

**GENERAL PLAN**  
**NOISE ELEMENT**

**CITY OF MOORPARK**

MARCH 1998

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## APPENDIX

A1 TECHNICAL APPENDIX (Separate Cover)

## 1.0 INTRODUCTION

Within the City of Moorpark are a number of transportation related noise sources including freeways, major and minor arterial roadways as well as a railroad line. The existing noise corridors within the City, include; State Route 118 (SR 118), State Route 23 (SR 23) and the rail road corridor that bisects the City. In the future, a SR 118 bypass arterial and a SR 23 bypass arterial are proposed to be constructed within the City's boundaries. Effective strategies to reduce their influence on the community noise environment are an appropriate and essential part of the Noise Element.

Information relative to the existing and forecast noise environment within Moorpark should be integrated into future land use planning decisions. The Element provides an analysis of the noise environment in order that the City may include noise impact considerations in land development programs.

Residential land uses and areas identified as noise sensitive should be protected from excessive noise generated by transportation and non-transportation noise sources. The impacts of transportation noise are most effectively mitigated through the application of noise standards, goals and implementation strategies established in the Noise Element, whereas the impacts of non-transportation noise are most effectively abated through the enforcement of City noise ordinances or regulations.

Noise, as it has been simply defined, is "unwanted sound". It is an undesirable byproduct of transportation elements and industrial, commercial and recreation activities within the community that affects man's environment and causes disturbance. Physical health, psychological stability, social cohesion, property values, and economic productivity are factors negatively affected by excessive amounts of noise. The full effect of such noise on the individual and the community will vary with its duration, its intensity, and the tolerance level of the individual.

## 1.1 OVERVIEW

The Noise Element of a General Plan is a comprehensive program for including noise attenuation measures in the planning process. It is a tool for local planners to use to achieve and maintain compatible land use based upon acceptable environmental noise levels. The Noise Element identifies noise sensitive land uses and noise sources, and defines areas of noise impact for the purpose of developing programs to insure that Moorpark residents will be protected from excessive noise intrusion.

The Noise Element follows the revised State guidelines in Government Code Section 65302(f) (described in more detail in the Technical Appendix Page A-1). The Element quantifies the community noise environment in terms of noise exposure contours for both near and long-term levels of growth and traffic activity. The information contained in this document provides the framework to achieve compatible land uses.

The Element is divided into six sections, including four subsections and an Appendix.

- 1.0 **INTRODUCTION** - identifies the noise issues in the City that are to be addressed within the Noise Element.
- 1.1 **SCOPE OF ELEMENT AND AUTHORIZATION** - describes the responsible parties.
- 1.2 **STATUTORY REQUIREMENT** - describes the State of California enabling statutory codes.
- 1.3 **PURPOSE** - presents the objectives of the Noise Element.
- 1.4 **DEFINITION** - defines noise terminology used in the Noise Element.
- 2.0 **EXISTING CONDITIONS** - summarizes the key noise problems facing the community.

3.0 **NOISE EVALUATION AND MEASUREMENT** - describes and defines the noise metric system.

4.0 **FINDINGS** - summarizes the existing and future noise sources in the City.

5.0 **GOAL STATEMENT** - defines the goals of the Noise Element.

6.0 **POLICIES AND IMPLEMENTATION** - defines and summarizes the policies and programs to be implemented by the City to achieve the goals of the Element.

**TECHNICAL APPENDIX** - contains background information including methodology, measurement and modeling results, and bibliography.

## 1.2 AUTHORIZATION

Recognizing the increasing human environmental impacts of noise pollution and the impact that local agency land uses and circulation plans have on the community's environmental quality, the State of California has mandated that a noise element be included as part of City and County general plans. Guidelines have been prepared as a result of State Government Code Section 65302(f) (described in more detail in the Technical Appendix A Page A-1), concerning the specific requirements for a Noise Element which are responsive to State guidelines. Within the City of Moorpark, the Community Development Department is responsible for the coordination of all local sound attenuation and regulatory activities.

### 1.3 PURPOSE

The purpose of the Noise Element is to serve as an official guide to the City Council, the Planning Commission, City departments, individual citizens, businessmen, and private organizations concerned with noise pollution within the City of Moorpark. The Noise Element provides a reference to be used in connection with actions on various public and private development matters as required by law, and is utilized to establish uniformity of policy, as well as direction within the City concerning actions to minimize or eliminate excessive noise through the enforcement of community noise standards and ordinances, and for making decisions regarding proposals which may have an impact on the City's environment.

The Noise Element includes definitions, objectives, policies, standards, criteria, programs, and maps which are to be considered when decisions are made affecting the noise environment within the City of Moorpark.

The objective of the Noise Element is to establish noise standards, and implement policies and goals to limit to acceptable levels the noise that is created because of transportation activities, as well as stationary sources. The purpose of the noise ordinance is to adopt standards that identify a maximum acceptable level of noise that may be generated by people, machinery or actively before enforcement action may be appropriate to protect Moorpark residents from excessive noise intrusion.

## 1.4 DEFINITIONS

The following common terms are used throughout the Noise Element:

**A-Weighted Sound Pressure Level, dBA (A)** - The sound pressure level, in decibels, as measured on a sound level meter using the A-weighting filter network. The A-weighting filter de-emphasizes the very low and very high frequency components of the sound in a manner similar to the response of the human ear and gives good correlation with subjective reactions to noise.

