

## 3.6 Noise

This section provides background information regarding noise sources within the county, the regulations and programs that provide for the protection of land uses that are sensitive to noise, and an assessment of the potential noise related impacts of implementing the proposed General Plan Update. The existing noise environment is described in Chapter 13, Noise, of the *Natural Resources and Hazards Report*, December 2002 (Appendix D), which includes a discussion of Humboldt County noise and view sheds. This report, which is available for review at the Planning Division public counter at 3015 H Street in Eureka or for download at <http://humboldt.gov/571/Background-Reports>, is incorporated by reference, and summarized below. Additional noise surveys were conducted for this EIR by Environmental Science Associates (ESA), between November 14<sup>th</sup> and November 18<sup>th</sup> of 2016. Where any discrepancies may exist between the referenced material and the material presented here, the material presented here should be considered as the most up to date and is to be relied on for the environmental setting and analyses.

### 3.6.1 Noise - Environmental and Regulatory Setting

#### Noise Background and Terminology

Noise is defined as unwanted or objectionable sound. The objectionable nature of sound could be caused by its pitch or its loudness. Pitch is the height or depth of a tone or sound, depending on the relative rapidity (i.e., frequency) of the vibrations by which it is produced. Higher pitched signals sound louder to humans than sounds with a lower pitch. Loudness is the amplitude of sound waves combined with the reception characteristics of the ear. Amplitude may be compared with the height of an ocean wave.

Noises vary widely in their scope, source, and volume, ranging from individual occurrences such as leaf blowers, to the intermittent disturbances of overhead aircraft, to the constant noise generated by traffic on freeways or mechanical equipment associated with an industrial facility. Noise is primarily a concern for residences, schools, churches, parks, and hospitals. Excessive noise also can adversely affect the quality of life and the rural ambiance that attracts many visitors to Humboldt County.

In addition to the concepts of pitch and loudness, there are several noise measurement metrics which describe noise in a particular location. A decibel (dBA) is a unit of measurement which indicates the relative amplitude of a sound. The zero on the decibel scale is based on the lowest sound level that the healthy, unimpaired human ear can detect. Sound levels in dB are calculated on a logarithmic scale. An increase of 10 dB represents a ten-fold increase in acoustic energy, while 20 dB is 100 times more intense, 30 dB is 1,000 times more intense, and so on. There is a relationship between the subjective noisiness or loudness of a sound and its dB level. Each 10 dB increase in sound level is perceived as approximately a doubling of loudness over a wide range of intensities.

As a general rule, sound from localized or point sound sources spreads out as it travels away from the source and the sound level drops at a rate of 6 dB per doubling of distance. The sound level from a line source such as traffic on a highway will drop off at a rate of 3 dB per doubling of distance. If the intervening ground between the highway and the receptor is

acoustically “soft” (e.g., ground vegetation, scattered trees, clumps of bushes), an attenuation rate of 4.5 dB per doubling of distance is generally used.

According to the Governor's Office of Planning and Research, maximum exterior noise levels of 60 dBA are considered “normally acceptable” for unshielded residential development. Noise levels from 60 to 70 dBA fall within the “conditionally unacceptable” range, and those in the 70 to 75 dBA range are considered “normally unacceptable.”<sup>1</sup>

### **Existing Noise Conditions in Humboldt County**

The Natural Resources and Hazards Report contains descriptions of noise levels in Humboldt County. The major sources of noise in Humboldt County includes highway and roadway traffic; aircraft in the vicinity of airports (see Airport Noise below, and 3.7 Hazards and Hazardous Materials, for a description of airports in Humboldt County); railroad traffic along the Northwestern Pacific right-of-way; and noise from industrial activities, such as lumber mills; power plants, (including facilities in Blue Lake, Fairhaven, and Scotia); and construction sites. Most of these noise source types are found within incorporated areas of the County. Noise complaints are received by the Sheriff's Office and Code Enforcement Unit and the Sheriff's Office acts on noise matters that result in public nuisances.

### **Noise-Sensitive Land Uses**

Land uses such as residential, schools, hospitals, parks, outdoor restaurants, and lodging are most affected by noise and are referred to as noise sensitive land uses. General Plan Update Table 13-D, Land Use/Noise Compatibility Standards shows the County's noise exposure standards for various land use types (this table is identical to Figure 3-2, Land Use/Noise Compatibility Standards, in Section 3240, Noise, of the Framework General Plan). These standards, or thresholds, are intended to ensure that new development limits the noise exposure of noise-sensitive land uses. Development standards for new uses may require the installation of fences, landscaping, and noise insulation to mitigate the impacts of excessive noise levels.

### ***Transportation Related Noise Traffic Noise***

Traffic noise depends primarily on the speed of traffic and the percentage of truck traffic. The primary source of noise from automobiles is high frequency tire noise, which increases with speed. In addition, trucks and automobiles produce engine and exhaust noise, as well as wind noise. Pavement type and condition can also influence traffic noise. Noise from automobiles is generally located at ground level, whereas truck noise sources can be located as high as 10 to 15 feet above the roadbed due to tall exhaust stacks and higher engines. Thus, sound walls need to be approximately ten to fifteen feet tall to be effective for mitigating transportation noise.

