

COUNTY OF ORANGE



LAND USE/NOISE COMPATIBILITY MANUAL

ADOPTED: SEPTEMBER 18, 1984

**AMENDMENT 93-1: DECEMBER 14, 1993
BOARD OF SUPERVISORS RESOLUTION NO. 93-1391**

Land Use/Noise Compatibility Manual
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I. INTRODUCTION

The Purpose of this Land Use/Noise Compatibility Manual is to serve as a ready reference to the mechanisms and procedures that are employed by the County of Orange to implement the land use/noise compatibility policies and the standards of the County's Noise Element of the General Plan. Those implementation programs/mechanisms related to other policies of the Noise Element (e.g., public information of noise health effects, transportation system noise control such as by restrictions on trail bikes and other off-road vehicles, use of quieter aircraft at John Wayne Airport, etc.) are outside the scope of this Manual. The Noise Element contains general policies and establishes specific noise standards to guide the manner in which land use/noise compatibility issues are to be addressed by the Planning Agency (PDSD, the Planning Commission, and the Zoning Administrator). This Manual contains relevant Noise Element excerpts and supporting implementing policies and procedures necessary to insure that Element policy and standards are consistently and effectively carried out during County review of a proposed project.

The Manual will be amended when necessary upon approval of the Director, PDSD, and concurrence of the Planning Commission and adoption by the Board of Supervisors.

II. NOISE ELEMENT POLICIES – CROSS REFERENCE TO MANUAL CONTENTS

Several tables have been prepared which illustrate the relationship between the Noise Element, land use/noise compatibility standards and this Manual:

- Table II-1 contains those Noise Element policies related to Land Use/Noise compatibility.
- ◇ Table II-2 cross-references these Noise Element policies to relevant sections of the Noise Manual and Standard Conditions of Approval. In addition, it identifies the method of policy implementation and the responsible County entity.
- ◇ For clarity and ease of using the Table, several abbreviations have been utilized. County agencies have been abbreviated in a simplified notation (an example being the “Planning and Development Services Department” labeled as “PDSD”). Definitions for each notation are located at the end of the table. Standard Conditions of Approval have been referenced by their numbers only, such as N1 etc. Each such condition is located in its entirety in Section IV of this Manual. The County publishes applicable “Standard Conditions of Approval” annually which includes all acoustical conditions referenced herein.
- ◇ Tables II-3 and II-4 are also excerpted from the Noise Element. They convey the Element’s operational definition of its land use/noise compatibility policies so that the policies can be consistently applied based on analytically calculated or measured project noise levels.

Table II-1
Noise Element Policies Relevant to Noise Manual *

<u>Policy Number</u>	<u>Policy Statement</u>
2.4	To require that prospective purchasers or end users of property be notified of overflight, sight and sound of routine aircraft operations by all effective means including: (a) Requiring new residential subdivisions which are located within the 60-decibel CNEL noise contour or is subject to overflight, sight and sound of aircraft operating from MCAS, El Toro or John Wayne Airport to have such information included in the State of California Final Subdivision Public Report. (b) Requiring that Declaration and Notification of Aircraft Noise and Environmental Impacts be recorded and available to prospective purchasers or end users of property located within the 60-decibel CNEL noise contour for any airport or air station or is subject to routine aircraft overflight. (c) Requiring an Avigation Easement across property that is within the 60-decibel CNEL noise contour for any airport or air station or is subject to routine aircraft overflight. (d) Requiring the posting of noise impact notification signs in all sales offices associated with new residential development that is located within the 63-decibel CNEL contour from any airport or air station. (e) Any other appropriate means as specifically directed by the Board of Supervisors.
4.3	To develop and enforce standards in addition to those presently included in the Noise Ordinance to regulate noise from construction and maintenance activities and commercial, public and industrial land uses.

*Verbatim excerpt from the Noise Element.

Table II-1 (Cont.)

<u>Policy Number</u>	<u>Policy Statement</u>
4.4	To require that noise from other motors, appliances, air conditioners, and other consumer products does not disturb the occupants of surrounding properties.
5.1	To utilize the criteria of acceptable noise levels for various types of land uses as depicted on Tables 4.1 and 4.2 (Tables II-3 and II-4 in Manual) in the review of development proposals.
5.2	To prohibit new residential land uses within the 65-decibel CNEL contour from any airport or air station.
5.3	To limit new non-residential noise-sensitive land uses that are within a 65-decibel CNEL area from any source. Noise sensitive land uses will be permitted if, and only if, appropriate mitigation measures are included such that the standards contained in this Element and in appropriate State and Federal Codes are met. Specifically, non-residential noise-sensitive land uses include: hospitals, rest homes, convalescent hospitals, places of worship and schools.
6.2	To continue enforcement of Chapter 35 of the Uniform Building Code, currently adopted edition, and the California Noise Insulation Standards (Title 25, California Administrative Code).
6.3	To require that all new residential units have an interior noise level in living areas that is not greater than 45- decibels CNEL with I being understood that standard construction practices reduce the noise level by 120decibels CNEL with the windows open and 20-decibels CNEL with the windows closed. Higher attenuation than listed above may be claimed if adequate field monitoring or acoustical studies are provided to and approved by the County.
6.5	All outdoor living areas associated with new residential uses shall be attenuated to less than 65-decibels CNEL.
6.6	To urge the use of acoustical insulation programs for schools located in the County, and where subject to County approval, to insure that new buildings for school uses meet state and local acoustical standards.
6.7	To apply noise standards as defined in the Noise Element for noise sensitive land uses.

*Verbatim excerpt from the Noise Element.

Table II-2
Noise Element Cross Reference to Noise Manual

<u>Noise Element Policy #</u>	<u>Relevant Noise Manual Section</u>	<u>Method of Implementation</u>	<u>Implementing Responsibility*</u>	<u>Standard Condition of Approval Reference**</u>
2.4	VI	Cond. Of Approval	PDSD	N3 N4 N5 N6 N7
4.3	III	Cond. Of Approval	PDSD/HCA	N8 (Noise Ord) N10
4.5	V	Cond. Of Approval/ Mitigation Measures	PDSD/HCA	N8 (Noise Ord) N10
5.1	III	Cond. Of Approval/ Mitigation Measures	PDSD	N1 N2 N9
5.2	III	Cond. Of Approval/ Mitigation Measures	PDSD	N1 N9
5.3	III	Cond. Of Approval/ Mitigation Measures	IMA	N1 N2 N9 N10
6.2	III, V	Cond. Of Approval/ Bldg. Plan Check	PDSD	N1 N9
6.3	III, V	Cond. Of Approval	PDSD	N1 N9
6.5	III	Cond. Of Approval	PDSD	N2 N1 N9
6.6	III, V	Cond. Of Approval	PDSD	N2
6.7	III	Cond. Of Approval	PDSD	N1 N2

*PDSD – Planning and Development Services Department
HCA – Health Care Agency

**Refer to Section IV of this Manual for wording and application of Standard Conditions of Approval and Mitigation Measures.

TABLE II-3*
COMPATIBILITY MATRIX FOR LAND USES AND COMMUNITY NOISE
NOISE EQUIVALENT LEVELS
(CNEL)

<u>TYPE OF USE</u>	<u>65+ decibels CNEL</u>	<u>60 to 65 decibels CNEL</u>
<u>Residential</u>	3a, b, e	2a, e
<u>Commercial</u>	2c	2c
<u>Employment</u>	2c	2c
<u>Open Space</u>		
Local	2c	2c
Community	2c	2c
Regional	2c	2c
<u>Educational Facilities</u>		
Schools (K through 12)	2c, d, e	2c, d, e
Preschool, college, other	2c, d, e	2c, d, e
<u>Hospitals</u>		
General	2a, c, d, e	2a, c, d, e
Convalescent	2a, c, d, e	2a, c, d, e
<u>Group Quarters</u>	1a, b, c, e	2a, c, e
<u>Hotels/Motels</u>	2a, c	2a, c
<u>Accessory Uses</u>		
Executive Apartments	1a, b, e	2a, e
Caretakers	1a, b, c, e	2a, c, e

Note: See Table II-4 for definitions of the entries in this table. *Verbatim excerpt from Noise Element. For the purpose of complying with Table II-3 Criteria, the noise levels from all sources will be combined and rated in terms of Community Noise Equivalent Level (CNEL).

TABLE II-4

EXPLANATIONS AND DEFINITIONS OF TABLE II-3

ACTION REQUIRED TO ENSURE COMPATIBILITY BETWEEN LAND USE AND NOISE FROM EXTERNAL SOURCES

1 = Allowed if interior and exterior community noise levels can be mitigated.

2 = Allowed if interior levels can be mitigated.

3 = New residential uses are prohibited in areas within the 65-decibel CNEL contour from any airport or air station; allowed in other areas if interior and exterior community noise levels can be mitigated. The prohibition against new residential development excludes limited “infill” development within an established neighborhood.

STANDARDS REQUIRED FOR COMPATIBILITY OF LAND USE AND NOISE

a = Interior Standard: CNEL of less than 45-decibels (habitable rooms only)

b = Exterior Standard: CNEL of less than 65-decibels from any source in outdoor living areas.

c = Interior Standard: Leq(h) = 45 to 65 decibels interior noise level, depending on interior use

TYPICAL USE

Leq (h)*

Private Office, Church Sanctuary, College,
Preschool, Schools (Grade K-12), Board Room,
Conference Room, etc.

45

General office, Reception, Clerical, etc.

50

Other Schools and Colleges

52

Bank Lobby, Retail Store, Restaurant,
Typing Pool, etc.

55

Manufacturing, Kitchen, Warehousing, etc.

65

d = Exterior Standard: Leq (h) of less than 65 decibels in outdoor living areas.

e = Interior Standard: As approved by the Board of Supervisors for sound events of short duration such as aircraft flyovers or individual passing railroad trains.

* h = Time duration of usage in hours

KEY DEFINITIONS

Habitable Room – Any room meeting the requirement of the Uniform building Code of other applicable regulations which is intended to be used for sleeping, living, cooking or dining purposes, excluding such enclosed spaces as closets, pantries, bath or toilet rooms, service rooms, connecting corridors, laundries, unfinished attics, foyers, storage spaces, cellars, utility rooms and similar spaces.

Interior – Spaces that are covered and largely enclosed by walls.

Leq (h) – The A-weighted equivalent sound level averaged over a period of “h” hours. An example would be Leq(12), where the equivalent sound level is the average over a specified 12-hour period (such as 7:00 a.m. to 7:00 p.m.). Typically, time period “h” is defined to match the hours of operation of a given type of use.

*Outdoor Living Area – Outdoor Living Area is a term used by the County of Orange to define spaces that are associated with residential land uses typically used for passive recreational activities or other noise-sensitive uses. Such spaces include patio areas, barbecue areas, jacuzzi areas, etc. associated with residential uses; outdoor patient recovery or resting areas associated with hospitals, convalescent hospitals, or rest homes; outdoor areas associated with places of worship which have a significant role in services or other noise-sensitive activities; and outdoor school facilities routinely used for educational purposes which may be adversely impacted by noise. Outdoor areas usually not included in this definition are: front yard areas, driveways, greenbelts, maintenance areas, and storage areas associated with residential land uses; exterior areas at hospitals that are not used for patient activities; short-term social gatherings; and, outdoor areas associated with school facilities that are not typically associated with educational uses prone to adverse noise impacts (for example, school play yard areas).

*Verbatim excerpt from Noise Element.

III. LAND USE/NOISE COMPATIBILITY-POLICY IMPLEMENTATION METHODS AND PROCEDURES

In general, implementation of the Noise Element's land use/noise compatibility policies and standards is concerned with (1) existing and projected future noise sources (noise generators) and noise levels, and (2) adjacent or proposed land uses and activities associated with persons who may become receptors of such noise intrusion.

The general procedures of processing a project or development proposal which is subject to Zoning/Subdivision code and permit controls, may be summarized as follows.

When a project is submitted to the County for approval or issuance of permits, and Initial Study is performed by the PDSD Environmental Planning Division which may include comments from the Acoustics Section of PDSD Regulation's Building Permits Division.

The Initial Study will determine if the project is Categorically Exempt or should receive a Negative Declaration (ND), Mitigated ND or requires an Environmental Impact Report. A project must have environmental clearance prior to the issuance of discretionary permits. For more information, the reader is referred to Orange County Environmental Analysis Procedures adopted by the Board of Supervisors.

As the environmental analysis is being performed the applicant concurrently processes his project for other discretionary permits needed. The applicant files for specific permits at PDSD/Regulation for tentative parcel maps or tentative tract maps or PDSD/Current Planning for Site Plans, Use Permits, Variances, etc. Both divisions circulate the project to PDSD/Acoustics for review and comment.

If the project is located near major noise impact areas, the applicant may be requested:

- to submit an acoustical analysis to the Manager, Building Permits Division, which illustrates the feasibility of the exterior mitigation measures, required to achieve the design noise standards.
- to contact the Maps Service Section of PDSD's Survey Division for determining the relationship between the project and the appropriate airport CNEL-lines.

If the project is determined to be located in a Noise Referral Zone (the 60 db CNEL contour from any noise source or combination of noise sources), PDSD/Acoustics recommends that certain Conditions of Approval be applied to the project to assure compatibility with the Noise Element of the General Plan. (The Standard Conditions of Approval are located in Section IV of this Manual.) Comments from PDSD/Acoustics are returned to the reviewing Division.

After all screen check comments are received and reviewed, a staff report is written and presented to the appropriate decision-making body, such as the Planning Commission and Subdivision Committee. The project may be approved as designed, approved with certain Conditions of Approval as specified by the decision-making body, or denied. Typically when a

project is approved with acoustical conditions, an Acoustical Analysis Report will be required to illustrate and demonstrate compliance with the County's Noise Standards. For detailed information regarding the contents of an Acoustical Analysis Report, the reader is referred to Section V of this Manual, "Acoustical Analysis Reports".

For residential projects, the Acoustical Analysis Report is required prior to grading or map recordation at the sole discretion of the County. If this Report does not cover all the requirements as to sound mitigation measures for all the structures, a second report becomes necessary prior to the issuance of building permits. For non-residential projects, an Acoustical Analysis Report is required prior to the issuance of building permits only.

III. STANDARD CONDITIONS OF APPROVAL/MITIGATION MEASURES

Exhibit IV-1 contains the list of Standard Conditions of Approval and Mitigation Measures as currently utilized by the County of Orange. Depending upon the specific project, none, one, all or any combination of these Mitigation Measures/Conditions may be applied to the project.

Examples:

- A. For a proposed residential use, located in an area with aircraft noise level at the CNEL 60 dBA contour in and a projected traffic noise impact of CNEL 56 dBA, the combined total (See Appendix F)
- B. Would be 61.5 decibels. According to Table II-3, with a rating at this level, the appropriate conditions to be applied would be N1 (calling for a noise report) and N10 (for grading and construction noise control).
- C. For a development that may be potentially a noise generator, such as a dog kennel, a car wash or a sewage treatment plant, Condition N8 would be imposed.

The most commonly used Mitigation Measures/Conditions of Approval call for submittal of an Acoustical Analysis Report by an acoustical consultant. The requirements for a special technical considerations related to such reports are discussed in Section V. In some cases, reports may be submitted in phases (Incremental Report System – refer to N (1) on Exhibit IV-1 and description of system in Section V).

The remaining sections and appendices of this manual consist of technical interpretations or references to assist project proponents and their acoustical consultants to prepare acceptable Acoustical Analysis Reports or otherwise fully satisfy County noise conditions and thereby achieve project consistency with the Noise Element. Their ultimate purpose (and the major reason this manual has been prepared) is to eliminate unnecessary delay which results when Acoustical Analysis Reports must be returned for technical corrections or because basic information needed for efficient County review and approval has been omitted.

Exhibit IV-2 is a brief summary chart of the Standard Conditions of Approval, showing when each is typically applied and what the project proponent is required to do.

