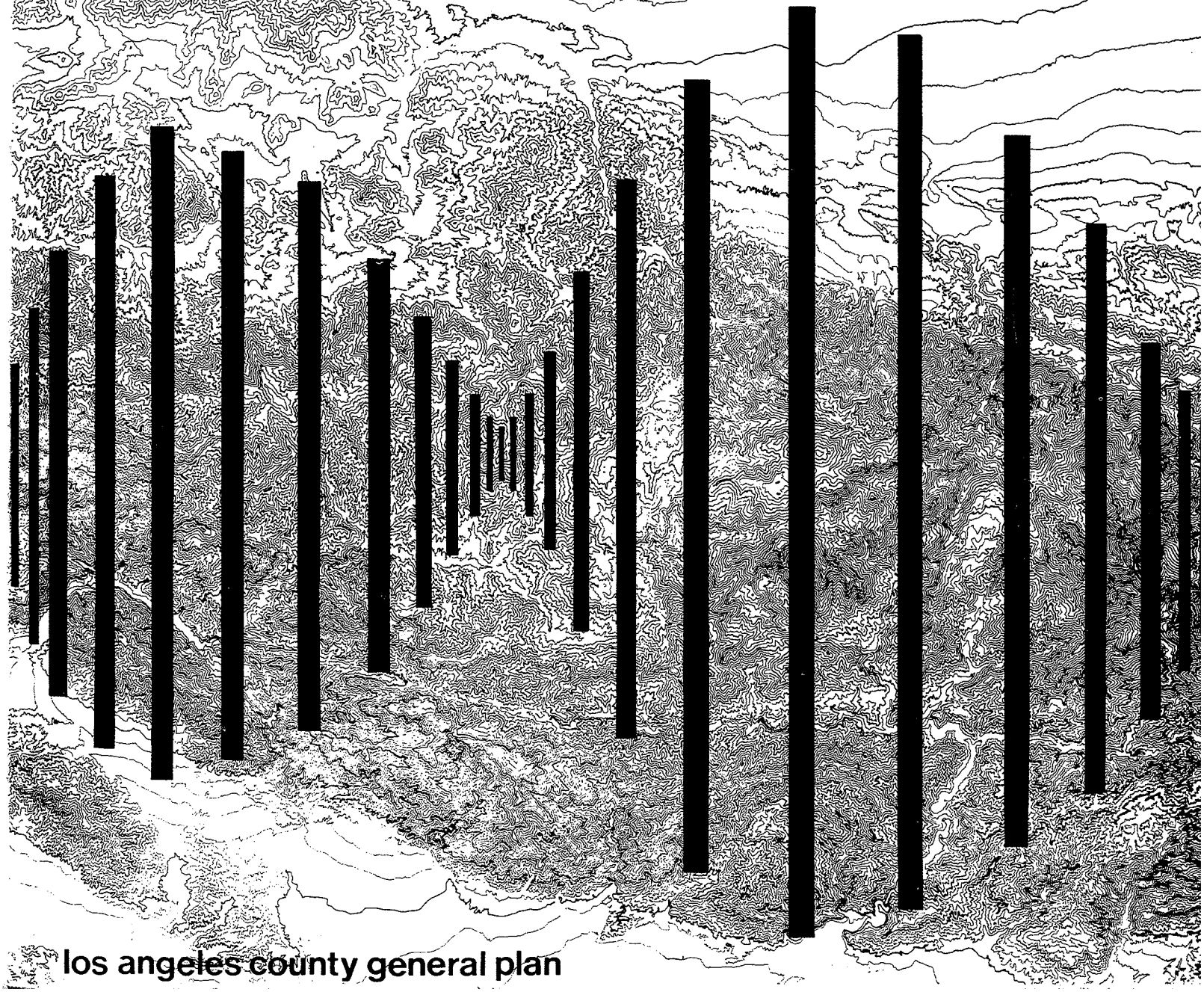
NOISE ELEMENT

PROPOSED ELEMENT
DRAFT ENVIRONMENTAL IMPACT REPORT



los angeles county general plan

BOARD OF SUPERVISORS-

Kenneth Hahn, chairman, second district
Peter F. Schabarum, first district
Ernest E. Debs, third district
James A. Hayes, fourth district
Baxter Ward, fifth district

Harry L. Hufford, acting chief administrative officer
James S. Mize, executive officer, clerk of the board

THE REGIONAL PLANNING COMMISSION-

Owen H. Lewis, chairman
Howard D. Martin, vice-chairman
Mrs. L. S. Baca
Arthur J. Baum
Carolyn P. Llewellyn
Lucilla Barthel, secretary to the commission

DEPARTMENT OF REGIONAL PLANNING-

Edgar T. Irvine, acting planning director
Joseph K. Kennedy, deputy director

October 11, 1974

PREFACE

Los Angeles County initiated a countywide planning program in 1968. Its first phase culminated on October 1, 1970, when the Board of Supervisors adopted the Environmental Development Guide (EDG) as a preliminary general plan. The EDG placed heavy emphasis on identifying major problems and articulating relevant goals and policies.

Shortly after the adoption of the EDG, a number of court decisions and amendments to the state planning law occurred. These decisions and amendments have significantly affected the scope and application of general plans and required several new plan elements, thereby creating the necessity to amend the EDG. The first major amendment was initiated in 1972 and resulted in an amended plan entitled the General Plan of Los Angeles County, adopted by the Board of Supervisors on June 28, 1973, after intensive public review and hearings.

This plan was limited to a treatment of unincorporated county areas. It amended the Open Space and Land Use Elements, added a Conservation Element, and concerned itself with achieving consistency between zoning and land use.

This phase of the General Plan Program has concentrated on the preparation of four newly required elements, namely, Noise, Safety, Seismic Safety, and Scenic Highways. These elements are being published in separate documents to be subsequently incorporated into a comprehensive general plan.

While these elements are concerned with the county as a whole, they are not to be construed as binding upon cities within the county. They are intended only as a guide, and may be used at the discretion of the individual cities.

This volume is divided into two parts. The first part is the general plan element. It contains a statement of assets, problems, issues, and opportunities unique to the Noise Element, followed by a statement of goals, policies, and programs which are directed toward alleviating the problems. The second part is an environmental impact report prepared in accordance with state law and state and county guidelines.

Adopted 1/30/75

TABLE OF CONTENTS

PART ONE: NOISE ELEMENT

PART TWO: DRAFT ENVIRONMENTAL IMPACT REPORT

TABLE OF ILLUSTRATIONS

PART I noise element

I. INTRODUCTION

Sound refers to anything that is or may be heard. Noise is unpleasant sound.

The sound from an individual source decreases with increasing distance. The amount of sound reaching the receiver is affected by barriers between the source and receiver (such as walls, landscaping, and buildings), atmospheric conditions (such as wind, temperature, and humidity), and the number of sources emitting sound.

The typical community noise environment is comprised of a background noise level and higher noise levels, frequently transportation oriented. Since the background level is lower at night, the problems posed by higher noise levels from individual sources are more pronounced during nighttime hours, a period when most people demand quiet.

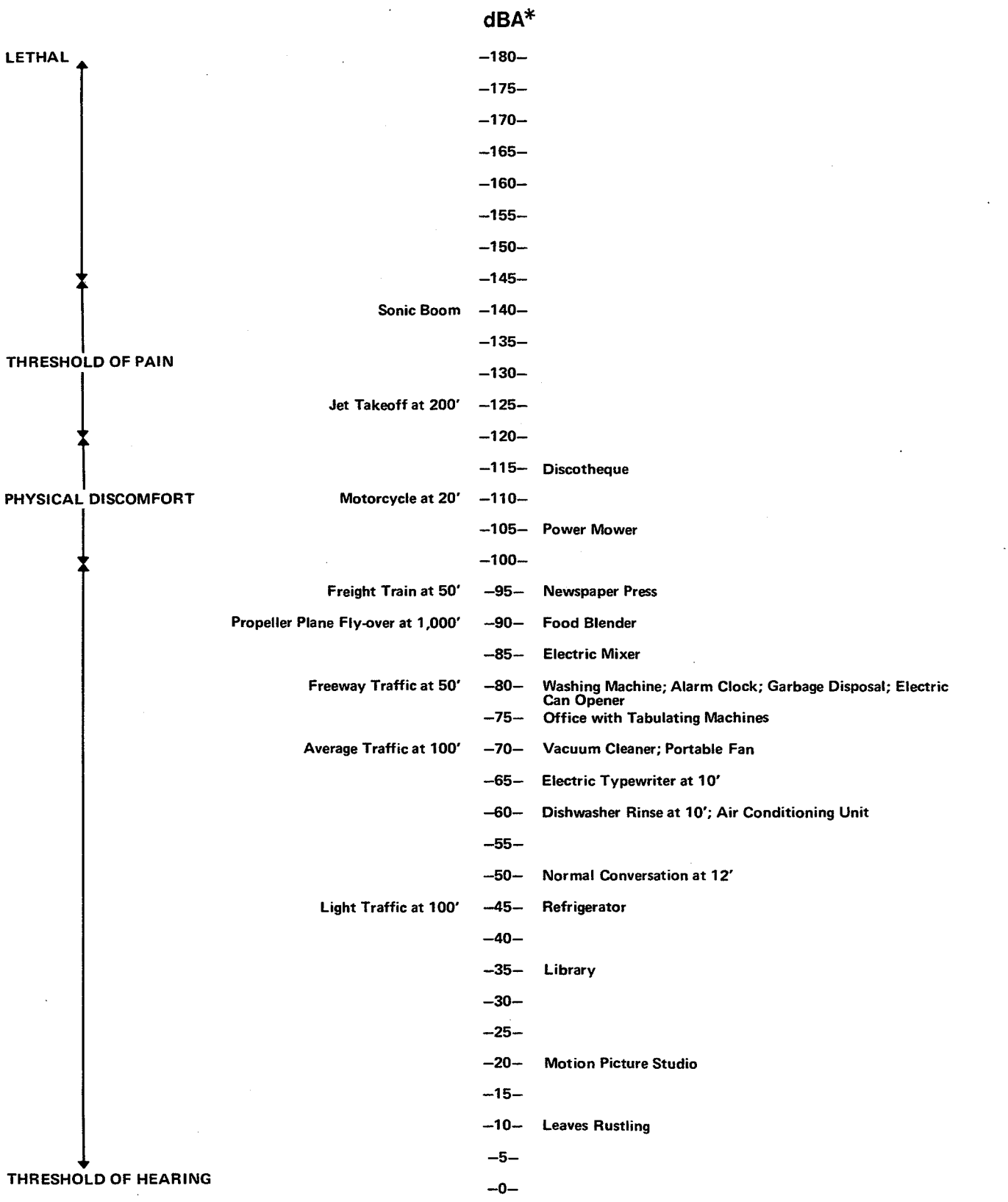
The acoustical scale shown in Figure 1 on Page 4 depicts the decibel levels (dBA) of common machines and conditions in our environment.

This element presents the noise levels associated with major transportation facilities quantified down to the levels specified in the law, or, in some instances, higher levels utilizing the best information available from those agencies which were required to furnish present and projected noise levels as mandated by the Government Code. The California Government Code, Section 65302(g) requires:

> "a noise element in quantitative, numerical terms, showing contours of present and projected noise levels associated with all existing and proposed major transportation elements. These include, but are not limited, to the following:
>
> (1) Highways and freeways.
> (2) Ground rapid transit systems.
> (3) Ground facilities associated with all airports operating under a permit from the State Department of Aeronautics.
>
> These noise contours may be expressed in any standard acoustical scale which includes both the magnitude of noise and frequency of its occurrence. The recommended scale is sound level A, as measured with A-weighting network of a standard sound level meter, with corrections added for the time duration per event and the total number of events per 24-hour period.
>
> Noise contours shall be shown in minimum increments of five decibels and shall be continued down to 65 dB(A). For regions involving hospitals, rest homes, long-term medical or mental care, or outdoor recreation areas, the contours shall be continued down to 45 dB(A)..."

Figure 1

ACOUSTICAL SCALE



* The unit of sound is the decibel (dB). The loudness of sound is typically measured using a sound meter, the A-Scale of which corresponds closely to the way the human ear perceives sound. Thus the sound level for noise evaluations is frequently expressed in dBA.

II. ASSETS

Los Angeles County has several assets which, if preserved and utilized, can improve the quality of life for its citizens. These assets include existing low noise level areas, available technology, economic influence, and political influence.

One of man's most important needs is silence, or a reasonable measure of solitude. Many areas of Los Angeles County (generally undeveloped or low density residential development) have existing noise levels which are significantly less than those found in typical high density urban development. These areas represent an asset in that their present noise levels are low enough to provide a reasonable level of quiet. They do need, however, to be protected against future noise level increases.

Many technological advances are available to industry and government and need only be utilized to reverse the trend of increased noise. Using current technology, noise level reductions of four to seven dBA are deemed achievable in the near future for existing vehicle concepts.[1]

County government is a large employer. It contracts for many goods and services; awards contracts for buildings, recreational and transportation facilities; controls land use and subdivision activities; oversees certain airport operations; and purchases many transportation and maintenance vehicles and components. The economic influence incorporated in these activities represents a major asset. Through programs of regulation and economic incentive in the purchase of equipment, goods, and services, as well as regulation and control over related activities, some measure of noise abatement can be initiated.

The county, with a population of about seven million, constitutes a large voting bloc with commensurate political influence. Nineteen of the 435 members of the United States House of Representatives represent local districts. Fifteen of the 40 members of the California State Senate and 31 of the 80 members of the State Assembly also represent local districts.[2] This political influence presents a potential asset for achieving control over the problems of noise.

III. PROBLEMS AND ISSUES

Only with the advent of the industrial revolution were excessive noise levels recognized as a serious problem. The noise level of our society has increased at a rate of one decibel a year over the past 25 years.[3] The increase has been due in part to the introduction of larger and noisier transportation vehicles and to the increase in the number of vehicles. In addition, the increasing demand of a growing population for better, more convenient transportation facilities, coupled by inadequate noise control measures or land use controls to buffer residential areas from the noise generated by these facilities have moved the sources of noise closer to the people.

The problems and issues of transportation noise relate to the following broad areas of concern, which will be discussed in detail: resolution of noise measurement methods, sources of transportation noise, effects of noise, land use/transportation noise interrelationship, transportation noise laws, multiplicity of governmental jurisdictions, and distribution of noise mitigation costs.

A. RESOLUTION OF NOISE MEASUREMENT METHODS

Approximately 60 methods have been developed which relate the various characteristics of sound on a single number basis to human perception and reaction.[4]

Several different noise level evaluation methods were used by the agencies supplying information for the preparation of this element. They include:

Statistical A-Weighted Noise Levels Exceeded 10 per cent of the Time (L_{10})--arterial highways

California Department of Transportation 701-A Method--state highways and freeways

Day-Night Average Sound Level (L_{dn})--railroad yards

Community Noise Equivalent Level (CNEL)--railroad lines and airports

Composite Noise Rating (CNR)--airports

Airport Sound Description System (ASDS)--airports

Correlation of the above methods is difficult and can lead to confusion in evaluating the overall impact of transportation noise on the community. The use of a simple standardized method would greatly minimize the work involved and allow greater effort and resources to be directed toward the mitigation of noise.

B. SOURCES OF TRANSPORTATION NOISE

Transportation noise sources can be divided into four categories according to the facilities they utilize: highways, railroads, fixed guideway transit, and airports. Figure 2 on Page 8 shows the noise emission level for various types of transportation vehicles.

1. Highways

Automobiles, trucks, buses, motorcycles, utility and maintenance vehicles, and some types of recreation vehicles use our highways.

Figures 3 and 4 on Page 9 show the mileage and estimated usage of the highway system, and the increase in vehicles which use these highways in Los Angeles County.

The noise levels from a typical arterial highway and freeway are shown in Figures 5 and 6 on Page 10. The noise level emanating from a particular highway facility can be determined by consulting the Technical Report for this element.

2. Railroads

At present there are five railroad companies in the county who maintain and utilize 560 miles of mainline track and 22 switching yards. Nationwide, the railroad fleet has remained relatively constant while the freight ton-miles has increased approximately 30 per cent in the last 20 years.[8]

The noise level emanating from a typical railroad mainline is shown in Figure 7 on Page 11. The noise level associated with a particular rail line or railroad yard can be determined by consulting the Technical Report for this element.

3. Mass Transit

At present, the county has only one fixed guideway transit facility (a busway utilizing an exclusive right of way). The planning of an extensive fixed guideway transit system, however, is being pursued. The noise impact of such a system will depend on its extensiveness, type of vehicle used, and other design features.

Figure 2

PRESENT NOISE EMISSION LEVELS[5] FOR TRANSPORTATION VEHICLES

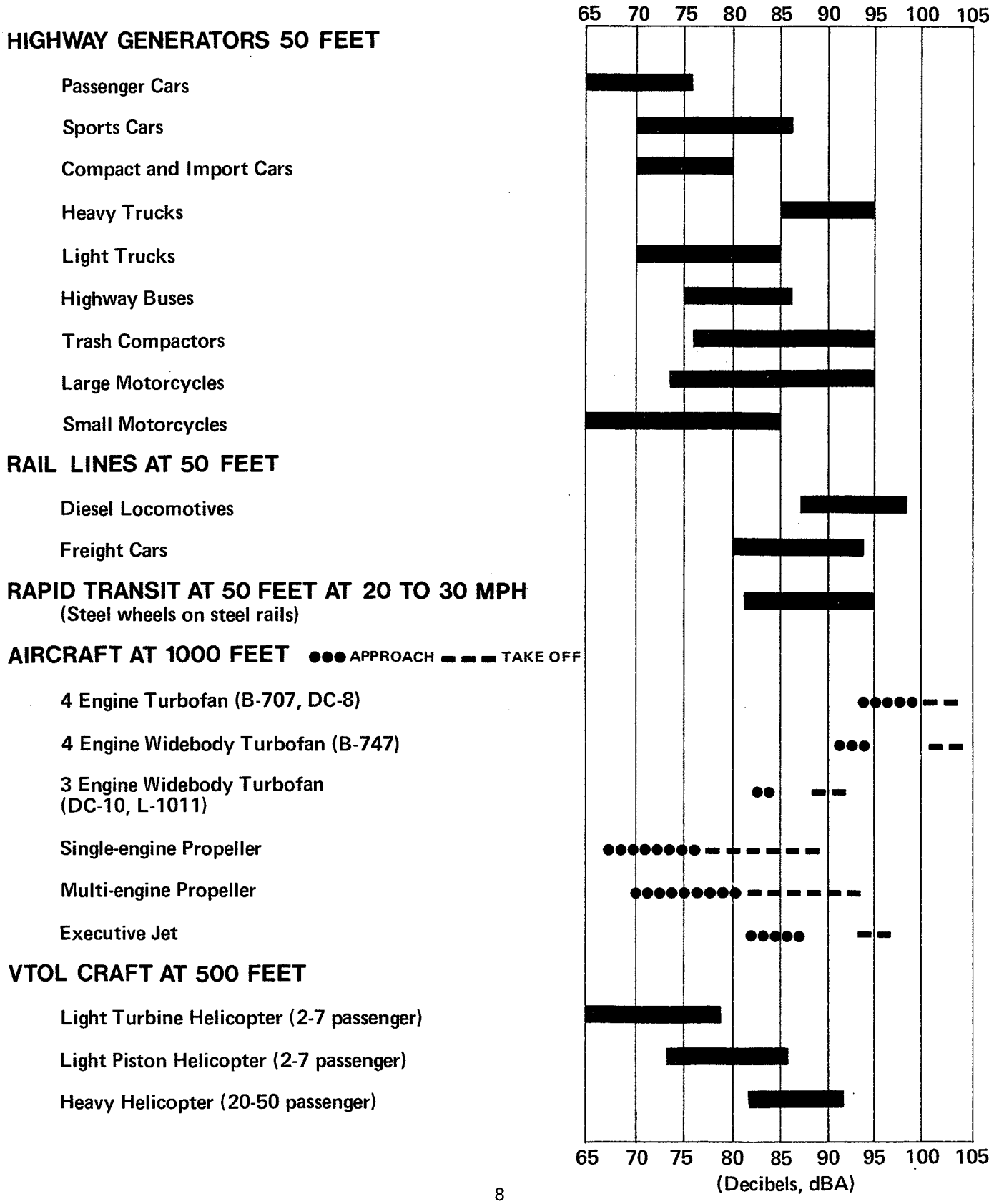


FIGURE 3

LOS ANGELES COUNTY HIGHWAY MILEAGE AND USAGE

	Miles[6] (1973)	Daily Vehicle Miles (Millions)
Arterial Highways	4,000	57.9
Conventional State Highways	428	6.9
Expressways	12	0.2
Freeways	482	80.3
TOTALS	4,922	145.3

FIGURE 4

LOS ANGELES COUNTY MOTOR VEHICLE REGISTRATION[7]

	1952	1972
Automobiles	1,900,000	3,815,000
Trucks and Buses	195,000	535,000
Motorcycles	20,000	195,000
TOTALS	2,115,000	4,545,000

Figure 5

TYPICAL ARTERIAL HIGHWAY NOISE LEVELS (L_{10})

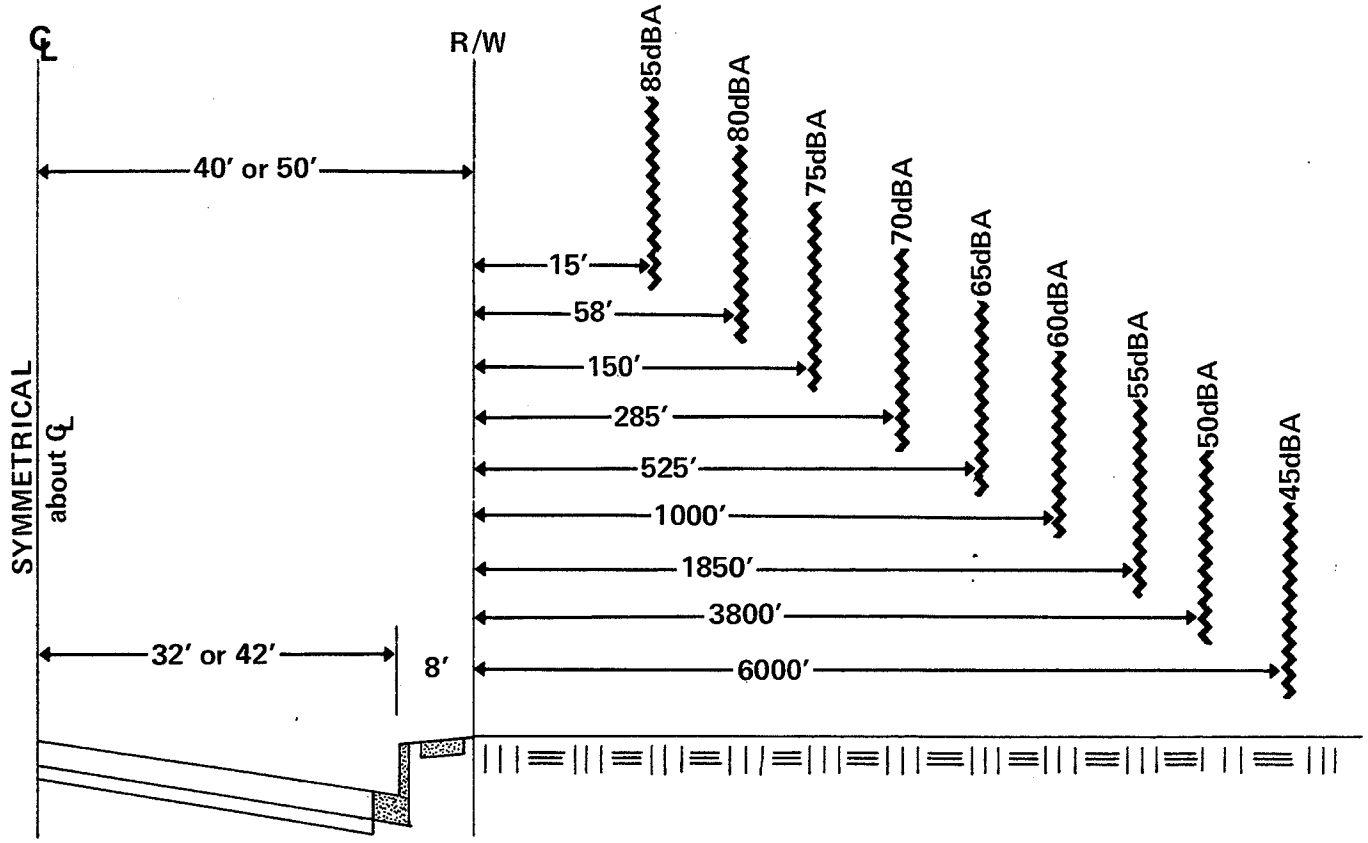


Figure 6

TYPICAL FREEWAY NOISE LEVELS(701A)