Differences in elevation can dampen the perceived noise level. Noise from a thoroughfare in a trough or valley between residential areas is reflected upward and focused, similar to a satellite dish, while noise from an elevated thoroughfare will dissipate and is perceived as less of an annoyance. On flat ground, a buffer (such as a sound wall or dense vegetation) can greatly reduce the noise escaping to surrounding areas.

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<sup>1</sup> State of California, Governor's Office of Planning and Research, 2003. *General Plan Guidelines*

Humboldt County is subject to transportation related noise impacts primarily from Highway 101 and other state highways, which create noise in adjacent areas. Table 3.6-1, displays the result of noise surveys conducted at various locations along US 101, State Route (SR) 299, SR 96 and SR 36 over a 24-hour period in November 14 through November 18, 2016. Monitoring sites included incorporated, unincorporated, and rural areas of the County. Distances to the 60 dBA CNEL contour ranged from 50 feet south of Owl Mine Road along SR 96 near Orleans to 1,228 feet north of Indianola Cutoff along Highway 101 near Brainard. .

**Table 3.6-1. Existing Traffic Noise Levels in Humboldt County (2016)**

Location	Route	Post Mile	Measured CNEL	Measured distance from Centerline of Road (feet)	Distance to 65 CNEL (feet)	Distance to 60 CNEL (feet)
Benbow	US 101	9.1	73.4	86	312	673
North of Metropolitan Rd.	US 101	54.9	71.4	74	198	426
South of Loleta Dr.	US 101	65.6	75.1	56	264	569
North of Indianola Cutoff	US 101	82.8	75.6	112	570	1,228
North of Airport Rd.	US 101	94.2	69.6	106	215	463
South of Seawood Dr.	US 101	102.8	67.2	130	182	393
South of Bald Hills Rd.	US 101	122.0	68.0	58	92	198
South of Corbett Ranch Ln.	SR 36	7.7	68.1	27	43	94
East of Blue Lake Blvd.	SR 299	8.5	65.7	64	71	154
West of Will Rd.	SR 299	37.8	69.4	56	110	237
South of Orchard Park Ln.	SR 96	2.1	65.2	38	39	84
South of Owl Mine Rd.	SR 96	35.8	63.1	31	23	50

Source: ESA, 2016

### ***Airport Noise***

The aviation system for Humboldt County is composed of nine airports. The airports serve as bases for public, private, and commercial aircraft and provide an important means of travel and goods movement. The airports are distributed throughout the County in response to the geographical and population characteristics of the region. The airport name, proximity to the nearest community, and airport operator are provided in Table 3.6-2 below.

**Table 3.6-2. Airport Locations in Humboldt County.**

Airport	Location	Operator
Arcata-Eureka Airport	McKinleyville	Humboldt County
Dinsmore Airport	¼ miles east of Dinsmore	Humboldt County
Garberville Airport	1 mile southwest of Garberville	Humboldt County
Kneeland Airport	Kneeland	Humboldt County
Murray Field Airport	3 miles east of Eureka	Humboldt County
Rohnerville Airport	0.8 miles south of Fortuna	Humboldt County
Eureka Municipal Airport	Fairhaven	City of Eureka
Shelter Cove Airport	Shelter Cove	Resort Improvement District No. 1 (Shelter Cove)
Hoopa Airport	Hoopa	Hoopa Valley Tribal Council

Aircraft takeoffs, landings, and over-flights are among the most common sources of noise in communities located near airports. In general, airport noise is concentrated towards the end of the runway and will vary depending on the type of aircraft (e.g., size and type of engine), the

frequency of flights, flight patterns, and local topography. Noise from aircraft is often more intrusive and has a higher potential noise impact than noise from traffic along roadways.

The noise contours are one of the factors used to define compatibility zones around airports. The 60 CNEL is considered normally acceptable for residential areas in the vicinity of airports. The Airport Land Use Compatibility Plan specifies noise level standards for compatibility with other land use types in Table 2B, Noise Compatibility Criteria.

Noise contour maps for each of the County operated airports as well as the Hoopa and Shelter Cove Airports are contained in the Airport Land Use Compatibility Plan for Humboldt County (March 1993). The Airport Land Use Compatibility Plan identifies the future noise contours for each airport, based on aircraft activity forecasts contained in the airport master plans. Noise contours associated with airports operated by Humboldt County were updated as part of airport master plans prepared between the years 2005 and 2007.

### ***Railroad Noise***

The North Coast Railroad Authority (NCRA) rail line connects the Humboldt Bay area to the San Francisco Bay Area. Within Humboldt County the NCRA rail line extends along the Middle Fork of the Eel River from the Island Mountain area to the confluence of the Middle and South Fork Eel River and then follows the Lower Eel River to Loleta, passes through a 0.25-mile tunnel under U.S. 101, then traverses around Humboldt Bay through Eureka, Arcata, Manila, and eventually terminates in Samoa. The rail line was a significant source of transportation noise when it ran regularly. Service to and within Humboldt County was suspended in 2001 due to the deteriorating condition of railway infrastructure. See Section 3.5, Transportation, for additional information regarding this rail line.

