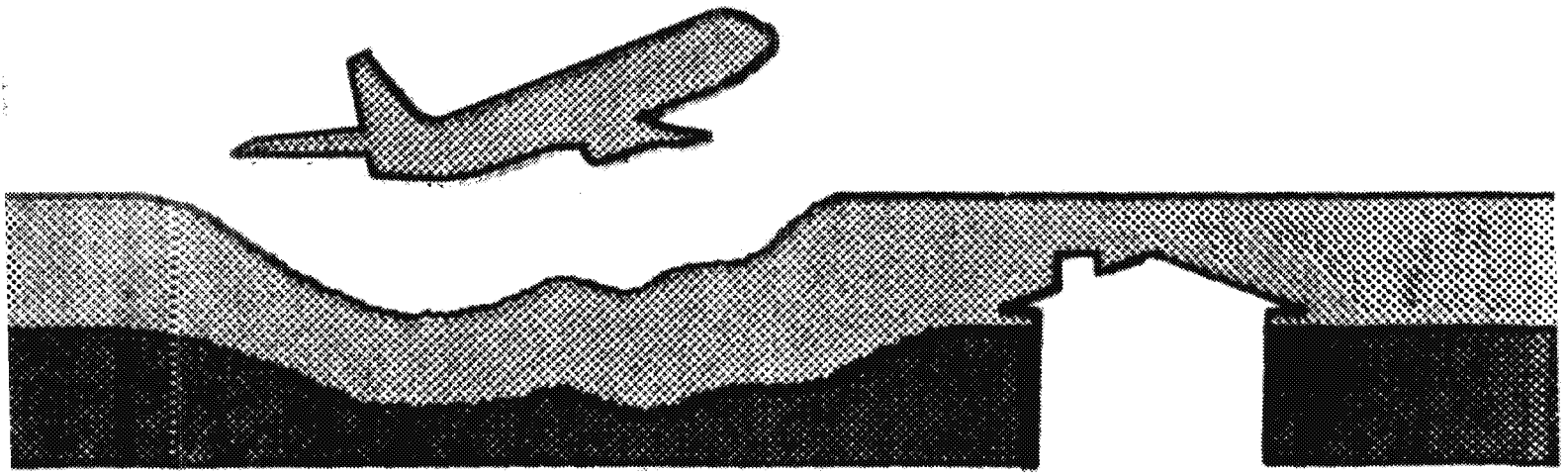

NOISE ELEMENT

INGLEWOOD GENERAL PLAN

Noise Element of the General Plan

for the

City of Inglewood

Prepared by

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APPROVED BY THE INGLEWOOD PLANNING COMMISSION
ON JUNE 3, 1987, PER RESOLUTION NO. 743.

ADOPTED BY THE INGLEWOOD CITY COUNCIL
ON SEPTEMBER 1, 1987, PER RESOLUTION NO. 87-61.

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PREFACE

This document represents an update of the City of Inglewood Noise Element of the General Plan. The original Noise Element was prepared by the Inglewood Department of Planning and Development, and was released September 27, 1974. Since that time much has changed which limits the effectiveness of the previous Noise Element.

Change in Aircraft Noise Environment. The bulk of the 1974 Noise Element dealt with aircraft operations at Los Angeles International Airport (LAX). Since that time operations have increased substantially, and newer quieter jets have been introduced into the commercial fleet. Most significantly is the culmination of the "Noise Control and Land Use Compatibility Study for Los Angeles International Airport," (March 1984). This study identifies areas of noise and land use incompatibilities around the airport, and details strategies to mitigate these impacts.

Change in Traffic Noise Environment. Traffic levels have changed in the City of Inglewood since 1974, and as a result the traffic noise levels have changed throughout the City. Methods of measuring the existing noise, and techniques for forecasting future noise levels have improved drastically over the last ten years.

Improvements in the Understanding of Community Noise. In 1974 the understanding and control of community noise was in its infancy. Improvements have occurred in the measurement of community noise, the understanding of the effects of high community noise levels, and the methods of regulating community noise sources.

Goals and programs contained in the 1974 Noise Element have been retained in this revision when appropriate. New goals, programs, action items, and standards have been added. The background information contained in the 1974 document has been discarded and replaced with more up to date and comprehensive information.

INGLEWOOD GENERAL PLAN
NOISE ELEMENT

The Noise Element of a General Plan is a comprehensive program for including noise control in the planning process. It is a tool for local planners to use in achieving and maintaining compatible land use with environmental noise levels. The Noise Element identifies noise sensitive land uses and noise sources, and defines areas of noise impact for the purpose of developing programs to ensure that Inglewood residents will be protected from excessive noise intrusion.

The Noise Element follows the recently revised State guidelines in the State Government code Section 65301(f) and Section 46050.1 of the Health and Safety Code. The element quantifies the community noise environment in terms of noise exposure contours for both near and long-term levels of growth and traffic activity. The information will become a guideline for the development of land use policies to achieve compatible land uses and provide baseline levels and noise source identification for local noise ordinance enforcement. The Element is divided into six sections and an Appendix. Included in the Appendix is a glossary that defines a number of key terms used in noise assessments. The Noise Element is organized as follows:

1. ***ISSUE IDENTIFICATION*** presents the noise issues in the City that are to be addressed within the Noise Element.

2. ***FINDINGS*** section summarizes the noise environment and the implementation programs to minimize noise and land use conflicts.

3. ***GOAL STATEMENT*** defines the goals of the Noise Element.

4. ***POLICIES*** summarizes the policies to be implemented by the City to achieve these goals.

5. ***INVENTORY OF CURRENT AND FORECAST CONDITIONS*** describes the existing and future noise levels in the City.

6. ***IMPLEMENTATION*** defines policies that the City will implement to achieve the goals of the Element.

A. ***TECHNICAL APPENDIX*** contains background information on noise, health effects of noise, methodology, measurement and modeling results, and glossary.

1.0 ISSUE IDENTIFICATION

1.1 Transportation Noise Control - Within the City of Inglewood are a number of transportation related noise sources including a freeway, major arterials, collector roadways, industrial plants and aircraft overflights. In addition, the Century Freeway is under construction and will pass through the City. These sources are the major contributors of noise in Inglewood. Cost effective strategies to reduce their influence on the community noise environment are an essential part of the Noise Element.

1.2 Noise and Land Use Planning Integration - Information relative to the existing and future noise environment within Inglewood should be integrated into future land use planning decisions. The Element presents the noise environment in order that the City may include noise impact considerations in development programs. Noise and land use compatibility guidelines are presented, as well as noise standards for new developments.

1.3 Community Noise Control for Non-Transportation Noise Sources - Residential land uses and areas identified as noise sensitive must be protected from excessive noise from non-transportation sources including commercial and industrial centers. These impacts are most effectively controlled through the adoption and application of a City Noise Ordinance. A model Noise Ordinance is presented in the Technical Appendix.

2.0 FINDINGS

The City of Inglewood has all of the land uses found in a well balanced community. The predominant land use in the City is residential, and should also be considered the most noise sensitive. Other noise sensitive land uses include schools, hospitals, libraries and parks. The predominant noise sources in Inglewood are motor vehicles and aircraft operations. The San Diego Freeway and several major arterial roadways pass through the City. The Los Angeles International Airport lies to the west of Inglewood, and the City is directly under the approach paths for the airport.

Other sources of noise within the City are from non-transportation sources including industrial and commercial activities, sport activities within public and private parks, construction, and human activities. Noise from trucks at commercial loading docks have also been identified as a source of noise.

Noise affects all types of land uses and activities, although some are more sensitive to high noise levels than others. Land uses in Inglewood identified as noise sensitive include residences of all types, schools, churches and hospitals.

The noise environment for Inglewood can be described using noise contours developed for the major noise sources within the City. The major noise sources impacting the City are traffic noise and aircraft noise. Some cities prefer to view composite noise contours which include both the aircraft and traffic as a single impact. Other communities prefer to maintain two sets of contours; one for aircraft and a second for traffic. There are several good reasons for maintaining separate noise contour maps. The first is that traffic impacts are clearly delineated from aircraft noise. This becomes important for a proposed residential development, for instance, which is located within the 65 dB CNEL noise contour. If the noise is due to traffic, the noise level in outdoor living areas (e.g. rear yards) can be mitigated through sound walls down to an acceptable level. However, if the proposed residences are located within a noise zone greater than 65 dB CNEL due to aircraft noise, nothing can be done to mitigate the outside noise levels and the proposed uses should be considered incompatible with the noise environment. Practical considerations also favor separate noise contours. Traffic forecasts and airport noise contour updates are rarely developed

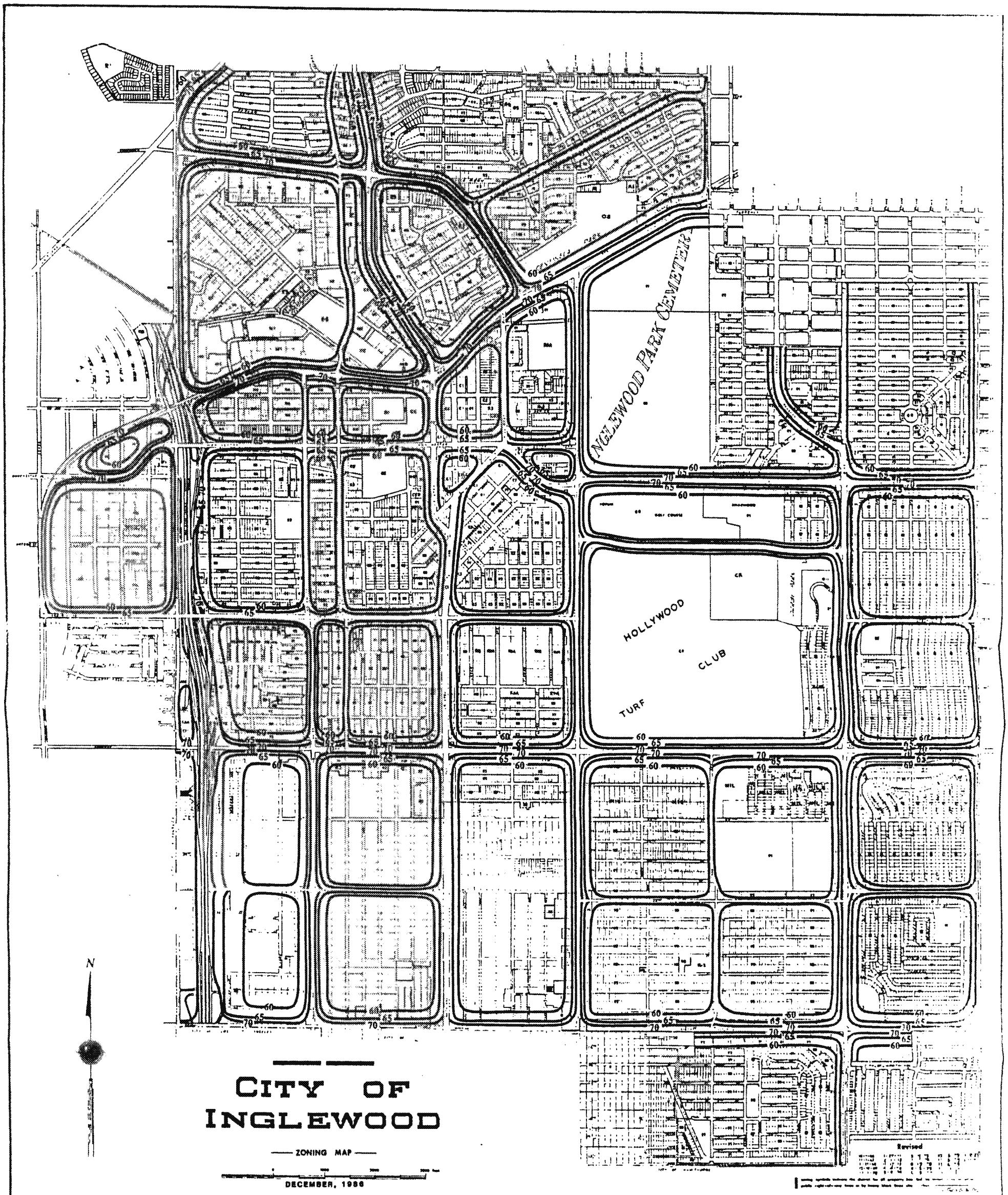
simultaneously, and separate contours simplify future Noise Element updates. For the Inglewood Noise Element both traffic and combined aircraft/traffic contours were developed.

The traffic noise contours for existing 1986 and the forecast conditions (year 2000) are presented in Exhibits 1 and 2 respectively. Exhbits 1A and 2A are the traffic noise levels plus the aircraft noise levels combined. The 60, 65, and 70 dB CNEL contour levels are shown on these maps. The 60 dB CNEL contour represents the Noise Referral Zone for which any proposed noise sensitive land use (i.e., residential, hospitals, schools and churches) within this zone should be evaluated on a project specific basis and the project may require mitigation to meet City or State (Title 24) standards. The 65 dB CNEL contour represents the level for which any proposed residential land uses will require mitigation in order to comply with local noise standards.

Exhibits 3 and 4 present the 1986 and 1987 dB CNEL noise contours for the Los Angeles International Airport. The 1987 contours are from the "Noise Control and Land Use Compatibility Study," for the airport (referenced previously). Future airport noise control programs and residential acoustical insulation programs are based on the 1987 contours. The 1986 contours are from the first quarter report provided by the Los Angeles Department of Airports. The contours reflect the continuous monitoring data covering the 12 month period ending March 31, 1986.

The sources of noise in Inglewood can be divided into two basic categories, transportation sources (traffic and aircraft) and non-transportation sources. A local government has little direct control of transportation noise at the source. State and Federal agencies have the responsibility to control the noise from the source, such as vehicle noise emission levels. The most effective method the City has to mitigate transportation noise is through reducing the impact of the noise onto the community (i.e. noise barriers and site design review). Mitigation through the design and construction of a noise barrier (wall, berm, or combination wall/berm) is the most common way of alleviating traffic noise impacts (Exhibit 5).

The effect of a noise barrier is critically dependent on the geometry between the noise source and the receiver. A noise barrier effect occurs when the "line of sight" between the source and receiver is penetrated by the barrier. The greater the penetration the greater the noise reduction.

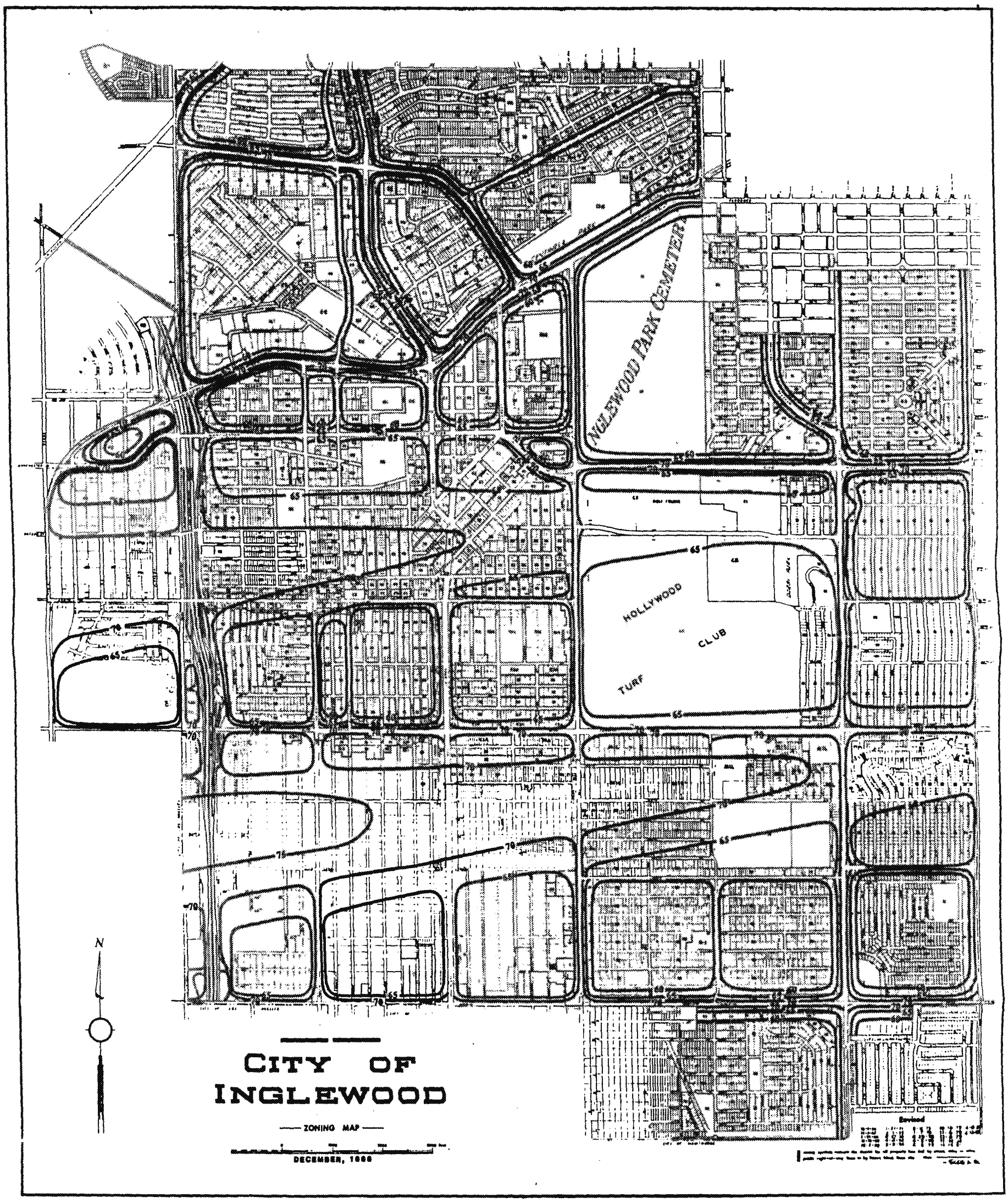


CITY OF INGLEWOOD

NOISE ELEMENT

Exhibit 1

Existing Traffic Noise Contours (CNEL)

