8.2 NOISE

This section evaluates potential impacts from noise associated with implementing the proposed plan, including whether the proposed plan would: (1) expose new noise-sensitive uses to existing noise levels in excess of applicable standards; (2) result in a substantial temporary or periodic increase in ambient noise levels; (3) result in a substantial permanent increase in ambient noise levels; (4) expose persons to excessive ground born noise or vibration; or (5) for development located with an airport land use plan area, expose persons to excessive airport/airplane noise.

This section is based, in part, on a community noise study prepared by SHN Consulting Engineers in 2005 and included as Section 8.3 of the General Plan Background Report. The Background Report is included as Appendix G of this PEIR. This information remains valid because of the small amount of new development that occurs in the City of Fortuna from year-to-year (it is estimated that less than 100 new residential units have been developed in the City since 2005 (City of Fortuna, 2010)).

Environmental Setting

Noise Fundamentals

Sound is mechanical energy transmitted by pressure waves in a comprehensible medium such as air. Noise can be defined as unwanted sound. Sound is characterized by various parameters that include the rate of oscillation of sound waves (frequency), the speed of propagation, and the pressure level or energy content (amplitude). In particular, the sound pressure level has become the most common descriptor used to characterize the loudness of an ambient sound level, and the decibel (dB) scale is used to quantify sound pressure intensity.

Since the human ear is not equally sensitive to all frequencies noise measurements are weighted more heavily in those frequencies of maximum human sensitivity in a process called "A-weighting" or dBA. With regard to increases in A-weighted noise levels, it is widely accepted that the average person can barely perceive noise level changes of 3 dBA, while a change in noise levels of 5 dBA is a readily perceptible change and a change from 5 to 10 dBA is perceived as a doubling of loudness. Examples of the decibel level of various noise sources include the quiet rustle of leaves (10 dBA), a library (35 dBA), ambient outdoor noise (45 dBA), normal conversation (55 dBA), and a busy street at 50 feet (75 dBA; Glendora, 2004).

Several methods have been devised to relate noise exposure over time. Time variation in noise exposure is typically expressed in terms of the average energy over time (L_{eq}). The Day-Night Noise Level (L_{dn}) a 24-hour L_{eq} that adds a 10-dBA penalty to sounds occurring between 10:00 PM and 7:00 AM to account for the increased sensitivity to noise events that occur during quiet nighttime hours. Community Noise Equivalent Level (CNEL) is another 24-hour L_{eq} that adds a five-dBA penalty during evening hours (7:00 PM to 10:00 PM) and a 10-dBA penalty during nighttime hours (10:00 PM to 7:00 AM). These descriptors are used for measuring average increases in noise over a daily period such as those associated with traffic and rooftop equipment such as air conditioners (COE 2006).

For measuring increases in single-event noise (from instantaneous sources such as fireworks and construction equipment), the maximum noise level (L_{max}) is used. L_{max} is defined as the highest exponential time-average sound level that occurs during a stated time period, and reflects peak noise conditions and the annoyance aspects of intermittent noise (Glendora, 2004).

With respect to sound propagation, standard construction techniques typically reduce exterior noise levels by an average of 15 dBA in the interior of structures. Also, noise from a "line source" such as a heavily-traveled roadway drops off by an average of 3.0 dBA for each doubling of distance between the noise source and the noise receptor, while noise from a "point source" such as a stationary piece of construction equipment drops off by an average of 6.0 dBA for each doubling of distance (Glendora, 2004).

Maximum Acceptable Noise Exposure Levels

The recommended maximum acceptable noise exposure levels for various uses are shown in Table 8.2-1**.** As shown**,** people residing in low-density residential settings (suburban and rural) are most sensitive to noise intrusion, with exterior noise levels of 60 dBA L_{dn} and below considered "acceptable." For schools, libraries, churches, hospitals, and parks, acceptable exterior noise levels go up to 70 L_{dn}. For persons in commercial and industrial settings, acceptable exterior noise levels go up to 70 and 75 L_{dn}, respectively.

Existing Noise-Sensitive Land Uses

Residences, schools, hospitals, nursing homes, churches, and libraries are considered noise-sensitive because of an expectation for quiet (COE 2008). Examples of existing noise-sensitive uses in the Planning Area include:

1) Schools: Norman G. Ambrosini Elementary, South Fortuna Elementary Hydesville Elementary, Fortuna Middle, Toddy Thomas Middle, Hydesville Middle, Fortuna Union High, East High;
2) Hospitals/Nursing Homes: Redwood Memorial Hospital, St. Luke Rehab. Center, Meadows Senior Village, Gardenside, Ladies Choice Fortuna ;
3) Churches: Including, but not limited to, Fortuna United Methodist, Calvary Chapel of Fortuna, St. Francis Episcopal, First Baptist, Campton Heights Baptist;
4) Libraries: Fortuna Library; and
5) Residential Neighborhoods: Including, but not limited to, Palmer Creek, Rancho Buena Vista, Strongs Creek Estates, Springville Estates, Lawndale, Forest Hills, Kenmar, Royal Crest, Campton Heights, Drake Hill, and Hilras Avenue.

Community Noise Study

SHN conducted a limited community noise study for the Background Report to document existing noise levels near Fortuna's significant noise sources. The study included interviews with residents and short-term noise measurements.

Table 8.2-1
Recommended Maximum Acceptable Noise Exposure Levels by Land Use

Land Use Category	Maximum Interior Noise Levels (dBA CNEL or L_{dn})	Maximum Exterior Noise Levels (dBA CNEOL or L_{dn})								
		50 -60		61-70		71-80		81-90		91+
Residential Single Family, Duplex, Mobile Homes	45									
Residential Multiple Family, Dormitories, etc.	45									
Transient Lodging	45									
School Classrooms, Libraries, Churches	45									
Hospitals, Nursing Homes	45									
Auditoriums, Concert Halls, Music Shells	35									
Sports Arenas, Outdoor Spectator Sports										
Playgrounds, Neighborhood Parks										
Golf Courses, Riding Stables, Cemeteries										
Office Buildings, Personal, Business & Professional	50									
Commercial: Retail, Movie, Theaters, Restaurants	50									
Commercial: Wholesale, Some Retail, Ind., Mfg.										
Manufacturing, Communications (Noise Sensitive)										
Livestock Farming, Animal Breeding										
Agriculture (except Livestock), Mining, Fishing										
Public Right-of-Way										
Extensive Natural Recreation Areas										

Legend

Clearly Acceptable[1]	Normally Acceptable[2]	Normally Unacceptable[3]	Clearly Unacceptable[4]

1. Clearly Acceptable: The noise exposure is such that the activities associated with the land use may be carried out with essentially no interference. (Residential areas: both indoor and outdoor noise environments are pleasant).
2. Normally Acceptable: The noise exposure is great enough to be of some concern, but common constructions will make the indoor environment acceptable, even for sleeping quarters. (Residential areas: the outdoor environment will be reasonably pleasant for recreation and play at the quiet end and will be tolerable at the noisy end).
3. Normally Unacceptable: The noise exposure is significantly more severe so that unusual and costly building constructions are necessary to ensure adequate performance of activities. (Residential areas: barriers must be erected between the site and prominent noise sources to make the outdoor environment tolerable).
4. Clearly Unacceptable: The noise exposure at the site is so severe that construction costs to make the indoor environment acceptable for performance of activities would be prohibitive. (Residential areas: the outdoor environment would be intolerable for normal residential use).

Source: Bolt, Beranek, and Newman, Inc., 1974.

Short-term noise measurements were collected using a sound meter at ten locations along major roadways and intersections (Figure 8-1). Readings were taken once during the day and once at night to allow for the calculation of day night noise levels (L_{dn}). A Type 8-4 integrating and logging sound level meter, meeting standards of the American National Standards Institute (ANSI), was used to collect noise measurements. The meter was calibrated at the factory by the manufacturer and in the field by the consultant.

