4.10 NOISE

This chapter of the Environmental Assessment (EA) beings with a discussion of the fundamentals of sound and an examination of federal, state, and local noise guidelines, policies, and standards. The remainder of the chapter provides an evaluation of the potential noise-related, environmental consequences of future development that could occur by adopting and implementing the proposed Housing Element Update, General Plan Consistency Update, and associated Zoning Ordinances amendments, together referred to as the "Plan Components." This evaluation focuses specifically on the potential for implementation of the Plan Components to result in noise impacts within the EA Study Area. The supporting analysis considers noise levels at existing receptor locations; evaluates potential noise impacts associated with the Plan Components; and provides mitigation where necessary to reduce noise impacts at noise-sensitive locations. Noise calculations on which this analysis is based are included in Appendix E, Noise Monitoring and Modeling Data.

A. Background

1. Noise Descriptors

Noise is most often defined as unwanted sound. Although sound can be easily measured, the perception of noise and the physical response to sound complicate the analysis of its impact on people. People judge the relative magnitude of sound sensation in subjective terms such as "noisiness" or "loudness."

The following are brief definitions of terminology used in this section:

- **Sound.** A disturbance created by a vibrating object, which, when transmitted by pressure waves through a medium such as air, is capable of being detected by a receiving mechanism, such as the human ear or a microphone.
- **Noise.** Sound that is loud, unpleasant, unexpected, or otherwise undesirable.
- **Decibel (dB).** A unit-less measure of sound on a logarithmic scale.
- **A-Weighted Decibel (dBA).** An overall frequency-weighted sound level in decibels that approximates the frequency response of the human ear.
- **Equivalent Continuous Noise Level (Leq).** The mean of the noise level, energy averaged over the measurement period.
- **Statistical Sound Level (Ln).** The sound level that is exceeded "n" percent of time during a given sample period. For example, the L50 level is the statistical indicator of the time-varying noise signal that is exceeded 50 percent of the time (during each sampling period); that is, half of the sampling time, the

changing noise levels are above this value and half of the time they are below it. This is called the "median sound level." The L10 level, likewise, is the value that is exceeded 10 percent of the time (i.e. near the maximum) and this is often known as the "intrusive sound level." The L90 is the sound level exceeded 90 percent of the time and is often considered the "effective background level" or "residual noise level."

- **Day-Night Sound Level (Ldn or DNL).** The energy-average of the A-weighted sound levels occurring during a 24-hour period, with 10 dB added to the sound levels occurring during the period from 10:00 p.m. to 7:00 a.m.
- **Community Noise Equivalent Level (CNEL).** The energy-average of the A-weighted sound levels occurring during a 24-hour period, with 5 dB added to the levels occurring during the period from 7:00 p.m. to 10:00 p.m. and 10 dB added to the sound levels occurring during the period from 10:00 p.m. to 7:00 a.m.

2. Characteristics of Sounds

When an object vibrates, it radiates part of its energy as acoustical pressure in the form of a sound wave. Sound can be described in terms of amplitude (loudness), frequency (pitch), or duration (time). The human hearing system is not equally sensitive to sound at all frequencies. Therefore, to approximate the human, frequency-dependent response, the A-weighted filter system is used to adjust measured sound levels. The normal range of human hearing extends from approximately 0 dBA (the threshold of detection) to 140 dBA (the threshold of pain).

Unlike linear units such as inches or pounds, decibels are measured on a logarithmic scale to better account for the large variations in pressure amplitude (the above range of human hearing, 0 to 140 dBA, represents a ratio in pressures of one hundred trillion to one). All noise levels in this study are relative to the industry-standard pressure reference value of 20 micropascals. Because of the physical characteristics of noise transmission and perception, the relative loudness of sound does not closely match the actual amounts of sound energy. Table 4.10-1 presents the subjective effect of changes in sound pressure levels.

Sound is generated from a source; the decibel level decreases as the distance from that source increases. Sound dissipates exponentially with distance from the noise source. This phenomenon is known as spreading loss or distance attenuation.

TABLE 4.10-1 **CHANGE IN APPARENT LOUDNESS**

± 3 dB	Threshold of human perceptibility
± 5 dB	Clearly noticeable change in noise level
± 10 dB	Half or twice as loud
± 20 dB	Much quieter or louder

Source: Bies and Hansen 2009.

When sound is measured for distinct time intervals, the statistical distribution of the overall sound level during that period can be obtained. For example, L_{50} is the noise level that is exceeded 50 percent of the time. Similarly, the L_{02}, L_{08}, and L_{25} values are exceeded 2, 8, and 25 percent of the time or 1, 5, and 15 minutes per hour. The energy-equivalent sound level (L_{eq}) is the most common parameter associated with community noise measurements. The L_{eq} metric is a single-number noise descriptor of the energy-average sound level over a given period of time. Other values typically noted during a noise survey are the L_{min} and L_{max}. These values are the minimum and maximum root-mean-square (RMS) noise levels obtained over the stated measurement period.

Because community receptors are more sensitive to unwanted noise intrusion during the evening and nighttime hours, state law requires that, for planning purposes and to account for this increased receptiveness of noise, an artificial decibel increment is to be added to quiet-time noise levels to calculate the 24-hour CNEL noise metric.

3. Psychological and Physiological Effects of Noise

Physical damage to human hearing begins at prolonged exposure to noise levels higher than 85 dBA. Exposure to high noise levels affects the entire system; prolonged noise exposure in excess of 75 dBA increases body tensions, thereby affecting blood pressure and functions of the heart and nervous system. Extended periods of noise exposure above 90 dBA results in permanent cell damage, which is the main driver for employee hearing protection regulations in the workplace. For community environments, the ambient or background noise problem is widespread and generally more concentrated in urban areas than in outlying, less-developed areas. Many factors influence the ambient noise environment and the perception of noise, including meteorological conditions such as temperature and humidity. Elevated ambient noise levels can result in noise interference (e.g. speech interruption/masking, sleep disturbance, disturbance of concentration) and cause annoyance. Since most people do not routinely work with decibels or A-weighted sound levels, it is often difficult to appreciate what a given sound pressure level (SPL) number means. To help relate noise level values to common experience, Table 4.10-2 shows typical noise levels from noise sources.

4. Vibration Fundamentals

Vibration is an oscillatory motion through a solid medium in which the motion's amplitude can be described in terms of displacement, velocity, or acceleration. Vibration is normally associated with activities such as railroads or vibration-intensive stationary sources, but can also be associated with construction equipment such as jackhammers, pile drivers, and hydraulic hammers. Vibration displacement is the distance that a point on a surface moves away from its original static position. The instantaneous speed that a point on a surface moves is the velocity, and the rate of change of the speed is the acceleration. Each of these descriptors can be used to correlate vibration to human response, building damage, and acceptable equipment vibration levels. During project construction, the operation of construction equipment can cause groundborne vibration. During the operational phase of a project, receptors may be subject to levels of vibration that can cause annoyance due to noise generated from vibration of a structure or items within a structure. These types of vibration are best measured and described in terms of velocity and acceleration.

The three main types of waves associated with groundborne vibrations are surface or Rayleigh waves, compression or P-waves, and shear or S-waves.

- Surface or Rayleigh waves travel along the ground surface. They carry most of their energy along an expanding cylindrical wave front, similar to the ripples produced by throwing a rock into a lake. The particle motion is more or less perpendicular to the direction of propagation.
- Compression or P-waves are body waves that carry their energy along an expanding spherical wave front. The particle motion in these waves is longitudinal, in a push-pull motion. P-waves are analogous to airborne sound waves.
- Shear or S-waves are also body waves, carrying their energy along an expanding spherical wave front. Unlike P-waves, however, the particle motion is transverse, or perpendicular to the direction of propagation.

Vibration amplitudes are usually described in terms of either the peak particle velocity (PPV) or the RMS velocity. PPV is the maximum instantaneous peak of the vibration signal and RMS is the square root of the average of the squared amplitude of the signal. PPV is more appropriate for evaluating potential building damage, whereas RMS is typically more suitable for evaluating human response.