N1 RESIDENTIAL NOISE

All residential lots and dwellings shall be sound attenuated against present and projected noise which shall be the sum of all noise impacting the project so as not to exceed a composite interior standard of 45 dBA CNEL in all habitable rooms, and a source specific exterior standard of 65 dBA CNEL in outdoor living areas. Evidence prepared by a County-certified acoustical consultant that these standards will be satisfied in a manner consistent with applicable zoning regulations shall be submitted as follows:

- A. Prior to the recordation of a final tract/parcel map or prior to the issuance of grading permits, as determined by the Manager, Building Permits Services, and acoustical analysis report shall be submitted to the Manager, Building Permits, for approval. The report shall describe in detail the exterior noise environment and preliminary mitigation measures. Acoustical design features to achieve interior noise standards may be included in the report in which case it may also satisfy "B" below.
- B. Prior to the issuance of any building permits for residential construction, an acoustical analysis report describing the acoustical design features of the structures required to satisfy the exterior and interior noise standards shall be submitted to the Manager, Building Permits, for approval along with satisfactory evidence which indicates that the sound attenuation measures specified in the approved acoustical report have been incorporated into the design of the project.
- C. Prior to the issuance of any building permits, all freestanding acoustical barriers must be shown on the project's plot plan illustrating height, location and construction in a manner meeting the approval of the Manager, Building Permits.

N2 NON-RESIDENTIAL NOISE

All non-residential structures shall be sound attenuated against the combined impact of all present and projected noise from exterior noise sources to meet the interior noise criteria as specified in the Noise Element and Land Use/Noise Compatibility Manual.

Prior to the issuance of any building permits, evidence prepared under the supervision of a County-certified acoustical consultant that these standards will be satisfied in a manner consistent with applicable zoning regulations shall be submitted to the Manager, Building Permits, in the form of an acoustical analysis report describing in detail the exterior noise environment and the acoustical design features required to achieve the interior noise standard and which indicated that the sound attenuation measures specified have been incorporated into the design of the project.

N3 OVERFLIGHT NOTIFICATION

Prior to the recordation of each final tract/parcel map, the owner of the property shall prepare and record notice that this property is subject to overflight, sight, and sound of aircraft operating

from (El Toro Marine Corps Air Station) (John Wayne Airport) in a manner meeting the approval of the Manager, Building Permits.

N4 DRE REORT INFORMATION

Prior to the issuance of any certificates of use and occupancy, the developer shall produce evidence acceptable to the Manager, Building Inspection, that information stating this property is subject to the overflight, sight, and sound of aircraft operating from (El Toro Marine Corps Air Station) (John Wayne Airport) had been provided tot he Department of Real Estate of the State of California for inclusion into the Final Subdivision Public Report.

N5 AVIGATION EASEMENT

Prior to the recordation of each final tract/parcel map or the issuance of any building permit, whichever comes first, an avigation easement over this property shall be offered for dedication to the County of Orange in a manner meeting the approval of the Manager, Building Permits.

N6 AIRCRAFT NOISE SIGNS

Prior to the issuance of any certificates of use and occupancy, the applicant shall post aircraft noise impact notification signs in all sales office associated with new residential development located within an aircraft 63 dBA CNEL contour. The number and location of said signs shall be as approved by the Manager, Building Permits.

N7 PROSPECTIVE PURCHASER/TENANT NOTIFICATION

Prior to sale, lease, or rental of any structure or portion thereof, the applicant/owner shall provide to each prospective purchaser, lessee, or tenant a notice and statement of acknowledgment that the property is subject to overflight, sight, and sound of aircraft operating from (El Toro Marine Corps Air Station) (John Wayne Airport). The form and method of distribution of said notice and statement of acknowledgment shall be as approved by the Manager, Building Permits.

N8 NOISE GENERATING EQUIPMENT

Prior to the issuance of any building permits, an acoustical analysis report and appropriate plans shall be submitted describing the noise generation potential of the proposed project and proposed attenuation measures to assure compliance with Orange County Codified Ordinance, Division 6 (Noise Control). The report shall be prepared under the supervision of a County-certified acoustical consultant and submitted to the Manager, Building Permits, for review and approval. The approved attenuation features shall be incorporated into the plans and specifications of the project.

N9 MULTI-FAMILY DWELLING UNITS

Prior to the issuance of any certificates of use and occupancy, field testing in accordance with the Uniform Building Code may be required by the Manager, Building Inspection, to verify compliance with FSTC and FIIC standards. In the event such a test was previously performed, satisfactory evidence and copy of the report shall be submitted to the Manager, Building Permits, as a supplement to the previously required acoustical analysis report.

N10 CONSTRUCTION NOISE

- A. Prior to the issuance of any grading permits, the project proponent shall produce evidence acceptable to the Manager, Building Permits, that:
 - (1) All construction vehicles or equipment, fixed or mobile, operated within 1,000' of a dwelling shall be equipped with properly operating and maintained mufflers.
 - (2) All operation shall comply with Orange County Codified Ordinance Division 6 (Noise Control).
 - (3) Stockpiling and/or vehicle staging areas shall be located as far as practicable from dwellings.
- B. Notations in the above format, appropriately numbered and included with other notations on the front sheet of grading plans, will be considered as adequate evidence of compliance with this condition.

N11 FINAL MAP/PARCEL MAP NOISE NOTIFICATION

Prior to the recordation of each final tract/parcel map, the owner of the property shall prepare and record notice that this property may be subject to impacts from the proposed transportation corridor in a manner meeting the approval of the Manager, Building Permits.

N12 TRANSPORTATION CORRIDOR NOTIFICATION

Prior to the issuance of certificates of use and occupancy, the developer shall produce evidence to the Manager, Building Inspection, that the Department of Real Estate has been notified that the project area is adjacent to a regional transportation corridor. The corridor is expected to be a high capacity, high-speed, limited-access facility for motor vehicles, and will have provisions for bus lanes and other mass transit type facilities.

APPLICATION OF STANDARD CONDITIONS

CONDITION/ MITIGATION	TYPE OF DEVELOPMENT APPLIED TO	TYPICALLY APPLIED WHEN:	ACTION REQUIRED
N1	Residential (including residential portions of hotels, motels, hospitals, caretakers homes, etc.)	Located within 60 dB ONEL of any noise source—(Aircraft John Wayne Airport-Orange County El Toro MCAS) railroads, arterials, shopping centers, etc.)	Provide detailed noise report as specified by County of Orange.
N2	Non-Residential (offices, churches, preschools, restaurants, manufacturing etc.)	Located within 60 dB ONEL of any noise source (65 dB ONEL for bank lobby, retail store, etc.; 65 dB ONEL for manufacturing, etc.).	Provide detailed noise report as specified by County of Orange.
N3	Residential or Non-Residential	Within 60 dB ONEL of any air station or airport, or subject to routine overflight.	Record notice of airport or station activity as specified by County of Orange.
N4	Residential	Within 60 dB ONEL of any air station or airport, or subject to routine overflight.	Provide information regarding air activity to include in final Subdivision Report.
N5	Residential or Non-Residential	Within 60 dB ONEL of any air station or airport, or subject to routine overflight.	Record an aviation easement dedicated to and as specified by County of Orange.
N6	Residential	Within 63 dB ONEL from any air station or airport.	Post "Aircraft Noise Impact Area" signs (see Section VII) as specified by County of Orange.
N7	Residential or Non-Residential	Within 60 dB ONEL of any air station or airport, or subject to routine overflight.	Provide Statement of Acknowledgement, to lessee, tenant, purchaser, etc., that property is subject to overflight, sight and sound from any airstation or airport.

CONDITION/ MITIGATION	APPLICATION OF STANDARD CONDITIONS		
	<u>TYPE OF DEVELOPMENT APPLIED TO</u>	<u>TYPICALLY APPLIED WHEN:</u>	<u>ACTION REQUIRED</u>
N8	Non-Residential (particularly pump stations, sewage plants, dog kennels, etc.)	Project may generate noise in excess of County standards.	Provide detailed noise report as specified by County of Orange.
N9	Condominium Conversions	Located within 60 dB CNEL of any noise source.	Prior to project approval, provide detailed noise report as specified by County of Orange.
N10	Residential or Non-Residential	Located near a noise sensitive land use and is large in nature.	Comply with the Noise Ordinance Grading Code; provide appropriate noise-attenuating devices (such as mufflers) on all construction vehicles or equipment located within 1000' of sensitive land use.
N11	Residential or Non-Residential	Located adjacent to proposed transportation corridor.	Record of notice of proposed transportation corridor affecting property.
N12	Residential	Located adjacent to proposed transportation corridor.	Provide information regarding proposed transportation corridor to include in Subdivision Report.

V. ACOUSTICAL ANALYSIS REPORT REQUIREMENTS

The most frequently applied acoustical conditions of approval for both non-residential and residential projects require the preparation of an Acoustical Analysis Report for approval by the Manager, Building Permits Division. These reports must describe the exterior noise environment in detail and, as necessary, propose measures to satisfy both interior and exterior noise level criteria.

The following exhibits set forth the requirements for such Acoustical Analysis Reports:

- ◇ Exhibit V-1 contains the Acoustical Analysis Submittal Form, which shall be attached to each submitted report. It includes information necessary for report processing and approval. Acoustical Analysis Reports will not be accepted if the completed form is not provided.
- ◇ Exhibit V-2 contains a list of Minimum Requirements for each Acoustical Analysis Report including essential information to ensure efficient County review of the report.
- ◇ Exhibit V-3 is an Acoustical Analysis Report checklist to aid the acoustical consultant to ensure that all required items are included in the analysis.

ACOUSTICAL ANALYSIS REPORTS WHICH DO NOT COMPLY WITH ESTABLISHED MINIMUM REQUIREMENTS WILL NOT BE ACCEPTED.

A. Incremental Reports (Phasing)

Acoustical Analysis Reports may be required prior to project approval (via Standard Mitigation Measures) or may be required after project approval (via Standard Condition of Approval).

If a project is located in a severe noise environment and there is some question as to the feasibility of mitigation measures which would be necessary to meet the County's noise standards, an Acoustical Analysis Report would be required prior to project approval. As a rule, the Standard Conditions for the approval of a project usually include the submittal of an Acoustical Analysis Report for County's approval prior to the issuance of required permits. A project proponent must procure the services of a QUALIFIED ACOUSTICAL CONSULTANT TO PERFORM THE ACOUSTICAL ANALYSIS AND TO ADDRESS COMPLIANCE WITH County Noise Standards. Two methods of compliance are available to the project proponent to fulfill his Acoustical Analysis Report requirements.

Method 1: One-Step Report

The "one-step" report system is designed for project proponents who wish to apply for Grading Permits, Subdivision Recordation or Building Permits and who have exact specifications as to the building design and location.

An Acoustical Analysis Report will be submitted to PDSD/Acoustics for review which addresses in detail interior and exterior noise levels. The report format must adhere to the County Acoustical Analysis Report Standards.

Once the noise report is approved, PDSD/Acoustics will coordinate with other responsible sections for the issuance of relevant permits. For this purpose, the project applicant in whose name the acoustical report is submitted, should provide on the Submittal Form attached to each Noise Analysis Report appropriate permit application numbers for ready dispatch.

All mitigation measures in the Acoustical Analysis Report shall be incorporated into the Building Plans prior to issuance of clearance.

It is recommended that the project proponent who knows the exact design of his project choose this method of Acoustical Analysis Report processing since it offers cost-efficient and time-efficient processes to obtain Acoustical Clearance.

A flow chart which illustrates this method of compliance is shown on Exhibit V-4.

Method 2: Incremental/Phased Reports

The Incremental Report system is designed for project proponents who wish to obtain Grading Permits or Subdivision Recordation, prior to knowledge of exact specifications of building design or location.

A preliminary Acoustical Analysis Report must be submitted which addresses exterior noise levels and approximate mitigation measures necessary to meet County Standards. The report format must adhere to the County's Acoustical Analysis Report standards.

When exact design and specifications for the project are determined, a second or "final" Acoustical Analysis Report is required, which determines, exterior noise levels and final mitigation measures (if not previously determined) and interior noise levels and mitigation measures.

Upon approval of this final report, PDSD/Acoustics will issue clearance for Building Permits.

All mitigation measures specified in the report shall be shown in the Building Plans.

The flow chart in Exhibit B-5 illustrates the process for Method 2.

B. Special Considerations

The remainder of this section consists of special technical considerations frequently involved in the preparation, review and approval of such reports.

1. Treatment of Combined Uses

When a project description includes mixed land uses (such as a classroom and office space, or residential/non-residential uses, etc.) each area shall be designed to meet the appropriate noise standard(s) as specified in the Noise Element of the General Plan. An example would be a hotel/motel. The habitable rooms (as defined by the Uniform Building Code) shall be designed to meet an interior noise level of 45 dB CNEL or less, and the associated offices, kitchen area, and restaurant spaces shall be designed to meet the determined appropriate Leq standard. When the space usage is not yet determined, the worst case shall apply (i.e., office space shall be considered to be “private” office space rather than “general” office space).

2. Barrier/Wall Designs and Limits

Acoustical Analysis Reports frequently propose mitigation measures necessary for the project to comply with County noise standards. When a project has an exterior noise level which requires mitigation, a typically proposed mitigation is some type of noise attenuation barrier.

The County has defined a noise attenuation barrier as a solid-massed structure which has specific mass and design requirements. A noise attenuation barrier may be in the form of a noise attenuation wall, an earthen berm, existing buildings, or any combination thereof, and to the erection of which the County’s Zoning Code Sec. 7-9-137.5 “Fences and Walls”, as exerted below, will apply.

The County Zoning Code, Section 7-9-137.5 states:

... For purposes of this section, “fences and walls” include any type of fence, wall, retaining wall, sound attenuation wall, screen, hedge, or thick growth of shrubs or trees, fences/wall heights shall be measured from the base of the fence/wall to the top on interior or exterior side, whichever is greater, except as noted below.

Notwithstanding the limitation specified by section 7-9-137, the installation of fences/walls shall be in compliance with the following regulations unless a higher fence/wall is otherwise permitted by applicable regulations:

a. Main building area.

In the area where a main building may be constructed, the district building height regulations apply.

b. Setback areas bordering streets.

- (1) The maximum height shall be three and one-half (3-1/2) feet within any required front, rear or side setback area adjoining a public street, up to a maximum depth of twenty (20) feet.

(2) That portion of a building site where vehicular access rights have been dedicated to a public agency may have a six (6) foot high fence/wall.

(3) Fences/Walls for County required sound attenuation which border freeways or major arterial highways may be six (6) feet high and as high as eight (8) feet if:

(a) The freeway/major arterial is elevated two (2) feet or more above the building site elevation; or

(b) The exterior side measurement of the wall is not more than six (6) feet in height.

c. Setback areas not bordering streets.

The maximum height shall be six (6) feet within any required front, rear, or side setback area not adjoining a public street. However, where the elevation of an adjoining building site to the side or rear is higher than the base of the fence or wall in the side or rear setback area, the height of the fence or wall may be measured from the elevation of the adjoining building site to the top of the fence or wall. However, in no case shall such a fence or wall exceed eight (8) feet from the base of the fence/wall to the top.

d. Access intersection areas.

Notwithstanding “(b)” above, the maximum height shall be three and one-half (3-1/2) feet within five (5) feet of the point of intersection of:

(1) An ultimate street right-of-way line and an interior property line;

(2) An ultimate street right-of-way line and the edge of a driveway or vehicular accessway;

(3) An ultimate street right-of-way line and an alley right-of-way line;

(4) The edge of a driveway or vehicular accessway and an alley right-of-way line.

e. Street Intersection areas.

Notwithstanding “(b)” above, the maximum height shall be three and one-half (3-1/2) feet within the triangular area formed by drawing a straight line between two (2) points located on, and fifteen (15) feet distant from, the point of intersection of two (2) ultimate street or highway right-of-way lines extended.

(NOTE: Some Planned Community Texts provide for approval of sound attenuation walls in excess heights than allowed by the Zoning Code. In these cases, the Planned Community

Regulations shall be the determining factor for compliance. However, walls excess heights may be evaluted with respect to aesthetic impacts.)

f. Modifications permitted

Exceptions and modifications to the fence and wall height provision may be permitted subject to the approval of a site development permit application processed in compliance with the provision of Section 7-9-150. In addition to the findings required by Section 7-9-150.2, the following findings shall also be made prior to the approval of a fence or wall height use permit application:

- (1) The height and location of the fence or wall as proposed will not result in or create an unnecessary traffic hazard.
- (2) The location, size, design and other characteristics of the fence or wall will not create conditions or situations that may be objectionable, detrimental or incompatible with other permitted uses in the vicinity.