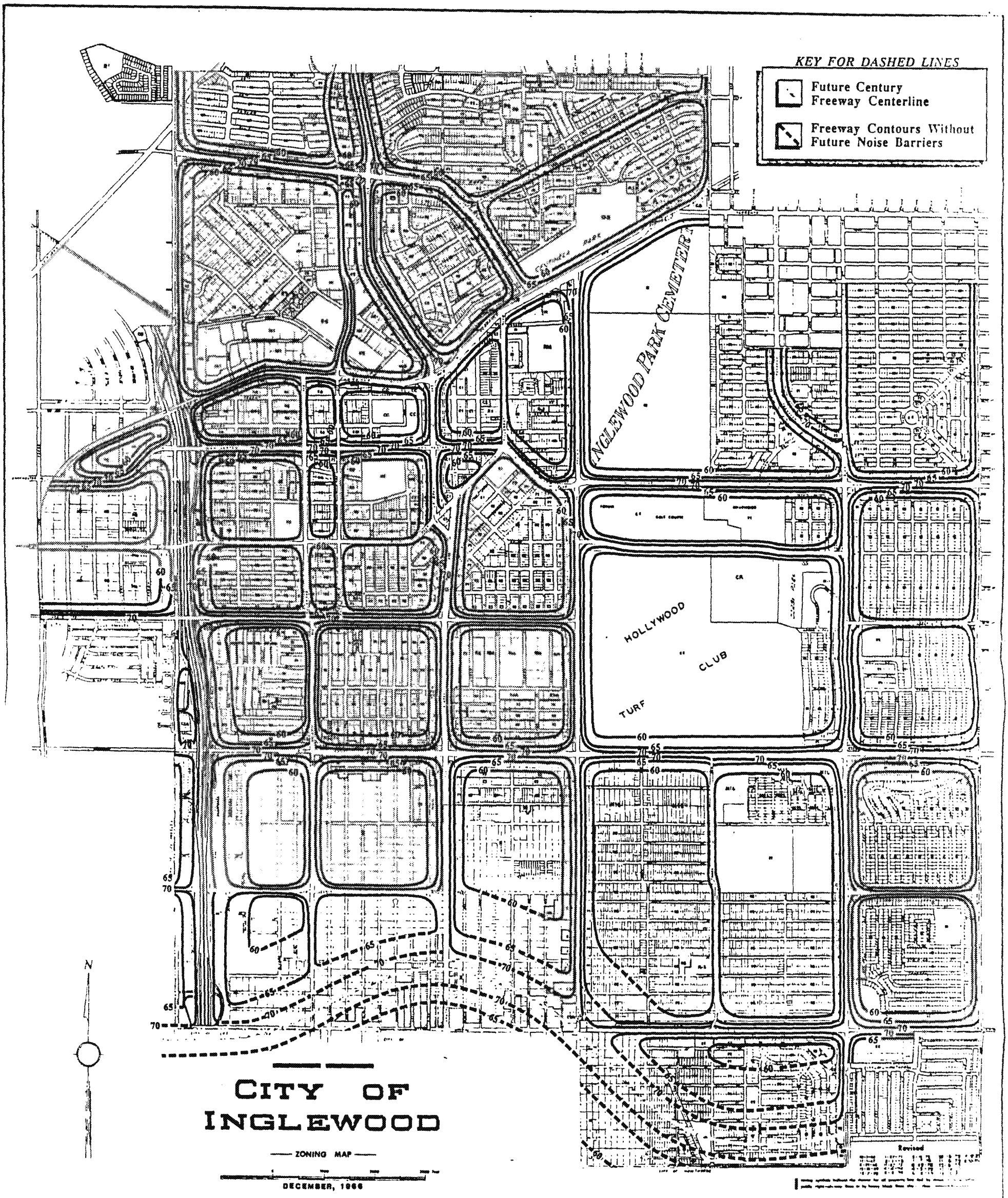


CITY OF INGLEWOOD

NOISE ELEMENT

Exhibit 1A

Existing Traffic And Airport Noise Contours (CNEL)

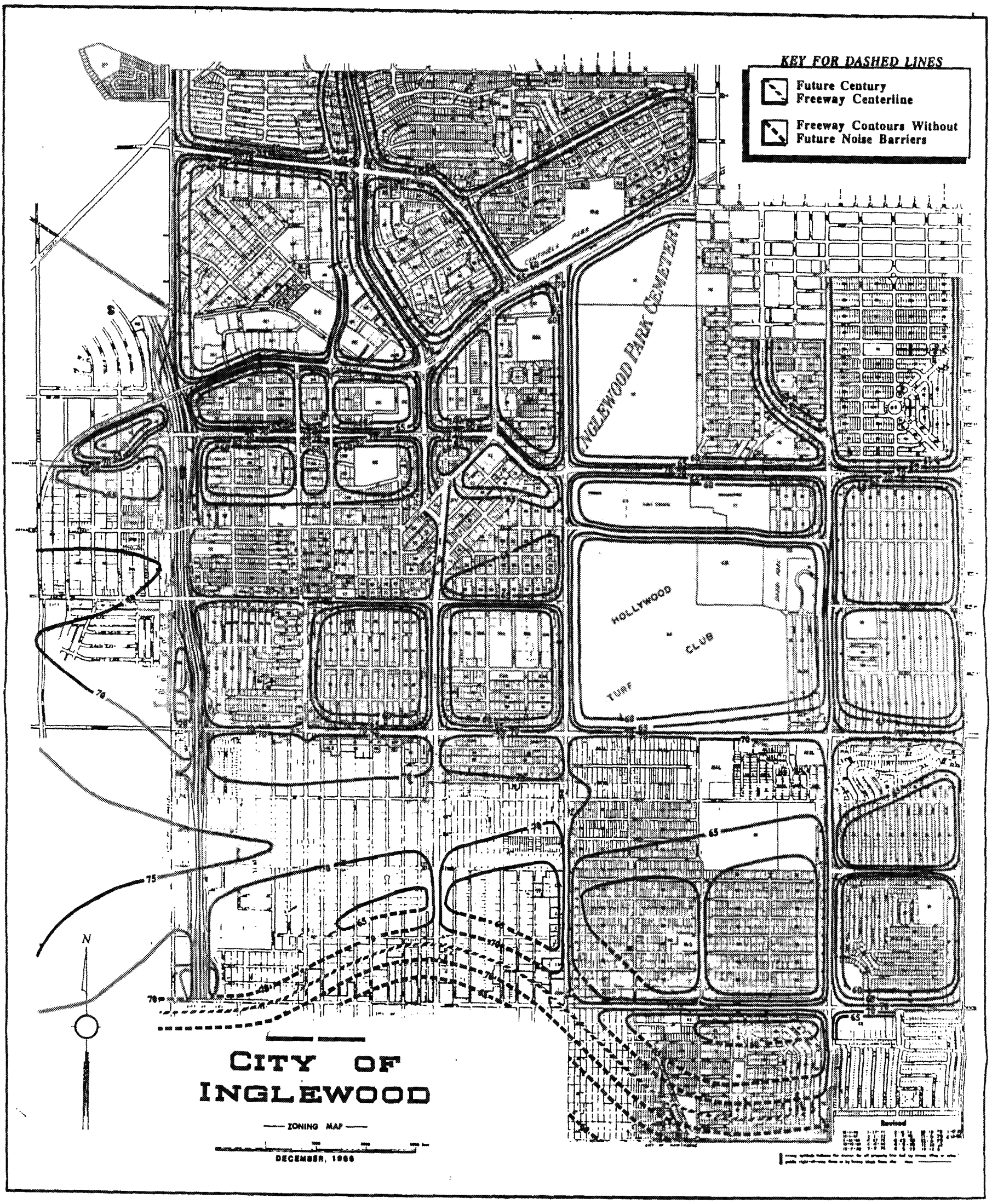


CITY OF INGLEWOOD

NOISE ELEMENT

Exhibit 2

Future Traffic Noise Contours (CNEL)

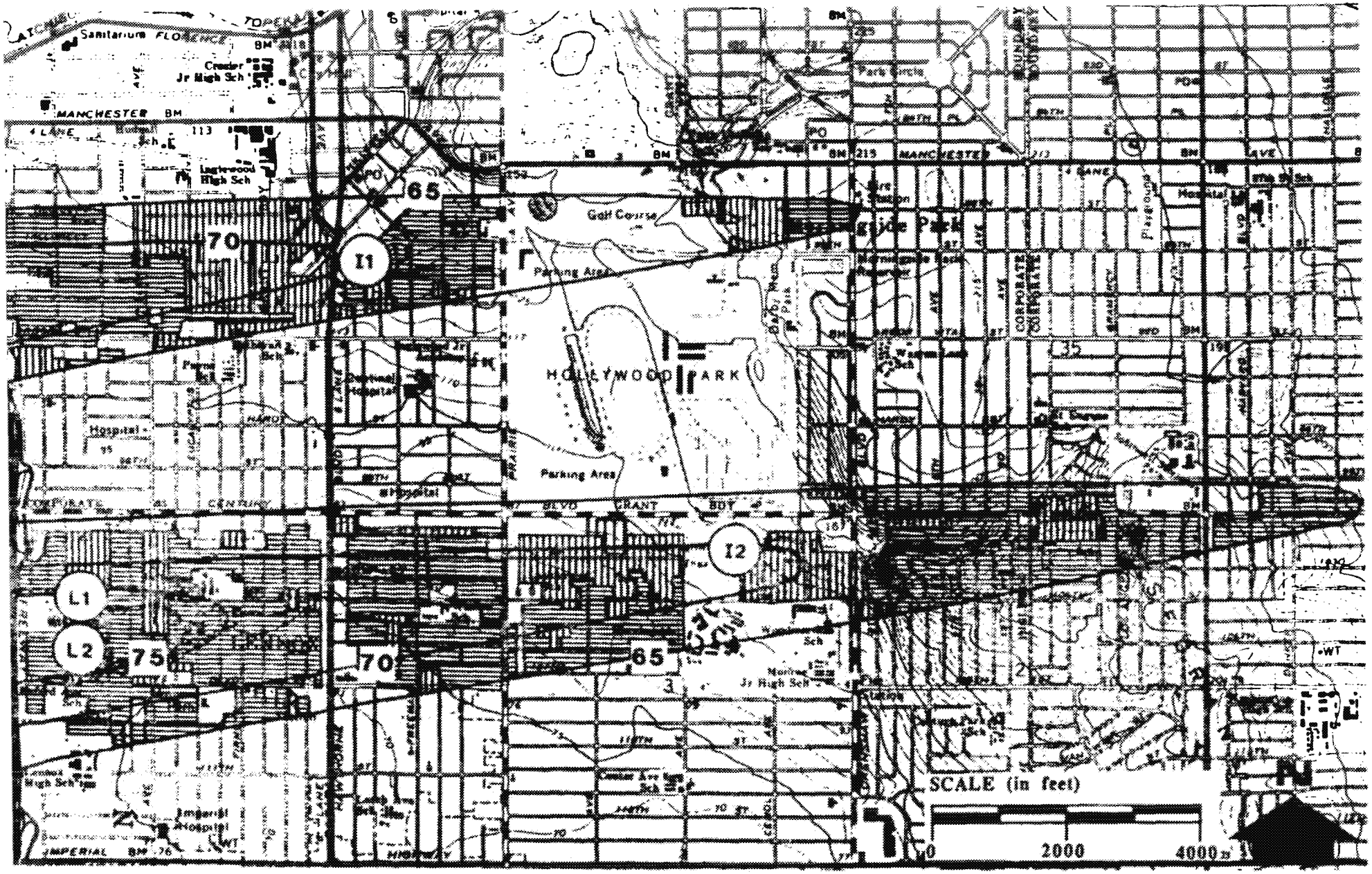


CITY OF INGLEWOOD

NOISE ELEMENT

Exhibit 2A

Future Traffic And Airport Noise Contours (CNEL)

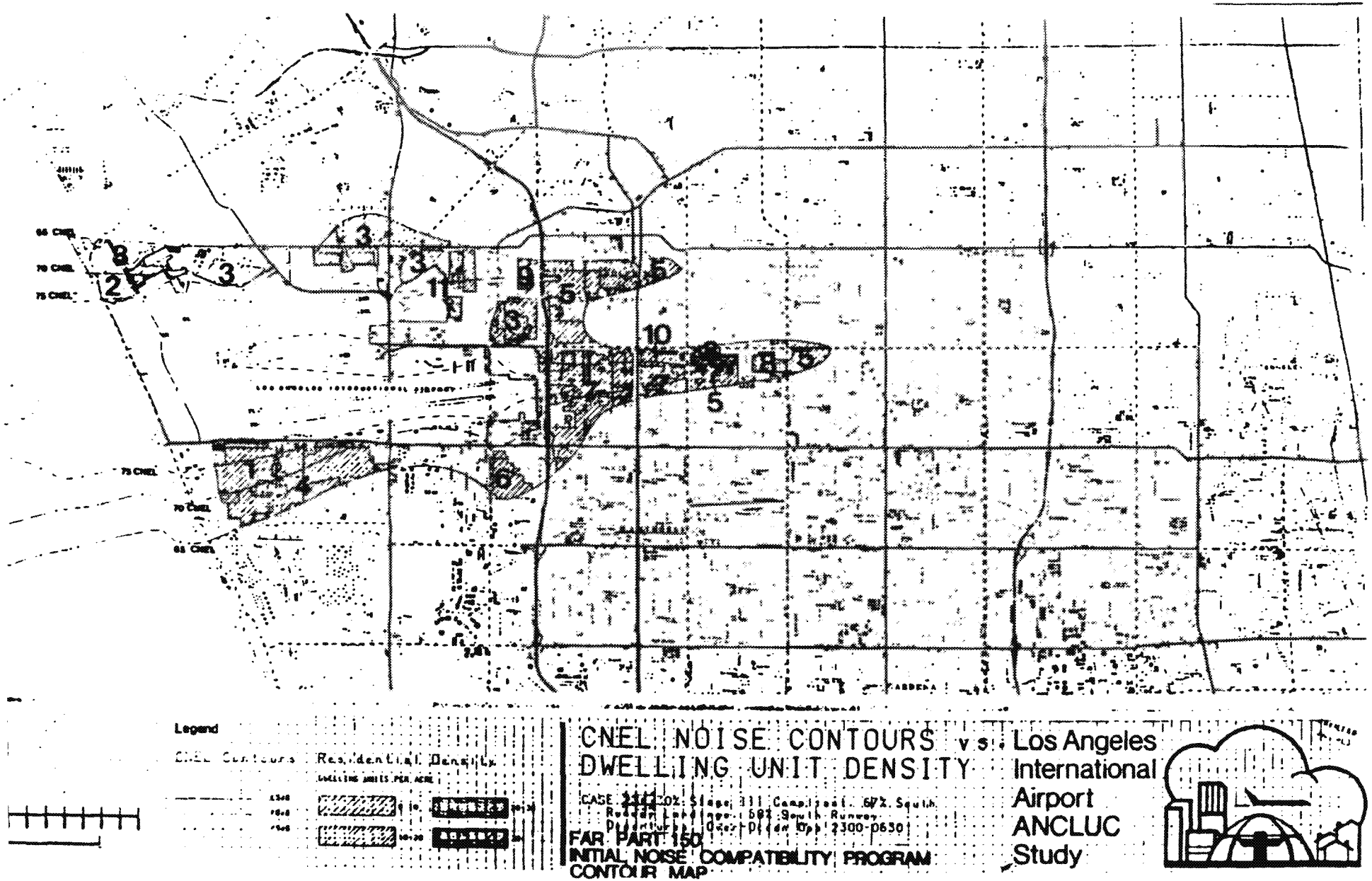


TY OF INGLEWOOD

)ISE ELEMENT

Exhibit 3

1986 Aircraft CNEL Noise Contours

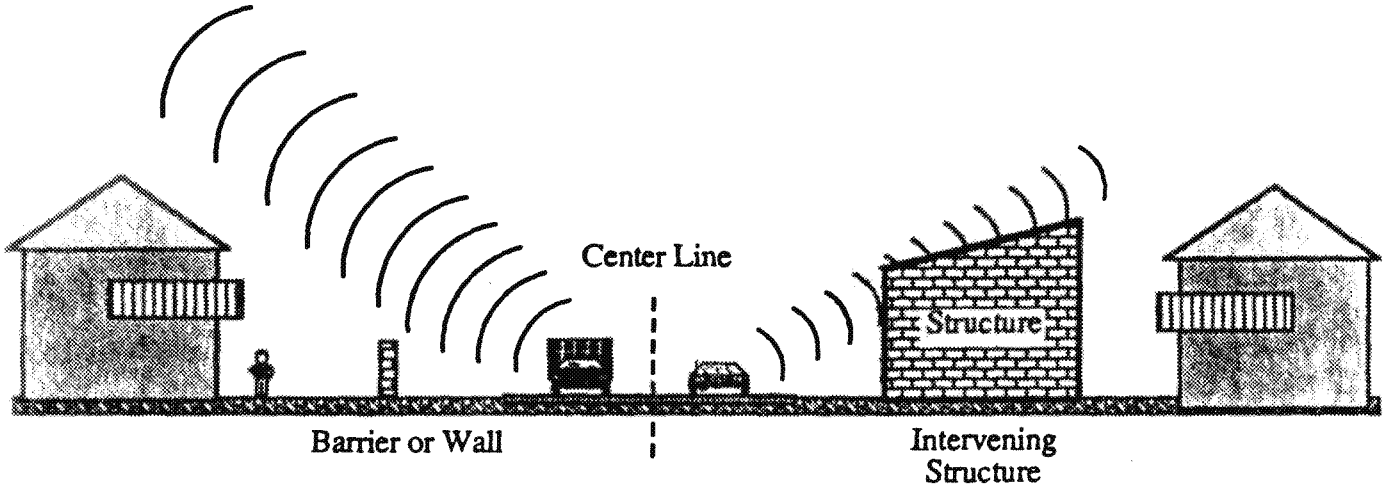


TY OF INGLEWOOD

OISE ELEMENT

Exhibit 4

1987 Projected Aircraft CNEL Noise Contours



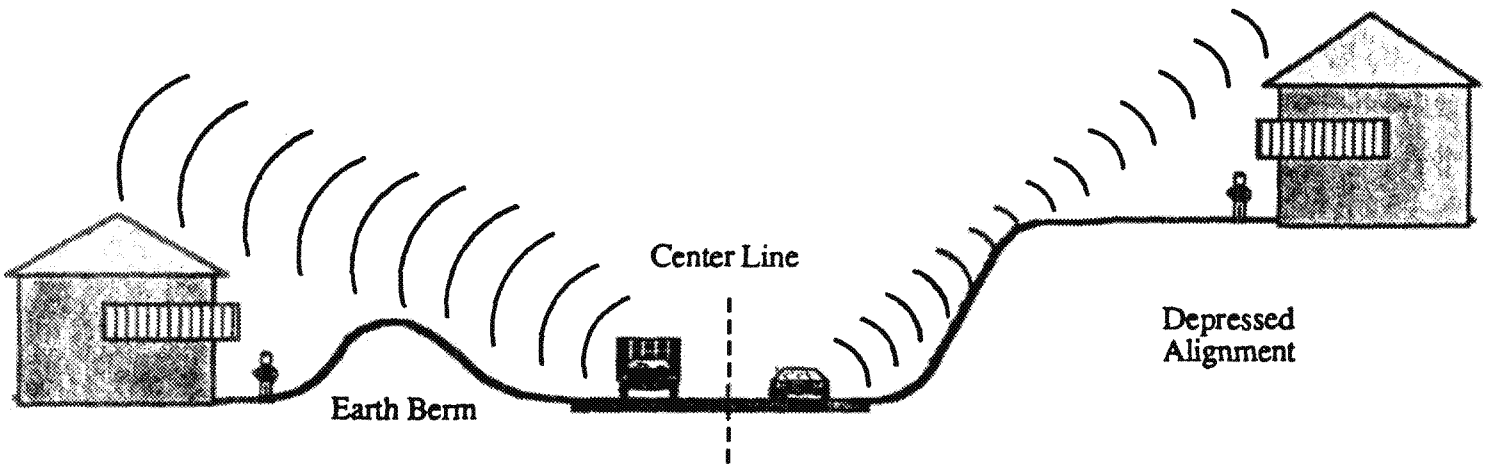


Exhibit 5
Examples of Noise Barrier Effect

Noise concerns should be incorporated into land use planning to reduce future noise and land use incompatibilities. This is achieved by establishing standards and criteria that specify acceptable limits of noise for various land uses throughout the City. These criteria are designed to integrate noise considerations into land use planning to prevent noise/land use conflicts. Exhibit 6 presents criteria used to assess the compatibility of proposed land uses with the noise environment. These criteria are the basis for the development of specific Noise Standards. These standards, presented in Exhibit 7, represent the City policies related to land uses and acceptable noise levels. These tables are the primary tools which allow the City to ensure integrated planning for compatibility between land uses and outdoor noise.