The results of the noise monitoring are provided in Table 8.2-2. The list below identifies the major findings of the monitoring:

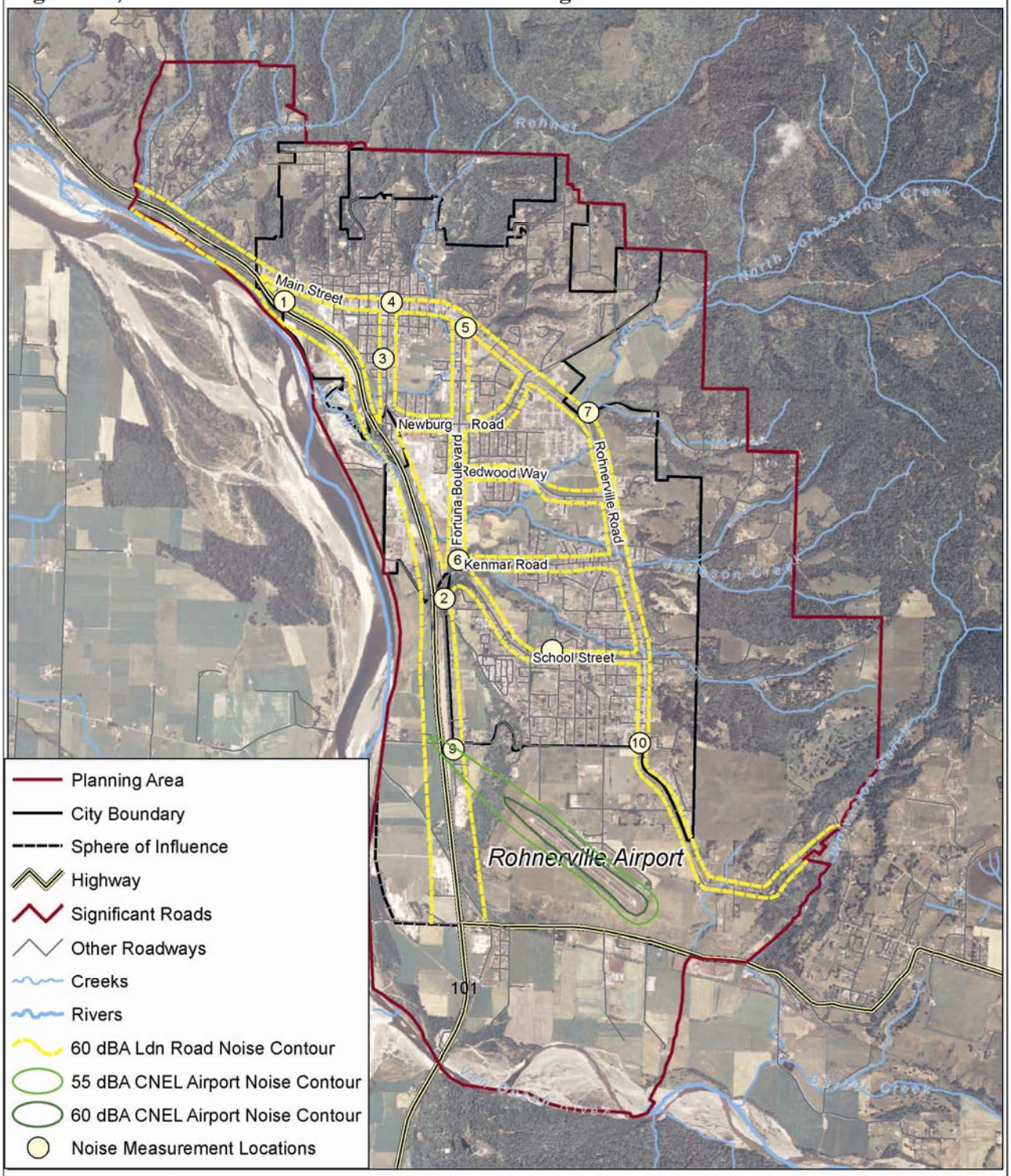
1) L_{eq} ranged from 45.1 to 70.4 dBA, L_{max} ranged from 60.3 to 84.1 dBA, L_{dn} ranged from 62.0 to 67.0 dBA, and L_{90}, which represents background noise levels (e.g., noise during times when car and trucks were not passing by along the adjacent street) ranged from 38.0 to 64.0 dBA;
2) The L_{90} levels are indicative of a relatively small urban community;
3) The L_{eq} and L_{dn} levels indicate that noise levels immediately adjacent to Fortuna's major streets exceed the recommended maximum acceptable noise exposure level of 60 dBA L_{dn} for residential uses. However, because noise attenuates with distance and the existing residences along these streets are typically set back from the streets by 50 feet or more, noise levels at the existing adjacent residences are lower;
4) The L_{max} levels indicate that there are occasional spikes in noise (e.g., instantaneous noise) along Fortuna's major streets, such as may occur associated with auto back-fires or poorly tuned auto mufflers, which are almost certainly noticeable to adjacent residents; and
5) Noise levels are higher during daytime hours and lower during nighttime hours, which is consistent with the fact that there is greater traffic and activity during daytime hours.

Existing Traffic Noise Sources

Roadways. Unfortunately, for purposes of evaluation, daily volume counts for free-flowing traffic could not be located for surface streets or Highway 101. Turning movement counts were collected in late 2004 and 2005. However, the computerized traffic noise prediction programs cannot incorporate these data counts. Consequently, the sound level measurements from the community noise study, and additional field noise checks in the area, provided the basis for the noise contours presented in Figure 8-1. The noise contours indicated are 60 dBA L_{dn}. As indicated, the 60 dBA L_{dn} noise contour currently extends up to 260 feet from the centerline of the major streets, except along Highway 101 where the 60 dBA L_{dn} noise contour currently extends up to 790 feet from centerline.

At a particular location, the actual location of the 60 dBA L_{dn} noise contour may differ from that shown in Figure 8-1 due to the presence of barriers provided by local topography, structures, walls, roadway grade, roadway curvature, raised roadways, or elevated receivers. Even with these barriers, vehicle travel on roadways is a significant existing noise source in the Planning Area.

Fortuna General Plan 2030
Figure 8-1, Noise Measurement Locations and Existing Traffic Noise Levels



Source for Airport Noise Contours: Airport Land Use Compatibility Plan for Humboldt County Airports, prepared by Hodges & Shutt for the Humboldt County Airport Land Use Commission, March, 1993.
Other Source: SHN, December 2005

Map Compiled by Planwest Partners
November 17, 2009

Table 8.2-2
Noise Measurement Results

Site #	Location and Measurement Distance from Major Roadway	Date & Time of Measurement Initiation	Average Noise Level (dBA L_{eq})[1]	Maximum Noise Level (dBA L_{max})[2]	Background Noise Level (L_{90})[5]	Estimated dBA L_{dn}[6]
1	Northbound Hwy 101 exit onto Main St. – 100 feet.	12-14-05/2:42 p.m.	62.3	73.2	52.4	62
		12-14-05/11:41 p.m.	52.7	64.8	36.5	
2	East of Hwy 101 at Kenmar Rd. Exit – 120 feet.	12-14-05/2:14 p.m.	63.0	70.4	57.1	64
		12-15-05/12:31 a.m.	54.4	62.8	45.3	
3	12th St & I St.- 7 ft.	12-14-05/1:13 p.m.	68.8	84.1	55.4	64
		12-14-05/11:58 p.m.	45.1	60.3	38.0	
4	Main St. & 12th St. – 15 feet.	12-14-05/3:05 p.m.	70.4	81.2	64.0	67
		12-14-05/11:26 p.m.	55.9	68.4	41.3	
5	Main St. & Fortuna Blvd. – 54 feet.	12-14-05/3:33 p.m.	64.1	73.2	58.7	65
		12-14-05/11:13 p.m.	55.0	70.3	42.6	
6	Fortuna Blvd. & Kenmar Rd. - 13 ft.	12-14-05/4:57 p.m.	68.9	82.4	60.9	66
		12-15-05/12:47 a.m.	54.9	70.4	38.0	
7	Rohnerville Rd. & Loop Rd. (north) – 60 feet.	12-14-05/4:00 p.m.	65.3	80.3	49.4	65
		12-14-05/10:55 p.m.	54.1	69.0	38.5	
8	School St. & Wood Ave. – 15 feet.	12-14-05/4:33 p.m.	64.4	75.2	50.0	63
		12-14-05/10:37 p.m.	59.2	73.5	42.7	
9	Drake Hill Rd. & Hwy 101 – 130 feet.	12-14-05/12:41 p.m.	66.6	74.4	59.7	67
		12-15-05/12:15 a.m.	58.0	72.0	38.7	
10	Rohnerville Rd. & Drake Hill Rd. – 20 feet.	12-15-05/1:19 p.m.	67.6	82.5	43.5	63

Railroads. The North Coast Railroad Authority has not operated train engines on the railroad tracks located on the west side of Fortuna since 1998. No other rail lines are located in Fortuna. Therefore, railroads do not contribute to Fortuna's current noise environment

Airport. Rohnerville Airport is located south of the Fortuna City limits between Drake Hill Road and SR 36 in the City's existing SOI. It is a public use airport primarily serving small private aircraft owners. The California Department of Forestry and Fire Protection (CAL FIRE) also uses this airport during the fire season for staging firefighting activities (observation aircraft and water bombers, but the impact is undetermined. Because prevailing winds at the airport are typically from the northwest, and because planes typically take off against the wind, takeoffs are usually towards the northwest and not over the city.