The NCRA prepared the Public Draft Environmental Impact Report for the Russian River Division Freight Rail Project in November 2009 (State Clearinghouse Number 2007072052) to evaluate environmental impacts associated with the resumption of freight rail service over the Russian River Division of the Northwestern Pacific Railroad (NWP). Section 3.8, Noise, of that EIR identified noise levels for reference freight trains that are considered representative of the proposed project. The NCRA EIR based noise impacts on a normalized train speed of 50 mph, producing Sound Exposure Levels (SEL) of approximately 96 dBA and 85 dBA for individual freight locomotives and cars, respectively, at a distance of 50 feet from the center of the tracks. These levels were used in the modeling of NCRA project-related freight train noise exposure and would likely be an appropriate approximation for future noise that may result if freight rail transport were to be resumed along the Eel River and Humboldt Bay.

The NCRA EIR also evaluated train warning horn noise. The NCRA EIR indicates that field measurements have shown that warning horns are generally sounded using intermittent, short bursts between  $\frac{1}{4}$ - and  $\frac{1}{8}$ -mile from an at-grade crossing. This area is referred to as the " $\frac{1}{2}$ -Zone". As the train approaches the grade crossing, the horn is generally sounded with more continuous and louder bursts. With respect to the modeling of train warning horn noise exposure, an SEL of 108 dBA at 50 feet perpendicular to the tracks is assumed at the grade crossing. These levels were used in the modeling of NCRA project-related train warning horn noise and would likely be an appropriate approximation for future noise that may result if freight rail transport were to be resumed along the Eel River and Humboldt Bay.

### ***Non-Transportation Noise Sources***

Noise can result from many processes and activities even when the best available noise control technology is applied. Noise exposure within industrial facilities is controlled by federal and state employee health and safety regulations, but exterior noise levels may exceed locally acceptable standards. Activities at commercial, recreational, and public services facilities can also produce noise that affects adjacent land uses.

Noise-related Land use controls are typically focused in two areas: (1) preventing the introduction of new noise-producing uses in noise-sensitive areas; and (2) preventing encroachment of noise-sensitive uses on existing noise-producing facilities. The first land use control can be achieved by applying noise performance standards to proposed new noise-producing uses. The second land use control can be accomplished by requiring that new noise-sensitive uses located near noise-producing facilities include mitigation measures to ensure compliance with noise performance standards. Site-specific noise analyses should be performed where noise-sensitive land uses are proposed near noise sources, or where noise sources are proposed to be located near sensitive land uses.

Prominent non-transportation noise sources in Humboldt County include industrial activities (e.g., lumber mills in Scotia and Eureka.), power plants, gravel operations, and rock quarries. Noise from such sources is localized. See Section 3.9 Mineral and Energy Resources for a detailed discussion of mineral extraction in Humboldt County and the regulation associated with such operations.

### ***Construction Noise***

Noise from construction and demolition activities adds to the noise environment in the immediate project vicinity. Humboldt County has both urban and rural areas. Construction activities in rural areas would be more noticeable than in urban areas when compared to background noise levels.

The U.S. Environmental Protection Agency has compiled data regarding the noise generating characteristics of specific types of construction equipment and typical construction activities that are commonly used in environmental impact analyses. Construction equipment evaluated includes trucks, loaders, back hoes, pneumatic impact equipment, compressors, saws, as well as others. Activities involved in construction would generate maximum noise levels typically ranging from 70 dBA up to nearly 100 dBA at a distance of 50 feet (Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances, US EPA, December 31, 1971). These types of equipment generate both temporary steady state and episodic noise that can be heard both on and off the construction site. Construction activities that create a noise impulse such as pile driving generate even higher noise levels. Although construction activities can vary in duration, they are nonetheless temporary in nature and typically occur during normal daytime working hours.

### ***Ground-borne Vibration***

Vibrating objects in contact with the ground radiate energy through the ground. Large and/or powerful vibrating objects can cause vibration perceptible by humans and animals. The vibration of floors and walls may cause perceptible vibration, or shaking and rattling of

windows or dishes on shelves, or a rumble noise. The rumble is the noise radiated from the motion of the surfaces of a room within a building. In essence, the room surfaces act like a giant loudspeaker causing what is called ground-borne noise (Transit Noise and Vibration Impact Assessment, Federal Transit Administration, May 2006 FTA-VA-90-1003-06).

The effects of ground-borne vibration include movement of the building floors which can be felt, rattling of windows, shaking of items on shelves or hanging on walls, and rumbling sounds. In extreme cases, the vibration can cause damage to buildings. Annoyance from vibration often occurs when the vibration exceeds the threshold of perception by only a small margin. A vibration level that causes annoyance will be well below the damage threshold for normal buildings.

The basic concepts of ground-borne vibration can be illustrated by train wheels rolling on the rails, which create vibration energy that is transmitted through the track support system into the transit structure. The amount of energy that is transmitted into the transit structure is strongly dependent on factors such as how smooth the wheels and rails are and the resonance frequencies of the vehicle suspension system and the track support system. These systems, like all mechanical systems, have resonances which result in increased vibration response at certain frequencies, called natural frequencies.