The most effective method to control community noise impacts from non-transportation noise sources is through application of the Community Noise Ordinance. The City should consider amending and adopting a new comprehensive community noise ordinance to help ensure that City residents are not exposed to excessive noise levels from non-transportation noise sources. The Noise Ordinance is designed to protect quiet residential areas from stationary noise sources. The noise levels encouraged by the ordinance are typical of a quiet residential area. The Orange County Noise Ordinance is provided as part of the Technical Appendix. This noise ordinance has been used as a "model" noise ordinance throughout the State of California. Many cities in both Orange County and Los Angeles County have adopted this ordinance for use in their own municipalities.

LAND USE CATEGORIES		COMMUNITY NOISE EQUIVALENT LEVEL CNEL						
CATEGORIES	USES	≤55	60	65	70	75	80≥	
RESIDENTIAL	Single Family, Duplex, Multiple Family	A	A	B	B	C	D	D
RESIDENTIAL	Mobile Home	A	A	B	C	C	D	D
COMMERCIAL Regional, District	Hotel, Motel, Transient Lodging	A	A	B	B	C	C	D
COMMERCIAL Regional, Village District, Special	Commercial Retail, Bank Restaurant, Movie Theatre	A	A	A	A	B	B	C
COMMERCIAL INDUSTRIAL INSTITUTIONAL	Office Building, Research and Development, Professional Offices, City Office Building	A	A	A	B	B	C	D
COMMERCIAL Recreation INSTITUTIONAL Civic Center	Amphitheatre, Concert Hall Auditorium, Meeting Hall	B	B	C	C	D	D	D
COMMERCIAL Recreation	Children's Amusement Park, Miniature Golf Course, Go-cart Track, Equestrian Center, Sports Club	A	A	A	B	B	D	D
COMMERCIAL General, Special INDUSTRIAL, INSTITUTIONAL	Automobile Service Station, Auto Dealership, Manufacturing, Warehousing, Wholesale, Utilities	A	A	A	A	B	B	B
INSTITUTIONAL General	Hospital, Church, Library Schools' Classroom	A	A	B	C	C	D	D
OPEN SPACE	Parks	A	A	A	B	C	D	D
OPEN SPACE	Golf Course, Cemeteries, Nature Centers Wildlife Reserves, Wildlife Habitat	A	A	A	A	B	C	C
AGRICULTURE	Agriculture	A	A	A	A	A	A	A

INTERPRETATION

ZONE A
CLEARLY COMPATIBLE

Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction without any special noise insulation requirements.

ZONE B
NORMALLY COMPATIBLE

New construction or development should be undertaken only after detailed analysis of the noise reduction requirements are made and needed noise insulation features in the design are determined. Conventional construction, with closed windows and fresh air supply systems or air conditioning, will normally suffice.

ZONE C
NORMALLY INCOMPATIBLE

New construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of noise reduction requirements must be made and needed noise insulation features included in the design.

ZONE D
CLEARLY INCOMPATIBLE

New construction or development should generally not be undertaken.

* Construction of new residential uses will not be allowed in the 65 CNEL for airport noise.

LAND USE CATEGORIES		ENERGY AVERAGE CNEL	
CATEGORIES	USES	INTERIOR [1]	EXTERIOR [2]
RESIDENTIAL	Single Family, Duplex, Multiple Family	45 [3]	65
	Mobile Home	—	65 [4]
COMMERCIAL INDUSTRIAL INSTITUTIONAL	Hotel, Motel, Transient Lodging	45	65 [5]
	Commercial Retail, Bank Restaurant	55	—
	Office Building, Research and Development, Professional Offices, City Office Building	45	—
	Amphitheatre, Concert Hall Auditorium, Meeting Hall	45	—
	Gymnasium (Multipurpose)	50	—
	Sports Club	55	—
	Manufacturing, Warehousing, Wholesale, Utilities	65	—
	Movie Theatres	45	—
INSTITUTIONAL	Hospital, Schools' classroom	45	65
	Church, Library	45	—
OPEN SPACE	Parks	—	65

INTERPRETATION

1. Indoor environment excluding: Bathrooms, toilets, closets, corridors.

2. Outdoor environment limited to: Private yard of single family
   Multi-family private patio or balcony which is served by a means of exit from inside.
   Mobile home Park
   Hospital patio
   Park's picnic area
   School's playground
   Hotel and motel recreation area

3. Noise level requirement with closed windows. Mechanical ventilating system or other means of natural ventilation shall be provided as of Chapter 12, Section 1205 of UBC.

4. Exterior noise level should be such that interior noise level will not exceed 45 CNEL.

5. Except those areas affected by aircraft noise.

3.0 GOAL STATEMENT

The following are statements of the goals of the City of Inglewood for the control of community noise.

1. *Provide for the reduction of noise where the noise environment represents a threat to the public health and welfare.* In those areas where the environment represents a threat to the public health and welfare, it is the objective of the City to reduce environmental hazards to levels consistent with the protection of the public health and welfare.

2. *Reduce noise impacts in degraded areas.* In those areas where the environment is degraded, but not to an extent that represents an immediate hazard to public health and welfare, it is the objective of the City to reduce environmental degradation as much as feasible and practical within the limits imposed by conflicting objectives.

3. *Protect and maintain those areas having acceptable noise environments.* In those areas where a quality environment now exists, it is the objective of the City to prevent degradation of that environment.

4. *Provide sufficient information concerning the community noise levels so that noise can be objectively considered in land use planning decisions.* Noise and land use incompatibilities can be avoided for new developments when noise is properly considered in the planning and design of the project. It is the objective of the City to prevent future land use and noise conflicts through the planning process.

4.0 POLICIES

In order to achieve the goals of the Noise Element the following policies should be considered by the City of Inglewood:

4.1 Provide for measures to reduce noise impacts from traffic noise sources.

- Construct barriers to mitigate sound emissions where necessary or where feasible.
- Ensure the inclusion of noise mitigation measures in the design of new roadway projects in Inglewood.
- Reduce transportation noise through proper design and coordination of routing.
- Ensure the effective enforcement of City, State and Federal noise levels by all appropriate City divisions.

4.2 Incorporate noise considerations into land use planning decisions.

- Establish acceptable limits of noise for various land uses throughout the community.
- Ensure acceptable noise levels near schools, hospitals, convalescent homes, and other noise sensitive areas.
- Establish standards for all types of noise not already governed by local ordinances or preempted by state or federal law.
- Encourage acoustical design in new construction.

4.3 Develop measures to control non-transportation noise impacts.

- Establish new Community Noise Ordinance to mitigate noise conflicts.
- Evaluate noise generated by construction activities.
- Establish and maintain coordination among the City agencies involved in noise abatement.

4.4 Reduce noise conflicts at the source.

- Actively support the FAR Part 150 Noise Compatibility Program as described in the "Noise Control and Land Use Compatibility Study, Los Angeles International Airport," (March 1984).
- Monitor the progress of the Los Angeles Department of Airports and

others in implementing the various elements of the Noise Compatibility Program.

- Actively pursue amendments to the Noise Compatibility Program where appropriate and feasible to further reduce aircraft noise at its source.
- Actively advocate federal regulations for the control of aircraft noise.
- Actively advocate motor vehicle noise control requirements for production and sale.
- Initiate a periodic intensive motor vehicle noise regulation enforcement program.
- Study and develop traffic control techniques for noise abatement.
- Study and develop local street circulation concepts for noise abatement.
- Participate in development of noise abatement plans for freeways and rapid transit.
- Actively advocate federal regulations for the control of equipment noise levels.
- Actively advocate federal noise labeling requirements, and provide consumer information.
- Develop noise guidelines for City purchasing policy to take advantage of federal regulations and labeling requirements.
- Adopt new noise ordinance which contains specific measurable limits and enforcement actions
- Provide quick response to complaints and rapid abatement of noise nuisances within the scope of the City's police powers.

4.5 Reduce noise conflicts at the receiver.

- Encourage a long term development pattern which minimizes noise conflicts through planning and zoning.
- Extend State insulation requirements to single-family dwellings, specifically establishing 45 dB CNEL as an indoor noise standard.
- Study and develop guidelines for noise abatement in urban design for application in site plan review.
- Use redevelopment powers where appropriate and feasible to convert

most seriously noise-impacted areas to less noise sensitive uses, as identified in the Noise Compatibility Program.

- Actively advocate a cooperative program with the airport to provide financial assistance for sound insulation of existing residences where such insulation is capable of reducing interior noise to levels consistent with protection of the public health and welfare, as identified in the Noise Compatibility Program.

- Actively advocate a cooperative program with the airport to provide financial assistance for land conversion where insulation is not capable of reducing interior noise to levels consistent with protection of the public health and welfare, as identified in the Noise Compatibility Program.

4.6 Protect those who live and work in the City from dangerous on-the-job noise exposure.

- Provide coordination for information on and enforcement of occupational noise requirements within the City.

4.7 Provide support for the above programs.

- Maintain and improve the City's noise monitoring capabilities for identifying progress in meeting noise abatement objectives.

- Develop simulation techniques for aircraft and motor vehicle noise to more accurately predict the effect of noise abatement strategies.

- Maintain an awareness of actions of other agencies which will have an impact on the noise environment in Inglewood.

5.0 INVENTORY OF CURRENT AND FORECAST CONDITIONS

This section contains a detailed description of the current and projected noise environment within the City. This description of the noise environment is based on an identification of noise sources and noise sensitive land uses, a community noise measurement survey and noise contour maps.

To define the noise exposure, this section of the report first identifies the major sources of noise in the community. The sources of noise in Inglewood include: the San Diego Freeway, arterial roadways, aircraft overflights associated with Los International Airport, and industrial and commercial centers. To completely assess the noise environment in the City, noise sensitive receptors must also be identified. As mandated by the State, noise sensitive receptors include, but are not limited to, residential areas, areas containing schools, hospitals, rest homes, long-term medical or mental care facilities, or any other land use areas deemed noise sensitive by the local jurisdiction.

Based upon the identification of the major noise sources and the location of sensitive receptors, a noise measurement survey was conducted. The function of the survey is threefold. The first is to determine the existing noise levels at noise sensitive land uses. The second function is to provide empirical data for the correlation and calibration of the computer modeled noise environment. A third important aspect of the survey is to obtain an accurate description of the ambient noise levels in various communities throughout the City.

Noise contours for all of the major noise sources in Inglewood were developed based upon future traffic conditions. These contours were determined from the traffic levels for these sources. The contours are expressed in terms of the Community Noise Equivalent Level (CNEL). The existing conditions scenario is derived from 1985 traffic levels and environmental conditions. Future conditions are presented for the year 2000.

5.1 Sources of Noise

The sources of noise in Inglewood fall into four basic categories. These are; freeways, major and minor arterial roadways, aircraft overflights, and stationary sources. Each of these sources and their impacts on the noise environment of Inglewood are summarized in the following paragraphs

and discussed in greater detail in the Technical Appendix.

The most common sources of noise in urban areas are transportation related noise sources. These include automobiles, trucks, motorcycles, railroads, and aircraft. Motor vehicle noise is of concern because it is characterized by a high number of individual events which often create a sustained noise level and its proximity to areas sensitive to noise exposure. Aircraft operations, though intermittent, may generate high noise levels that can be disruptive to human activity.

The City of Inglewood is bisected by a freeway and a number of arterial roadways. The major east-west roadways in the City include Imperial Highway, Century Boulevard, Manchester Boulevard, Centinela Avenue and Florence Avenue. The major north-south roadways in the City include La Cienga Boulevard, La Brea Avenue, Prairie Avenue, and Crenshaw Boulevard. Additional roadways carry significant traffic levels and have residential land use directly adjacent to the roadway. The San Diego Freeway currently passes through the City. Much of the freeway is depressed or has other forms of sound mitigation. The Century Freeway is currently under construction and will pass through Inglewood. The California Department of Transportation has committed to providing sound mitigation along the freeway to protect residential areas. However, the City has not been notified of the specific mitigation plans.

Stationary noise sources include industrial and commercial centers. At many of these locations are residential land uses that are located adjacent to the commercial center without sufficient buffer for noise protection. The types of noise disturbance from these activities can range from short duration loud events such as trucks accessing the facility to continuous noise such as from refrigeration units.

The Forum and the Hollywood Park Turf Club are also located within the City limits. The Forum is an enclosed facility and therefore, does not generate significant levels of noise. The exact noise levels generated by the racetrack crowds and public address system are not known. However, to date they have not generated significant complaints from the community. Motor vehicle traffic increases substantially during events held at these facilities, and noise levels in the surrounding community must also increase. However, the City receives very few complaints regarding the noise generated by these events.

The City of Inglewood lies immediately east of the Los Angeles International Airport, and is impacted by aircraft operations on both the south and north runway complexes. Approximately 25 percent of the City's 38,000+ dwelling units are within the projected 1987 65 dB CNEL noise exposure area. This corresponds to an estimated population of 20,541 located in aircraft noise impact zones of 65 to 70 dB CNEL, an additional 1108 people located in the 70 to 75 dB CNEL zone. The development trends within the City of Inglewood, some of which are influenced by City redevelopment programs, indicate a potential future reduction in noise sensitive land use. Approximately one third of the dwelling units within the current 65 dB CNEL contour are located in areas slated for future commercial or industrial use. It is equally apparent however, that much of the residential area within the projected 1987 noise contour will remain essentially unchanged in the coming decades (reference; "Noise Control and Land Use Compatibility Study").

5.2 Noise Sensitive Receptors

The most noise sensitive land use in Inglewood is residential development. It is considered especially noise sensitive because (1) considerable time is spent by individuals at home, (2) significant activities occur outdoors, and (3) sleep disturbance is most likely to occur in a residential area. Additionally, the City of Inglewood has a number of public and private educational facilities, churches, and hospitals that are considered noise sensitive. The location of residential areas, schools, hospitals, and parks are shown on the General Plan Map (Exhibit 8). The distribution of these facilities varies from quiet residential areas to major transportation corridors.

5.3 Community Noise Measurement Survey.

The determination of the major noise sources and the identification of noise sensitive receptors provide the basis of developing a community noise survey. The noise measurement survey was conducted at locations which reflect the noise levels at these facilities. Each site was monitored for a minimum of 15 minutes with longer measurements at locations near noise sources where the events are sporadic. The results of the survey and the methodology used in the measurements are summarized in the Technical Appendix.

5.4 Community Noise Contours

The traffic noise contours for the City of Inglewood were presented in Exhibits 1 and 2 for existing 1985 and for year 2000 conditions respectively. Aircraft noise contours were presented as Exhibits 3 and 4 for a base case and future (year 1987) case respectively. The methodology used for computing the noise contours is presented in the Technical Appendix.

Noise contours represent lines of equal noise exposure, just as the contour lines on a topographic map are lines of equal elevation. The contours shown on the map are the 60, 65, and 70 dB CNEL noise levels for the traffic noise contours. Only the 65, 70 and 75 CNEL contours for the airport are depicted. (The 60 CNEL contour was not available. However, the development of a 60 dB CNEL contour for the aircraft operations over Inglewood is recommended as an action item.) The noise contours presented should be used as a guide for land use planning. The 60 dB CNEL contour defines the Noise Referral Zone. This is the noise level for which noise considerations should be included when making land use policy decisions. The 65 dB CNEL contour describes the areas for which new noise sensitive developments will be permitted only if appropriate mitigation measures are included such that the standards contained in this Element are achieved.

The contours presented in this report are a graphic representation of the noise environment. These distances to contour values are also shown in tabular format in the Technical Appendix. Topography and intervening buildings or barriers have a very complex effect on the propagation of noise. This topographic effect is not included in these contours, except along the San Diego Freeway, to present a worst case projection.

DUE TO REPRODUCTION LIMITATIONS, THE LAND USE ELEMENT MAP IS OMITTED FROM THIS PAGE. THE MAP IS AVAILABLE AS A SEPARATE DOCUMENT.

Exhibit 8
Noise Sensitive Land Uses

6.0 IMPLEMENTATION

In order to achieve the goals and objectives of the Noise Element, an effective implementation program developed within the constraints of the City's financial and staffing capabilities is necessary. The underlying purpose is to reduce the number of people exposed to excessive noise and to minimize the future effect of noise in the City. The following are the actions that the City should consider implementing to control the impacts of noise in Inglewood.