During the time that sound level measurements were being collected in the field, no airplanes took off or landed at Rohnerville Airport. Therefore, no noise monitoring data for the airport was collected during the community noise survey. However, Rohnerville Airport is under the jurisdiction of the Humboldt County Airport Land Use Commission (ALUC), and ALUC has prepared the Humboldt County Airport Land Use Compatibility Plan (ALUCP) which establishes compatibility criteria and compatibility zones maps around all public airports in the County, including Rohnerville Airport. The 1993 ALUCP contains a map showing 1991 and projected 2011 noise contours around the airport. The 2011 contours are shown in Figure 8-1. As indicated, the Airport's 55 dBA CNEL noise contour is projected to extend approximately 4,000 feet northwest and 1,000 feet southeast of the existing runway, while the Airport's less extensive 60 dBA CNEL noise contour is projected to extend approximately 1,500 northwest and 500 feet southeast of the runway (ALUC 1993). The reason that these contours do not extend out far from the airport, and that the noise levels above 60 CNEL are more or less restricted to the airport property, is because the airport supports only small private and CAL FIRE aircraft (e.g., no commercial aircraft).

Existing Stationary Noise Sources

Fortuna PALCO Mill. Until its closure in 2005, the Fortuna PALCO Mill, located east of Highway 101 between Kenmar Road and 12th Street, was the major stationary noise source. The mill has been dismantled and is no longer a community noise source.

Mercer-Fraser Gravel Operations. Instantaneous sound level measurements were collected from the entrance to the Mercer-Fraser Gravel Operations on December 9, 2005, at the north end of Riverwalk Drive near the 12th Street exit from southbound Highway 101. During active gravel operations, the maximum sound level was 54 dBA at the gate into the facility. At the same time, the sound level recorded from traffic noise on Highway 101 varied from 55 to 58 dBA at the intersection of Riverwalk Drive and the road into the Mercer-Fraser facility. Given that the highway and not the gravel operation is the primary noise source in the vicinity of the gravel operations, and given that gravel operations cease during nighttime hours, the gravel operations do not contribute significantly to ambient L_{dn} in the community.

Eel River Disposal Transfer Station. Instantaneous sound level measurements were collected from the entrance to the Eel River Disposal Transfer Station on Riverwalk Drive on December

15, 2005. During various types of facility operations, the maximum sound level observed ranged from 52 to 56 dBA at the facility entrance. During that same period, customer vehicles delivering items for disposal produced sound levels from 55 to 66 dBA at the facility entrance. Given these relatively low noise levels, and given that the transfer station does not operate during nighttime hours (Eel River Disposal, 2009); the transfer station does not contribute significantly to ambient L_{dn} in the community. However, Eel River Disposal collection trucks collectively depart from the facility at 5:00 a.m. on weekdays (Ibid.), and it is possible that noise levels at the facility entrance onto Riverwalk Drive exceed 66 dBA during this period.

Tire and Car Repair Shops (at various locations). Tire and car repair shops are located throughout Fortuna. The primary noise sources are impact wrenches, air compressors, and tire breakers. These tools and equipment produce noise in the range of 60 to 100 dBA, but the duration is normally very short, periodic, and normally limited to the hours of 8 a.m. to 5 p.m. Therefore, noticeable noise generated by tire and car repair shops, and characterized as instantaneous noise events, does not contribute significantly to ambient L_{dn} in the community.

Applicable Plans, Policies, Codes, and Regulations

Federal

Environmental Protection Agency. The Environmental Protection Agency (EPA) recommends that Day/Night Noise Level (Ldn) should be kept below 55 A-Weighted Sound Level (dBA) in residential areas "to protect public health and welfare with an adequate margin of safety" (EPA 1974). This level is an accepted norm, for a typically sized suburban community of about 770 people per square kilometer (330 per square mile). This goal does not account for economic, or technological, feasibility and is not designed as a regulation. The EPA guideline has methodologies for evaluating communities of various sizes, as well as "correction" factors used to adjust for seasonal operations, the existence of pure tones and impulse sounds.

Federal Aviation Administration (FAA) Standards (Far Part 150, Section 150.21). The FAA establishes 65 dBA CNEL as the noise standard associated with aircraft noise.

Federal Highway Administration (23 CFR Chapter 1, Part 772). The Federal Highway Administration (FHWA) uses a one-hour equivalent (time-average) sound level criteria of 67 dBA to determine when to consider noise barriers for new highway projects. Before actually building barriers, the FHWA requires that the project further qualify, based on the cost and benefit of the barrier, per protected home. These regulations apply only to federally funded road projects. These standards preempt any county standards. The FHWA establishes specific noise standards for different land use categories.

Federal Transit Authority (FTA) Standards (Transit Noise and Vibration Impact Assessment Manual, May 2006). For federally funded mass transit projects, the FTA standards preempt County standards.

State

California Environmental Quality Act (CEQA) (California Code of Regulations, Guidelines for Implementation of CEQA, Appendix G, Title 14, Chapter 3). The state legislature adopted CEQA as a result of a public mandate for thorough environmental analysis of projects that might affect the environment. CEQA considers excessive noise to be an environmental impact. CEQA requires lead agencies to consider noise impacts.

Implementation of CEQA ensures that during the decision making stage of development, city officials, and the general public, assess the noise impacts associated with public and private development projects. Under CEQA, lead agencies are directed to assess conformance to locally established noise standards, or other agencies noise standards; measure and identify potentially excessive ground-borne vibration or noise levels; measure and identify potentially significant permanent, or temporary, increases in ambient noise levels; and measure and identify potentially significant impacts associated with air traffic.

California Noise Control Act (California Health and Safety Code 46000-46080). This section of the California Health and Safety Code finds that excessive noise is a serious hazard to the public health and welfare and that exposure to certain levels of noise can result in physiological, psychological, and economic damage. It also finds that there is a continuous and increasing bombardment of noise in the urban, suburban, and rural areas. The Act declares that the State of California has a responsibility to protect the health and welfare of its citizens by the control, prevention, and abatement of noise.

California Noise Insulation Standards (Title 24, Chapters 2-35). The California Commission of Housing and Community Development officially adopted noise standards in 1974. In 1988, the Building Standards Commission approved revisions to the standards (Title 24, Part 2, California Code of Regulations). As revised, Title 24 establishes an interior room noise standard (attributable to outside noise sources) of 45 dBA for residential space (CNEL or Ldn). Acoustical studies must be prepared for residential structures that are to be located within noise contours of 60 dBA or greater from freeways, major streets, thoroughfares, rail lines, rapid transit lines or industrial noise sources. The studies must demonstrate that the building design will limit interior noise to a CNEL (or Ldn) of 45 dBA.

Local

City of Fortuna Penal Code. When the Police Department responds to noise complaints, officers refer to section 415 PC of the Penal Code dealing with general disturbance.

City of Fortuna Ordinances. The City of Fortuna does not currently have a noise ordinance, and the City's existing Zoning Ordinance does not currently address noise.

City of Fortuna General Plan. The 1993 Fortuna General Plan noise section is divided into three subsections: general noise discussion, goals, and policies. The goal, as specified in § 6610, is to "ensure that the residents of Fortuna are free from excessive noise and abusive sounds." This goal is to be achieved through the following policies:

§ 6621. Isolate uses whose operations are characterized by high levels of noise from sensitive uses such a (sic) residential, health care facilities, schools, and places of public assembly.