TABLE 4.10-2 **TYPICAL NOISE LEVELS**

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
	110	Rock Band
Jet Flyover at 1,000 feet		
	100	
Gas Lawn Mower at 3 feet		
	90	
Diesel Truck at 50 feet, at 50 miles per hour		Food Blender at 3 feet
	80	Garbage Disposal at 3 feet
Noisy Urban Area, Daytime		
	70	Vacuum Cleaner at 10 feet
Commercial Area		Normal speech at 3 feet
Heavy Traffic at 300 feet	60	
		Large Business Office
Quiet Urban Daytime	50	Dishwasher Next Room
Quiet Urban Nighttime	40	Theater, Large Conference Room (background)
Quiet Suburban Nighttime		
	30	Library
Quiet Rural Nighttime		Bedroom at Night, Concert Hall (background)
	20	
		Broadcast/Recording Studio
	10	
Lowest Threshold of Human Hearing	0	Lowest Threshold of Human Hearing

The units for PPV and RMS velocity are normally inches per second (in/sec). Often, vibration is presented and discussed in dB units in order to compress the range of numbers required to describe the vibration. In this study, all PPV and RMS velocity levels are in in/sec and all vibration levels are in dB relative to one micro-inch per second (abbreviated as VdB). Typically, groundborne vibration generated by human activities attenuates rapidly with distance from the source of the vibration. Even the more persistent Rayleigh waves decrease relatively quickly as they move away from the source of the vibration. Man-made vibration problems are, therefore, usually confined to relatively short distances (500 to 600 feet or less) from the source.[1]

Construction operations generally include a wide range of activities that can generate groundborne vibration. In general, blasting and demolition of structures generate the highest vibrations. Vibratory compactors or rollers, pile drivers, and pavement breakers can generate perceptible amounts of vibration at up to 200 feet. Heavy trucks can also generate groundborne vibrations, which can vary, depending on vehicle type, weight, and pavement conditions. Potholes, pavement joints, discontinuities, differential settlement of pavement, etc., all increase the vibration levels from vehicles passing over a road surface. Construction vibration is normally of greater concern than vibration from normal traffic flows on streets and freeways with smooth pavement conditions. Trains generate substantial quantities of vibration due to their engines, steel wheels, heavy loads, and wheel-rail interactions.

5. Noise- and Vibration-Sensitive Receptors

Certain land uses are particularly sensitive to noise and vibration, including residential, school, and open space/recreation areas where quiet environments are necessary for enjoyment, public health, and safety. Sensitive land uses within the EA Study Area include residences, schools, places of worship, and recreational areas. These uses are regarded as sensitive because they are where citizens most frequently engage in activities which are likely to be disturbed by noise, such as reading, studying, sleeping, resting, or otherwise engaging in quiet or passive recreation. Commercial and industrial uses are not considered uses for the purposes of this analysis since noise- and vibration-sensitive activities are less likely to occur in these areas. Additionally, commercial and industrial uses often themselves generate more noise than they receive from other uses.

[1] Federal Transit Administration, 2006. Transit Noise and Vibration Impact Assessment.

B. Regulatory Framework

To limit population exposure to physically and/or psychologically damaging as well as intrusive noise levels, the federal government, the State of California, various county governments, and most municipalities in the state have established standards and ordinances to control noise.

1. State of California Noise Standards

a. State of California Building Code

The state of California's noise insulation standards are codified in the California Code of Regulations, Title 24, *Building Standards Administrative Code*, Part 2, *California Building Code*. These noise standards are applied to new construction in California for the purpose of interior noise compatibility from exterior noise sources. Acoustical studies that accompany building plans must demonstrate that the structure has been designed to limit interior noise in habitable rooms to acceptable noise levels. For new residential buildings, schools, and hospitals, the acceptable interior noise limit for new construction is 45 dBA CNEL.

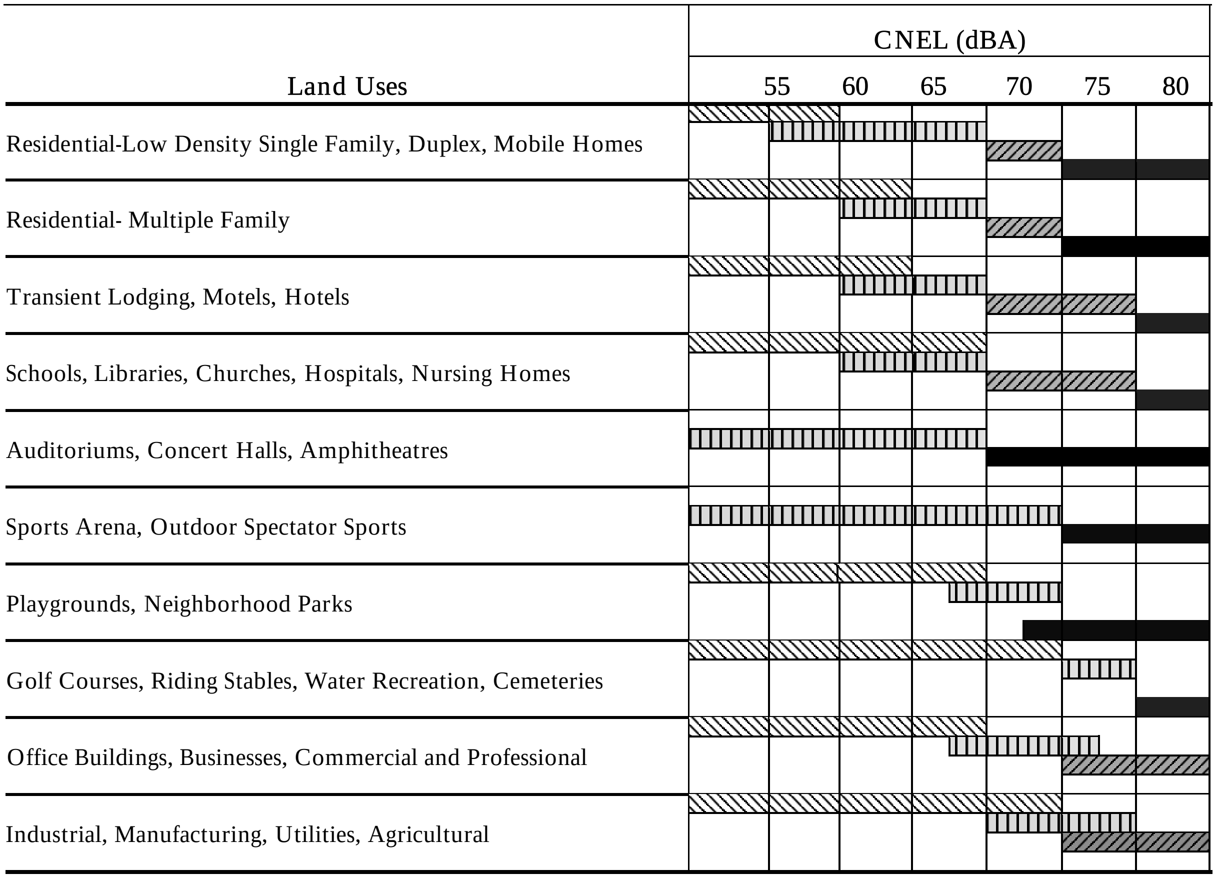
b. State of California Land Use Compatibility Criteria

Table 4.10-3 presents a land use compatibility chart for community noise adopted by the State of California as part of its General Plan Guidelines. This table provides urban planners with a tool to gauge the compatibility of new land uses relative to existing and future noise levels. This table identifies normally acceptable, conditionally acceptable, and clearly unacceptable noise levels for various land uses. A conditionally acceptable designation implies new construction or development should be undertaken only after a detailed analysis of the noise reduction requirements for each land use is made and needed noise insulation features are incorporated in the design. By comparison, a normally acceptable designation indicates that standard construction can occur with no special noise reduction requirements.