Therefore, it is very important to distinguish between a barrier and a wall. Without special provisions (as discussed below) the County will not approve a sound attenuation wall in excess height of that allowed by the Zoning Code or approved Planned Community Regulation. If the Acoustical Analysis Report recommends a barrier in excess height of the allowed by the Zoning Code, it must also indicate how the heights is to be achieved, (i.e., berm/wall combination) before it is approved. If the barrier incorporates a wall exceeding the height allowed by the Zoning Code, it will not be approved until modified. Modifications may include redesigning the wall into a berm/wall combination, relocation of the noise sensitive area either by set-back or design or design, relocation of structures to provide acoustical shielding to the noise-sensitive area, or any other appropriate means of reducing the wall height.

Should a wall height in excess of that allowed by the Zoning Code or Planned Community Regulations be necessary, and the project proponent not wish to modify the project design, then he may apply for a Use Permit. Upon approval of the Use Permit, the designed wall will be acceptable.

3. Balcony Noise Control guidelines

Balconies in residential project are considered as outdoor living areas, and shall be attenuated against noise impacts so as not to exceed the 65-decibel CNEL exterior noise standard due to any noise source, providing all the following criteria are met:

- a. The balcony is privately accessed from inside the associated residential unit.

- b. The balcony depth exceeds six feet usable floor space, measures from the exterior building facade.
- c. The balcony is not the only emergency egress route from a sleeping room (as per Uniform Building code, 1985 Edition, Sec. 1204, or later edition).

The noise analysis shall assume that an observer is positioned at the expected greatest exposure location, at a 5 foot height from the finished balcony floor, and not closer than 2 feet from the balcony perimeter.

4. County Automated Mapping System (CMAS)

To assist the public in determination of aircraft noise levels generated from the Marine Corps Air Station, El Toro, the County offers a unique and valuable service called "County Automated Mapping System" or "CAMS."

A CAMS plot is a computer generated map illustrating the noise contours from MCAS, El Toro, and the relationship to a particular parcel of land. The plot is obtained by entering into the computer a description of the subject property, in terms of bearings and distances traversed, and indicating the desired scale of reproduction. The product is a figure which illustrates the parcel of land and the relevant to that of the blueprint plot plan, so that the CAMS may be directly overlaid and transferred onto the plot plan. It is useful in determination of use. Having the pertinent acoustical information at the beginning of a design is very beneficial. Typically, this type of CAMS plot is obtained at a scale which will fit on 8 1/2" x 11" page. An example of CAMS plot is shown on Exhibit V-6.

To obtain a CAMS plot, a written request should be submitted to PDSD/Acoustics, along with a bearings and distance traversed description of the property, and the desired scale for reproduction. There is no fee for this service and depending on priority of computer time. The typical turn around time is two weeks after submittal of request.

5. Transportation Corridor Compatibility Criteria

Projects adjacent to or near future Transportation Corridors or Freeways will have to follow unique design standards. In addition to County Standards, the project must also comply with the design standards of California's Department of Transportation (CALTRANS). The following outline indicates design issues and mitigation criteria of CALTRANS which project proponents will have to meet.

- a. CalTrans Noise Level Criterion: The design noise level for outdoor living areas associated with residential development is 67 dBA, Leq, the maximum hourly traffic noise level not to be exceeded during the design life of the project. Mitigation shall be considered whenever this level may be exceeded. (FHPM 7.7.3)

b. Technical Issues

(1) Traffic Noise Level Predications

Although the same FHWA-RD-77-108 methodology generally applies, CALTRANS will use the calculated equivalent levels (Leq in dBA) of traffic noise at an assumed maximum hourly flow rate and may choose to rely on base-readings from 50-ft to the centerline of the nearest traffic lane. CALTRANS' allowable standard of 67 dBA for out-door living area may and may not exceed County's CNEL of 65-dBA based on a modified approach. (see p B-1 of this Manual)

(2) Receiver Height

This height is generally placed at 5-feet above ground level for all observers.

(3) Height of Noise Source

County prefers the slightly more conservative approach in placing the heights of equivalent noise sources of motor vehicles as follows (for slightly higher requirement in barrier heights);

Passenger vehicles	<u>2</u> – feet above ground
Medium trucks, including busses and up to 3-axles	<u>4</u> – feet above ground
All Heavy-duty truck	<u>8</u> – feet above ground

(4) Line of Sight requirement of CALTRANS

County allows the inclusion of this condition in its requirement and stipulates further that the right-hand exhaust stack should be considered 3-feet closer to an observer than the vehicle which is assumed to be at the centerline of the nearest lane. The height of the exhaust stack will be 11.5 feet with the observer in his outdoor living area at 5-ft above ground level.

NOTE: Projects located near or adjacent to proposed transportation corridors freeways have notification procedures similar to those required for airport noise. A notice concerning possible impacts of the proposed Transportation Corridor (illustrated in Exhibit V-7) must be recorded for the project prior to recordation of the project. Another notification procedure is a Statement of Acknowledgment which is signed by home buyers, renters and lessees, acknowledging the presence of the proposed corridor. Exhibit V-8 illustrates the document. The process for execution/recordation of both documents is identical to aircraft noise notification procedures, fully described in Section VI of this manual.

C. Certification of Acoustical Consultants

Since July 1, 1986, the County began to accept only the work of County-certified acoustical consultants as a prerequisite to acceptance of “evidence” pursuant to noise compatibility conditions of approval/mitigation measures.

To become a County-certified acoustical consultant, the applicant must meet the minimum qualifications listed on Exhibit V-9 and be certified by the Planning Commission in accordance with the procedures stated therein.

**ACOUSTICAL ANALYSIS
REPORT SUBMITTAL FORM**

**Planning and Development Services Department
P.O. Box 4048
Santa Ana, CA 92702-4048**

Acoustical Report No. _____
Acoustical Consultant _____
Project address or Tract No. _____

Submitted pursuant to Condition Nos.: _____

Permit No. _____

() No report is necessary. This project will satisfy all Orange County noise exposure limits without further analysis.

Explanation: _____

This submittal is for:

- () Tentative Tract/Parcel Map Approval
- () Preliminary Grading
- () Precise Grading
- () Recordation of Map #
- () Issuance of Building Permit

Mitigation Measures:

- () Earth Berming
- () Freestanding soundwall
- () Patio walls
- () Balcony walls
- () Upgraded windows
- () Mechanical Ventilation
- () Others:
- () NONE REQUIRED

Complete this form and attach the following:

- (2) report copies with full calculations
- (1) copy of project floor plan
- (1) copy of project plot plan, folded and in min. scale of 1"= 40'

SUBMITTED BY: _____ DATE: _____

For information or clarification, contact: _____
NAME PHONE NO.

FOR COUNTY USE ONLY		
Notation	Date	By
Received		
Accepted		
Reviewed		
Reviewed		
Approved		

STATEMENT OF ACOUSTICAL CONSULTANT

All information and calculations contained herein are true and correct to the best of my knowledge. The project is designed to meet existing acoustical requirements as determined by the County of Orange. I have supervised the preparation of this noise study and I am an Orange County Certified Acoustical Consultant.

Signature

Date

Notes & Comments: _____

MINIMUM REQUIREMENTS FOR ACOUSTICAL ANALYSIS REPORTS

1. The acoustical consultant shall:
 - a. Uniquely identify each report by a report number. (Typically, the acoustical consultant will number the report in reference to his own accounting system. This number, being a unique, non-County issued number, distinguishes each report from subsequent reports or revisions.)
 - b. Include Acoustical Analysis Submittal Form as specified by County of Orange, stating the reason for submittal of the report (e.g., grading/recordation, building permits, etc.) to distinguish an incremental report level of detail.
 - c. Provide two (2) copies of the report to the project proponent for his submittal to the County for review.
 - d. Include with the reports submittal two pre-addressed pink notification cards (code F0250-769 (8/86)); one addressed to the acoustical consultant, the other addressed to the project proponent.
 - e. Certify that the acoustical report is true and accurate.
2. Each report shall include:
 - a. A County-issued project identification number (e.g., Use Permit, Site Plan, Tentative Tract, Parcel Map, etc.). This number is essential to ensure that the project is in the County review process, that fees have been paid and to locate project's permanent file.
 - b. A street address (where one has been assigned).
 - c. A vicinity map clearly showing the site for the development.
 - d. The actual "Conditions of Approval" applied to the project by the County, in their entirety. (This will again ensure that the project is in the County review process and will also notify consultant if any special modifications were made in the Standard Condition of Approval.)
 - e. A legible plot plan and floor plan at a scale not less than 1 inch = 40 feet, folded in an 8-1/2 x 11 inch or 8-1/2 x 14 inch format. The scale is the same as that required by the County Grading Division and is to ensure that distances can be accurately determined and that the exhibit is legible.

3. The methodology used for measurement or prediction of motor vehicular noise levels (L_{eq}) should follow the guidelines listed below, based primarily on the procedures in FHWA Report RD-77-108 as modified in this Manual for CNEL:
 - a. No credit is permitted for future quieting of motor vehicles as noise sources.
 - b. CNEL should be used, except for most non-residential projects where L_{eq} (Equivalent Noise Level) is required.
 - c. Vehicle speeds per Level of Service C, ADT (Average Daily Traffic volume), and vehicle mix-coefficients shall be stated with the source of information identified.
 - d. The equivalent or effective distance for the observer's location shall be clearly identified.
 - e. The lane-by-lane approach is recognized as the method to use for best accuracy in calculated results. The basic equation for L_{eq} , the hourly noise levels of the vehicle flow is applied one lane at a time with corresponding changes in distance to the centerline of each lane from the same observer at a given location.
 - f. If the total noise level is based on the summation of two directional components, one for each side of the roadway, divided or undivided, in a 2-system approach, the distance to the centerline of the nearest traffic lane in each case should be clearly indicated and used. The near side should always be reckoned to carry 60% of the ADT.
 - g. If the total noise level is based on a single system, the geometric centerline, based on the centerlines of the two sides of the roadway, may be used as an initial reference. FHWA/TSC data indicated that acoustical outputs from the two sides were generally unequal in magnitudes to cause a relocation of the effective centerline of noise closer towards the side with the stronger noise impact on the observer. The effective distance to the observer therefore depends on the specific conditions of traffic flow and vehicular compositions. A rationale for locating this distance should be included if this method is used. (See Appendix B)
 - h. On-Site measurement, if used for validation of predicted noise levels (L_{eq}), shall be supported by traffic counts. It must be recognized that CNEL can be verified only in a 24-hour observation period, complete with twenty-four (24) hourly readings. However, because the County accepts the use of averaged traffic flow rate along with a known vehicular mix composition, projected CNEL number will be acceptable if variations due to these factors are fully included.
4. Where applicable a detailed barrier analysis shall be submitted with the report, including:
 - a. Location of barriers, usable outdoor living area, etc.

- b. Worst-case section view of site, including elevations, either scaled or dimensioned.
 - c. Barrier geometry. (NOTE: 5 foot observer height above datum and source heights per the FHWA model shall be used, except where modification is required by the County, e.g., CalTrans criteria.)
 - d. Discussion of the structural details required to maintain acoustical integrity of the barrier, including treatment of penetrations, gates, etc.
 - e. Exhibit showing barrier location and height.
5. If railroad or aircraft noise affect the site, measurement of noise impact or the method of prediction shall be stated. Where County developed or approved CNEL contour maps are available, their use may be required by the County. If railroad or aircraft noises do not affect the site, so state.
6. Each report shall:
- a. Indicate in tabular form the required sound transmission loss of windows, along with typical thickness and configuration, required to satisfy County standards for interior noise levels. When specifying windows of greater the 3/16-inch thickness, list one or more products by manufacturer's name and model number that will satisfy the acoustical requirements. (When glazing requirements exceed this thickness, the sound transmission loss will vary with each manufacturer. For example, one manufacturer's ¼ inch thick window may provide a transmission loss of 26 dB, while another manufacturer's ¼ inch thick window may only provide 23 dB of transmission loss.)
 - b. Include a "Summary" section on colored paper in which specifications and location of all sound attenuating design features or products shall be listed, preferably in a tabular form. Freestanding acoustical barriers shall be shown on an exhibit in the summary section. List all items: DO NOT REFER TO TABLES IN TEXT OF REPORT.
 - c. Include worksheets for composite wall analyses including transmission loss assumptions, unless the prescriptive A-weighted insertion losses of 20dB (windows closed) or 12 dB (windows open) are used, as found in the County Noise Element of the General Plan.
 - d. Specify in text of report (preferably in tabular format) which residential structures and units, if any, require closed windows to meet interior noise standards and in such cases include the following paragraph:

Where windows are required to be unopenable or kept closed in order to meet the interior noise standards, mechanical ventilation and cooling, if necessary, shall be provided to maintain a habitable environment. The system shall supply two

air changes per hour to each habitable room including 20% (one-fifth) fresh make-up air obtained directly from the outdoors. The fresh air inlet duct shall be of sound attenuating construction and shall consist of a minimum of ten feet of straight or curved duct or six feet plus one sharp 90° bend.

- e. State the requirements for maintaining building shell acoustical integrity and enumerate items of a critical nature: e.g., tight-fit chimney damper, exhaust fan back-draft damper, no mail slot, full skirting for mobile-home coaches, air conditioning intake and exhaust ducting, etc. A through-the-wall air conditioner shall be treated as a separate component when calculating composite wall attenuation values.
 - f. For multi-family residential structures, UBC requirements on sound insulation between adjacent units must be included.
7. The following CNEL and/or Leq data shall be provided as appropriate:
- a. Existing and Future CNEL/Leq, before mitigation;
 - b. Worst-case outdoor living area CNEL/Leq, before mitigation;
 - c. Worst-case CNEL/Leq incident upon structure prior to mitigation; and
 - d. Worst-case interior CNEL/Leq after mitigation by building components and/or exterior barriers.

NOTES: ACOUSTICAL ANALYSIS REPORTS WHICH DO NOT COMPLY WITH THE ABOVE STATED MINIMUM REQUIREMENTS WILL NOT BE ACCEPTED BUT RETURNED TO THE PROJECT APPLICANT WITH A REJECTION NOTICE STATING THE REASONS THEREOF.

ACOUSTICAL ANALYSIS REPORT APPROVALS BY PDSD-ACOUSTICS SHALL BE VALID FOR A PERIOD OF TWO (2) YEARS, AFTER WHICH TIME THE APPROVAL WILL BE VOID. IF THE DIRECTOR, PDSD/REGULATION DETERMINES THAT SIGNIFICANT CHANGES HAVE OCCURRED DURING THE TWO YEARS THAT COULD ALTER THE CONCLUSION OF THE ACOUSTIC REPORTS, REVISIONS WILL BE REQUIRED TO REFLECT THE CHANGES. PROJECTS WHICH HAVE AN EXPIRED APPROVAL, AND HAVE NOT OBTAINED APPROPRIATE PERMITS (MASS GRADING, PRECISE GRADING, BUILDING PERMITS, ETC.), SHALL BE REQUIRED TO PROVIDE AN ADDENDUM PREPARED UNDER THE SUPERVISION OF A COUNTY CERTIFIED ACOUSTICAL CONSULTANT STATING EITHER (1) THE REPORT REMAINS ADEQUATE AND THE PROJECT DESIGN HAS NOT CHANGED, OR (2) RECOMMENDED MODIFICATIONS TO THE ORIGINAL REPORT

ACOUSTICAL ANALYSIS REPORT REVIEW CHECKLIST

- I. Verify that the standard Acoustical Submittal Form is attached and properly filled out.
(See Exhibit V-1)
- II. Verify the report has been prepared in compliance with the requirements of Exhibit V-2.
- III. Check:
 - A. Vehicular noise impacts (unmitigated)
 - 1. Methodology used.
 - 2. Check barrier parameters and results.
 - 3. Verify ADT (Existing: PDSD/Traffic; Future: PDSD/Transportation Planning).
 - 4. Check average traffic speed, angle of view, roadway gradient, standard County vehicular mix, reference to centerline, etc.
 - 5. Check internal traffic generated (large projects).
 - 6. Check for intersections and appropriate levels of analyses.
 - B. Railroad noise impacts (unmitigated)
 - 1. Wyle methodology (or similar)
 - 2. Verify with Train Master for number of trains per day, approximate length (number of cars), approximate number of engines, speed, temporal split, etc.
 - C. Aircraft Noise Impacts
 - 1. Verify location of project with respect to latest County-published air station/airport noise contours.
 - a. For John Wayne Airport, Orange County, use most recent Annual Noise Contours or other material as determined appropriate by the County of Orange.
 - b. For El Toro MCAS, use County-adopted noise contour lines
 - D. Other noise sources
 - 1. Check for other noise sources near project: dog kennels, car wash, parking lot, commercial centers, loading docks, air conditioner, pool/spa water pumps, etc.