§ 6622. Reduce the future impact of excessive noise along the City's arterial and collector roads through project design, providing buffers to the extent feasible, and screening.

§ 6623. The City shall use the Noise and Land Use Compatibility Matrix (Table 24 [this is generally Table 8.2-1 in this PEIR section]) in reviewing development proposals.

§ 6624. Identify and evaluate potential noise problem areas on a continuing basis.

§ 6625. The City shall enforce performance standards for acceptable noise levels in the permit process.

Humboldt County General Plan. The unincorporated portions of the Planning Area (e.g., City of Fortuna Sphere of Influence and the proposed Planning area expansion south of SR 36) are currently subject to the requirements of the Humboldt County General Plan, including the Framework Plan (1984) and the Fortuna Area Community Plan (FACP; 2002).

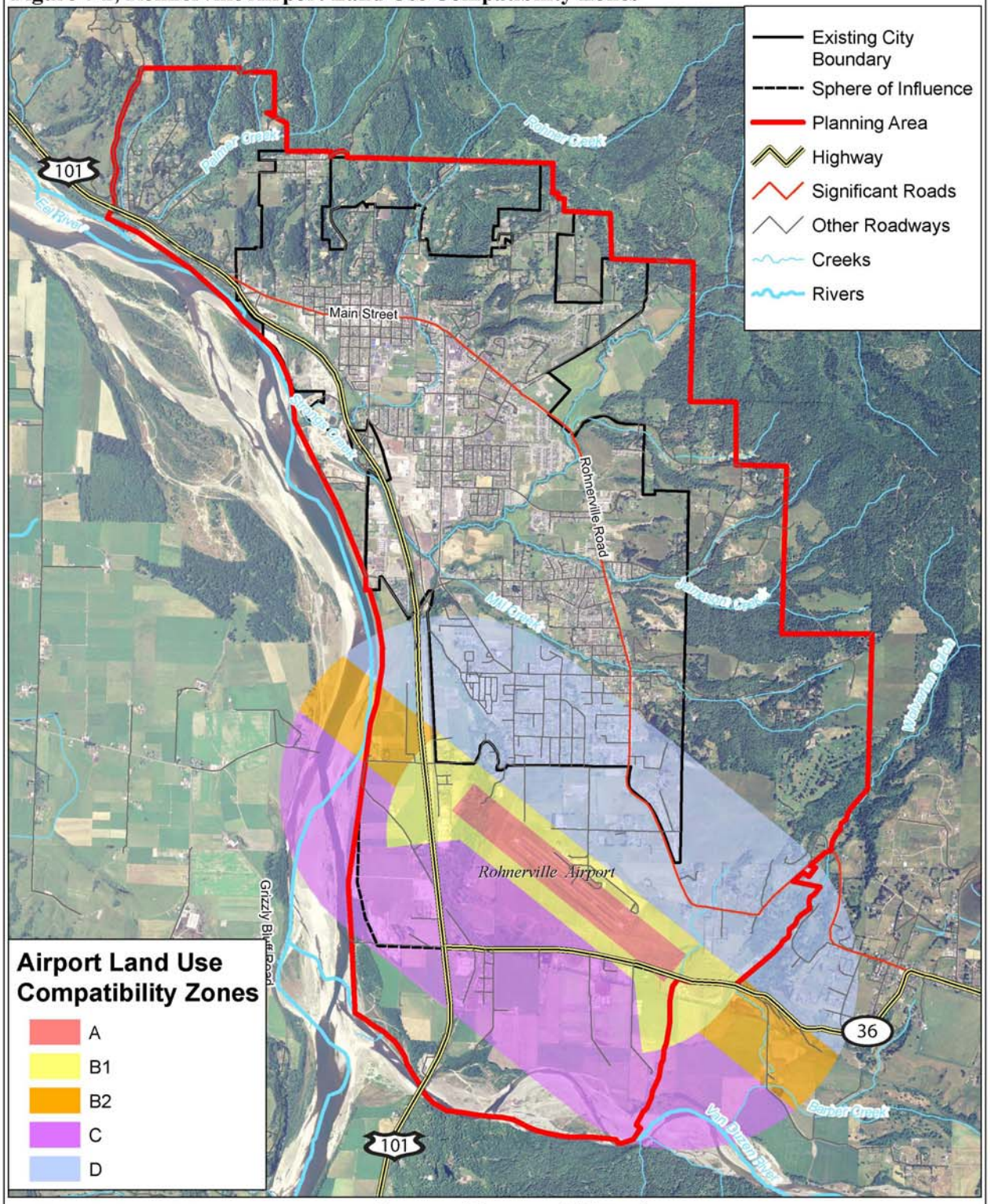
The Framework Plan and FACP do not outline specific construction noise compatibility standards, but such standards are identified in the November 2008 Draft Humboldt County General Plan Update (Chapter 13, Noise Element). For residential uses, these include 65 dBA L_{max} at the exterior of residences during daytime hours (7:00 am to 10:00 pm), and 60 dBA L_{max} at the exterior during nighttime hours (10:00 pm to 7:00 am) (Humboldt County, 2008).

The Framework Plan (§3240) and General Plan Update (Chapter 13, Noise Element) outline specific traffic and stationary source noise compatibility standards by land use type. For residential uses, these include 45 dBA L_{dn} in the interior of residences and 60 dBA L_{dn} at the exterior of residences (Humboldt County, 1984 and 2008).

Humboldt County Airport Land Use Compatibility Plan. The Humboldt County Airport Land Use Compatibility Plan (ALUCP), adopted in 1993, sets forth criteria and policies which the Humboldt County Airport Land Use Commission (ALUC) uses in assessing the compatibility of proposed new development around public use airports in Humboldt County. As required by State law, the plan designates compatibility zones around each airport and sets compatibility criteria within each zone that ALUC utilizes in making its statutorily-required determinations of compatibility with respect: (1) aviation safety; (2) land use safety; and (3) noise. As per State law, the ALUC will review the proposed Fortuna General Plan Update for consistency with the ALUCP, and will require the City of Fortuna to make changes to the proposed plan, as required, to ensure compliance with the ALUCP.

Figure 8-2 identifies the five land use compatibility zones designated around Rohnerville Airport by the ALUCP. Table 3.1-4 in Section 3.1 identifies the compatibility criteria identified by the ALUCP as applicable within each zone. The criteria outline the types, densities and heights of land uses permitted within each zone to provide for safety and both land use and noise compatibility. See Sections 3.1 and 8.4 of this PEIR for an analysis of the compatibility of the proposed plan with the land use and aviation safety provisions of the ALUCP.

Fortuna General Plan 2030
Figure 8-2, Rohnerville Airport Land Use Compatibility Zones



With respect to noise, the ALUCP characterizes the airport/airplane noise that may be expected within each compatibility zone and identifies compatibility criteria that new land uses must comply with in each zone. These noise characterizations and compatibility criteria are summarized in Table 8.2-3. The ALUCP also identifies noise policies that new development within the compatibility zones must comply with, including but not limited to:

1) Policy 3.1.3 – Noise Exposure in Residential Areas. The maximum exterior CNEL considered normally acceptable for residential uses in the vicinity of the airports shall be 60 dBA;
2) Policy 3.1.5 – Other Noise Factors. The extent of outdoor activity associated with a particular land use must be considered. In most locations, [airport] noise level reduction measures are only effective in reducing interior noise levels;
3) Policy 3.1.6 – Single-Event Noise Levels. Single-event noise levels should be considered when evaluating the compatibility of highly noise-sensitive land uses such as schools, libraries and outdoor theaters, especially in areas which are regularly overflown by aircraft but which do not produce significant CNEL contours; and
4) Policy 3.1.7 – Acoustical Studies. Acoustical studies or on-site noise measurements may be required to assist in determining compatibility of sensitive uses.