2. Menlo Park Noise Element

Menlo Park adopted a Noise Element in 1978. The City's noise element discusses how ambient noise should influence land use and development decisions and includes a chart of normally acceptable, conditionally acceptable, normally unacceptable, and clearly unacceptable uses at different noise levels expressed in either L_{dn} or CNEL. The noise element directed the City to adopt development and noise insulation standards generally consistent with the contemporaneous version of the State of California's Noise Insulation Standard. The Menlo Park General Plan Noise Element utilizes the noise compatibility criteria shown in Table 4.10-4 below, and limits the maximum interior noise levels for residential areas to 45 dBA CNEL at habitable rooms, and a maximum of 50 dBA for bedrooms and 55 dBA for other habitable rooms. Though similar, Menlo Park's noise compatibility standards differ from the State's.

TABLE 4.10-3 **CALIFORNIA LAND USE COMPATIBILITY FOR COMMUNITY NOISE ENVIRONMENTS**



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

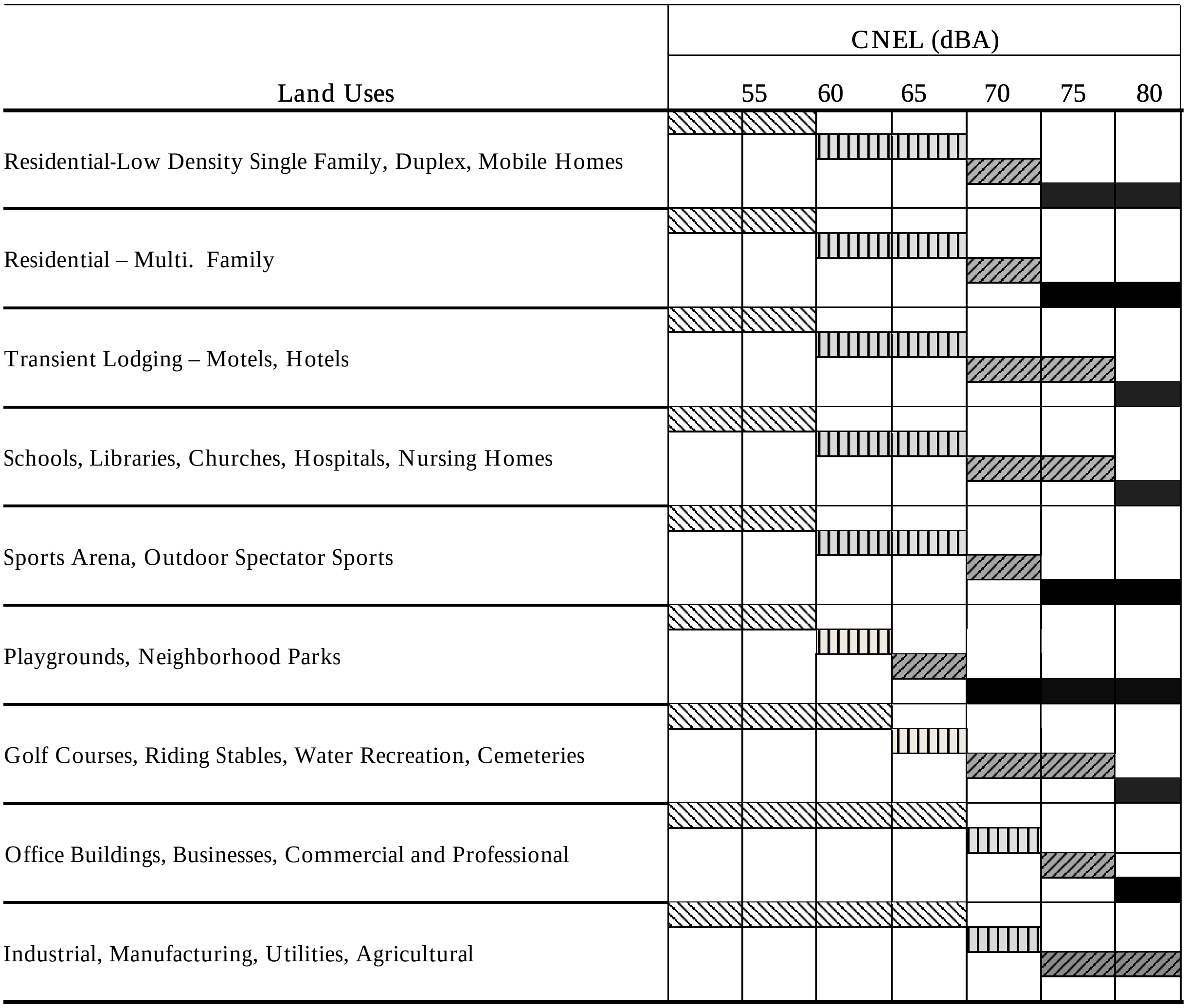
Normally Unacceptable:
New construction or development should generally be discouraged. If new construction does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design.

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

Clearly Unacceptable:
New construction or development generally should not be undertaken.

Source: California Office of Noise Control, 1971. Guidelines for the Preparation and Content of Noise Elements of the General Plan. February 1976. Adapted from the US EPA Office of Noise Abatement Control, Washington D.C. Community Noise. Prepared by Wyle Laboratories. December.

TABLE 4.10-4 **MENLO PARK LAND USE COMPATIBILITY FOR COMMUNITY NOISE ENVIRONMENTS**



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

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

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

Clearly Unacceptable:
New construction or development generally should not be undertaken.

Source: Menlo Park Noise Element of the Comprehensive Plan, 1978. City of Menlo Park, California.

3. Menlo Park Municipal Code

Menlo Park addresses noise in various capacities under multiple chapters of its municipal code. Noise is primarily addressed in Chapter 8.06 (Noise); additional chapters making brief mention of minor and/or incidental noise issues and regulations include Chapters 8.07 (Leaf Blowers), 8.12 (Business Operations after Midnight), 8.28 (Parks and Recreation), 9.26 (Poultry and Rabbits), 11.64 (Transportation Systems Management), and 13.18 (Use of Public Rights-of-Way).

a. Chapter 8.06 (Noise)

i. Basic Exterior Residential Noise Limitations

Chapter 8.06 (Noise) contains the primary set of statutes through which Menlo Park regulates noise. For all noise measurements pursuant to the noise ordinance, the municipal code specifies standard procedures for conducting noise measurements, with specifications for sound-meter settings and placement. Section 8.06.030 sets maximum noise levels at any residential receiving property to a maximum of 60 dBA during the daytime hours between 7:00 a.m. to 10:00 p.m., and to 50 dBA during the nighttime hours between 10:00 p.m. and 7:00 a.m. The ordinance applies an additional 5 dBA penalty to sounds of a particularly annoying nature, such as tones, screeches, whines, and pulses, among others. The ordinance also includes a qualitative standard which prohibits noises which can be reasonably determined to be disturbing to an entire neighborhood or any considerable number of residents.

ii. Exceptions – Noise Limitation Exceptions and Exemptions

The Menlo Park noise ordinance also contains a number of qualified exceptions to the limitations stipulated in the ordinance; these include construction, powered equipment, and leaf blowers, deliveries, social gatherings, pavement sweeping, garbage collection, and animals. Additionally, the ordinance contains general exemptions for emergencies and emergency warning devices, sporting and City-permitted events, City and State projects, and the normal operation of typical motor vehicles. Of these, the most notable exceptions and exemptions for the purposes of this analysis include those for construction, motor vehicles, and deliveries.

Construction activities are exempted from the noise ordinance between the hours of 8:00 a.m. and 6:00 p.m. Monday through Friday; construction activities are only allowed on Saturday and Sunday between the hours of 9:00 a.m. and 5:00 p.m. and only if they are being personally undertaken by property owners performing maintenance or improvements. Despite these allowances for weekend residential maintenance, the ordinance still prohibits the use of any equipment that results in noise levels exceeding 85 dBA at a distance of 50 feet. Construction that is sufficiently quiet so as to be fully compliant with the basic exterior noise limitations set out by the ordinance is generally allowed at any time.