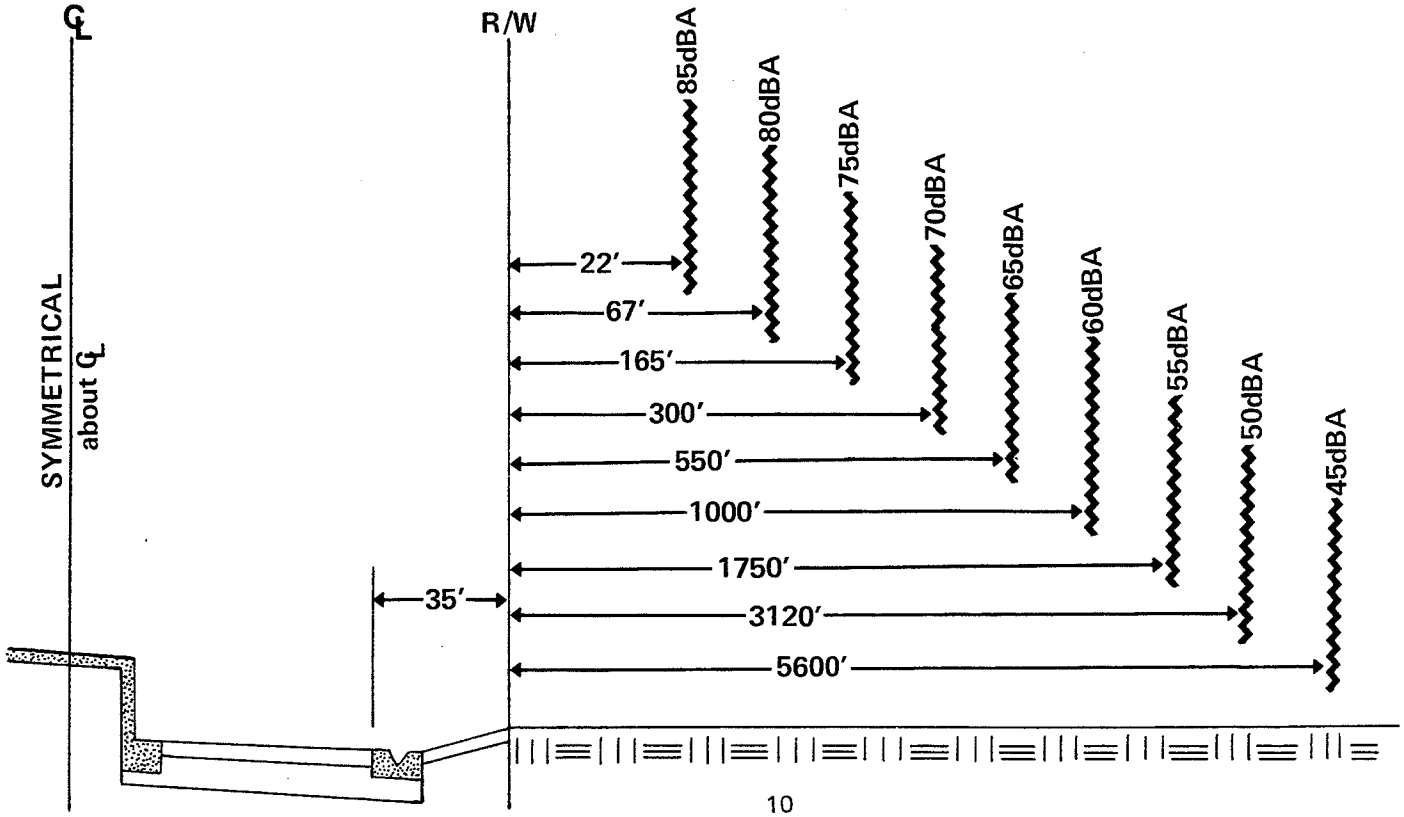
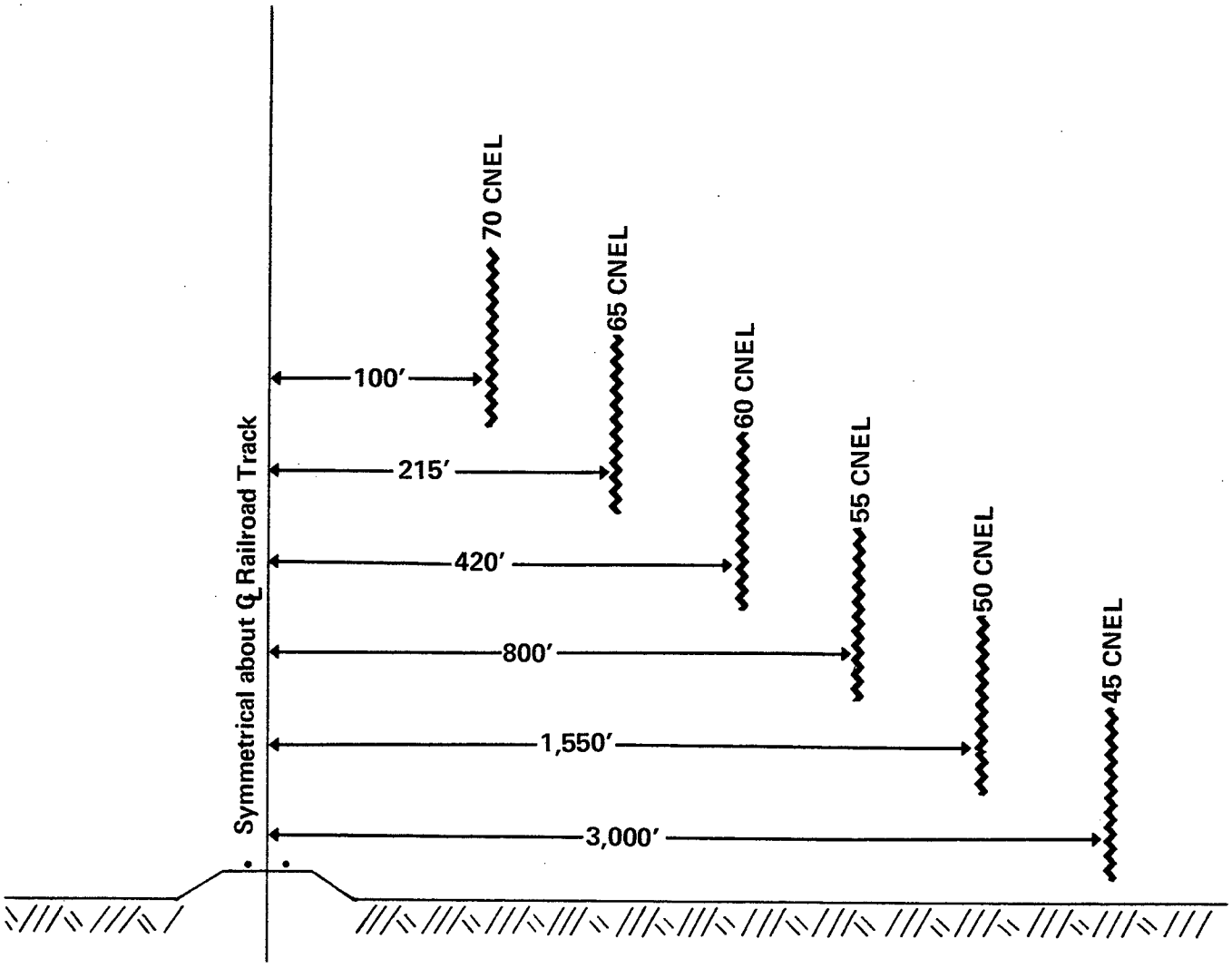


Figure 7

TYPICAL RAILROAD NOISE LEVELS (CNEL,dB)



4. Airports

There are presently 24 airports and three seaplane bases in Los Angeles County. They range in size from eight small private facilities which accommodate less than 50 flight operations a day to Los Angeles International Airport which has more than 1,000 flight operations a day. At present, county aircraft operations number approximately 10,000 a day and are expected to increase to about 15,000 by 1980.[9,10]

The economic advantages of jet-powered commercial airplanes have led to a gradual phasing out of the older propeller aircraft. The introduction of the jet liner in 1958 caused an appreciable increase in noise levels for residents near large airport complexes.[11]

The unique capability of helicopters to operate from very small airfields or heliports located in or near urban centers distinguishes them in terms of noise impact from the remainder of the aircraft industry.[12] As the trend toward increased air transportation continues, these aircraft may become increasingly popular for passenger shuttle service. Their probable increased use for traffic and fire surveillance, emergency service, and police patrols will subject greater numbers of population to their noise.[13]

Short Takeoff and Landing (STOL) aircraft are currently undergoing extensive study. They appear to have the potential to serve as a convenient commuter mode of transportation.[14] Their noise impact will depend largely on the number in operation, flight path over urban areas, and design of the STOL ports.[15] With the advent of more stringent federal noise standards for aircraft, the single event noise levels will be considerably less than for the present generation of aircraft.

A more detailed discussion of the noise levels associated with airports and aircraft is presented in the Noise Technical Report.

C. EFFECTS OF NOISE

The effects of noise on man are many and can be placed in four main categories: physiological (physical effect); psychological (emotional effect); sociological (group effect); economical (cost effect).

1. Physiological

Exposure to sufficient levels of noise for long periods of time can produce temporary or permanent loss of hearing. In general, sound levels must exceed 80 dBA for sustained periods before hearing loss occurs. The greater or longer the exposure, the greater the potential for hearing loss.[16] Other physical effects of noise may be rapid heart beat, blood vessel constriction, dilation of the pupils, paling of the skin, headaches, muscle tension, nausea, insomnia, and fatigue. If the noise is of sufficient level, the stomach, esophagus, and intestines may be seized by spasms.[17]

2. Psychological

Noise can interfere with sleep. Excessive exposure to noise may also cause symptoms of anxiety, anger, vertigo, hallucinations, and, in extreme cases, has even been blamed for homicidal and suicidal tendencies.[18,19] It has not been scientifically proven, however, that noise is the primary cause of these symptoms.

3. Sociological

There are two alternative means of handling noise intrusions - eliminate the problem by shielding, escaping, or removing the noise source; or, adapt to the new environment. Adaptions to noise intrusions may adversely affect group interrelationships. The intrusion of noise can effect every facet of human existence, from one's family life to one's occupational, educational, recreational, and religious activities. The possible adverse effects of man's individual reactions to noise - his physical and emotional maladies - may be compounded in the group situation. More importantly though, noise may threaten the ability to communicate and to comprehend. For example, children who live or attend school near sources of excessive noise can be handicapped, not only in their learning process, but also in their socialization process.[20]

4. Economic

The costs of noise are appreciable and include medical care, loss of efficiency and production, reduction of property value, avigation easements, litigation, abatement measures, and increased vacancies. For example, in order to achieve acceptable interior noise levels in an area

experiencing a high frequency and magnitude of aircraft noise, it cost $12,550 to $14,450 in 1969 for a 1,530 square foot stucco house.[21] It would cost approximately 500 million dollars to achieve the noise levels proposed by the Federal Aviation Administration for the present commercial aircraft fleet.[22] An eight-foot wall or earth berm adjacent to a freeway costs approximately $700,000 per mile.[23]

In addition, the costs of increased litigation, sound insulation, acquisition of land and construction for noise mitigation of transportation facilities and vehicles contribute to higher prices for goods and services as well as higher taxation to cover these costs.

D. LAND USE/TRANSPORTATION NOISE INTERRELATIONSHIP

Traditional land use and transportation planning have not adequately considered noise impacts. Consequently, developed areas adjacent to major transportation facilities have become impacted by noise. Once a noise problem has been allowed to develop, there are three alternative remedies available: 1) reduce the noise at the source; 2) reduce noise by controlling the path of transmission; 3) reduce the noise impact on the receiver. Source correction lies outside the purview of local planning bodies. The other two potential remedies entail, in most cases, massive disruption of existing land use patterns.

Land use control can be effective in alleviating noise impact especially when applied to relatively undeveloped areas. In developed urban areas, however, land use controls have limited effectiveness unless invoked during a community redevelopment project.

Land use controls can be effective for surface transportation modes which are few in number and spaced relatively far apart (such as freeways and railroads).[24] Most land uses, however, are usually determined prior to the final location studies for surface transportation, thus complicating the planning and construction of such facilities. The approximate 1/2-mile spacing of the arterial highways allows only minimal application of land use control techniques due to the need to provide access to adjacent commercial and residential complexes. However, the noise levels produced by these transportation facilities are usually not as severe as those from the more heavily travelled high-speed corridors.

The noise impact of airports can be reduced by land use controls, particularly in areas which are not yet developed. Residential, institutional, and recreational uses are generally incompatible with airports because of the need for serenity and preservation of the outdoor environment associated with these uses.

E. TRANSPORTATION NOISE LAWS

Present federal and state laws in many instances preempt local government from controlling certain sources by setting noise levels and operational procedures for aircraft, motor vehicles, and interstate carriers. Where preempted, the local government is relegated to the role of caretaker, enforcing the levels established by some higher level of government. These legal preemptions also require that noise legislation passed by the local authority agree with the statutes of the higher authority.

Local government can, wherever they have jurisdictional authority, restrict certain noisy aircraft from using an airport, or reduce speeds and prohibit trucks on surface streets. The path of noise can also be controlled by construction of walls, landscaping, buffer zones, or soundproofing of existing structures. Future problems can be minimized through a combination of land use planning, building code and zoning restrictions, and noise ordinances and policies which mandate and enforce a noise abatement program responsive to local conditions.

F. MULTIPLICITY OF GOVERNMENTAL JURISDICTIONS

Within the county there are 78 city governments and one county government with jurisdiction over various transportation facilities and with different zoning ordinances. In addition, the state operates facilities in most of the jurisdictions and mandates certain requirements by law; the Southern California Association of Governments (SCAG), as a regional planning organization, has jurisdiction over certain activities; the South Coast Regional Coastal Commission is formulating development policies which affect transportation in the Coastal Corridor; the Southern California Rapid Transit District (SCRTD) is proposing a fixed guideway rapid transit system and currently operates a bus system; and many federal agencies control interstate commerce carriers, transportation facilities, and environmental concerns. Some of these governmental entities are enforcing various noise laws and programs while others have no laws or policies regarding noise. Unfortunately, noise does not recognize jurisdictional boundaries and noise originating within one jurisdiction frequently penetrates another jurisdiction's boundaries.

G. DISTRIBUTION OF NOISE MITIGATION COSTS

The cost of noise mitigation will be substantial regardless of whether the effort is directed toward the source, path, receiver, or any combination of these. Some examples of the magnitude of these costs are presented in the earlier discussion of economic effects of noise. It would appear that there are two ways to distribute these costs: 1) distribute the costs among the general public; 2) assess the costs to those who generate the noise.

If noise levels are reduced due to a direct grant or subsidy from the federal government, the bulk of the costs would probably be supplied by federal tax revenues. A system such as this could probably eliminate a fragmented approach by many local jurisdictions.

Assessment of the noise mitigation costs against those who generate the noise appears fair. At present this method is practiced to a certain degree since gas tax, airport tax, and interstate carrier tax revenues are, and probably will continue to be, used to research, construct, and enforce noise abatement programs. Also, as new quieter vehicles are constructed, the costs of noise abatement will be assessed against the purchaser or user of the vehicle.

In conclusion, assessment of noise abatement costs against the producers of the noise is the most equitable. Equally important is a balanced, coordinated approach to the noise problem which will furnish the most benefits for the least amount of money.

IV. OPPORTUNITIES

The opportunity exists to control noise on three fronts: at the source; along the transmission path; and at the receiver. Although the control of noise at the source has been almost completely preempted by higher levels of government, the county can encourage the use of technology and further research by manufacturers and higher levels of government. This encouragement could be by political influence or by purchasing and modification of equipment which incorporates technological advances in noise suppression. As a major purchaser of equipment, the county could provide economic incentives for manufacturers of low noise-emission products.

Although the greatest effort is needed in the noisy urban areas, the controlled development (using land use controls) of undeveloped and low density areas will enable the quiet of these areas to be preserved without large capital expenditures for noise mitigation measures. Whereas the effort in the developed urban areas must be one of reduction, it is one of prevention in the undeveloped and low density areas.

A well-planned bicycle and equestrian trail system extensively used by the general public will help decrease the use of noisier, mechanized means of transportation and recreation.

Community, economic, environmental, and social desires and needs can be enhanced by the enactment of comprehensive noise, housing, land use, zoning, and building ordinances and policies which are consistent with the noise goals of this element. Through proper planning to minimize impact and research and application of noise suppression methods for all modes of transportation, a countywide transportation network can be developed which minimizes noise impacts and benefits all residents of this county.

The willingness of the citizenry to become involved in alleviating this problem represents a positive opportunity. Noise is a problem which cannot be solved by government alone; it requires the awareness, concern, and effort of all citizens.

Through a coordinated, cooperative approach to the noise problems by citizens, industry, and government, the opportunity exists to reverse the trend of increased noise in our urban and rural areas.

V. STATEMENT OF GOALS

Goals reflect broad aims and basic values. The goals of the Noise Element link the assets and opportunities and problems and issues previously identified with the policies and programs which follow. They establish emphasis and tone for policy and program formulation. The decisions and activities of county government should be guided by the intent of the goals set forth:

- Reduce transportation noise to a level that does not jeopardize health and welfare.
- Minimize noise levels of future transportation facilities.
- Establish compatible land use adjacent to transportation facilities.
- Allocate noise mitigation costs among those who produce the noise.
- Alert the public regarding the potential impact of transportation noise.
- Protect areas that are presently quiet from future noise impact.

VI. STATEMENT OF POLICIES

The following policies provide direction for the achievement of element goals. They will be carried out through implementation programs utilizing public and private resources.

In the process of formulating policy content, several alternative policy sets were considered. These alternatives reflected various courses of action. From this, a preferred policy set was selected based on its effectiveness in achieving the goals set forth, as well as its social, political, and economic feasibility.

It is the policy of Los Angeles County to:

1. Promote the necessary organizational adjustments within county government to establish a central authority which identifies technological opportunities, conducts studies, assesses effectiveness of programs, sets standards, and recommends transportation noise mitigation techniques, programs, and alternatives.

2. Determine and evaluate the present and future noise levels associated with all major transportation facilities in the county.

3. Establish acceptable noise standards consistent with health and quality of life goals and employ effective techniques of noise abatement through such means as building code, noise, subdivision, and zoning ordinances.

4. Reduce the present and future impact of excessive noise from transportation sources through judicious use of technology, planning, and regulatory measures.

5. Establish noise criteria in the specifications for purchase of vehicles, aircraft, and their components intended for use by the county, including all equipment needed for maintenance and repair of such vehicles and aircraft.

6. Promote increased public awareness concerning the effects of noise.

7. Encourage cities to adopt definitive noise ordinances and policies that are consistent throughout the county.

8. Coordinate with, and assist, the various cities in dealing with the problem of noise and provide leadership and technical expertise when requested by other jurisdictions.

9. Coordinate with federal, state, and city governments in developing and implementing noise abatement programs.

10. Seek funds from the appropriate levels of government to underwrite the costs of noise abatement programs.

11. Monitor the programs and policies of the responsible special districts, regional, state, and federal agencies in order to insure that they effectively exercise their mandate to control the sources of noise for new, proposed, or existing transportation facilities, vehicles, or aircraft.

12. Encourage the state Department of Transportation to conduct an active highway noise abatement program with scenic/esthetic considerations.

13. Urge continued federal and state research into the noise problem and recommend additional research programs as problems are identified.

14. Recommend needed legislation to the state and federal government which will provide for noise abatement and the distribution of the costs of noise abatement programs among the producers of noise.

15. Encourage the federal and state governments and other agencies to work for standardization and simplification of the measurement methods used in assessing noise impact.

VII. IMPLEMENTATION PROGRAM

The purpose of the Noise Implementation Program is to identify action programs which will lead to the reduction of transportation noise to a level consistent with health and quality of life goals.

The programs identified in this section represent the range of actions taken by the various levels of government to initiate noise abatement programs. If actions are taken through coordinated, effective programs, the goals and policies of this element can be implemented and transportation noise reduced to acceptable levels. It is not possible to eliminate all transportation noise problems on a short range basis. However, by adopting a course of action which utilizes existing programs and new complementary action programs, the noise situation can be improved in the foreseeable future. These new programs must be the result of a coordinated, comprehensive approach by the public, all levels of government, and private enterprise.

Formulation of the Noise Implementation Program involved four basic steps: 1) identification of existing programs; 2) evaluation of the ability of these programs to reduce transportation noise; 3) recommendations for improving existing programs or adding new ones for those areas of inadequacy identified in the evaluation; and, 4) establishment of priorities for implementing the program recommendations by identifying the short- and long-term actions necessary.

Primary emphasis of this program is on implementation action at the local level with future efforts being directed at broadening the scope of investigations and analysis in coordination with other government agencies as well as consideration of non-transportation noise.

A. IDENTIFICATION OF EXISTING PROGRAMS

Following is a listing of existing programs and activities related to transportation noise.

1. County Programs
   - Airport Development and Management
   - Bikeway and Trail Development
   - Building Regulation
   - General Plan - Transportation Planning
   - Highway Construction and Maintenance
   - Land Division
   - Traffic Operations and Management
   - Zoning

2. City Programs
   - Airport Development and Management
   - Building Regulation
   - General Plan - Transportation Planning
   - Highway Construction and Maintenance
   - Land Division
   - Noise Regulations
   - Traffic Operations and Management
   - Zoning

3. Regional Programs
   - Intergovernmental Coordination (SCAG)

4. State Programs
   - Airport Development and Management
   - Building Regulation
   - Highway Construction and Maintenance
   - Motor Vehicle Regulations
   - Traffic Operations and Management

5. Federal Programs
   - Airport Development and Management
   - Code and Ordinance Standards
   - Highway Construction and Maintenance
   - Noise-Emission Standards
   - Operational Abatement Measures
   - Purchasing Incentives
   - Traffic Operations and Management

6. Other Implementation Activities
   - Community Relations
   - Coordination and Review
   - Environmental Assessments
   - Legislation
   - Private Action
   - Public Education
   - Research and Monitoring

B. EVALUATION OF EXISTING PROGRAMS

Following is an evaluation of the ability of existing programs to carry out the policies, achieve the goals, and thereby aid in controlling the problems identified with transportation noise.

A number of broad activities are available to governments for the control of transportation noise:

1. Identification and Quantification

2. Control and Abatement

a. Source
b. Path
c. Receiver

3. Regulation and Enforcement

4. Research

5. Standards and Guidelines

Programs relating to these activities are evaluated in the following paragraphs:

1. Identification and Quantification

The California Government Code requires all jurisdictions to include in their general plans a noise element which quantifies the existing and future noise levels associated with all existing and proposed major transportation facilities.[25] As the various cities' elements are completed, they will be evaluated and incorporated, as appropriate, into the county's general plan. This program implies a continuing comprehensiveness in quantifying and evaluating the noise from transportation sources. Since this is not a static process, the local jurisdictions must periodically update traffic, train, truck, and aircraft information, evaluate the noise impact of these vehicles, and reexamine or formulate abatement programs to reduce the noise to acceptable levels. As the noise of future vehicles is lowered and abatement programs initiated, studies will need to be conducted to assess the overall effect of these efforts.

The federal Department of Transportation has several studies underway including: 1) assessment of transportation noise abatement problems; 2) determination of the level of responsibility (public and private) for noise abatement; and, 3) determination of the need for government standards and regulations.[26] Although these programs, within themselves, will not reduce noise, the results should provide for a more balanced, efficient solution to the noise problem, especially if local agencies are consulted regarding their roles in these processes.