Table 8.2-3
Noise Characterization and Summary of Airport Land Use Compatibility Criteria

Zone	Noise Character	Compatibility Criteria		Other Criteria
		Permitted Uses	Prohibited Uses	
A	High	Structures set by, and req'd. for, aeronautical function	All other uses	Dedication of aviation easement
B1	Substantial	Non-residential, residential up to 0.1 du/ac[1]	Schools, day care centers, hospitals, nursing homes, libraries, other noise-sensitive uses	Dedication of aviation easement
B2	Significant	Non-residential, residential up to 0.5 du/ac[1]	Schools, day care centers, hospitals, nursing homes, libraries, other noise-sensitive uses	Dedication of aviation easement
C	Frequent noise intrusion	Non-residential, residential up to 4 du/ac[2]	Schools, hospitals, nursing homes	Dedication of over-flight easement for residential uses
D	Potential for annoyance from over-flights	Non residential, residential no limit	None	Deed notice required for residential uses

[1] *Residential subdivisions, intensive retail and manufacturing, multi-story offices, and hotels/motels not normally permitted.*
[2] *Large shopping malls, theaters, auditoriums, large sports stadiums, and hi-rise offices not normally permitted.*
Source; Compiled by Planwest Partners from the Humboldt County ALUCP, March 2003.

Methodology

Policy Background

The following policy background is used to assess the noise impacts of the proposed plan.

- Roadway traffic, primarily from Highway 101 and major arterials, provides the predominant noise source for the City of Fortuna;
- Sources of stationary-noise do not contribute significantly to the overall noise level in Fortuna.
- The NCRA railway and PALCO Mill are not operational and do not generate noise in the community; and
- Based on the airport's noise contours shown in Figure 8-1, Rohnerville Airport appears to have a less than significant impact on the overall community noise environment.

Thresholds of Significance

Proposed General Plan implementation will have significant noise impacts if it:

- Exposes new noise-sensitive uses to existing noise levels in excess of applicable standards;
- Results in a substantial temporary or periodic increase in ambient noise levels;
- Results in a substantial permanent increase in ambient noise levels;
- Exposes persons to excessive ground borne noise or vibration; or
- For development located within an airport land use plan area, exposes persons to excessive airport/airplane noise.

Implications of the Draft Land Use Diagram

As indicated in Table 8.2-4, buildout under the proposed plan will result in a net increase of 5,725 residential units, 973,460 square feet of commercial, 400,000 square feet of industrial, 13,415 residents, and 9,625 employees. This could result in: (1) new development in areas that experience high noise; (2) additional noise during construction activities; (3) additional operational noise; (3) ground borne noise and vibration; and (5) exposure by a greater number of people to airport/airplane noise. Each of these is evaluated in the impact analysis later in this section.

Table 8.2-4
Net Increase in Development and Population Under the Proposed General Plan

Land Use/ Population	Existing Conditions (2009)	Proposed General Plan Buildout (2030)	Net Increase	Percent Increase
Residential (units)	4,918	10,643	5,725	216%
Commercial (sq. ft.)	285,000	1,258,460	973,460	442%
Industrial (sq. ft.)	191,900	591,900	400,000	308%
Residents	11,489	24,904	13,415	217%
Employees	3,342	12,967	9,625	388%
Source: Planwest Partners, 2009.				

General Plan Policy Response

The proposed General Plan includes the following policies and programs relevant to noise.

Policy HS-4.1 Noise Compatibility Standards. The City shall adopt noise standards by land use type to ensure compatibility with adjacent and noise-sensitive land uses.

Policy HS-4.2 Noise Compatibility Implementation. The City shall not permit new land uses that exceed the noise compatibility standards referenced in Policy HS-4.1 at either existing adjacent land uses or new noise-sensitive land uses.

Policy HS-4.3 Noise Problem Areas. The City shall identify and evaluate potential noise problem areas on a continuing basis.

Policy HS-4.4 Noise Source Isolation. The City shall require [new] uses that generate high levels of noise and ground-borne vibration to be separated or shielded from sensitive receptors, such as single and multi-family residential homes, group homes, hospitals and health care facilities, schools, libraries, churches, and other uses as may be determined by the City.

Policy HS-4.5 New Construction. The City shall strive to limit exterior and interior noise levels in residential areas to 60 and 45 dBA CNEL, respectively.

Policy HS-4.6 Noise Reduction Mechanisms. The City shall encourage the use of berms and increased building setbacks, or both, in the design of noise-sensitive land uses that are adjacent to major roads, commercial, or industrial areas.

Policy HS-4.7 Noise Barriers. The City shall consider the use of noise barriers (as a means of achieving the noise standards) only if all other practical design-related noise mitigation measures have been insufficient.

Policy HS-4.8 Noise Reduction/Design. The City shall lessen noise increases along the city's arterial and collector roads through project design of streets (including providing buffers to the extent feasible and screening), coordination of routing, and other traffic control measures.

Policy HS-4.9 Airport Area Noise. The City shall require that development near or adjacent to Rohnerville Airport be consistent with the noise standards contained in the Maximum Allowable Ambient Noise Exposure by Land Use Table and approved ALUCP, and where deemed appropriate, require aviation easements from new development.

Program HS-6. The City shall limit the hours and days of major construction activities throughout the City to the hours between 7:00 a.m. to 8:00 p.m., Monday through Saturday, except for emergencies and other special permitted circumstances.

Program HS-7. The City shall adopt the noise compatibility standards by land use type identified in Tables 8.2-5 and 8.2-6.

Program HS-8. The City shall require proposed new subdivisions, PUDs, and other large development have a noise study prepared to: (1) identify existing ambient noise conditions; (2) identify project construction noise; (3) identify future without and with project traffic noise levels; (4) identify project stationary source noise at adjacent noise-sensitive uses; (5) determine whether the project would exceed either the interior or exterior noise compatibility standards identified in Tables 8.2-5 and 8.2-6; and (6) for any excesses, identify mitigation measures that would bring project noise into compliance with the standards.

Table 8.2-5
Proposed Noise Compatibility Standards for Construction Noise[1]

Zoning District	dBA L_{max}	
	Daytime Exterior (7:00 am to 8:00 pm)	Nighttime Exterior (8:00 pm to 7:00 am)
Auditoriums, concert halls	60	55
Residential	65	60
Hotels, motels, transient lodging	70	60
Schools, libraries, churches, hospitals, nursing homes	75	65
Sports arenas, outdoor spectator venues	75	65
Playgrounds, parks	75	65
Golf courses, stables, water recreation, cemeteries	75	65
Office buildings	80	70
Commercial	80	70
Industrial, manufacturing	85	75
Agriculture	85	75
Natural recreation areas	75	65

[1] *Loosely based on Humboldt County's Noise Compatibility Standards, 1984 and 2008.*
Source: Planwest Partners, 2009.

Table 8.2-6
Proposed Noise Compatibility Standards for Traffic & Stationary Source Noise[1]

Land Use Category	dBA L_{dn}	
	Interior	Exterior
Auditoriums, concert halls	35	50
Residential	45	60
Hotels, motels, transient lodging	45	60
Schools, libraries, churches, hospitals, nursing homes	45	60
Sports arenas, outdoor spectator venues	--	65
Playgrounds, parks	--	65
Golf courses, stables, water recreation, cemeteries	--	65
Office buildings	50	70
Commercial	50	70
Industrial, manufacturing	60	75
Agriculture	--	80
Natural recreation areas	--	65

[1] *Loosely based on Humboldt County's Noise Compatibility Standards, 1984 and 2008.*
Source: Planwest Partners, 2009.

Program HS-9. The following stationary source noise measures shall be incorporated into new commercial, industrial and mixed-use projects adjacent to noise-sensitive land uses:

a) Loading docks shall be enclosed by noise walls where project buildings do not occur between the loading docks and existing/proposed residential uses;

b) Loading dock deliveries shall be restricted to the hours of 7:00 a.m. and 8:00 p.m., Monday through Friday; and

c) HVAC systems shall be enclosed sufficiently so that fan and compressor noise does not exceed 60 dBA L_{dn} at any existing off-site or proposed on-site residential uses,

Program HS-10. Proposed amplified announcing systems shall not exceed 65 dBA L_{max} during daytime hours, 60 dBA $_{Lmax}$ during nighttime hours, and 60 dBA L_{dn}, at the exteriors of any existing off-site or proposed on-site residential uses.

