruction to air navigation if it is of greater height than any of the following heights or surfaces:

(1) A height of 500 feet above ground level at the site of the object.

(2) A height that is 200 feet above ground level or above the established airport elevation, whichever is higher, within 3 nautical miles of the established reference point of an airport, excluding heliports, with its longest runway more than 3,200 feet in actual length, and that height increases in the proportion of 100 feet for each additional nautical mile of distance from the airport up to a maximum of 500 feet.

(3) A height within a terminal obstacle clearance area, including an initial approach segment, a departure area, and a circling approach area, which would result in the vertical distance between any point on the object and an established minimum instrument flight altitude within that area or segment to be less than the required obstacle clearance.

(4) A height within an en route obstacle clearance area, including turn and termination areas, of a Federal airway or approved off-airway route, that would increase the minimum obstacle clearance altitude.

(5) The surface of a takeoff and landing area of an airport or any imaginary surface established under §§ 77.25, 77.28, or 77.29. However, no part of the takeoff or landing area itself will be considered an obstruction.

(b) Except for traverse ways on or near an airport with an operative ground traffic control service, furnished by an air traffic control tower or by the airport management and coordinated with the air traffic control service, the standards of paragraph (a) of this section apply to traverse ways used or to be used for the passage of mobile objects only after the heights of these traverse ways are increased by:

(1) Seventeen feet for an Interstate Highway that is part of the National System of Military and Interstate Highways where overcrossings are designed for a minimum of 17 feet vertical distance.
(2) Fifteen feet for any other public roadway.
(3) Ten feet or the height of the highest mobile object that would normally traverse the road, whichever is greater, for a private road.
(4) Twenty-three feet for a railroad.
(5) For a waterway or any other traverse way not previously mentioned, an amount equal to the height of the highest mobile object that would normally traverse it.

77.25 Civil airport imaginary surfaces.
The following civil airport imaginary surfaces are established with relation to the airport and to each runway. The size of each such imaginary surface is based on the category of each runway according to the type of approach available or planned for that runway. The slope and dimensions of the approach surface applied to each end of a runway are determined by the most precise approach existing or planned for that runway end.

(a) Horizontal surface—a horizontal plane 150 feet above the established airport elevation, the perimeter of which is constructed by swinging arcs of specified radii from the center of each end of the primary surface of each runway of each airport and connecting the adjacent arcs by lines tangent to those arcs. The radius of each arc is:
(1) 5,000 feet for all runways designated as utility or visual;
(2) 10,000 feet for all other runways.
The radius of the arc specified for each end of a runway will have the same arithmetical value. That value will be the highest determined for either end of the runway. When a 5,000-foot arc is encompassed by tangents connecting two adjacent 10,000-foot arcs, the 5,000-foot arc shall be disregarded in the construction of the perimeter of the horizontal surface.

(b) 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.

(c) Primary surface—a surface longitudinally centered on a runway. When the runway has a specially prepared hard surface, the primary surface extends 200 feet beyond each end of that runway; but when the runway has no specially prepared hard surface, or planned hard surface, the primary surface ends at each end of that runway. The elevation of any point on the primary surface is the same as the elevation of the nearest point on the runway centerline. The width of a primary surface is:

(1) 250 feet for utility runways having only visual approaches.
(2) 500 feet for utility runways having nonprecision instrument approaches.
(3) For other than utility runways the width is:
   (i) 500 feet for visual runways having only visual approaches.
   (ii) 500 feet for nonprecision instrument runways having visibility minimums greater than three-fourths statute mile.
   (iii) 1,000 feet for a nonprecision instrument runway having a nonprecision instrument approach with visibility minimums as low as three-fourths of a statute mile, and for precision instrument runways.

The width of the primary surface of a runway will be that width prescribed in this section for the most precise approach existing or planned for either end of that runway.

(d) Approach surface—a surface longitudinally centered on the extended runway centerline and extending outward and upward from each end of the primary surface. An approach surface is applied to each end of each runway based upon the type of approach available or planned for that runway end.

(1) The inner edge of the approach surface is the same width as the primary surface and it expands uniformly to a width of:
   (i) 1,250 feet for that end of a utility runway with only visual approaches;
   (ii) 1,500 feet for that end of a runway other than a utility runway with only visual approaches;
   (iii) 2,000 feet for that end of a utility runway with a nonprecision instrument approach;
(iv) 3,500 feet for that end of a non-precision instrument runway other than utility, having visibility minimums greater than three-fourths of a statute mile;
(v) 4,000 feet for that end of a non-precision instrument runway, other than utility, having a nonprecision instrument approach with visibility minimums as low as three-fourths statute mile; and
(vi) 16,000 feet for precision instrument runways.