2. Control and Abatement

These programs, which actually provide noise reduction, can be divided into three categories according to the method they utilize to reduce transportation noise: 1) source, 2) path, and 3) receiver.

a. Source

Aviation Related Noise

The California State Division of Aeronautics has the responsibility for licensing airport facilities and seeing that these airports comply with state laws. The California Administrative Code requires that certain airports (based on a determination by the county Board of Supervisors) monitor their noise and reduce their noise impact boundary to that specified in the state regulations. The proprietor of the airport must install a noise monitoring system and establish noise limits for individual operators using the airport.[27] Five airports in the county (Hollywood-Burbank, Long Beach, Los Angeles International, Santa Monica, and Van Nuys) have been designated as having a noise problem by the Board of Supervisors and must now install a monitoring system and establish noise limits to reduce their noise impact boundary.[28] The county must validate the monitored data and enforce the established noise limits. The state Division of Aeronautics has the ultimate responsibility to police this law.[29]

The Aviation Division of the County Engineer is responsible for administering the operation of the five county-owned airports and has initiated operational procedures at some of these airports aimed specifically at reducing the noise impact. Long Beach, Torrance, and Santa Monica have initiated noise abatement operational procedures at their airports. Los Angeles International Airport (LAX) has initiated a multi-phase program to reduce the noise: 1) a preferential runway program which shifts all aircraft flights between 12 p.m. and 6 a.m. to over-ocean departures and approaches; 2) an economic incentive to airlines by instituting lower landing fees for aircraft which meet Federal Aviation Administration (Part 36) noise limits; 3) a fleet noise rule which requires 40 per cent of the aircraft using the airport to meet Part 36 noise limits by 1977 and 100 per cent by 1980.[30]

The state Airport Noise Monitoring Program was initiated to ensure that the proprietors of airports would take adequate measures to reduce the impacted land areas adjacent to their facilities and adopt operational regulations to maintain acceptable noise levels at their airport.[31] Unfortunately, some of the equipment required to adequately monitor the noise levels is still being developed, thus delaying the implementation of the monitoring. In addition, there is a legal question currently being adjudicated as to whether anyone but the Federal Aviation Administration (FAA) has control over the aircraft while it is in the air. The effectiveness of this program depends on an ability to obtain adequate monitoring equipment, staff an organization which can handle the administrative duties, and prosecute the violators of the noise limits.

Part 36 of the Federal Aviation Regulations enacted in 1969 prescribes noise standards for certification of civil sub-sonic transport and turbojet-powered airplanes.[32] The Environmental Protection Agency, by authority of the Noise Control Act of 1972, was to submit proposed regulations to control aircraft noise to the Federal Aviation Administration for consideration and implementation.[33] The Federal Aviation Administration recently proposed that all civil sub-sonic aircraft be required to meet Part 36 requirements by 1978, and has proposed a two-segment landing approach. This proposal would affect 58 major U.S. airports, including Los Angeles International, Hollywood-Burbank, and Long Beach airports.[34]

Since most of the present commercial jet fleet exceed the Part 36 noise limits by 10 decibels or more, this proposal, if enacted, would provide some relief to residents adjacent to these major airports.[35] However, utilizing future technology, lower noise limits will need to be established in the future if a reasonable level of noise is to be achieved in the vicinity of these facilities.

Highway and Railroad Related Noise

The Federal Noise Control Act of 1972 required the Environmental Protection Agency to: 1) develop and publish information about permissible levels of noise and set standards for products identified as major sources of noise; 2) set noise emission standards for transportation equipment (other than aircraft); and 3) prescribe noise emission standards for the operation of the equipment and facilities of interstate railroads, trucks, and buses.[36] The California Vehicle Code sets noise limits for the sale and operation of various types of motor vehicles and exhaust systems. It also provides for incremental decreases in the allowable noise level as a condition of sale such that any vehicle manufactured after 1987 must produce no more than 70 dBA at 50 feet.[37]

The state program for vehicle noise limits appears practical and would achieve significant incremental noise reductions in the future. To date, proposed federal vehicle noise limits provide for higher noise levels but do not require incremental decreases for the future as specified in the State Vehicle Code.[38] As federal standards preempt the state standards, they must provide for lower noise levels or future incremental decreases, otherwise significant reduction of noise levels from transportation vehicles will not occur.

The county has a bikeways program and is currently planning and implementing a Master Plan of Regional Bicycle Routes which will provide a quieter alternative means of transportation on various linear system rights of way throughout the county. In addition, various cities in Los Angeles County

are planning bicycle facilities which will interface with the regional system to provide a comprehensive network of bicycle facilities for both recreational and transportation needs within these cities.

b. Path

The County Road Department, various city engineering departments, and California Department of Transportation collectively design, construct, and maintain various major highway facilities within the county. The Road Department evaluates the existing and predicted noise levels associated with any highway construction project in connection with the required environmental assessment. It also evaluates the noise impact for any federally funded project and considers abatement measures early in the design process. Cities involved in the design of a highway, in connection with the environmental assessment, make a noise analysis early in the design phase and consider noise abatement measures. Upon the selection, adoption and determination of the location of a state highway, the Streets and Highways Code requires that a report be prepared which considers several environmental factors, including noise.[39] Also on any federally funded highway, a noise study must be prepared. In addition, Section 216 of the Streets and Highways Code requires that the California Department of Transportation undertake specified action if the noise level produced by the traffic on any state freeway exceeds 59 dBA within a schoolroom adjacent to the freeway facility.[40] The Federal Highway Administration (FHWA) requires that all federally-financed highway projects must evaluate the noise levels within the standards specified by them.[41] The FHWA also has recently initiated a program of federal participation in the construction of noise abatement devices such as walls and berms on existing federal-aid roadways.[42] These programs point out possible noise problems early in the design process and allow the individual designer to take steps to alleviate noise impact where it is physically practical and economically feasible. These programs are more readily applied in rural areas. In developed urban areas, the cost of employing these procedures and physical constraints become the overriding factors.

The agencies responsible for the zoning and subdivision ordinances of the county and cities have programs which encourage the dedication of access to subdivisions and the construction of backup subdivision walls along major highways. These programs control the access points into tracts,

discourage through traffic, improve the circulation along the arterial highway, and reduce noise from arterial highways. These programs have good potential to help control the noise in new subdivisions or in redevelopment projects, especially if higher walls, earth berms, landscaping, or other noise abatement methods are employed to buffer the residential area from the noise of major highways. This is a good program which should be continued as new subdivision tracts, redevelopments, or parcel maps are initiated. Its potential, however, is limited to these activities.

c. Receiver

The Airport Land Use Commission influences land use and, therefore, the location of noise sensitive areas adjacent to airports and heliports. By authority of the Public Utilities Code, the Regional Planning Commission is designated as the Airport Land Use Commission in Los Angeles County. The Commission is responsible for reviewing and coordinating airport and heliport planning of public agencies within the county and resolving impasses relative to this planning. The weakness of the program lies in the fact that the Airport Land Use Commission serves only an advisory function with little power or jurisdiction over airport planning.[43]

The City of Los Angeles' Airport Commission has pledged its support to the adoption of appropriate legislation to achieve stronger land use controls around LAX. Other municipally owned airports also are concerned about the noise problems adjacent to their facilities.[44] Through a cooperative, coordinated effort by all concerned parties, this program could be effective.

The state Commission of Housing and Community Development is responsible for establishing noise standards for statewide construction.[45] Recently, it adopted the standard that "interior community noise equivalent levels (CNEL) attributable to exterior sources shall not exceed an annual CNEL of 45 dB in any habitable room." Also, the standards specify that residential structures located within CNEL contours of 60 dB adjacent to an existing or adopted freeway, expressway, parkway, major street thoroughfare, railroad, or rapid transit line shall require an acoustical analysis showing that the building has been designed to limit intruding noise to an annual CNEL of 45 dB.[46] The Building and Safety and Survey Divisions of the County Engineer Department, the Architectural Division of the Department of Facilities Acquisitions and local building departments are responsible for protecting the public health and safety with regard to building regulations and will no doubt be responsible for enforcing the state-mandated program. Since these standards are effective August 22, 1974, it is not possible to assess the program at this time.[47]

3. Regulation and Enforcement

A December 1973 survey of the 78 cities in Los Angeles County revealed that only 37 have noise ordinances. About one-third of these ordinances are comprehensive; the remainder, general and limited in scope. Enforcement of these ordinances ranges from a multi-phased program of abatement (which includes sophisticated monitoring equipment and noise violation investigators) to a limited enforcement approach. If more and better noise ordinances are enacted, and properly enforced, they can eliminate many of the noise intrusions experienced by residents. The main thrust, however, should be to reduce the noise at the source through technology so that lower noise limits can be established and enforced.

The Los Angeles Department of Airports has established a noise enforcement division to enforce the fleet noise rule and to monitor noise and noise suppression programs.[48] This program has excellent potential for reducing the noise around LAX if the proper monitoring equipment can be developed.

The Environmental Protection Agency (EPA), by authority of the Noise Control Act of 1972, has established a process under which the federal government will give preference in its purchasing to products whose noise emissions are significantly lower than the source emission standards promulgated by EPA.[49] It allows the low noise-emission product to have a cost as much as 25 per cent greater than the least expensive product.[50] This program, just recently enacted, should provide an excellent economic incentive for manufacturers to produce low noise-emission products.

4. Research

There are numerous federal noise research programs which are in progress or have been completed. Some of them are included in the following list:[51]

Improvement of noise measurement techniques, data reduction and analysis (Department of Transportation) (DOT)

Jet engine noise and its abatement (DOT)

Development of noise-monitoring systems for airport environs (DOT)

Jet exhaust noise (National Aeronautics and Space Administration (NASA)

V/STOL noise characteristics (DOT)

Development of supplemental engine equipment or devices to suppress noise (NASA)

Development of optimum safe aircraft operational procedures to minimize noise (DOT)

Tire acoustics (DOT)

Internal combustion engine noise (emphasis on the diesel) (DOT)

Attenuation of noise by vegetation (United States Department of Agriculture) (USDA)

Effects of noise on humans and wildlife (Health, Education and Welfare and USDA)

Acoustical performance of buildings (Housing and Urban Development)

These research programs will provide additional information and knowledge concerning noise and its abatement.

5. Standards and Guidelines

The Department of Housing and Urban Development has a noise program which includes the development of a planning guidelines manual, guidelines for suitable noise control measures, and model noise and zoning ordinances.[52] These guidelines and manuals will provide assistance in effective noise control.

6. Evaluation Summary

These programs, taken together, will achieve some measure of noise abatement. If we are to reduce noise levels we must initiate a positive, coordinated program of noise abatement in which county government assumes a leadership role over those activities which can be implemented at the local level. The federal and state governments have already assumed the responsibility for setting many noise limits and standards. They have set in motion programs to control transportation noise for new vehicles at the source. A coordinated control and policing effort by local governments, with the county providing the impetus, can encourage practical and acceptable standards by the higher levels of government and enforce those standards already initiated in an efficient and reasonable manner.

ACTION PROGRAM

C. ACTION PROGRAM

The Noise Element action program consists of all existing programs previously discussed and evaluated as well as recommended program modifications and additions contained herein. In developing the action program, consideration has been given to program priorities and the phasing of action's necessary to implement the policies of this element.

1. Priority Action Areas

Since the county has limited resources, and in some cases, limited authority to implement programs which can best solve the noise problems, it is necessary to concentrate available resources on the most critical areas. This section established first and second priority action areas based on criteria developed from consideration of currently identified problems and existing programs. They are designed to have the greatest positive impact on noise problems, while taking advantage of existing assets and opportunities.

a. Critieria for Establishing Priorities

- Problems which have a negative impact on health (existence of unacceptable noise levels in noise-sensitive areas).
- Prevention of noise intrusions into "quiet" areas.
- Desirability of taking advantage of an opportunity before it is lost.

The above criteria are structured to handled the entire range of noise problems. First priority areas were selected on the basis of action programs which would effectively achieve significant noise reductions. Second priority areas include standardization and improvement of noise abatement programs as well as secondary solutions which can be effected after the primary solution has realized its maximum benefit.

b. First Priority Action Areas

1) Control of Noise at the Source

Since control of noise at the source protects the vehicle operator and passenger as well as as the non-participant, it presents the most reasonable and effective means of reducing transportation noise. County government, in concert with the other local governments, should

encourage the state and federal governments to set reasonable noise limits which are consistent with health and quality of life goals. Also, legislation should be requested at the state and federal level which provides for the assessment of the costs against the producers of the noise and provides funds to local governments to enforce the regulation.

2) Centralization of Noise Studies and Abatement Measures

A department within county government should be given the overall responsibility for noise programs, including a community noise study which identifies additional noise sources and promulgates acceptable noise levels for the commercial, industrial, residential, and rural communities. In the interim, standards based on existing technology should be considered for adoption.

3) Purchasing Procedures

The county should specify acceptable noise levels for the purchase of all future vehicles, maintenance equipment, aircraft and their components, including the equipment necessary for the maintenance of such vehicles. Other jurisdictions should be encouraged to do the same.

4) Noise Regulation

A comprehensive noise ordinance, based on interim standards, if necessary, should be initiated. The building code, subdivision, and zoning ordinances should be amended as needed to reflect the latest noise abatement techniques.

5) Enforcement of Noise Regulations

The department responsible for noise abatement should develop the necessary administrative and technical staff, as well as acquire the necessary noise-monitoring equipment, to enforce the regulations imposed by higher levels of government.

6) Public Education

The county government must make the public more aware of the effects of noise and inform it of what is being done to combat noise. As the public becomes more aware of this problem, it can become a great influence in achieving the ultimate solution by demanding quieter products, quieter communities, and quieter transportation facilities.

c. Second Priority Action Areas

1) Additional Studies and Recommendations

A noise element is an ongoing process; it must be constantly updated and upgraded. This should be the responsibility of the noise abatement department. This department would be responsible for developing new noise abatement programs and assessing the effectiveness of and enforcing existing programs. It also would initiate additional studies as the needs are determined, recommend legislation, and research technological and funding opportunities.

2) Coordination with Other Governmental Agencies

The county should join with the other governmental agencies in a cooperative, coordinated effort to carry out the programs of the higher levels of government, as well as to seek additional methods of abating noise and enforcing the noise levels established by the state and federal governments. This will require that either the law enforcement personnel become conversant with noise law and monitoring equipment or a special noise inspector corps be formed to encourage and, where necessary, enforce the suppression of noise within the community. This organization could work cooperatively with the respective jurisdictions enforcing the individual noise laws of these entities.

3) Standardization of Programs

Because of the numerous jurisdictions, a cooperative program should be initiated by county government to have all jurisdictions standardize the noise laws and methods of noise measurement. This program will have to be coordinated with the federal, state, and regional agencies so that costly duplication and wasted effort will be avoided.

4) Coordination with Multi-Governmental Organizations

Cooperative transportation and planning organizations such as the Metropolitan Transportation Engineering Board (MTEB) and Los Angeles County Association of Planning Officials (LACAPO) should discuss, standardize, establish, and recommend acceptable noise levels for transportation sources and land uses for inclusion in the noise ordinances of the separate jurisdictions. In addition, by working though the Southern California Association of Governments (SCAG), a uniform approach to the noise problem can be initiated with adjacent counties (Orange, San Bernardino, and Ventura). In this regard, county, city, and regional governments

can be influential in advising the higher levels of government on legislation and standardization in the fight against noise.

2. Action Recommendations

This section presents those recommendations necessary to initiate action to implement the policies of the element and contribute to the achievement of goals. They are divided into two sections: short range, and medium and long range. Short range actions are those which should be initiated within five years but their duration may extend beyond that period. Medium and long range actions are those that will occur from five to 15 years in the future, some of which may require initial activity that must be taken in the immediate future. The numbering of the recommendations does not imply any priority ordering.

a. Short Range Action Recommendations.

1) Study the feasibility of establishing a central authority within county government with the responsibility for noise problems and programs.

2) Develop a draft noise ordinance and suggest amendments to the building code and subdivision and zoning ordinances.

3) Through political influence, encourage federal and state governments to set reasonable and effective noise limits for all transportation vehicles.

4) Establish acceptable noise levels to be included by the county Purchasing and Stores Department in the specifications for purchase of vehicles and aircraft and their components.

5) Inform the public as to why and what county government is doing to combat the noise problem.

6) Conduct a community noise study to determine the noise levels of non-transportation sources.

7) Encourage assessment of the costs of noise abatement against the producers of noise.

8) Seek funds from higher levels of government to carry out noise abatement programs.

9) Encourage use of noise abatement measures adjacent to all major sources of noise pollution such as airports, freeways, and rail lines.

10) Encourage standardization of noise measurement methods by the federal government and advise them of local needs in this regard.

11) Encourage local jurisdictions to specify noise levels in the purchase of equipment.

b. Medium and Long Range Action Recommendations

1) Continue to update the noise element, community noise study, building code, and subdivision and zoning ordinances as needed.

2) Encourage the use of noise abatement measures, which also enhance the esthetic qualities of the environment, adjacent to all major transportation facilities where it is necessary and feasible

3) Coordinate with other local governments in standardizing building codes, and noise, subdivision, and zoning ordinances.

D. GOVERNMENTAL ROLES AND RESPONSIBILITIES

County Government

The county, operating within the framework established by state and federal agencies and in cooperation with cities and special districts, should assume a leadership role. The department responsible for noise abatement, working in concert with citizen groups, other levels of government, and private enterprise, will coordinate the county's efforts to bring the problem of excessive noise under control.

City Government

Within the standards established by higher levels of government, the cities should establish and enforce their own noise ordinances and coordinate with the higher levels of government.

Special Districts

Special districts should consider the effect of any of their transportation vehicles or facilities on the noise levels in this county. Estimates of potential noise impact of new systems should be provided to the appropriate jurisdiction prior to commitment to a particular mode.

Regional Agencies

Operating in the framework established by federal and state governments and in cooperation with local governments, regional agencies should facilitate the exchange of technical data between local governments, identify multi-jurisdictional noise problems, provide guidelines for development of local noise control programs, and coordinate the resolution of regional noise problems.

State Government

Operating in coordination with the federal and local governments, the state should continue to establish vehicle noise limits where possible and necessary. It also should provide funding and technical assistance to the local agencies. The state should conduct additional noise abatement research, incorporate noise regulations in their regulative and licensing functions, and implement those noise abatement techniques most effective on state highway facilities.

Federal Government

The federal government, acting in concert with the state and local governments, should establish noise emission limits for all transportation vehicles. It should provide funding and technical assistance for the implementation and enforcement of noise programs at the state and local levels. The federal government also should develop model noise ordinances, standardize noise measurement and evaluation methods, and expand its research efforts in support of the local governments' efforts.

E. CONSTRAINTS, CAPABILITIES AND FEASIBILITY

This section of the element summarizes the constraints and capabilities for implementing a countywide noise abatement program.

Constraints

- Legal preemption by federal and state governments controlling the sources of noise.
- Jurisdictional and legal limitations to implementing a program within cities.
- Limited knowledge of the effects of noise by the public.
- Lack of existing economic incentive programs to encourage the manufacture of low noise-emission transportation vehicles.
- Limited finances.
- Large developed areas which are interspersed with many major transportation facilities.

Capabilities

- Citizen participation process.
- Large tax base.
- Considerable political influence.
- Authority to control and review county administered transportation projects.
- Authority to coordinate, approve, fund, and construct transportation facilities.
- Authority over land use.

Feasibility

The feasibility of this program is dependent on public acceptance and cooperation, availability of funds, cooperation and coordination of all private and governmental entities, and the development and use of adequate technology.

F. COSTS AND FUNDING

The intensification of governmental roles in transportation noise abatement will require some additional cost and funding commitments on the part of the various levels of government identified above. The major costs to the county and local

jurisdictions will be to staff, train, and organize a noise abatement group which will administer, coordinate, and police the noise programs. Analysis should be made on how the recommended roles can be accommodated within existing resources and what changes and additional costs will be required to take on the new roles. Additional financial programs which assess the costs against the producers of noise will need to be legislated and the funds made available to the local agencies to cover administrative costs.

G. IMPLEMENTATION STRATEGIES

Success in implementing a countywide noise abatement program hinges on recognition of the problem, availability of funds, and the ability to reduce the noise levels emitted by transportation vehicles or separate noise sources from noise receivers. Key strategies will include:

- Public education of the magnitude of the noise problem within the county.
- Funding of noise abatement programs.
- Initiation and implementation of programs to reduce transportation noise.
- Prevention of noise intrusions into "quiet" areas.
- Development of incentive programs to achieve compliance.

H. USE OF THE NOISE ELEMENT IN DECISION-MAKING

The role of the Noise Element is to outline the scope of the problem and serve as an advisory tool for county decision makers, the Board of Supervisors and county department heads as well as influence other private and governmental agencies. The element will serve as a device to achieve a consistent course of action and will influence the following types of activities:

- Establishing county policies and programs which will abate unwanted noise for existing and future transportation facilities.
- Making land use decisions and policies concerning private and public lands adjacent to existing or future transportation facilities.
- Developing, revising, and administering regulatory ordinances (building, noise, subdivision, and zoning) with respect to transportation noise.
- Coordinating with other governmental jurisdictions and interested citizens.

I. CONCLUSION

The establishment of an effective noise abatement program depends on willing coordination and cooperation with citizens, all levels of government, and private enterprise. With this willingness, the present trend of increasing noise, which leads to a degradation in the quality of life, can be reversed.

VIII. GLOSSARY

A-WEIGHTED NETWORK:
The ear does not respond equally to frequencies, but is less efficient at low and high frequencies than it is at medium or speech range frequencies. Thus, to obtain a single number representing the sound level of a noise containing a wide range of frequencies in a manner representative of the ears' response, it is necessary to reduce, or weight, the effects of the low and high frequencies with respect to the medium frequencies. The resultant sound level is said to be A-weighted, and the units are dBA.

A-WEIGHTED SOUND LEVEL:
See A-WEIGHTED NETWORK for an inclusive definition of dBA.

ACOUSTICS:
(1) The science of sound, including the generation, transmission, and effects of sound waves, both audible and inaudible. (2) The acoustics of an auditorium or of a room, the totality of those physical qualities (such as size, shape, amount of sound absorption, and amount of noise) which determine the audibility and perception of speech and music.

AVIGATION EASEMENT:
This is the legal right or privilege one obtains to utilize airspace for conducting an aircraft in flight from space to space.

BACKGROUND NOISE:
The total of all noise in a system or situation, independent of the presence of the desired signal. In acoustical measurements, strictly speaking, the term "background noise" means electrical noise in the measurement system. However, in popular usage the term "background noise" is also used with the same meaning as "residual noise."

COMMUNITY NOISE EQUIVALENT LEVEL:
CNEL is a scale which takes into account all the A-Weighted acoustic energy received at a point, from all noise events causing noise levels above some prescribed value. Weighting factors are included which place greater importance upon noise events occurring during the evening hours (7:00 P.M. to 10:00 P.M.) and even greater importance upon noise events at night (10:00 P.M. to 7:00 A.M.).

COMPOSITE NOISE RATING:
CNR is a scale which takes into account the totality of all aircraft operations at an airport in quantifying the total aircraft noise environment. It was the earliest method for evaluating compatible land use around airports and is still in wide use by the Department of Defense in predicting noise environments around military airfields. Basically, to calculate a CNR value one begins with a measure of

the maximum noise magnitude from each aircraft flyby and adds weighting factors which sum the cumulative effect of all flights. The scale used to describe individual noise events is perceived noise level (in PN dB); the term accounting the number of flights is 10 $\log_{10}N$ (Where N is the number of flight operations), and each night operation counts as much as 16.7 daytime operations. Very approximately, the noise exposure level at a point expressed in the CNR scale will be numerically 35-37 dB higher than if expressed in the CNEL scale.

DAY-NIGHT AVERAGE-SOUND LEVEL:
The L_{dn} is a scale equivalent to the CNEL with the exception that the evening period is deleted and all occurrences during 7:00 P.M. and 10:00 P.M. are included in the daytime period.

DECIBEL:
The decibel (dB) is a measure, on a logarithmic scale, of the magnitude of a particular quantity (such as sound pressure, sound power, intensity), with respect to a standard reference value (0.0002 microbar for sound pressure and 10^{-12} watt for sound power).

LOUDNESS:
1) A listener's perception of the intensity of a strongly audible sound or noise, 2) The factor n by which a constant-intensity sound or noise exceeds in the judgement of a listener the loudness of a 1000 H_z tone heard at a sound pressure of 40 dB above threshold, 3) The judgement of intensity of a sound by a human being. Loudness depends primarily upon the sound pressure of the stimulus. Over much of the loudness range it takes about a threefold increase in sound pressure (approximately 10 dB) to produce a doubling of loudness. The unit is the sone.

NOISE:
Any sound which is undesirable because it interferes with speech and hearing, or is intense enough to damage hearing, or is otherwise annoying.

STATISTICAL A-WEIGHTED NOISE LEVEL:
This scheme represents the A-weighted noise level, dBA, which is exceeded a percentage of the time over the duration of the sample noise measurement. Thus, L_{99}, L_{90}, L_{50}, L_{10}, L_1, denote the value of the noise level exceeded 99, 90, 50, 10, and 1 per cent of the time.

RAPID TRANSIT:
A mode of mass public transportation accomplished by various types of vehicles; i.e., trains or buses. Such a mode transports patrons more efficiently and quickly than an independent form of transportation for each customer.