Notwithstanding specialized vehicle equipment or sound amplification systems, noise from the normal operation of motor vehicles (including cars, trucks, busses, trains, and airplanes) is exempted from the provisions of the noise ordinance. Noise from deliveries to food retailers and restaurants are generally excepted from the ordinance, while noise from other commercial and industrial deliveries are generally excepted between 7:00 a.m. and 6:00 p.m. Monday through Friday and 9:00 a.m. to 5:00 p.m. Saturday and Sunday. Temporally and geographically specific exceptions for street sweeping and garbage collection are also described in detail by the noise ordinance.

b. Other chapters mentioning noise

In addition to Chapter 8.06 (Noise), there are several other chapters in the Menlo Park municipal code that mention noise. In Chapter 8.07 (Leaf Blowers), the municipal code mentions that leaf blowers are a source of loud noise and stipulates that operators of these devices must wear ear protection. In Chapter 8.12 (Business Operations after Midnight), Section 8.12.040 indicates that a permit for late-night business operations may be revoked if noise from the establishment exceeds that foreseen by the permit. Chapter 8.28 (Parks and Recreation) prohibits the creation of obtrusive noise in parks. Section 9.26.080 of Chapter 9.26 (Poultry and Rabbits) prohibits the keeping of animals or fowl which cause unreasonable and disturbing noise for residents. In the goals of Chapter 11.64 (Transportation Systems Management), it is stated that noise reduction through decreased traffic is a goal of the chapter. Finally, in Chapter 13.18 (Use of Public Rights-of-Way), Section 13.18.110 (Regulations) stipulates that all regulations, including those related to noise, apply to the construction, operation, maintenance, and repair of facilities in the public rights-of-way.

4. Vibration Standards

Neither the City of Menlo Park nor the County of San Mateo have regulatory standards for construction or operational vibration sources. For the purpose of this analysis, to evaluate the impacts of Plan Components under CEQA, federal standards are used to address vibration impacts from the operation of equipment to adjacent uses.

The United States Department of Transportation (Federal Transit Administration [FTA]) provides criteria for acceptable levels of groundborne vibration for various types of special buildings that are sensitive to vibration. The human reaction to various levels of vibration is highly subjective and varies from person to person. The upper end of the range shown for the threshold of perception, or roughly 65 VdB, may be considered annoying by some people. Vibration below 65 VdB may also cause secondary audible effects such as a slight rattling of doors, suspended ceilings/fixtures, windows, and dishes, any of which may result in additional annoyance.

The FTA provides criteria to evaluate potential human annoyance due to groundborne vibration caused by frequent and intermittent events. These FTA criteria shown in Table 4.10-5 are used in this analysis to evaluate impacts from transportation sources to sensitive land uses throughout the EA Study Area. The FTA also provides criteria to evaluate potential structural damage associated with vibration, and these FTA criteria are used in this analysis. Structures amplify groundborne vibration and wood-frame buildings, such as typical residential structures, are more affected by ground vibration than heavier buildings. The level at which groundborne vibration is strong enough to cause architectural damage has not been determined conclusively. The most conservative estimates are reflected in the FTA standards, shown in Table 4.10-6.

C. Existing Noise Environment

Menlo Park has a highly irregular border and is surrounded by multiple other cities and towns are of various sizes. Municipalities surrounding Menlo Park include Redwood City, Atherton, Palo Alto, Woodside, and Portola Valley, as well as portions of the Stanford University property. These communities and cities have various land use designations that border Menlo Park, consisting mostly of residential and commercial uses.

1. Noise Measurements

Existing ambient noise levels were measured at 16 locations in the EA Study Area to document representative noise levels at several locations. These locations are shown on Figure 4.10-1. Short-term (ST) noise level measurements were taken at thirteen locations for a minimum period of 15 minutes during the daytime on December 6, 2012 and December 10, 2012, all between the hours of 10:00 a.m. and 6:00 p.m.

Long-term (LT) noise level measurements were taken at three locations for a period of 24 hours on December 10 and 11, 2012. The noise levels were measured using a Larson-Davis Model 820 sound level meter, which satisfies the American National Standards Institute for Type 1 general environmental noise measurement instrumentation. The sound level meter and microphone were mounted on a tripod 5 feet above the ground and equipped with a windscreen during all short-term measurements. For long-term measurements, the microphone and windscreen were attached to available objects including a fence and two sturdy trees/shrubs.

TABLE 4.10-5 **GROUNDBORNE VIBRATION AND NOISE IMPACT CRITERIA**

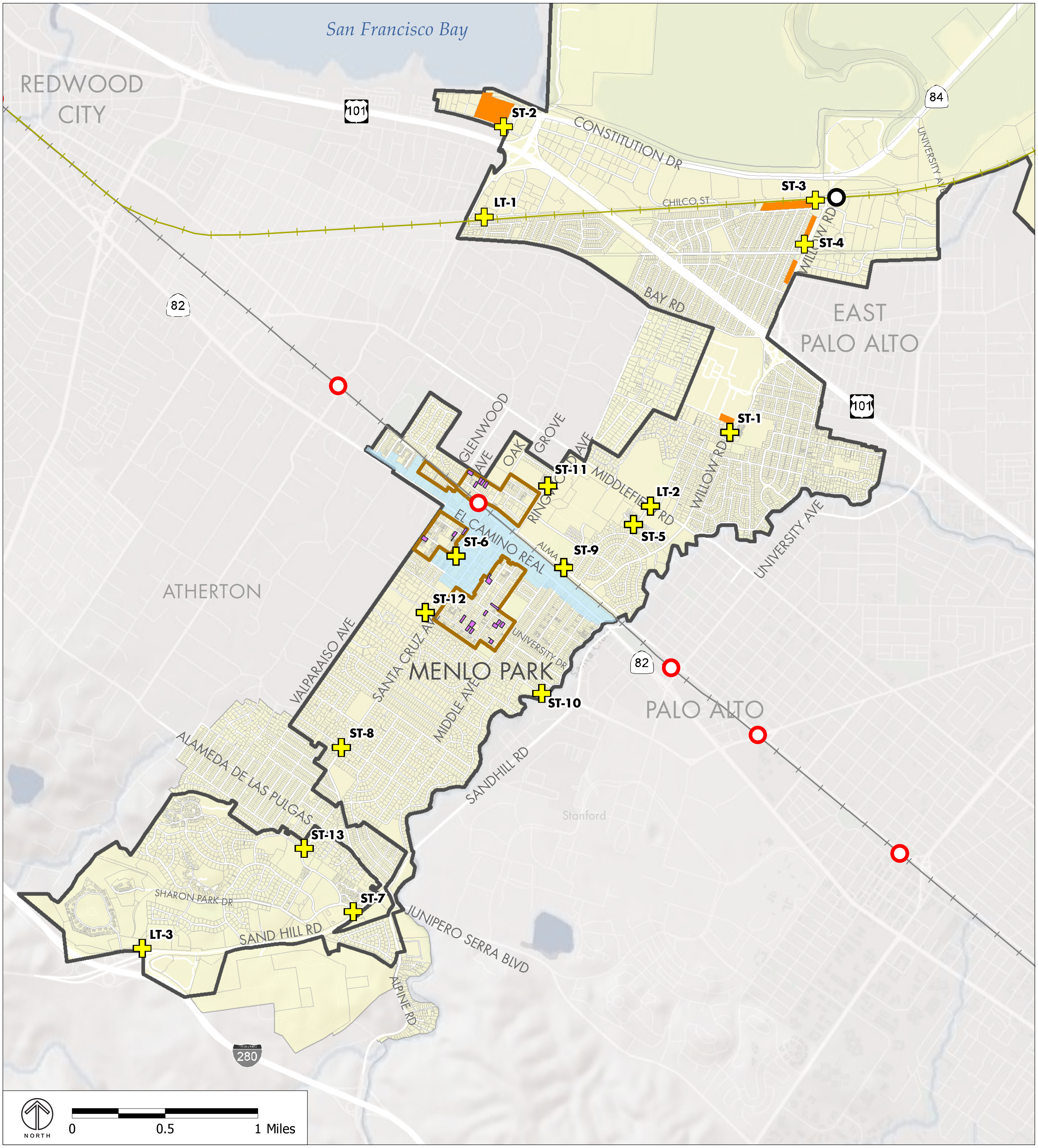
Land Use Category	Groundborne Vibration Impact Levels (VdB re 1 micro-inch/second)		Groundborne Noise Impact Levels (dB re 20 micropascals)	
	Frequent Events[a]	Infrequent Events[b]	Frequent Events[a]	Infrequent Events[b]
Category 1: Buildings where low ambient vibration is essential for interior operations.	65 VdB[3]	65 VdB[3]	NA[4]	NA[4]
Category 2: Residences and buildings where people normally sleep.	72 VdB	80 VdB	35 dBA	43 dBA
Category 3: Institutional land uses with primarily daytime use.	75 VdB	83 VdB	40 dBA	48 dBA