(2) The approach surface extends for a horizontal distance of:
(i) 5,000 feet at a slope of 20 to 1 for all utility and visual runways;
(ii) 10,000 feet at a slope of 34 to 1 for all nonprecision instrument runways other than utility; and,
(iii) 10,000 feet at a slope of 50 to 1 with an additional 40,000 feet at a slope of 40 to 1 for all precision instrument runways.

(3) The outer width of an approach surface to an end of a runway will be that width prescribed in this subsection for the most precise approach existing or planned for that runway end.

(e) Transitional surface—These surfaces extend outward and upward at right angles to the runway centerline and the 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. Transitional surfaces for those portions of the precision approach surface which project through and beyond the limits of the conical surface, extend a distance of 5,000 feet measured horizontally from the edge of the approach surface and at right angles to the runway centerline.

§ 77.27 [Revoked]

§ 77.28 Military airport imaginary surfaces.

(a) Related to airport reference points. These surfaces apply to all military airports. For the purposes of this section a military airport is any airport operated by an armed force of the United States.

(1) Inner horizontal surface—A plane is oval in shape at a height of 150 feet above the established airfield elevation. The plane is constructed by scribing an arc with a radius of 7,500 feet about the centerline at the end of each runway and interconnecting these arcs with tangents.

(2) Conical surface—A surface extending from the periphery of the inner horizontal surface outward and upward at a slope of 20 to 1 for a horizontal distance of 7,000 feet to a height of 500 feet above the established airfield elevation.

(3) Outer horizontal surface—A plane, located 500 feet above the established airfield elevation, extending outward from the outer periphery of the conical surface for a horizontal distance of 30,000 feet.

(b) Related to runways. These surfaces apply to all military airports.

(1) Primary surface—A surface located on the ground or water longitudinally centered on each runway with the same length as the runway. The width of the primary surface for runways is 2,000 feet. However, at established bases where substantial construction has taken place in accordance with a previous lateral clearance criteria, the 2,000-foot width may be reduced to the former criteria.

(2) Clear zone surface—A surface located on the ground or water at each end of the primary surface, with a length of 1,000 feet and the same width as the primary surface.

(3) Approach clearance surface—An inclined plane, symmetrical about the runway centerline extended, beginning 200 feet beyond each end of the primary surface at the centerline elevation of the runway end and extending for 50,000 feet. The slope of the approach clearance surface is 50 to 1 along the runway centerline extended until it reaches an elevation of 500 feet above the established airport elevation. It then continues horizontally at this elevation to a point 50,000 feet from the point of beginning. The width of this surface as the runway end is the same as the primary surface, it flares uniformly, and the width at 50,000 is 16,000 feet.

(4) Transitional surfaces—These surfaces connect the primary surfaces, the first 200 feet of the clear zone surfaces, and the ap-
Approach clearance surfaces to the inner horizontal surface, conical surface, outer horizontal surface or other transitional surfaces. The slope of the transitional surface is 7 to 1 outward and upward at right angles to the runway centerline.

§ 77.29 Airport imaginary surfaces for heliports.

(a) Heliport primary surface. The area of the primary surface coincides in size and shape with the designated takeoff and landing area of a heliport. This surface is a horizontal plane at the elevation of the established heliport elevation.

(b) Heliport approach surface. The approach surface begins at each end of the heliport primary surface with the same width as the primary surface, and extends outward and upward for a horizontal distance of 4,000 feet where its width is 500 feet. The slope of the approach surface is 8 to 1 for civil heliports and 10 to 1 for military heliports.

(c) Heliport transitional surfaces. These surfaces extend outward and upward from the lateral boundaries of the heliport primary surface and from the approach surfaces at a slope of 2 to 1 for a distance of 250 feet measured horizontally from the centerline of the primary and approach surfaces.
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DIMENSIONAL STANDARDS (FEET)

<table>
<thead>
<tr>
<th>DIM ITEM</th>
<th>VISUAL RUNWAY</th>
<th>NON-PRECISION INSTRUMENT RUNWAY</th>
<th>PRECISION INSTRUMENT RUNWAY</th>
</tr>
</thead>
<tbody>
<tr>
<td>A WIDTH OF PRIMARY SURFACE AND APPROACH SURFACE WIDTH AT INNER END</td>
<td>250</td>
<td>500</td>
<td>500</td>
</tr>
<tr>
<td>B RADIUS OF HORIZONTAL SURFACE</td>
<td>5,000</td>
<td>5,000</td>
<td>5,000</td>
</tr>
<tr>
<td>C APPROACH SURFACE WIDTH AT END</td>
<td>1,500</td>
<td>1,500</td>
<td>2,000</td>
</tr>
<tr>
<td>D APPROACH SURFACE LENGTH</td>
<td>5,000</td>
<td>5,000</td>
<td>5,000</td>
</tr>
<tr>
<td>E APPROACH SLOPE</td>
<td>70:1</td>
<td>70:1</td>
<td>70:1</td>
</tr>
</tbody>
</table>

