CHAPTER ELEVEN

NOISE

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11.1 INTRODUCTION

The intent of this chapter is to summarize the existing noise sources affecting the Master Plan area, identify applicable land use compatibility noise level criteria, and provide guidelines for evaluating and mitigating noise levels due to and upon the project site.

Mountain House is located adjacent to several identified noise sources, primarily transportation related (roadway traffic and railroad operations). In addition, a new airport is being constructed approximately five miles to the north of the project site, with the main runway aligned with the southwest corner of the community. In addition, new noise sources, including additional roadway traffic, new transportation facilities and activities associated with commercial and industrial uses, will be introduced throughout the construction of the community.

Previous acoustical analyses which have been conducted for the project site include the Mountain House New Town General Plan Amendment Application, March 1990; Final Environmental Impact Report, Mountain House New Town General Plan Amendment, March 1992; and Final Environmental Impact Report on the San Joaquin County Comprehensive Planning Program, May 1992. Based upon the data and analyses contained in each of these reports, the major noise sources adjacent to, and within the Mountain House Master Plan area prior to development include I-205, Byron Road, Mountain House Parkway, Grant Line Road, Mountain House Road, and the Union Pacific Transportation Company railroad line operations.

11.2 ASSUMPTIONS

The following section describes assumptions for noise mitigation.

a) The Noise Chapter of the San Joaquin County General Plan establishes a policy to limit exterior noise levels to 65 dB Ldn (a composite 24-hour average noise level descriptor) for residential developments, and 60 dB Ldn for schools, group care facilities, and hospitals, in order to provide an acceptable environment for outdoor activities.

b) Standard construction practices under the current Uniform Building Code (UBC) are expected to provide an exterior to interior noise level reduction of 20 dB, therefore achieving an interior noise level of 45 dB Ldn with the windows in the closed position. This is generally considered an acceptable interior noise level to provide an adequate environment for indoor communication and sleep.

c) The Noise Chapter of the San Joaquin County General Plan also requires an acoustical analysis for development of residential or other noise sensitive land uses in areas where the exterior noise level is predicted to exceed 60 dB Ldn.

d) The County Development Title provides exterior noise standards for institutional and commercial noise sources. The standards presented in Section 11.4: Stationary Source Noise Control, differ from the Development Title in two respects. First, this Master Plan uses an hourly Leq (an average measurement over an hour's time of noise generated by a stationary source) while the

Development Title uses a measurement of cumulative duration of a noise event in zero, one, five, 15, and 30 minute periods (see Table 9-1025.9 of the County Development Title). While the Development Title method is similar to the hourly Leq, it is more difficult to monitor and enforce. The hourly Leq method is more appropriate for stationary sources and, therefore, is used for Mountain House. Secondly, the standards presented in Table 11.2 call for 55 dB (daytime) and 50 dB (nighttime) maximum hourly Leq. When translated into the measurements of cumulative duration used in the Development Title, these standards compare closely, with the Master Plan standards allowing two to three dB higher noise levels. These slightly higher noise levels are typical of urban communities which include commercial and industrial activities as planned for Mountain House.

Neither method can be compared directly with compare CNEL, a measurement utilized for mobile, transportation-related noise sources.

e) Noise-sensitive land uses include residential, education, and hospital uses.

11.3 MOBILE SOURCE NOISE CONTROL

Mobile noise sources consist of transportation-related noise generators such as automobiles, trucks, trains, and airplanes. Common noise control techniques for mobile sources consist of setbacks and barriers. Setback areas can take the form of open space, frontage roads, recreational areas, yards, or similar uses. Barriers can consist of walls, berms, or other structures, such as buildings. In general, barriers are most effective when placed close to either the receiver or the source. Within Mountain House, barriers are expected to provide a reasonable means of mitigating roadway and railroad noise impacts at proposed locations of noise sensitive uses. However, site-specific analyses cannot be conducted until grading plans and lot designs have been completed.