Policy LU-4.6 Residential Use Compatibility. The City shall give special consideration to the setbacks for residential development proposed in the vicinity of HWY 101, arterial streets, existing industrial, airport, agricultural uses, and the Wastewater Treatment Plant (WWTP) to minimize noise and other impacts.

Program LU-5. The City shall develop a set of noise attenuation measures to reduce noise levels for proposed residential uses to within the City's 60 dBA Ldn exterior and 45 Ldn interior noise standards. Noise reduction measures to include any combination of setbacks, berms, structural features, dual pane windows, noise-damping construction materials, or other measures.

Program LU-6. For new residential uses proposed directly adjacent to existing industrial, airport, agricultural and/or WWTP uses, the City shall require one of the following:

- Setbacks, berms and/or other features to limit noise, dust, light and odor impacts; or
- A public disclosure notice in the ownership deed and/or rental agreements stating that the residents may be subject to periodic noise, dust, light and/or odors associated with adjacent uses, and that these uses shall be held harmless so long as they operate in accordance with applicable City, State and federal standards.

Impacts and Mitigation

Impact 8.2-1: Exposure of New Noise-Sensitive Uses to Existing Noise in Excess of Applicable Standards

Proposed General Plan implementation would not expose new noise-sensitive uses to existing noise in excess of applicable standards.

Discussion

The Planning Area contains several large stationary noise sources (industrial and heavy commercial facilities) and multiple mobile noise sources (highways and major arterials). The potential for these existing noise sources to result in noise levels in excess of applicable standards at new noise-sensitive uses permitted under the proposed plan is evaluated below.

With respect to existing stationary noise sources, the community noise study finds that the Mercer-Fraser gravel operation currently generates noise up to 58 dBA, the Eel River Disposal Transfer Station currently generates noise up to 56 dBA, and various tire and car repair shops currently generate noise up to 100 dBA L_{max}. None of these noise sources contribute significantly to ambient L_{dn} in the community, and none operate during nighttime hours. In addition, the proposed General Plan will permit noise-sensitive land uses adjacent to several of these existing businesses. For example, the proposed Land Use Diagram designates the area immediately south of Mercer-Fraser and immediately west of the Transfer Station as Riverwalk District that will permit mixed-use development including noise-sensitive uses such as hotels, nursing homes, and churches. Hence, this analysis conservatively assumes that the proposed plan could expose new noise-sensitive land uses to existing stationary source noise in excess of applicable standards (prior to compliance with applicable regulations and implementation of the proposed policies and programs).

With respect to existing mobile noise sources, the community noise study found that the existing 60 dBA L_{dn} noise contours associated with the Planning Area's roadways currently extend up to 790 feet from centerline of Highway 101 and up to 260 feet from centerline of Fortuna's arterials (see Figure 8-1). The proposed Land Use Diagram permits new noise-sensitive uses along some of these roadways. For example, the proposed Land Use Diagram designates areas immediately east of Highway 101 as Mill District and on either side of Fortuna Boulevard as Corridor Mixed Use, both of which permit mixed uses including noise-sensitive uses such as residential, libraries and churches. Another example is along either side of Rohnerville Road where the proposed Land Use Diagram designates Residential Very Low, Residential Low, and Residential Medium

housing A third example is Redwood Way, Kenmar Road and School Road, each of which bisect areas designated by the proposed Land Use Diagram for residential use.

The California Noise Control Act requires that the State protect the health and welfare of its citizens by controlling, preventing and abating noise. Theoretically, citizens have a legal avenue to affect existing noise that has serious health and safety effects. The California Noise Insulation Standards (Title 24) require acoustical studies for residential structures proposed within noise contours of 60 dBA or greater from highways, arterials and industrial facilities that demonstrate how structure design will limit interior noise to 45 dBA L_{dn}. In addition, the proposed plan includes policies and programs designed to minimize exposure to substantial existing noise levels:

- Policy HS-4.3 requires the City to identify and evaluate potential noise problem areas on a continuing basis;
- Program HS-7 requires the City to adopt the noise compatibility standards identified in Tables 8.2-6, including the State's recommended 60 dBA L_{dn} exterior standard for residential uses;
- Program HS-8 requires new subdivisions, PUDs, and other large development projects to have a noise study prepared, and to mitigate any potential excess of the proposed noise standards;
- Program LU-5 requires the City to develop a set of noise attenuation measures to reduce noise levels in proposed residential uses to within the City's proposed 60 dBA L_{dn} exterior and 45 L_{dn} exterior noise standards; and
- Program LU-6 requires new residential development proposed adjacent to existing industrial, airport, agricultural and/or WWTP uses to incorporate setbacks, berms and/or other features to limit noise intrusion into the development.

By complying with the regulations listed above, and implementing the proposed policies and programs listed above, the proposed plan will not expose new noise-sensitive uses to existing stationary or mobile source noise levels in excess of applicable standards.

Determination of Level of Significance

Less-Than-Significant

Mitigation

No mitigation necessary

Impact 8.2-2: Result in a Substantial Temporary/Periodic Increase in Ambient Noise Levels

Proposed General Plan implementation would not result in substantial temporary or periodic increases in ambient noise levels.

Discussion

The proposed plan will facilitate the development of up to 5,725 new residential units, 973,460 square feet of commercial space (including mixed-uses), and 400,000 square feet of new industrial uses. Construction activities, including grading, earth moving, trenching, building construction, landscaping, and the use of construction equipment associated with these activities, will generate temporary periodic stationary and mobile source noise throughout the time horizon of the proposed plan. This is especially true in the proposed Focus Areas and Annexation Areas where the majority of this new development and redevelopment is anticipated to take place. Where proximate to existing noise-sensitive uses, this construction noise could temporarily exceed both the State's recommended maximum acceptable exterior noise exposure levels of 60 dBA L_{dn} for residential uses and 70 dBA L_{dn} for school, library, church, hospital and park uses and Humboldt County's instantaneous exterior noise exposure standards for residential uses of 65 dBA L_{max} during daytime and 60 dBA L_{max} during nighttime (the County standard is used here in the absence of recommended State or adopted City L_{max} standards).

While the proposed plan could result in construction noise audible to existing adjacent noise-sensitive land uses, CEQA requires individual development projects with the potential to result in substantial noise impacts to assess impacts and develop and implement appropriate mitigation measures. In addition, the proposed plan includes the following policies designed to avoid significant construction noise impacts:

- Policy HS-4.1 requires the City to adopt noise standards by land use type to ensure compatibility with adjacent noise-sensitive land uses;
- Program HS-6 limits construction activities to the hours between 7:00 a.m. and 8:00 p.m., Monday through Saturday, except in emergencies and other special permitted circumstances
- Program HS-7 requires the City to adopt the noise compatibility standards for construction noise by land use type identified in Table 8.2-5 (which are loosely based on Humboldt County's Noise Compatibility Standards; for example, exterior daytime and nighttime instantaneous noise standards for residential uses of 65 and 60 dBA L_{max}, respectively); and
- Program HS-8 requires proposed subdivisions, PUDs and other large development projects to prepare a noise study that evaluates construction noise. If it exceeds applicable noise standards, the study shall identify appropriate mitigation measures to reduce the impacts.

By complying with CEQA and implementing the policies and programs, and because any construction noise will be temporary and short-lived, the proposed plan will not result in substantial temporary/ periodic increases in ambient noise.

Determination of Level of Significance

Less-Than-Significant

Mitigation

No mitigation necessary

Impact 8.2-3: Result in a Substantial Permanent Increase in Ambient Noise Levels

Proposed General Plan implementation could result in substantial permanent increases in ambient noise levels.

Discussion

The proposed plan facilitates the development of up to 5,725 new residential units, 973,460 square feet of commercial space (including mixed-uses), and 400,000 square feet of new industrial uses. This new development will most likely include industrial facilities, heavy commercial uses (e.g., car repair, lumber yards), schools, and other uses that generate permanent stationary source noise, and create traffic that generate permanent mobile source noise along the Planning Area's arterials and lesser streets. Each of these is evaluated below.