The vibration of the transit structure excites the adjacent ground, creating vibration waves that propagate through the various soil and rock strata to the foundations of nearby buildings. The vibration propagates from the foundation throughout the remainder of the building structure. The maximum vibration amplitudes of the floors and walls of a building often will be at the resonance frequencies of various components of the building. Ground-borne vibration is almost never annoying to people who are outdoors. Although the motion of the ground may be perceived, without the effects associated with the shaking of a building, the motion does not provoke the same adverse human reaction. In addition, the rumble noise that usually accompanies the building vibration is perceptible only inside buildings.

Common sources of ground-borne vibration are trains, buses and large trucks on rough roads, and construction activities such as blasting, pile driving, and operating heavy earth-moving equipment. In Humboldt County, construction activities are the more common ground-borne vibration source.

### 3.6.2 Noise - Standards of Significance

This analysis uses the significance criteria from the California Environmental Quality Act (CEQA) Guidelines Appendix G. The proposed General Plan Update would result in a significant impact on noise if one of the following exists:

- a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.
- b) Exposure of persons to or generation of excessive ground-borne vibration or ground-borne noise levels.
- c) Substantial permanent increases in ambient noise levels in the project vicinity above levels existing without the project.
- d) Substantial temporary or periodic increases in ambient noise levels in the project vicinity above levels existing without the project.

- e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels.
- f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels.

Items "a" and "c" are discussed in Impact 3.6.3.1. Noise Exposure. Items "b" and "d" are discussed Impact 3.6.3.2: Ground-borne Vibration and Construction Noise. Items "e" and "f" are discussed in Impact 3.6.3.3, Airport Noise.

### 3.6.3 Noise - Impacts and Mitigation Measures

#### Impact 3.6.3.1. Noise Exposure

Projected growth during the General Plan Update planning period could result in development of noise-sensitive uses in areas where noise levels exceed applicable standards for sensitive interior and outdoor areas. Noise levels exceeding standards contained in Noise Element Table 13-D, Land Use/Noise Compatibility Standards, would represent a significant impact.

This impact analysis addresses items "a" and "c" of the significance criteria described in 3.6.2 Noise, Standards of Significance. Based on Appendix G of the CEQA Guidelines the proposed County General Plan Update would have a significant impact if it would:

- a) Result in the exposure of persons to, or generation of, noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies; or
- b) result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project.

Transportation related noise sources in Humboldt County include car and truck traffic on highways and roads, aircraft noise from general and commercial aviation activities, and noise from maritime vessels traveling at sea and in the harbors. To the extent that the Northwest Pacific Railway begins operating again, the railroad traffic would once again become a significant source of noise within the County. Roadways, in particular federal and state highways, are a major source of ambient noise in Humboldt County, especially because most developed communities are located adjacent to these transportation corridors. However, the sources of noise will remain the same under the General Plan Update as they presently exist. Highways and streets are expected to remain the major noise sources in the County.

Noise levels were calculated by Environmental Science Associates (ESA) for Highway 101, SR 299, SR 255, SR 96 and SR 36 where future growth in Humboldt County could result in an increase in traffic volumes. Based on population growth projections in Humboldt County, the County's population is expected to peak in the year 2028 and decline thereafter. The traffic noise levels were calculated at a reference distance of 50 feet from center of roadway for existing (2010), near-term (2028) and future (2040) conditions. Traffic noise impacts were assessed using the Federal Highway Administration (FHWA) Noise Prediction Model (FHWA RD-77-108) and the project traffic volumes provided by TJKM (TJKM, 2017). The model is based upon the Calveno reference noise factors for automobiles, medium trucks, and heavy trucks, with consideration given to vehicle trip volume and speed. The results of the traffic noise analysis under existing (2010), near-term (2028) and future (2040) are presented in Table 3.6-3.

**Table 3.6-3. Existing (2010), Near Term (2028) and Future (2040) Traffic Noise Levels in Humboldt County**

Location	Roadway	Noise Level 50 Feet From Centerline of Roadway (dBA CNEL)			Near Term (2028) minus Existing (2010) (B - A)	Future (2040) minus Existing (2010) (C - A)
		Existing (2010) (A)	Near Term (2028) (B)	Future (2040) (C)		
North of Eureka	US 101	76	76	76	0	0
North of Samoa	SR 255	66	66	66	0	0
Near Carlotta	SR 36	68	69	69	1	1
Near Hoopa	SR 96	61	61	61	0	0
North of McKinleyville	US 101	75	76	76	1	1
Near Loleta	US 101	77	78	78	1	1
Northeast of Arcata	SR 299	75	75	75	0	0

Source: ESA, 2017

As shown in Table 3.6-3, the greatest increase in traffic noise would occur near Carlotta along SR 36, McKinleyville along US 101 and Loleta along US 101 where both near-term (2028) and future (2040) traffic noise levels would increase by 1 dB over existing (2010) conditions. This increase in traffic noise would be considered a just-perceivable increase and would not result in a substantial noise increase. All other roadways analyzed would be expected to experience a traffic noise increase no greater than 1 dB, with some roadways actually experiencing a slight decrease in road noise.

The chief non-transportation related sources in the County include mining, industrial, commercial, and utility land uses. Construction activities, power tools, lawn and garden tools, and other intermittent activities around homes and businesses also represent sources of noise.