Table 11.1: Future Traffic Noise Levels with Buildout of the Master Plan, identifies noise levels expected along I-205 and important roadways at buildout of the community.

11.3.1 Overall Mobile Noise Impacts

Objective: To mitigate noise from mobile sources.

Policies:

a) Berms, barriers, soundwalls, setbacks, landscaping, or some combination of these measures shall be used adjacent to transportation noise sources to reduce indoor and outdoor noise exposure to acceptable levels.

b) Where excessive sound wall heights would be necessary, a combination of setbacks and berms or sound walls shall be considered.

c) Setbacks shall be used in conjunction with noise barriers where necessary to achieve acceptable levels of noise.

d) On school sites and other noise-sensitive land uses, any outdoor instructional areas, or areas which require speech audibility shall be

located outside the 60 dB Ldn noise contour or shielded from mobile noise in excess of 60 dB Ldn.

e) Noise levels in primary outdoor use areas of new residential development shall not exceed an Ldn of 60 dB unless the project design includes reasonable mitigation measures to reduce noise in outdoor activity areas to as close to an Ldn of 60 dB as possible. Where it is not possible to reduce noise in outdoor activity areas to an Ldn of 60 dB or less using practical application of the best available noise reduction measures, an exterior noise level of up to an Ldn of 65 dB may be allowed. Under no circumstances shall interior noise levels exceed an Ldn of 45 dB.

Implementation:

a) Noise Control Techniques. Site specific noise control techniques shall be required as a condition of Tentative Map or use permit approval.

b) Specific Plan Requirements. The Master Plan noise analysis shall be reviewed as part of each Specific Plan to determine if an update is required due to land use and circulation layouts proposed by the Specific Plan. See Section 11.5: Specific Plan Requirements, for contents of Specific Plan reviews.

c) Noise Studies. Additional noise studies and conditions may be required prior to approval of Development Permits if within noise sensitive areas identified in this Master Plan and/or Specific Plans.

d) Residential Land Uses, Exterior Noise. Noise studies for specific residential projects proposed in noise impacted areas (exposed to an Ldn above 60 dB) shall address how noise levels in outdoor use areas, such as backyards, patios and decks, could be maintained at or below an Ldn of 60 dB.

e) Noise-Sensitive Land Uses. Noise studies prepared for noise-sensitive land uses including care facilities, schools, hospitals, and parks shall address how noise levels in outdoor areas could be maintained at or below an Ldn of 60 dB.

f) Residential Land Uses, Interior Noise. Interior noise levels for housing proposed to be located in areas exposed to an exterior noise level of an Ldn above 60 dB shall be maintained at or below an Ldn of 45 dB. Compliance shall be verified prior to the issuance of building permits.

Table 11.1
Future Traffic Noise Levels with Buildout of the Master Plan

Segment No.	Roadway	ADT	Distance to L_{dn}	
			60 dB	65 dB
I-205				
1	Entire Length	100,519	2124	986
Mountain House Parkway				
2	I-205 to Grant Line Road	50,695	531	247
3	Grant Line Road to Mascot Boulevard	25,483	336	156
4	Mascot Boulevard to Byron Road	23,204	316	146
Grant Line Road				
5	Hanson Road to Mountain House Parkway	22,635	317	147
6	Mountain House Parkway to Mountain House Road	19,822	250	116
Byron Road				
7	Hanson Road to Mountain House Parkway	33,884	464	216
8	Mountain House Parkway to Mountain House Road	17,389	298	138
De Anza Boulevard				
9	Entire Length	13,871	119	55
Great Valley Parkway				
10	Byron Road to De Anza Boulevard	11,813	107	50
11	De Anza Boulevard to Mascot Boulevard	11,819	107	50
12	Mascot Boulevard to Grant Line Road	13,814	119	55
Central Parkway				
13	Byron Road to De Anza Boulevard	20,871	157	73
14	De Anza Boulevard to Main Street	13,000	114	53
15	Main Street to Mascot Boulevard	13,000	114	53
Main Street				
16	Great Valley Parkway to Central Parkway	3,400	33	15
17	Central Parkway to Mountain House Parkway	7,400	55	26
Arnaudo Boulevard				
18	Entire Length	15,700	95	44
Mascot Boulevard				
19	Great Valley Parkway to Central Parkway	10,400	99	46
20	Central Parkway to Mountain House Parkway	5,000	66	28