2. Check for land-use incompatibilities (i.e., residential uses adjacent to non-residential uses).
3. Check for project-generated noise.

E. Check for combination of all noise sources

IV. Check mitigations and analyses

A. Residential

1. Outdoor living areas
 - a. Yards
 - b. Patios
 - c. Balconies
 - (1) If off bedrooms, check for emergency egress
 - d. Common outdoor areas – barbecue areas, jacuzzi areas, etc.
2. Interior noise levels
 - a. 45 dB CNEL interior
 - (1) Windows open yield 12dB of Noise Reduction (standard construction)
 - (2) Windows closed yield 20 dB of Noise Reduction (standard construction)
 - (a) Mechanical ventilation
 - (2) Windows closed, noise reduction over 20 dB
 - (a) Upgraded glazing – verify parameters and analyses
 - (b) Analysis with standard windows – verify parameters and analysis
 - (b) Mechanical ventilation

B. Non-Residential

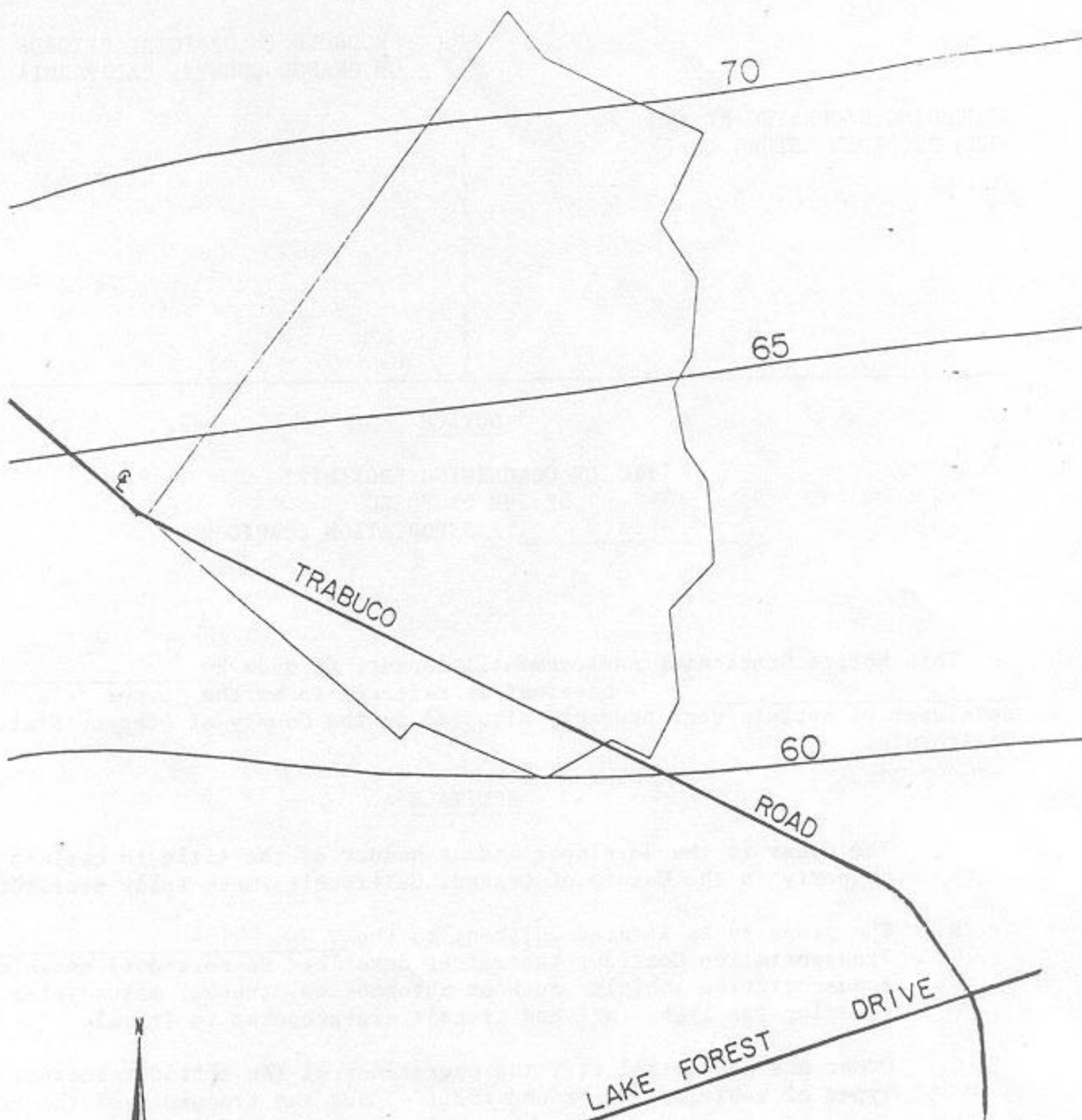
1. Outdoor living areas
 2. Interior Noise Levels
 - a. $L_{eq}(h) = 45$ dB for most cases; if developer is unsure of type of occupancy, use worst case
 3. Check preschools, hospitals, churches for noise-sensitivity.
 4. Remember that hotels/motels and hospitals contain some rooms which are classified as residential and some rooms which are classified as non-residential.
- C. Mitigations
1. Verify data input parameters (elevations, distances, etc.)
 2. Verify heights and locations of barrier.
 - a. If the calculated height of a barrier is greater than 6.0 feet, a berm or berm/wall combination must be used except as permitted by Section 7-9-137.5 of the Zoning Code, Planned Community Regulations or Site Development Permit. Otherwise project redesign is required.
 - b. Check that design has been properly illustrated on exhibits.
 3. Check for design errors
 - a. Barriers – decorative cut outs, drainage openings, gates, insufficient design criteria and material used is inappropriate.
 - b. Ventilation
 - c. Fireplaces, kitchen and bathroom exhaust vents, etc.
 - d. Through-the-wall air conditioners
- D. Check for inconsistencies within report. (Example: Verify that the mitigations mentioned in text of report are the same as those shown on the Exhibits and in the Summary.)

METHOD I:
ONE STEP NOISE REPORT SUBMITTAL

		Decision-making body approves Conditions of Approval.
		Project proponent authorizes Preparation of an Acoustical Analysis Report addressing exterior And interior noise levels in Compliance with County standards and Submits report to PDSD/Acoustics.
Project proponent authorizes incorporation of corrections.	NO	Approval as submitted.
	YES	
		PDSD/Acoustics issues clearance for Grading Permits, Subdivision Recordation, Building Permits. No Additional submittals required.

METHOD II:
PHASED ACOUSTICAL REPORTS

		Decision-making body approves Conditions of Approval.
		Project proponent authorizes Preparation of a preliminary Acoustical analysis Report Addressing exterior noise levels and Compliance with County noise Standards and submits report to PDSD/Acoustics.
Project proponent authorizes Incorporation of corrections.	NO	Approved as submitted.
		YES
		PDSD/Acoustics issues clearance for Grading Permits, Subdivision Recordation, or both.
		End of Phase I
		Phase II starts when exact location And design of structures are known.
		Project proponent authorizes Preparation of final Acoustical Analysis Report addressing final Exterior noise levels and Mitigations (if necessary) and Interior noise levels and Mitigations.
Project proponent authorizes Incorporation of corrections.	NO	Approved as submitted.
		YES
		PDSD/Acoustics issues clearance for Building Permits.



COUNTY AUTOMATED MAPPING SYSTEM
(CAMS)

CNEL NOISE CONTOURS FOR MARINE CORPS AIR STATION, EL TORO
ORANGE COUNTY GENERAL PLAN NOISE ELEMENT (AMENDED OCTOBER 10, 1979)

SUBJECT PROPERTY:

THE ROMAN CATHOLIC ARCHBISHOP
OF LOS ANGELES PROPERTY

VERIFIED: CNA/COMPUTER SERVICES, BY *AS antist*

VERIFIED: CNA/PLANNING, BY *James L. Porter*

DATE OF PLOTTING 3/25/82

DATE OF HORIZONTAL CONTROL 5th STATE CROSS 1979, V.L.

FILE COPY

RECORDED IN OFFICIAL RECORDS
OF ORANGE COUNTY, CALIFORNIA

RECORDING REQUESTED BY AND
WHEN RECORDED RETURN TO:

)
)
)
)
)
)
)
)
)
)

NOTICE

NOTICE CONCERNING PROXIMITY
OF THE PROPOSED
_____ TRANSPORTATION CORRIDOR

This Notice Concerning Environmental Impacts is made by _____
_____, hereinafter referred to as the "Owner," is developer of certain real
property situated in the County of Orange, State of California.

RECITALS

- A. The Owner is the developer and/or holder of the title to certain real property in the County of Orange, California, more fully described as:
- B. The property is located adjacent to the _____
Transportation Corridor (hereafter described as corridor) on which transportation vehicles such as automobiles, trucks, motorcycles and vehicles for light rail and transit are proposed to travel.
- C. Owner has no control over the operations of the corridor including the types of vehicles, trips and traffic, nor the frequency of the trips.
- D. It is the desire of Owner to give notice to any potential purchaser of the real property of its proximity to the corridor and the fact that purchases may be subject to the impacts of said proposed transportation corridor.

NOW, THEREFORE, in light of the above Recitals, owner does for itself, and its successors and assigns, give the following notice:

1. Owner has and shall develop the property in accordance with a Subdivision Tract Map approved by the County of Orange, which approval includes the requirement of the County of Orange, that the development of the property is consistent with the Land Use Element and Noise Element of the General Plan of the County of Orange
2. That Owner has no responsibility or control over the operation of the corridor, including without limitation, the types or number of vehicles operating on the corridor.
3. That the vehicle operations on the corridor may create significant impacts affecting the purchasers, tenants and occupants of the property and that purchasers, tenants and occupants of the property reside their subject to sight and sound of vehicle operation.
4. The property shall be held, conveyed, hypothecated, encumbered, leased, rented, used, occupied and improved subject to this Notice. This Notice shall run with the property and shall be binding upon all parties having or acquiring any right, title or interest in the property.

IN WITNESS WHEREOF, this Declaration of Notice of corridor traffic, sight and sound is made this _____ day of _____, _____.

By: _____

By: _____

On _____, 20____, before me, the undersigned a Notary Public in and for said State, personally appeared _____, personally known to me or proved to me on the basis of satisfactory evidence to be the persons who executed the within instrument as _____, or on behalf of _____, the corporation therein named, and acknowledged to me that the corporation executed it.

STATEMENT OF ACKNOWLEDGEMENT: PROPOSED (NAME) TRANSPORTATION
CORRIDOR PROXIMITY

Notification Statement

I/we understand that it is the desire of the owner and County of Orange to hereby notify potential purchasers of the real property, known as (Tract Number), regarding the proximity of the proposed (Name) Transportation Corridor and its possible impacts. Specifically:

1. (Tract Number) is located adjacent to the planned (Name) Transportation Corridor. Said Corridor in the vicinity of this tract is (elevated/depressed) approximately (number) feet above ground level, and is planned to have (number) travel lanes.
2. The property has been developed in compliance with County and State Noise criteria which may include mitigation in the form of earthen berms, masonry walls and/or structure upgrades.
3. A Notice of proximity of the corridor has been recorded which describes the possible impacts of the Corridor. The property shall be held, conveyed, hypothecated, encumbered, leased, rented, used, occupied and improved subject to the Notice. The Notice shall run with the property and shall be binding upon all parties having or acquiring any right, title or interest in the property.

These statements were explained to me/us by _____.

I/we have read, understand and received a copy of these notification.

Buyer Signature

Date

Buyer Signature

Date

QUALIFICATIONS FOR COUNTY CERTIFICATION OF ACOUSTICAL CONSULTANTS

(Unincorporated Orange County)

A. Qualifications

- (1) Acoustical consultants, desiring County certification to supervise the preparation of evidence of compliance with Conditions of approval pursuant to Board of Supervisors Resolution 84-1376, must submit his/her request for certification to the Manager, Building Permits Division along with a resume including references and/or exhibits of his/her previous experience in the field of Acoustics for County's review.

- (2) Minimum Professional Qualifications for acoustical consultants

Either I: A degree in engineering, physics or a closely related field, and four (4) years acoustical engineering experience;

OR II: An equivalent combination of education and relevant experience as determined by the Director, PDSD;

AND

Either A: Is a Registered Engineer in the State of California;

OR B: Has passed the Institute of Noise Control Engineering (INCE) professional examination.

B. Certification Process

Acoustical consultants desiring County Certification shall adhere to and be certified by the following process:

1. The acoustical consultant shall submit evidence to the Manager, Building Permits Division of the Planning and Development Services Department, County of Orange which demonstrates compliance with the above stated minimum qualifications. This includes submission of the following items:
 - (a) Evidence of being a Registered Engineer in the State of California of having passed the INCE professional exam.
 - (b) Evidence of educational background and pertinent acoustical engineering qualification.
 - (c) A sample Acoustical Analysis Report which illustrates working knowledge of County requirements, including compliance with the Land Use/Noise Compatibility Manual Standards.

- (d) Written intent to provide acoustical consultation for the unincorporated County territory.
2. The acoustical consultant must include payment of a non-refundable fee of current amount for the processing of the application.
3. Upon review and determination by the Manager, Building Permits Division, that the minimum qualifications have been satisfied, the applicant will be recommended for certification to the Orange County Planning Commission. However, if such review indicates non-satisfaction of the minimum qualifications, the Manager, Environmental Analysis Division shall notify the applicant in writing of his determination and indicate the right to, and process of, appeal.
4. The acoustical consultant will be scheduled for an appearance before the Orange County Planning Commission in which public testimony shall be heard and the Commission shall determine certification or non-certification of the consultant.
5. Upon certification by the Planning Commission, the name of the acoustical consultant shall be placed on the County's "Certified Acoustical Consultants" list.

C. Expiration

Certification shall be valid for a period of five (5) years. A 'certification' year is defined to start on March 1 and end on the last day of February. The period of validity extends automatically to include the month of February following the nominal expiration date. Henceforth, PDSD will schedule rectification hearings at the Planning Commission in January only. It is the Acoustical Consultant's responsibility to notify PDSD of intent to be re-certified prior to the end of its nominal expiration year, accompanied by a payment of the current rectification fee.

D. Appeals

Any appeal regarding the Director's determination as to satisfaction of minimum qualifications shall be submitted to the Planning Commission for decision. The Commission's decision on such appeal, or on its certification of acoustical consultants, may in turn be appealed to the Board of Supervisors whose decision shall be final.

VI. NOTIFICATION OF AIRCRAFT NOISE

When a project requiring a discretionary action by the County is proposed within the 60 dB CNEL contour from any airport or air station or is subject to routine overflight, Standard Conditions of Approval are applied which require the dedication of an Avigation Easement N5 and the recordation of a Notice Concerning Aircraft Environmental Impacts N3.

In addition to the above, if a residential project is located within the 63 dB CNEL contour from any airport or air station, a Standard Condition of Approval is applied which requires the posting of Aircraft Noise Impact Area signs in all sales offices associated with the development N6.

