

I. INTRODUCTION

A. Purpose

The purpose of the Noise Element is to reduce conflicts between noise and noise-sensitive land uses.

B. Consistency with Other Elements

The Noise, Land Use, Circulation, Housing, and Open Space Elements are closely related. The Noise Element addresses major sources of noise; the Land Use, Housing, and Open Space Elements designate the locations of various land uses considering factors including compatibility with noise sources; and the Circulation Element addresses the locations and levels of use of noise-producing transportation facilities such as roadways, rail lines, and airports.

C. Scope and Organization

The Noise Element relates noise levels to noise-sensitive land uses. Criteria for determining compatibility between land uses and noise levels are defined. Current and projected noise levels at various locations are shown in terms of noise contours. Noise control issues are discussed, and policies to achieve noise compatibility between land uses are listed.

Noise sources studied in this element include state highways and county roads, airports, industrial facilities, and auto racing at the Kings County Fairgrounds.

Noise-sensitive land uses include educational facilities; medical, nursing, and mental care facilities; residential areas; churches; hotels and motels; outdoor sports and recreation facilities; and business and professional offices.

II. NOISE IN KINGS COUNTY

A. Background

Residential and institutional land uses normally require a relatively peaceful environment. Creating such an environment, however, can conflict with the needs of industrial, commercial, or agricultural land uses.

Noise control can be achieved by separating conflicting land uses. For example, since farming activities create more noise at all hours than would be considered acceptable in urban residential areas, Kings County policy is to sharply limit population growth in rural areas.

Unless noted otherwise, the noise measurements and contours used in this element are based upon general information such as average activity levels and usual hours of operation; they do not reflect site-specific or one-time-only measurements. Calculations were performed by Kings County and Brown-Buntin Associates of Visalia. Information on the Hanford Municipal Airport comes from the Hanford Municipal Airport Master Plan. Noise

contours for the Lemoore Naval Air Station were taken from the Air Installation Compatible Use Zones (AICUZ) Study.

B. Effects

Noise can have detrimental psychological and physiological effects, including changes in heart and respiration rates, interference with sleep, and diminished performance on tasks demanding concentration or coordination. For this reason the requirements of noise-sensitive land uses such as schools, hospitals, and residences is a major factor when determining the placement of land uses generating high noise levels.

C. Local Sources

Potentially significant sources of noise include state and County highways, the Lemoore Naval Air Station, airports in Hanford and Corcoran, the operations of the Southern Pacific and Santa Fe Railroads, agricultural activities varying by season, and auto racing activities at the Kings County Fairgrounds and the Lemoore Jet Bowl.

Noise contours for significant local sources are shown in Appendix 8, Figures 23-29.

D. Analyzing Noise Levels

The terms used in this element to describe noise include:

Decibel: noise level measured by a meter which perceives sound in a manner similar to the human ear.

Community Noise Equivalent Level (CNEL): a noise measurement obtained over a 24-hour period and computed on an annual average basis. Evening and nighttime measurements are weighted to account for the greater irritation caused by noise emitted during those periods. Used in this element to calculate noise at the Hanford, Corcoran, and Salyer airports.

Day/Night Average Sound Level (Ldn): almost identical to CNEL, except that only nighttime measurements are weighted; used in this element to calculate traffic and train noise.

Equivalent Sound Level (Leg): the average of several measurements of fluctuating sound, normally computed for a 1-hour sample

period; not weighted for night or evening noise.

Noise is defined as unwanted sound. Noise is measured in terms of decibels, which can be shown on a map as contours representing areas of equal decibel values. Since these contours can help identify areas where existing noise levels may be inappropriately high for a proposed adjacent land use, they can provide a factual basis for land use planning and decisionmaking.

Noise levels can vary greatly over time. For example, due to daily commute patterns, highway noise measured at a distance of 100 feet from the roadway may range between 50 and 90 decibels depending upon the time of day and amount of traffic.