**Ambient Noise** - The composite of noise from all sources near and far. In this context, the ambient noise level constitutes the normal existing level of environmental noise at a given location.

**Amplitude** - A measure of the difference between atmospheric pressure (with no sound present) and the total pressure (with sound present). Although there are other measures of sound amplitude, sound pressure is the decibel (dBA).

**Community Noise Equivalent Level (CNEL)** - The average, equivalent A-weighted sound level during a 24-hour day obtained by adding five decibels to the hourly noise levels measured during the evening (from 7:00 p.m. to 10:00 p.m.) and by adding ten decibels to the hourly noise levels measured during the night (from 10:00 p.m. to 7:00 a.m.). In this way, CNEL takes into account the lower tolerance of people for noise during the evening and nighttime periods.

**Day Night Noise Level (LDN)** - Similar to CNEL, except that the evening hours are not penalized. The LDN is slightly less stringent than the CNEL.

**Decibel (dBA)** - A unit for describing the amplitude of sound, equal to 20 times the logarithm to the base 10 of the ratio of the pressure of the sound measured to the reference pressure, which is 20 micropascals. Because they are logarithmic, decibels are not additive. If two similar noise sources produce the same amount of noise (say 100 dBA



each), the total noise level will be 103 dBA, not 200 dBA. An increase in noise level of 10 dBA is generally perceived as being twice as loud.

**Equivalent Sound Level (LEQ)** - The sound level corresponding to a steady noise level over a given sample period with the same amount of acoustic energy as the actual time varying noise level. The energy average noise level during the sample period.

**Exterior Living Space** - Open area designed for outdoor living and/or recreation which has a minimum dimension in any direction of at least 10 feet and excluding required front and side setback requirements.

**Maximum Noise Level** - The maximum instantaneous noise level that occurs during a specific time interval. In acoustics, the maximum sound pressure level is understood to be for single events unless some other kind of level is specified.

**Noise** - Annoying, harmful, or unwanted sound.

**Noise Barrier** - A structure designed to mitigate the impact generated by a noise source (e.g., an arterial or rail line) at an adjacent noise sensitive location. Barriers should be continuous structures (without gaps) or designed to achieve the same practical effect and should be constructed of a material that is impervious to noise (e.g., concrete block, stucco-on-wood, wood-on-wood, 1/4' tempered plate glass, earthen berm, or any combination of these or similar materials).

**Noise Contour** - A line drawn about a noise source indicating constant levels of noise exposure. CNEL is the metric utilized herein to describe community exposure to noise.

**Noise Impact Area** - A specific area exposed to significant levels of noise.

**Noise Reduction** - The ability of a material to reduce the noise level from one place to another or between one room and another. Noise reduction is specified in decibels.

**Noise-Sensitive Land Uses** - Noise-sensitive land uses include, but are not limited to, residences, schools, libraries, hospitals, churches, offices, hotels, and motels. These typify land uses where suitability is restricted by intrusive noises. Hence, they are termed "noise-sensitive". Noise-sensitivity factors include interference with speech communication, subjective judgement of noise acceptability and relative noisiness, need for freedom from noise intrusion, and sleep interference criteria. The Land Use Element of the General Plan provides a description of the residential areas throughout the City and is considered the source for the inventory of noise-sensitive areas.

**Sound** - As used herein, sound is a reaction in the ear caused by radiant energy being transmitted from a source by longitudinal pressure waves in air or some other elastic medium.

**Sound Level Meter** - A measurement instrument containing a microphone, an amplifier, an output meter, and one or more frequency weighting networks. It is used for the determination of sound levels.

## 2.0 EXISTING CONDITIONS

In the City of Moorpark there are four major sources of noise:

1. Traffic on State Routes 118 and 23
2. Traffic on arterials and local collector roadways
3. Rail traffic on the east/west rail line bisecting the City
4. Commercial, industrial and recreational activities adjacent to residential locations.

Of these, the most serious problems are the noise levels produced by operations on the State highways, traffic on the major and secondary arterials, and by the railroad. A CNEL of 70 dBA or greater exists at some residential locations as a result of these sources. An exterior noise level of 70 dBA or greater exceeds the design noise standard for residential land uses.

The Noise Element has identified a number of noise related problems and issues within the City. The policy program consists of policies and implementation techniques that minimize these problems and issues. Short-term possibilities for noise reduction in Moorpark consist mostly of the enforcement of noise control guidelines and the appropriate placement of walls and berms to buffer residential and other noise-sensitive areas from traffic noise. Long-term possibilities for noise reduction will be contingent upon future development, especially along major traffic routes, and in the vicinity of the railroads. Planning for these situations can help to minimize the future impact of noise on the community.

### 3.0 NOISE EVALUATION AND MEASUREMENT

A description of the character of a particular noise requires the following:

1. The amplitude and amplitude variation of the acoustical wave,
2. The frequency (pitch) content of the noise, and
3. The duration of the noise.