Issue 1 - Transportation Noise Control - The most efficient and effective means of controlling noise from transportation systems is reducing noise at the source. However, since the City has little direct control over source noise levels because of State and Federal preemption (i.e. State Motor Vehicle Noise Standards and Federal Air Regulations), policies should be focused on reducing the impact of the noise on the community. Cooperative efforts with State and Federal offices are essential.

Action 1 Ensure the employment of noise mitigation measures in the design of the Century Freeway and other roadway improvement projects consistent with funding capability. Support efforts by the California Department of Transportation to provide for acoustical protection of existing noise sensitive land uses affected by these projects.

Action 2 Encourage the use of walls and berms in the design of residential or other noise sensitive land uses that are adjacent to major roads, commercial, or industrial areas.

Action 3 Provide for continued evaluation of truck movements and routes in the City to provide effective separation from residential or other noise sensitive land uses.

Action 4 Encourage the enforcement of State Motor Vehicle noise standards for cars, trucks, and motorcycles through coordination with the California Highway Patrol and Inglewood Police Department.

Action 5 Monitor the progress of the Los Angeles International Airport and other responsible parties in the implementation of the Noise Control Program as proposed in the "Noise Control and Land Use Compatibility Study."

Action 6 Continue to monitor both implemented and proposed changes in operations at Los Angeles International Airport that will have a potential impact on the noise environment of the City of Inglewood. The current vehicle for this action is the Airport/Community Forum and its joint technical committee.

Action 7 Develop a 60 dB CNEL contour for LAX aircraft operations over the City of Inglewood. The contour would be used as a noise referral zone.

Issue 2 - Noise and Land Use Planning Integration. Community noise considerations are to be incorporated into land use planning. These measures are intended to prevent future noise and land-use incompatibilities.

Action 8 Establish standards that specify acceptable limits of noise for various land uses throughout the City. These criteria are designed to fully integrate noise considerations into land use planning to prevent new noise/land use conflicts. Exhibit 6 shows criteria used to assess the compatibility of proposed land uses with the noise environment. These criteria are the bases for the development of specific Noise Standards. These standards, presented in Exhibit 7, define the City policies related to land uses and acceptable noise levels. These tables are the primary tools which allow the City to ensure noise integrated planning for compatibility between land uses and outdoor noise.

Action 9 Incorporate noise reduction features during site planning to mitigate anticipated noise impacts on affected noise sensitive land uses. The noise referral zones identified in Exhibits 1 through 4 (areas exposed to noise levels greater than 60 dB CNEL) can be used to identify locations of potential conflict. New developments will be permitted only if appropriate mitigation measures are included such that the standards contained in this

Element are met.

Action 10 Enforce the State of California Uniform Building Code that specifies that the indoor noise levels for residential living spaces not exceed 45 dB LDN/CNEL due to the combined effect of all noise sources. The State requires implementation of this standard when the outdoor noise levels exceed 60 dB LDN/CNEL. The Noise Referral Zones (60 dB CNEL) can be used to determine when this standard needs to be addressed. The Uniform Building Code (specifically, the California Administrative Code, Title 24, Part 6, Division T25, Chapter 1, Subchapter 1, Article 4, Sections T25-28) requires that *"Interior community noise levels (CNEL/LDN) with windows closed, attributable to exterior sources shall not exceed an annual CNEL or LDN of 45 dB in any habitable room."* The code requires that this standard be applied to all new hotels, motels, apartment houses and dwellings other than detached single-family dwellings. The City should also, as a matter of policy, apply this standard to single family dwellings.

Action 11 Prohibit new residential development within the 65 dB CNEL noise contour (per the "1987 Initial Noise Compatibility Program Contour Map") for the Los Angeles International Airport.

Issue 3 - Community Noise Control for Non-Transportation Noise Sources. The focus of control of noise from non-transportation sources is the Community Noise Ordinance. The ordinance can be used to protect people from noise generated on adjacent properties.

Action 12 Amend and adopt a new comprehensive community noise ordinance to ensure that City residents are not exposed to excessive noise levels from stationary noise sources. A proposed Noise Ordinance is contained in the Technical Appendix. The purpose of the ordinance is to protect people from non-transportation related noise sources such as music, machinery and pumps, air conditioners and truck traffic on private property. The

Technical Appendix

City of Inglewood Noise Element

INGLEWOOD NOISE ELEMENT - TECHNICAL APPENDIX

The State of California has mandated that each county and city prepare a Noise Element as part of its General Plan. Section 65302(g) of the California Government Code requires specifically:

> *"(g) A Noise Element shall identify and appraise noise problems in the community. The noise element shall recognize the guidelines established by the Office of Noise Control in the State Department of Health Services and shall analyze and quantify, to the extent practicable, as determined by the legislative body, current and projected noise levels for all of the following sources:*
>
> > *Highways and freeways.*
> >
> > *Primary arterials and major local streets.*
> >
> > *Passenger and freight on-line railroad operations and ground rapid transit systems.*
> >
> > *Commercial, general aviation, heliport, helistop, and military airport operations, aircraft overflights, jet engine test stands, and all other ground facilities and maintenance functions related to airport operation.*
> >
> > *Local industrial plants, including, but not limited to, railroad classification yards.*
> >
> > *Other ground stationary noise sources identified by local agencies as contributing to the community noise environment.*
>
> *Noise contours shall be shown for all of the sources and stated in terms of community noise equivalent level (CNEL) or day-night average level (LDN). The noise contours shall be prepared on the basis of noise monitoring or following generally accepted noise modeling techniques for the various sources identified in paragraphs (1) to (6), inclusive. The noise contours shall be used as a guide for establishing a pattern of land uses in the land use element that minimizes the exposure of community residents to excessive noise. The Noise Element shall include implementation measures and possible solutions that address existing and forseeable noise problems, if any. The adopted noise element shall serve as a guideline for compliance with the state's noise insulation standards."*

The State Guidelines for Preparation and Content of Noise Elements of the General Plan indicates that the Noise Element should present the noise environment in terms of noise

contours. For those areas identified as containing noise sensitive facilities, the noise environment is determined by monitoring. The purpose of this Technical Appendix is to provide background and supporting information for the Inglewood Noise Element. This Appendix contains background information on noise, health effects of noise, noise assessment criteria, methodology in determining the noise environment, measurement and modeling results, summary of noise sources in Inglewood and a glossary.

1.0 BACKGROUND ON NOISE

1.1 Noise Definitions. Sound is technically described in terms of the loudness (amplitude) of the sound and frequency (pitch) of the sound. The standard unit of measurement of the loudness of sound is the Decibel (dB). Since the human ear is not equally sensitive to sound at all frequencies, a special frequency-dependent rating scale has been devised to relate noise to human sensitivity. The A-weighted decibel scale (dBA) performs this compensation by discriminating against frequencies in a manner approximating the sensitivity of the human ear.

Decibels are based on the logarithmic scale. The logarithmic scale compresses the wide range in sound pressure levels to a more usable range of numbers in a manner similar to the Richter scale used to measure earthquakes. In terms of human response to noise, a sound 10 dBA higher than another is judged to be twice as loud; and 20 dBA higher four times as loud; and so forth. Everyday sounds normally range from 30 dB (very quiet) to 100 dB (very loud). Examples of various sound levels in different environments are shown in Exhibit A1.

Noise has been defined as unwanted sound and it is known to have several adverse effects on people. From these known effects of noise, criteria have been established to help protect the public health and safety and prevent disruption of certain human activities. These criteria are based on such known impacts of noise on people as hearing loss, speech interference, sleep interference, physiological responses and annoyance. Each of these potential noise impacts on people are briefly discussed in the following narratives:

> ***HEARING LOSS*** is not a concern in community noise problems of this type. The potential for noise induced hearing loss is more commonly associated with occupational noise exposures in heavy industry or very noisy work environments. Noise levels in neighborhoods, even in very noisy airport environs, are not sufficiently loud to cause hearing loss.
>
> ***SPEECH INTERFERENCE*** is one of the primary concerns in environmental noise problems. Normal conversational speech is in the range of 60 to 65 dBA and any noise in this range or louder may interfere with speech. There are specific methods of describing speech interference as a function of distance between speaker and listener and voice level. Exhibit A2 shows the impact of noise and speech interference.
>
> ***SLEEP INTERFERENCE*** is a major noise concern because sleep is the most noise sensitive human activity. Sleep disturbance studies have identified interior noise levels that have the potential to cause sleep disturbance. Note that sleep disturbance does not necessarily mean awakening from sleep, but can refer to altering the pattern and stages of sleep.
>
> ***PHYSIOLOGICAL RESPONSES*** are those measurable effects of noise on people which are realized as changes in pulse rate, blood pressure, etc. While such

effects can be induced and observed, the extent is not known to which these physiological responses cause harm or are signs of harm.

ANNOYANCE is the most difficult of all noise responses to describe. Annoyance is a very individual characteristic and can vary widely from person to person. What one person considers tolerable can be quite unbearable to another of equal hearing capability.

1.2 Noise Metrics and Assessment Criteria. Community noise is generally not a steady state and varies with time. Under conditions of non-steady state noise, some type of statistical metric is necessary in order to quantify noise exposure over a long period of time. Several rating scales have been developed for describing the effects of noise on people. They are designed to account for the above known effects of noise on people.

Based on these effects, the observation has been made that the potential for noise to impact people is dependent on the total acoustical energy content of the noise. A number of noise scales have been developed to account for this observation. These scales are the: Equivalent Noise Level (LEQ), the Day Night Noise Level (LDN), and the Community Noise Equivalent Level (CNEL). These scales are described in the following paragraphs.

LEQ is the sound level corresponding to a steady-state sound level containing the same total energy as a time-varying signal over a given sample period. LEQ is the "energy" average noise level during the time period of the sample. LEQ can be measured for any time period, but is typically measured for 15 minutes, 1 hour or 24-hours.

LDN is a 24-hour, time-weighted annual average noise level. Time-weighted refers to the fact that noise which occurs during certain sensitive time periods is penalized for occurring at these times. In the LDN scale, those events that take place during the night (10 pm to 7 am) are penalized by 10 dB. This penalty was selected to attempt to account for increased human sensitivity to noise during the quieter period of a day, where sleep is the most probable activity.

CNEL is similar to the LDN scale except that it includes an additional 5 dBA penalty for events that occur during the evening (7pm to 10pm) time period. Either LDN or CNEL may be used to identify community noise impacts within the Noise Element. Examples of CNEL noise levels are presented in Exhibit A3.

The public reaction to different noise levels varies from community to community. Extensive research has been conducted on human responses to exposure of different levels of noise. Exhibit A4 relates LDN noise levels (approximately equal to CNEL noise levels) to community response from some of these surveys. Community noise standards are derived from tradeoffs

SOUND LEVELS AND LOUDNESS OF ILLUSTRATIVE NOISES IN INDOOR AND OUTDOOR ENVIRONMENTS

(A-Scale Weighted Sound Levels)

dB(A)	OVER-ALL LEVEL Sound Pressure Level Approx. 0.0002 Microbar	COMMUNITY (Outdoor)	HOME OR INDUSTRY	LOUDNESS Human Judgement of Different Sound Levels
130	UNCOMFORTABLY	Military Jet Aircraft Take-Off With After-burner From Aircraft Carrier @ 50 Ft. (130)	Oxygen Torch (121)	120 dB(A) 32 Times as Loud
120 110	LOUD	Turbo-Fan Aircraft @ Take Off Power @ 200 Ft. (90)	Riveting Machine (110) Rock-N-Roll Band (108-114)	110 dB(A) 16 Times as Loud
100	VERY	Jet Flyover @ 1000 Ft. (103) Boeing 707, DC-8 @ 6080 Ft. Before Landing (106) Bell J-2A Helicopter @ 100 Ft. (100)		100 dB(A) 8 Times as Loud
90	LOUD	Power Mower (96) Boeing 737, DC-9 @ 6080 Ft. Before Landing (97) Motorcycle @25 Ft. (90)	Newspaper Press (97)	90 dB(A) 4 Times as Loud
80		Car Wash @ 20 Ft. (89) Prop. Airplane Flyover @ 1000 Ft. (88) Diesel Truck, 40 MPH @ 50 Ft. (84) Diesel Train, 45 MPH @ 100 Ft. (83)	Food Blender (88) Milling Machine (85) Garbage Disposal (80)	80 dB(A) 2 Times as Loud
70	MODERATELY LOUD	High Urban Ambient Sound (80) Passenger Car, 65 MPH @ 25 Ft. (77) Freeway @ 50 Ft. From Pavement Edge, 10:00 AM (76 +or- 6)	Living Room Music (76) TV-Audio, Vacuum Cleaner	70 dB(A)
60		Air Conditioning Unit @ 100 Ft. (60)	Cash Register @ 10 Ft. (65-70) Electric Typewriter @ 10 Ft. (64) Dishwasher (Rinse) @ 10 Ft. (60) Conversation (60)	60 dB(A) 1/2 as Loud
50	QUIET	Large Transformers @ 100 Ft. (50)		50 dB(A) 1/4 as Loud
40		Bird Calls (44) Lower Limit Urban Ambient Sound (40)		40 dB(A) 1/8 as Loud
	JUST AUDIBLE	(dB[A] Scale Interrupted)		
10	THRESHOLD OF HEARING			

SOURCE: Reproduced from Melville C. Branch and R. Dale Beland, Outdoor Noise in the Metropolitan Environment, Published by the City of Los Angeles, 1970, p.2.