Traffic and construction noise, noise from commercial and industrial activities, and intermittent noise in residential areas would be expected to increase as development projected growth during the General Plan Update planning period occurs. The following are summaries of noise related environmental analyses from recent community plans and development projects in the unincorporated area and describe the typical mitigation measures that are applied to lessen impacts.

The McKinleyville Community Plan Environmental Impact Report (EIR) (SCH# 9808024) identifies the following sources of noise within that planning area: aircraft landings and take-offs at the Arcata-Eureka Airport; vehicular traffic on Highway 101 and major arterial and collector streets; industrial processes; construction sites; and noise nuisances (barking dogs, amplified music, heavy equipment operation at late/early hours, etc.). This EIR includes Tables 4.9-1 through 4.9-4 that identify year 1999 traffic noise levels and project traffic noise levels for the years 2005, 2010, and 2020. Highway 101 is the facility with the highest noise levels at a distance of 100 feet from the roadway. Other than the Arcata-Eureka Airport, there are no other specific sources of noise identified in this EIR.

The Central Estates Subdivision Phase 2 EIR (SCH# 2008072106) evaluated noise affecting planned uses in the proposed subdivision as well as noise that may be generated by the development of the subdivision. This EIR indicates that noise levels in the area will increase as a result of day-to-day residential activities, such as noise from vehicles and people. Mitigation measures were imposed that limit the hours that certain construction activities can occur and that require the notification of adjacent residents prior to the use of heavy construction equipment.

The Eureka Community Plan EIR (SCH# 9211307) identified roads and commercial-industrial uses as the primary noise sources within the planning area. This EIR also identifies other types of noise, such as intrusive noise resulting from parties, dogs barking, construction activities, and intermittent commercial and industrial activities, and indicates that these noise sources can generate complaints but cannot be quantified as noise generators. This EIR also includes Table 1, Estimated Traffic Noise Levels, which identifies estimated noise levels at specified distances from major roadways within the planning area. This EIR included mitigation measures requiring noise impact analyses for discretionary projects, a measure intended to lessen noise from construction activities, and identifies measures that would lessen road related noise.

The Ridgewood Village Draft EIR (SCH# 2007012007) evaluated noise related impacts of that proposed development. Potentially significant affects are expected to result from project related traffic plus cumulative 2030 traffic on Walnut Drive between Home Drive and Westwood Place, the exposure of incompatible residential uses to logging operations, and stationary and maintenance noise sources associated with the proposed commercial uses. This Draft EIR includes mitigations that would limit the hours within which construction activities can take place, require the use of best available control technology for construction equipment, require that residential units near gulch and open space areas be equipped with triple paned windows and that sales and rental documents include appropriate noise disclosures, and that a noise wall and landscaping be constructed between commercial and residential lots. Feasible mitigation measures are not available to reduce noise impacts along Walnut Drive between Home Drive and Westwood Place, and this impact would remain significant.

The Humboldt County Zoning Regulations contain various measures intended to address noise compatibility that will not be lessened as part of the implementation of the proposed General Plan Update, including:

- **Noise Impact Combining Zones** (Section 314-29.1). Noise Impact Combining Zones are applied to areas where airport or major road noise exposure would be in excess of 60 dBA and would require residential interior noise be limited to acceptable levels.
- **Planned Unit Development Combining Zones** (314-31.1). Planning Unit Development Combining Zones are intended to allow flexibility in the administration of the development standards to cope with difficulties due to topography and other natural or man made feature, such as parking lots and roads and includes noise compatibility standards.
- **Right to Farm** (314-43.2). Regulations intended to reduce the loss of agricultural resources by informing adjacent landowners and limiting the circumstances under which existing and planned agricultural operations may be considered a nuisance to adjacent non-agricultural land uses.
- **Cottage Industry** (314-45.2) **and Home Occupation** (314-50.1) Cottage Industries and home occupation businesses are allowed as a principally permitted appurtenant and accessory use to the residential use to the extent that they do not produce evidence of its existence in the external appearance of the dwelling or premises, or in the creation of

noise, odors, smoke or other nuisances to a degree greater than that normal for the neighborhood.

- **Surface Mining and Reclamation.** State law relating to surface mining operations does not regulate noise, which is considered a local concern, and not of statewide or regional concern. Humboldt County applies General Plan and Zoning noise standards and compatibility criteria to surface mining proposals through the Zoning Regulations to protect against land uses that may be incompatible with the preservation and utilization of natural resources and to assure the adequate supply of these resources for present and future generations.

In addition, regulations that apply in the Coastal Zone, such as Wind General Facility standards (313-91.1 and Industrial Performance Standards (313-103.1)) and are not present in the inland regulations and are applied as guidance where these regulations would lessen potential noise related impacts to adjacent noise sensitive uses.