IX. FOOTNOTES

1. Wyle Laboratories, Transportation Noise and Noise from Equipment Powered by Internal Combustion Engine, Washington: Environmental Protection Agency, (December 31, 1971), pp. 119-122.

2. From a telephone conversation with the Los Angeles City Library reference desk, March 2, 1974.

3. Senator Mark O. Hatfield, "The Now Sound - Noise " Catalyst, Vol. 1, No. 3 (Fall, 1970), p. 25.

4. Transportation Noise and Its Control, Washington: U.S. Department of Transportation, (June, 1972), p. 21.

5. Wyle Laboratories, Transportation Noise and Noise from Equipment Powered by Internal Combustion Engines, op. cit., pp. 10, 54, 76, 93, 134.

6. From a telephone conversation with the California Department of Transportation information office, November 15, 1973.

7. From an inspection of Department of Motor Vehicle records at 3500 South Hope Street, Los Angeles, November 13, 1973.

8. Wyle Laboratories, Transportation Noise and Noise from Equipment Powered by Internal Combustion Engines, op. cit., pp. 133-134.

9. Northrop Corporation, Electro-Mechanical Division, Los Angeles County Airports Noise Study - Part 1, Anaheim: Northrop Corporation, (November 15, 1972), pp. 4-5.

10. Enclosed in a letter from the Federal Administration to Mr. I.L. Morhar, November 29, 1973.

11. Wyle Laboratories, Transportation Noise and Noise from Equipment Powered by Internal Combustion Engine, op. cit., pp. 8, 12.

12. Ibid., p. 53.

13. Ibid.

14. Ibid., p. 62.

15. Ibid.

16. Central Institute for the Deaf, Effects of Noise on People, Washington: Environmental Protection Agency, (December 31, 1971), p. 18.

17. Ibid., p. 129.

18. Ibid., p. 130.

19. Noise Control Act of 1971 and Amendments--Hearings Before the Subcommittee on the Environment of the Committee on Commerce, Washington: U.S. Government Printing Office, (1971) p. 79.

20. Central Institute for the Deaf, op. cit., p. 55.

21. Wyle Laboratories, Home Soundproofing Pilot Project for the Los Angeles Department of Airports, El Segundo: Wyle Laboratories, (March, 1970), p. 19.

22. Noise Pollution, Senate Hearings on S1016, S3342, and HR11021, Washington: U.S. Government Printing Office, (1972), p. 523.

23. From a telephone conversation with Mr. Richard Laughlin of California Department of Transportation, April 30, 1974.

24. James D. Collins, "California Tackles Highway Noise," Civil Engineering, Vol. 43, No. 11 (November, 1973), p. 58.

25. California, Government Code, ch. 3, art. 5, sec. 65302(g).

26. Environmental Protection Agency, comp., Summary of Noise Programs in the Federal Government Washington: Environmental Protection Agency, (December 31, 1971), DOT-OS-A9-018.

27. California, Administrative Code, title 4, ch. 9, subch. 6, arts. 5, 8, 9, secs. 5035, 5050, 5060.

28. Northrop Corporation, Electro-Mechanical Division, op. cit., pp. 1-12 to 1-20.

29. California, Administrative Code, title 4, ch. 9, subch. 6, arts. 8, 10, secs. 5050, 5065.

30. Los Angeles Department of Airports, 1973 Annual Report, Los Angeles: Department of Airports, (1973), p. 2.

31. California, Administrative Code, title 4, ch. 9, subch. 6, art. 1, sec. 5005.

32. Federal Aviation Administration, "Part 36- Noise Standards: Aircraft Type Certification," Federal Register, Vol. 34, (November 18, 1969), p. 18355.

33. Environmental Protection Agency, The Noise Control Act of 1972 Highlights, Washington: U.S. Government Printing Office, (December, 1972), pp. 3-4.

34. Prina, Edgar L., "FAA Plans Noise Regulations," Glendale News-Press, (March 28, 1974), p. 2.

35. Wyle Laboratories, Transportation Noise and Noise from Equipment Powered by Internal Combustion Engines, op. cit., pp. 35-37.

36. Environmental Protection Agency, The Noise Control Act of 1972 Highlights, op. cit., pp. 2-3.

37. California, Vehicle Code, divs. 11, 12, secs. 23130, 27160.

38. "Proposed EPA Truck Noise Standards," Institute for Equipment Services Newsletter, (Fall, 1973), p. 4.

39. California, Streets and Highways Code, art. 2, sec. 75.7.

40. Ibid., sec. 216.

41. Federal Highway Administration, Noise Standards and Procedures, Policy and Procedure Memorandum 90-2, (February 8, 1973), par. 5.

42. Federal Highway Administration, "Noise Procedures and Standards," Federal Register, Vol. 39, No. 37, (February 22, 1974), p. 6696.

43. California, Public Utilities Code, art. 3.5, sec. 21670.2.

44. Los Angeles Department of Airports, 1973 Annual Report, loc. cit.

45. California, Health and Safety Code, div. 13, part 1.5, ch. 2 sec. 17922.6.

46. California, Administrative Code, title 25, ch. 1, subch. 1, art. 4 sec. 1092 (e).

47. Ibid., sec. 1092 (b).

48. Los Angeles Department of Airports, 1973 Annual Report, loc. cit.

49. Environmental Protection Agency, The Noise Control Act of 1972 Highlights, op. cit., p. 3.

50. Environmental Protection Agency, "Low Noise-Emission Products," Federal Register, Vol.39, No. 36, (February 21, 1974), pp. 6670-1.

51. Environmental Protection Agency, comp., Summary of Noise Programs in the Federal Government, op. cit., (See programs under NASA, DOT, USDA, HEW).

52. Ibid., (See HUD Federal Noise Program Information, secs. II.B.1.d., II.B.2.e., II.B.2.g.).

X. BIBLIOGRAPHY

Beranek, Leo L. "Noise", Scientific American, Vol. 25, No. 6, December 1966, pp. 66-76.

Bragdon, Clifford R. Noise Pollution: the Unquiet Crisis, Philadelphia: University of Pennsylvania Press, 1970.

Central Institute for the Deaf. Effects of Noise on People, Washington: Environmental Protection Agency, December 31, 1971.

Collings, James D. "California Tackles Highway Noise", Civil Engineering, November 1973, pp. 56-59.

Environmental Protection Agency, compiler, Summary of Noise Programs in the Federal Government, Washington: Environmental Protection Agency, December 31, 1971.

General Plan Guidelines, Sacramento: California Council on Intergovernmental Relations, September 1973.

Gordon, Colin G., William J. Galloway, B. Andrew Kugler, and Daniel L. Nelson, Highway Noise: A Design Guide for Highway Engineers, Washington: Highway Research Board, 1971.

Harmsen, Stephen M., "One City's Answer to Noise Pollution," Waste Age, September/October 1973, pp. 70-71.

Hatfield, Senator Mark O., "The Now Sound-Noise.," Catalyst, Vol. 1, No. 3, (Fall, 1970), pp. 24-27.

Highway Noise Measurement, Simulation, and Mixed Reactions, Washington: Highway Research Board, 1969.

Los Angeles Department of Airports 1973 Annual Report, Los Angeles: City of Los Angeles Department of Airports, 1974.

National Bureau of Standards, Fundamentals of Noise: Measurement, Rating Schemes, and Standards, Washington: Environmental Protection Agency, December 31, 1971.

National Bureau of Standards, The Economic Impact of Noise, Washington: Environmental Protection Agency, December 31, 1971.

National Bureau of Standards, The Social Impact of Noise, Washington: Environmental Protection Aency, December 31, 1971.

Noise Control Act of 1971 and Amendments: S.1016 and S.1566, 92nd Congress, Serial No. 92-48, Parts 1 and 2, Washington: U.S. Government Printing Office, 1972.

Noise Pollution (Senate Hearings on S.1016, S.3342 and HR.11021 March-April, 1972), Washington: U.S. Government Printing Office, 1972.

Northrop Corporation, Los Angeles County Airports Noise Study, Part 1-Problem Definition, Anaheim: Northrop Corporation, November 1972.

Prina, Edgar L., "FAA Plans Noise Regulations," Glendale News-Press, March 28, 1974, p. 2.

Public Works Bulletin, Sacramento: California Department of Public Works, May 1972.

Report to the President and Congress on Noise, Washington: Environmental Protection Agency, March 1972.

Schultz, Thedrore J., and Nancy M. McMahon Noise Assessment Guidelines Washington: Department of Housing and Urban Development, August 1971.

Shea, William F., Proposed Advisory Guidelines for Land Use Planning in the Vicinity of Airports, Sacramento: Department of Transportation, October 31, 1973.

Swing, Jack W., and Donald B. Pies, Assessment of Noise Environments Around Railroad Operations, El Segundo: Wyle Laboratories, July 1973.

The Noise Control Act of 1972 Highlights, Washington: Environmental Protection Agency, December 1972.

"Traffic Noise," Federal Register, Vol. 38, No. 178, September 14, 1973, p. 25696.

Transportation Noise and Its Control, Washington: U.S. Department of Transportation, June 1972.

Wakefield, Ron, "Noise," Road & Track Magazine, March 1972

Wyle Laboratories, Community Noise, Washington: Environmental Protection Agency, December 31, 1971.

Wyle Laboratories, Final Report on the Home Soundproofing Pilot Project for the Los Angeles Department of Airports, El Segundo; Wyle Laboratories, March 1970.

Wyle Laboratories, Rationale for Selection of a Noise Rating Scale, El Segundo: Wyle Laboratories, September 1973.

Wyle Laboratories, Transportation Noise and Noise from Equipment Powered Internal Combustion Engines, Washington: Environmental Protection Agency, December 31, 1971.

Young, Murray F., and Donald L. Woods, "Sources and Measurement of Highway Noise," ASSE Journal, September 1972.

PART II draft environmental impact report

INTRODUCTION

Pursuant to Division 13, Chapter 2.6, Section 21083 of the Public Resources Code, the Secretary for Resources adopted amended state guidelines for Environmental Impact Reports on December 17, 1973. Section 15037 (a)(1) of these guidelines defines a project as including the adoption of local General Plans or elements thereof pursuant to Government Code Sections 65100-65700. As a result of this requirement, the County of Los Angeles, as well as other governmental jurisdictions, are required to assess the environmental impact of the adoption of General Plans or their elements. This report analyzes impacts which may occur, based on available information, if the Noise Element for Los Angeles County is implemented.

The Noise Element is one of four new elements which was required to be adopted by September 20, 1974. The County of Los Angeles has obtained approval from the Council on Intergovernmental Relations to extend this adoption deadline to March 20, 1975, due to the fact that the mandatory elements require an extensive and comprehensive revision of the entire General Plan. Also, it was necessary to allow adequate time for the public to review the subject matter of this element. The Board of Supervisors ordered the adoption of this and the other three new Elements--Seismic Safety, Safety, Scenic Highways--by December 20, 1974. This element will be incorporated into a comprehensive general plan document subsequent to its adoption.

The Noise Element identifies the problems and issues of transportation noise in this County and proposes that certain goals be established, policies initiated, and programs implemented to bring the problem under control. This Environmental Impact Report attempts to analyze the effects of the policies and program recommendations on the environment in this County.

This EIR was prepared in accordance with State and County guidelines to be an information document and a full disclosure of environmental effects. The report does not imply that the Noise Element is entirely beneficial, detrimental, or of no significance.

Additional information and identification of impacts may be provided by the individual reports of the other jurisdictions within this County which are also required to prepare a similar report. It is the intent of this EIR to consider the impact of this element on all jurisdictions located within this County.

SECTION I - PROJECT DESCRIPTION

A. LOCATION

The Noise Element of the Los Angeles County General Plan encompasses the entire County of Los Angeles, which covers 4083 square miles. The county is bounded by Ventura County on the west, Kern County on the north, San Bernardino County on the east, Orange County on the southeast, and the Pacific Ocean on the west and south. The County jurisdiction also includes the islands of Santa Catalina and San Clemente.

Los Angeles County is the hub of the Southern California region as defined by the jurisdictional area of the Southern California Association of Governments (SCAG). The county comprises only 10.6 percent of this region's area, but contains 70 percent of the population (see page 55). The county includes 78 incorporated cities and hundreds of special districts. Urban land uses occupy about 1,100 square miles, the majority of which is in an extensive urban area south of the San Gabriel Mountains.

The unincoprorated area is 3,000 square miles and includes areas where major growth and alternation of the natural environment will likely occur. These areas include Malibu, Calabasas, Antelope Valley, Newhall-Saugus, and Puente Hills, all of which are growing and lie within the direct planning jurisdiction of the Board of Supervisors.

Los Angeles County is the principal commercial and industrial area on the West Coast. As such, it has great significance as a center of commerce through which many goods and products flow to all sectors of the nation and the world. This commercial status requires extensive transportation facilities to sustain its operations.

In addition, approximately one-fourth of the county (which is primarily located in the coastal plains and inland valleys) is highly urbanized with residential, commercial and industrial areas which also require extensive transportation facilities to sustain the need to move people and goods.

B. DESCRIPTION OF THE ELEMENT

The element identifies the problems, issues, assets and opportunities to be considered in a transportation noise-control program; established goals and policies; and recommends action programs which, if implemented, will lower the noise in this county to levels consistent with health and quality of life goals.

REGIONAL JURISDICTION OF SOUTHERN CALIFORNIA ASSOCIATION OF GOVERNMENTS

The Noise Element will eventually be incorporated into the Los Angeles County General Plan and will serve as a tool for planners, administrators and legislators to reduce the impact of transportation noise.

The requirements of this element are set forth in the State of California Government Code, Chapter 3, Article 5, Section 65302 (g).

C. NEED FOR THE ELEMENT

Within this county, there are numerous major transportation facilities which contribute appreciably to the noise environment around us. A brief synopsis of these facilities follows:

FIGURE 9

MAJOR TRANSPORTATION FACILITIES IN LOS ANGELES COUNTY

Highways

Type	No. of Miles (1973)	Vehicle Miles Traveled Daily (Millions)
Arterial Highways	4,000	57.9
State Highways	428	6.9
Expressways	12	0.2
Freeways	482	80.3
TOTAL	4,922	145.3

Railroads

	Number (1973)
Mainline Miles	560
Yards	22

Airports

	Number	Operations Daily
Commercial and General Purpose	24	
Seaplane Bases	3	
	27	10,000+

All of the above transportation facilities accommodate the vehicles and aircraft of commerce in the Los Angeles community and, by virtue of their locations and use by the various transportation vehicles, propagate a significant amount of noise into the surrounding community.

This element and its technical backup report identify the noise impacts of the various transportation facilities and recommend goals, policies, and programs, which, if endorsed as a viable plan of action and set in motion, will begin to alleviate the noise impact of these facilities.

D. PRESENT PROGRAM

As stated in the introduction to this EIR, the Noise Element is one of four new elements required by state law to be incorporated in the revised general plan.

It is important that this element be evaluated in the context of the total general plan effort since many of the policies of land use, transportation, environmental quality and scenic highways are being interrelated with the policies and programs proposed for this element.

State Council on Intergovernmental Relations guidelines indicate that there is a direct relationship of this element to the Transportation, Land Use and Housing Elements of the general plan. The policies proposed for this element could effect problems for these various elements and the resolution of potential conflicts is the purpose of the comprehensive revision to the general plan now in progress. The effective resolution of these conflicts will in large measure be dependent on future studies and actions which will correlate the numerous existing noise programs of the multiple jurisdictions operating in this county and establish noise levels consistent with health and quality of life goals. A number of existing noise control programs, which will achieve some measure of noise abatement, are also enumerated and documented in the Noise Element.

E. FUTURE PROGRAMS

This element, because of cost and technological and time constraints, was restricted to the minimum requirements contained in Section 65302(g) of the Government Code. Community noise studies, correlation of the data compiled in this first effort, periodic updating of the data, and assessment of the effectiveness of proposed and existing programs in the future are some of the recommended actions to be undertaken to implement this element. Future recommended programs include an emphasis on a coordinated approach by all jurisdictions, with the county assuming a lead role in this effort.

Priority actions by the county include an emphasis on the following: control of noise at the source, centralization of noise control responsibility, purchase of quieter vehicles, new ordinances which deal with noise problems, enforcement of noise regulations, public information about the problems of noise, additional studies, coordination with other governmental agencies and standardization of individual programs.

F. METHODOLOGY

The initial step in the environmental assessment procedure was the identification and assessment of the environmental impacts that would result from the implementation of the Noise Element for Los Angeles County. This process followed a logical sequence and was an integral part of the element preparation. First, the noise impacts were quantified by graphical noise contours for line sources such as railroads, freeways and highways. Noise contours were also constructed for the more fixed sources of noise such as airports and railroad yard facilities. This procedure revealed a significant impact on the community for these sources of noise. Second, four alternative policy sets were developed and assessed on the basis of environmental effects. These alternatives ranged from consideration of what could be expected if nothing were done about the noise problem to a consideration of what environmental effects would take place if noise were completely eliminated.

The next step was to evaluate each individual policy set alternative to determine which set would achieve the desired result - control of transportation noise - with the least disruption of the existing and future environment.

The Department of Regional Planning's Ad Hoc Review and General Plan Program Management Review Committees also reviewed the subject matter and recommended certain changes in the policies and programs.

The preferred policy set and implementation programs were then submitted for review to the Citizen's Planning Council (CPC), the General Plan Policy Review Board (GPPRB), which consisted of representatives from selected county departments, and the Los Angeles County Association of Planning Officials (LACAPO). These organizations examined the material in some detail and suggested changes and additions, many of which were incorporated into the proposed element.

The resultant element will now be submitted to the public for additional review and comment through the public hearing process and eventually will be presented to the Board of Supervisors for adoption.

SECTION II - ENVIRONMENTAL SETTING

Los Angeles County is a region of topographic diversity quite unlike any other comparable area on the North American Continent. The terrain of the region includes coastal beaches, sand dunes and marshes, coastal plains, elevated marine terraces, broad valleys, gentle high plains and dry lake beds. Elevations range from sea level to 10,000 feet; and the coast, the desert and high mountains all lie in close proximity to each other. This terrain may be divided into four major natural subregions: the coastal lowlands, the mountains, the desert and the offshore islands.

The county also has a great climatological diversity. The "Mediterranean" climate exists only in part of the county. This area is in a transition zone between the dry subtropic and the moist, north temperate climate zones. During the long summer, arid subtropical weather conditions prevail, typified by sunny skies and drought. During the short winter season, temperate weather patterns predominate, characterized by the passage of warm and cold fronts accompanied by rain in the coastal lowlands and rain and snow in the mountains and deserts. On the basis of factors such as rainfall, temperature, and wind patterns, several climatic regions can be recognized in the county, which in turn can be related to the basic regional patterns.

The vegetation patterns of the county are very complex in form, arrangement, and number of species. Regional differences are also quite distinct. The coastal lowlands have been largely cleared of natural species and are covered with exotic (introduced) species associated with urban and agricultural uses. Only the Transverse Hill chain retains its natural cover of grass, coastal sage and chaparral.

The Central Mountains have a complex vegetation pattern of zones differentiated by elevation and exposure. Higher elevations and north slopes are covered with coniferous and oak forests and woodlands with chaparral belts, sagebrush and grassland zones between them and the developed lowlands.

The northern deserts have a distinctive cover of grasslands, and desert and alkali sink shrubs. Pinon-juniper woodland, desert safebrush, and chaparral blanket the southwestern desert fringes.

Vegetation is an important part of the varied habitat types which exist in Los Angeles County. A habitat includes all the environmental factors which exist in an animal's dwelling place, all of which are interdependent and interrelated. Twenty-six habitat types in the county have been identified by the Los Angeles County Environmental Resource Committee. Some of these are still fairly widespread while others are critically endangered. Each is composed of an interrelated complex of physical conditions, vegetation, characteristic plants and animals, and for each the committee also identified significant, rare and endangered species of plant and animal.

Examples of these habitats which are of significant ecological importance and whose preservation is essential have been included in areas delineated as "Significant Ecological Areas". These designations reflect the collective judgement of scientists from many disciplines and consider factors such as public interest, environmental values special to each area, fragility of the habitat, the location, degree of present protection, vulnerability and rarity, and the interrelationships between the areas. Boundaries for these areas have not been precisely delineated and do not reflect all aspects of ecological concern. Some areas are already critically endangered and immediate preservation is extremely important, while others are more resistant to development or are more common in the County. (An example would be the very fragile, critically endangered fresh-watermarsh in the relation to the hardier, more widespread chaparral.)

As an urban region, Los Angeles County is of global importance, being the largest urban complex on the Pacific Coast. It is also the heart of Southern California. It is unique in many ways, perhaps most for the pace and scale of its urbanization and development. It is this aspect of its environment that contributes most to the adverse noise environment of Los Angeles County. In less than a century, the County has transformed from a ranch and agricultural area to a vast metropolis.

Now, one out of every 3 Californians and 7 out of every 10 residents of the SCAG region live in Los Angeles County. Nearly all of the County's 7 million residents live south of the San Gabriel Mountains in a massive urban area of approximately 1100 square miles. The urbanized portion of the County could hold the cities of Chicago, Denver, Detroit, New York, Philadelphia, Pittsburg, and St Louis.

A major impetus for the growth pattern in the County came from the completion of the transcontinental railroad after the Civil War. New transportation systems and the introduction of commercial farming supported a much denser population and stimulated the development of towns and small cities to serve the agricultural areas. Another wave of migration was prompted by World War I. The most spectacular growth, however, was during the post World War II years, as returning servicemen settled in the area, contributing to the vast housing and baby boom. The County's population grew 49% during the forties and 46% during the fifties, with the ingress of migrants accounting for an overwhelming portion of the increase. This growth rate slowed appreciably in the 1960's and is now nearly at a standstill.

By 1970 the Los Angeles area economy had grown to become the largest, most important trade and financial center in the Western United States. The continuing maturation and diversification of the area economy is reducing the onetime dependency on aerospace and defense industries. The maturity and diversity can be witnessed by the increased location of corporate headquarters and financial institutions here. Main offices of 23 of the nation's 500 largest industrial firms are located here - an area containing the second busiest airport in the nation and two major sea ports.

The size and diversity of the economy is also reflected by the fact that approximately 40 percent of the 1970 state employment was located in Los Angeles County. In 1970 the estimated Los Angeles County employment was over 3,200,000. The changing distribution of the employment base is another indicator of the diversity and maturity of the Los Angeles area economy as shown below:

	1950	1960	1970
Manufacturing	25.76%	30.56%	26.05%
Trade	25.73	21.95	22.32
Service	18.40	18.71	21.88
Government	9.90	10.87	13.04

This size and diversity of the economy has meant increased economic opportunities for county residents. This is reflected by the fact the Los Angeles metropolitan area was second in the nation in the growth of disposable income in the decade preceding 1970. Additionally, the Los Angeles market area spent in excess of 78 billion dollars for retail sales. This represented 45 percent of the total state retail sales in 1970.

This brief overview of the Los Angeles region shows the economy to be a large, viable and dynamic system of regional and national importance which has the potential for continued growth and opportunities.

Intermeshed in this highly industrialized area is man's only refuge from the hectic pace of the day--home. Nearly 58 percent of the county's urbanized area is residential of which 67 percent of the units are single family residences and 33 percent are multiple dwellings. Traditionally, Los Angeles County has had a high percentage of low density single family residences. However, since 1970, 92 percent of new residential developments have been multiple units, which seem to indicate a new residential trend. The 1970 SCAG land use inventory showed 63 percent of the urbanized land within the regional area in residential, seven percent in commercial, nine percent in industrial, and 20 percent in other related uses. Only four percent of the region's 38,000 square miles were urbanized, with approximately one-quarter of the remaining land available for development.

In addition to its economic, social and cultural interrelationships, the region is functionally interrelated by a vast transportation system of freeways, railroad, transit and surface streets. The extant noise environment has clearly emerged as a by-product of increased population, urbanization, industrialization, and the accompanying satisfaction of transportation needs.

As was enumerated in the Project Description Section of this report, there are numerous transportation facilities which contribute to the noise environment within this County. These include:

- Freeways which cross the Coastal Basin and inland valleys, carrying large volumes of motor vehicles and which facilitate the efficient transportation of people and goods statewide, interregionally and within the County.

- Master Plan Highways or arterials which are laid out on a grid system in the urbanized or developed areas of the County to facilitate the transportation of people and goods by motor vehicle within and between neighborhood communities and counties. These facilities also interchange traffic with the freeway system and serve a subordinate function as collectors and distributors of the traffic from that system.