Definitions of the most commonly used terms encountered in community noise assessments and noise control have been provided as part of the Noise Element. Of these terms, the A-weighted sound pressure level (identified as  $dBA\{A\}$ ) is the scale of measurement that is most useful in community noise measurement. This sound level is measured in decibels to provide a scale with the range and characteristics most consistent with that of people's sensitivity to sounds.

The A-weighted sound level, its application to the CNEL measure of noise exposure, and its utility in the description of ambient noise levels are discussed in the remainder of this section.

#### A-Weighted Sound Level

To establish the A-weighted sound level, the acoustical signal is detected by the microphone and then filtered to weight those portions of the noise that are most annoying to individuals. This weighting of sound energy corresponds approximately to the relative annoyance experienced by humans from noise at various frequencies. The sound levels of a few typical sources of noise that are routinely experienced by people within the City of Moorpark are listed in Figure NO. 1.

The A-weighted sound level of traffic noise and other long-term noise producing activities within and around a community varies considerably with time. Measures of this varying noise level are accomplished by obtaining statistical samples. For the purposes of this study, the following statistical values have been used:

L90 - The near minimum sound level. This value is exceeded 90% of the time during the measurement period.

L50 - The central tendency of the sound level. This value is exceeded 50% of the time during the measurement period.

L10 - The near maximum sound level. This value is exceeded 10% of the time during the measurement period.

Leq - The energy equivalent sound level. This value is most representative of the long-term annoyance potential as well as other effects of the noise.

These measures may be recorded to obtain representative samples of the noise during certain time periods (e.g., peak traffic period, morning, afternoon, night, etc.).

#### Community Noise Equivalent Level (CNEL)

It is recognized that a given level of noise may be more or less tolerable depending on the duration of exposure and the time of day during which the noise is experienced. There are several measures of noise exposure that consider not only the variation of noise level but also include temporal characteristics. Of these, the State Department of Aeronautics and the California Commission of Housing and Community Development have adopted the CNEL. This measure weights the average noise level for the evening hours (from 7:00 p.m. to 10:00 p.m.) by 5 dBA, and the late evening and early morning hours (from 10:00 p.m. to 7:00 a.m.) by 10 dBA. The unweighted daytime noise levels are combined with these weighted levels and averaged to obtain a CNEL value. Figure 2 indicates the outdoor CNEL at typical locations throughout the Southern California area.

# FIGURE 1 - REPRESENTATIVE NOISE SOURCES AND SOUND LEVELS

## SOUND LEVELS AND LOUDNESS OF ILLUSTRATIVE NOISES

### IN INDOOR AND OUTDOOR ENVIRONMENTS

(A - Scale Weighted Sound Levels)

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

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

**FIGURE 2 - TYPICAL OUTDOOR SOUND LEVELS**

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

### Acceptable Exterior Noise Exposures - CNEL

The CNEL scale is considered acceptable for establishing noise criteria for transportation related noise for various land use categories. In general, exterior noise exposures at residential locations should not exceed a CNEL of 65 dBA.

The Environmental Protection Agency (EPA) has recommended a policy stating that a CNEL of 55 dBA not be exceeded within exterior living spaces. However, the EPA emphasizes that this level of exposure may not be economically feasible nor, in many cases, a practical level to achieve.

### Acceptable Interior Noise Exposures - CNEL

California's noise insulation standards were officially adopted by the California Commission of Housing and Community Development in 1974 and became effective on August 22, 1974 (California Administrative Code, Title 25, Section 1092). The ruling states that "Interior community noise equivalent level (CNEL) with windows closed, attributable to exterior sources shall not exceed an annual CNEL of 45 dBA in any habitable room." Additionally, the commission specifies that residential buildings or structures to be located within exterior CNEL contours of 60 dBA or greater of an existing or adopted freeway, expressway, parkway, major street, thoroughfare, rail line, rapid transit line, or industrial noise source shall require an acoustical analysis showing that the building has been designed to limit intruding noise to an interior CNEL of 45 dBA.

### Annoyance and Health Considerations

In general, noise may affect the average individual in the following ways:

1. General hearing loss or damage. Sound levels which exceed 85 dBA(A), when experienced for long durations during each working day, may result in severe temporary or even permanent hearing loss. State and federal safety and health regulations currently protect workers at levels of exposure that exceed 90 dBA(A) for each 8-hour workday. Community noise levels are sufficiently low so as to not cause



hearing loss.

2. Interference with oral communication. Speech intelligibility is impaired when sound levels exceed 60 dBA(A). The amount of interference increases with sound level and distance between speaker and listener.
3. Sleep interference. Sound levels that exceed 40 to 45 dBA(A) are generally considered excessive for sleeping areas within a residence.
4. Contributes to nervousness and tension. Human response to frequent noise loud enough to startle or alarm has been linked to such chronic symptoms as low resistance, high blood pressure, exhaustion, and ulcers.

## 4.0 FINDINGS

The noise survey contained in the Technical Appendix reveals that the noise environment at locations throughout the City are primarily attributable to transportation corridors. The transportation noise sources in the City of Moorpark can be divided into three basic categories: freeways, major and minor arterial roadways, and railroad sources. Each of the transportation sources and their impacts on the noise environment of Moorpark are summarized in the following paragraphs.