### *Analysis of Relevant General Plan Update Policies*

The noise goals and policies contained in the proposed General Plan Update are focused on the management of noise sources to minimize the exposure of community residents to excessive noise. Noise Element Goal N-G1, is intended to create a quiet and healthful environment with limited disagreeable noise. Policy N-P1, Minimize Noise from Stationary and Mobile Sources, would apply standards during permit review, such as those currently contained in the Zoning Regulations, to minimize noise and its affect on sensitive receptors. Pursuant to Policy N-P1, a new standard is applied to limit noise related nuisances: Standard N-S8, Short-term Noise Performance Standards Maximum Noise Level (Lmax), establishes the maximum permissible noise levels within zoning classifications and defines the method by which noise measurements are to be conducted; as well as the existing standards contained in N-S1, Land Use/Noise Compatibility Matrix, which identifies levels of noise that are compatible with different land use types. Policy N-P2, Guide to Land Use Planning, would direct the County to evaluate existing noise levels when making community planning and zoning decisions in order to minimize the exposure of sensitive receptors to nuisance noise levels. Policy N-P3, Noise from SR 101 and SR 299, would support the establishment of maintenance priorities for Caltrans for these highways and other measures such as noise reducing surface treatments, landscaping, and the installation of sound walls, which is intended to address the fact that major roadways are among the most significant noise sources within the County. Policy N-P4, Protection from Excessive Noise, would protect persons from existing or future excessive noise levels which interfere with sleep, communication, relaxation health or legally permitted use of property.

Standard N-S2, Noise Impact Combining Zones, would continue the use of established Noise Impact Combining Zones and utilize the most current Airport Land Use Compatibility Plans to identify noise impact combining zone areas to indicate where sound insulation measures may apply. However, the most current Airport Land Use Compatibility Plan was adopted in 1998 relating to the Arcata-Eureka Airport, and more current noise contour maps exist as part of approved Airport Master Plans.

Standard N-S3, Environmental Review Process, would utilize the CEQA process to analyze impacts to discretionary projects in areas with noise exposure that do not have noise contours to ensure that mitigations are incorporated to limit exposure to current and future noise levels. Standard N-S4, Noise Study Requirements, would require the preparation of noise impact studies based on the U.S. Housing and Urban Development Noise Guidebook, or equivalent, for discretionary projects with the potential to generate noise levels that exceed County standards to limit impacts to sensitive receptors. Standard N-S5, Uniform Building Code, would require that

the Uniform Building Code be used to determine the required noise separation requirements for buildings. It should be noted that California now utilizes the International Building Code, not the Uniform Building Code. Standard N-S6, Noise Standards for Habitable Rooms, requires that noise levels in habitable rooms meet the California building standard of 45 CNEL. Standard N-S7, Noise Reduction Requirements for Exterior Areas in Residential Zones, establishes the requirement for an exterior living area of at least 200 square-feet in area that achieves a noise standard of 60 CNEL. Further, Standard N-S8, Short-term Noise Performance Standards Lmax, establishes the maximum permissible noise levels within specified zone classifications.

To fully implement noise policies and standards, Implementation Measure N-IM7x, Noise Control Ordinance, would require that the County prepare and consider a noise control ordinance to regulate noise that defines excessive levels of noise and may exempt or modify noise requirements for agricultural uses, construction activities, school functions, property maintenance, waste collection and other sources and that includes responsibilities and procedures for enforcement, abatement and variances.

### ***Conclusion***

As described above, the General Plan Update requires the application of noise impact combining zones in areas where noise standards are exceeded as well as the use of project-specific noise mitigation measures (completion of acoustical studies, use of buffering, and implementation of other noise abatement measures, as necessary). Implementation of these General Plan Update programs, as described above, would lessen the potential for noise levels in areas around new noise-sensitive land uses to exceed the standards contained in Table 13-D. Land Use/Noise Compatibility Standards. The implementation of N-IM7x, Noise Control Ordinance, would further reduce potential impacts. Therefore, this impact would be **less than significant**.

### ***Mitigation***

None required.

### **Impact 3.6.3.2: Groundborne Vibration and Construction Noise**

Implementation of the General Plan Update could result in changes in land use designations that would directly lead to construction activities that could result in excessive ground vibration or temporary or periodic increases in ambient noise levels in the project vicinity.

This impact analysis addresses items “b” and “d” of the significance criteria described in 3.6.2 Noise – Standards of Significance. Based on Appendix G of the CEQA Guidelines the proposed County General Plan Update would have a significant impact if it would:

- b) Result in exposure of persons to, or generation of, excessive ground-borne vibration or ground-borne noise levels or
- d) Substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project.

Common sources of ground-borne vibration are trains, buses on rough roads, and construction activities such as blasting, pile driving and the operation of heavy earth-moving equipment. In Humboldt County, train operations were suspended in 2001 due to the deteriorating condition of railway infrastructure. Therefore, construction activities would be the more common ground-

borne vibration source. Construction and demolition activities associated with project growth during the General Plan Update planning period have the potential to result in varying degrees of temporary or periodic noise increases or temporary ground-borne vibration, depending on the specific construction tools or equipment used, the location of construction activities relative to receptors, and the operations involved. For example, air compressors, heavy equipment and power tools used during construction activities can all generate disturbing levels of noise. Vibration generated by construction equipment spreads through the ground and diminishes in magnitude with increases in distance. In addition, the type and density of soil can also affect the transmission of energy.