A - UTILITY RUNWAYS
B - RUNWAYS LARGER THAN UTILITY
C - VISIBILITY MINIMUMS GREATER THAN 3/4 MILE
D - VISIBILITY MINIMUMS AS LOW AS 3/4 MILE
E - PRECISION INSTRUMENT APPROACH SLOPE IS 50:1 FOR INNER 10,000 FEET AND 40:1 FOR AN ADDITIONAL 40,000 FEET

ISOMETRIC VIEW OF SECTION A-A

§ 77.25 CIVIL AIRPORT IMAGINARY SURFACES

December 1993
### Notice of Proposed Construction or Alteration

**FAA Form 7460**

**NOTICE OF PROPOSED CONSTRUCTION OR ALTERATION**

<table>
<thead>
<tr>
<th>1. Nature of Proposal</th>
<th>2. Complete Description of Structure</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A</strong></td>
<td><strong>A</strong></td>
</tr>
<tr>
<td>- New Construction</td>
<td>- Include effective reduced power and assigned frequency of all existing proposed or modified AM, FM, or TV broadcast stations within this structure</td>
</tr>
<tr>
<td>- Permanent</td>
<td>- Include site and configuration of power transmission lines and their supporting towers in the vicinity of FAA facilities and public airports</td>
</tr>
<tr>
<td>- Temporary (Duration ___ months)</td>
<td>- Include information showing site orientation, dimensions and construction materials of the proposed structure</td>
</tr>
</tbody>
</table>

| 3. Name and address of individual, company, corporation, etc. proposing the construction or alteration. |
|-----------------|-------------------------------------------------|
| **A** | Name and address of individual, company, corporation, etc. proposing the construction or alteration. |
| **B** | Name and address and telephone number of proponent's representative if different from 3 above |

<table>
<thead>
<tr>
<th>4. Location of Structure</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A</strong></td>
</tr>
<tr>
<td><strong>B</strong></td>
</tr>
<tr>
<td><strong>C</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>5. Height and Elevation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A</strong></td>
</tr>
<tr>
<td><strong>B</strong></td>
</tr>
<tr>
<td><strong>C</strong></td>
</tr>
</tbody>
</table>

### Remarks:

**Supplemental Notice of Construction** FAA Form 7460-2 is required any time the project is abandoned, or at least 48 hours before the start of construction, or within five days after the construction reaches its greatest height.

This determination expires on December 1993 unless:

(a) extended, revised or terminated by the issuing office; (b) the construction is subject to the licensing authority of the Federal Communications Commission and an application for a construction permit is made to the FCC on or before the expiration date. In such case the determination expires on the date prescribed by the FCC for completion of construction, or on the date the FCC denies the application.

NOTE: Request for extension of the effective period of this determination must be postmarked or delivered to the issuing office at least 15 days prior to the expiration date.

If the structure is subject to the licensing authority of the FCC, a copy of this determination will be sent to that agency.

---

**The Proposal:**

- Does not require a notice to FAA.
- Is not identified as an obstruction under any standards of FAA, Part 77, Subpart C, and would not be a hazard to air navigation.
- Is identified as an obstruction under the standards of FAA, Part 77, Subpart C, but would not be a hazard to air navigation.
- Should be obstruction marked, lighted per FAA Advisory Circular 700/7460-1, Chapter (b) ___
- Obstruction marking and lighting are not necessary.

**Remarks:**

**FOR FAA USE ONLY**

- FAA will either return this form or issue a separate acknowledgement.
- Supplemental Notice of Construction FAA Form 7460-2 is required any time the project is abandoned, or at least 48 hours before the start of construction.
- Within five days after the construction reaches its greatest height.

**Supplemental Notice of Construction FAA Form 7460-2 is required any time the project is abandoned, or at least 48 hours before the start of construction.**

**This determination expires on December 1993 unless:**

(a) extended, revised or terminated by the issuing office; (b) the construction is subject to the licensing authority of the Federal Communications Commission and an application for a construction permit is made to the FCC on or before the expiration date. In such case the determination expires on the date prescribed by the FCC for completion of construction, or on the date the FCC denies the application.

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If the structure is subject to the licensing authority of the FCC, a copy of this determination will be sent to that agency.