**Freeways** - The City of Moorpark has two freeways currently within its boundaries, State Route 118 (SR 118) and 23 (SR 23). The SR 118 and SR 23 currently pass through the City as conventional highways.

The SR 118 runs in an east/west direction within the City and terminates at its connection with the SR 23 Freeway. Currently, two surface streets, New Los Angeles Avenue and Los Angeles Avenue serve as SR 118. There are a number of residential areas located along SR 118, and those homes directly adjacent to the highway are exposed to noise levels in excess of 65 CNEL. In addition, there are two existing schools along Los Angeles Avenue, however, the school buildings are set back from the roadway and are exposed to noise levels less than 65 CNEL.

Moorpark Avenue and Walnut Canyon Road, currently, serve as SR 23. A large portion of the land uses adjacent to this arterial corridor are open space; however, there are also existing residential units, commercial, and office uses. Noise levels in excess of 65 CNEL currently occur along the length of this corridor.

A SR 118 bypass arterial is proposed to be constructed in the future. The future SR 118 is proposed to run through the northern section of the City and will redirect traffic traveling through the City. Land area, predominantly in the northwest portion of the City adjacent

to proposed SR 118 is mostly undeveloped and is designated for future residential land uses by the Land Use Element. The noise associated with the future SR 118 will be significant, and the residential homes located adjacent to the proposed corridor may be exposed to future traffic noise in excess of 70 CNEL.

There are also plans to build a SR 23 bypass arterial within the City's boundaries. The SR 23 will run in the north/south direction through the City. This would impact existing residential units in the Varsity Park Estates neighborhood and areas for potential new development in Specific Plan Area 2. New residential areas should include sufficient noise mitigation measures to attenuate the projected noise from the SR 23.

**Major and Minor Arterial Roadways** - Traffic noise from major thoroughfares is a significant source of noise within the community. The current and future major roadways in the City include: Los Angeles Avenue, New Los Angeles Avenue, High Street, Tierra Rejada Road, Walnut Canyon Road, Campus Park Drive, Moorpark Avenue, Spring Road, Science Drive, Princeton Avenue and Collins Drive.

Noise levels along roadways are determined by a number of traffic characteristics. Most important is the average daily traffic (ADT). Additional factors include the percentage of trucks, vehicle speed, the time distribution of this traffic and gradient of the roadway.

In general, many of the land uses along the arterial roadways are commercial and industrial. However, there are a number of single family homes that are located adjacent to arterials.

**Railroad** - The railroad within the City is another significant source of noise. Rail lines running in a northeast/southwest direction are located just south of High Street providing for through and local service of freight and passenger trains. Additionally, there are parallel spur tracks just west of Moorpark Avenue that are occasionally used for car storage. Currently, approximately 33 train operations per day run through the City. There are a number of existing residential land uses located along this railroad. The limited number of residences directly adjacent to the railroad are impacted by noise levels in excess of 70 CNEL.

## 5.0 GOAL STATEMENT

The goal of the Noise Element is to ensure that the health and well being of the citizens of Moorpark are not compromised by exposure to excessive and possibly harmful levels of noise. This will serve to provide a quality environment in which the citizens of Moorpark may live and have assurance of continued health and well-being.

The sections that follow, provide a discussion of the methods used to measure and analyze the noise environment of the City of Moorpark. The results of the analysis will then be compared with accepted standards to determine where the City is affected by adverse levels of noise. This will lead to a description of a policies and implementation programs designed to minimize (or eliminate) these adverse levels and prevent future problems from occurring.

## **6.0 GOALS, POLICIES, AND IMPLEMENTATION**

**Goal N-1:** Protect the health, safety, and general welfare of the public from adverse noise impacts.

**Policy N-1.1:** Identify sound attenuation measures that can be applicable to transportation related noise impacts.

**Policy N-1.2:** Incorporate noise considerations into land use planning decisions to prevent or minimize future noise and land-use incompatibilities. The analysis of traffic and other noise sources shall consider future conditions at General Plan build out.

**Policy N-1.3:** Provide for reduction in noise impacts from non-transportation sources through adoption of a Noise Ordinance, which is intended to protect people from noise generated on adjacent properties.

**Policy N-1.4:** Require stationary noise sources to limit noise to levels that do not interfere with adjacent uses.

**Policy N-1.5:** Require new projects to contribute to the mitigation of off-site traffic noise impacts to the extent that these impacts are generated by the proposed project.

**Policy N-1.6:** Limit the impact of nuisance noise sources upon residential areas.

**Implementation N-1.1.1:** The City shall require the use of appropriate sound attenuation measures such as: walls, berms, setbacks and construction techniques, in the design of new residential or other noise sensitive land uses adjacent to existing or planned transportation corridors. The noise level criteria identified by Table 2.

**Implementation N-1.1.2:** The City shall seek to minimize transportation noise through the use of sound attenuation design features and coordination of transportation routing. As part of the evaluation of commercial and industrial projects, truck movements and routes in the City shall be evaluated to provide effective separation from residential or other noise

sensitive land uses. (For example: adding truck traffic to an arterial with adjacent commercial and/or industrial development along the roadway creates less of a relative noise impact than adding the truck traffic to a smaller roadway, such as a collector, where the land use is predominantly residential.)