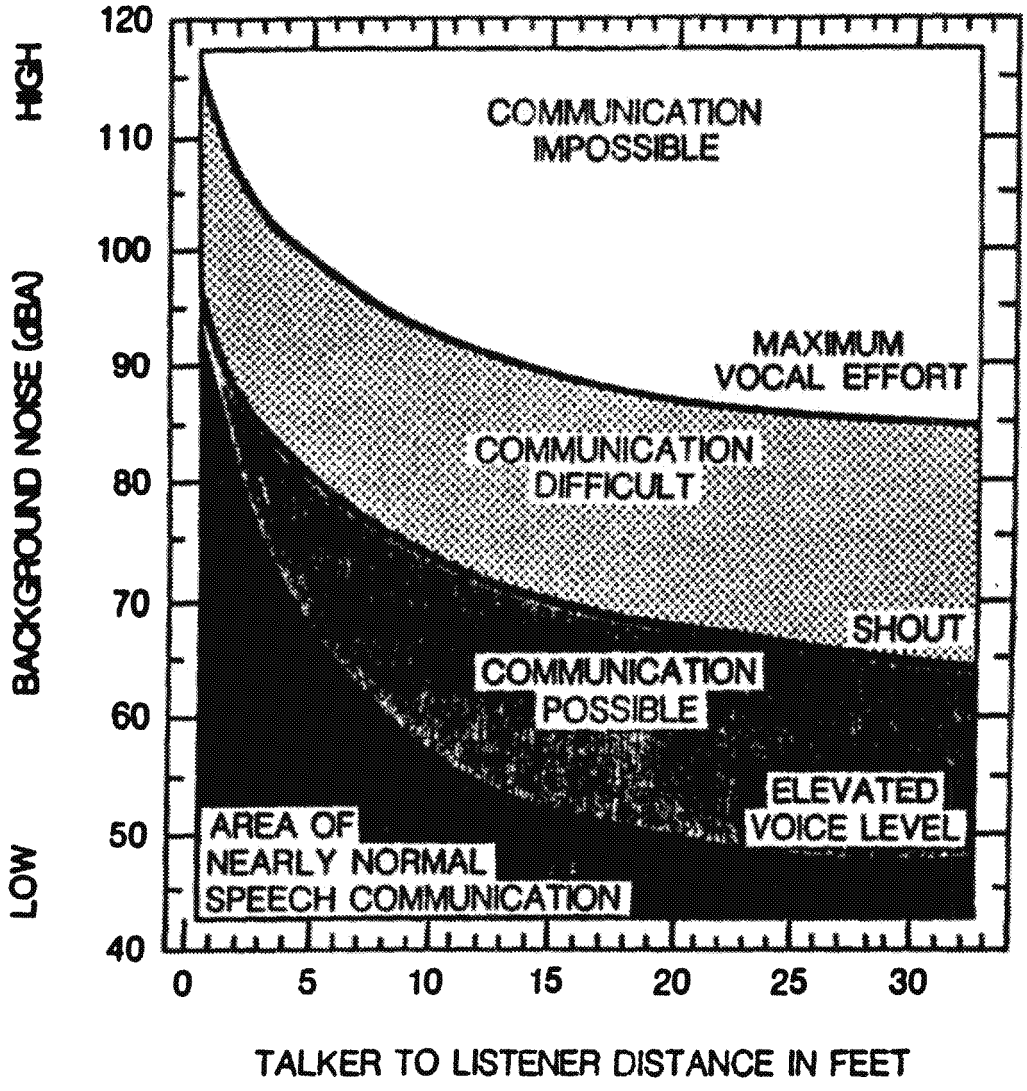
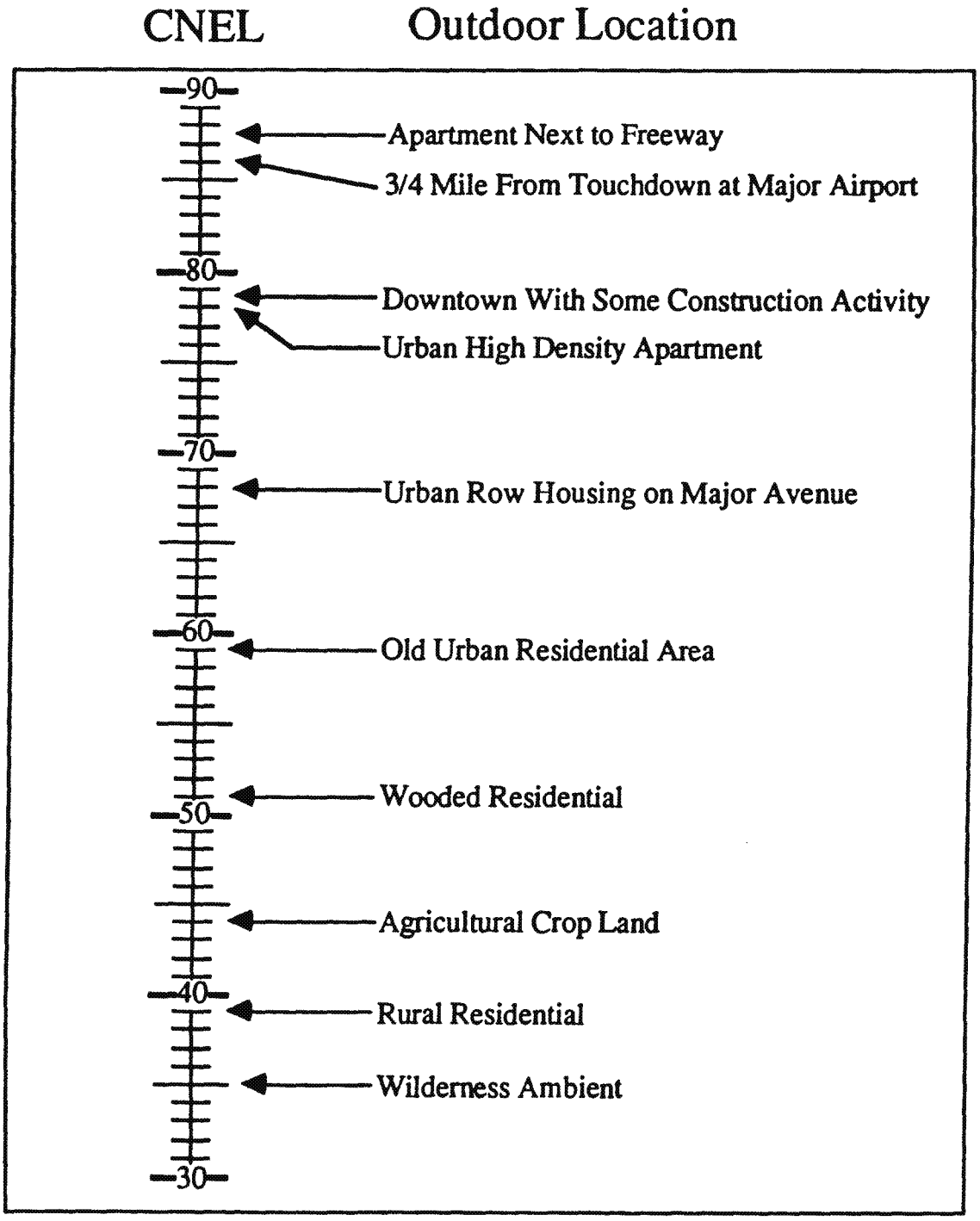
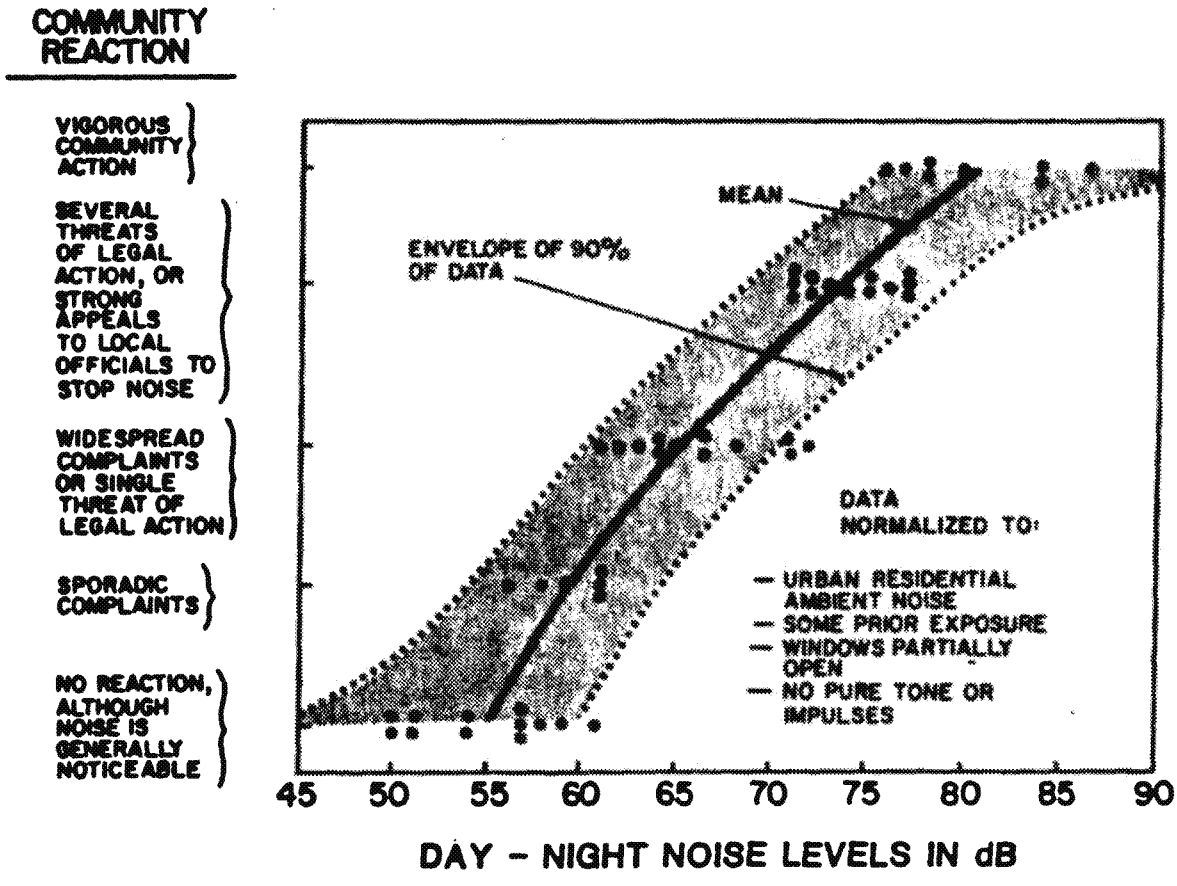


Exhibit A2

Effects of Noise on Speech Intelligibility


CNEL
Outdoor Location
90
80
70
60
50
40
30
Apartment Next to Freeway
3/4 Mile From Touchdown at Major Airport
Downtown With Some Construction Activity
Urban High Density Apartment
Urban Row Housing on Major Avenue
Old Urban Residential Area
Wooded Residential
Agricultural Crop Land
Rural Residential
Wilderness Ambient


COMMUNITY REACTION
VIGOROUS COMMUNITY ACTION
SEVERAL THREATS OF LEGAL ACTION, OR STRONG APPEALS TO LOCAL OFFICIALS TO STOP NOISE
WIDESPREAD COMPLAINTS OR SINGLE THREAT OF LEGAL ACTION
SPORADIC COMPLAINTS
NO REACTION, ALTHOUGH NOISE IS GENERALLY NOTICEABLE
MEAN
ENVELOPE OF 90% OF DATA
DATA NORMALIZED TO:
— URBAN RESIDENTIAL AMBIENT NOISE
— SOME PRIOR EXPOSURE
— WINDOWS PARTIALLY OPEN
— NO PURE TONE OR IMPULSES
45 50 55 60 65 70 75 80 85 90
DAY – NIGHT NOISE LEVELS IN dB

between community response surveys, such as this, and economic considerations for achieving these levels.

Intermittent or occasional noise such as those associated with stationary noise sources is not of sufficient volume to exceed community noise standards that are based on a time averaged scale such as the LDN scale. To account for intermittent noise, another method to characterize noise is the Percent Noise Level (L%). The Percent Noise Level is the level exceeded X% of the time during the measurement period. Examples of various noise environments in terms of the Percent Noise Levels are shown in Exhibit A5.

Noise Ordinances are typically specified in terms of the percent noise levels. Ordinances are designed to protect people from non-transportation related noise sources such as music, machinery and vehicular traffic on private property. Noise Ordinances do not apply to motor vehicle noise on public streets or other transportation related noise sources that are preempted by the State or Federal government.

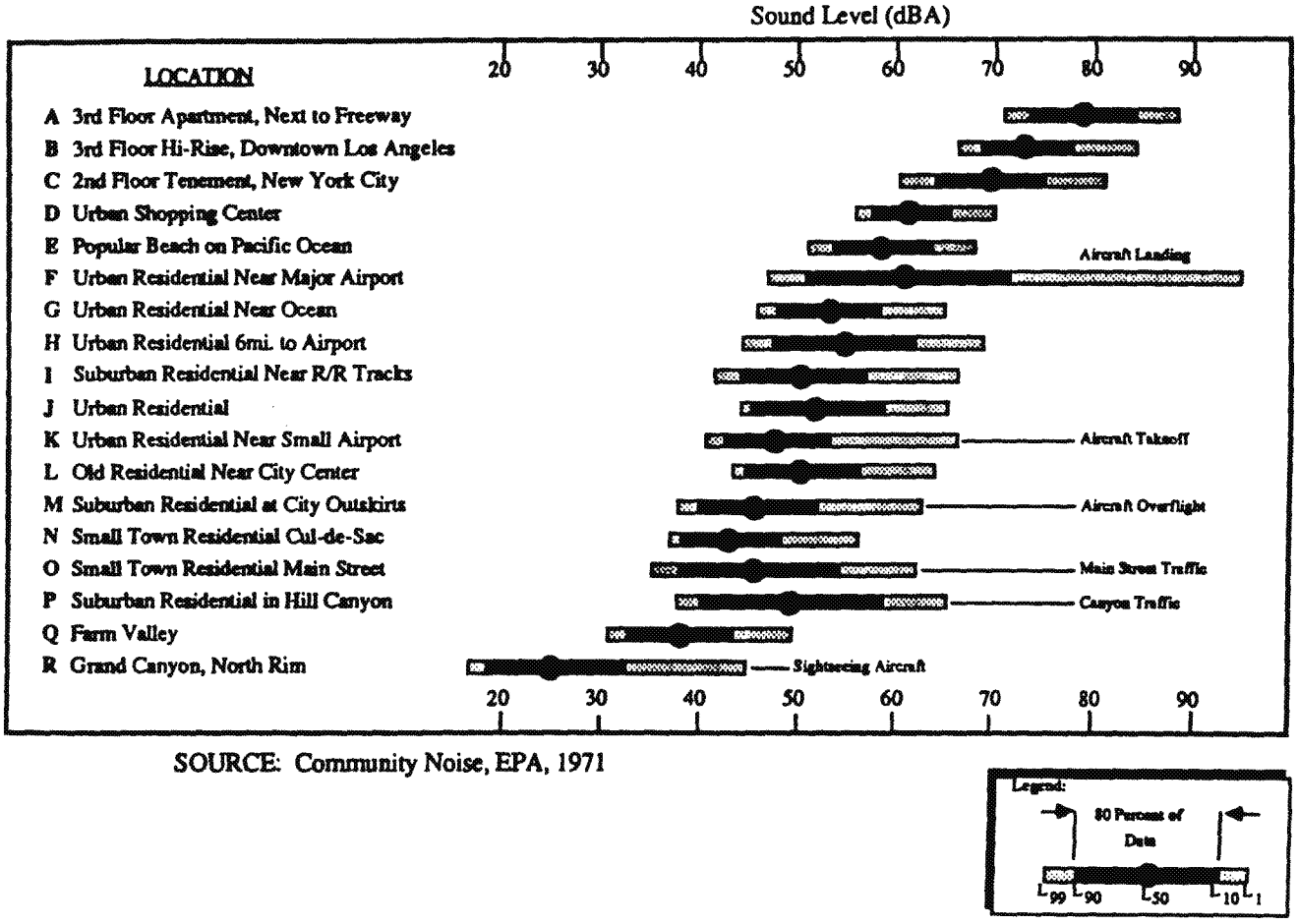
1.3 Noise/Land Use Compatibility Guidelines. The purpose of this section is to present information regarding the compatibility of various land uses with environmental noise. It is from these guidelines and standards, that the City of Inglewood Noise Criteria and Standards have been developed. Noise/Land use guidelines have been produced by a number of Federal and State agencies including the Federal Highway Administration, the Environmental Protection Agency, the Department of Housing and Urban Development, the American National Standards Institute and the State of California. These guidelines, presented in the following paragraphs, are all based upon cumulative noise criteria such as LEQ, LDN or CNEL.

The ENVIRONMENTAL PROTECTION AGENCY published in March 1974 a very important document entitled "Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare With an Adequate Margin of Safety" (EPA 550/9-74-004). Exhibit A6 presents a table of land uses and requisite noise levels. In this table, 55 LDN is described as the requisite level with an adequate margin of safety for areas with outdoor uses, this includes residences, and recreational areas. The EPA "levels document" does not constitute a standard, specification or regulation, but identifies safe levels of environmental noise exposure without consideration for economic cost for achieving these levels.

The FEDERAL HIGHWAY ADMINISTRATION (FHWA) has adopted and published noise abatement criteria for highway construction projects. The noise abatement criteria specified by the FHWA are presented in Exhibit A7 in terms of the maximum one hour Noise Equivalent Level (LEQ). The FHWA noise abatement criteria basically establishes an exterior noise goal for residential land uses of 67 LEQ and an interior goal for residences of 52 LEQ. The noise abatement criteria applies to private yard areas and assumes that typical wood frame homes with

windows open provide 10 dB noise reduction (outdoor to indoor) and 20 dB noise reduction with windows closed.

The STATE OF CALIFORNIA requires each City and County to adopt Noise Elements of their General Plans. Such Noise Elements must contain a Noise/Land Use compatibility matrix. A recommended (but not mandatory) matrix is presented in the "Guidelines for the Preparation and Content of Noise Elements of the General Plan," (Office of Noise Control, California Department of Health, February 1976). Exhibit A8 presents this recommended matrix.



SOURCE: Community Noise, EPA, 1971

Exhibit A5 - Examples of Daytime Outdoor Noise Levels

	Measure	Indoor Activity Interference	Indoor Hearing Loss Consideration	Indoor To Protect Against Both Effects (b)	Outdoor Activity Interference	Outdoor Hearing Loss Consideration	Outdoor To Protect Against Both Effects (b)
Residential with Outside Space and Farm Residences	L_{dn} $L_{eq(24)}$	45	70	45	55	70	55
Residential with No Outside Space	L_{dn} $L_{eq(24)}$	45	70	45			
Commercial	$L_{eq(24)}$	(a)	70	70(c)	(a)	70	70(c)
Inside Transportation	$L_{eq(24)}$	(a)	70	(a)			
Industrial	$L_{eq(24)}$(d)	(a)	70	70(c)	(a)	70	70(c)
Hospitals	L_{dn} $L_{eq(24)}$	45	70	45	55	70	55
Educational	$L_{eq(24)}$ $L_{eq(24)}$(d)	45	70	45	55	70	55
Recreational Areas	$L_{eq(24)}$	(a)	70	70(c)	(a)	70	70(c)
Farm Land and General Unpopulated Land	$L_{eq(24)}$				(a)	70	70(c)

Code:

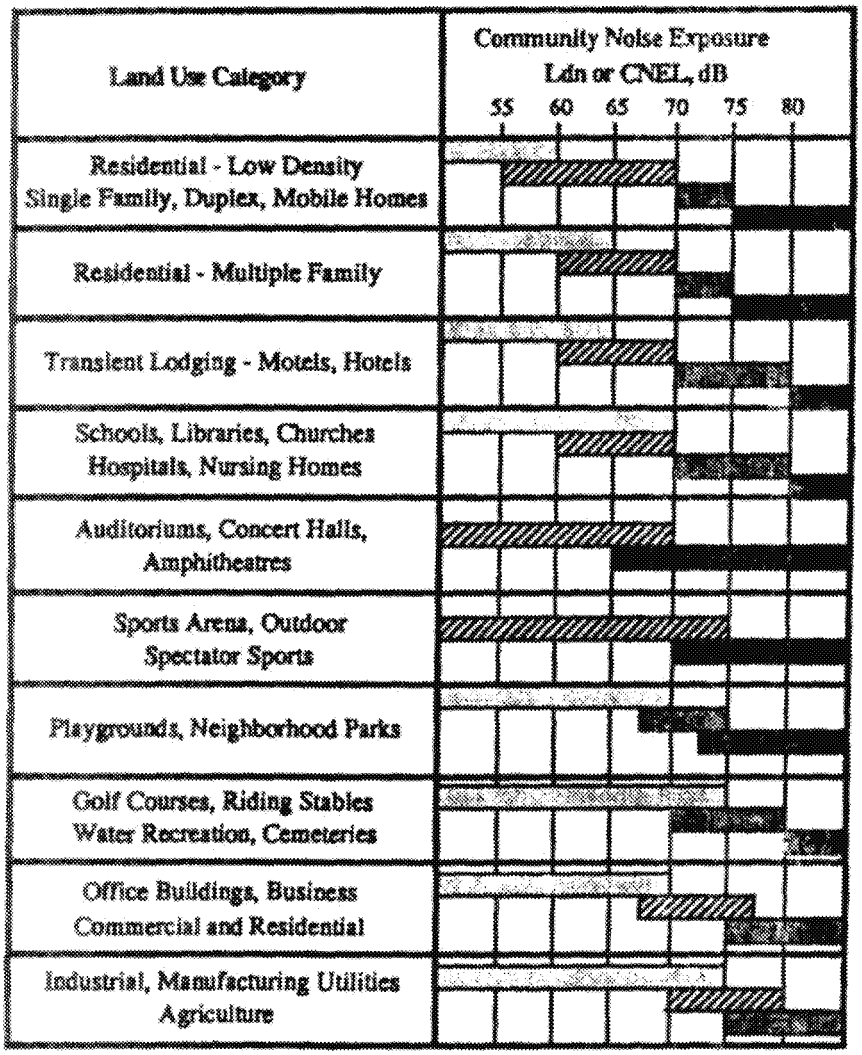
a. Since different types of activities appear to be associated with different levels, identification of a maximum level for activity interference may be difficult except in those circumstances where speech communication is a critical activity. (See Figure D-2 for noise levels as a function of distance which allow satisfactory communication.)
b. Based on lowest level.
c. Based only on hearing loss.
d. An $L_{eq(8)}$ of 75 dB may be identified in these situations so long as the exposure over the remaining 16 hours per day is low enough to result in a negligible contribution to the 24-hour average, i.e., no greater than an L_{eq} of 60 dB.

Note: Explanation of identified level for hearing loss: The exposure period which results in hearing loss at the identified level is a period of 40 years.

*Refers to energy rather than arithmetic averages.