Depending on the nature and location of the future projects, existing vibration-sensitive receptors could be located within close proximity to the proposed construction sites. Temporary, short-term vibration levels from project construction sources could exceed noise thresholds. More importantly, if construction activities were to occur during the more noise-sensitive hours, vibration from construction sources could annoy and/or disrupt the sleep of occupants of existing and proposed residences and expose persons to excessive ground-borne vibration or noise levels.

The types of construction equipment required for future projects is not known at this time, but it could include maximum generation of vibration from trucks and bulldozers. The highest construction noise levels are generated during grading and excavation, with lower noise levels occurring during building construction. Large earth-moving equipment, such as graders, scrapers, and bulldozers, generate maximum noise levels of 85 dBA to 90 dBA at a distance of 50 feet. Typical hourly average construction-generated noise levels are about 80 dB to 85 dB measured at a distance of 50 feet from the site during busy construction periods. These noise levels drop off at a rate of about 6 dB per doubling of distance between the noise source and receptor. Intervening structures or terrain would result in lower noise levels. During active construction periods, hourly average noise levels could exceed 60 dB at distances of 500 to 900 feet.

Construction noise from discretionary projects would be the subject of CEQA review. To the extent construction associated with the project has the potential to result in significant noise levels at adjacent noise sensitive uses, CEQA review would require that mitigations be imposed to reduce impacts to a less than significant level.

Impact 3.6.3.1, Noise Exposure, above describes construction noise related mitigations that were imposed upon the Ridgewood Village and Central Estates Phase 2 projects. It is anticipated that mitigations such as these would be imposed on projects allowed under the General Plan Update.

#### ***Analysis of Relevant General Plan Update Policies***

Noise Element Goal N-G1, Excessive Noise, intends to establish a quiet and healthful environment with limited disagreeable noises. Construction noise would be the most likely source of ground-borne vibration or substantial temporary or periodic increase in ambient noise level that could occur consistent with the General Plan Update. Noise Element Standard N-S8, Short-term Noise Performance Standards L<sub>max</sub>, establishes the maximum permissible noise level within each zoning classification. As such, daytime noise levels within single-family residential zones cannot exceed 65 dB, and nighttime noise levels cannot exceed 60 dB. Standard N-S8 provides exceptions for heavy equipment and power tools used during construction, when conforming to the terms of the approved permit. In addition, Policy N-S4, Noise Study Requirements, requires that discretionary projects with the potential to generate noise levels in

excess of Plan standards prepare a noise study together with acceptable plans to assure compliance with the standards shall be required.

Implementation Measure N-IM7x, Noise Control Ordinance, would define excessive levels of noise for various activities including construction. However, this ordinance may exempt or modify noise requirements for construction activities.

### ***Conclusion***

The standards identified above would establish limits to short-term noise within each zoning classification and specify the parameters for discretionary project noise impacts but do not clearly indicate that they are applicable to construction related noise and vibration. Therefore, this impact would be potentially significant.

### ***Mitigation***

**Mitigation Measure 3.6.3.2.a.** Amend Implementation Measure N-IM7x., Noise Control Ordinance, to the Noise Element to require that construction noise parameters for discretionary projects be specified.

***N-IM7x. Noise Control Ordinance.** Prepare and consider a noise control ordinance to regulate noise and vibration sources in order to protect persons from existing or future excessive levels of noise and/or vibration which interfere with sleep, communication, relaxation, health or legally permitted use of property. The ordinance shall define excessive levels of noise for construction activities to be incorporated as permit requirements and other noise sources and may exempt or modify noise requirements for agricultural uses, ~~construction activities~~, school functions, property maintenance, waste collection and other sources. The ordinance shall include responsibilities and procedures for enforcement, abatement and variances.*

### ***Level of Significance after Mitigation***

The mitigation measure requires the preparation of a noise control ordinance and consideration of ordinance provisions to regulate noise sources in order to protect persons from existing or future excessive noise levels which might interfere with sleep, communication, relaxation, health or legally permitted use of property. The ordinance is required to define excessive noise levels for construction activities, school functions, property maintenance, waste collection and other noise sources. Implementation of the ordinance would thus serve to regulate construction noise and vibration to acceptable levels. With the addition of the above mitigation measure, noise impacts from new development allowed under the General Plan Update would be **less than significant**.

### Impact 3.6.3.3: Airport Noise

This impact analysis addresses items "e" and "f" of the significance criteria described in 3.6.2 Noise, Standards of Significance. Based on Appendix G of the CEQA Guidelines the proposed County General Plan Update would have a significant impact if it would locate development within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, and expose people residing or working in the project area to excessive noise levels; or expose people residing or working in the project area to excessive noise levels from a private airstrip.

Projected growth during the General Plan Update planning period would result in new urban land uses in the vicinity of certain Humboldt airports and rural residential uses in proximity to others. New development near airports could expose residents and workers to excessive noise from aviation. This is of most concern in the McKinleyville area near Arcata-Eureka Airport; however, development near other airports could also expose sensitive receptors to excessive aviation noise.