[a] "Frequent Events" is defined as more than 70 vibration events per day.
[b] "Infrequent Events" is defined as fewer than 70 vibration events per day.
[c] This criterion limit is based on levels that are acceptable for most moderately sensitive equipment such as optical microscopes. Vibration-sensitive manufacturing or research will require detailed evaluation to define the acceptable vibration levels.
[d] Vibration-sensitive equipment is not sensitive to groundborne noise.
Source: United States Department of Transportation Federal Transit Administration, "Transit Noise and Vibration Impact Assessment" manual, May 2006.

TABLE 4.10-6 **GROUNDBORNE VIBRATION CRITERIA: ARCHITECTURAL DAMAGE**

Building Category	PPV (in/sec)	L_v (VdB)[a]
I. Reinforced concrete, steel, or timber (no plaster)	0.5	102
II. Engineered concrete and masonry (no plaster)	0.3	98
III. Non-engineered timber and masonry buildings	0.2	94
IV. Buildings extremely susceptible to vibration damage	0.12	90

[a] RMS velocity calculated from vibration level (VdB) using the reference of one micro-inch/second.
Source: Federal Transit Administration, Transit Noise and Vibration Impact Assessment, 2006.



Source: City of Menlo Park; The Planning Center | DC&E, 2012; ESRI 2010; FHA 2002.

- Noise monitoring locations
- Potential Station Location
- CalTrain Stations
- CalTrain ROW
- Dumbarton Rail Corridor
- Lots with Additional Housing Unit Potential
- Infill Areas around Downtown
- El Camino Real/Downtown Specific Plan
- Potential Sites to be Studied for Rezoning to Higher Density
- City Limits
- Sphere of Influence

FIGURE 4.10-1
NOISE MONITORING LOCATIONS

The sound level meters were programmed to record noise levels with the "slow" time constant and using the "A" weighting filter network. Meteorological conditions during the measurement periods were favorable and were noted to be representative of typical conditions for the season. Generally, conditions included clear to partly cloudy skies, daytime temperatures of approximately 60 to 70 degrees Fahrenheit (°F), and less than 5-mile-per-hour winds. The following describes the noise level measurement locations:

a. Long-Term Location 1

Long-term noise monitoring Location 1 was located in a grassy area adjacent to a Union Pacific railway and directly across the street from the U.S. Post Office at 3875 Bohannon Drive. The microphone was positioned approximately 20 feet from the centerline of Bohannon Drive and 64 feet from the center of the adjacent railroad track. 24-hour noise readings commenced at 2:20 p.m. on Monday, December 10, 2012, at which time the air temperature was 68°F and winds were less than 5 miles per hour (mph).

In addition to the adjacent post office, immediate nearby land use to long-term Location 1 is primarily commercial, with moderately-sized, freestanding office buildings with surrounding parking lots. Some light industrial uses, primarily warehousing, are located approximately 500 feet to the east of the site, and residential uses are present approximately 450 feet to the west of the site and 100 feet to the south, across the railroad tracks. The noise environment of this site was characterized primarily by noise from vehicles along Marsh Road and Bohannon Drive, as well as in the post office parking lot and loading area. Noise from more distant traffic along Highway 101 was also noted. Given the site's close proximity to the post office, it is likely that the area experiences additional noise at certain times of day by deliveries and vehicle arrivals and departures. Though there is a railroad track adjacent to the site, this railway terminates shortly past the site and is currently little used. Consequently, no train passages were noted during site set up, and it is possible that none occurred during the monitoring period.

b. Long-Term Location 2

Long-term noise monitoring Location 2 was located in a landscaped area adjacent to a parking lot serving a collection of commercial buildings at 155 Linfield Road, adjacent to its intersection with Middlefield Road. The microphone was positioned 55 feet from the centerline of Middlefield Road and 40 feet from the centerline of Linfield Drive. 24-hour noise readings commenced at 4:00 p.m. on Monday, December 10, 2012, at which time the temperature was 67°F and the winds were calm.

Land uses surrounding long-term Location 2 are generally commercial, with small office buildings and associated parking lots. The area across Middlefield Road from the site is characterized by mix of governmental and religious institutional uses, including the Menlo Park Fire Department and St. Patrick's Seminary and University. Additional, residential land uses can be found approximately 550 feet to both the southwest and northeast of this site. The noise environment of Location 2 was dominated by the sound of traffic along Middlefield Road. Though no other noises were noted as making significant contributions to the noise environment, it is likely that emergency vehicles from the adjacent fire station do occasionally contribute to the noise environment and that other noises may become discernible at times of low traffic along Middlefield Road.

c. Long-Term Location 3

Long-term noise monitoring Location 3 was located in a heavily treed strip located between Sand Hill Road and the parking area for the Sharon Heights Country Club. The microphone was positioned at the following approximate distances: 50 feet from the centerline of a local-access segment of Sand Hill Road; 160 feet from the centerline of the west-bound lanes of the main Sand Hill Road; 310 feet from the centerline of the east-bound lanes of the main Sand Hill Road; and 780 feet from the centerline of nearby Interstate 280. The 24-hour noise readings commenced at 5:02 p.m. on Monday, December 10, 2012, at which time the air temperature was 58°F and winds were calm.

Roadways and parking lots are the primary land uses in the immediate vicinity of long-term Location 3, and the nearest non-transportation, human-occupied structures are located 330, 430, and 500 feet from the site. Aside from the country club, nearby land uses are commercial and research and development offices. The nearest residential uses are approximately 750 feet from the site. The noise environment of long-term Location 3 is heavily dominated by traffic along Interstate 280 and Sand Hill Road, especially traffic using Sand Hill road to access Interstate 280. Traffic noise at this site was constant and sufficiently loud as to prevent the discernment of any other significant noise sources.

d. Short-Term Location 1

Short-term noise monitoring Location 1 was located on the site of a vacant commercial structure at 557 Willow Road on the northwest side of the street. The microphone and sound meter were positioned approximately 45 feet from the centerline of Willow Road. Fifteen minutes of noise measurements were taken beginning at 3:57 p.m. on Thursday, December 6, 2012, at which time the air temperature was 58°F and winds were calm.

Land uses in the vicinity of short-term Location 1 consisted primarily of low-to-medium density residential and low-intensity commercial, with a small surgical hospital located across Willow Road. The noise environment of the site is dominated by traffic along Willow Road and at its intersection with Coleman Avenue. Some noise from aircraft was also briefly noted at the site.

e. Short-Term Location 2

Short-term noise monitoring Location 2 was located adjacent to the sidewalk on an industrial property at 3705 Haven Avenue. The microphone and sound meter were positioned approximately 40 feet from the centerline of Haven Avenue. Fifteen minutes of noise measurements were taken beginning at 2:38 p.m. on Monday, December 10, 2012, at which time the air temperature was 68°F and winds were calm.

Land uses in the vicinity of short-term Location 2 are primarily light to medium industrial, with some incidental office uses. The nearest non-industrial uses are medium-density residential uses located approximately 700 feet to the southwest of the site across Highway 101. The noise environment of short-term Location 2 was dominated by the sound of passing cars and trucks on Haven Avenue, as well as by the ongoing background noise of traffic along Highway 101. Additional noise included the sound of idling vehicles visiting the industrial uses along Haven Avenue, as well as the occasional sound of distant machinery.

f. Short-Term Location 3

Short-term noise monitoring Location 3 was located in an area of landscaped grass and shrubs adjacent to a small strip commercial center on the northwest corner of the intersection of Hamilton Avenue and Willow Road. The microphone and sound meter were positioned approximately 230 feet from Hamilton Avenue, 320 feet from the centerline of Willow Road, and 60 feet from the center of the adjacent Union Pacific railway. 15 minutes of noise measurements were taken beginning at 4:55 p.m. on Thursday, December 6, 2012, at which time the air temperature was 56°F and winds were calm.