Airport sound levels fluctuate even more greatly than highway noise levels due to the smaller number, but higher decibel level, of individual flight operations compared to roadway vehicle operations.

Seasonal variations may also account for fluctuations in noise level associated with agricultural activities and outdoor recreational events. For example, the operation of heavy agricultural equipment may be a major source of noise during the growing season, as may large-scale outdoor sports activities most often held during the fair weather months of the year.

III. NOISE SOURCES

A. Highways

Highway noise is related to such factors as vehicle speed, traffic volume, degree of exhaust muffling, roadway condition, and composition of the traffic itself--trucks producing more noise, and noise of a different character, than passenger cars. The highest noise levels caused by motor vehicle traffic are generated on high volume, high speed routes carrying a large percentage of trucks. Traffic noise is usually highest in urban settings where roadways are most densely located.

Current and projected traffic volumes on Kings County highways are shown in Appendix 5, Table 15 (Circulation Element). Current and future highway noise levels were calculated by Brown Buntin &

Associates, applying the Federal Highway Administration highway traffic noise prediction model to local traffic data. Noise contours for all County roadways are addressed in the consultant's report shown in Appendix 8.

B. Airports

Several Kings County airfields generate noise that impacts surrounding areas. These include the Lemoore Naval Air Station (LNAS), a military jet aircraft base; Hanford and Corcoran Airports, both public facilities serving general aviation; Salyer Farms of Corcoran, which operates a private airfield with the capacity to handle turbojets; and many

smaller private landing strips serving agricultural operations around the county.

LNAS discourages, and Kings County severely limits, development of any sort within three miles of the air station, in part to limit the effect of jet aircraft noise on nearby land uses. The County implements its limitation by zoning the area for exclusive agricultural use at a minimum parcel size of 40 acres.

Most local general aviation activities occur at the Hanford Municipal Airport, south of State Highway 198 in the southeastern part of the city. Approximately 80 airplanes are based at this facility. Most of its 75-100 operations per day (or approximately 35,000 operations per year) are conducted by single- and twin-engine propeller aircraft whose normal landing pattern approaches the runway from the southeast. The standard takeoff pattern directs aircraft to turn east immediately after crossing State Highway 198 in order to minimize noise levels and overflight hazards (see Appendix 8, Figures 23 and 24, for existing and projected Hanford Airport noise contours).

The Corcoran Airport is located on the western edge of the city of Corcoran. Approximately 13 single-engine aircraft are based at the facility. Of the 5,000 annual operations originating at the Corcoran Airport, nearly all occur during daytime hours and approximately 85% involve cropdusters. The noise exposure map (Appendix 8, Figure 25) shows an area within approximately one-half mile of either end of the Corcoran runway where noise levels from departing planes may exceed 100 decibels. Future noise levels at the Corcoran Airport are not mapped because the number of operations depends on the economy and therefore cannot be accurately predicted.

Agricultural aircraft operate from various private runways in rural areas of the county where population density is very low. Conflicts can result, however, when agricultural flights are conducted near the more densely populated urban areas.

The "Kings County Airport Land Use Compatibility Plan" contains Noise Compatibility Criteria that are an important consideration when making land use decisions that are found within the airport spheres of influence as identified by Figure 22A and 22B of the Safety Element. In order to protect future residential and commercial uses from noise impacts all land

use decisions for projects located within the airport spheres of influence will be subject to the criteria of Table 16A of the Safety Element.

C. Railroads

Local railroad lines include an east-west Southern Pacific Railroad line and a north-south Atchison, Topeka, and Santa Fe Railroad line, which intersect in Hanford. The Santa Fe line carries the greater daily traffic, currently eight Amtrak passenger trains and 18 to 22 freight trains per day. Most north-south rail traffic moves through the county at approximately 50 miles per hour. Railroad noise levels are addressed in Appendix 8, Table 17.

The Southern Pacific Railroad no longer serves Kings County. The east-west Southern Pacific tracks are currently used by the San Joaquin Valley Railroad Company, which operates two trains of approximately 5-10 cars each per day, five days per week, at approximately 10-20 miles per hour.