---

**Issued in**

**Signature**

**Date**

**December 1993**
## FAA Runway Approach Protection Standards / Appendix E

### Airport Design Standards
FAA Advisory Circular No. 150/5300-13

**Table 2-4. Approach surface dimensions**

<table>
<thead>
<tr>
<th>Facilities</th>
<th>Runway End</th>
<th>Approach Surface Dimensions</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Expected Approach End</td>
<td>Length (feet)</td>
</tr>
<tr>
<td></td>
<td>Opposite End</td>
<td>(meters)</td>
</tr>
<tr>
<td>V</td>
<td>V</td>
<td>5,000 (1 500)</td>
</tr>
<tr>
<td>NP</td>
<td></td>
<td>5,000 (1 500)</td>
</tr>
<tr>
<td>Small</td>
<td>NP</td>
<td>5,000 (1 500)</td>
</tr>
<tr>
<td>Airplanes</td>
<td>NP 3/4</td>
<td>5,000 (1 500)</td>
</tr>
<tr>
<td></td>
<td>P</td>
<td>5,000 (1 500)</td>
</tr>
<tr>
<td>Large</td>
<td>V</td>
<td>5,000 (1 500)</td>
</tr>
<tr>
<td>Airplanes</td>
<td>NP</td>
<td>5,000 (1 500)</td>
</tr>
<tr>
<td></td>
<td>NP 3/4</td>
<td>5,000 (1 500)</td>
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<tr>
<td></td>
<td>P</td>
<td>5,000 (1 500)</td>
</tr>
<tr>
<td>Large</td>
<td>NP 3/4</td>
<td>10,000 (3 000)</td>
</tr>
<tr>
<td>or Only</td>
<td>V</td>
<td>10,000 (3 000)</td>
</tr>
<tr>
<td>Small</td>
<td>NP</td>
<td>40,000 (12 000)</td>
</tr>
<tr>
<td>Airplanes</td>
<td>NP 3/4</td>
<td></td>
</tr>
</tbody>
</table>

**V** - Visual approach  
**NP** - Nonprecision instrument approach with visibility minimums more than 3/4-statute mile  
**NP 3/4** - Nonprecision instrument approach with visibility minimums as low as 3/4-statute mile  
**P** - Precision instrument approach
## Table 2-5: Runway Protection Zone (RPZ) Dimensions

<table>
<thead>
<tr>
<th>Facilities Expected To Serve</th>
<th>Approach End</th>
<th>Opposite End</th>
<th>Dimensions For Approach End</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Length L feet (meters)</td>
<td>Inner Width W1 feet (meters)</td>
<td>Outer Width W2 feet (meters)</td>
</tr>
<tr>
<td>V</td>
<td>1,000 (300)</td>
<td>250 (75)</td>
<td>450 (135)</td>
</tr>
<tr>
<td>NP</td>
<td>1,000 (300)</td>
<td>500 (150)</td>
<td>650 (195)</td>
</tr>
<tr>
<td>Small Airplanes NP 3/4</td>
<td>1,000 (300)</td>
<td>1,000 (300)</td>
<td>1,050 (315)</td>
</tr>
<tr>
<td>NP</td>
<td>1,000 (300)</td>
<td>500 (150)</td>
<td>800 (240)</td>
</tr>
<tr>
<td>NP 3/4</td>
<td>1,000 (300)</td>
<td>1,000 (300)</td>
<td>1,200 (360)</td>
</tr>
<tr>
<td>Large Airplanes NP</td>
<td>1,000 (300)</td>
<td>500 (150)</td>
<td>700 (210)</td>
</tr>
<tr>
<td>NP 3/4</td>
<td>1,000 (300)</td>
<td>1,000 (300)</td>
<td>1,100 (330)</td>
</tr>
<tr>
<td>NP</td>
<td>1,700 (510)</td>
<td>500 (150)</td>
<td>1,010 (303)</td>
</tr>
<tr>
<td>NP 3/4</td>
<td>1,700 (510)</td>
<td>1,000 (300)</td>
<td>1,425 (427.5)</td>
</tr>
<tr>
<td>Large Airplanes or Small Airplanes NP 3/4</td>
<td>1,700 (510)</td>
<td>1,000 (300)</td>
<td>1,510 (453)</td>
</tr>
<tr>
<td>Only P</td>
<td>2,500 (750)</td>
<td>1,000 (300)</td>
<td>1,750 (525)</td>
</tr>
</tbody>
</table>

V = Visual approach  
NP = Nonprecision instrument approach with visibility minimums more than 3/4-statute mile  
NP 3/4 = Nonprecision instrument approach with visibility minimums as low as 3/4-statute mile  
P = Precision instrument approach
Figure 2-3. Runway protection zone
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