Notes:

1. Source of ADT is EIR, ER-93-2
2. Traffic noise levels assume 6 lanes on I-205.
3. Distance to traffic noise levels are measured from roadway centerline.
4. Analysis conducted September 14, 1994

11.3.2 I-205 Freeway

The I-205 freeway passes along the southern boundary of the community. It currently is six (6) lanes wide and is operating at near capacity at peak hours. At the southwestern edge of the community, the freeway rises above the adjoining community to a height of about 25 feet.

The southeastern portion of the freeway/community interface with Mountain House Parkway will be occupied by freeway service commercial uses, a park and ride lot and a business park. The middle portion of the freeway/community interface will be occupied by a mixed-use development as well as a high-density residential development. The southwestern end of the freeway/community interface abuts a Delta Community college. The western portion of the community is buffered from freeway noise by the presence of a berm along the aqueduct and low-lying hills.

The most significant factor in specifying the proper noise mitigation is consideration of future expansions of the freeway. Such expansions will take place over the next 10 to 20 years and will certainly include widening to eight lanes and possible truck merging lanes. As of 1995, the designs for these improvements are conceptual and thus cannot be used as a basis for determining exact noise mitigation designs.

Objective: To adequately consider noise impacts from I-205.

Policy:

a) The community shall be protected from noise impacts due to traffic on the I-205 freeway.

b) Noise mitigation barriers along the freeway shall be limited to earthen berms, select sound walls, non-occupied structures, embankments and vegetation.

    1) Residential development shall be set back from the centerline of I-205 a sufficient distance to satisfy Master Plan noise policies after the inclusion of sound mitigation improvements.

    2) Earth berms may be built between the noise source and the noise-impacted area.

Implementation:

a) Specific Plan Requirements. For each Specific Plan, acoustical studies shall be required for noise-sensitive land uses proposed to be located in areas exposed to noise levels above an Ldn of 60 dB. These studies shall be submitted to the County with each Specific Plan. Appropriate mitigation measures shall be recommended in these studies and

implemented by the appropriate party to ensure that the Ldn of 60 dB is maintained.

b) Interstate 205 Mitigation. Noise mitigation for I-205 impacts shall be provided for noise sensitive uses by one or more of the following methods:

1) Residential development shall be set back from the centerline of I-205 a sufficient distance to satisfy Master Plan noise policies after the inclusion of sound mitigation improvements such as earth berms, sound walls, non-occupied structures, and/or embankments as well as landscaping.

2) A combination of Earth berms and/or Sound Walls and structures shall be built between the noise source and the noise-impacted area.

11.3.3 Arterial Roadways

The community's design includes many Arterial roadways that will generate significant traffic volumes and therefore potential noise impacts. These roadways will vary significantly in width, traffic and design and thus each will require a separate noise evaluation.

Objective: To adequately consider noise impacts from Arterial roadways within the Master Plan area.

Policy:

a) Each Major and Minor Arterial shall be considered as a source of noise that possibly could require mitigation.

Implementation:

a) Sound Barriers. Noise studies required at the environmental review stage for Development Permits (see Section 11.3.1: Overall Mobile Noise Impacts) shall identify specific noise-reducing barriers sufficient to meet the needed mitigation for noise generated from roadways.

11.3.4 Railroad

The rail line that bisects the community parallel to Byron Highway is a major potential mobile noise source. At the present time the line has insignificant use due to the decision of the railroad company to use it only as a standby route through the Delta. The rail company has indicated that there is no contemplated future use of this line for freight use.