Information related to compliance with these conditions is presented below:

A. Avigation Easements

Two methods are available to dedicate avigation easements. Each method is described below. It is the responsibility of the project proponent to indicate which method of compliance has been chosen.

The avigation easement is a recorded document which grants a perpetual non-exclusive easement for aircraft operations, sound and noise, avigation and flight, hazard and airspace in, to, over and through the owner's property, reference a mean sea level as determined by the County. The dedication document is reproduced in its entirety on the following pages.

Method I: The County of Orange, upon request will prepare an Avigation Easement document as illustrated in exhibits VI-1A or VI-1B. Such request shall be made through EA/Acoustics. The project proponent is required to submit a Title Report, legal description of the property, and the approved Condition(s) of Approval. The project proponent shall also sign a written request form and provide the County with the mean sea level elevation of the proposed project. The conditions of Approval are considered satisfied only upon the completion of these documentations, duly signed, notarized and delivered to the County.

Method II: The project proponent may place the appropriate terms as shown below on the Tract or Parcel Map prior to its being recorded. The act of recordation also indicates that the required condition has been satisfied.

For MCAS, El Toro:

WE ALSO HEREBY DEDICATE TO THE COUNTY OF ORANGE AN AIRCRAFT OPERATIONS, SOUND, AIR SPACE AND AVIGATION EASEMENT OVER ALL LOTS SHOWN HEREIN ABOVE A MEAN SEA LEVEL ELEVATION OF FEET FOR THE PURPOSES AND SUBJECT TO THE SAME CONDITIONS AND LIMITATIONS AS SHOWN IN THAT CERTAIN EASEMENT RECORDED JULY 2, 1979, IN BOOK 13213, PAGE 1111 OF OFFICIAL RECORDS OR ORANGE COUNTY, CALIFORNIA.

For John Wayne Airport:

WE ALSO HEREBY DEDICATE TO THE COUNTY OF ORANGE AN AIRCRAFT OPERATIONS, SOUND, AIR SPACE AND AVIGATION EASEMENT OVER ALL LOTS SHOWN HEREIN ABOVE A MEAN SEA LEVEL ELEVATION OF FEET FOURTH PURPOSES AND SUBJECT TO THE SAME CONDITIONS AND LIMITATIONS AS SHOWN IN THAT CERTAIN EASEMENT RECORDED _____, IN BOOK _____, PAGE _____ OF OFFICIAL RECORDS OF ORANGE COUNTY, CALIFORNIA.

B. Notice Concerning Aircraft Environmental Impact

As with avigation easements, two methods of compliance for the recordation of a Notice Concerning Aircraft Environmental Impact document are available to the developer. Again, it is the responsibility of the project proponent to indicate which method of compliance has been chosen.

The Notice Concerning Aircraft Environmental Impacts is a recorded document which acknowledges the aircraft environmental impacts due the air station or airport.

The document states that the owner of the property and the County of Orange have no control over the operations of the Air Station, including the type of aircraft, flight, the flight patterns of the aircraft or the frequency of the flights.

Method I: The County of Orange, upon request, will prepare a Notice Concerning Aircraft Environmental Impact document as illustrated on Exhibits VI-2A or VI-2B. Such requests shall be made through PDSD/Acoustics. When the document is completed, County personnel will contact the project proponent who will in turn pick up document, have it signed and notarized, and returned to County. Upon receipt by County, the Condition of Approval will be satisfied.

The project proponent is required to submit a Title Report, legal description, and approved Conditions(s) of Approval. Additionally, the project proponent shall sign a written request form.

Method II: The project proponent shall place the appropriate wording as shown below on the Tract or Parcel Map prior to map recordation. When the map is approved and recorded, the statement is also recorded, thus satisfying the Condition of Approval.

For MCAS, El Toro:

WE ALSO MAKE THIS NOTICE CONCERNING A AIRCRAFT ENVIRONMENT IMPACT OVER ALL LOTS SHOWN HEREIN FOR THE PURPOSE AND SUBJECT TO THE SAME CONDITIONS AND LIMITATIONS AS SHOWN IN THAT CERTAIN NOTICE CONCERNING AIRCRAFT ENVIRONMENTAL IMPACTS RECORDED DECEMBER 1, 1983, AS DOCUMENT NUMBER 83-549335 OF OFFICIAL RECORDS OF ORANGE COUNTY, CALIFORNIA.

For John Wayne Airport:

WE ALSO MAKE THIS NOTICE CONCERNING AIRCRAFT ENVIRONMENTAL IMPACT OVER ALL LOTS SHOWN HEREIN FOR THE PURPOSE AND SUBJECT TO THE SAME CONDITIONS AND LIMITATIONS AS SHOWN IN THAT CERTAIN NOTICE CONCERNING AIRCRAFT ENVIRONMENTAL IMPACTS RECORDED _____, AS DOCUMENT NUMBER _____ OF OFFICIAL RECORDS OF ORANGE COUNTY, CALIFORNIA.

C. Statements of Acknowledgment

Prior to the sale, lease or rental of a structure or portion thereof within the 60 dB CNEL contour due to an airport or air station, the applicant/owner shall provide to each prospective purchase, lessee, or tenant a Statement of Acknowledgement which indicates the property is subject to overflight, sight and sound of aircraft operating from the airport/air station. The Statement also indicates the project has been developed in compliance with County and State noise criteria, an aviation easement has been dedicated, and that a Notice Concerning Environmental Impacts has been recorded.

D. Aircraft Noise Notification Signs

The adopted formats for satisfaction of aircraft noise impact notification sign requirements are illustrated on Exhibits VI-4 and VI-5. The description of the graphical sign is as follows:

1. The sign shall be 18" tall by 12" wide;
2. The background shall be dark blue;
3. The text and graphics shall be white (silver);
4. All graphic symbols including the plan silhouette and sound waves shall be on the sign;
5. The text shall consist of the words "AIRCRAFT NOISE IMPACT AREA" in 11/2-inch block style letters as shown on Exhibit VI-4;
6. Additional text shall be shown on Exhibit VI-4;
7. The signs shall be fabricated in a professional manner.



AIRCRAFT NOISE IMPACT AREA

An information text sign as described below and illustrated on Exhibit VI-5 shall be located adjacent to the graphical sign:

1. The sign shall be 18" by 12" wide;
2. The background shall be orange;
3. The text shall be black;
4. The text shall consist of verbiage as shown on Exhibit VI-5A for MCAS El Toro, or Exhibit VI-5B for John Wayne Airport.
5. The sign shall be fabricated in a professional manner.

The requirements for aircraft noise notification signs will be applied to all new residential developments located within the 63 dB CNEL contour from an airport or air station, and shall be posted in a conspicuous manner in all sales offices associated with said development.

RECORDING REQUESTED BY AND
WHEN RECORDED RETURN TO:

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EXHIBIT VI-1A
MCAS, EL TORO
OPTION: METHOD I

AIRCRAFT OPERATIONS, SOUND, AIR SPACE
AND AVIGATION EASEMENT DEED

Whereas, _____, hereinafter called the "Grantor", is the owner in fee of that certain parcel of land situated in the County of Orange, State of California, more particularly described as follows:

Hereinafter called "the Grantor's property";

FOR A VALUABLE CONSIDERATION, receipt of which is hereby acknowledged, Grantor does hereby grant to the COUNTY OF ORANGE, hereinafter referred to as "Grantee", its successors and assigns, a perpetual easement in gross of aircraft operation, aircraft sound and noise, aircraft avigation and flight, hazard and air space, referred to hereinafter, one work for the entirety, as a perpetual, nonexclusive avigation easement in, to, over and through all air space above Grantor's property, as particularly described hereinbefore, above a mean sea level of _____ feet, to an indefinite height above said mean sea level.

The Grantor herein, its heirs, administrators, executors, successors and assigns, grants the avigation easement to Grantee, for the use and benefit of the public, including, but not limited to, the United States Armed Forces, for the passage of all aircraft ("aircraft" being defined for the purposes of this instrument as any contrivance now known or hereafter invented, used or designed for navigation of or flight in the air) by whomsoever owned and operated, together with the right to cause in all air space above the Grantor's property such noise, vibrations, fumes, dust, fuel particles and all other effects that may be caused by the operation at or on the Marine Corps Air Station at El Toro and any other airport or air facility which is or may be located at or near the site of the said Marine Corps Air Station; and Grantor herein, its heirs, administrators, executors, successors and assigns, does hereby fully waive, remise and release any right or cause of action which it may now have or which it may have in the future against Grantee, its successors and assigns, due to such noise, vibrations, fumes, dust, fuel particles and all other effects that

may be caused or may have been caused by the operating of aircraft landing at, or taking off from, or operating at or on said Marine Corps Air Station at El Toro or other Airport or air facility which is or may be located at or near the site of said Marine Corps Air Station.

TO HAVE AND TO HOLD said easement and right-of-way and all rights appertaining thereto unto the Grantee, its successors and assigns, it being understood and agreed that these covenants and agreements shall run with the land.

This easement is granted for any use by any aircraft present or future, from or to the Marine Corps Air Station at El Toro and any other airport or air facility which is or may be located at or near the site of said Marine Corps Air Station, including any future change or increase in the boundaries, volume of operation or noise or pattern of air traffic thereof.

DATED: _____ By: _____
"Grantor"

STATE OF CALIFORNIA, COUNTY OF _____) ss.

On _____, 20____, before me, a Notary Public in and for said County and State, personally appeared _____ and _____ personally known to me (or proved to me on the basis of satisfactory evidence) to be the persons who executed the within instrument as _____ President and _____ Secretary, on behalf of _____, the corporation herein named, and acknowledged to me that such corporation executed the within instrument pursuant to its by-laws or a resolution of its Board of Directors.

WITNESS my hand and official seal.

Notary Public in and for said
County and State

RECORDING REQUESTED BY AND
WHEN RECORDED RETURN TO:

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EXHIBIT VI-1B
JOHN WAYNE AIRPORT
OPTION: METHOD I

AIRCRAFT OPERATIONS, SOUND, AIR SPACE
AND AVIGATION EASEMENT DEED

Whereas, _____, hereinafter
Called the “Grantor”, is the owner in fee of that certain parcel of land situated in the County of
Orange, State of California, more particularly described as follows.

Hereinafter called “the Grantor’s property”;

FOR A VALUABLE CONSIDERATION, receipt of which is hereby acknowledged,
Grantor does hereby grant to the COUNTY OF ORANGE, hereinafter referred to as “Grantee”,
its successors and assigns, a perpetual easement in gross of aircraft operation, aircraft sound and
noise, aircraft avigation and flight, hazard and air space, referred to hereinafter, one work for the
entirety, as a perpetual, nonexclusive avigation easement in, to, over and through all air space
above Grant’s property, as particularly described hereinbefore, above a mean sea level of _____,
feet, to an indefinite height above said mean sea level.

The grantor herein, its heirs, administrators, executors, successors and assigns, grants the
avigation easement to Grantee, for the use and benefit of the public, including the United States
Armed Forces, for the passage of all aircraft (“aircraft” being defined for the purposes of this
instrument as any contrivance now known or hereafter invented, used or designed for navigation
of or flight in the air) by whomsoever owned and operated, together with the right to cause in all
air space above the Grantor’s property such noise, vibrations, fumes, dust, fuel particles and all
other effects that may be caused by the operation at or on the John Wayne Airport at Santa Ana
and any other airport or air facility which is or may be located at or near the site of the said John
Wayne Airport; and Grantor herein, its heirs, administrators, executors, successors and assigns,
does hereby fully waive, remise and release any right or cause of action which it may now have
or which it may have in the future against Grantee, its successors and assigns, due to such noise,
vibrations, fumes, dust, fuel particles and all other effects that may be caused or may have been

caused by the operating of aircraft landing at, or taking off from, or operating at or on said John Wayne Airport at Santa Ana or other airport or air facility which is or may be located at or near the site of said John Wayne Airport.

TO HAVE AND TO HOLD said easement and right-of-way and all rights appertaining thereto unto the Grantee, its successors and assigns, it being understood and agreed that these covenants and agreements shall run with the land.

This easement is grated for any use by any aircraft present or future, from or to the John Wayne Airport at Santa Ana and any other airport or air facility which is or may be located at or near the site of said John Wayne Airport, including any future change or increase in the boundaries, volume of operation or noise or pattern of air traffic thereof.

DATED: _____ By: _____
"Grantor"

STATE OF CALIFORNIA, COUNTY OF _____) ss.

On _____, 20____, before me, a Notary Public in and for said County and State, personally appeared _____ and _____ personally known to me (or proved to me on the basis of satisfactory evidence) to be the persons who executed the within instrument as _____ President and _____ Secretary, on behalf of _____, the corporation herein named, and acknowledged to me that such corporation executed the within instrument pursuant to its by-laws or a resolution of its Board of Directors.

WITNESS my hand and official seal.

Notary Public in and for said
County and State

RECORDING REQUESTED BY AND
WHEN RECORDED RETURN TO:

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EXHIBIT VI-2A
MCAS, EL TORO
OPTION: METHOD I

NOTICE CONCERNING AIRCRAFT
ENVIRONMENTAL IMPACTS

This Notice Concerning Aircraft Environmental Impacts is made by _____,
_____, hereinafter referred to as the "Owner", as
developer of certain real property situated in the County of Orange, State of California.

RECITALS

A. The Owner is the developer and holder of the title to certain real property in the
County of Orange, California, more fully described as:

B. The property is located approximately _____ miles from the El
Toro Marine Corps Air Station, operated by the Department of Defense of the Government of the
United States, through which are conducted certain jet aircraft operations on and about said Air
Station and over real property in the vicinity of the Air Station.

C. Owner and the County of Orange have no control over the operations of the Air
Station, including the types of aircraft, flight, the flight patterns of the aircraft, nor the frequency
of the flights.

D. It is the desire of Owner to give notice to any potential purchaser of the real property
of the air flight operation and the fact that purchasers may be subject to overflight, sight and
sound of aircraft operating from El Toro Marine Corps Air Station.

NOW, THEREFORE, in light of the above Recitals, as developer and owner of the
property, does, for itself, and its successors and assigns, give the following notice:

1. Owner has and shall develop the property in accordance with a Subdivision Tract Map approved by the County of Orange, which approval includes the requirement of the County of Orange, that the development of the property is consistent with the Land Use Element and Noise Element of the General Plan of the County of Orange.

2. The Owner and the County of Orange have no responsibility or control over the operation of the Air Station, including without limitation, the types or number of flight operations, utilized by the Department of Defense of the government of the United States concerning the operations of the Air Station.

3. That the flight operations to the Air Station may create significant aircraft environmental impacts affecting the purchasers, tenants and occupants of the property and that purchasers, tenants and occupants of the property reside there subject to such overflight, sight of sound.

4. The property shall be held, conveyed, hypothecated, encumbered, leased, rented, used, occupied and improved subject to this Declaration and Notice. This Notice shall run with the property and shall be binding upon all parties having or acquiring any right, title or interest in the property.

IN WITNESS WHEREOF, this Declaration of Notice of aircraft overflight, sight and sound is made this _____ day of _____, 20____.

STATE OF CALIFORNIA, COUNTY OF _____) ss.

On _____, 20____, before me, a Notary Public in and for said County and State, personally appeared _____ and _____ personally known to me (or proved to me on the basis of satisfactory evidence) to be the persons who executed the within instrument as _____ President and _____ Secretary, on behalf of _____, the corporation herein named, and acknowledged to me that such corporation executed the within instrument pursuant to its by-laws or a resolution of its Board of Directors.

WITNESS my hand and official seal.

Notary Public in and for said
County and State

RECORDING REQUESTED BY AND
WHEN RECORDED RETURN TO:

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EXHIBIT VI-2B
JOHN WAYNE AIRPORT
OPTION: METHOD I

NOTICE CONCERNING AIRCRAFT
ENVIRONMENTAL IMPACTS

This Declaration and Notice Concerning Aircraft Environmental Impacts is made by _____, hereinafter referred to as the “Owner”, as developer of certain real property situated in the County of Orange, State of California.

RECITALS

A. The Owner is the developer and holder of the title to certain real property in the County of Orange, California, more fully described as:

B. The property is located approximately _____ miles from the John Wayne Airport, Orange County (JWAOC) (the “Airport”), operated by the County of Orange, through which are conducted certain jet aircraft operations on and about said Airport and over real property in the vicinity of the Airport.