**Implementation N-1.1.3:** The City shall encourage rail traffic operators to provide appropriate mitigation for noise impacts resulting from increased rail traffic.

**Implementation N-1.1.4:** Residential locations adjacent to rail lines are exposed to noise in the range of 90 to 110 dBA(A) during train pass by. The installation of noise barriers should be considered as a noise reduction measure for new residential development adjacent to the railroad tracks.

**Implementation N-1.1.5:** The City shall encourage the enforcement of State Motor Vehicle noise standards for all privately owned, City owned, and City operated automobiles, trucks, and motorcycles within Moorpark through coordination with the California Highway Patrol and City of Moorpark Police Department.

**Implementation N-1.1.6:** The construction of noise barriers should be considered as a noise reduction measure to screen private outdoor residential yard areas from new arterial road widening projects, which result in a significant noise level increase.

**Implementation N-1.2.1:** Sound attenuation measures should be considered early in the development of new residential or noise sensitive uses. The location and orientation of the residential buildings should be configured to minimize or eliminate a noise problem for a site adjacent to the freeway, highways, arterials, or rail lines. Other effective noise reduction tools include the use of earthen berms, sound reducing walls, and generous setbacks.

**Implementation N-1.2.2:** New residential development that may occur within areas identified on Exhibits 10 and 11 of the Noise Element Technical Appendices as having an existing or projected CNEL of 60 dBA or greater shall be required to have a noise study

performed to determine the level of sound attenuation required to meet acceptable interior and exterior noise levels identified in Table 2. The noise study shall be conducted by a person qualified and experienced in performing such studies which may be demonstrated in a variety of ways including; membership in the Institute of Noise Control Engineers (INCE) or as a Registered Professional Engineer in the State of California. This acoustical analysis shall indicate the existing and projected CNELs on the site and the method(s) by which the noise is to be controlled or reduced for residential projects to no more than 65 dBA within the exterior living space and no more than 45 dBA within the interior living space of the project.

**Implementation N-1.2.3:** The City shall employ standards that identify acceptable limits of noise for various land uses throughout the City including residences, schools, hospitals, convalescent homes, libraries, parks, and other noise sensitive areas. These criteria are designed to fully integrate noise considerations into land use planning to prevent new noise/land use conflicts. Table 1 shows criteria used to assess the compatibility of proposed land uses with the noise environment. These criteria are the basis for the development of specific Noise Standards. These criteria will also be evaluated at the zoning stage to determine the appropriateness of a proposed land use and appropriate conditions of approval that may be imposed on a project. The Noise Standards, presented in Table 2, defines the City policies related to land uses and acceptable maximum noise levels. Tables 1 and 2 are the primary tools that allow the City to ensure noise integrated planning for compatibility between land uses and outdoor noise. The City should require that all proposed new projects within its boundaries, demonstrate compliance with the standards in Table 2 at the time of project application.

**Implementation N-1.2.4:** The City shall continue to enforce the State of California Uniform Building Code provision that specifies that the indoor noise levels for residential living spaces not exceed 45 dBA CNEL, due to the combined effect of all noise sources. The State requires implementation of this standard when the outdoor noise levels exceed 60 dBA CNEL. The Noise Referral Zones (60 dBA CNEL) can be used to determine when this standard needs to be addressed. The Uniform Building Code (specifically, the California Administrative Code, Title 24, Part 6, Division T25, Chapter 1, sub chapter 1, Article 4,

Section T25-28) requires that *“Interior community noise levels (CNEL/LDN) with windows closed, attributable to exterior sources shall not exceed an annual CNEL or LDN of 45 dBA in any habitable room.”* The code requires that this standard be applied to all new hotels, motels, apartment houses and dwellings other than detached single-family dwellings.

**Implementation N-1.2.4:** The City should require that the State of California Noise Insulation Standards (State Building Code, Part 2, Title 24, Section 3501) be applied to all new multi-family and condominium conversion projects. The City shall require that, prior to issuance of building permits, the applicant demonstrate that the design of the structure will adequately isolate noise between adjacent units (party walls and common floor/ceilings) per Chapter 35 of the Uniform Building Code. This Code requires that all common wall assemblies be designed to a Class (STC) rating of at least 50, and that all common floor/ceiling assemblies be designed to achieve at least an STC of 50 and an Impact Isolation Class (IIC) rating of 50.

**Implementation N-1.3.1:** The City shall adopt a new comprehensive noise ordinance to ensure that City residents are not exposed to excessive noise levels from stationary noise sources. The purpose of the ordinance is to protect people from non transportation related noise sources such as people, machinery, commercial and industrial activities. The noise ordinance does not apply to motor vehicle noise on public streets or to the railroad line. The noise ordinance is designed to protect quiet residential areas (or other land uses requiring quiet, such as hospitals, convalescent homes, schools, etc.) from stationary noise sources. Land uses are determined by their actual use and not by the current zoning designation. All new noise sources would be required to meet the noise ordinance at the time of construction. Existing stationary noise sources would be given an amortization period to be brought into compliance. The Noise Ordinance compliance and enforcement shall be determined for each application by City staff.

**Implementation N-1.3.2:** All new building permits will be issued based on compliance with the noise criteria in the Noise Ordinance. A specific set of conditions shall be developed for the issuance of building permits that include mechanical equipment. Maximum noise



levels shall be identified and noise sensitive areas of residential properties defined with compliance demonstrated prior to the issuance of building permits.