However, there are discussions in progress to use the line as a commuter passenger line. The likelihood of such service plus the timing of start up, service frequency and train speeds or types have not yet been determined. Train noise

levels are extremely variable under different conditions. Until such time as the above factors are identified, a definitive noise study cannot be completed.

Objective: To adequately consider noise impacts from the rail line.

Policy:

a) Land uses near the rail line shall be protected from noise impacts from rail line use. Noise mitigation structures shall be required along the edges of the railroad right of way abutting residential development.

Implementation:

a) Specific Plan Requirements. As part of the noise analysis prepared for Specific Plans located within 1,000 feet of the rail line, a review of potential noise impacts from trains shall be conducted and appropriate noise mitigation established.

11.3.5 Byron Airport

The location of the Byron (East Contra Costa County) Airport, approximately five miles northwest of the community, is a potential source of future noise impacts. The only major noise source that appears to impact the community is a straight-in, single-event landing approach that crosses over the southern portion of the community.

Light plane operations, the intended primary use of the airport, will produce minimal noise impacts on the community as most of these aircraft will pass over the community at heights that make their presence unnoticeable. However, the airport operators have indicated that increased traffic and larger craft can be expected. Preliminary noise analysis indicates that, even with the increased traffic, the passing heights are still high enough so that the noise within Mountain House is at acceptable levels.

Objective: To adequately consider noise impacts from Byron Airport.

Policy:

a) The community shall be protected from significant noise impacts due to air traffic from Byron Airport.

Implementation:

a) Monitoring. Increased traffic at Byron Airport shall be reviewed in each Specific Plan to determine if noise mitigation studies are warranted. If so, appropriate noise mitigation shall be developed.

b) Notice to Residential Property Owners. For residential property located within the area of potential aircraft noise impact, a disclosure shall be provided by deed notice that property is located in an area that may be subject to aircraft flyover noise.

11.3.6 Agricultural Equipment

The western boundary of the community interfaces with low intensive agricultural uses which utilize infrequent mobile noise sources such as tractors and harvesting equipment.

Objective: To adequately consider noise impacts from agricultural activities west of the community.

Policy:

a) Noise sources resulting from adjacent agricultural operations shall be considered and mitigated if within unacceptable standards.

Implementation:

a) Community Edge. In accordance with the noise studies prepared at the Development Permit stage (see Section 11.3.1: Overall Mobile Noise Impacts above), each Development Permit shall include provisions for the improvement and construction of edge treatments including sound berms and/or soundwalls as specified in Section 4.3: Community Edges.

11.3.7 Existing Residences

Development of the community will increase noise exposure levels at existing residences. The noise levels will increase as traffic volumes increase along roads leading to the community. The largest existing settlement is Grantline Village.

Objective: To minimize impacts on existing residences located along the roads to the Mountain House community.

Policy:

a) Outdoor use areas of existing residences that are projected to be impacted (i.e., would experience an increase of five dB in the Ldn) by project-generated traffic noise at buildout shall be protected from excessive noise. Noise mitigation for individual residences could take the form of constructing soundwalls along the roadways, soundproofing homes, or building barriers around specific portions of yards to provide shielded outdoor spaces.

Implementation:

a) Noise Mitigation for Existing Residences on Grant Line Road. The MHCSD shall develop a plan for mitigating noise impacts at existing residences along Grant Line Road within the new community of Mountain House. Each Specific Plan, other than Specific Plan I, shall identify mitigation to ensure that exterior noise levels at existing residences do not exceed an Ldn of 65 dB at the property line and an Ldn of 45 dB inside the residence.

FIGURE DELETED

FIGURE 11.1 - AREA OF POTENTIAL AIRCRAFT NOISE IMPACT FROM BYRON AIRPORT - DELETED

11.4 STATIONARY SOURCE NOISE CONTROL

Stationary noise sources include industrial, commercial, or utilities which create a constant or periodic noise in a fixed location. Examples are loading dock activities, air handling systems, or public address systems. In planning a new community, stationary noise impacts are not as predictable as mobile sources because the specific businesses and equipment must first be identified.