- Railroads which cross the county carrying freight to terminal or staging areas where it is transferred to motor vehicles, cargo ships or other trains for trans-shipment to world, state, inter-county or local destinations. Certain of these facilities also accommodate passenger service to destinations within and out of state. These facilities also serve an important function in the transporting of people and goods into and from this county.

- Airports which can be classified into two major categories: commercial and general aviation. These facilities accommodate approximately 10,000 aircraft operations in this county daily and these operations are expected to increase to 15,000 daily by 1980. The aircraft that use these facilities transport over 22,000,000 passengers annually as well as goods of commerce to world, national, state, regional, and local destinations.

The typical noise propagated by the vehicles which use these facilities is shown in the chart on page 63.

Typical noise impacts from various transportation facilities in this county are shown in the cross sections and contour maps for the respective facilities shown on pages 64 to 70.

FIGURE 10

PRESENT NOISE EMISSION LEVELS FOR TRANSPORTATION VEHICLES

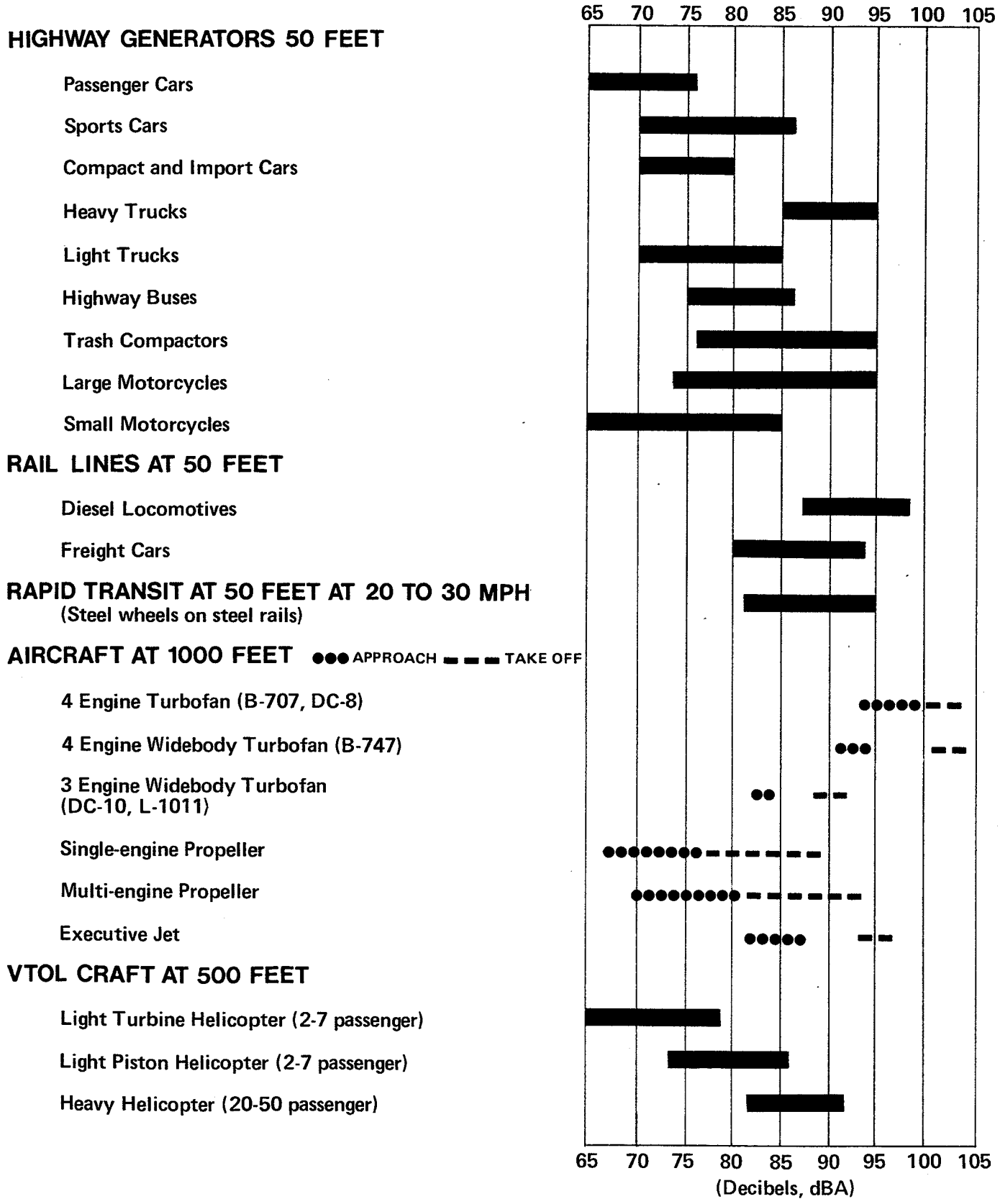


FIGURE 11

TYPICAL ARTERIAL HIGHWAY NOISE LEVELS (L_{10})

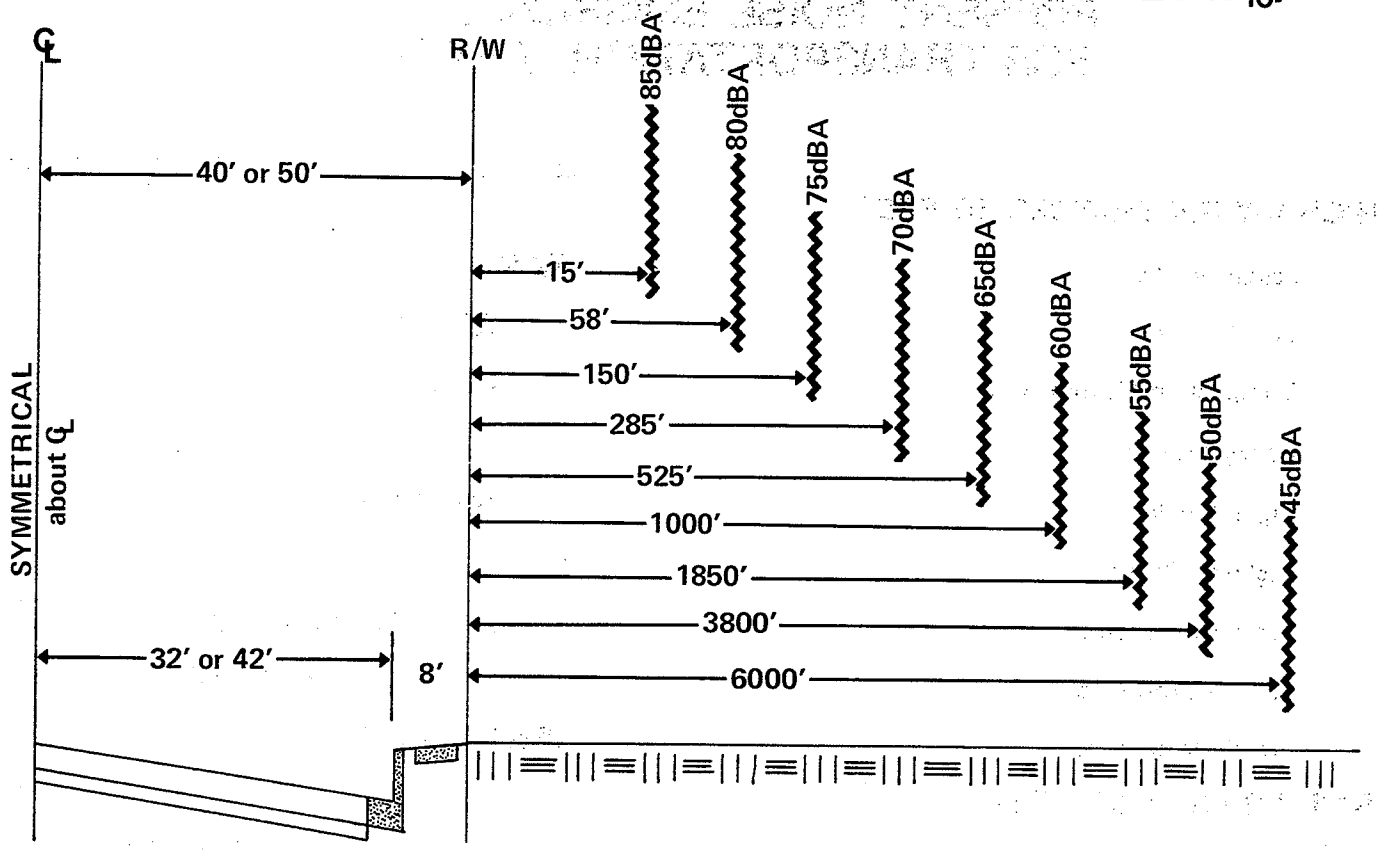
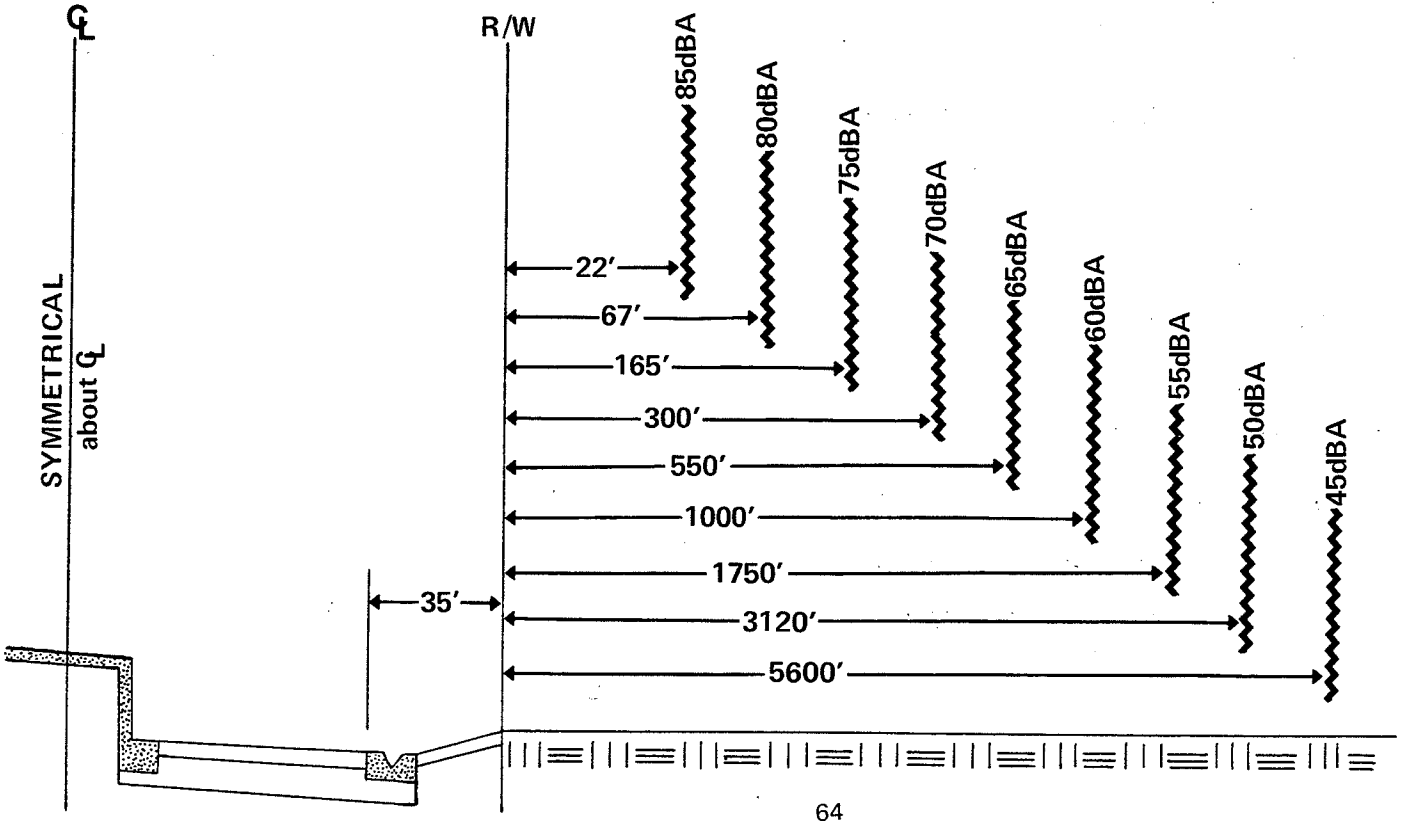


FIGURE 12

TYPICAL FREEWAY NOISE LEVELS(701A)



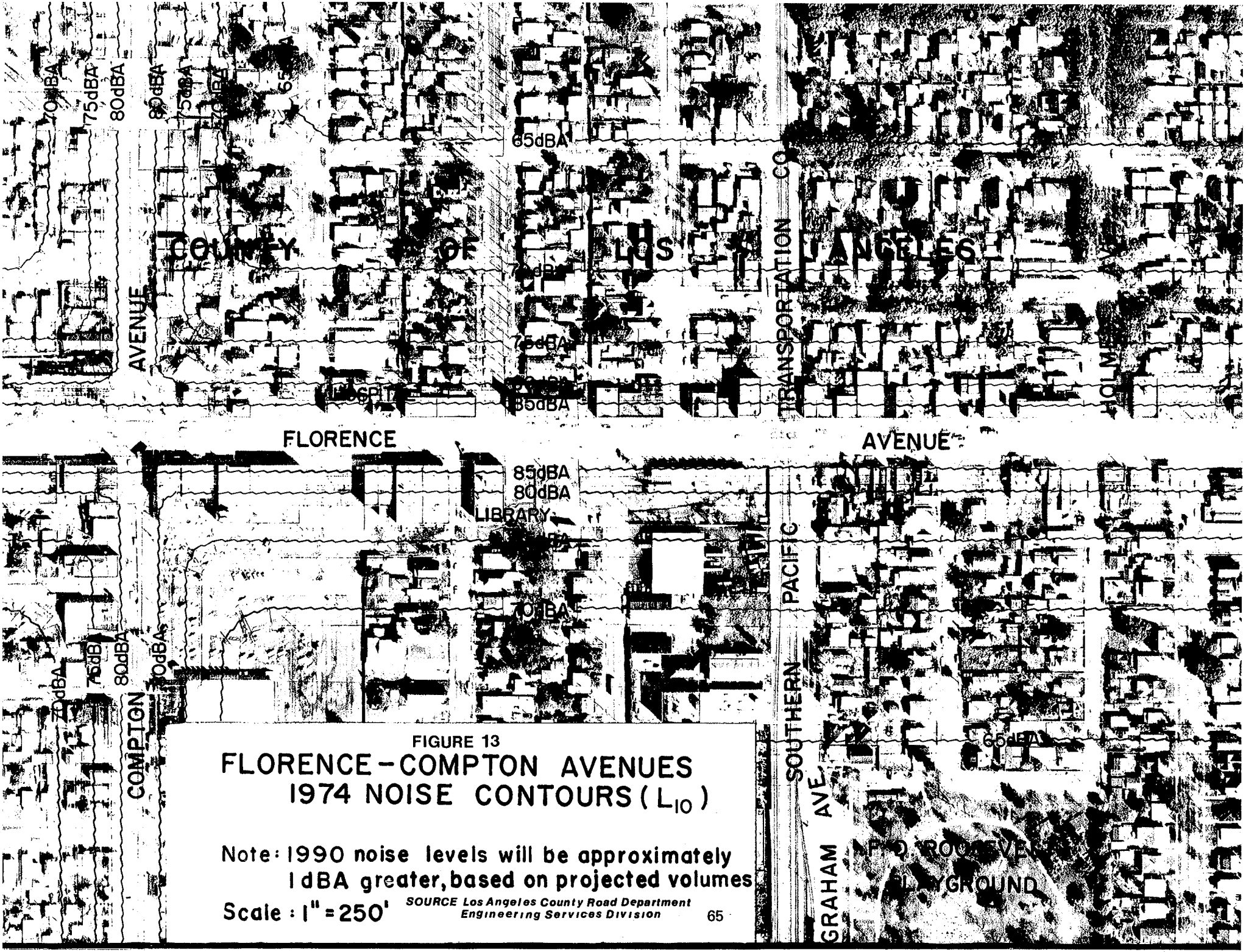


FIGURE 13

FLORENCE-COMPTON AVENUES 1974 NOISE CONTOURS (L_{10})

Note: 1990 noise levels will be approximately 1dBA greater, based on projected volumes

Scale: 1" = 250'

SOURCE Los Angeles County Road Department Engineering Services Division

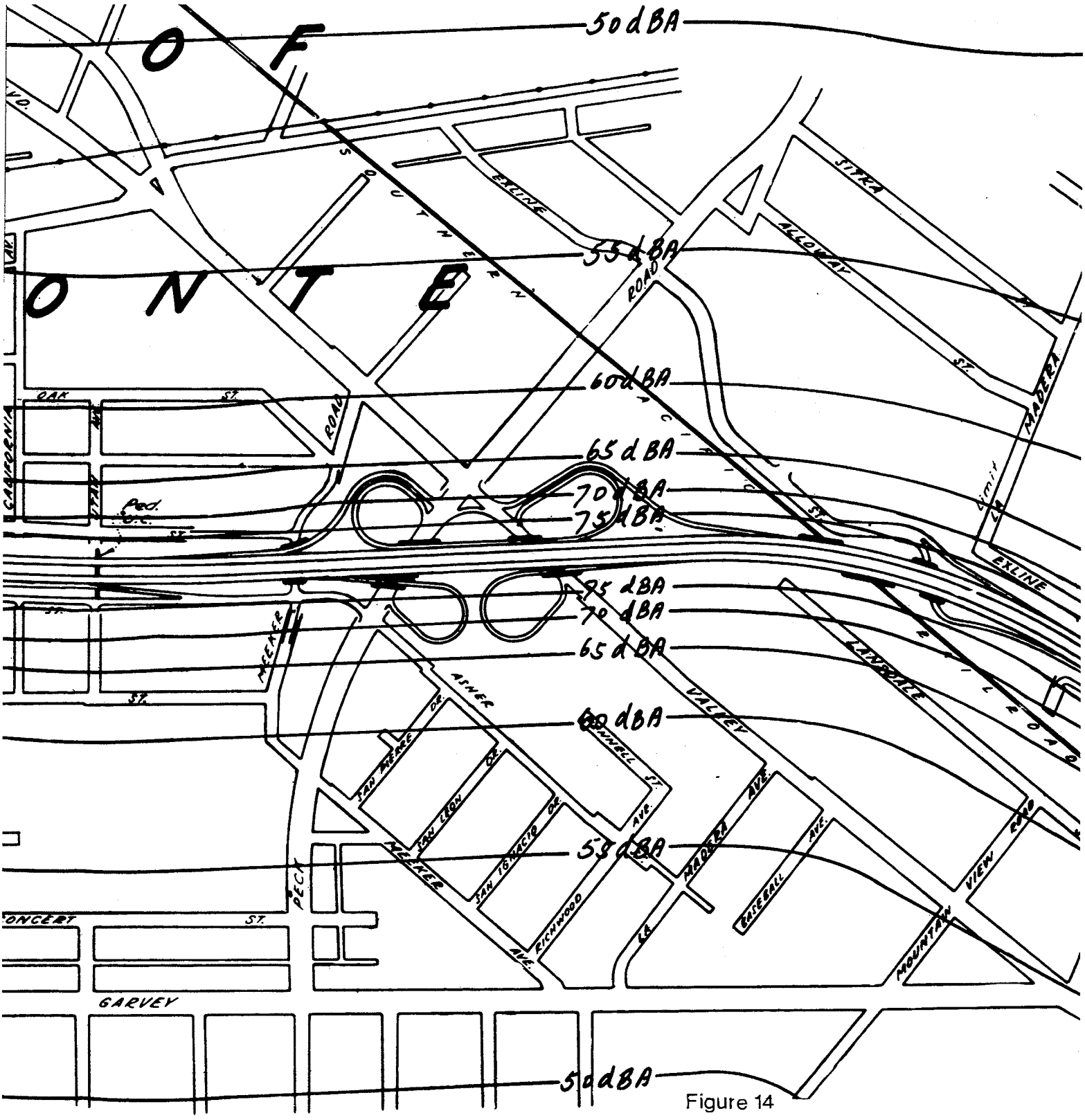


Figure 14

NOISE CONTOURS (701A) IN THE CITY OF EL MONTE GENERATED BY ROUTE 10 (SAN BERNARDINO FREEWAY)

STATE OF CALIFORNIA

DIVISION OF HIGHWAYS — DISTRICT VII

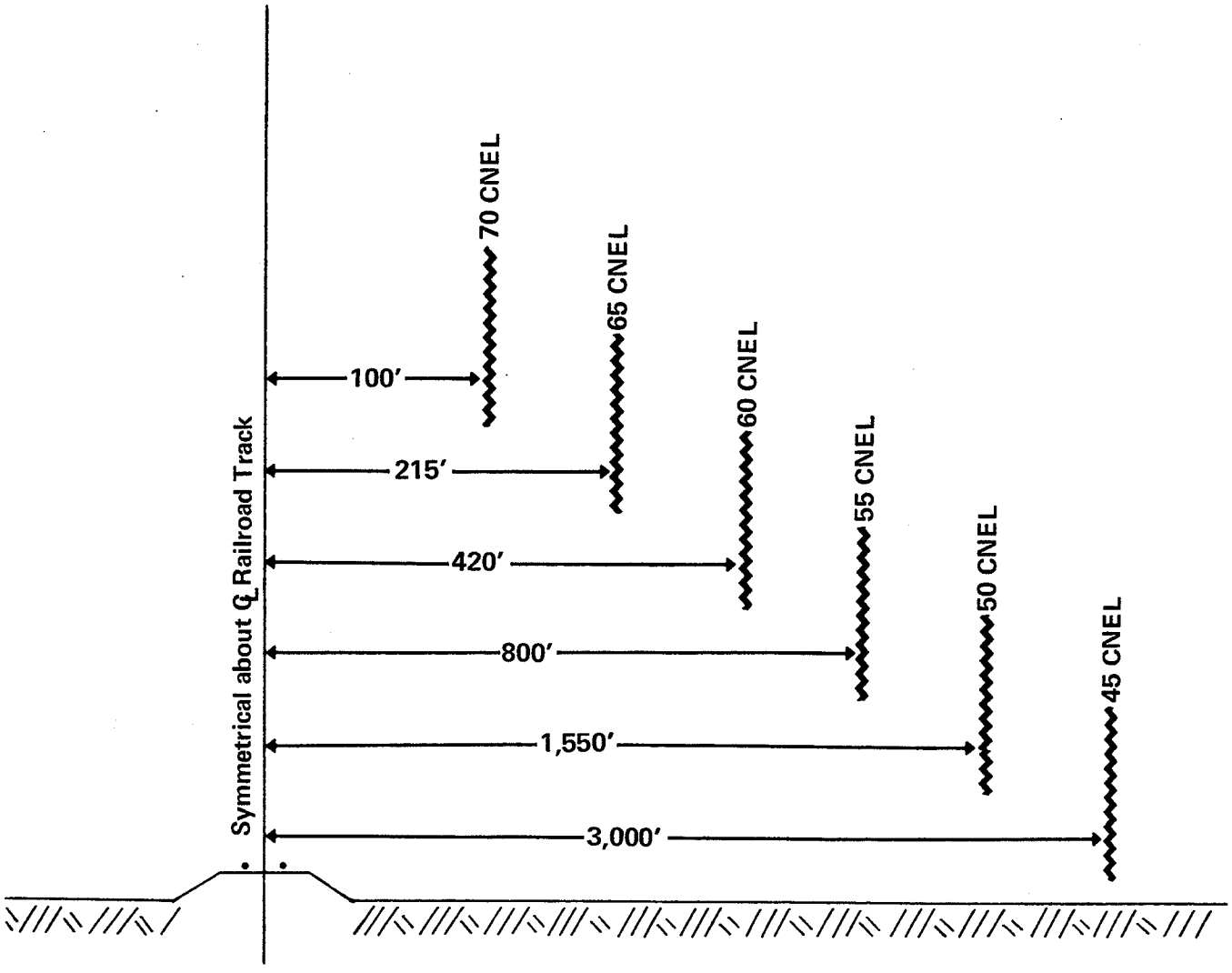
SCALE: 1" = 600'

NOTES

1. dBA Readings are:
   - For Diesel Trucks on State Highway Facility
   - Subject to ±6dBA Variation
   - Adjusted for Design and Grade
   - For Projected and Existing Mean Truck Noise Levels
2. Attenuation Provided by Intervening Buildings not considered
3. Variations Due to Noises from outside Highway R/W not included.