**Implementation N-1.3.3:** All new development projects, including but not limited to planned development and conditional use permits, shall be conditioned to comply with the noise limits in the Noise Ordinance and Noise Element standards. A specific set of conditions shall be developed for such projects that include any use that may cause noise impacts on residential areas. This includes, but is not limited to, restaurants, bars, entertainment, parking facilities, industrial and commercial uses. Maximum noise levels shall be identified and noise sensitive areas of residential properties defined with compliance demonstrated prior to the approval of the development project. Restaurants, bars, and other entertainment type uses may be subject to a condition of approval that requires that operators of a facility with a noise violation history be required to conduct on site noise monitoring to verify compliance with the noise limits found in the Noise Ordinance.

**Implementation N-1.3.4:** Enforcement of the Noise Ordinance shall be the responsibility of the Code Enforcement staff of the Community Development Department. The most effective method to control community noise impacts from non-transportation sources is through application of the community Noise Ordinance. It shall be the Policy of the City to notify applicants for building permits that include mechanical equipment, of the existence of the Noise Ordinance. Typical examples would include commercial and industrial areas near residential development. The City may require as a condition of project approval, that noise measurement data be provided to the City after construction, demonstrating compliance with the Noise Ordinance.

**Implementation N-1.4.1:** The City shall enforce the Municipal Code provisions relating to the time that limitations that construction activity in or adjacent to residential areas may occur in order to reduce the intrusion of noise in the early morning and late evening hours, on weekends and holidays. At the time of development project approval, the City shall ensure, through conditions of approval, that adequate noise control measures at all construction sites are provided (through the provisions of mufflers and the physical separation of machinery maintenance areas from adjacent residential uses).

**Implementation N-1.4.2:** The City shall establish and maintain coordination among the City agencies involved in noise abatement and ensure the continued application of noise enforcement efforts of the City through the Code Enforcement Program and the Police Department.

**Implementation N-1.4.3:** As a condition of development, the City shall limit delivery hours for stores with loading areas or docks fronting, siding, bordering, or gaining access on driveways adjacent to noise sensitive uses. Exemption from this restriction should be based on compliance with the nighttime noise limits established by the Noise Ordinance. Grocery stores are a major concern for late night delivery noise. The City shall consider limiting delivery hours as a condition of approval for such projects when noise sensitive uses are within 100 feet of loading areas, unless the noise level is within the limitations identified by the Noise Ordinance. The City may consider potential effects of such limits relative to increasing peak hour truck movements. In particular the City shall consider, in determining limits on delivery hours, if such limits will result in increased peak hour truck movements and corresponding potential increases in air quality impacts.

**Implementation N-1.4.4:** The City shall establish and enforce the noise ordinance standards or noise limits, and restrict the hours of maintenance or construction activity in or adjacent to residential areas that result from in-home hobby or work related activities.

**Implementation N-1.5.1:** Establish a Noise Mitigation Fee for new development that would be utilized for noise mitigation measures as a direct cause of a projects incremental development.

**Implementation N-1.6.1:** The City shall adopt a new comprehensive Noise Ordinance to ensure that City residents are not exposed to excessive noise levels from stationary noise sources. The purpose of the Noise Ordinance is to protect people from non-transportation related noise sources such as outdoor recreation people, machinery, commercial and industrial activities. The Noise Ordinance does not apply to motor vehicle noise on public streets or to the railroad lines. The Noise Ordinance is designed to protect residential

areas (or other noise sensitive land uses such as hospitals, convalescent homes, etc.) from stationary noise sources. Land uses are determined by their actual use and not by the current zoning designation. All new noise sources would be required to comply with the Noise Ordinance criteria at the time of construction. Existing noise sources would be given a two (2) year period to achieve consistency with the ordinance. The Noise Ordinance compliance and enforcement shall be designed for easy application by City staff.

**TABLE 1 - LAND USE/NOISE MATRIX**

Land Use Categories		Community Noise Equivalent Level CNEL						
		<55	<60	<65	<70	<75	<80	
Residential	Single Family, Duplex, Multiple Family	A	A	B	B	C	D	D
Residential	Mobilehome	A	A	B	C	C	D	D
Commercial Regional, District	Hotel, Motel, Transient Lodging	A	A	B	B	C	C	D
Commercial Regional Village District, Special	Commercial Retail, Bank Restaurant, Movie Theater	A	A	A	A	B	B	C
Commercial Industrial Institutional	Office Building, Research and Development, Professional Offices, City Offices Building	A	A	A	B	B	C	D
Commercial Recreation Institutional Civic Center	Amphitheater, Concert Hall Auditorium, Meeting Hall	B	B	C	C	D	D	D
Commercial Recreation	Childrens Amusement Park, Miniature Golf Course, Go-cart Track, Equestrian Center, Sports Club	A	A	A	B	B	D	D
Commercial General, Special Industrial, Institutional	Automobile Service Station, Auto Dealership, Manufacturing, Warehousing, Wholesale, Utilities	A	A	A	A	B	B	B
Institutional General	Hospital, Church, Library School's Classroom	A	A	B	C	C	D	D
Open Space	Parks	A	A	A	B	C	D	D
Open Space	Golf Course, Cemeteries, Nature Centers Wildlife Reserves, Wildlife Habitat	A	A	A	A	B	C	C
Agriculture	Agriculture	A	A	A	A	A	A	A

Interpretation

Zone A - Clearly Compatible

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

Zone B - Normally Compatible

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

Zone C - Normally Incompatible

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

Zone D - Clearly Incompatible

New construction or development should generally not be undertaken.