SOURCE : EPA

ACTIVITY CATEGORY	DESIGN NOISE LEVEL - LEQ	DESCRIPTION OF ACTIVITY CATEGORY
A	57 (Exterior)	Tracts of land in which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose. Such areas could include amphitheaters, particular parks or portions of open spaces, or historic districts which are dedicated or recognized by appropriate local officials for activities requiring special qualities of serenity and quiet.
B	67 (Exterior)	Picnic areas, recreation areas, playgrounds, active sports areas and parks which are not included in category A and residences, motels, hotels, public meeting rooms, schools, churches, libraries, and hospitals.
C	72 (Exterior)	Developed lands, properties, or activities not included in Category A or B above.
D	-	For requirements of undeveloped lands see FHWA PPM 773.
E	52 (Interior)	Residences, motels, hotels, public meeting rooms, schools, churches, libraries, hospitals, and auditoriums.



Interpretation

Normally Acceptable

Specified Land Use is Satisfactory, Based Upon the Assumption that Any Buildings Involved are of Normal Conventional Construction, Without Any Special Noise Insulation Requirements.

Conditionally Acceptable

New Construction or Development Should be Undertaken Only After a Detailed Analysis of the Noise Reduction Requirement is Made and Needed Noise Insulation Features Included in the Design. Conventional Construction, but with Closed Windows and Fresh Air Supply Systems or Air Conditioning, Will Normally Suffice.

Normally Unacceptable

New Construction or Development Should Generally be Discouraged. If New Construction or Development Does Proceed, a Detailed Analysis of the Noise Reduction Requirements Must be Made and Needed Noise Insulation Features Included in the Design.

Clearly Unacceptable

New Construction or Development Should Generally not be Undertaken.

2.0 METHODOLOGY

The noise environment in Inglewood was determined through the employment of a comprehensive noise measurement survey of existing noise sources and incorporating these results into computer noise models to model the noise environment (it is, of course, impossible to measure future noise levels so we must rely on computer noise models for future noise estimates). Aircraft noise levels were determined from the Los Angeles Department of Airports noise monitoring program and airport noise contours developed by the airport as part of Quarterly Noise Monitoring Reports (1986). The noise environment is commonly presented graphically in terms of lines of equal noise levels, or noise contours. The following paragraphs detail the methodology used in the measurement survey and computer modeling of these results into noise contours.

2.1 Measurement Procedure. Twenty two sites were selected for measurement of the noise environment in Inglewood. Discussions with City staff and identification of major noise sources in the community provided the initial base for development of the community noise survey. The measurement locations were selected on the basis of proximity to major noise sources and noise sensitivity of the land use.

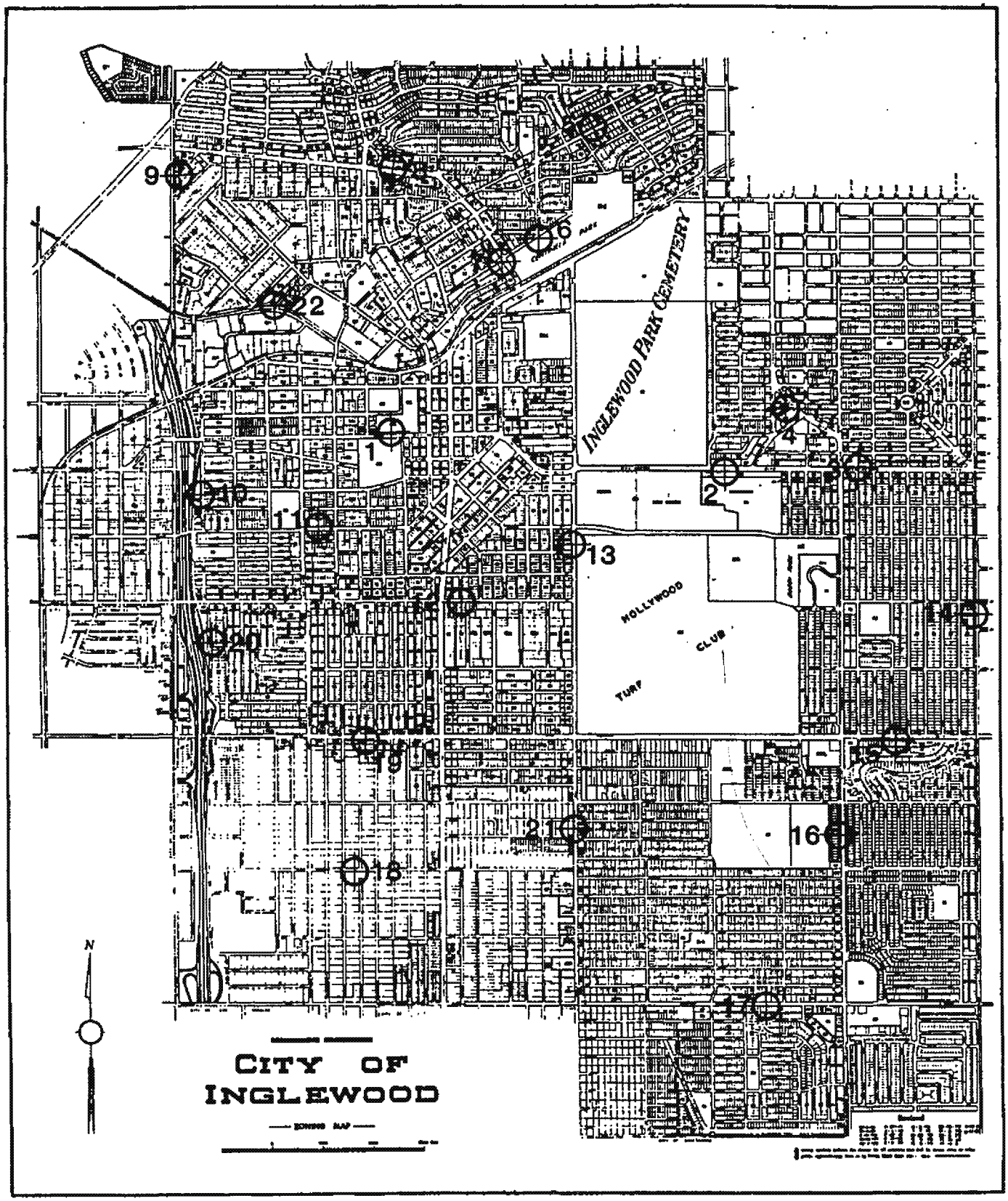
The measurement locations are depicted in Exhibit A9. The Inglewood Noise Element measurement survey utilized the Bruel and Kjaer Model 2230 Portable Noise Monitor. This instrument automatically calculates both the Equivalent Noise Level (LEQ) and the maximum and minimum noise levels for any specific time period. The system was calibrated with a Bruel and Kjaer calibrator with calibration traceable to the National Bureau of Standards. Calibration for the calibrator is certified through the duration of the measurements by Bruel & Kjaer. This measurement system satisfies the ANSI (American National Standards Institute) Standards 1.4 for Type 1 precision noise measurement instrumentation.

2.2 Computer Modeling. The traffic noise levels projected in the Noise Element were computed using the Highway Noise Model published by the Federal Highway Administration ("FHWA Highway Traffic Noise Prediction Model," FHWA-RD-77-108, December 1978). The FHWA Model uses traffic volume, vehicle mix, vehicle speed, and roadway geometry to compute the LEQ noise level. A computer code has been written which computes equivalent noise levels for each of the time periods used in CNEL. Weighting these noise levels and summing them results in the CNEL for the traffic projections used. The traffic data used to project these noise levels are derived from the Circulation Element for the City. The traffic mixes and time distributions for the arterials are presented in Table A1. The traffic mix data for the arterials are based on measurements for roadways in Southern California and are considered typical for arterials in this area.

Table A-1
TRAFFIC DISTRIBUTION PER TIME OF DAY IN PERCENT OF ADT

VEHICLE TYPE	PERCENT OF ADT DAY	EVENING	NIGHT
Automobile	75.51	12.57	9.34
Medium Truck	1.56	0.09	0.19
Heavy Truck	0.64	0.02	0.08

The airport noise contours, developed by the Los Angeles Department of Airports, were generated using the Integrated Noise Model (INM) version 3.8, developed by the Federal Aviation Administration (FAA). The INM is a large computer program developed to plot noise contours for airports. The program is provided with standard aircraft noise and performance data that can be tailored to the characteristics of the airport in question. The INM program requires the input of the physical and operational characteristics of the airport. Physical characteristics include runway coordinates, airport altitude, and temperature. Operational characteristics include aircraft mix, flight tracks, and approach profiles. Optional data that is contained within the model, or can be inputted specific to the airport, include departure profiles, approach parameters, and aircraft noise curves. The measurement data recorded as part of the Department of Airports Permanent Noise Monitoring program were utilized to correlate the modeling results with the actual noise levels.



CITY OF INGLEWOOD

NOISE ELEMENT

Exhibit A9

Noise Measurement Locations

3.0 RESULTS

3.1 Measurement Results. The noise measurement program was conducted from October 17, 1986 to October 21, 1986 at 22 locations throughout the City. The results of the ambient noise measurements at each site are depicted in Exhibit A10. The exhibit also identifies the date and time of the measurement and the primary noise source affecting the noise environment. Each site was monitored for a minimum of 15 minutes. Locations where the noise levels where not relatively stable were measured for longer durations. The quantities measured were the Equivalent Noise Level (LEQ), the maximum noise level and the minimum noise level.

The Los Angeles Department of Airports presently operates two permanent noise monitoring stations within the City of Inglewood. These measurement locations were presented in Exhibit 3 as Locations I1 and I2. The results from the airport's Quarterly Noise Monitoring Report shows that the CNEL noise levels are approximately 70 CNEL for both sites. These measurements were used to validate the CNEL noise contours for the airport that are shown in Exhibit 3.

3.2 Noise Contours. The existing and future noise levels in the city were established in terms of the CNEL indices by modeling all of the traffic noise sources for the existing and future traffic and speed characteristics. Separate contours are presented for existing and future cases for the airport operations.

These results were presented on the contour maps contained within the Noise Element (Exhibits 1 through 4). The results for the roadways are also presented in tabularized format in Exhibit A11 for existing conditions and Exhibit A12 for future conditions. The distances to the CNEL contours for the roadways in the vicinity of Inglewood are given in these tables. These represent the distance from the centerline of the road to the contour value shown. Note that these tables do not include the mitigating effect of noise barriers or topography.

Exhibit A10 (Part 1)
Noise Measurement Results

SITE: *# 1*
LOCATION: *City Health Center*

DATE: *October 17, 1986*
TIME: *10:45 a.m.*

MEASURED VALUES (dBA)

LEQ	Lmax	Lmin
67.7	*77.4*	*54.7*

PRIMARY NOISE SOURCES:
Traffic, Aircraft

COMMENTS:
Active Noise Environment

SITE: *# 2*
LOCATION: *Manchester at Briarwood*

DATE: *October 17, 1986*
TIME: *11:10 a.m.*

MEASURED VALUES (dBA)

LEQ	Lmax	Lmin
73.9	*91.8*	*54.7*

PRIMARY NOISE SOURCES:
Traffic, Aircraft

COMMENTS:
Residential Across From Cemetary

SITE: *# 3*
LOCATION: *Manchester at 7th Street*

DATE: *October 17, 1986*
TIME: *11:30 a.m.*

MEASURED VALUES (dBA)

LEQ	Lmax	Lmin
71.1	*87.6*	*54.9*

PRIMARY NOISE SOURCES:
Traffic, Aircraft, Siren Caused Lmax

COMMENTS:
Commercial Zone

SITE: *# 4*
LOCATION: *Crenshaw at 83rd Street*

DATE: *October 17, 1986*
TIME: *11:50 a.m.*

MEASURED VALUES (dBA)

LEQ	Lmax	Lmin
62.4	*81.0*	*42.4*

PRIMARY NOISE SOURCES:
Traffic, Aircraft

COMMENTS:
Single Family Residential Area

SITE: *# 5*
LOCATION: *923 Hyde Park Boulevard*

DATE: *October 17, 1986*
TIME: *12:20 p.m.*

MEASURED VALUES (dBA)

LEQ	Lmax	Lmin
68.8	*91.8*	*44.7*

PRIMARY NOISE SOURCES:
Traffic, Aircraft

COMMENTS:
Single Family Residential Area

SITE: *# 6*
LOCATION: *Centinela Park*

DATE: *October 17, 1986*
TIME: *12:45 p.m.*

MEASURED VALUES (dBA)

LEQ	Lmax	Lmin
59.8	*71.2*	*44.6*

PRIMARY NOISE SOURCES:
Aircraft, Distant Traffic on Florence

COMMENTS:
Mild Park Activity

Exhibit A10 (Part 2)
Noise Measurement Results

SITE: *# 7*
LOCATION: *Centinela at Warren Lane*

DATE: *October 17, 1986*
TIME: *1:25 p.m.*

MEASURED VALUES (dBA)

LEQ	Lmax	Lmin
67.5	*78.0*	*57.9*

PRIMARY NOISE SOURCES:
Traffic, Distant Aircraft

COMMENTS:
Commercial / Residential Border

SITE: *# 8*
LOCATION: *Centinela at Market Street*

DATE: *October 17, 1986*
TIME: *2:15 p.m.*

MEASURED VALUES (dBA)

LEQ	Lmax	Lmin
69.8	*82.9*	*57.5*

PRIMARY NOISE SOURCES:
Traffic, Siren

COMMENTS:
Commercial / Residential Border

SITE: *# 9*
LOCATION: *La Cienega at Short Street*

DATE: *October 17, 1986*
TIME: *2:40 p.m.*

MEASURED VALUES (dBA)

LEQ	Lmax	Lmin
65.6	*75.6*	*54.7*

PRIMARY NOISE SOURCES:
Traffic

COMMENTS:
Commercial / Residential Border

SITE: *# 10*
LOCATION: *Ash Street at Kelso*

DATE: *October 17, 1986*
TIME: *3:17 p.m.*

MEASURED VALUES (dBA)

LEQ	Lmax	Lmin
67.0	*81.1*	*59.4*

PRIMARY NOISE SOURCES:
Freeway Traffic, Aircraft

COMMENTS:
Aircraft are fairly low Altitude

SITE: *# 11*
LOCATION: *334 Hillcrest*

DATE: *October 21, 1986*
TIME: *10:45 a.m.*

MEASURED VALUES (dBA)

LEQ	Lmax	Lmin
68.3	*87.2*	*43.3*

PRIMARY NOISE SOURCES:
Traffic, Aircraft

COMMENTS:
Aircraft Caused Lmax

SITE: *# 12*
LOCATION: *506 Arbor Vitae*

DATE: *October 21, 1986*
TIME: *11:10 a.m.*

MEASURED VALUES (dBA)

LEQ	Lmax	Lmin
67.6	*81.0*	*48.5*

PRIMARY NOISE SOURCES:
Traffic, Aircraft , Distant Sirens

COMMENTS:
Single and Multi family Residential Area

Exhibit A10 (Part 3)
Noise Measurement Results

SITE: *# 13*
LOCATION: *Labrea at Prairie Avenue*

DATE: *October 21, 1986*
TIME: *11:30 a.m.*

MEASURED VALUES (dBA)

LEQ	Lmax	Lmin
70.8	*85.0*	*49.1*

PRIMARY NOISE SOURCES:
Traffic, Aircraft

COMMENTS:
Residential Across From Hollywood Park

SITE: *# 14*
LOCATION: *9431 Van Ness*

DATE: *October 21, 1986*
TIME: *12:00 p.m.*

MEASURED VALUES (dBA)

LEQ	Lmax	Lmin
66.8	*78.1*	*44.0*

PRIMARY NOISE SOURCES:
Traffic, Aircraft

COMMENTS:
Single Family Residential

SITE: *# 15*
LOCATION: *Century Near 5th Street*

DATE: *October 21, 1986*
TIME: *12:25 p.m.*

MEASURED VALUES (dBA)

LEQ	Lmax	Lmin
67.8	*84.2*	*50.6*

PRIMARY NOISE SOURCES:
Traffic, Aircraft , Siren

COMMENTS:
Single Family Residential

SITE: *# 16*
LOCATION: *Crenshaw at 104th Street*

DATE: *October 21, 1986*
TIME: *12:50 p.m.*

MEASURED VALUES (dBA)

LEQ	Lmax	Lmin
63.5	*75.2*	*43.2*

PRIMARY NOISE SOURCES:
Traffic, Aircraft

COMMENTS:
Single Family Residential

SITE: *# 17*
LOCATION: *3350 Imperial Highway*

DATE: *October 21, 1986*
TIME: *2:15 p.m.*

MEASURED VALUES (dBA)

LEQ	Lmax	Lmin
67.8	*81.0*	*54.8*

PRIMARY NOISE SOURCES:
Traffic, Distant Aircraft

COMMENTS:
Commercial / Residential Border

SITE: *# 18*
LOCATION: *Lennox Park*

DATE: *October 21, 1986*
TIME: *3:15 p.m.*

MEASURED VALUES (dBA)

LEQ	Lmax	Lmin
66.1	*79.7*	*52.6*

PRIMARY NOISE SOURCES:
Traffic, Aircraft , Park Noise

COMMENTS:
Mild Park Activity

Exhibit A10 (Part 4)
Noise Measurement Results

SITE: *# 19*
LOCATION: *4306 Century Boulevard*

DATE: *October 21, 1986*
TIME: *3:45 p.m.*

MEASURED VALUES (dBA)

LEQ	Lmax	Lmin
69.2	*81.6*	*55.2*

PRIMARY NOISE SOURCES:
Traffic, Aircraft

COMMENTS:
Commercial / Residential Border

SITE: *# 20*
LOCATION: *Ash at 95th Street*

DATE: *October 21, 1986*
TIME: *4:10 p.m.*

MEASURED VALUES (dBA)

LEQ	Lmax	Lmin
68.3	*81.5*	*61.7*

PRIMARY NOISE SOURCES:
Freeway Traffic, Aircraft

COMMENTS:
Aircraft at Low Altitude

SITE: *# 21*
LOCATION: *10615 Prairie Avenue*

DATE: *October 21, 1986*
TIME: *2:45 p.m.*

MEASURED VALUES (dBA)

LEQ	Lmax	Lmin
71.5	*83.3*	*55.9*

PRIMARY NOISE SOURCES:
Traffic, Aircraft

COMMENTS:
Aircraft Caused Lmax,
Residential / Commercial Border

SITE: *# 22*
LOCATION: *Pine Court at Oak Street*

DATE: *October 21, 1986*
TIME: *4:40 p.m.*

MEASURED VALUES (dBA)