Arcata-Eureka Airport. Based on the Arcata-Eureka Airport Master Plan Report (September 22, 2005) the current 65 CNEL contour and most of the 60 CNEL contour fall within airport property. The 60 CNEL contour extends about 1,300 feet beyond the southwest corner of the airport. There is also a small segment of the 60 CNEL contour that extends about 100 feet outside of airport property to the southeast. Additionally, projected noise contours for the year 2022 for the Arcata-Eureka Airport assume aircraft activity level increases; a shift in mix of aircraft types to larger jet aircraft; and an extension of Runway 14-32 by 502 feet to a length 6,500 feet. Under the forecast assumptions listed above, the year 2022 noise contours show a noticeable change only to the northwest and southeast. However, even with the growth assumptions described above, most of the future 60 CNEL and 65 CNEL contours remain within airport property. The forecast 60 CNEL contour will extend about 2,200 feet southeast and 1,600 feet northwest of the airport property line. Most of the off-airport portion of this contour will overlay a golf course (southeast) or highway right-of-way and beach (northwest). Several rural residential parcels will be affected by the 60 CNEL contour at the southeast end of the airport. Policies in the Airport Land Use Compatibility Plan place limitations on development in areas subject to noise impacts from airports.

Dinsmore Airport. Figure 5B of the 2007 Dinsmore Airport Master Plan Report indicates that future 60 CNEL noise contours would be largely contained within the airport property and would remain fully on the south side of S.R. 36. As a result, noise levels near to the airport would be considered normally acceptable for uses allowed by adjacent land use designations.

Garberville Airport. Figure 5B of the 2007 Garberville Airport Master Plan Report indicates that the future 60 CNEL noise contour extends beyond the airport property and onto land on the southeast side of the airport planned RE1-5 and land on the south, west, and north planned RR5-20. These future sound levels may not be considered normally acceptable for single family residential uses. There is currently no Noise Impact combining zone area surrounding the Garberville Airport.

Kneeland Airport. Figure 4C of the 2005 Kneeland Airport Master Plan Report indicates that future 60 CNEL noise contours would be largely contained within the airport property and would likely remain within the area planned PF that contains the airport. As a result, noise levels near to the airport would be considered normally acceptable for uses allowed by adjacent land use designations.

Murray Field. Figure 5B of the 2007 Murray Field Airport Master Plan Report indicates that the future 60 CNEL noise contour extends beyond the airport property and onto land subject to land use regulation by the City of Eureka. Land uses around the airport that would be subject to 60 CNEL noise levels include less than nine acres of agricultural grazing land to the south; open space and a small undeveloped portion of commercial land to the north east; and small portion of a lumber facility to the north. The future noise levels projected to affect these areas would be considered normally acceptable.

Rohnerville Airport. Figure 5B of the 2007 Rohnerville Airport Master Plan Report indicates that the future 60 CNEL would be largely contained within the airport property and would likely remain within the area planned PF that contains the airport. As a result, noise levels near to the airport would be considered normally acceptable for uses allowed by adjacent land use designations.

Shelter Cove Airport. The Shelter Cove airport is operated by Resort Improvement District No. 1. Figure 4T of the Airport Land Use Compatibility Plan, Humboldt County Airports indicates that the future 60 CNEL would be largely contained within the airport property and would likely remain within the area planned PF that contains the airport. As a result, noise levels near to the airport would be considered normally acceptable for uses allowed by adjacent land use designations.

### ***Analysis of Relevant General Plan Update Policies***

Impact 3.6.3.1 Noise Exposure, describes the Noise Element Policies, Standards, and Implementation Measures that would limit impact to noise sensitive land uses from airports within the County, especially the Arcata-Eureka Airport. Standards N-S2, Noise Impact Combining Zones, would continue the use of Noise Impact Combining Zones and utilize the most current Airport Land Use Compatibility Plans to identify noise impact combining zone areas to indicate where sound insulation measures may apply.

### ***Conclusion***

As described above, the General Plan Update requires the application of noise impact combining zones in areas where noise exceeds adopted standards and the use of project-specific noise mitigation measures (completion of acoustical studies, use of buffering, and implementation of other noise abatement measures, as necessary) would be required. Implementation of this program and others in the General Plan Update described above, would reduce the potential for noise levels in areas of new noise-sensitive land uses to exceed the standards contained in Table 13-D. Land Use/Noise Compatibility Standards.

As indicated in the analysis above, noise levels that would exceed normally acceptable criteria would extend beyond the Garberville airport into areas planned for future residential uses. This is not within a noise impact combining zone. Therefore, this impact would be potentially significant.

### ***Mitigation***

**Mitigation Measure 3.6.3.3.a.** The following implementation measure shall be added to the Noise Element.

***N-IMx. Garberville Airport Noise Impact Combining Zone.*** Add a Noise Impact (N) Combining Zone to the areas surrounding the Garberville Airport that are subject to noise

*levels equal to or above 60 CNEL according to Figure 5B of the 2007 Garberville Airport Master Plan Report, or the most recent Garberville Airport Master Plan Report.*

***Level of Significance after Mitigation***

By application of a noise impact combining zone to address the Garberville Airport Noise, airport noise in this area would be regulated in a manner consistent with other airports in the County. Addressing airport noise levels in this manner has been effective in mitigating the potential noise impacts caused by airports. With the addition of the above mitigation measure, noise impacts from projected growth during the General Plan Update planning period would be **less than significant**.