Objective: To control stationary noise sources.

Policies:

a) A daytime and nighttime hourly Leq standard shall be used to evaluate stationary noise sources at receiving residential land uses.

b) As a means of providing noise level standards which account for stationary noise sources, new development of noise sensitive uses shall not be allowed where the noise levels due to stationary noise sources will exceed the community's noise level standards as set forth in Table 11.2: Exterior Noise Standards for Noise-Sensitive Uses Affected by Non-Transportation Noise Sources.

Implementation:

a) Lowering of Noise Levels. Each of the noise levels specified in Table 11.2 below shall be lowered by five dB for simple tone noises or for noises consisting primarily of speech or music.

Table 11.2
Exterior Noise Standards for Noise-Sensitive Uses Affected by Non-Transportation Noise Sources

Noise Level Descriptor	Daytime (7 a.m. to 10 p.m.)	Nighttime (10 p.m. to 7 a.m.)
Hourly Leg	55 dB	50 dB

Notes:
1. Stationary noise sources include equipment, utilities, or processes associated with industrial, commercial or public facilities which create a constant or periodic noise in a fixed location.
2. Noise-sensitive uses include residential, educational, and hospital uses.
3. See Section 11.2: Assumptions, for explanation of measurement units and relationship to Development Title.

11.5 SPECIFIC PLAN REQUIREMENTS

The following list is a compilation of all Specific Plan requirements contained in this chapter.

a) Review of Master Plan Noise Analysis. The Master Plan noise analysis shall be reviewed as part of each Specific Plan to determine if an update is required due to land use and circulation layouts proposed by the Specific Plan. These noise analysis reviews shall:

- Be the responsibility of the Specific Plan applicant.

- Be prepared by a qualified person experienced in the fields of environmental noise assessment and architectural acoustics.
- Include representative noise level measurements with sufficient sampling periods and locations to adequately describe local conditions and the predominant noise sources where development has occurred or existing noise is already significant.
- Estimate existing and projected (20-years) noise levels in terms of Ldn or CNEL and/or the standards of Table 11.1: Future Traffic Noise Levels with Buildout of the Master Plan, and compare those levels to the adopted policies of the General Plan.
- Recommend appropriate mitigation to achieve compliance with the adopted policies and standards of the General Plan and Development Title. Where the noise source in question consists of intermittent single events, the report must address the effects of maximum noise levels in sleeping rooms in terms of possible sleep disturbance.
- Recommend generalized changes to Specific Plan land use and circulation layout, including location of noise-sensitive uses and locations for sound walls, and provide more detailed requirements for noise mitigation to be addressed in development plans when pad elevations, final grading, and building locations are available.

b) Acoustical Studies for Noise Sensitive Uses. For each Specific Plan, acoustical studies shall be required for noise-sensitive land uses proposed to be located in areas exposed to noise levels above an Ldn of 60 dB. These studies shall be submitted to the County with each Specific Plan. Appropriate mitigation measures shall be recommended in these studies and implemented by the appropriate party to ensure that the Ldn of 60 dB is maintained.

c) Sound Barriers. Noise studies prepared at the Specific Plan stage shall identify noise-reducing barriers sufficient to meet the needed mitigation for noise generated from major and minor Arterials.

d) Railroad Noise. As part of the noise analysis prepared for Specific Plans located within 1,000 feet of the rail line, a review of potential noise impacts from trains shall be conducted and appropriate noise mitigation established.

e) Aircraft Noise. Each Specific Plan shall include a review of increased traffic at Byron Airport and shall develop mitigation measures as appropriate.

f) Noise Mitigation for Existing Residences on Grant Line Road. The MHCSD shall develop a plan for mitigating noise impacts at existing residences along Grant Line Road within the new community of Mountain House. Each Specific Plan, other than Specific Plan I shall identify mitigation to ensure that exterior noise levels at existing residences do not exceed an Ldn of 65 dB at the property line and an Ldn of 45 dB inside the residence.