LEQ	Lmax	Lmin
61.3	*73.5*	*49.6*

PRIMARY NOISE SOURCES:
Traffic, Distant Aircraft

COMMENTS:
Industrial / Residential Border
No Audible Industrial Noise

ROADWAY	LINK	AVERAGE DAILY TRAFFIC	HARD	SOFT	VEHICLE SPEED (mph) 25	30	35	40	45	50	55	BARRIER NOISE REDUCTION(dB)	CNEL AT 100 ft	DISTANCE TO CNEL CONTOURS (in feet from centerline) 60 CNEL	65 CNEL	70 CNEL
Centinela Avenue	La Cienega to La Brea	28.0		1				1				0	65.38	228	108	48
	La Brea to Hyde Park	18.0		1				1					63.88	178	82	38
	Hyde Park to Florence	18.0		1				1					63.88	178	82	38
Hyde Park Boulevard	Centinela to West	7.0		1			1						57.85	73	34	16
Florence Avenue	Manchester to La Cienega	18.0		1				1					63.48	170	78	37
	La Cienega to Eucalyptus	20.0		1				1					63.92	182	85	39
	Eucalyptus to La Brea	22.0		1				1					64.33	194	90	42
	La Brea to Centinela	29.0		1				1					65.53	234	108	50
	Centinela to West	42.0		1				1					67.14	299	139	64
	East of West	33.0		1				1					66.09	255	118	55
78th Street	8th to Van Ness	2.0		1			1						52.51	32	15	7
Manchester Boulevard	Florence to La Cienega	38.0		1			1						65.08	218	101	47
	La Cienega to Eucalyptus	28.0		1			1						64.12	188	87	41
	Eucalyptus to La Brea	28.0		1			1						64.12	188	87	41
	La Brea to Prairie	30.0		1				1					65.88	238	111	52
	Prairie to Crenshaw	36.0		1				1					66.47	270	125	58
	Crenshaw to Van Ness	37.0		1				1					66.59	275	128	59
Hillcrest Boulevard	Florence to La Cienega	3.0		1			1						54.27	41	19	9
	La Cienega to Inglewood	3.0		1			1						54.27	41	19	9
	Inglewood to La Brea	3.0		1			1						54.27	41	19	9
	La Brea to Manchester	8.0		1			1						57.28	86	31	14
	Manchester to Florence	8.0		1			1						57.28	86	31	14
90th Street	Prairie to Crenshaw	13.0		1			1						60.84	110	51	24
Arbor Vitae	Florence to La Cienega	18.0		1				1					62.85	157	73	34
	La Cienega to Inglewood	18.0		1				1					62.85	157	73	34
	Inglewood to La Brea	15.0		1				1					62.87	161	70	32
	La Brea to Prairie	12.0		1				1					61.70	130	60	28
	Crenshaw to Van Ness	4.0		1				1					58.93	82	28	13
Century Boulevard	La Cienega to Inglewood	39.0		1				1					66.82	285	132	61
	Inglewood to La Brea	39.0		1				1					66.82	285	132	61
	La Brea to Prairie	38.0		1				1					66.47	270	125	58
	Prairie to Crenshaw	39.0		1				1					66.82	285	132	61
	Crenshaw to Van Ness	39.0		1				1					66.82	285	132	61
108th Street	Prairie to Yukon	3.0		1			1						54.27	41	19	9
	Yukon to Crenshaw	5.0		1			1						58.48	58	27	13
	Crenshaw to Van Ness	8.0		1			1						58.04	86	40	18
Imperial Highway	East of La Cienega	55.3		1				1					68.33	339	157	77
	West of Hawthorne	44.8		1				1					67.48	312	145	67
	Prairie to Crenshaw	37.0		1				1					66.59	275	128	59
	Crenshaw to Van Ness	44.0		1				1					67.34	308	143	66
La Cienega Boulevard	Between I-405 On Ramps	30.0		1				1					65.88	238	111	52
	I-405 Ramp to Arbor Vitae	17.0		1				1					63.21	184	78	35
	Arbor Vitae to Hillcrest	14.0		1				1					62.37	144	67	31
	Hillcrest to Manchester	14.0		1				1					62.37	144	67	31
	I-405 Off Ramp to Centinela	29.0		1				1					65.53	234	108	50
	East of Centinela	54.0		1				1					68.23	356	164	76
Inglewood Avenue	South of Century	54.0		1			1						66.82	285	132	61
	Century to Arbor Vitae	11.0		1			1						59.81	99	46	21
	Arbor Vitae to Manchester	5.0		1			1						58.48	58	27	13
	Manchester to Florence	3.0		1			1						54.27	41	19	9
Eucalyptus Avenue	Century to Arbor Vitae	2.0		1			1						52.51	32	15	7
	Arbor Vitae to Manchester	7.0		1			1						57.85	73	34	16
	Manchester to Florence	7.0		1			1						57.85	73	34	16
	Florence to Hyde Park	7.0		1			1						57.85	73	34	16
	Hyde Park to Centinela	3.0		1			1						54.27	41	19	9
	East of Centinela	3.0		1			1						54.27	41	19	9
La Brea Avenue	West of Century	32.0		1				1					65.88	250	118	54
	Century to Arbor Vitae	31.0		1				1					65.82	244	113	53
	Arbor Vitae to Manchester	22.0		1				1					64.33	194	90	42
	Manchester to Florence	22.0		1				1					64.33	194	90	42
	Florence to Centinela	30.0		1				1					65.88	238	111	52
	East of Centinela	35.0		1				1					66.35	266	123	57
Prairie Avenue	Imperial to Century	31.0		1				1					65.82	244	113	53
	Century to Manchester	33.0		1				1					66.09	255	118	55
	Manchester to Florence	25.0		1				1					64.89	212	98	46
Yukon Avenue	Imperial to 108th	5.0		1			1						58.48	58	27	13
	108th to Century	4.0		1			1						55.52	50	23	11
West Street	Florence to Hyde Park	8.0		1			1						58.04	86	40	18
Crenshaw Boulevard	West of Imperial	24.0		1				1					64.71	206	96	44
	Imperial to Century	32.0		1				1					65.88	250	118	54
	Century to Manchester	31.0		1				1					65.82	244	113	53
	Manchester to Florence	27.0		1			1						63.81	180	83	39
8th Street	Crenshaw to 79th	5.0		1				1					57.80	72	34	16
Van Ness Avenue	Imperial to 108th	13.0		1				1					62.05	137	64	29
	108th to Century	12.0		1				1					61.70	130	60	28
	Century to Arbor Vitae	11.0		1				1					61.32	122	57	26
	Arbor Vitae to Manchester	12.0		1				1					61.70	130	60	28
	Manchester to 79th	15.0		1				1					62.87	151	70	32
	North of 79th	14.0		1				1					62.37	144	67	31
Lennox Boulevard	East of La Cienega	8.7		1			1						57.73	71	33	15
	West of Hawthorne	19.7		1			1						59.78	97	45	21
Hawthorne Boulevard	South of Lennox	31.1		1				1					65.83	245	114	53
	North of Lennox	33.1		1				1					66.11	255	118	55

CITY OF INGLEWOOD

NOISE ELEMENT

Exhibit A11 - CNEL Noise Levels for Existing Traffic Conditions

ROADWAY	LINK	AVERAGE DAILY TRAFFIC	HARD	SOFT	VEHICLE SPEED (mph) 25	30	35	40	45	50	55	BARRIER NOISE REDUCTION(dB)	CNEL AT 100 ft	DISTANCE TO CNEL CONTOURS (in feet from centerline) 70 CNEL	65 CNEL	60 CNEL
Centinela Avenue	La Cienega to La Brea	32.0		1				1				0	66.08	229	110	53
	La Brea to Hyde Park	24.0		1				1					64.71	208	98	44
	Hyde Park to Florence	23.0		1				1					64.52	200	93	43
Hyde Park Boulevard	Centinela to West	7.0		1			1						57.86	72	34	16
Florence Avenue	Manchester to La Cienega	23.0		1				1					64.52	200	93	43
	La Cienega to Eucalyptus	23.0		1				1					64.52	200	93	43
	Eucalyptus to La Brea	23.0		1				1					64.52	200	93	43
	La Brea to Centinela	26.0		1				1					65.38	228	106	49
	Centinela to West	31.0		1				1					65.82	244	113	53
79th Street	6th to Van Ness	2.0		1			1						52.91	32	15	7
Manchester Boulevard	Florence to La Cienega	45.0		1			1						68.52	233	108	50
	La Cienega to Eucalyptus	45.0		1			1						68.52	233	108	50
	Eucalyptus to La Brea	45.0		1			1						68.52	233	108	50
	La Brea to Prairie	48.0		1				1					68.93	260	134	62
	Prairie to Crenshaw	34.0		1				1					66.22	260	121	56
	Crenshaw to Van Ness	34.0		1				1					66.22	260	121	56
Hillcrest Boulevard	Florence to La Cienega	4.0		1			1						58.52	50	23	11
	La Cienega to Inglewood	6.0		1			1						57.36	66	31	14
	Inglewood to La Brea	4.0		1			1						55.52	50	23	11
	La Brea to Manchester	6.0		1			1						57.28	66	31	14
	Manchester to Regent	8.0		1			1						58.04	86	40	18
	Regent to Florence	4.0		1			1						55.52	50	23	11
90th Street	Prairie to Crenshaw	13.0		1			1						60.84	110	51	24
Arbor Vitae	Florence to La Cienega	27.0		1				1					63.52	223	103	48
	La Cienega to Inglewood	20.0		1				1					63.02	182	85	39
	Inglewood to La Brea	20.0		1				1					63.02	182	85	39
	La Brea to Prairie	20.0		1				1					63.02	182	85	39
	Crenshaw to Van Ness	4.0		1				1					58.83	68	29	13
Century Boulevard	I-405 Ramp to La Cienega	82.0		1				1					70.04	467	217	101
	La Cienega to Inglewood	47.0		1				1					67.63	322	150	69
	Inglewood to La Brea	47.0		1				1					67.63	322	150	69
	La Brea to Prairie	46.0		1				1					67.53	318	148	68
	Prairie to Crenshaw	48.0		1				1					67.72	327	152	70
	Crenshaw to Van Ness	48.0		1				1					67.72	327	152	70
108th Street	Prairie to Yukon	2.0		1			1						52.91	32	15	7
	Yukon to Crenshaw	2.0		1			1						52.91	32	15	7
	Crenshaw to Van Ness	6.0		1			1						58.04	86	40	18
Imperial Highway	East of La Cienega	81.2		1				1					70.51	502	233	108
	West of Hawthorne	73.8		1				1					69.59	436	202	94
	Prairie to Crenshaw	41.0		1				1					67.03	284	137	63
	Crenshaw to Van Ness	48.0		1				1					67.44	313	145	67
La Cienega Boulevard	Between I-405 On Ramps	51.0		1				1					67.98	341	158	73
	I-405 Ramp to Arbor Vitae	17.0		1				1					63.21	184	78	36
	Arbor Vitae to Hillcrest	16.0		1				1					63.46	170	78	32
	Hillcrest to Manchester	14.0		1				1					62.37	144	67	31
	Manchester to I-405 Ramp	21.0		1				1					64.13	188	87	41
	I-405 Off Ramp to Centinela	55.0		1				1					68.31	358	166	77
	East of Centinela	60.0		1				1					68.68	380	176	82
Inglewood Avenue	South of Century	21.8		1			1						62.84	165	77	33
	Century to Arbor Vitae	13.0		1			1						60.84	110	51	24
	Arbor Vitae to Manchester	10.0		1			1						59.50	93	43	20
	Manchester to Florence	5.0		1			1						58.48	68	27	13
Eucalyptus Avenue	Century to Arbor Vitae	1.3		1			1						49.50	20	9	4
	Arbor Vitae to Manchester	7.0		1			1						57.86	72	34	16
	Manchester to Florence	8.0		1			1						58.04	86	40	18
	Florence to Hyde Park	10.0		1			1						59.50	93	43	20
	Hyde Park to Centinela	3.0		1			1						54.27	41	18	8
	East of Centinela	3.0		1			1						54.27	41	18	8
La Brea Avenue	West of Century	43.0		1				1					67.44	313	145	67
	Century to Arbor Vitae	43.0		1				1					67.24	304	141	65
	Arbor Vitae to Manchester	48.0		1				1					67.44	313	145	67
	Manchester to Florence	38.0		1				1					66.47	270	125	58
	Florence to Centinela	38.0		1				1					66.82	286	132	61
	East of Centinela	38.0		1				1					66.82	286	132	61
Prairie Avenue	Imperial to Century	43.0		1				1					67.24	304	141	65
	Century to Manchester	38.0		1				1					66.70	280	130	60
	Manchester to Florence	28.0		1				1					65.38	228	106	49
Yukon Avenue	Imperial to 108th	3.0		1			1						54.27	41	18	8
	108th to Century	8.0		1			1						57.28	66	31	14
West Street	Florence to Hyde Park	8.0		1			1						59.04	86	40	18
Crenshaw Boulevard	West of Imperial	30.0		1				1					65.88	238	111	52
	Imperial to Century	34.0		1				1					66.22	260	121	56
	Century to Manchester	38.0		1				1					66.70	280	130	60
	Manchester to Florence	52.0		1			1						64.55	201	93	43
6th Street	Crenshaw to 79th	8.0		1				1					57.80	72	34	16
Van Ness Avenue	Imperial to 108th	12.0		1				1					61.70	130	60	28
	108th to Century	14.0		1				1					62.37	144	67	31
	Century to Arbor Vitae	18.0		1				1					62.67	161	70	32
	Arbor Vitae to Manchester	18.0		1				1					62.67	161	70	32
	Manchester to 79th	15.0		1				1					62.67	161	70	32
	North of 79th	12.0		1				1					61.70	130	60	28
La Brea Boulevard	East of La Cienega	11.1		1			1						59.85	89	48	21
	West of Hawthorne	17.7		1			1						61.89	136	83	29
Hawthorne Boulevard	South of Lennox	51.8		1				1					68.01	342	158	74
	North of Lennox	51.8		1				1					68.28	358	165	77

Exhibit A12 - CNEL Noise Levels for Future Traffic Conditions

4.0 GLOSSARY OF TERMS

A-WEIGHTED SOUND LEVEL. The sound pressure level in decibels as measured on a sound level meter using the A-Weighted filter network. The A-Weighting filter de-emphasizes the very low and very high frequency components of the sound in a manner similar to the response of the human ear. A numerical method of rating human judgement of loudness.

AMBIENT NOISE LEVEL. The composite of noise from all sources near and far. In this context, the ambient noise level constitutes the normal or existing level of environmental noise at a given location.

COMMUNITY NOISE EQUIVALENT LEVEL (CNEL). The average equivalent A-Weighted sound level during a 24-hour day, obtained after addition of five (5) decibels to sound levels in the evening from 7 p.m. to 10 p.m. and after addition of ten (10) decibels to sound levels in the night before 7 a.m. and after 10 p.m.

DAY-NIGHT AVERAGE LEVEL (LDN). The average equivalent A-Weighted sound level during a 24-hour day, obtained after addition of ten (10) decibels to sound levels in the night before 7 a.m. and after 10 p.m.

DECIBEL (dB). A unit for measuring the amplitude of a sound, equal to 20 times the logarithm to the base 10 of the ratio of the pressure of the sound measured to the reference pressure, which is 20 micro-pascals.

dB(A). A-weighted sound level (see definition above)

EQUIVALENT SOUND LEVEL (LEQ). The sound level corresponding to a steady noise level over a given sample period with the same amount of acoustic energy as the actual time varying noise level. The energy average noise level during the sample period.

FREQUENCY. The number of times per second that a sound pressure signal oscillates about the prevailing atmosphere pressure. The unit of frequency is the hertz. The abbreviation is Hz.

INTRUSIVE NOISE. That noise which intrudes over and above the ambient noise at a given location. The relative intrusiveness of a sound depends upon its amplitude, duration, frequency, time of occurrence, and tonal or informational content as well as the prevailing ambient noise level.

L10. The A-Weighted sound level exceeded 10 percent of the sample time. Similarly L50, L90, L99, etc.

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

Noise Control Act defines noise as "...excessive undesirable sound..."

NOISE ATTENUATION. The ability of a material, substance, or medium to reduce the noise level from one place to another or between one room and another. Noise attenuation is specified in decibels.

NOISE EXPOSURE CONTOURS. Lines drawn around a noise source indicating constant or equal level of noise exposure. CNEL and LDN are typical metrics used.

NOISE REFERRAL ZONES. Such zones are defined as the area within the contour defining a CNEL level of 60 decibels. It is the level at which either State or Federal laws and standards related to land use become important and, in some cases, preempted local laws and regulations. Any proposed noise sensitive development which may be impacted by a total noise environment of 60 dB CNEL or more should be evaluated on a project specific basis.

NOISE SENSITIVE LAND USE. Those specific land uses which have associated indoor and/or outdoor human activities that may be subject to stress and/or significant interference from noise produced by community sound sources. Such human activity typically occurs daily for continuous periods of 24 hours or is of such a nature that noise is significantly disruptive to activities that occur for short periods. Specifically, noise sensitive land uses include: residences of all types, hospitals, places of worship and schools.

SOUND LEVEL (NOISE LEVEL). The weighted sound pressure level obtained by use of a sound level meter having a standard frequency-filter for attenuating part of the sound spectrum.

SOUND LEVEL METER. An instrument, including a microphone, an amplifier, an output meter, and frequency weighting networks for the measurement and determination of noise and sound levels.

5.0 Model Noise Ordinance

ORANGE COUNTY CODE
NOISE CONTROL

ARTICLE 1. GENERAL PROVISIONS*

Sec. 4-6-1. Declaration of policy.

In order to control unnecessary, excessive and annoying sounds emanating from unincorporated areas of the County, it is hereby declared to be the policy of the County to prohibit such sounds generated from all sources as specified in this article.

It is determined that certain sound levels are detrimental to the public health, welfare and safety, and contrary to public interest. (Ord. No. 2700, § 1, 9-19-73)

Sec. 4-6-2. Definitions.

The following words, phrases and terms as used in this article shall have the meaning as indicated below:

Ambient noise level shall mean the all-encompassing noise level associated with a given environment, being a composite of sounds from all sources, excluding the alleged offensive noise, at the location and approximate time at which a comparison with the alleged offensive noise is to be made.