<u>Permanent Stationary Source Noise</u>

The proposed plan does not include specific development proposals for industrial facilities, heavy commercial uses, schools, or other uses that would generate permanent stationary source noise. However, the proposed plan includes proposals for land use designations that allow stationary source noise generators adjacent to existing or future noise sensitive uses. For example, the proposed plan includes an Industrial (IND) land use designation that permits warehouse, light manufacturing, general industrial and general commercial uses across Rohnerville Road from existing/proposed very low residential uses and immediately north of the proposed Riverwalk District where mixed uses, including residential, would be permitted. Another example is the proposed Commercial (COM) designation that permits neighborhood and locally-oriented commercial centers. The proposed Land Use Diagram designates COM adjacent to existing/permitted very low and low density residential east of Rohnerville Road, next to existing low density residential on both sides of School Road, and in the midst of several other existing residential neighborhoods. A third example is the proposed Corridor Mixed Use (CMU) designation that permits retail and service establishments, restaurants, entertainment uses, and other mixed uses along the east side of Fortuna Boulevard adjacent to existing/permitted low, medium and high density residential uses.

Development permitted under the proposed plan could result in permanent stationary-source noise at existing and future noise sensitive sites in excess of the State's recommended maximum acceptable exterior noise exposure levels (e.g., 60 dBA L_{dn} for residential uses and 70 dBA L_{dn} for other noise sensitive uses). CEQA requires individual development projects with the potential to result in substantial noise impacts to assess and mitigate the effects with measures designed to avoid potential significant noise impacts.

In addition, the proposed plan includes policies and programs designed to protect new noise-sensitive uses from substantial permanent mobile source noise:

- Policy HS-4.1 requires the City to adopt noise standards to ensure compatibility with adjacent noise-sensitive land uses;
- Policy HS-4.2 prohibits new land uses that exceed the noise compatibility standards referenced in Policy HS-4.1 at either existing adjacent land uses or new noise sensitive land uses;
- Policy HS-4.4 requires new uses that generate high levels of noise to be separated or shielded from noise sensitive uses;
- Program HS-7 requires the City to adopt the noise compatibility standards for stationary source noise by land use type identified in Table 8.2-6 (e.g., exterior noise standards for residential uses of 60 dBA L_{dn}, etc.);
- Program HS-8 requires that proposed new subdivisions, PUDs and other large development projects have a noise study prepared that evaluates whether the project would expose noise sensitive receptors to noise levels in excess of applicable standards, and if yes, that identifies mitigation measures required to avoid the excess noise;
- Policy HS-9 requires that specified noise reduction measures (e.g., shielding loading docks, limiting loading dock hours to daytime, enclosing HVAC systems, etc.) be incorporated into new commercial, industrial and mixed use projects adjacent to noise sensitive uses;
- Program LU-5 requires the City to develop a set of noise attenuation measures to reduce noise levels for proposed residential development to within 60 dBA L_{dn} exterior and 45 L_{dn} interior via measures such as setbacks, berms, structural features, dual pane windows, noise-damping construction materials, etc; and
- Program LU-6 requires new residential uses proposed directly adjacent to existing industrial, airport, agricultural or WWTP uses to incorporate setbacks, berms and/or other features to limit noise

By complying with CEQA and implementing the proposed policies and programs listed here, the proposed plan will not result in a substantial permanent increase in stationary-source noise at existing/permitted noise sensitive sites (e.g., existing regulations and proposed policies and programs would require setbacks or other features in new residential and stationary-source noise development that maintains noise within applicable limits at adjacent noise sensitive sites).

Permanent Mobile Source Noise

The traffic analysis (Section 4.1 of this PEIR) estimates that motor vehicle trip generation under proposed General Plan buildout will increase by from 77,505 to 156,507 trips per day (a 102% increase). Assuming that this translates to a roughly doubling of daily traffic on the City's arterials, the existing 60 dBA L_{dn} noise contours along the arterials (shown in Figure 8-1) will likely increase from an average of 250 feet to 330 feet from centerline (e.g., approximately 290 feet from the edge of the arterials).[1] Because existing and proposed noise-sensitive uses, such as residential, schools, libraries, churches, hospitals and nursing homes, generally occur or will be permitted closer than 290 feet from the City's arterials, the State's recommended maximum acceptable exterior noise exposure levels of 60 dBA L_{dn} for residential uses and 70 dBA L_{dn} for other noise sensitive uses could be exceeded under the proposed plan.

Implementing the proposed plan could result in permanent mobile source noise in excess of recommended standards. CEQA requires that individual development projects with the potential to create substantial noise assess the impacts and implement appropriate mitigation measures to avoid significant noise impacts. In addition, the proposed plan includes policies and programs designed to protect new noise-sensitive sites from substantial permanent increases in mobile source noise:

- See the policies and programs listed under the "Permanent Stationary-source Noise" subheading above;
- Policy HS-4.8 requires the City to lessen noise increases along the City's arterials and collectors through project design of streets (including providing buffers to the extent feasible), coordination of routing, and other traffic control measures; and
- Policy LU-4.6 requires special consideration for setbacks for residential development proposed in the vicinity of HWY 101 and arterial streets to minimize noise impacts.

By complying with CEQA and implementing the proposed policies and programs listed above, the proposed plan will not result in a substantial permanent increase in mobile source noise at new noise-sensitive sites (i.e., existing regulations and proposed policies and programs require setbacks and/or other features in new development that prevent noise from exceeding applicable noise standards at these new sites). At the same time, these regulations and measures will not apply to existing noise-sensitive land uses along the arterials (i.e., they will not be retroactive, and in many cases their application would be infeasible given that the development has already occurred). Therefore, the proposed plan could result in a substantial permanent increase in mobile source noise at existing noise sensitive sites.

Determination of Level of Significance

Less-Than-Significant (Stationary noise source impacts)
Less-Than-Significant (Mobile noise source impacts on new noise sensitive uses).

[1] Assumes 80 foot wide arterial street cross-section. The average 60 dBA L_{dn} noise contour distance under the proposed plan was determined by Planwest Partners using the 2006 Federal Highway Administration (FHWA) Transportation Noise Model. July 11, 2010.

Significant Unavoidable Adverse Impact (Mobile noise source impacts on existing noise sensitive use sites)

Mitigation

No mitigation necessary (Stationary noise source impacts)
No mitigation necessary (Mobile noise source impacts on new noise sensitive uses).
No feasible mitigation available (Mobile noise source impacts on existing noise sensitive uses)

Impact 8.2-4: Exposure to Excessive Ground Borne Noise or Vibration

Proposed General Plan implementation would not expose persons to excessive ground borne noise or vibration.

Discussion

Ground born noise and vibration may be generated by a variety of activities. With respect to urban development, ground born noise and vibration is most often associated with certain types of construction activities and industrial operations. Construction activities that can cause ground born noise and vibration include blasting, the use of pile drives and hydraulic breakers, and the use of especially large earth moving equipment. Industrial and manufacturing operations that can cause ground born noise and vibration include gravel crushing, metal stamping, and other types of heavy concussive equipment use. Whether ground born noise and vibration is considered "excessive" is a function of both frequency and velocity, with frequencies of 70 vibration events per day combined with peak velocities of 0.1 inches or more generally considered "excessive".

The proposed plan does not include proposals for specific development projects. Therefore, it is unknown whether development permitted under the proposed plan would be the type that generates excessive ground born noise and vibration. However, it is reasonable to assume that some blasting and/or use of hydraulic breakers may be required during construction activities in the easterly rocky bluff areas of the Planning Area. Some use of pile drivers and other deep foundation equipment use may be required during construction activities in the westerly sediment-rich portions of the Planning Area. It is also reasonable to assume, based on the land uses permitted under the proposed Industrial (IND) and Open Space (OS)[2] designations, that some new gravel operations and industrial/manufacturing facilities using concussive equipment may be developed under the proposed plan. If uncontrolled construction, gravel extraction operations, and industrial activities were to occur adjacent to residential, hospital and R&D uses that depend on stable and controlled conditions, could be the source of excessive ground born noise and vibration.

[2] Land uses permitted under the proposed OS designation are considered to have the potential to generate ground borne noise and vibration because logging operations are permitted under this designation.