FIGURE 15

TYPICAL RAILROAD NOISE LEVELS (CNEL,dB)



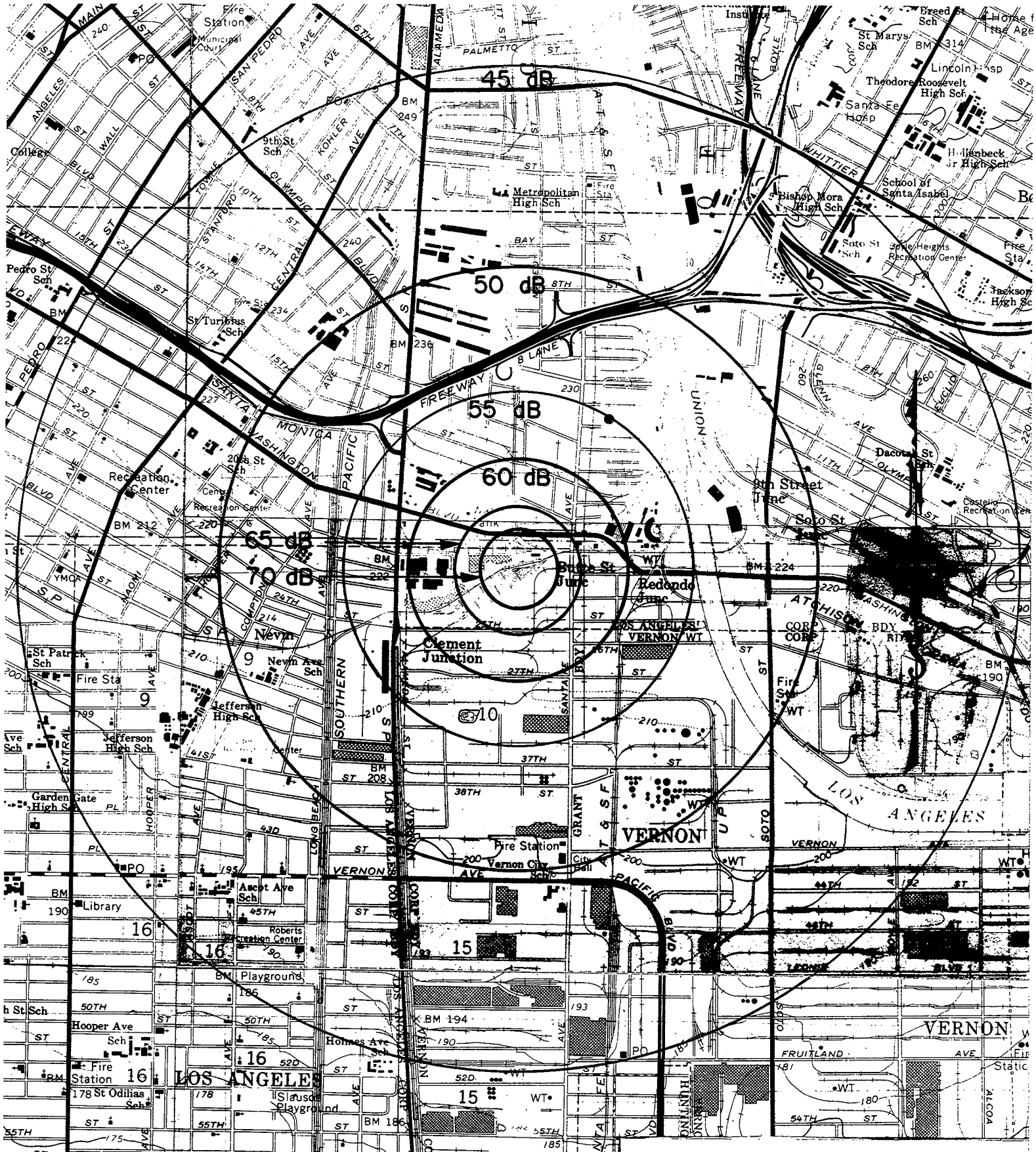


FIGURE 16

BUTTE STREET RAILROAD YARD

S. P. T. C.

1974 L_{dn} Noise Contours

Scale: 1"= 2000'

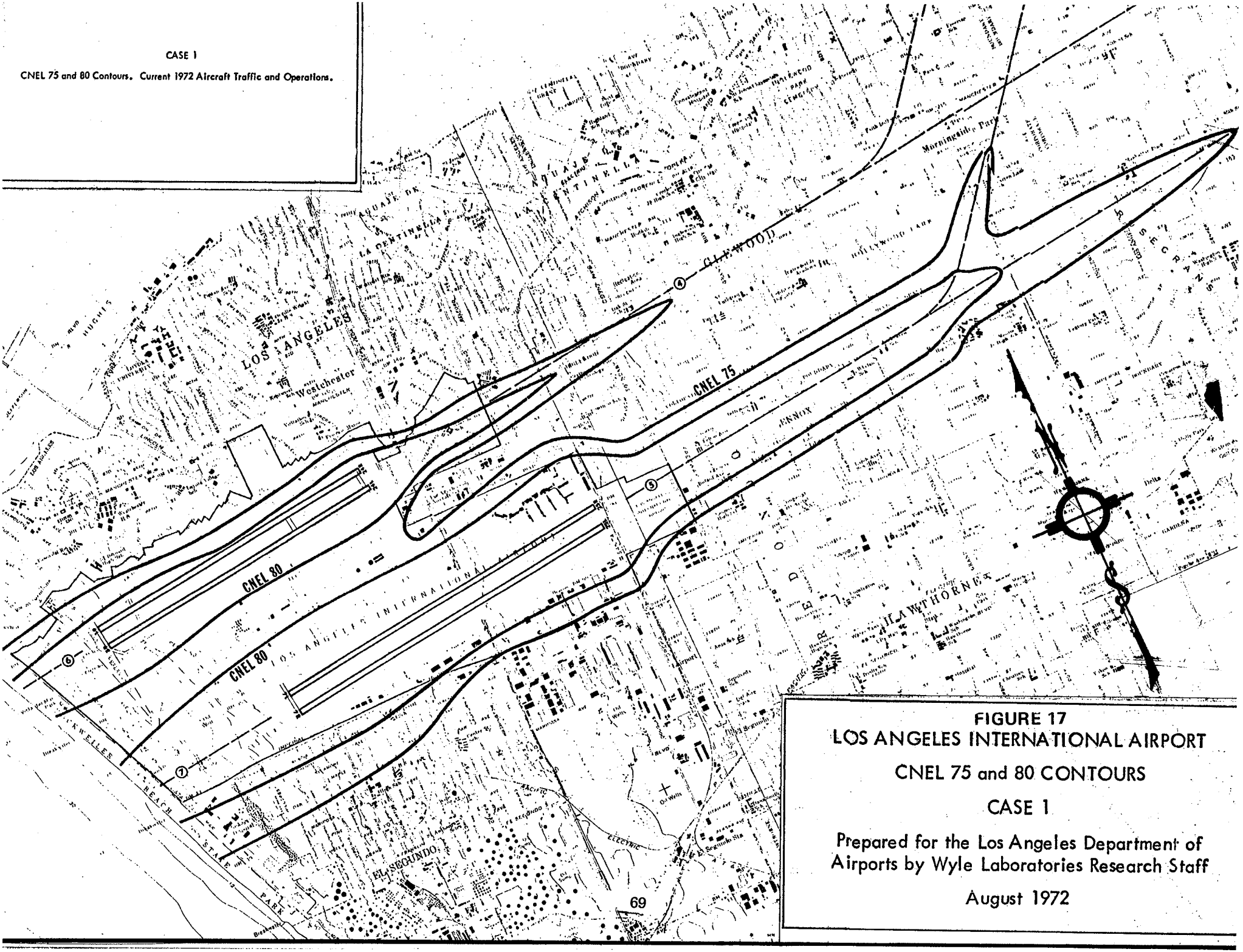


FIGURE 17

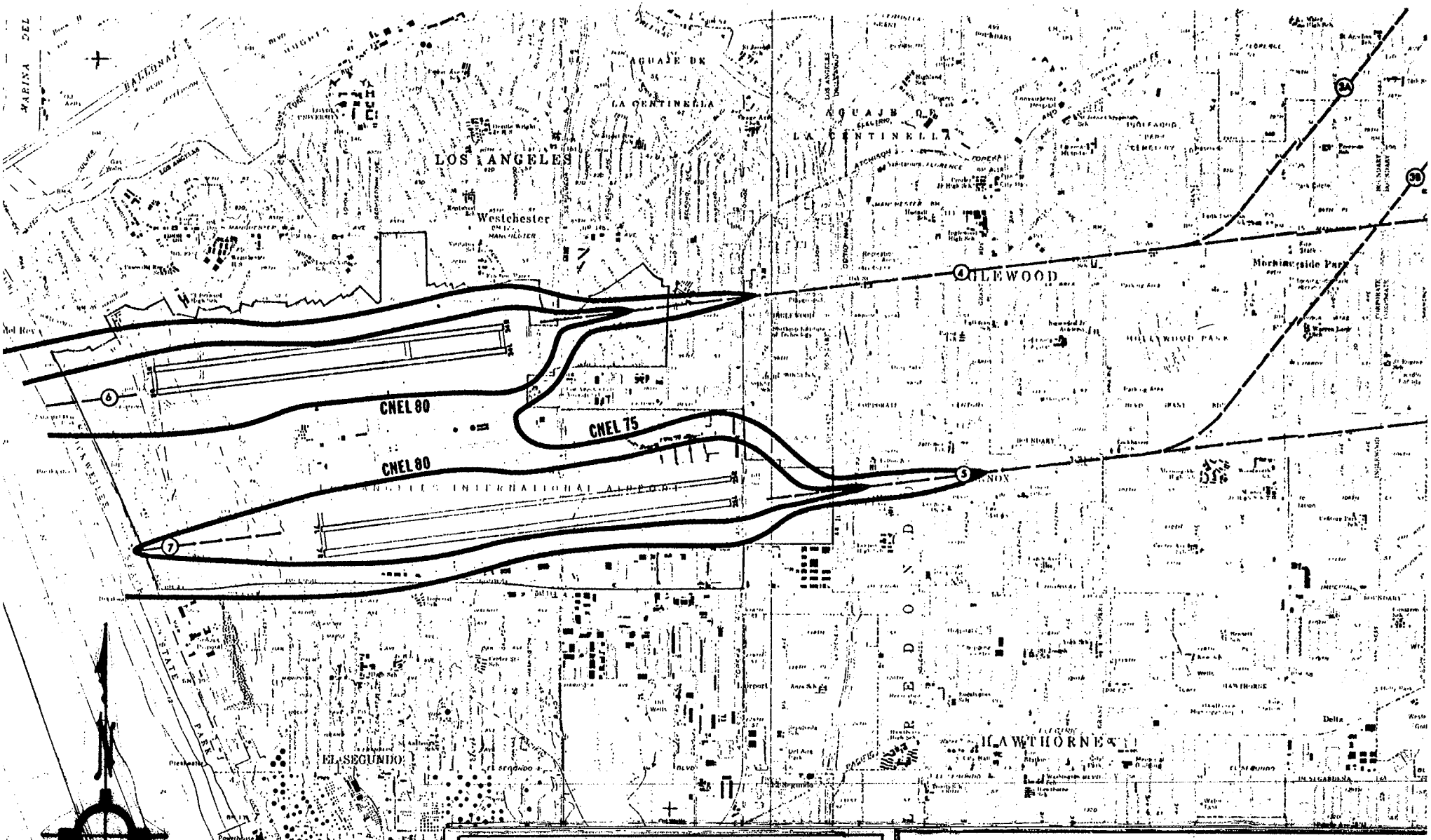
LOS ANGELES INTERNATIONAL AIRPORT

CNEL 75 and 80 CONTOURS

CASE 1

Prepared for the Los Angeles Department of Airports by Wyle Laboratories Research Staff

August 1972



CASE 10

CNEL 75 and 80 Contours. Projected 1979 Traffic Conditions. All Operations are Divided Equally Between North and South Runway Complexes. Between 6 AM and 11 PM All Takeoffs are from Runways 24L and 25R. All Landings are on Runways 24R and 25L. Between 11 PM and 6 AM All Takeoffs are to the West and All Landings are from the West. Only Runways 24L - 6R and 25R - 7L are Utilized During This Morning Period. 100% of the Aircraft Fleet is Assumed to Comply with FAR-36 Specifications.

FIGURE 18

LOS ANGELES INTERNATIONAL AIRPORT PROJECTED 1979 NOISE CONTOURS

Prepared for the Los Angeles Department of Airports by Wyle Laboratories Research Staff

April 1973

Noise control is the technology of attaining an acceptable noise environment consistent with social, economic,and operational considerations. Essentially, noise control of any transportation facility can be accomplished by controlling noise: (1) at the source, (2) along the transmission path, and (3) at the receiver. Noise levels for the various transportation vehicles and facilities are quantified in various laws, policies,and operational procedures promulgated by federal and state levels of government. The enforcement of these various levels is implied in the element. Also, when the future community noise study recommended in the element is completed and ordinances enacted to reflect the desirable noise levels within the various land uses, the Noise Element will again have to be revised within the context of these recommended levels.

To apply the preceding control strategy to the transportation facilities in this county can in some instances prove costly and difficult because of the advanced stage of development of the area, the location of the source in relation to the receiver, physical characteristics of the vehicles using the facilities, and the need to consider safety and access problems for the users of the various facilities.

SECTION III - ENVIRONMENTAL IMPACT STATEMENT

A. THE ENVIRONMENTAL IMPACT OF THE PROJECT

The policies and programs of the Noise Element are aimed at reducing transportation noise to an acceptable level that does not jeopardize the health and welfare of the citizens of this county. The impacts of the corresponding mitigating measures were evaluated with respect to nine major environmental factors: Landform, Hydrology, Air Quality, Natural Resources, Social, Economic, Urban Development, Health/Safety, and Services.

1. Landform

Impact: There may be some slight alterations in landform as a result of the policies and programs of this element. This will be due to the limited construction of earth berms or a combination of earth berms and walls for certain new transportation facilities in urbanized areas or where adjacent land use dictates a need for such noise attenuation devices. In rural areas where adequate buffer zones can be provided, these devices will not be needed. In some instances, it may be deemed appropriate to depress some new transportation facilities in certain noise sensitive areas.

Technical, environmental, and economic consideration will need to be adequately evaluated on individual projects prior to the implementation of such facilities.

Two policies in the element state that it will be the policy of the County of Los Angeles to: 1) reduce the present and future impact of excessive noise from transportation sources through judicious use of technology, planning, and regulatory measures, and 2) encourage the State Department of Transportation to conduct an active highway noise abatement program with scenic/esthetic considerations. Both could necessitate changes in the existing landform. Current noise programs which could cause such impacts are federal, state, county, and city highway construction programs, as well as the airport development programs which have at various times considered the use of walls and earth berms to attenuate noise adjacent to transportation facilities.

Mitigating Measures: The mitigating factor is that any change made to the existing landform will be accompanied by landscaping or planting which has a positive impact from a visual standpoint.

2. Hydrology

Impact: The adoption and implementation of the policies and programs of the noise element will have no measurable effect on hydrology.

Mitigating Measures: None required since there are no measurable impacts.

3. Air Quality

Impact: This element does not require any expansion of the transportation system. Mass traffic speed reductions and truck route designations are not implied in the policies or programs of the Noise Element. Therefore, the air quality of the region will not be significantly affected by compliance with the policies and programs recommended in this element.

Mitigating Measures: None required since there are no measurable impacts.

4. Natural Resources

Impact: Noise from transportation souces intrudes into every facet of our daily existence. One of the county's most important natural resources, which is slowly being eroded by these intrusions, is the quiet areas where only the sounds of nature can be heard. Approximately 75 percent of the county is vacant, recreational, or agricultural, including mountains, deserts, and beaches.[1] Much of this area provides a place where a reasonable measure of solitude can be enjoyed.

To construct noise attenuation devices, it will be necessary to expend energy and commit certain natural resources such as soil, rock, sand, cement, wood, and metal to the construction of these various devices.

Mitigating Measure: This element provides a positive action program whereby the trend of increased noise can be halted and even reversed. The reduction of transportation noise will enhance the quality of life in both the urbanized and undeveloped areas of the county. This should also enhance the environment of wildlife by improving habitat and communication which is necessary to the propagation and survival of certain animal species.

5. Social

Impact: When noise intrusions occur, man has two choices: he can eliminate the problem shielding, escaping, or removing the noise source; or, he can attempt to adapt to his new environment. Adaptions to noise intrusions may adversely affect group interrelationships. The intrusion of noise can affect every facet of human existence, from one's family life to one's occupational, educational, recreational, and religious activities. The possible adverse effects of man's individual reactions to noise, his physical and emotional maladies, may be compounded in the group

situation. Attempting to relate to individuals with either emotional or physical problems is often difficult. More importantly though, noise may be threatening man's ability to communicate and to comprehend. For example, children who either live near or who are required to be near, due to school location, sources of excessive noise can be handicapped, not only in their learning process, but also in the process by which they become responsible adults, their socialization process.[2]

The policies and programs of this element must be implemented to alleviate the social effects previously outlined. Although much of the noise problems can be alleviated through changes in the building code, noise, subdivision, and zoning ordinances, there will be some displacement of people around the greatest noise problem areas. An example is the present acquisition of homes adjacent to LAX to provide a buffer zone adjacent to this particular major transportation facility.

Mitigating Measures: The families displaced by these actions would probably relocate to quieter areas which would enhance the socialization processes - communication, education, comprehension, group and family relationships. Generally, families displaced by implementation of this element will also benefit from improved mental and physical health. In addition, these families would receive compensation for their properties and relocation assistance to aid them in the relocation process.

6. Economics

Impact: The costs of noise abatement measures are appreciable. For example, the cost to achieve acceptable interior noise levels in an area experiencing a high frequency and magnitude of noise was $12,550 to $14,450 in 1969 for a 1530 square foot stucco house, according to a study conducted for Los Angeles International Airport and published in 1970.[3] It would cost approximately $500 million to retrofit the existing jet air fleet to achieve the noise levels proposed by the Federal Aviation Administration for present commercial aircraft.[4] An 8-foot wall or earth berm adjacent to a freeway costs approximately $700,000 per mile.[5]

To accomplish the program of noise abatement outlined in the Noise Element of the General Plan will require additional costs to government to fund and staff any needed organizational adjustments as well as to build noise attenuation devices, where deemed necessary, to bring the existing and future noise within acceptable limits.

Enforcement of the programs for noise control will have to be borne ultimately by the taxpayer or the user of the transportation facility through some form of taxation.

Mitigating Measures: The benefits of a noise control program are an increase in human efficiency and productivity, higher property values, fewer hearing difficulties, better soical group relationships, improved communication, improved health, lower health costs, less litigation, and restoration of a degree of quiet to our urbanized society. Although it is not possible to place an economic value on these benefits, they are worthwhile achievements which, if pursued, would enhance the quality of life in this county.

Certain programs already mandated by the state and federal governments are underway which will underwrite some of the costs of noise attenuation devices and require that future transportation vehicles propagate lower noise levels. The costs for quieter vehicles may ultimately be borne by the consumer who will pay a higer cost in the market place for his transportation or higher costs for goods transported by quieter vehicles.

7. Urban Development

Impact: The establishment of noise standards in building, subdivision, and zoning ordinances, as recommended in this element, could tend to have a restrictive effect on future urban development. This effect on high density and high-rise areas would be even greater because of the particular problems of transportation noise in high-rise areas; e.g., the effect of reverberation and the tendency of groups of these buildings to trap the sound and keep it from dispersing.

Mitigating Measures: As noise abatement technology progressess, and new quieter vehicles replace the older noisier models, compliance with these standards can be accomplished more readily and, if staged over a period of years, will lessen this impact while at the same time achieve a gradual improvement in the quality of life in the urban areas through the reduction of noise. In addition, improved noise conditions could enhance existing areas of urban development thus encouraging redevelopment or upgrading of communities.

8. Health/Safety

Impact: The present trend of increasing noise levels is of major concern nationwide, especially in our urban areas where a majority of the population lives. It has been well documented that noise adversely affects humans, both physiologically and psychologically. These effects are outlined in the Noise Element.

With regard to safety, there could be some problems as transportation vehicles become quieter. Quiet vehicles could result in more accidents, since people, particularly the very young and the old, would not hear them approaching.

Mitigating Measures: Since the policies and programs of this element are aimed at reversing the present trend of increasing transportation noise levels, the element itself is a mitigating measure which will improve the health and quality of life for residents of this county.

To mitigate the possible safety problem associated with quieter vehicles, reeducation will be required in the schools, since we presently teach youngsters to stop, look, and listen before crossing. In addition, it may be necessary to place more reliance on visual crossing devices at intersections, school crossings, and railroad crossings.

9. Services

Impact: The policies and programs proposed in this element imply the provision of additional services to make the public aware of the effects of noise. Certain adjustments in county governments will be required to centralize the handling and enforcement of noise-related problems.

An agency or organization may be required to review the noise control program periodically and enforce and police the noise ordinances and regulations. In addition, the County Health Services Department may be required to enforce and/or adopt noise-related standards and requirements. These various functions or realignments of responsibility would probably require additional staff members for the various departments engaged in this type of activity. Eventually a separate agency or organization may be needed to handle noise-related problems.

Mitigating Measures: Informational services presently available to county government would suffice to inform the public through periodic press releases of actions taken to control noise problems. This will increase the awareness of the public to the problems of noise. Citizen education probably would not increase the demands on our educational system.

The benefits to be derived from a coordinated, comprehensive approach to the noise problem offset any minor interruptions of service or cost of additional staff needed to handle this function.

B. ADVERSE ENVIRONMENTAL IMPACTS WHICH CANNOT BE AVOIDED IF THE PROPOSAL IS IMPLEMENTED

The adverse environmental effects identified in the previous section are enumerated below:

1. Minor alterations of existing landforms due to construction of noise attenuation devices at various locations where technically feasible.

2. Displacement of residents around large airports to create buffer zones.

3. Additional costs to enforce the noise control programs, construct attenuation devices, and higher costs for goods and services.

4. Minor safety concern because quieter transportation vehicles will not be heard as readily as existing vehicles.

C. MITIGATION MEASURES PROPOSED TO MINIMIZE THE IMPACT

For reasons of clarity and simplicity, mitigating measures proposed to minimize the impacts are discussed concurrently with the impacts in Section A.

D. ALTERNATIVES TO THE PROPOSED ACTION

The recommended policies of the Noise Element are aimed at reducing transportation noise to an acceptable level that does not jeopardize the health and welfare of the citizens of this county.

In addition to the recommended policies, the following alternatives were considered:

Alternative 1 - Minimum Program

One alternate set of policies was aimed at maintenance of the present noise levels associated with the entire spectrum of present and future transportation modes. The implications of this policy set with respect to physical factors is that the effect will be practically nil. It has not yet been fully determined as to whether maintaining the present transportation noise levels would be hazardous to plant and animal life. However, indications are that increased exposure to present noise levels could potentially have a damaging effect on the physical and mental well-being of the populace. This policy set was not selected because it lacked a sufficiently positive effect on transportation noise.

Alternative 2 - Maximum Program

The aim of another policy set was to eliminate transportation noise within Los Angeles County to the degree that residents will always experience a condition of quiet. The implications of this policy set are significant and far-reaching, since the measures discussed below would be required to achieve this level of noise reduction.

A noise reduction of this magnitude requires the depressing of all major surface transportation facilities or the construction of attenuation walls, berms, or both. Since major surface transportation facilities also serve as conveyors of surface runoff, any obstruction such as depressed facilities, berms or walls could interrupt normal flow patterns and cause significant flooding problems.

The possible reduction of traffic speeds could increase certain air pollutants;e.g., decreasing the average speed on a typical arterial highway from 30 mph to 20 mph would increase the emission of carbon monoxide approximately 45 percent and hydrocarbons about 22 percent, although nitrogen oxides would decrease about 10 percent. The prohibition of trucks on more highways would tend to increase the concentrations of air pollutants even though the countywide air-pollutant emission total would not increase significantly. Some increase in the total air-pollutant emission could be expected, since trucks would, in some cases, be required to travel longer routes, thus increasing the total vehicle miles traveled.

The scenic and esthetic qualities of the environment could be increased by using buffer zones and additional landscaping between the source and the receiver. However, extensive use of walls, earth berms, and depressed facilities for noise abatement has the potential of causing visual pollution even if designed esthetically and adequately landscaped.

In general, the environmental quality of the historical, archaeological/paleontological, and park/recreation sites (as well as churches, hospitals, and schools) would be enhanced because of the increased quiet.

The reduction of transportation noise to the levels implied by these policies would improve the habitat and communication of wildlife, thus enhancing the mating and recognition of warning signals, which is so necessary to the survival of certain animal species. However, the development of extremely quiet vehicles could remove one of the beneficial signals which warn an animal of an oncoming vehicle.