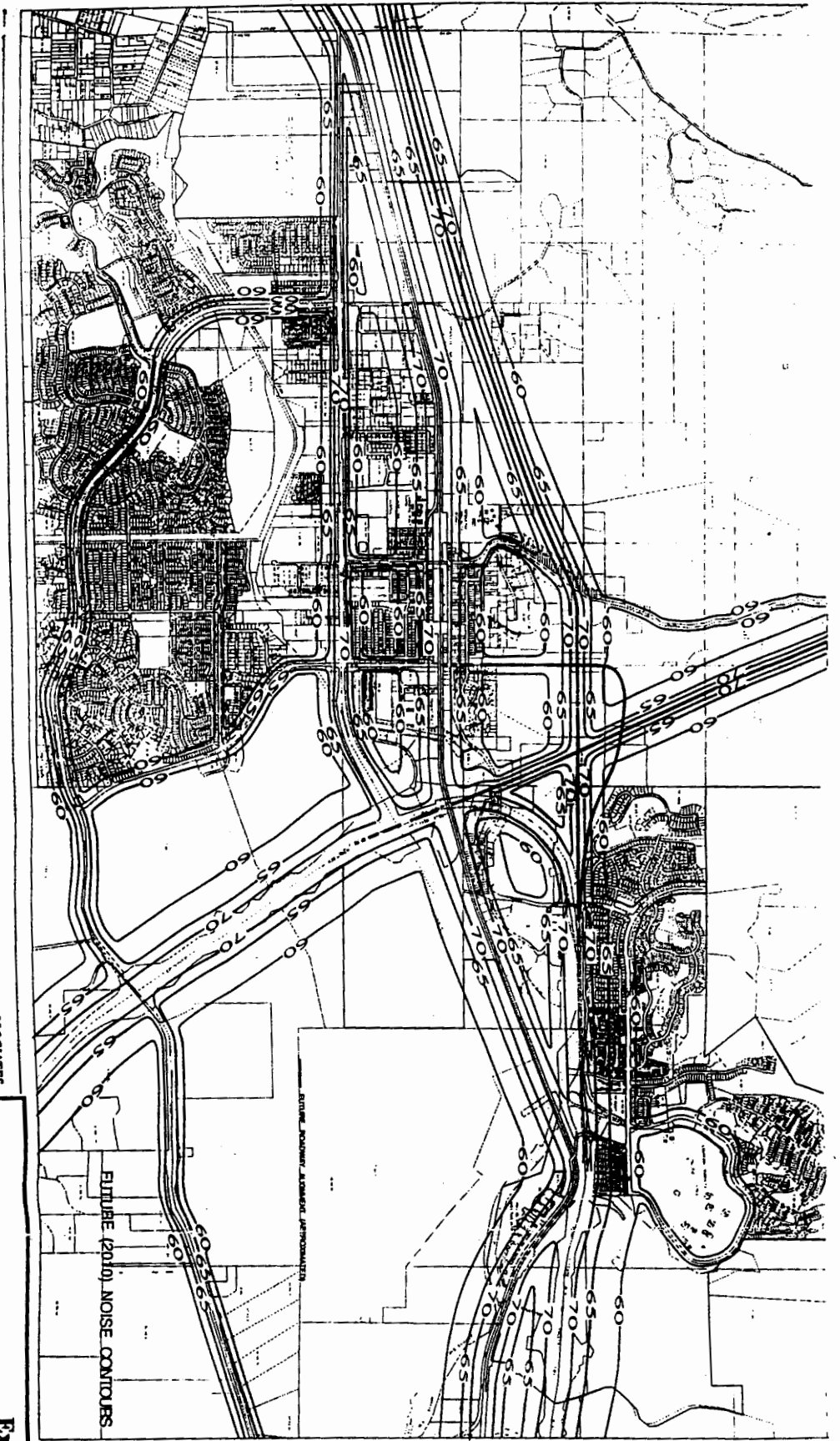
**Table 2 - Noise Standards**

Land Use Categories		Energy Average CNEL	
		Interior <sup>1</sup>	Exterior <sup>2</sup>
Residential Uses	Single Family, Two Family, Multiple Family	45 <sup>3</sup>	55 <sup>4</sup>
	Mobilehome	--	65 <sup>5</sup>
Commercial Industrial Institutional	Hotel, Motel, Transient Lodging	45	65 <sup>6</sup>
	Commercial Retail, Bank, Restaurant	55	--
	Office Building, Research and Development, Professional Offices, City Office Building	50	--
	Amphitheater, Concert Hall Auditorium, Meeting Hall	45	--
	Gymnasium (Multipurpose)	50	--
	Sports Club	55	--
	Manufacturing, Warehousing, Wholesale, Utilities	65	--
	Movie Theaters	45	--
Institutional	Hospital, Schools' classroom	45	65
	Church, Library	45	--
Open Space	Parks	--	65