While the proposed plan could result in ground born noise and vibration, the California Noise Control Act requires that the State protect the health and welfare of its citizens by the control, prevention and abatement of noise. In addition, CEQA requires that individual development projects with the potential to result in significant impacts, including excessive ground born noise and vibration, evaluate the effects of noise on adjacent receptors. If appropriate, mitigation measures must be identified and implemented to avoid potential significant impacts. Finally, the proposed plan includes policies and programs designed to protect sensitive uses from excessive ground born noise and vibration:

- Policy HS-3.4 requires new uses that generate high levels of noise and ground born vibration be separated or shielded from sensitive receptors such as residential, hospitals, health care facilities, schools, libraries, churches, and other uses determined by the City;
- Policy HS-4.6 encourages the use of berms and increased building setbacks, or both, in new noise sensitive uses proposed adjacent to industrial areas;
- Program HS-6 restricts major construction activities to the hours of 7:00 a.m. to 8:00 p.m., Monday through Saturday; and
- Program LU-6 requires new residential uses that are proposed adjacent to existing industrial, airport, agricultural or WWTP uses to incorporate setbacks, berms, and/or other features to limit noise.

By complying with these regulations, policies and programs, the proposed plan developers will not expose persons to excessive ground born noise or vibration.

Determination of Level of Significance

Less-Than-Significant

Mitigation

No mitigation necessary

Impact 8.2-5: Exposure to Excessive Airport Noise

Proposed General Plan implementation would not expose persons to excessive airport/airplane noise within the airport land use plan area of Rohnerville Airport.

Discussion

In order to assess the potential for the proposed plan to expose persons to excessive airport/airplane noise associated with Rohnerville Airport, three issues are evaluated below: (1) whether the proposed plan would expose new development to airport/airplane noise above the State's recommended exterior noise exposure standard for residential uses of 60 dBA L_{dn}; (2) the consistency of the proposed plan with the noise policies, noise compatibility criteria, and compatibility zones specified in ALUCP; and (3) whether the proposed plan would increase

ridership at the airport such that the additional flights would result in additional excessive airport/airplane noise.

Expose New Development to Airport/Airplane Noise Above 60 dBA L_{dn}

As indicated in Figure 8-1, Rohnerville Airport's 60 dBA CNEL noise contour is almost totally restricted to the airport property. The airport property is under the land use jurisdiction of ALUC and not the City of Fortuna. Therefore, the proposed plan would not result in new development within the airport property or within most of the 60 dBA CNEL noise contour. However, the 60 dBA CNEL noise contour extends to cover small areas immediately northwest and southeast of the airport property in line with the airport's main runway. These two small areas would be designated as Agriculture (AG) under the proposed plan which would permit agricultural uses and residential up to 1 du per 20 ac. Hence, the proposed plan could potentially permit several new residential units within the 60 dBA CNEL noise contour of the airport and thus potentially expose these units to noise levels above the State's recommended 60 dBA L_{dn} exterior standard for residential uses. However, the proposed plan includes policies and programs designed to prevent this occurrence, including: (1) Policy HS-4.9 which requires that new development near or adjacent to the airport be consistent with the noise standards of the ALUCP (including its 60 dBA CNEL noise exposure requirement for residential uses); (2) Program HS-7 which requires the City to adopt the noise compatibility standards identified in Table 8.2-6 (e.g., 60 dBA L_{dn} at the exterior of residential uses, etc.); and (3) Program LU-5 which requires noise attenuation measures in new residential development required to meet the proposed 60 dBA L_{dn} exterior and 45 L_{dn} interior noise standards, such as setbacks, berms, structural features, dual pane windows, and noise-damping construction. With the implementation of these policies and programs, the proposed plan would not expose new development to airport/airplane noise levels above 60 dBA L_{dn}.

Consistency with the Noise Requirements of the ALUCP

Under the proposed plan, new urban development would be permitted around Rohnerville Airport by the proposed Land Use Diagram (Figure 2-7 in Section 3.1), including within some of the Airport Land Use Compatibility Zones designated around the airport by the ALUCP (Figure 8-2).

The ALUCP contains several noise policies that must be complied with within the compatibility zones, including: setting the "normally acceptable" exterior noise exposure level for residential uses at 60 dBA CNEL; requiring that noise exposure in outdoor activity areas be considered; recommending that single-event noise levels for highly noise sensitive uses (e.g., schools, libraries and outdoor theaters) be considered; and noting that acoustical studies or on-site noise measurements may be required to assist in determining compatibility of sensitive uses. As indicated in Table 8.2-3, the ALUCP also contains several noise compatibility criteria applicable within the noise compatibility zones, including: restricting development within each noise compatibility zone to a specific set of uses; and requiring the dedication of aviation or over-flight easements.

The proposed plan would not result in new development within Compatibility Zone "A" and most of Compatibility Zone "B1" because these areas cover the airport property which is under the land use jurisdiction of the ALUC and not the City of Fortuna. However, the proposed plan

would permit new development within the balance of the compatibility zones as described below:

1) Compatibility Zone B1 (portion outside the airport property): The proposed plan would designate land within this zone as Agriculture (AG), Industrial (IND), and Residential Rural (RR). These designations permit agricultural, industrial, and residential up to 1 du per ac;
2) Compatibility Zone B2: The proposed plan would designate land within this zone as AG. This designation permits agricultural uses and residential at 1 du per 20 ac;
3) Compatibility Zone C: The proposed plan would designate land within this zone as AG, IND and RR. These designations permit agricultural, industrial, and residential up to 1 du per ac; and
4) Compatibility Zone D: The proposed plan would designate land within this zone as AG, IND, RR, Residential Very Low (RVL), Residential Low (RL), Residential Medium (RM), and Public (PUB). These designations permit agricultural, industrial, and residential up to 14.9 du per ac.

While the proposed plan would permit new development in the compatibility zones as described above, the proposed plan includes policies and programs designated to ensure the consistency of this development with the noise policies, noise compatibility criteria, and compatibility zones of the ALUCP. These include: (1) Policy HS-4.9 which requires that new development near or adjacent to the airport be consistent with the noise standards of the ALUCP and include aviation easements, where required; (2) Program HS-7 which requires the City to adopt the noise compatibility standards identified in Table 8.2-6 (e.g., 60 dBA L_{dn} at the exterior of residential uses, etc.); (3) Program HS-8 which requires noise studies for proposed new subdivisions, PUDs and other large development projects which identify existing ambient noise conditions and mitigation required to reduce noise exposure to the levels identified in Table 8.2-6; and (4) Program LU-5 which requires noise attenuation measures in new residential development required to meet the proposed 60 dBA L_{dn} exterior and 45 L_{dn} interior noise standards, such as setbacks, berms, structural features, dual pane windows, and noise-damping construction. With the implementation of these policies and programs, the proposed plan would be consistent with the noise policies and noise compatibility criteria of the ALUCP.

For analysis of the consistency of the proposed plan with the land use and safety policies and compatibility criteria of the ALUCP, see Sections 3.1 and 8.4 of this PEIR, respectively.

Generate Additional Excessive Airport Noise

According to the ALUCP, there were 27,500 annual flights out of Rohnerville Airport in 1991, including CAL FIRE plane and helicopter flights, and this was projected by the ALUCP to increase to 40,000 flights by 2011 (a 145% increase; ALUC 1993). Based on the increase, annual flights (including CAL FIRE flights) out of Rohnerville Airport will grow to a projected 58,000 flights by 2030 (the buildout year of the proposed plan). This projection assumes that the airport's facilities can accommodate this number of flights. While it can be reasonably assumed that the increase in population and development under the proposed plan will contribute to this

increase in flights, advanced noise reduction technologies are constantly incorporated into new aircraft. The estimated increase in flights will not necessarily translate to an increase in airport/airplane noise. This is demonstrated by the 1991 and 2011 noise contour maps for Rohnerville Airport contained in the ALUCP which shows that, despite the 145% increase in flights between 1991 and 2011, there was actually a reduction in the size of the noise contours around the airport during this period. Also, per FAA regulations, ALUC is responsible for airport planning and for mitigating any increases in excessive airport noise around Rohnerville Airport, not the City of Fortuna. Finally, any future increases in excessive airport/airplane noise at Rohnerville Airport will be subject to its own CEQA review as part of future ALUCP updates by ALUC. Therefore, any increase in flights at the airport attributable to development under the proposed plan would not result in additional excessive airport noise.

Determination of Level of Significance

Less-Than-Significant

Mitigation

No mitigation necessary

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