The land uses immediately adjacent to short-term Location 3 are a mix of low-intensity commercial retail and light industrial. Adjacent commercial uses currently include mostly small, quick-service restaurants, as well as a service station, located across Hamilton Avenue from the site. The existing adjacent light industrial uses relate primarily to storage and distribution, with some industrial research and development located across Willow Road from the site. The railroad located adjacent to the site is near the end of the same rail line mentioned in the description of long-term monitoring Location 1. Likely due to the lack of train connections and relatively few industrial operations that appear to use the line, no train passages were observed at short-term Location 3, and it is likely that very few trains pass through this are on a regular basis. The current noise environment of this site is dominated by the sound of passing traffic along Willow Road, the

Bayfront Expressway, and Hamilton Avenue. Other sources of noise included vehicles and human voices in the parking lot of the small strip retail center.

g. Short-Term Location 4

Short-term noise monitoring Location 4 was located in a shared yard adjacent to a parking area serving multiple medium-density apartment buildings in the vicinity of 1307 Willow Road. The parking area and adjacent yard were separated from Willow road by a low stone wall approximately 4 feet in height. The microphone and sound meter were positioned approximately 102 feet from the centerline of Willow Road and 60 feet from the low wall. Fifteen minutes of noise measurements were taken beginning at 4:29 p.m. on Thursday, December 6, 2012, at which time the air temperature was 56°F and winds were calm.

Land uses immediately adjacent to Location 4 were primarily medium-density, multi-family residential with a small stand-alone retail market located approximately 116 feet to the southwest of the site. Land uses across Willow Street from the site were primarily industrial. The noise environment of short-term Location 4 was characterized mainly by the sound of passing traffic along Willow Road, but also included the frequent sounds of passing vehicles and people in the parking area of the apartment buildings. Additional noise came from a passing school bus, as well as from the arrival, departure, and idling of large trucks serving the industrial uses across Willow Road.

h. Short-Term Location 5

Short-term noise monitoring Location 5 was located in a grassy landscaped area adjacent to a currently vacant, low-intensity office building. The microphone and sound meter were positioned approximately 740 feet from the centerline of Middlefield Road, 40 feet from the centerline of Homewood Place, and 60 feet from the centerline of Linfield Drive. 15 minutes of noise measurements were taken beginning at 1:50 p.m. on Thursday, December 6, 2012, at which time the air temperature was 59°F and winds were less than 5 mph.

The land uses immediately adjacent to short-term Location 5 are a mix of single-family and low-density multifamily residential, with additional low-intensity office uses located immediately to the northwest and approximately 330 feet to the northeast of the site. The site was notably quiet with most noise coming from the occasional passing of vehicles along Linfield Drive and, to a lesser extent, Homewood Place. It was also possible to discern the sound of distant traffic on Middlefield road, as well as occasional noise from small aircraft and from human activity in the adjacent neighborhood.

i. Short-Term Location 6

Short-term noise monitoring Location 6 was located on a sidewalk adjacent to a large parking lot serving Downtown Menlo Park. The microphone and sound meter were positioned approximately 20 feet from the centerline of Crane Street and 30 feet from the centerline of Oak Grove Avenue. 15 minutes of noise measurements were taken beginning at 2:32 p.m. on Thursday, December 6, 2012, at which time the air temperature was 60°F and winds were calm.

Land uses surrounding short-term Location 6 are primarily commercial, with a mixture of low-to-medium intensity office and small retail shops. The area immediately adjacent to the site is entirely devoted to parking which serves downtown Menlo Park. Some scattered, low and medium density residential uses are present in the general vicinity of the site, with the nearest residential use located about 275 feet to the Northwest of the site. The noise environment of Location 6 is dominated by the sound of passing traffic along Crane Street and Oak Grove Avenue. Other noise included the sound of passing people, as well as sounds from the adjacent parking lot. It was also possible to hear the distant sound of trains and train whistles from the Caltrain tracks approximately 0.3-mile to the northeast.

j. Short-Term Location 7

Short-term noise monitoring Location 7 was located in the center median of Sharon Park Drive at its intersection with Sand Hill Road. The microphone and sound meter were positioned approximately on the centerline of Sharon Park Drive and approximately 100 feet from the centerline of Sand Hill Road. Fifteen minutes of noise measurements were taken beginning at 11:12 a.m. on Thursday, December 6, 2012, at which time the air temperature was 58°F and winds were less than 5 mph.

The land uses immediately surrounding short-term Location 7 include low-intensity commercial and low-density residential. The adjacent commercial use is a busy neighborhood-serving shopping center; additional commercial office uses are also present as near as approximately 550 feet from the site. The noise environment of Location 7 is dominated by the sound of traffic on both Sand Hill Road and Sharon Park Drive, and no other significant sources of noise could be discerned.

k. Short-Term Location 8

Short-term noise monitoring Location 8 was located in a small landscaped area adjacent to a single-family home at the intersection of North Lemon and Santa Cruz Avenues. The microphone and sound meter were positioned approximately 40 feet from the centerline of Santa Cruz Avenue and 32 feet from the Centerline of North Lemon Avenue. Fifteen minutes of noise measurements were taken beginning at 11:48 a.m. on Thursday, December 6, 2012, at which time the air temperature was 59°F and winds were calm.

Land use in the vicinity of Location 8 is entirely single-family residential with some scattered educational and religious institutional uses. The nearest commercial land uses are more than 0.33-mile from the site. The noise environment of Location 8 is characterized primarily by traffic along Santa Cruz Avenue. Although it was possible at times to discern other noises from the surrounding neighborhood, vehicle traffic is the dominant source of noise.

l. Short-Term Location 9

Short-term noise monitoring Location 9 was located at the intersection of Alma Street and Burgess Drive, on a sidewalk adjacent to a parking area serving the athletic fields at the Menlo Park Civic Center. The microphone and sound meter were positioned approximately 35 feet from the centerline of Burgess Avenue, 50 feet from the Centerline of Alma Street, and 140 feet from the center of the Caltrain railroad tracks. 15 minutes of noise measurements were taken beginning at 12:56 p.m. on Thursday, December 6, 2012, at which time the air temperature was 59°F and wind speeds were less than 5 mph.

The land uses immediately surrounding short-term Location 9 include recreational, medium-density residential, and low-intensity commercial office. Other nearby land uses include single-family residential, commercial retail, and civic uses. The noise environment of Location 9 was characterized by the sound of passing traffic, primarily that on Alma Street. Other notable sources of noise included team sports on the adjacent athletic fields, sound from passing pedestrians, and the passage of a train on the Caltrain tracks.

m. Short-Term Location 10

Short-term noise monitoring Location 10 was located across from 1090 Creek Drive, alongside San Francisquito Creek on the southeastern border of Menlo Park. The microphone and sound meter were positioned approximately 12 feet from the centerline of Creek Drive. The 15 minutes of noise measurements were taken beginning at 3:11 p.m. on Thursday, December 6, 2012, at which time the air temperature was 59°F and winds were calm.