A substantial number of families could be displaced by the construction of depressed highways, earth berms, buffer zones around airports, and other transportation facilities. As a result, adequate housing, particularly for low- and middle-income groups, would be more difficult to obtain. This displacement of families would result in the breakup of many neighborhoods and communities.

While the employment would increase for those organizations assigned the task of mitigating noise, the employment would suffer in industry and organizations which produce noise and those industries which are dependent on those which products noise.

Although the employment of the necessary noise-mitigation organizations would probably be greater than the unemployment of the noise-producing and related industries, it is not reasonable to assume that one can make an engineer, construction worker, or planner out of a truck driver or airline pilot overnight. Also, the disruption to the economics of the area under such a full abatement program would be catastrophic, unless carried out over many decades.

The increased revenue necessary to support noise-abatement programs, higher costs of transportation equipment, and the possible decrease in tax base (due to forcing some industries out of existence and the acquisition of additional land area for buffer zones) would result in an imbalance of revenues and expenditures and would probably cause an appreciable increase in the tax rate.

The reduction of noise by the substantial amount implied for this policy set would definitely have a beneficial effect on the physical and mental well-being of the populace.

The level of citizen education needed would significantly increase the demand on our educational system, probably at the expense of other needs.

A large agency would be required to police and enforce the noise ordinances. Noise abatement measures such as walls, berms, depressed highways, could impede the maneuverability of fire, police, and emergency vehicles. A strict noise abatement law could impede the ability of these agencies to provide their necessary service.

The depression of major highway systems, walls, berms, vehicle speed reductions, and designation of truck routes could result in loss of access, traffic delays, and an inadequate transportation system which could result in higher prices for goods and services.

This policy set was not adopted because of the extreme disruptive effects that could result to the area's economy, mobility, and overall environment if such a program were initiated.

Alternative 3 - No Project

State law requires that a noise element be included in all general plans for all jurisdictions. As outlined in the description of the element, its express purpose is to serve as a tool for planners, administrators, and legislators to use in abating unwanted noise. It establishes programs to follow and recommends goals and coordinated actions which are designed to bring noise under control in this county.

If not implemented, the county would not be in compliance with the law, would be relegated to a subordinate role instead of a role of coordination and leadership in reducing unwanted noise, and noise programs presently proposed by other levels of government may be jeopardized.

For these reasons this alternative was rejected.

E. THE RELATIONSHIP BETWEEN LOCAL SHORT-TERM USES OF MAN'S ENVIRONMENT AND THE MAINTENANCE AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY

This element will improve the noise environment in the county. The short-term implications of the element will be a relatively small amount of disturbance to landforms, disruption of social and economic systems, and commitment of energy and materials. The long-term result should be better health and improvement of the quality of life for all residents.

Expenditure of funds to initate a noise control program and higher short-term costs for certain goods and services when viewed in the context that these expenditures are from a limited source, involve tradeoffs between other desired programs, and are probably not recoverable by those who pay for these higher costs.

F. ANY IRREVERSIBLE ENVIRONMENTAL CHANGES WHICH WOULD BE INVOLVED IN THE PROPOSED ACTION SHOULD IT BE IMPLEMENTED

Irreversible environmental changes which may be involved in implementing this element are as follows:

- Minor modification of landforms.
- Use of natural resources and energy to construct noise attenuation devices.
- Displacement of residents in high noise areas adjacent to certain transportation facilities in order to provide adequate buffer zones would result in disruption of the social processes of these communities.

G. THE GROWTH-INDUCING IMPACT OF THE PROPOSED ACTION

Although there is no direct growth inducing impact involved in implementing the Noise Element, the relocation of noise-affected residents would require additional housing in new areas or increased density in our urban centers.

SECTION IV - WATER QUALITY ASPECTS

The policies and programs of the Noise Element do not impact the water quality of the area, and do not require certification by any public agency.

FOOTNOTES

1. Barton-Aschman Associates, Inc., Urban Transportation Fact Book (Chicago: Barton-Aschman Associates, Inc., 1974), p. 1-12.

2. Central Institute for the Deaf, Effects of Noise on People (Washington: Environmental Protection Agency, December 31, 1971), p. 55.

3. Wyle Laboratories, Home Soundproofing Pilot Project for the Los Angeles Department of Airports (El Segundo: Wyle Laboratories, March, 1970), p. 19.

4. Noise Pollution, Senate Hearings on S 1016, S 3342, and HR 11021 (Washington: U.S. Government Printing Office, 1972) p. 523.

5. From a telephone conservation with Mr. Richard Laughlin of California Department of Transportation, April 30, 1974.

APPENDIX A:

NOISE POLICY - PROGRAM PACKAGES

The following is designed to summarize the relationship between the noise policies and existing programs and proposed action recommendations identified in the implementation chapter of this element.

POLICY #1

PROMOTE THE NECESSARY ORGANIZATIONAL ADJUSTMENTS WITHIN COUNTY GOVERNMENT TO ESTABLISH A CENTRAL AUTHORITY WHICH IDENTIFIES TECHNOLOGICAL OPPORTUNITIES, CONDUCTS STUDIES, ASSESSES EFFECTIVENESS OF PROGRAMS, SETS STANDARDS, AND RECOMMENDS TRANSPORTATION NOISE MITIGATION TECHNIQUES, PROGRAMS, AND ALTERNATIVES.

Existing Programs

a. Airport Development and Management

Short Range Action Recommendations

a. Study the feasibility of establishing a central authority within county government with the responsibility for noise problems and programs.

b. Develop a draft noise ordinance and suggest amendments to the building code and subdivision and zoning ordinances. ✓ develop noise ord.

c. Conduct a community noise study to determine the noise levels of non-transportation sources.

d. Encourage standardization of noise measurement methods by the federal government and advise them of local needs in this regard.

Medium and Long Range Action Recommendations

a. Continue to update the noise element, community noise study, building code, and subdivision and zoning ordinances as needed.

POLICY #2

DETERMINE AND EVALUATE THE PRESENT AND FUTURE NOISE LEVELS ASSOCIATED WITH ALL MAJOR TRANSPORTATION FACILITIES IN THE COUNTY.

Existing Programs

a. Airport Development and Management

b. General Plan - Transportation Planning

Medium and Long Range Action Recommendations

a. Continue to update the noise element, community noise study, building code, and subdivision and zoning ordinances as needed.

POLICY #3

ESTABLISH ACCEPTABLE NOISE STANDARDS CONSISTENT WITH HEALTH AND QUALITY OF LIFE GOALS AND EMPLOY EFFECTIVE TECHNIQUES OF NOISE ABATEMENT THROUGH SUCH MEANS AS BUILDING CODE, NOISE, SUBDIVISION, AND ZONING ORDINANCES.

Existing Programs

a. Building Regulation

b. Land Division

c. Zoning

Short Range Action Recommendations

a. Establish acceptable noise levels to be included by the County Purchasing and Stores Department in the specifications for purchase of vehicles and aircraft and their components.

b. Develop a draft noise ordinance and suggest amendments to the building code and subdivision and zoning ordinances.

Medium and Long Range Action Recommendations

a. Continue to update the noise element, community noise study, building code, and subdivision and zoning ordinances as needed.

POLICY #4

REDUCE THE PRESENT AND FUTURE IMPACT OF EXCESSIVE NOISE FROM TRANSPORTATION SOURCES THROUGH JUDICIOUS USE OF TECHNOLOGY, PLANNING, AND REGULATORY MEASURES.

Existing Program

a. Airport Development and Management

b. Building Regulation

c. Zoning

d. Land Division

e. Bikeway and Trail Development

Short Range Action Recommendations

a. Through political influence, encourage federal and state governments to set reasonable and effective noise limits for all transportation vehicles.

b. Establish acceptable noise levels to be included by the County Purchasing and Stores Department in the specifications for purchase of vehicles and aircraft and their components.

c. Encourage use of noise abatement measures adjacent to all major sources of noise pollution such as airports, freeways, and rail lines.

Medium and Long Range Action Recommendations

a. Encourage the use of noise abatement measures, which also enhance the esthetic qualities of the environment, adjacent to all major transportation facilities where it is necessary and feasible.

b. Continue to update the noise element, community noise study, building code, and subdivision and zoning ordinances as needed.

POLICY #5

ESTABLISH NOISE CRITERIA IN THE SPECIFICATIONS FOR PURCHASE OF VEHICLES, AIRCRAFT AND THEIR COMPONENTS INTENDED FOR USE BY THE COUNTY, INCLUDING ALL EQUIPMENT NEEDED FOR MAINTENANCE AND REPAIR OF SUCH VEHICLES AND AIRCRAFT.

Existing Programs

None identified

Short Range Action Recommendations

a. Encourage local jurisdictions to specify noise levels in the purchase of equipment.

b. Establish acceptable noise levels to be included by the County Purchasing and Stores Department in the specifications for purchase of vehicles and aircraft and their components.

POLICY #6

PROMOTE INCREASED PUBLIC AWARENESS CONCERNING THE EFFECTS OF NOISE.

Existing Programs

a. General Plan - Transportation Planning

Short Range Action Recommendations

a. Inform the public as to why and what county government is doing to combat the noise problem.

b. Study the feasibility of establishing a central authority within county government with the responsibility for noise problems and programs.

POLICY #7

ENCOURAGE CITIES TO ADOPT DEFINITIVE NOISE ORDINANCES AND POLICIES THAT ARE CONSISTENT THROUGHOUT THE COUNTY.

Existing Programs

a. General Plan - Transportation Planning

Short Range Action Recommendations

a. Develop a draft noise ordinance and suggest amendments to the building code and subdivision and zoning ordinances.

b. Encourage local jurisdictions to specify noise levels in the purchase of equipment.

Medium and Long Range Action Recommendations

a. Continue to update the noise element, community noise study, building code, and subdivision and zoning ordinances as needed.

b. Coordinate with other local governments in standardizing building codes, and noise, subdivision, and zoning ordinances.

POLICY #8

COORDINATE WITH, AND ASSIST, THE VARIOUS CITIES IN DEALING WITH THE PROBLEM OF NOISE AND PROVIDE LEADERSHIP AND TECHNICAL EXPERTISE WHEN REQUESTED BY OTHER JURISDICTIONS.

Existing Programs

a. General Plan - Transportation Planning

b. Highway Construction and Maintenance

Short Range Action Recommendations

a. Encourage local jurisdictions to specify noise levels in the purchase of equipment.

b. Study the feasibility of establishing a central authority within county government with the responsibility for noise problems and programs.

Medium and Long Range Action Recommendations

a. Coordinate with other local governments in standardizing building codes, and noise, subdivision, and zoning ordinances.

POLICY #9

COORDINATE WITH FEDERAL, STATE AND CITY GOVERNMENTS IN DEVELOPING AND IMPLEMENTING NOISE ABATEMENT PROGRAMS.

Existing Programs

a. Highway Construction and Maintenance

b. Traffic Operations and Management

Short Range Action Recommendations

a. Encourage assessment of the costs of noise abatement against the producers of noise.

b. Seek funds from higher levels of government to carry out noise abatement programs.

c. Through political influence, encourage federal and state governments to set reasonable and effective noise limits for all transportation vehicles.

POLICY #10

SEEK FUNDS FROM THE APPROPRIATE LEVELS OF GOVERNMENT TO UNDERWRITE THE COSTS OF NOISE ABATEMENT PROGRAMS.

Existing Programs

a. Highway Construction and Maintenance

b. Traffic Operations and Management

Short Range Action Recommendations

a. Seek funds from higher levels of government to carry out noise abatement programs.

POLICY #11

MONITOR THE PROGRAMS AND POLICIES OF THE RESPONSIBLE SPECIAL DISTRICTS, REGIONAL, STATE, AND FEDERAL AGENCIES IN ORDER TO INSURE THAT THEY EFFECTIVELY EXERCISE THEIR MANDATE TO CONTROL THE SOURCES OF NOISE FOR NEW, PROPOSED, OR EXISTING TRANSPORTATION FACILITIES, VEHICLES, OR AIRCRAFT.

Existing Programs

a. Airport Development and Management

Short Range Action Recommendations

a. Through political influence, encourage federal and state governments to set reasonable and effective noise limits for all transportation vehicles.

b. Encourage standardization of noise measurement methods by the federal government and advise them of local needs in this regard.

c. Study the feasibility of establishing a central authority within county government with the responsibility for noise problems and programs.

POLICY #12

ENCOURAGE THE STATE DEPARTMENT OF TRANSPORTATION TO CONDUCT AN ACTIVE HIGHWAY NOISE ABATEMENT PROGRAM WITH SCENIC/ESTHETIC CONSIDERATIONS.

Existing Programs

a. Highway Construction and Maintenance

b. Traffic Operations and Management

Short Range Action Recommendations

a. Encourage use of noise abatement measures adjacent to all major sources of noise pollution such as airports, freeways, and rail lines.

Medium and Long Range Action Recommendations

a. Encourage the use of noise abatement measures, which also enhance the esthetic qualities of the environment, adjacent to all major transportation facilities where it is necessary and feasible.

POLICY #13

URGE CONTINUED FEDERAL AND STATE RESEARCH INTO THE NOISE PROBLEM AND RECOMMEND ADDITIONAL RESEARCH PROGRAMS AS PROBLEMS ARE IDENTIFIED.

Existing Programs

None identified

Short Range Action Recommendations

a. Through political influence, encourage federal and state governments to set reasonable and effective noise limits for all transportation vehicles.

b. Encourage standardization of noise measurement method by the federal government and advise them of local needs in this regard.

POLICY #14

RECOMMEND NEEDED LEGISLATION TO THE STATE AND FEDERAL GOVERNMENT WHICH WILL PROVIDE FOR NOISE ABATEMENT AND THE DISTRIBUTION OF THE COSTS OF NOISE ABATEMENT PROGRAMS AMONG THE PRODUCERS OF NOISE.

Existing Programs

None identified

Short Range Action Recommendations

a. Through political influence, encourage federal and state governments to set reasonable and effective noise limits for all transportation vehicles.

b. Encourage assessment of the costs of noise abatement against the producers of noise.

Medium and Long Range Action Recommendations

a. Encourage the use of noise abatement measures, which also enhance the esthetic qualities of the environment, adjacent to all major transportation facilities where it is necessary and feasible.

POLICY #15

ENCOURAGE THE FEDERAL AND STATE GOVERNMENTS AND OTHER AGENCIES TO WORK FOR STANDARDIZATION AND SIMPLIFICATION OF THE MEASUREMENT METHODS USED IN ASSESSING NOISE IMPACT.

Existing Programs

None identified

Short Range Action Recommendations

a. Encourage standardization of noise measurement methods by the federal government and advise them of local needs in this regard.

APPENDIX B

IMPACT ANALYSIS OF POLICY-PROGRAM PACKAGES

As a result of the implementation of policies and programs contained in the Noise Element, there are direct, indirect, and cumulative effects on the natural and man-made environments. Impact areas affected to a beneficial and/or adverse degree are the following:

- Landforms
- Hydrology
- Air Quality
- Natural Resources
- Economics
- Social
- Urban Development
- Health and Safety
- Services

The significant impacts that may result from the implementation of the fifteen policy program sets are described below.

1. Study and promote the establishment of an authority with responsibility for noise problems and programs and develop supportive ordinances and code amendments.

   a. Impact: A beneficial effect to the social environment will be realized, by reducing the noise intruding into occupational, educational, recreational, religious, and family activities.

      Mitigating Measures: None required.

   b. Impact: A beneficial effect to the health of persons adjacent to major noise sources will be realized by reducing the noise levels and thus the harmful effects.

      Mitigating Measures: None required.

   c. Impact: An adverse economic effect will be realized due to costs of funding and staffing an organization and to carry out a noise control program. A portion of these costs will be to carry out programs which are mandated by federal and state laws.

      Mitigating Measures: The benefits of a noise control program are an increase in human efficiency and productivity, higher property values, fewer hearing difficulties, better social group relationships, improved communication, improved health, lower health costs, less litigation, and a restoration of a degree of quiet to our urbanized society. Certain programs already mandated by the state and federal government will underwrite some of the costs of noise attenuation devices and require that future vehicles of transportation emit lower noise levels. The costs for quieter vehicles will ultimately be borne by the consumer who will pay a higher cost in the market place for his transportation or higher costs for goods transported by quieter vehicles.

d. Impact: The establishment of noise standards in building, subdivision and zoning ordinances, as recommended in this element, could tend to have a restrictive effect on future urban development especially in high density and high rise areas where the effects of reverberation and the "canyon" effects tend to trap sound and keep it from dispersing.

Mitigating Measures: As noise abatement technology progresses, and new quieter vehicles replace the older more noisy models, compliance with these standards can be accomplished more readily and, if staged over a period of years, will lessen this impact while at the same time achieving a gradual improvement in the quality of life in the urban areas through the reduction of noise. In addition, improved noise conditions could enhance existing urban areas; thus encouraging redevelopment or upgrading of communities.

e. Impact: Additional services by government will be necessary to centralize the handling and enforcement of noise-related problems.

Mitigating Measures: The benefits to be derived from a coordinated, comprehensive approach to the noise problem offset any minor interruptions of service or cost of additional staff needed to handle this function.

f. Impact: With regard to safety, there could be some problems as transportation vehicles become quieter. Quiet vehicles could result in more accidents, since people, particularly the very young and the old, may not hear approaching vehicles.

Mitigating Measures: To mitigate the possible safety problem associated with quieter vehicles, reeducation will be required in the schools, since we presently instruct youngsters to stop, look, and listen before crossing. It may also be necessary to rely more extensively on visual crossing devices.

2. Determine and evaluate the present and future noise levels associated with all major transportation facilities in the county and continue to update the noise element, community noise study, building code, and subdivision and zoning ordinances.

a. Impact: A beneficial effect on the health of those people near major noise sources will be realized by reducing the noise levels and thus the harmful effects.

Mitigating Measures: None required.

b. Impact: An adverse economic effect will be realized due to the costs of funding and staffing an organization and for complying with regulations.

Mitigating Measures: The benefits of noise control regulations are higher property values, fewer hearing difficulties, better social group relationships, improved communication, improved health, lower health costs, less litigation, and a restoration of a degree of quiet to our urbanized society. The costs for quieter vehicles will ultimately be borne by the consumer who will pay a higher cost in the market place for his transportation or higher costs for goods transported by quieter vehicles.

c. Impact: The maintenance of noise standards in building, subdivision, and zoning ordinances, as recommended in this element, could tend to have a restrictive effect on future urban development especially in high density and high rise areas where the canyon and reverberation effects tend to trap sound and keep it from dispersing.

Mitigating Measures: With compliance of standards being staged over a period of years, the impact will be lessened while achieving a gradual improvement in the quality of life through the reduction of noise. Also, such improved conditions could encourage redevelopment of communities.

d. Impact: With regard to safety, there could be some problems as transportation vehicles become quieter. Quiet vehicles could result in more accidents, since people, particularly the very young and the old, may not hear approaching vehicles.

Mitigating Measures: To mitigate the possible safety problem associated with quieter vehicles, reeducation will be required in the schools, since we presently instruct youngsters to stop, look and listen before crossing. It may also be necessary to rely on visual crossing devices.

e. Impact: Additional services by government will be necessary to centralize the handling and enforcement of noise - related problems.

Mitigating Measures: The benefits to be derived from a coordinated, comprehensive approach to the noise problem offset any minor interruptions of service or cost of additional staff needed to handle this function.

3. Establish acceptable noise standards consistent with health and quality of life goals and employ and maintain effective techniques of noise abatement through such means as building code, noise, subdivision, and zoning ordinances.

   a. Impact: A beneficial effect to the social environment will be realized by reducing the noise intruding into occupational, educational, recreational, religious and family activities.

      Mitigating Measures: None required.

   b. Impact: A beneficial effect on the health of those people near major noise sources will be realized by reducing the noise levels and thus the harmful effects.

      Mitigating Measures: None required.

   c. Impact: An adverse economic effect will be realized due to the costs of funding and staffing an organization and to carry out a noise control program.

      Mitigating Measures: The benefits of noise control regulations are higher property values, fewer hearing difficulties, better social group relationships, improved communication, improved health, lower health costs, less litigation, and a restoration of a degree of quiet to our urbanized society. The costs for quieter vehicles will ultimately be borne by the consumer who will pay a higher cost in the market place for his transportation or higher costs for goods transported by quieter vehicles.

   d. Impact: The maintenance of noise standards in building, subdivision, and zoning ordinances, as recommended in this element, could tend to have a restrictive effect on future urban development.

      Mitigating Measures: With compliance of standards being staged over a period of years, the impact will be lessened while achieving a gradual improvement in the quality of life through the reduction of noise. Also, such improved conditions could encourage redevelopment of communities.

   e. Impact: With regard to safety, there could be some problems as transportation vehicles become quieter. Quiet vehicles could result in more accidents, since people, particularly the very young and the old, may not hear approaching vehicles.

      Mitigating Measures: To mitigate the possible safety problem associated with quieter vehicles, reeducation will be required in the schools, since we presently instruct youngsters to stop, look, and listen before crossing. It may also be more necessary to rely on visual crossing devices.

f. Impact: Additional services by government will be necessary to centralize the handling and enforcement of noise-related problems.

Mitigating Measure: The benefits to be derived from a coordinated, comprehensive approach to the noise problem offset any minor interruptions of service or cost of additional staff needed to handle this function.

4. Reduce the present and future impact of excessive noise from transportation sources through judicious use of technology, planning, influence, and regulatory measures.

a. Impact: A beneficial effect on the health of those people near sources will be realized by reducing the noise levels and thus the harmful effects.

Mitigating Measures: None required.

b. Impact: There may be some slight alterations in landform as a result of the policies and programs of this element. This will be due to the construction of earth berms, walls or a combination of earth berms and walls for certain new transportation facilities in urbanized areas or where adjacent land use dictates a need for such noise attenuation devices. In rural areas where adequate buffer zones can be provided, these devices will not be needed. It may be feasible to depress some new transportation facilities in certain noise sensitive areas.

Mitigating Measures: The mitigating factor is that any change made to the existing landform will be accompanied by landscaping or planting which has a beneficial esthetic impact.

c. Impact: Noise from transportation sources intrudes our daily existence. One of the most important natural resources, which is slowly being eroded by these intrusions, is the quiet areas. Approximately 75 percent of the county is vacant, recreational or agricultural, including mountains, deserts and beaches. Much of this area provides a place where a reasonable measure of solitude can be enjoyed. The implementation of this element can have a beneficial effect by preserving existing quiet areas and developing new ones.

To construct noise attenuation devices, it will be necessary to expend energy and commit certain natural resources such as soil, rock, sand, cement, wood, and metal to the construction of these various devices.

Mitigating Measures: This element provides a positive action program, whereby the trend of increased noise can be halted and even reversed. The reduction of transportation noise will enhance the quality of life in both the urbanized and undeveloped areas of the county. This should also enhance the environment of wildlife by improving habitat and communication which is necessary to the propagation and survival of certain animal species.

d. Impact: A beneficial effect to the social environment will be realized by reducing the noise intruding into occupational, education, recreational, religious, and family activities. However, there will also be some displacement of residents around the noise problem areas.

Mitigating Measures: Families displaced would relocate to quieter areas which would enhance the social processes -- communication, education, comprehension, relationships. Also, relocation assistance and compensation would be provided to displaced families.

e. Impact: An adverse economic effect will be realized to the costs of funding and staffing an organization and for complying with regulations and necessary abatement procedures.

Mitigating Measures: The benefits of noise control regulations are higher property values, fewer housing difficulties, better social group relationships, improved communication, improved health, lower health costs, less litigation, and a restoration of a degree of quiet to our urbanized society. The costs for quieter vehicles will ultimately be borne by the consumer who will pay a higher cost in the market for his transportation or higher costs for goods transported by quieter vehicles.

f. Impact: The maintenance of noise standards in building, subdivision, and zoning ordinances, as recommended in this element, could tend to have a restrictive effect on future urban development.

Mitigating Measures: With compliance of standards being staged over a period of years the impact will be lessened while achieving a gradual improvement in the quality of life through the reduction of noise. Also, such improved conditions could encourage redevelopment of communities.

g. Impact: With regard to safety, there could be some problems as transportation vehicles become quieter. Quiet vehicles could result in more accidents, since people, particularly the very young and the old, may not hear approaching vehicles.

Mitigating Measures: To mitigate the possible safety problem associated with quieter vehicles, reeducation will be required in the schools, since we presently instruct youngsters to stop, look, and listen before crossing. It may also be more necessary to rely on visual crossing devices.

h. Impact: Additional services by government will be necessary to centralize the handling and enforcement of noise-related problems.