C. Owner has no control over the operations of the Airport, including the types of aircraft, flight, the flight patterns of the aircraft, nor the frequency of the flights.

D. It is the desire of Owner to give notice to any potential purchaser of the real property of the air flight operation and the fact that purchasers may be subject to overflight, sight and sound of aircraft operating from the Airport.

NOW, THEREFORE, in light of the above Recitals, as developer and owner of the property, does, for itself, and its successors and assigns, give the following notice:

1. Owner has and shall develop the property in accordance with a Subdivision Tract Map approved by the County of Orange, which approval includes the requirement of the County of Orange, that the development of the property is consistent with the Land Use Element and Noise Element of the General Plan of the County of Orange.

2. That Owner has no responsibility or control over the operation of the Airport, including without limitation, the types or number of flight operations, types of aircraft (including jet aircraft), timing of flight operations, or frequency of flights.

3. That the flight operations to the Airport may create significant aircraft environmental impacts affecting the purchasers, tenants and occupants of the property and that purchasers, tenants and occupants of the property reside there subject to such overflight, sight of sound.

4. The property shall be held, conveyed, hypothecated, encumbered, leased, rented, used, occupied and improved subject to this Declaration and Notice. This Notice shall run with the property and shall be binding upon all parties having or acquiring any right, title or interest in the property.

IN WITNESS WHEREOF, this Declaration of Notice of aircraft overflight, sight and sound is made this _____ day of _____, 20____.

STATE OF CALIFORNIA, COUNTY OF _____) ss.

On _____, 20____, before me, a Notary Public in and for said County and State, personally appeared _____ and _____ personally known to me (or proved to me on the basis of satisfactory evidence) to be the persons who executed the within instrument as _____ President and _____ Secretary, on behalf of _____, the corporation herein named, and acknowledged to me that such corporation executed the within instrument pursuant to its by-laws or a resolution of its Board of Directors.

WITNESS my hand and official seal.

Notary Public in and for said
County and State

STATEMENT OF ACKNOWLEDGEMENT – MCAS, EL TORO

I/We understand that it is the desire of the developer and County of Orange to hereby notify potential buyers of the real property, known as (Tract Number, Street Address) that the property is subject to aircraft noise and overflight from the Marine Corps Air Station, El Toro. Specifically:

1. (Project Identification) is located near the (Number) dB CNEL noise contour from the Marine Corps Air Station, El Toro.
2. The property has been developed in compliance with County and State noise criteria which may include mitigation in the form of earthen berms, masonry walls and/or structural upgrades.
3. A Notice of Environmental Impacts has been recorded which describes the possible impacts of noise from the Marine Corps Air Station, El Toro. The property shall be held, conveyed, hypothecated, encumbered, leased, rented, used, occupied and improved subject to the Notice. The Notice shall run with the property and shall be binding upon all parties having or acquiring any right, title or interest in the property.
4. An Avigation Easement has been dedicated to the County of Orange which grants a perpetual easement in gross for aircraft operation, aircraft sound and noise aircraft avigation and flight, hazard and airspace use, to, over and through all air space above this property. The Avigation Easement shall run with the land and shall be binding upon all parties having or acquiring any right, title or interest in the property.

These statements were explained to me/us by _____

I/We have read, understand, and received a copy of these notifications.

Buyer Signature

Date

Buyer Signature

Date

STATEMENT OF ACKNOWLEDGEMENT-JOHN WAYNE AIRPORT

I/We understand that it is the desire of the developer and County of Orange to hereby notify potential buyers of the real property, known as (Tract Number, Street Address) that the property is subject to aircraft noise and overflight from John Wayne Airport. Specifically:

1. (Project Identification) is located near the (Number) dB CNEL noise contour from the John Wayne Airport.
2. The property has been developed in compliance with County and State noise criteria which may include mitigation in the form of earthen berms, masonry walls and/or structural upgrades.
3. A Notice of Environmental Impacts has been recorded which describes the possible impacts of noise from John Wayne Airport. The property shall be held, conveyed, hypothecated, encumbered, leased, rented, used, occupied and improved subject to the Notice. The Notice shall run with the property and shall be binding upon all parties having or acquiring any right, title or interest in the property.
4. An Avigation Easement has been dedicated to the County of Orange which grants a perpetual easement in gross for aircraft operation, aircraft sound and noise aircraft avigation and flight, hazard and airspace in, to, over and through all air space above this property. The Avigation Easement shall run with the land and shall be binding upon all parties having or acquiring any right, title or interest in the property.

These statements were explained to me/us by _____

I/We have read, understand, and received a copy of these notifications.

Buyer Signature

Date

Buyer Signature

Date

AIRCRAFT NOISE IMPACT AREA

New residential development property included within tract (s) _____ and offered for sale by this office is located approximately _____ mile (s) _____ (north, south, east, west) of Marine Corps Air Station, El Toro (MCAS El Toro). This Property is approximately _____ mile(s) _____ (north, south, east, west) of the extended centerline of runway number _____, the primary aircraft corridor for _____ (approach, departure, other) operations from MCAS El Toro.

As indicated by the MCAS El Toro 1981 Air Installation Compatible Use Zone planning document, the property lies inside the e63-decibel Community Noise Equivalent Level contour. Residents of this area may frequently see, hear and have interference of certain activities by aircraft operating to and/or from MCAS El Toro.

MCAS El Toro has the following normal hours of operation:

Monday through Thursday	7:00 a.m. to 10:00 p.m.
Friday	7:00 a.m. to 7:00 p.m.
Saturday and Sunday	9:00 a.m. to 6:00 p.m.

MCAS El Toro has indicated its intent to adhere to the above stated normal hours of operation whenever possible. However, it should be noted that MCAS El Toro is a designated master jet base which can operate 24 hours per day seven days per week. Special conditions may arise which could cause an extension of the facility's normal operating hours. The _____ (name of company) and the County of Orange have no control over MCAS El Toro operations.

An Avigation Easement has been dedicated to the County of Orange, and a Notice Concerning Aircraft Environmental Impacts has been recorded for this project.

For more information, please see your sales office representative or call the Office of Community Planning and Liaison, MCAS El Toro at (714) 651-3702.

AIRCRAFT NOISE IMPACT AREA

New residential development property included within tract(s) _____ and offered for sale by this office is located approximately _____ mile(s) _____ (north, south, east, west) of John Wayne Airport, Orange County. This property is approximately _____ mile(s) _____ (north, south, east, west) of the extended centerline of runway number _____, the primary aircraft corridor for _____ (approach, departure, other) operations from John Wayne Airport.

As indicated by the Annual CNEL Noise Contours prepared by the Airport's Noise Abatement Office, the property lies inside the 63-decibel Community Noise Equivalent Level contour. Residents of this area may frequently see, hear, and have interference of certain activities by, aircraft operating to and/or from John Wayne Airport.

John Wayne Airport has the following normal hours of operation for commercial jet aircraft:

Monday through Saturday	7:00 a.m. to 11:00 p.m.
Sunday	8:00 a.m. to 11:00 p.m.

An Avigation Easement has been dedicated to the County of Orange, and a Notice Concerning Aircraft Environmental Impacts has been recorded for this project.

For more information, please see your sales office representative or call the Orange County Planning and Development Services Department/Acoustics Office at (714) 834-2070.

APPENDICES

A.	State Noise Requirement	A-1
	Exhibit A: California State Building Code (Part 2, Title 24, CCR) Sound Transmission Control [UBC Appendix Chapter 35]	A-2
B.	Vehicular Noise Assessment	B-1
	1. FHWA-RD-77-108 “Highway Traffic Noise Prediction Models” and County’s Analysis	B-1
	2. Site Conditions	B-2
	3. Sample Calculations	B-3
C.	Rail Noise Assessment	C-1
	EXHIBIT C-1 Locomotive Noise Levels (Figure)	C-2
	EXHIBIT C-2 Freight-care Generated Noise (Figure)	C-3
D.	John Wayne Airport Noise Monitoring System	D-1
	Exhibit D-1 Noise Monitor Stations Table	D-2
	Exhibit D-2 Noise Monitor Stations Map	D-3
E.	Orange County Codified Ordinance, Division 6 “Noise Control”	E-1
	Exhibit E-1 Noise Ordinance	E-2
F.	Combining (Adding) Decibels	F-1

APPENDIX

UNIFORM BUILDING CODE

Chapter 35

SOUND TRANSMISSION CONTROL

NOTE: See Matrix Adoption Appendix.

Sound Transmission Control

Sec. 3501.

(a) General

1. Purpose and Scope

The purpose of this section is to establish uniform minimum noise insulation performance standards to protect persons within new hotels, motels, dormitories, long-term care facilities, apartment houses and dwellings other than detached single-family dwellings from the effects of excessive noise, including, but not limited to, hearing loss or impairment and interference with speech and sleep.

These regulations shall apply to all applications for building permits made subsequent to August 22, 1974.

2. Definitions

The following special definitions shall apply to this section:

SOUND TRANSMISSION CLASS (STC) is a single number rating used to compare walls, floor-ceiling assemblies and doors for their sound-insulating properties with respect to speech and small household appliance noise. The STC is derived from laboratory measurements of sound transmission loss across a series of 16 test bands.

Laboratory STC ratings should be used to the greatest extent possible in determining that the design complies with this section.

FIELD SOUND TRANSMISSION CLASS (FSTC) is a single number rating similar to STC, except that the transmission loss values used to derive the FSTC are measured in the field. All sound transmitted from the source room to the receiving room is assumed to be through the separating wall or floor-ceiling assembly.

This section does not require determination of the FSTC, and field measured values of noise reduction should not be reported as transmission loss.

IMPACT INSULATION CLASS (IIC) is a single number rating used to compare the effectiveness of floor-ceiling assemblies in providing reduction of impact generated sounds

such as footsteps. The IIC is derived from laboratory measurements of impact sound pressure level across a series of 16 TEST BANDS USING A STANDARDIZED TAPPING MACHINE. Laboratory IIC ratings should be used to the greatest extent possible in determining that the design complies with this section.

FIELD IMPAC INSULATION CLASS (FIIC) is single number rating similar to the IIC, except that the impact sound pressure levels are measured in the field.

NOISE ISOLATION CLASS (NIC) is a single number rating derived from measured values of noise reduction between two enclosed spaces that are connected by one or more paths. The NIC is not adjusted or normalized to a standard reverberation time.

NORMALIZED NOISE ISOULATION CLASS (NNIC) is a single number rating similar to the NIC, except that the measured noise reduction values are normalized to a reverberation time of ½ second.

NORMALIZED A-WEIGHTED SOUND LEVEL DIFFERENCE (Dn) means, for a specified source room sound spectrum, Dn is the difference, in decibels, between the average sound levels produced in two rooms after adjustment tot the expected acoustical conditions when the receiving room under test is normally furnished.

DAY-NIGH AVERAGE SOUND LEVEL (Len) is the A-weighted equivalent continuous sound exposure level for a 24-hour period with a 10db adjustment added to sound levels occurring during nighttime hours (10 p.m. to 7 a.m.).

COMMUNITY NOISE EQUIVALENT LEVEL (CNEL) is a metric similar to the Ldn, except that a 5db adjustment is added tot he equivalent continuous sound exposure level for evening hours (7 p.m. to 10 .m.) in addition tot the 10db nighttime adjustment used in the Ldn.

3. Relevant Standards

The current edition of the following standards are generally applicable for determining compliance with his section.

Copies may be obtained from the America Society for Testing and Materials (ASTM) at 1916 Race Street, Philadelphia, Pennsylvania 19103.

ASTM C 634 Standard Definitions of Terms Relating to Environmental Acoustics.

ASTM E 90 Standard Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions.

ASTM E 336 Standard Test Method for Measurement of Airborne Sound Insulation in Buildings.

ASTM E 413 Standard Classification for Determination of Sound Transmission Class.

ASTM E 492 Standard Method of Laboratory Measurement of Impact Sound Transmission through Floor-Ceiling Assemblies Using the Tapping Machine.

ASTM E 497 Standard Recommended Practice for Installation of Fixed Partitions of Light Frame Type for the Purpose of Conserving Their Sound Insulation Efficiency.

ASTM E 597 Recommended Practice for Determining A Single-Number Rating of Airborne Sound Isolation in Multi-unit Building Specifications.

ASTM E 966 Standard Guide for Field Measurement of Airborne Sound Insulation of Building Facades and Façade Elements.

ASTM E 989 Standard Classification for Determination of Impact Insulation Class (IIC).

ASTM E 1007 Standard Test Method for Field Measurement of Tapping Machine Impact Sound Transmission Through Floor-Ceiling Assemblies and Associated Support Structures.

ASTM E 1014 Standard Guide for Measurement of Outdoor A-Weighted Sound Levels.

4. Complaints

Where a complaint as to noncompliance with this article requires a field test, the complainant shall post a bond or adequate funds in escrow for the cost of said testing. Such costs shall be chargeable to the complainant if the field test shows compliance with these regulations. If the test shows noncompliance, then testing costs shall be borne by the owner or builder.

5. Local Modification

The governing body of any city or county may, by ordinance, adopt changes or modifications to the requirements of this section as set forth in Section 17922.7 of the Health and Safety Code.

In Group R Occupancies, wall and floor-ceiling assemblies separating dwelling units or guest rooms from each other and from public space such as interior corridors and service areas shall provide airborne sound insulation for walls, and both airborne and impact sound insulation for floor-ceiling assemblies.

- (a.1) Interdwelling Sound Transmission Control. 1. Wall and floor-ceiling assemblies. Wall and floor-ceiling assemblies separating dwelling units or guest rooms from each other and from public or service areas such as interior corridors, garages and mechanical spaces shall provide airborne sound insulation for walls, and both airborne and impact sound insulation for floor-ceiling assemblies.

EXCEPTION: Impact sound insulation is not required for floor-ceiling assemblies over nonhabitable rooms or spaces not designed to be occupied, such as garages, mechanical rooms or storage areas.

- (b) Airborne Sound Insulation. All such separating walls and floor-ceiling assemblies shall provide an airborne sound insulation equal to that required to meet a Sound Transmission Class (STC) of 50 (45 if field-tested) as defined in U.B.C. Standard No. 35-1.

Penetrations or openings in construction assemblies for piping, electrical devices, recessed cabinets, bathtubs, soffits, or heating, ventilating or exhaust ducts shall be sealed, lined, insulated or otherwise treated to maintain the required ratings.

Entrance doors from interior corridors together with their perimeter seals shall have a laboratory-tested Sound Transmission Class (STC) rating of not less than 26 and such perimeter seals shall be maintained in good operating condition.

- (b.1) Airborne Sound Insulation. All such acoustically rated separating wall and floor-ceiling assemblies shall provide airborne sound insulation equal to that required to meet a Sound Transmission Class (STC) rating of 50 based on laboratory tests as defined in ASTM Standards E 90 and E 413. Field-tested assemblies shall meet a Noise Isolation Class (NIC) rating of 45 for occupied units and a Normalized Noise Isolation Class (NNIC) rating of 45 for unoccupied units as defined in ASTM Standards E 336 and E 413.

ASTM Standard E 597 may be used as a simplified procedure for field test of the airborne sound isolation between rooms in unoccupied buildings. In such tested, the minimum value of D_n is 45 db for compliance.

Entrance doors from interior corridors together with their perimeter seals shall have Sound Transmission Class (STC) ratings not less than 26. Such tested doors shall operate normally with commercially available seals. Solid-core wood slab doors 1 3/8 inches thick minimum or 18-gauge insulated steel slab doors with compression seals all around, including the threshold, may be considered adequate without other substantiating information.

Field tests of corridor walls should not include segments with doors. If such tests are impractical, however, the NIC or NNIC rating for the composite wall-door assembly shall not be less than 30.

Penetrations or openings in construction assemblies for piping, electrical devices, recessed cabinets, bathtubs, soffits, or heating, ventilating or exhaust ducts shall be sealed, lined, insulated or otherwise treated to maintain the required ratings.