D. Industry

Several industrial locations contribute to the local noise environment. These include the Kings Industrial Park in Hanford, the Corcoran Industrial Park, and the Crisp Grain Mill in Stratford. Appendix 8, Figures 26-28, show maximum noise contours at these locations. Future industrial noise levels have not been mapped because levels and locations of future industrial operations depend to a large degree upon the general economy, which is difficult to predict accurately in advance.

E. Other

1. Agriculture

Farming operations are common throughout nearly all of Kings County except the mountainous areas to the southwest and heavily developed areas within the larger communities.

Some of the more common noise sources associated with farming operations include tractors, harvesting equipment, spray equipment, cotton ginning operations, aerial cropdusters, and stationary power sources including internal combustion pump engines.

A diesel engine will produce noise levels of 75-85 decibels at a distance of approximately 50 feet. Such levels generally do not last more than a few hours at a given location unless a stationary piece of equipment such as a pump motor is involved. Noise levels at cotton gins, operated 24 hours per day from mid-September to mid-December, range around 75 decibels at 120 feet, but may be shielded by buildings. Cropdusters vary in horsepower ratings and altitude flown but may register around 85 decibels at 600 feet. Noise levels for cropdusters can be very significant in areas near airports where these aircraft are frequently operated.

2. Solid Waste Disposal

Solid waste disposal and transfer facilities require heavy equipment and produce loud truck noise. At transfer stations the most significant noise sources are trucks and front loaders. The access roads leading to landfills and transfer stations may also be significant sources of noise due to the large volume of vehicles they carry. Noise impacts are generally limited to daytime.

3. Auto Racing

The noise generated by auto racing can vary greatly due to the number and type of vehicles racing and the seasonal nature of the activity. It is important, however, to separate noise sensitive land uses and raceways, since noise levels generated by auto racing events can reach 95 decibels per auto. This high noise level can be somewhat contained by the use of sound barriers or mufflers.

For approximately seven months each year--from March through November--weekend auto racing events are held at the Kings County Fairgrounds in southeast Hanford (see Figure 29 for maximum noise contours at this facility).

In Lemoore, similar weekend events are held from April through September at the Lemoore Jet Bowl, near the intersection of 18th and Iona Avenues, where the noise has produced conflicts with nearby residential areas. This facility is in the process of being relocated away from Lemoore residential areas to the east side of Highway 41, south of the Idaho Avenue alignment.

Future noise levels at local auto raceways are not mapped because it is impossible to predict their future locations and levels of operation.

IV. COMPATIBILITY OF LAND USES AND NOISE LEVELS

The compatibility of adjacent land uses can be determined by comparing maximum noise levels considered acceptable in each. When adjacent land uses are not compatible due to noise, mitigation

measures may be necessary. Table 18, Appendix 8, shows various land use designations and the maximum noise levels considered appropriate in each.

GOAL 40: Ensure the compatibility of proposed land uses in terms of their appropriate noise levels.

Objective 40.1: Avoid incompatibility of adjacent land uses by requiring appropriate noise-reducing mitigation measures.

Policy 40a: Use the information shown in Table 18, Appendix 8, as Kings County policy regarding the compatibility of land uses and noise levels produced or received. AICUZ (Air Installation Compatible Use Zones) Study maps of existing and projected noise contours at the Lemoore Naval Air Station are included herein by reference.

Policy 40b: Require developers of projects expected to produce excessive noise to mitigate the effects of the excessive noise on existing land uses.

Policy 40c: Require developers of noise-sensitive projects to mitigate for existing excessive noise sources which may be expected to impact the project.

V. IMPLEMENTATION

Noise Program 1:

Monitor the noise environment to determine whether the County should consider approving ordinances dealing with noise pollution and

other health-related concerns which do not respect political boundaries, and which could logically be administered jointly and consistently by the County and the incorporated cities.