Mitigating Measures: The benefits to be derived from a coordinated, comprehensive approach to the noise problem offset any minor interruptions of service or cost of additional staff needed to handle this function.

5. Establish noise criteria in the specifications for purchase of vehicles, aircraft and their components intended for use by the county including all equipment needed for maintenance and repair of such vehicles and aircraft, and encourage local jurisdictions to also specify noise levels in equipment purchases.

a. Impact: An adverse economic effect will be realized due to the increased cost of quiet equipment.

Mitigating Measures: The benefits of such noise standards are higher property values, fewer hearing difficulties, better social group relationships, improved communication, improved health, lower health costs, less litigation, and a restoration of a degree of quiet to our urbanized society. Certain programs already mandated by the state and federal government will underwrite some of the costs of noise attenuation devices and require that future transportation vehicles emit lower noise levels.

b. Impact: Additional services by government will be necessary to centralize the handling and enforcement of noise-related problems.

Mitigating Measures: The benefits to be derived from a coordinated, comprehensive approach to the noise problem offset any minor interruptions of service or cost of additional staff needed to handle this function.

6. Promote increased public awareness concerning the effects of noise and what county government is doing to combat the problem.

a. Impact: A possible beneficial effect may be realized in that people may become more aware of existing noise environments that are harmful to health.

Mitigating Measures: None required.

b. Impact: Additional governmental services may be required to inform the public of the effects of noise.

Mitigating Measures: Informational services presently available to the county should be adequate to inform the public through periodic press releases of actions taken on noise control problems. The benefits to be derived from a coordinated approach to the noise problem offset any minor interruptions of service or cost of additional staff needed to handle the function.

7. Encourage the cities to specify noise levels in equipment procurement and to adopt and maintain definitive noise ordinances, amendments to the building code and subdivision and zoning ordinances, and policies that are consistent throughout the county.

   a. Impact: A beneficial effect to the social environment will be realized, by reducing the noise intruding into occupational, educational, recreational, religious and family activities. Additionally, there will be some displacement of people around the noise problem areas.

      Mitigating Measures: Families displaced would relocate to quieter areas which would enhance the social processes -- communication, education, comprehension, relationships. Also, relocation assistance and compensation would be provided to displaced families.

   b. Impact: A beneficial effect on the health of persons adjacent to major noise sources will be realized by reducing the noise levels and thus the harmful effects.

      Mitigating Measures: None required.

   c. Impact: An adverse economic effect will be realized to the costs of funding and staffing an organization and to carry out a noise control program. A portion of these costs will be to carry out programs which are mandated by federal and state laws.

      Mitigating Measures: The benefits of noise control regulations are higher property values, fewer hearing difficulties, better social group relationships, improved communication, improved health, lower health costs, less litigation, and a restoration of a degree of quiet to our urbanized society. The costs for quieter vehicles will ultimately be borne by the consumer who will pay a higher cost in the market place for his transportation or higher costs for goods transported by quieter vehicles.

   d. Impact: The maintenance of noise standards in building, subdivision, and zoning ordinances, as recommended in this element, could tend to have a restrictive effect on future urban development especially in high density and high-rise areas where the effects of reverberation and the "canyon" effects tend to trap sound and keep it from dispersing.

      Mitigating Measures: With compliance of standards being staged over a period of years the impact will be lessened while achieving a gradual improvement in the quality of life through the reduction of noise. Also, such improved conditions could encourage redevelopment of communities.

e. Impact: With regard to safety, there could be some problems as transportation vehicles become quieter. Quiet vehicles could result in more accidents, since people, particularly the very young and the old, may not hear approaching vehicles.

Mitigating Measures: To mitigate the possible safety problem associated with quieter vehicles, reeducation will be required in the schools, since we presently instruct youngsters to stop, look and listen before crossing. It may also be more necessary to rely on visual crossing devices.

f. Impact: Additional services will be necessary in government to centralize the handling and enforcement of noise-related problems.

Mitigating Measures: The benefits to be derived from a coordinated, comprehensive approach to the noise problem offset any minor interruptions of service or cost of additional staff needed to handle this function.

8. Coordinate with, and assist, the various cities in dealing with the problem of noise and provide leadership and technical expertise when requested by other jurisdictions.

a. Impact: An adverse economic effect will be realized due to the costs of funding and staffing organizations.

Mitigating Measures: The benefits to be derived from a coordinated, comprehensive approach to the noise problem offset any expenditure to accomplish efficiency.

b. Impact: Additional services by government will be necessary to coordinate with, and assist the various cities.

Mitigating Measures: The benefits derived from a coordinated, comprehensive method of approaching problems related to noise, offset any interruption or magnification of services needed to handle the necessary function.

9. Coordinate with federal, state and city governments in developing, implementing and funding noise abatement programs and effective and reasonable noise limits.

a. Impact: An adverse economic effect will be realized due to the costs of funding and staffing an organization and to carry out a noise control program.

Mitigating Measures: The benefits to be derived from a coordinated, comprehensive approach to the noise problem offset any expenditure necessary. Certain programs already mandated by the state and federal governments will underwrite some of the costs for noise abatement devices and studies.

b. Impact: Coordination with, and assistance to, the various cities will require additional services by county government.

Mitigating Measures: The benefits derived from a coordinated, comprehensive method of approaching problems related to noise, offset any interruption of magnification of services needed to handle the necessary function.

10. Seek funds from the appropriate levels of government to underwrite the costs of noise abatement programs.

a. Impact: Requests for financial assistance is merely an administrative function with no significant effect.

Mitigating Measures: None required.

11. Through a central governmental authority, monitor the programs and policies of the responsible special districts and regional, state and federal agencies in order to insure that they effectively exercise their mandate to control the sources of noise for new, proposed, or existing transportation facilities, vehicles, or aircraft.

a. Impact: An adverse economic effect will be realized due to the costs of funding and staffing an organization to monitor programs by performing detailed analyses.

Mitigating Measures: The benefits to be derived from a coordinated, comprehensive approach to the noise problem offset any expenditures required. Certain programs already mandated by the state and federal governments will underwrite some of the costs for noise abatement devices and studies.

b. Impact: Additional services will be required by county government to perform the monitoring duties.

Mitigating Measures: The benefits derived from a coordinated, comprehensive method of approaching problems related to noise, offset any interruption or magnification of services needed to handle the necessary function.

12. Encourage the State Department of Transportation to conduct an active highway noise abatement program with scenic/esthetic considerations using abatement measures adjacent to all major transportation facilities where feasible.

a. Impact: A beneficial effect to the health of persons adjacent to major noise sources will be realized by reducing the noise levels and thus the harmful effects.

Mitigating Measures: None required.

b. Impact: There may be some slight alterations in landform as a result of the policies and programs of this element. This will be due to the construction of earth berms, walls, or a combination of earth berms and walls for certain new and existing transportation facilities in urbanized areas where adjacent land use dictates a need for such noise attenuation devices. In rural areas where adequate buffer zones can be provided, these devices will not be needed. It may be feasible to depress some new transportation facilities in certain noise sensitive areas.

Mitigating Measures: Any change made to the existing landform will be accompanied by landscaping or planting which has a beneficial visual impact.

c. Impact: One of the most important natural resources, which is slowly being eroded by noise intrustions, is the quiet areas. Approximately 75 percent of the county is vacant, recreational or agricultural, including mountains, deserts and beaches. Much of this area provides a place where a reasonable measure of solitude can be enjoyed.

To construct noise attenuation devices, it will be necessary to expend energy and commit certain natural resources such as soil, rock, sand, cement, wood, and metal to the construction of these various devices.

Mitigating Measures: This element provides a positive action program, whereby the trend of increased noise can be halted and even reversed. The reduction of transportation noise will enhance the quality of life in both the urbanized and undeveloped areas of the county. This should also enhance the environment of wildlife by improving habitat and communication which is necessary to the propagation and survival of certain animal species.

d. Impact: A beneficial effect to the social environment will be realized by reducing noise intruding into occupational, educational, recreational, religious and family activities. However, there will also be some displacement of residents around the noise problem areas.

Mitigating Measures: Families displaced would relocate to quieter areas which would enhance the social processes -- communication, education, comprehension, relationships. Also, relocation assistance and compensation would be provided to displaced families.

e. Impact: An adverse economic effect will be realized due to the cost of noise abatement barriers.

Mitigating Measures: The benefits of a noise abatement program are higher property values, fewer hearing difficulties, better social group relationships, improved communications, improved health, lower health costs, less litigation, and a restoration of a degree of quiet to our urban society. Certain programs already mandated by the state and federal governments will underwrite some of the costs of noise attenuation devices and require that future vehicles of transportation emit lower noise levels.

f. Impact: An active noise abatement program could tend to have a restrictive effect on future urban development.

Mitigating Measures: As noise abatement technology progresses and new quieter vehicles replace the older noisier models, compliance with standards can be accomplished more readily and, if staged over a period of years, will lessen this impact while at the same time achieving a gradual improvement in the quality of life in the urban areas through the reduction of noise. In addition, improved noise conditions could enhance existing areas of urban development, thus encouraging redevelopment or upgrading of communities.

g. Impact: Additional services by government will be necessary to centralize the handling of noise-related problems.

Mitigating Measures: The benefits to be derived from a coordinated approach to the noise problem offset any minor interruptions of service or cost of additional staff needed to handle this function.

h. Impact: With regard to safety, there would be some problems as transportation vehicles become quieter. Quiet vehicles could result in more accidents, since people, particularly the very young and the old, may not hear approaching vehicles.

Mitigating Measures: To mitigate the possible safety problem associated with quieter vehicles, reeducation will be required in the schools, since we presently instruct youngsters to stop, look, and listen before crossing. It may also be more necessary to rely on visual crossing devices.

13. Urge continued federal and state research into the noise measurement methods and noise limits and recommend additional research programs as problems are identified.

a. Impact: Additional services and funds will be necessary in government to accomplish the necessary noise abatement programs by funding and staffing an organization.

Mitigating Measures: The benefits to be derived from a coordinated, comprehensive approach to the noise problem offset any minor interruptions of service or cost of additional staff needed to handle this function.

b. Impact: A beneficial effect on the health of those people adjacent to major noise sources will be realized by reducing the noise levels and thus the harmful effects.

Mitigating Measures: None required.

14. Recommended needed legislation to the state and federal governments which will provide for setting reasonable and effective noise limits, for noise abatement, and for the distribution of the costs of noise abatement programs among the producers of noise.

a. Impact: Additional services and funds will be necessary in government to accomplish the necessary noise programs by funding and staffing an organization.

Mitigating Measures: The benefits to be derived from a coordinated, comprehensive approach to the noise problem offset any minor interruptions of service or cost of additional staff needed to handle this function.

b. Impact: A beneficial effect on the health of those people adjacent to major noise sources will be realized by reducing the noise levels and thus the harmful effects.

Mitigating Measures: None required.

15. Encourage the federal and state governments and other agencies to work for standardization and simplification of the measurement methods used in assessing noise impact.

a. Impact: Additional services and funds will be necessary in government to accomplish the program by funding and staffing an organization.

Mitigating Measures: The benefits to be derived from a coordinated, comprehensive approach to the noise measurement problem will offset any minor interruptions of service or cost of additional staff needed to handle this function.

ADDENDUM TO DRAFT

ENVIRONMENTAL IMPACT REPORT

NOISE ELEMENT

This Addendum in combination with the Draft Environmental Impact Report dated October 11, 1974 is the Final Environmental Impact Report for the Noise Element.

THE DEPARTMENT OF REGIONAL PLANNING

November 8, 1974

INTRODUCTION

This Addendum together with the Draft Environmental Impact Report dated October 11, 1974 is, in the opinion of the Regional Planning Commission, an adequate assessment of the Environmental impacts which may result from the adoption and implementation of the proposed Noise Element of the Los Angeles County General Plan.

The Addendum adds Section V - COORDINATION, Section VI - EVALUATION and Section VII - RESPONSE TO COMMENTS, and when combined with Sections I through IV of the Draft Environmental Impact Report Constitutes the complete Final Environmental Impact Report for this element except for any responses which may need to be added as a result of comments submitted at the Board of Supervisors hearing scheduled for December 19, 1974.

SECTION V - COORDINATION

Throughout the process of preparing the Noise Element and its Environmental Impact Report (EIR), coordination with various citizen and agency groups was actively pursued. Continuous review opportunities were made available to the Los Angeles County Citizens Planning Council (a 50 member citizen group organized to advise the Commission and the Board of Supervisors on general plan matters), the General Plan Policy Review Board (a policy advisory group composed of 16 county department and agency heads) and the Los Angeles County Association of Planning Officials (an affiliation of elected, appointed, and staff planning officials of cities within Los Angeles County). Extensive public input began in mid-July when a preliminary draft of the element and its EIR was published under date of July 17, 1974. Eleven public informational meetings were held in locations easily accessible to citizens living in all geographic portions of the county. The second edition of the Noise Element was published under date of October 11, 1974, and was entitled, "Proposed Element - Draft Environmental Impact Report." Copies of both the "Preliminary and Proposed" documents were mailed to all cities within Los Angeles County, adjacent counties, the Southern California Association of Governments, the South Coast Regional Coastal Commission, the State Clearinghouse, the United States Environmental Protection Agency, and the Angeles National Forest.

A public hearing was held before the Regional Planning Commission on October 29, 1974, following legal notice of such hearing as required by law and extensive additional notice to the public through press releases on September 30 and October 23, 1974, and the mailing of notices to over 1,200 individuals, community groups, and public agencies.

Comments received during the entire review process have been evaluated and responses prepared and included in this Addendum as Section VII.

No comments were submitted on the EIR for the Noise Element at the public hearing held on October 29, 1974.

SECTION VI - EVALUATION

This EIR was prepared by first identifying the relationship between element policy and the programs intended to implement that policy and then assessing the impacts that may result from the implementation of such programs. Following this initial identification of impacts and mitigation measures, a more complete impact statement was developed by grouping the impacts into nine general areas of environmental concern

which provided a better opportunity for analysis of the cumulative impacts generated by the implementation of the element. In order to provide adequate documentation, the EIR not only provides an analysis of physical impacts but also provides additional information relating to economic and social factors to assist in the decision-making process.

Based upon an analysis of the information contained in the EIR it has been concluded that the policy direction identified and the implementation of the program recommendations recommended in the Noise Element will not result in any significant primary or secondary adverse impacts on the physical condition of the environment. It can be anticipated that some social and economic impacts will result from implementing this element. When considered on the basis of a limited geographic area or individual program basis, some economic and social impacts may be significantly adverse. However, in evaluating these factors in the larger scale, the social benefits for improving the health, safety, and general welfare for the citizenry of Los Angeles County far outweigh any social or economic disadvantages.

SECTION VII - RESPONSE TO COMMENTS

A. Comments on Preliminary Draft Dated July 17, 1974

This is the Los Angeles County Road Department's response to comments received on the preliminary Environmental Impact Report (EIR), dated July 17, 1974 from various organizations and individuals who reviewed the document during the period between July 17, 1974 and September 1, 1974. Over 2,000 copies of the element and EIR were distributed for review and comment.

Comments submitted are presented in summary form as are the responses by the Los Angeles County Road Department. The responses indicate page and line where changes were made, and, where no change was made, the reasons for such action are given. If changes were made, the additions are underlined while deletions are lined out.

In addition to the comments received from various organizations and individuals, eleven public presentation meetings were held. At these meetings, the public was invited to make comments on the element and the EIR. These meetings were held on:

July 23, 1974 - Malibu
July 25, 1974 - Newhall
July 30, 1974 - Antelope Valley
July 31, 1974 - Las Virgenes
Aug. 1, 1974 - San Dimas
Aug. 5, 1974 - Redondo Beach
Aug. 8, 1974 - La Canada

Aug. 13, 1974 - Lakewood
Aug. 14, 1974 - San Gabriel
Aug. 15, 1974 - Huntington Park
Aug. 19, 1974 - Van Nuys

COMMENTS AND RESPONSES

COMMITTEES

1. Citizen's Planning Council - Transportation Committee

At their meeting of August 22, 1974, the committee moved to support the Noise Element in its present form.

GENERAL PLAN POLICY REVIEW BOARD - TRANSPORTATION COMMITTEE

2. Department of Health Services

a. COMMENTS: Pg. 66 -- Social Impacts -- The policies and programs must be implemented. Immediate attention should be given to consideration of building code, noise, subdivision and zoning ordinances. Generally, families displaced by implementation of this element will also benefit from improved mental and physical health.

RESPONSE: The following changes were made: Pg. 67, para. 2, line 1 -- "~~If the~~ The policies and programs of this element must be ~~are~~ implemented to alleviate the social effects previously outlined. Although much of the noise problem can be alleviated through changes in the building code, noise, subdivision, and zoning ordinances, there will be . . ."

Pg. 67, para. 3, line 4 -- " . . . group and family relationships. Generally, families displaced by implementation of this element will also benefit from improved mental and phusical health. In addition, . . ."

b. COMMENT: Pg. 68 -- Urban Development -- Discuss the impact of this element on high density and high-rise areas since high-rise areas have particular problems associated with transportation noise.

RESPONSE: The following change was made: Pg. 68, para. 3, line 4 -- " . . . urban development. This effect on high density and high-rise areas would be even greater because of the particular problems of transportation noise in high rise areas, for example, the effect of reverberation and the tendency of groups of these buildings to trap the sound and keep it from dispersing."

3. Urban Affairs

a. COMMENT: Pg. 61 -- Specify Butte Street Yard as being a railroad yard.

RESPONSE: Comment incorporated as suggested.

b. COMMENT: Pg. 65, para. 4 -- Questioned " . . . could create this type of effect." and " . . . such devices . . ."

RESPONSE: The following changes were made: Pg. 65, para. 4, line 7 -- " . . . scenic/esthetic considerations. ~~could create this type of effect~~. Both could necessitate changes in the existing landform."

Pg. 65, para. 4, line 12 -- " . . . considered the use of ~~such devices~~ walls and earth berms to attenuate noise adjacent to transportation facilities."

c. COMMENT: Pg. 68, para. 1, line 2- Questioned the word "efficiency."

RESPONSE: The following change was made: Pg. 68, para. 1, line 2 -- " . . . are an increase in human efficiency and productivity, higher property values, . . ."

d. COMMENT: Pg. 68, para. 2 -- Ken Naylor -- " . . . state and federal ~~levels of~~ governments...future transportation vehicles ~~of transportation~~...for quieter vehicles ~~will~~ may ultimately. . ." Discuss effects of additional costs being borne by consumer.

RESPONSE: Suggested wording changes made. The effects of additional costs are already adequately discussed to the extent that information is available.

e. COMMENT: Pg. 69, para. 3 -- Split and clarify the 2 thoughts in this paragraph.

RESPONSE: The following change was made: Pg. 69, para. 3 -- " . . . of the effects of noise. ~~and certain~~ Certain adjustments in county government will be required to centralize . . ."

f. COMMENT: Pg. 69, para. 4, line 8 -- "Eventually ~~an~~ a separate agency or organization . . ."

RESPONSE: Comment incorporated as suggested.

g. COMMENT: Pg. 70, para. 1, line 1 -- "Displacement of ~~people~~ residents around large airports . . ."

RESPONSE: Comment incorporated as suggested.

h. COMMENT: Pg. 70, para. 7, line 9 -- " . . . levels could potentially have a damaging effect.--~~Increased exposure to the present transportation noise levels would be detrimental to~~ on the physical and . . ."

RESPONSE: Comment incorporated as suggested.

i. COMMENT: Pg. 71, para. 4 -- "In general, the environmental quality of the historical, . . ." Add schools, hospitals, churches, etc., also.

RESPONSE: The following change was made: Pg. 71, para. 4 -- "In general, the environmental quality of the historical, archaeological/paleontological, and park/recreational sites as well as churches, hospitals, schools, etc., would be enhanced because of the increased quiet."

j. COMMENT: Pg. 72 - Change "No Project Alternative" to "Alternative 3-No Project."

RESPONSE: Comment incorporated as suggested.

k. COMMENT: Pg. 73, para. 3, line 1 -- " . . . improve the noise environment in ~~this~~ the county."

RESPONSE: Comment incorporated as suggested.

l. COMMENT: Pg. 73, para. 7 -- " . . . a noise control program and higher short-term costs for certain goods and services . . ." Move this paragraph to the second paragraph of Section E.

RESPONSE: Comment incorporated as suggested.

m. COMMENT: Pg. 73, last para. -- Relocation of noise affected residents would require housing elsewhere in new areas or increased density in centers.

RESPONSE: Because of the present vacancy rate in housing this statement is only a possibliity, not a requirement. The following change was made: Pg. 73, last para. -- "Although there ~~There~~ is no direct growth inducing impact involved in implementing the Noise Element, the relocation of noise-affected residents may require additional housing in new areas or increased density in our urban centers.

GOVERNMENTAL AGENCIES

4. California Department of Transportation

COMMENTS: No adverse comments on the Environmental Impact Report.

RESPONSE: None required.

5. California Office of Planning and Research

COMMENT: Suggested including a map of a typical freeway section showing noise contours.

RESPONSE: A map showing the noise contours for a portion of the San Bernardino Freeway was included between Pages 60-61. Also included was a noise contour map for a typical county arterial highway.

6. California Regional Water Quality Control Board

COMMENTS: No adverse comments.

RESPONSE: None required.

7. United States Department of the Interior - Bureau of Outdoor Recreation

COMMENTS: No adverse comments on the Environmental Impact Report.

RESPONSE: None required.

8. United States Department of Agriculture - Forest Service

COMMENTS: No adverse comments on the Environmental Impact Report.

RESPONSE: None required.

PRIVATE CITIZENS

9. Carl Boyer, 3rd-Newhall

COMMENTS: No comments on the Environmental Impact Report.

RESPONSE: None required.

PRIVATE ORGANIZATIONS

10. Ecology Center of Southern California

a. COMMENT: Pg. 66, para. 2 - Air quality -- Encouraging transportation by less noisy vehicles could increase or decrease the air pollution of L.A. County, depending on the emissions of the encouraged mode of transportation. Of course, we support encouraging less polluting forms of transportation as well as less noisy forms.

RESPONSE: None required.

b. COMMENT: Pg. 66, para 6 -- Mitigating Measure - New development should not be allowed that would increase the noise beyond its current level in the 75% of "vacant" (natural), recreational or agricultural lands.

RESPONSE: It is a goal of this element to keep noise levels as low as possible. Commensurate with that goal, the element recommends that the various ordinances governing land development be changed to reflect this objective.

c. COMMENT: Pg. 67, paragraphs 4-6 -- Economics - there will probably be an economic benefit to workers on noise control related projects.

RESPONSE: This statement will be incorporated in a future draft.

d. COMMENT: Pg. 70-72 - Alternatives -- Alternative 2 -- Maximum program -- we believe that maximum noise abatement such as mentioned in this program should be made available to any community which desires it. Such an alternative should be proposed.

RESPONSE: Cities within the county may choose to implement such a program and for some communities it may be feasible to do so.

e. COMMENT: Pg. 73, last para. -- While direct growth inducements may not exist, indirectly, people will move to quiet residential neighborhoods.

RESPONSE: The response to this comment is addressed in the proposed text change on page 3 of this addendum.

PUBLIC MEETINGS (Eleven)

COMMENT: No comments on the Environmental Impact Report.

RESPONSE: None required.

B. Comments Submitted at the Regional Planning Commission Hearing on October 29, 1974

None submitted.

PREPARED BY THE STAFF OF THE LOS ANGELES COUNTY ROAD DEPARTMENT AND THE DEPARTMENT OF REGIONAL PLANNING

The Los Angeles County Road Department and the Department of Regional Planning wishes to acknowledge the assistance of many public and private groups and individuals in the preparation and review of this element, in particular, the Southern Pacific Transportation Company; the Los Angeles Junction Railway Company; the Union Pacific Railroad Company; the Atchison, Topeka, and Santa Fe Railway Company; the Harbor Belt Line Railroad of Los Angeles Harbor; the City of Los Angeles Department of Airports; the Aviation Division of the County Engineer; Bolt, Beranek, and Newman, Incorporated; Wyle Laboratories; the Los Angeles County General Plan Policy Review Board; the Citizens' Planning Council; the Los Angeles County Association of Planning Officials; and CALTRANS.

For information concerning the Noise Element contact the Los Angeles County Road Department, Engineering Services Division, 1540 Alcazar Street, Los Angeles 90033, Telephone - (213) 225-1677 Extension 75184.

Los Angeles County
Department of Regional Planning
320 West Temple Street
Los Angeles, CA 90012

LITHOGRAPHED BY CENTRAL DUPLICATING BUREAU/COUNTY OF LOS ANGELES