The land uses immediately adjacent to short-term Location 10 are entirely single-family residential; however, institutional uses and medium-density senior-living facilities are located across San Francisquito Creek, at respective distances of 300 and 225 feet from the site. It should be noted that these land uses fall within the City of Palo Alto. Additionally, there exists a small community-center type use along Arbor Road, approximately 320 feet from the site. Location 10 was situated on a narrow street in a notably quiet area, and its noise environment was most consistently characterized by the faint sound of distant traffic, with only an occasional vehicle passage along Creek Drive. Other common sounds included human activity in the surrounding neighborhood, as well as the sound of water in San Francisquito Creek. More occasionally, it was possible to discern the sound of small aircraft and distant train whistles.

n. Short-Term Location 11

Short-term noise monitoring Location 11 was located at 333 Ravenswood Avenue in a treed landscaped area between Ravenswood Avenue and a parking area serving a large-scale institutional use. The microphone and sound meter were positioned approximately 50 feet from the centerline of Ravenswood Avenue. The property across Ravenswood Avenue from the monitoring site included a long cinderblock soundwall, approximately 12 feet in height. The 15 minutes of noise measurements were taken beginning at 1:22 p.m. on Thursday, December 6, 2012, at which time the air temperature was 58°F and wind speeds were less than 5 mph.

The area surrounding short-term Location 11 was dominated by the institutional land use of SRI International, a research institution associated with Stanford University. Though currently undeveloped, the area immediately across Ravenswood Avenue from the site—and located behind the sound-wall noted above—is also institutional to and belongs the Corpus Christi Monastery. Other nearby land uses include low- to medium-density residential, low-intensity commercial, and other institutional uses. The noise environment of Location 11 was dominated by passing traffic along Ravenswood Avenue, and no other significant sources of noise were readily discernible.

o. Short-Term Location 12

Short-term noise monitoring Location 12 was located at 1140 Arbor Road adjacent to a small parking lot serving a private, parochial elementary school. The microphone and sound meter were positioned approximately 16 feet from the centerline of Arbor Road, 45 feet from the adjacent school building, and 360 feet from the centerline of Santa Cruz Avenue. The 15 minutes of noise measurements were taken beginning at 12:18 p.m. on Thursday, December 6, 2012, at which time the air temperature was 59°F and winds were calm.

Aside from the adjacent church and associated parochial school, land uses immediately surrounding Location 12 are entirely single family residential, with some more distant low-intensity multi-family uses. The nearest non-residential land uses are commercial retail, located approximate 1,100 feet to the northeast of the site. The noise environment of Location 12 was characterized primarily by the sound of children at play in the schoolyard of the adjacent elementary school, with occasional vehicle passages on Arbor Road. At times it was also possible to hear the sound of distant traffic on Santa Cruz Avenue. Otherwise, no significant sources of noise were noted.

p. Short-Term Location 13

Short-term noise monitoring Location 13 was located in a small unpaved area at 2199 Sharon Road, at its intersection with Altschul Avenue. The microphone and sound meter were positioned approximately 24 feet from the centerline of Sharon Road and 32 feet from the centerline of Altschul Avenue. The microphone was also located approximately 5 feet from an area of shrubbery; however no fence or wall was present. The 15 minutes of noise measurements were taken beginning at 10:20 a.m. on Thursday, December 6, 2012, at which time the air temperature was 57°F and wind speeds were less than 5 mph.

Land uses immediately adjacent to short-term Location 13 included the institutional use of a public middle school as well as both single-family, low-density residential and multi-family, medium-density residential. The nearest commercial uses are located approximately 1,100 feet to the north of the site. The noise environment of Location 13 was characterized primarily by the sound of passing vehicles, primarily on Sharon Road, as well as by the sound of children at play at the adjacent middle school. Other sources of noise included birds and occasional passersby. No other significant sources of noise were noted.

The results of both the Long Term and Short Term measurements are summarized in Table 4.10-7.

2. Noise Sources in Menlo Park

a. On-Road Vehicles

Freeways that run along the City's northeastern and southwestern boundaries are U.S. Highway 101 and Interstate 280, respectively; Highway 84, which becomes the Dumbarton bridge, also runs east to west across the northern end of the City. In addition to the previously mentioned highways, major roadways running northwest to southeast through Menlo Park include El Camino Real and Middlefield Road. Major northeast to southwest roadways include Willow Road, Ravenswood Avenue, Santa Cruz Avenue, and Sand Hill Road. Together, these highways and streets comprise the major roads in the City of Menlo Park.

TABLE 4.10-7 **NOISE LEVEL MEASUREMENTS**

Monitoring Site	L_{min}	L_{eq}	L_{max}	CNEL
LT-1	—	—	—	67.1
LT-2	—	—	—	68.6
LT-3	—	—	—	67.5
ST-1	52.2	67.3	74.4	—
ST-2	53.9	63.6	78.8	—
ST-3	50.6	56.5	60.9	—
ST-4	50.9	59.5	72.3	—
ST-5	41.3	55.9	71.3	—
ST-6	51.5	62.9	82.6	—
ST-7	52.6	69.1	79.4	—
ST-8	48.5	69.8	80.2	—
ST-9	44.7	60.9	78.2	—
ST-10	42.1	49.2	67.8	—
ST-11	46.6	66.8	78.2	—
ST-12	42.2	54.6	72.6	—
ST-13	41.2	57.4	72.6	—

Source: Noise monitoring conducted by The Planning Center | DC&E between 10:19 a.m. and 5:10 p.m. on December 6, 2012, and between 2:36 p.m. December 10, 2012 and 5:16 p.m. December 11, 2012.

b. Train Noise

One major and one minor rail line traverse Menlo Park. One rail line, which crosses the northern-most portion of the City from east to west, is a little-used segment of a former Union Pacific line, which once crossed San Francisco Bay. This railway currently consists of a single track and the rail bridge that served as the connection for this line that is no longer functional; however, this bridge is planned for reconstruction and future use as part of the Dumbarton Rail Project.

The second and more major rail line which crosses the EA Study Area is the Caltrain right-of-way, which bisects a portion of Menlo Park along the City's short northwest-southeast axis. The Caltrain tracks run in the area between Camino Real and Alma Road, entering the City at Watkins Avenue and exiting to Palo Alto at San Francisquito Creek. Caltrain runs on a double track throughout its entire length through Menlo Park, and its right-of-way is owned and administered by the Peninsula Corridor Joint Powers Board. Menlo Park is served by one Caltrain station along this line, and though there are currently only 65 week-day daily stops at this station (either northbound or southbound), more than 90 trains pass either north or south through Menlo Park on a daily basis during the work week. The sheer number of passings by these diesel-powered commuter trains ensures that the activity along the Caltrain railway contributes significantly to the ambient noise environment of nearby areas of Menlo Park.

c. Heliports

There are no heliports within the EA Study Area; however, Stanford University Hospital does operate one heliport, which is located approximately 0.4-mile to the southeast of the nearest border with Menlo Park.

d. Aircraft Noise

Menlo Park is located approximately 6 miles to the northwest of Moffet Federal Airfield, 14 miles to the northwest of the San Jose International Airport, 15 miles to the southeast of San Francisco International Airport, and 18 miles to the south of Oakland International Airport. The EA Study Area is also located in close proximity to two smaller airports; with portions of Menlo Park as near as 2 miles from the Palo Alto Airport and other areas of the EA Study Area as near as approximately 4 miles from the San Carlos Airport. Additional small airports in the vicinity include the Hayward Executive Airport, at 11 miles away, and the Half Moon Bay airport, at 16 miles away. Although Menlo Park does receive some noise from aircraft using these facilities, Menlo Park does not fall within the airport land use planning areas, runway protection zones, or the 55 dBA CNEL noise contours of any of these airports.

e. Stationary Source Noise

Stationary sources of noise may occur from all types of land uses. The EA Study Area is mostly developed with residential, commercial, and some light industrial uses. Commercial uses can generate noise from heating, ventilation, air conditioning (HVAC) systems, loading docks, trash compactors, and other sources. Industrial uses may generate noise from HVAC systems, loading docks, and machinery required for manufacturing processes. Noise generated by commercial uses is generally short and intermittent. Industrial uses may generate noise on a more continual basis, or intermittently, depending on the processes and types of machinery involved.

In addition to on-site mechanical equipment, which generates stationary noise, warehousing and industrial land uses generate substantial truck traffic that results in additional sources of noise on local roadways in the vicinity of industrial operations.