- (c) Impact Sound Insulation. All separating floor-ceiling assemblies between separate units or guest rooms shall provide impact sound insulation equal to that required to meet an Impact Insulation Class (IIC) of 50 (45 if field tested) as defined in U.B.C. Standard No. 35-2. Floor coverings may be included in the assembly and may be replaced only by other floor covering that provides the same sound insulation required above.

- (c.1) Impact Sound Insulation. All acoustically rated separating floor-ceiling assemblies shall

provide impact sound insulation equal to that required to meet an Impact Insulation Class (IIC) rating of 50 based on laboratory test as defined in ASTM Standards E 492 and E 989. Field-tested assemblies shall meet a Field Impact Insulation Class (FIIC) rating of 45 for both occupied and unoccupied units as defined in ASTM Standards E 1007 and E 989, with the exception that the measured impact sound pressure levels shall not be normalized to a standard amount of absorption in the receiving room.

Floor coverings may be included in the assembly to obtain the required rating. These coverings must be retained as a permanent part of the assembly and may be replaced only by other floor coverings that provide the required impact sound insulation

- (d) Tested Assemblies. Field or laboratory tested wall or floor-ceiling designs having as STC or IIC of 50 or more as determined by U.B.V. Standard No. 35-1, 35-2 or 35-3 may be used without additional field testing when, in the opinion of the building official, the tested design had not been compromised separations is noted.

(d.1) Tested Assemblies.

1. Laboratory-tested wall or floor-ceiling designs having STC or IIC ratings of 50 or more may be used by the building official to determine compliance with this section during the plan review phase. Field tests shall be required by the building official when evidence of sound leaks of flanking paths is noted, or when the separating assembly is not built according to the approved design.
2. Generic sound transmission control systems as listed in the Catalog of STC and IIC Ratings for Wall and Floor-Ceiling Assemblies, as published by the Office of Noise Control, California Department of Health Services, or the Fire Resistance Design Manual, as published by the Gypsum Association, may be used to evaluate construction assemblies for their sound transmission properties. Other tests from recognized laboratories may also be used. When ratings for essentially similar assemblies differ, and when ratings are below STC or IIC 50, field-testing may be used to demonstrate that the building complies with this section.
3. For field testing, rooms should ideally be large and reverberant for reliable measurements to be made in all test bands. This is often not possible for bathrooms, kitchens, hallways or rooms with large amounts of sound-absorptive materials. Field tests results should, however, report the measured values in all bands, noting those which do not meet relevant ASTM criteria for diffusion.
4. It should be noted that STC ratings do not adequately characterize the sound insulation of construction assemblies when the intruding noise is predominately low pitched as is often produced by amplified music or by large pieces of mechanical equipment.

It should also be noted that the transmission of impact sound from a standardized tapping machine may vary considerably for a given design due to differences in specimen size,

flanking transmission through associated structure and the acoustical response of the room below. Laboratory IIC values should therefore be used with caution when estimating the performance of hard-surfaced floors in the field. Additionally, IIC ratings may not always be adequate to characterize the subjectively annoying creak or boom generated by footfalls on a limber floor.

- (e) Field Testing and Certification. Field testing, when required, shall be done under the supervision of a professional acoustical who shall be experienced in the field of acoustical testing and engineering and who shall forward certified test results to the building official that minimum sound insulation requirements stated above have been met.
- (e.1) Certification. Field testing, when required, shall be done under the supervision of a person experienced in the field of acoustical testing and engineering and who shall forward test results to the building official showing that the sound isolation requirements stated above have been met. Documentation of field test results should generally follow the requirements outlined in relevant ASTM standards.
- (f) Airborne Sound Insulation Field Tests. When required, airborne sound insulation shall be determined according to the applicable Field Airborne Sound Transmission Loss Test procedures of U.B.C. Standard No. 35-3. All sound transmitted from the source room to the receiving room shall be considered to be transmitted through the test partition.
- (g) Impact Sound Insulation Field Test. When required, impact sound insulation shall be determined in accordance with U.B.C. Standard No. 35-2.
- (h) Exterior Sound Transmission Control.
 - 1. Application consistent with local land-use standards, residential structures located in noise critical areas, such as proximity to highways, county roads, city streets, railroads, rapid transit lines, airports or industrial areas shall be designed to prevent the intrusion of exterior noise beyond prescribed levels. Proper design shall include, but shall not be limited to, orientation of the residential structure, setbacks, shielding and sound insulation of the building itself.
 - 2. Allowable interior noise levels. Interior noise levels attributable to exterior sources shall not exceed 45db in any habitable room. The noise metric shall be either the Day-night Average Sound Level (Ldn) or the Community Noise Equivalent Level (CNEL), consistent with the noise element of the local general plan.

NOTE: Ldn is the preferred metric for implementing these standards.

Worst-case noise levels, either existing or future, shall be used as the basis for determining compliance with this section. Future noise levels shall be predicted for a Period of at least ten years from the time of building permit application.

3. Airport noise sources. Residential structures to be located where the annual Ldn or CNEL (as defined in Title 21, Subchapter 6, CCR) exceeds 60db shall require an acoustical analysis showing that the proposed design will achieve prescribed allowable interior level. For public-use airports or heliports, the Ldn or CNEL shall be determined from the airport land-use plan. If the airport land-use plan has not been developed, the Ldn or CNEL shall be determined from the noise element of the general plan of the local jurisdiction.

When aircraft noise is not the only significant source, noise levels from all sources shall be added to determine the composite site noise level.

4. Other noise sources. Residential structures to be located where the Ldn or CNEL exceeds 60 db shall require an acoustical analysis showing that the proposed design will limit exterior noise to the prescribed allowable interior level. The noise element of the local general plan shall be used to the greatest extent possible to identify sites with noise levels potentially greater than 60db.

- 1.5 Compliance. Evidence of compliance shall consist of submittal of an acoustical analysis report, prepared under the supervision of a person experienced in the field of acoustical engineering, with the application for a building permit. The report shall show topographical relationships of noise sources and dwelling sites, identification of noise sources and their characteristics, predicted noise spectra and levels at the exterior of the proposed dwelling structure considering present and future land usage, basis for the prediction (measured or obtained from published data), noise attenuation measures to be applied, and an analysis of the noise insulation effectiveness of the proposed construction showing that the prescribed interior noise level requirements are met.

If interior allowable noise levels are met by requiring that windows be inoperable or closed, the design for the structure must also specify a ventilation or air-conditioning system to provide a habitable interior environment. The ventilation system must not compromise the dwelling unit or guest room noise reduction.

- 2.6 Field Testing. When inspection indicates that the construction is not in accordance with the approved design, or that the noise reduction is compromised due to sound leaks or flanking paths, field-testing may be required. A test report showing compliance or noncompliance with prescribed interior allowable levels shall be submitted to the building official.

Measurements of outdoor sound levels shall generally follow the guidelines in ASTM E 1014.

Field measurements of the A-weighted airborne sound insulation of buildings from exterior sources shall generally follow the guidelines in ASTM E 966.

For the purpose of this standard, sound level differences measured in unoccupied units shall be normalized to a receiving room reverberation time of one-half second. Sound

level differences measured in occupied units shall not be normalized to a standard reverberation time.

Sound Transmission Control System

Sec. 3502. Generic systems as listed in the Fire Resistance Design Manual, October, 1984, Eleventh Edition, as published by the Gypsum Association may be accepted where a laboratory test indicates that the requirements of Section 3501 are met by the system.

VEHICULAR NOISE ASSESSMENT

1. Vehicular Noise Prediction

The County accepts the Federal Highway Administration's methodology based on Report No. FHWA-RD-77-108 for vehicular noise prediction. However, the following modifications apply to the determination of hourly Equivalent Noise Levels, L_{eq} , for each of the three vehicle classes (i) passenger vehicles and light-duty carriers, (ii) Medium trucks up to 3-axes including busses and (iii) Heavy-duty trucks. These hourly levels may then be combined into the Community Noise Equivalent Level (CNEL) using established procedures.

- (a) Emission Levels by vehicle class, $L_{\varnothing}$ in dBA at Distance D and vehicle speed MPH.

For passenger vehicles; -

$$L_{\varnothing} = 38.8 \log (\text{MPH}) + 5.2 + 20 \log (50/D)$$

For medium trucks (inc. busses); -

$$L_{\varnothing} = 25.6 \log (\text{MPH}) + 35.3 + 20 \log (50/D)$$

For heavy trucks; -

$$L_{\varnothing} = 19.2 \log (\text{MPH}) + 50.4 + 20 \log (50/D)$$

The distance "D" may be any distance as desired or required.

- (b) Equation for L_{eq} .

Equation (A-24) from Report RD-108 is shown below.

$$L_{eq} = L_{\varnothing} + 10 \log \left(\frac{N \pi D}{T S} \right) + 10 \log \left(\frac{D_{\varnothing}}{D} \right) \text{ dBA}$$

Where, $D_{\varnothing} = D$, a distance to the line of travel, or the effective centerline of the traffic noise
(Modification of RD-108)

$L_{\varnothing}$ is the emission level indicated above,

S = prevailing vehicle speed,

T is the time duration of 1 hour,

And N = The flow rate in units per hour of the vehicle class under consideration.

Note: In a continuous flow which maintains the hourly noise exposure level at $L_{\varnothing}$ in a real time duration of 1800 seconds (other 1800 second being wattless), the equivalent level L_{eq} , is reduced to the form below.

$$L_{eq} = L_{\varnothing} - 32.55 + 10 \log (N) \text{ dBA}$$

(c) Community Noise Equivalent Level, CNEL

The County accepts the use of averaged flow rates for each of the time periods as defined in CNEL, based on the figure of Average Daily Traffic (ADT) along with an applicable mix-ratio in vehicle compositions. In field tests, however, it must be noted that only hourly Leq's are directly observable, sometimes even without supporting data of vehicle counts. If the test duration is less than 24 hours, the calculated CNEL must be considered as a projected level. For verification of CNEL due to traffic noise, a 24-hour data would be required.

2. Site Conditions

Re-examination of FHWA data (Report DOT-TSC-FHWA-78-1) as shown in sample Exhibit B-1, validates the conclusion that the equivalent levels for traffic noise do attenuate at the rate of 6-dB per doubling of distance. There is, however, the condition that the distances must be referred to the effective source location, as if to a point. This location does not always fall on the geometric centerline and must be evaluated on the basis of vehicle composition, lane distribution, magnitudes of lane by lane noise levels and relative totals between the two directions. Exhibit B-1 shows the calculations required in this process and for locating the effective distance of reference.

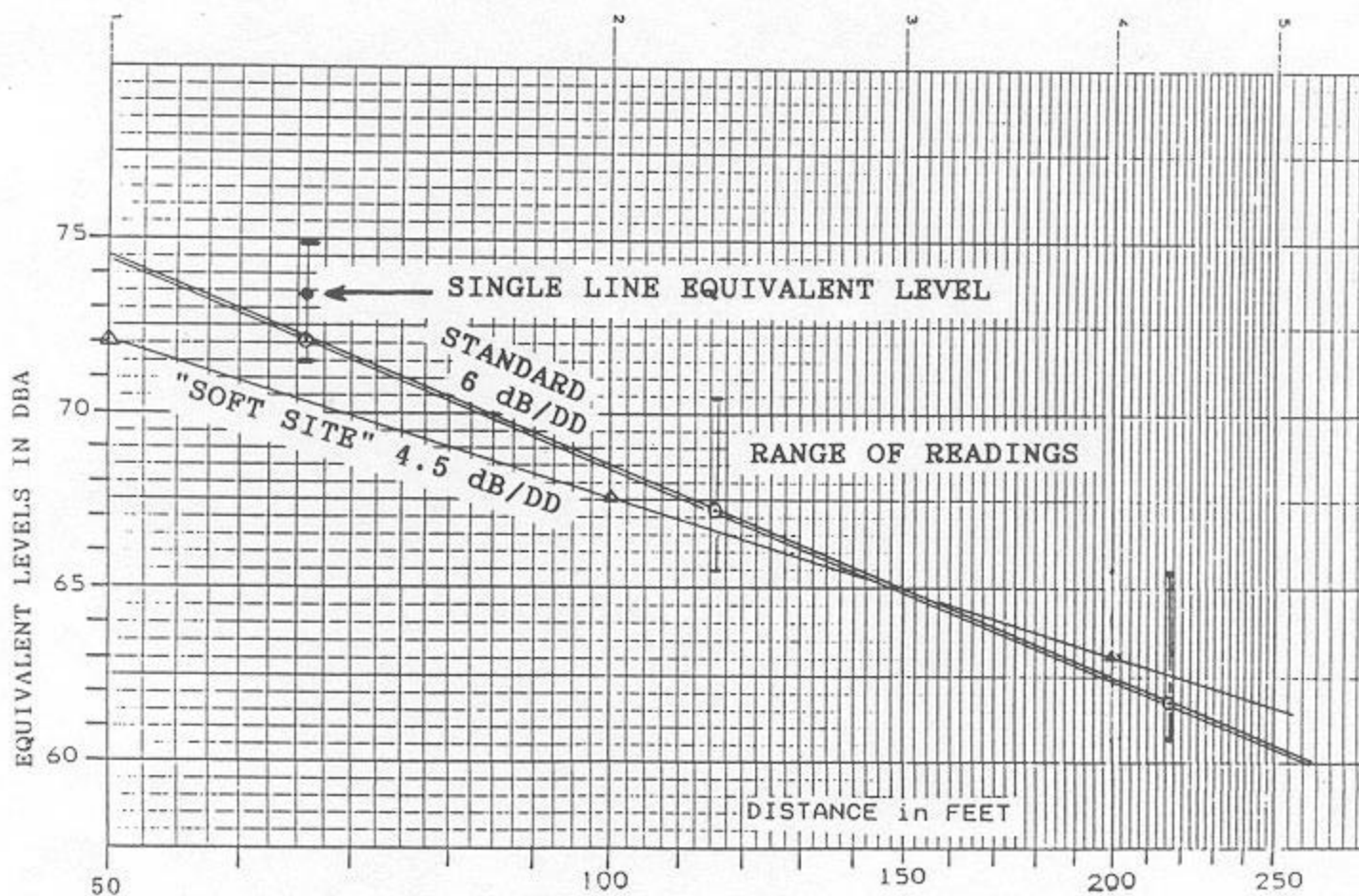
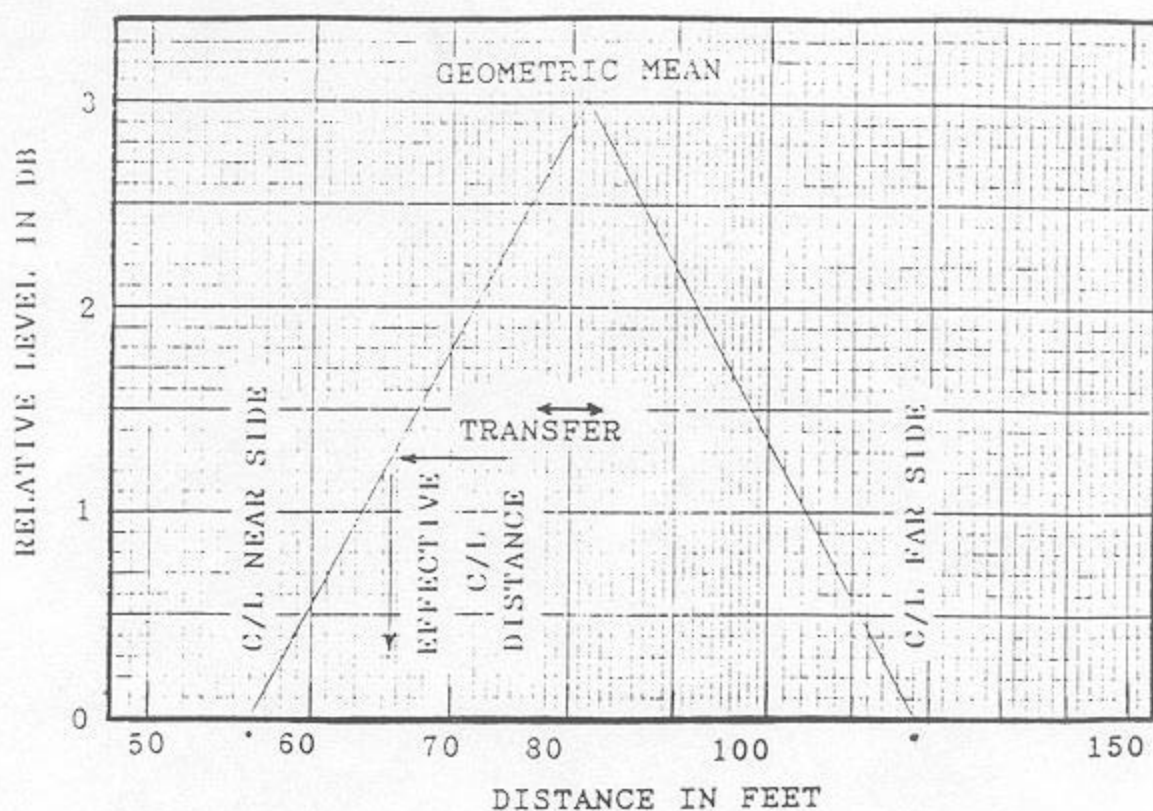
With the FHWA method and "line source" application, it is significant to note that all distances are reckoned to the centerline of the nearest traffic lane. The data appeared to be a "forced" fit to the attenuation line of 4.5 dB down at doubled distance. Continued use of this method could be tolerated only on the condition of keeping the distance reference to the centerline of the nearest lane but on a "soft-site" basis.