Interpretation

1. Indoor environment excluding: Bathrooms, toilets, closets, corridors.
2. Outdoor environment limited to:
  - Private yard of single family
  - Multi-family private patio or balcony which is served by a means of exit from inside.
  - Mobilehome Park
  - Hospital patio
  - Park's picnic area
  - School's playground
  - Hotel and motel recreation area
3. Noise level requirement with closed windows. Mechanical ventilating system or other means of natural ventilation shall be provided as of Chapter 12, Section 1205 of UBC.
4. Noise level requirement with open windows, if they are used to meet natural ventilation requirement.
5. Exterior noise level should be such that interior noise level will not exceed 45 CNEL.
6. Except those areas around the airport within the 65 CNEL contour.





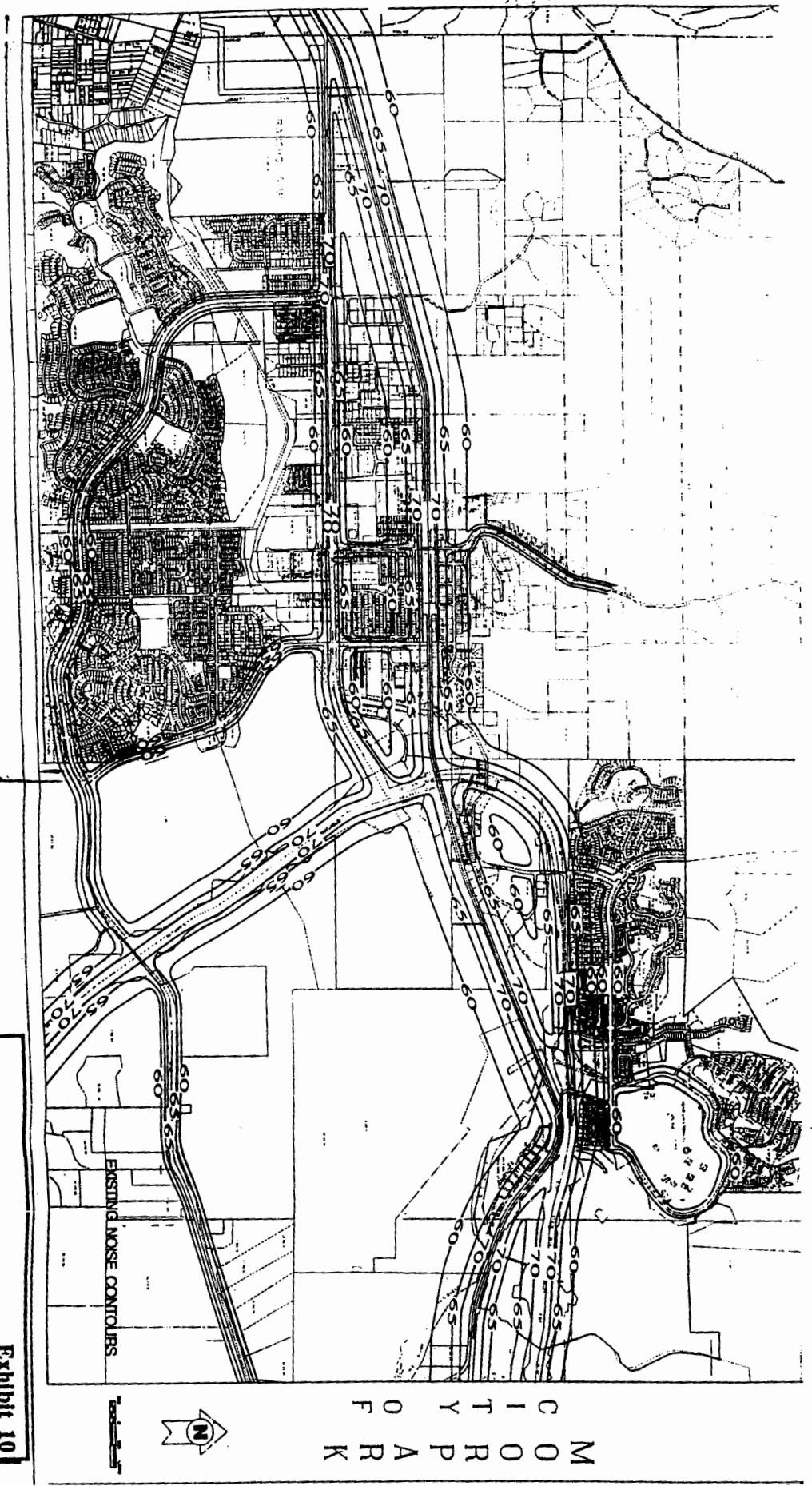
M O O R P A R K  
C I T Y O F



**Exhibit 11**  
**Future Traffic Noise Contours**

HESTER GREVE ASSOCIATES

FUTURE (2010) NOISE CONTOURS



M O O R P A R K  
C I T Y O F

MASTRE GREVE ASSOCIATES

**Exhibit 10**  
Existing Traffic Noise Contours

EXISTING NOISE CONTOURS