Cumulative period shall mean an additive period of time composed of individual time segments which may be continuous or interrupted.

Decibel (dB) shall mean a unit which denotes the ratio between two (2) quantities which are proportional to power: the number of decibels corresponding to the ratio of two (2) amounts of power is ten (10) times the logarithm to the base ten (10) of this ratio.

Dwelling unit shall mean a single unit providing complete, independent living facilities for one or more persons including permanent provisions for living, sleeping, eating, cooking and sanitation.

Emergency machinery, vehicle or work shall mean any machinery, vehicle or work used, employed or performed in an effort to protect, provide or restore safe conditions in the community or for the citizenry, or work by private or public utilities when restoring utility service.

Fixed noise source shall mean a stationary device which creates sounds while fixed or motionless, including but not limited to industrial and commercial machinery and equipment, pumps, fans, compressors, generators, air conditioners and refrigeration equipment.

Grading shall mean any excavating or filling of earth material, or any combination thereof, conducted at a site to prepare said site for construction or other improvements thereon.

Impact noise shall mean the noise produced by the collision of one mass in motion with a second mass which may be either in motion or at rest.

Mobile noise source shall mean any noise source other than a fixed noise source.

Noise level shall mean the "A" weighted sound pressure level in decibels obtained by using a sound level meter at slow response with a reference pressure of twenty (20) micronewtons per square meter. The unit of measurement shall be designated as dB(A).

Person shall mean a person, firm, association, copartnership, joint venture, corporation or any entity, public or private in nature.

Residential property shall mean a parcel of real property which is developed and used either in part or in whole for residential purposes, other than transient uses such as hotels and motels.

Simple tone noise shall mean a noise characterized by a predominant frequency or frequencies so that other frequencies cannot be readily distinguished.

Sound level meter shall mean an instrument meeting American National Standard Institute's Standard S1.4-1971 for Type 1 or Type 2 sound level meters or an instrument and the

*Editor's note—Ord. No. 2700, § 1, adopted Sept. 19, 1973, amended this Code by adding Div. 6, Art. 1, §§ 4-6-1—4-6-16 to read as herein set out.

associated recording and analyzing equipment which will provide equivalent data.

Sound pressure level of a sound, in decibels, shall mean twenty (20) times the logarithm to the base ten (10) of the ratio of the pressure of the sound to a reference pressure, which reference pressure shall be explicitly stated. (Ord. No. 2700, § 1, 9-19-73; Ord. No. 2870, § 1, 10-1-75)

Sec. 4-6-3. Noise level measurement criteria.

Any noise level measurements made pursuant to the provisions of this article shall be performed using a sound level meter as defined in section 4-6-2. (Ord. No. 2700, § 1, 9-19-73)

Sec. 4-6-4. Designated noise zone.

The entire territory of Orange County, including incorporated and unincorporated territory, is hereby designated as "Noise Zone 1." (Ord. No. 2700, § 1, 9-19-73; Ord. No. 2870, § 1, 10-1-75)

Sec. 4-6-5. Exterior noise standards.

(a) The following noise standards, unless otherwise specifically indicated, shall apply to all residential property within a designated noise zone:

NOISE STANDARDS

Noise Zone	*Noise Level*	*Time Period*
1	55 dB(A)	7:00 a.m.—10:00 p.m.
	50 dB(A)	10:00 p.m.—7:00 a.m.

In the event the alleged offensive noise consists entirely of impact noise, simple tone noise, speech, music, or any combination thereof, each of the above noise levels shall be reduced by five (5) dB(A).

(b) It shall be unlawful for any person at any location within the unincorporated area of the County to create any noise, or to allow the creation of any noise on property owned, leased, occupied, or otherwise controlled by such person, when the foregoing causes the noise level, when measured on any other residential property, either incorporated or unincorporated, to exceed:

(1) The noise standard for a cumulative period of more than thirty (30) minutes in any hour; or

(2) The noise standard plus five (5) dB(A) for a cumulative period of more than fifteen (15) minutes in any hour; or

(3) The noise standard plus ten (10) dB(A) for a cumulative period of more than five (5) minutes in any hour; or

(4) The noise standard plus fifteen (15) dB(A) for a cumulative period of more than one (1) minute in any hour; or

(5) The noise standard plus twenty (20) dB(A) for any period of time.

(c) In the event the ambient noise level exceeds any of the first four (4) noise limit categories above, the cumulative period applicable to said category shall be increased to reflect said ambient noise level. In the event the ambient noise level exceeds the fifth noise limit category, the maximum allowable noise level under said category shall be increased to reflect the maximum ambient noise level. (Ord. No. 2700, § 1, 9-19-73; Ord. No. 2715, § 1, 11-13-73; Ord. No. 2870, § 1, 10-1-75)

Sec. 4-6-6. Interior noise standards.

(a) The following interior noise standards, unless otherwise specifically indicated, shall apply to all residential property within a designated noise zone:

INTERIOR NOISE STANDARDS

Noise Zone	*Noise Level*	*Time Period*
1	55 dB(A)	7:00 a.m.—10:00 p.m.
	45 dB(A)	10:00 p.m.—7:00 a.m.

In the event the alleged offensive noise consists entirely of impact noise, simple tone noise, speech, music, or any combination thereof, each of the above noise levels shall be reduced by five (5) dB(A).

(b) It shall be unlawful for any person at any location within the unincorporated area of the County to create any noise, or to allow the creation of any noise on property owned, leased, occupied, or otherwise controlled by such person, when the foregoing causes the noise level, when measured within any other dwelling unit on any residential property, either incorporated or unincorporated, to exceed:

(1) The interior noise standard for a cumulative period of more than five (5) minutes in any hour; or

(2) The interior noise standard plus five (5) db(A) for a cumulative period of more than one (1) minute in any hour; or

(3) The interior noise standard plus ten (10) db(A) for any period of time.

(c) In the event the ambient noise level exceeds either of the first two (2) noise limit categories above, the cumulative period applicable to said category shall be increased to reflect said ambient noise level. In the event the ambient noise level exceeds the third noise limit category the maximum allowable noise level under said category shall be increased to reflect the maximum ambient noise level. (Ord. No. 2700, § 1, 9-19-73; Ord. No. 2715, § 1, 11-13-73; Ord. No. 2870, § 1, 10-1-75)

Sec. 4-6-7. Special provisions.

The following activities shall be exempted from the provisions of this article:

(a) Activities conducted on the grounds of any public or private nursery, elementary, intermediate or secondary school or college.

(b) Outdoor gatherings, public dances and shows, provided said events are conducted pursuant to a license issued by the County of Orange pursuant to Title 5 of the Codified Ordinances of the County of Orange.

(c) Activities conducted on any park or playground, provided such park or playground is owned and operated by a public entity.

(d) Any mechanical device, apparatus or equipment used, related to or connected with emergency machinery, vehicle or work.

(e) Noise sources associated with construction, repair, remodeling, or grading of any real property, provided said activities do not take place between the hours of 8:00 p.m. and 7:00 a.m. on weekdays, including Saturday, or at any time on Sunday or a Federal holiday.

(f) All mechanical devices, apparatus or equipment which are utilized for the protection or salvage of agricultural crops during periods of potential or actual frost damage or other adverse weather conditions.

(g) Mobile noise sources associated with agricultural operations, provided such operations do not take place between the hours of 8:00 p.m. and 7:00 a.m. on weekdays, including Saturday, or at any time on Sunday or a Federal holiday.

(h) Mobile noise sources associated with agricultural pest control through pesticide application, provided that the application is made in accordance with restricted material permits issued by or regulations enforced by the Agricultural Commissioner.

(i) Noise sources associated with the maintenance of real property, provided said activities take place between 7:00 a.m. and 8:00 p.m. on any day except Sunday or a Federal holiday, or between the hours of 9:00 a.m. and 8:00 p.m. on Sunday or a Federal holiday.

(j) Any activity to the extent regulation thereof has been preempted by State or Federal law. (Ord. No. 2700, § 1, 9-19-73; Ord. No. 2715, § 1, 11-13-73; Ord. No. 2870, § 1, 10-1-75)

Sec. 4-6-8. Schools, hospitals and churches; special provisions.

It shall be unlawful for any person to create any noise which causes the noise level at any school, hospital or church while the same is in use to exceed the noise limits as specified in section 4-6-5 prescribed for the assigned noise zone in which the school, hospital or church is located, or which noise level unreasonably interferes with the use of such institutions or which unreasonably disturbs or annoys patients in the hospital, provided conspicuous signs are displayed in three (3) separate locations within one-tenth of a mile of the institution indicating the presence of a school, church or hospital. (Ord. No. 2700, § 1, 9-19-73)

Sec. 4-6-8.1. Motor vehicle racing.

It shall be unlawful to conduct motor vehicle racing, testing, timing or similar noise-producing activities at raceways, speedways, off-road vehicle courses, drag strips or other similar places, including, but not limited to, the operation of midget race cars, drag cars, motorcycles, off-road vehicles, and specialty automobiles, between the hours of 11:30 p.m. and 8:00 a.m. (Ord. No. 3093, § 1, 10-24-78)

Sec. 4-6-9. Air conditioning and refrigeration; special provisions.

During the five-year period following the effective date of this article, the noise standards enumerated in sections 4-6-5 and 4-6-6 shall be increased eight (8) db(A) where the alleged offensive noise source is an air conditioning or refrigeration system or associated equipment which was installed prior to the effective date of this article. (Ord. No. 2700, § 1, 9-19-73; Ord. No. 2715, § 1, 11-13-73)

Sec. 4-6-10. Noise level measurement.

The location selected for measuring exterior noise levels shall be at any point on the affected property. Interior noise measurements shall be made within the affected dwelling unit. The measurement shall be made at a point at least four (4) feet from the wall, ceiling, or floor nearest the alleged offensive noise source and may be made with the windows of the affected unit open. (Ord. No. 2700, § 1, 9-19-73; Ord. No. 2870, § 1, 10-1-75)

Sec. 4-6-11. Manner of enforcement.

The Orange County Sheriff, the County Health Officer and their duly authorized representatives are directed to enforce the provisions of this article. The Orange County Sheriff, the County Health Officer and their duly authorized representatives are authorized, pursuant to Penal Code section 836.5, to arrest any person without a warrant when they have reasonable cause to believe that such person has committed a misdemeanor in their presence.

No person shall interfere with, oppose or resist any authorized person charged with the enforcement of this article while such person is engaged in the performance of his duty. (Ord. No. 2700, § 1, 9-19-73; Ord. No. 2715, § 1, 11-13-73)

Sec. 4-6-12. Variance procedure.

The owner or operator of a noise source which violates any of the provisions of this article may file an application with the Health Officer for a variance from the provisions thereof wherein said owner or operator shall set forth all actions taken to comply with said provisions, the reasons why immediate compliance cannot be achieved, a proposed method of achieving compliance, and a proposed time schedule for its accomplishment. Said application shall be accompanied by a fee in the amount of seventy-five dollars ($75.00). A separate application shall be filed for each noise source; provided, however, that several mobile sources under common ownership, or several fixed sources on a single property may be combined into one (1) application. Upon receipt of said application and fee, the Health Officer shall refer it with his recommendation thereon within thirty (30) days to the Noise Variance Board for action thereon in accordance with the provisions of this article.

An applicant for a variance shall remain subject to prosecution under the terms of this article until a variance is granted. (Ord. No. 2700, § 1, 9-19-73; Ord. No. 2715, § 1, 11-13-73)

Sec. 4-6-13. Noise Variance Board.

There is hereby created a Noise Variance Board consisting of five (5) members. Two (2) of the members shall be professional engineers, one (1) of whom shall have demonstrated knowledge and experience in the field of acoustics, and one (1) of whom shall be a registered mechanical engineer. One (1) member shall be a physician licensed in this State, qualified in the field of physiological effects of noise. One (1) member shall be a representative of business and industry. One (1) member shall be a representative of the general public.

The Noise Variance Board shall evaluate all applications for variance from the requirements of this article and may grant said variances with respect to time for compliance, subject to such terms, conditions and requirements as it may deem reasonable to achieve maximum compliance with the provisions of this article. Said terms, conditions, and requirements may include but shall not be limited to limitations on noise levels and operating hours. Each such variance shall set forth in detail the approved method of achieving maximum compliance and a time schedule for its accomplishment. In its determinations said Board shall consider the magnitude of nuisance caused by the offensive noise; the uses of property within the area of impingement by the

noise; the time factors related to study, design, financing and construction of remedial work; the economic factors related to age and useful life of equipment; and the general public interest and welfare. Any variance granted by said Board shall be by resolution and shall be transmitted to the Health Officer for enforcement. Any violation of the terms of said variance shall be unlawful.

Members of the Variance Board shall be appointed by, and shall serve at the pleasure of, the Board of Supervisors. Said Board shall adopt reasonable rules and regulations for its own procedures in carrying out its functions under the provisions of this article.

Three (3) members shall constitute a quorum and at least three (3) affirmative votes shall be required in support of any action.

The Health Officer, or his appointed representative, shall be a nonvoting ex officio member of the Variance Board, and shall act as Secretary of the Board.

Meetings of the Noise Variance Board shall be held at the call of the Secretary and at such times and locations as said Board shall determine. All such meetings shall be open to the public.

Traveling and other expenses incurred by each Board member in the performance of his official duties shall be reimbursed at a rate determined by resolution of the Board of Supervisors. (Ord. No. 2700, § 1, 9-19-73; Ord. No. 2715, § 1, 11-13-73; Ord. No. 2870, § 1, 10-1-75)

Sec. 4-6-14. Appeals.

Within fifteen (15) days following the decision of the Variance Board on an application the applicant, the Health Officer, or any member of the Board of Supervisors, may appeal the decision to the Board of Supervisors by filing a notice of appeal with the Secretary of the Variance Board. In the case of an appeal by the applicant for a variance the notice of appeal shall be accompanied by a fee to be computed by the Secretary on the basis of the estimated cost of preparing the materials required to be forwarded to the Board of Supervisors as discussed hereafter. If the actual cost of such preparation differs from the estimated cost appropriate payments shall be made either to or by the secretary.

Within fifteen (15) days following receipt of a notice of appeal and the appeal fee the Secretary of the Variance Board shall forward to the Board of Supervisors copies of the application for variance; the recommendation of the Heath Officer; the notice of appeal; all evidence concerning said application received by the Variance Board and its decision thereon. In addition any person may file with the Board of Supervisors written arguments supporting or attacking said decision and the Board may in its discretion hear oral arguments thereon. The Clerk of the Board shall mail to the applicant a notice of the date set for hearing of the appeal. The notice shall be mailed at least ten (10) days prior to the hearing date.

Within sixty (60) days following its receipt of the notice of appeal the Board of Supervisors shall either affirm, modify or reverse the decision of the Variance Board. Such decision shall be based upon the Board's evaluation of the matters submitted to the Board in light of the powers conferred on the Variance Board and the factors to be considered, both as enumerated in sections 4-6-12 and 4-6-13.

As part of its decision the Board may direct the Variance Board to conduct further proceedings on said application. Failure of the Board of Supervisors to affirm, modify or reverse the decision of the Variance Board within said sixty-day period shall constitute an affirmance of the decision. (Ord. No. 2715, § 1, 11-13-73)

Sec. 4-6-15. Violations; misdemeanors.

Any person violating any of the provisions of this article shall be deemed guilty of a misdemeanor. Each day such violation is committed or permitted to continue shall constitute a separate offense and shall be punishable as such. The provisions of this article shall not be construed as permitting conduct not prescribed herein and shall not affect the enforceability of any other applicable provisions of law. (Ord. No. 2700, § 1, 9-19-73; Ord. No. 2715, § 1, 11-13-73)

Sec. 4-6-16. Delay in implementation.

None of the provisions of this article shall apply to a fixed noise source during the period

commencing October 19, 1973, and terminating ninety (90) days thereafter. (Ord. No. 2700, § 1, 9-19-73; Ord. No. 2715, § 2, 11-13-73)

END OF MODEL ORDINANCE

INCLUSION WITHIN THIS NOISE ELEMENT DOES NOT CONSTITUTE INCORPORATION INTO THE INGLEWOOD MUNICIPAL CODE.

NO. 87-61

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF INGLEWOOD, CALIFORNIA, AMENDING THE COMPREHENSIVE GENERAL PLAN BY ADOPTING A REVISED NOISE ELEMENT.

WHEREAS, Section 65302(f) of the Government Code of the State of California requires the inclusion of a Noise Element in the General Plan and also specifies those issues that shall be addressed in the Noise Element; and

WHEREAS, ON June 3, 1987, the Planning Commission of the City of Inglewood, California, did conduct a duly noticed public hearing to consider the approval of a revised Noise Element to the Comprehensive General Plan; and

WHEREAS, the Planning Commission did adopt Resolution No. 743 approving and recommending approval of the revised element to the City Council and reciting certain findings and determinations therefor; and

WHEREAS, the City Council of the City of Inglewood, California, has now concluded a duly noticed public hearing to consider the recommendations of the Planning Commission and any reports and testimony presented; and

WHEREAS, said City Council concurs with the findings, determinations and recommendations of the Planning Commission;

NOW, THEREFORE, THE CITY COUNCIL OF THE CITY OF INGLEWOOD, CALIFORNIA, DOES RESOLVE AS FOLLOWS.

SECTION 1. The City Council hereby approves the revised Noise Element specified hereinabove to be an amendment to the Comprehensive General Plan of the City of Inglewood.

SECTION 2. A review of the amendment has resulted in the determination that there will be no resultant adverse impact upon the environment and therefore a Negative Declaration stating this shall be filed with the County of Los Angeles.

SECTION 3. The Planning and Development Director or Deputy City Manager for Community Development and Housing is hereby instructed to prepare documents in accordance with the action of the City Council showing the amendment to the Comprehensive General Plan approved by the City Council and set forth in Section 1 of the resolution. Upon the filing of the amendment with the City Clerk under the Certificate of the Planning and Development Director or Deputy City Manager for Community Development and Housing, the amendment shall become

and thereafter be a part of the Comprehensive General Plan heretofore approved and adopted.

SECTION 4. The City Clerk shall certify to the adoption of this resolution and, thenceforth and thereafter, the same shall be in full force and effect.

Passed, approved and adopted this 1st, day of September, 1987.

EDWARD VINCENT
MAYOR OF THE CITY OF INGLEWOOD, CALIFORNIA

ATTEST:

HERMANITA V. HARRIS
CITY CLERK

(SEAL)