On the other hand, the sample case shown in Exhibit B-1 indicates clearly that point source theory indeed applies. The need to transfer the distance reference from the geometric centerline between the two sides to a calculated location has also been demonstrated to be necessary.

BOTH FHWA REPORTS AND ALL COUNTY RECORDS ARE AVAILABLE
FOR EXAMINATION AT PDSD/REGULATION/ACOUSTICS.

NORTH CAROLINA, SITE #4, BENSON I-95
CALCULATION BY VEHICLE COUNTS

1-14-75 TIME PERIOD	SOUTH LANES	BOUND /	NORTH LANES	BOUND		
16:50	1	2	3	4		
			median			
DISTANCES	50	62	38	112	124	
	59	58		67	61 MPH	
AUTOS EM.LVL (FHWA)						
C/L LANE, dBA	72.97	70.82		68.07	65.63	
10 MIN. COUNT	51	7		8	40	
NOISE LEVEL	65.28	54.50		52.33	56.88	CALCULATED HOURLY Leq
M.TRKS EM.LVL						
AT DISTANCE	83.43	81.31		78.30	76.03	
	2	0		0	2	
NOISE LEVEL	61.67	16.54		13.53	54.28	CALCULATED
HVY. TRK						
H.TRKS EM.LVL						
AT DISTANCE	87.16	85.11		81.52	79.63	
	4	0		1	9	
NOISE LEVEL	68.42	20.34		56.75	64.40	CALCULATED
TOTAL NOISE BY COLUMN BY DIRECTION	70.71	54.50		58.09	65.46	
	70.82	66.19				
ALL VEHICLES		70.10 dBA				
DISTANCE, FT.	50	62		112	124	
ROADWAY C/L		56		118		
	GEOM. MEAN	=	81.28 ft		NOMINAL DISTANCE	
Transfer distance =			65.70 ft			
POSITION to			AS			
TO READINGS		dBA	REPORTED (range)		dBA	
AT "50 FT"	65.7	72.10	71.5 (71.5 - 74.9)		72.10	50
"100 FT"	115.7	67.19	66.9 (65.5 - 70.5)		67.59	100
"200 FT"	215.7	61.77	62.9 (60.8 - 65.5)		63.07	200
	(POINT SOURCE)					
USING EQUIVALENT DISTANCE AT			65.7 FT FOR SINGLE LINE			
AT AVERAGE SPEED	61.25 MPH					
vehicles	emi.lvl	Leq				
autos	71.22	66.70				
m. trucks	81.61	62.86		AS		
h. trucks	85.19	71.88		REPORTED (50-min. range)		
ALL VEHICLES			73.43 -----	71.5 (71.5 - 74.9)		



RAIL NOISE ASSESSMENT

The County has accepted a methodology for rail noise assessments as contained in Wyle Laboratories Report WCR 73-5.

The report, entitled “Assessment of Noise Environments Around Railroad Operations,” is summarized in the following abstract from the document:

In recognition of the need for assessment of the noise emitted by railroad operations, this report has been prepared under sponsorship of Southern Pacific Transportation Company, Union Pacific Railroad, Atcheson, Topeka and Santa Fe Railway Company, and Association of American Railroads. The report is intended to provide substantial background data to aid Federal rule making efforts on railroad noise and to satisfy the requirements for “Noise Elements” in the State of California, Government Code Section 65302(g). (Senate Bill 691) . . . In satisfaction of these requirements. This report incorporated A-weighted noise measurements of both line and yard operations, and weights their duration in terms of total integrated sound energy for each event or combined series of events. Additionally, a methodology has been presented for application to line and yard operations which allows inclusion of weighting factors for time of day of the noise vent and numbers of events during defined time periods.

The publication date of this document was July 1973.

Due to the length of the document, it is not reprinted in the manual but is available for review at PDSD/REGULATION/ACOUSTICS. However, Figures 3.2-12 and 3.2-21 are reproduced herein to show the applicability of different sound attenuation rates due to changes in distance even in the case of railroad noise.

NOTE: Predictions made by the procedures in Report WCR 73-5, or on the basis of these figures should be validated by field measurement of sound levels and corresponding parameters such as the average train speed, number of engines and cars, and distance from the tracts, etc.

JOHN WAYNE AIRPORT AIRCRAFT NOISE MONITORING SYSTEM

The Aircraft Noise Monitoring System at John Wayne Airport continuously monitors and records both aircraft and ambient noise levels at twelve Remote Monitoring Stations (RMS) locations surrounding the Airport. The location of the monitors are shown in the following table and map, Exhibits D-1 and D-2.

Cumulative noise levels for aircraft, community (non-aircraft) and total noise for each monitor site are calculated in CNEL, Ldn, Leq, as well as a series of Lx levels (L1, L5, L10, L50, L90, L99). Long term averages for any of these cumulative levels are available by hour, day, month, calendar quarter or year.

Single event data is also recorded at each monitor site in Maximum A-weighted decibels and Single Event Noise Exposure Level (SENEL). This Data is available as individual events, or as daily, monthly, or annual averages.

Additionally, single event noise levels for all jet aircraft and some propeller-driven aircraft are correlated with Federal Aviation Administration Control Tower records to provide single event data for individual aircraft types. This data is also available in Maximum dBA or SENEL as daily, monthly or annual averages for each monitor site.

Annual CNEKL contours and quarterly contour updates are produced for John Wayne Airport by a consultant utilizing the above described data from the Airports noise monitoring system. Maps showing the location of the 60, 65, and 70 dB CNEL contours for the Airport are available in quarterly noise reports, as well as tabulations of acreage and numbers of households within the Airport's noise impact area.

Information and data from the John Wayne Airport Noise Monitoring System are available from the Airport's Noise Abatement Center, (714) 252-5185.

JOHN WAYNE AIRPORT
PERMANENT REMOTE MONITORING STATIONS

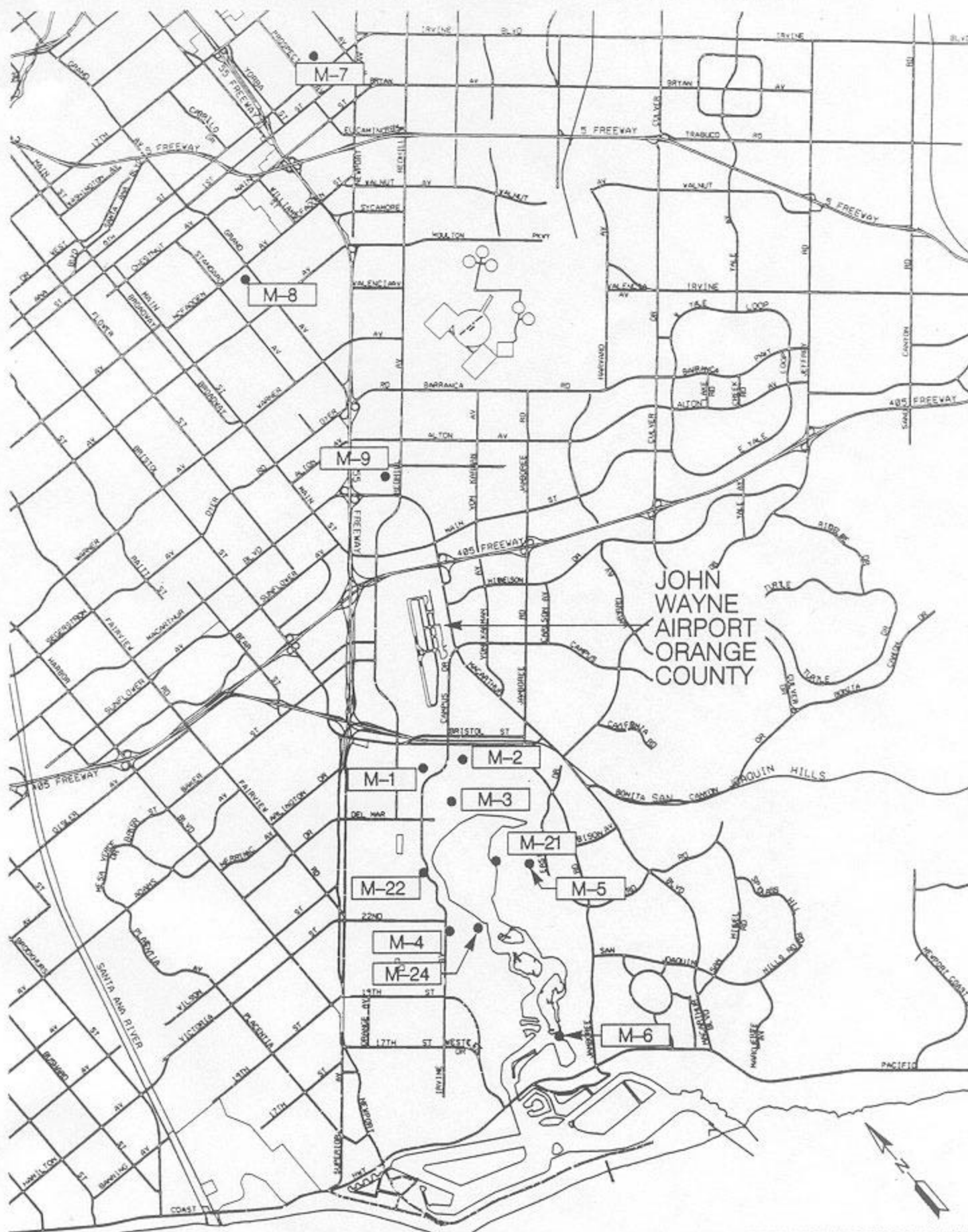
RMS SITE LOCATIONS AND NUMBERING	DISTANCE (FEET)		MICROPHONE HEIGHT		LATITUDE AND LONGITUDE
	FROM NORTH END (EXTENDED C/I) OF RUNWAY 19R-011	AT 90 DEGREES TO EXTENDED C/L 19R-01L			
M-1 Golf Course 3100 Irvine Ave. Newport Beach, CA	8,791.4 SLY	939.0 WLY	23.1'	+ 13.0'	<u>33° 39' 41.34"</u> 117° 52' 49.52"
M-2 20152 S.W. Birch St. Newport Beach	8,745.7 SLY	1,171.5 ELY	33.8'	+ 33.6'	<u>33° 39' 31.97"</u> 117° 52' 27.20"
M-3 2139 Anniversary Ln. Newport Beach	10,800.6 SLY	170.4 ELY	22.9	- 9.4'	<u>33° 39' 18.64"</u> 117° 52' 49.04"
M-4 1907 Tradwinds Lane Newport Beach	17,411.1 SLY	1,226.2 ELY	22.3'	+ 56.7'	<u>33° 38' 27.30"</u> 117° 53' 40.24"
M-5 2601 Vista del Oro Newport Beach	14,791.0 SLY	3,506.0 ELY	25.0'	+ 27.3'	<u>33° 38' 28.30"</u> 117° 52' 36.27"
M-6 1311 Back Bay Drive Newport Beach	23,954.2 SLY	3,289.8 ELY	29.5'	+ 36.8'	<u>33° 37' 09.19"</u> 117° 53' 29.25"
M-7 17952 Beneta Way Newport Beach	28,761.9 NLY	602.3 ELY	23.7'	+ 111.3'	<u>33° 45' 02.48"</u> 117° 49' 05.24"
M-8 1300 S. Grand Ave Newport Beach	18,051.0 NLY	5,117.1 WLY	56.0'	+ 95.0'	<u>33° 43' 55.36"</u> 117° 51' 04.49"
M-9 17372 Eastman Street Newport Beach	6,546.3	64.2 WLY	37.9'	+ 36.6'	<u>33° 41' 50.79"</u> 117° 51' 14.06"
M-22 2338 Tustin Ave Newport Beach	14,159.8	1,991.0 WLY	20.1	53.6	<u>33° 38' 59.28"</u> 117° 53' 30.24
M-24 1918 Santiago Newport Beach	17,509.3	313.1 ELY	22.6	66.8	<u>33° 38' 19.31671"</u> 117° 53' 25.64642"

REMARKS:

1. Length of Runway 19R-01L: 5700 feet
2. Runway Elevation: +53' MSL (Mean Sea Level)
3. AGL – Above Ground Level
4. ARL – Above runway Level
5. Runway Magnetic Heading: 19° 21'
6. Latitude and Longitude of Runway 19R: North End 33° 40' 53.86675"
117° 51' 51.01009"

South End 33° 40' 04.021490"
117° 52' 22.58214"

JOHN WAYNE AIRPORT STATION LOCATION MAP



ORANGE COUNTY CODIFIED ORDINANCE, DIVISION 6 “NOISE CONTROL”

In an effort to protect the public from excessive noise levels emanated from stationary noise sources, the County adopted the Orange County Noise Ordinance which sets allowable limits of noise generation. (See Exhibit E-1)

The ordinance is enforced primarily by the Health Care Agency, Environmental Health Division. Complaints due to excessive noise levels from stationary noise sources (barking dogs, industrial plants, discos, etc.) may be directed to the Community Environmental Quality Division, Health Care Agency, County of Orange, at (714) 667-3730.

Division 6

NOISE CONTROL

Article 1. General Provisions, § § 4-6-1 – 4-6-16

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 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.

*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.

Decibel (dB) shall mean a unit which denotes the ration between two (2) quantities which are proportional to power: the number of decibels corresponding to the radio 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 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 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 a 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 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 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 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

(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 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 pre-empted 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 provision

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 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 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 Office 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 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 requirement 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 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 Health 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. Violation; 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)

COMBINING (ADDING) DECIBELS

LEVEL A + LEVEL B = LEVEL C

LEVEL A > LEVEL B; LEVEL A – LEVEL B = ?

READ [Increment] FROM TABLE BELOW; READ (Inc.)
CORRESPONDING TO ?

ANSWER: LEVEL C = LEVEL A + (Inc)

DECIBEL ADDITION TABLE

Difference (?)	Increment (Inc.)	Difference (?)	Increment (Inc.)
.00	3.01	5.00	1.19
.20	2.91	5.50	1.08
.40	2.81	6.00	.97
.60	2.72	6.50	.88
.80	2.63	7.00	.79
1.00	2.54	7.50	.71
1.20	2.45	8.00	.64
1.40	2.37	8.50	.57
1.60	2.28	9.00	.51
1.50	2.20	9.50	.46
2.00	2.12	10.00	.41
2.20	2.05	11.00	.33
2.40	1.97	12.00	.27
2.60	1.90	13.00	.21
2.80	1.83	14.00	.17
3.00	1.76	15.00	.14
3.50	1.60	20.00	.04
4.00	1.46		
4.50	1.32		

EXAMPLE: 65 dB + 63 dB = 67.12 dB