For the EA Study Area, the vast majority of the area's limited industrial operations are located in the far northern reaches of Menlo Park, and are usually separated from sensitive uses, such as residences, by either rail lines or by major roads. In both cases, this added distance serves to decrease the noise perceived by these receptors and, in the case of major roads, the noise from the roads was generally observed to exceed that from the industrial uses. Residential areas with the greatest potential to be impacted by noise from industrial operations include those along the previously mentioned Union Pacific rail right-of-way (Dumbarton Rail Corridor) and those along the northern end of Willow Road between Ivy Drive and the Bayfront Expressway.

Outdoor activities that occur on school campuses throughout the EA Study Area generate noticeable levels of noise in the vicinity of the campus. While it is preferable to have schools located within a residential setting to support the neighborhood, noise generated on both the weekdays (from physical education classes and sports programs) and weekends (from use of the fields and stadiums by youth organizations) can elevate community noise levels.

D. Standards of Significance

The California Environmental Quality Act (CEQA) includes qualitative guidelines for determining significance of adverse environmental noise impacts. The Plan Components would create a significant noise impact if it would:

1. Expose persons to or generate noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.
2. Expose persons to or generate excessive ground-borne vibration or ground-borne noise levels.
3. A permanent increase in ambient noise levels in the project vicinity above levels existing without the project.
4. Create a substantial temporary, periodic, or permanent increase in ambient noise levels in the project vicinity above levels existing without the project.

5. For projects within an area covered by an airport land use plan or within 2 miles of a public airport or public use airport when such an airport land use plan has not been adopted, or within the vicinity of a private airstrip, expose people residing or working in the project area to excessive aircraft noise levels.
6. For a project within the vicinity of a private airstrip, expose people residing or working in the project area to excessive noise levels.

E. Impacts Discussion

1. Expose persons to or generate noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.

Based on local noise criteria as established by the City, a significant impact would result if:

- New land uses would expose noise-sensitive land uses to noise levels that are clearly incompatible with the projected ambient noise levels (see Table 4.10-4).

The proposed land use changes associated with the Plan Components are limited to those which would allow the development of mainly multi-family housing on five specifically identified sites. Since residential areas do not generate substantial noise to surrounding areas, there would be no long-term noise impacts to sensitive receptors adjacent to each of the housing sites, and no mitigation would be required. The following evaluates compatibility with the ambient noise at each housing site.

Some of the housing sites would be exposed to transportation noise from rail activity, as well as traffic on Highway 101, and Highway 84. All future housing permitted under the Plan Component would be exposed to traffic noise on local roads. Housing Site 2 and 3 (MidPen's Gateway Apartments), Site 4 (Hamilton Avenue), and Site 5 (Haven Avenue) would be exposed to traffic noise on Highway 101 and State Highway 84. Traffic noise from the US 101 and local roads will continue to be one of the major sources of noise within the EA Study Area. According to volume forecasts included in the traffic impact analysis, traffic on the US 101 and State Highway 84 freeway is anticipated to increase anywhere from 25 to 66 percent from existing conditions. Traffic noise increases are discussed in further detail in impact discussion E.2, below.

Housing Site 3 (MidPen's Gateway Apartments) and Site 4 (Hamilton Avenue) would be exposed to railroad activity on the Dumbarton Rail Corridor line. The Dumbarton Rail Corridor line currently sees little rail traffic due to its lack of connections and the limited presence of industrial operations that would make use of it. While any trains currently using this railway would contribute to the ambient noise in the surrounding areas, the infrequency of trains along this short line serves to limit this contribution. Although the historical Transbay connection associated with this line is currently severed, a rebuilt rail bridge is planned for a future Dumbarton commuter rail service. This project is planned to provide new commuter service between the Peninsula and the East Bay cities of Fremont, Newark, and Union City. This project would also serve to connect several other regional and commuter rail systems to the Peninsula, specifically BART, Amtrak's Capital Corridor, and the Altamont Express. There is no set groundbreaking or completion date for this project; however, if completed, it would lead to greatly increased train frequency along this railway. Other residential areas in Menlo Park are located in close proximity to the Caltrain rail line. Plans for the eventual electrification of Caltrain could reduce some of the noise associated with Caltrain; however, Caltrain is likely to remain a significant contributor to ambient noise in these areas. Furthermore, with the planned addition of California High-Speed Rail operations to the Caltrain right-of-way, it is likely that this corridor would be subject to increased ambient noise in the future. Though there are no firm projections of future train frequency or associated noise for Caltrain, California High-Speed Rail, or the Dumbarton Rail at this time, the project-level review of any developments proposed in these locations should consider the strong possibility of such future noise.

The City's General Plan Noise Element includes guidelines to assess land use and noise compatibility. Table 4.10-4 presents noise levels that are "normally acceptable," "conditionally acceptable," "normally unacceptable," and "clearly unacceptable" for the development of residential uses. For the purpose of this analysis and consistent with the noise compatibility guidelines included in the Noise Element of the City's General Plan, housing sites with portions exposed to noise levels below 60 dBA CNEL are considered "normally acceptable," from 60 to 70 dBA CNEL are considered "conditionally acceptable", from 70 to 75 dBA CNEL "normally unacceptable", and over 75 dBA CNEL "clearly unacceptable" for the development of residential areas.

Existing ambient noise levels were measured at 16 locations in the EA Study Area to document representative noise levels at housing sites and areas of the EA Study Area in proximity to railroad lines, major roads, and freeways. As shown in Table 4.10-7, all noise measurement resulted in levels below 70 dBA CNEL or Leq. Any developments undertaken pursuant to these land use changes would be required to comply with applicable interior noise standards by design, as required by the character of the surrounding noise environment.

a. Noise generated by the future development under the Plan Components would result in stationary, non-transportation noise exceeding the applicable standards (see Table 4.10-4) at noise-sensitive receptors.

All land use changes associated with the Plan Components are to allow new residential development, which is typically not associated with excessive levels of stationary, non-transportation noise. Sporadic outdoor play, amplified sound, the operation of lawnmowers and HVAC systems would sporadically increase ambient noise levels in the vicinity of each of the housing sites; however, it can reasonably be anticipated that none of these potential sources would result in sufficiently loud or continuous noise so as to result in a violation of the ambient noise standards adopted by the City. Noise from the housing sites would be compatible with noise-sensitive land uses and would not substantially affect nearby uses in the vicinity of each housing site. Excessive noise generation from building mechanical or HVAC systems, or other site-specific sources for discretionary projects would be addressed through compliance the City's existing noise ordinance, which provides standards and adequate remedies in the event that any of these sources unexpectedly results in the generation of noise sufficiently loud, continuous, or obnoxious so as to result in a violation.

Implementation of the following current and amended General Plan goals and policies would ensure the impacts identified above are *less than significant*.

i. Current General Plan Land Use and Circulation Element

- Policy I-A-2: New residential developments shall be designed to be compatible with Menlo Park's residential character.

ii. Amended General Plan Noise Element

- Program N-1.J: Evaluate Noise Related Impacts of City Actions as Appropriate. Analyze in detail the potential noise impacts of any actions that the City may take or act upon which could significantly alter noise level in the community.
- Goal N-1: Achieve Acceptable Noise Levels. It is the goal of Menlo Park to have acceptable noise levels. Excessive noise is a concern for many residents of Menlo Park. These concerns can be managed with proper mitigation or through the implementation of the City's noise ordinance. The City of Menlo Park recognizes the issue of noise and has standards to protect the peace, health, and safety of residents and the community from unreasonable noise from any and all sources in the community and to strive to locate uses compatible to the area to minimize escalation of noise from mobile and stationary sources.

- Policy N-1.1: Compliance with Noise Standards. Consider the compatibility of proposed land uses with the noise environment when preparing or revising community and/or specific plans. Require new projects to comply with the noise standards of local, regional, and building code regulations, including but not limited to the City's Municipal Code, Title 24 of the California Code of Regulations, the California Green Building Code, and subdivision and zoning.
- Policy N-1.6: Noise Reduction Measures. Encourage the use of construction methods, state-of-the-art noise abating materials and technology and creative site design including, but not limited to, open space, earthen berms, parking, accessory buildings, and landscaping to buffer new and existing development from noise and to reduce potential conflicts between ambient noise levels and noise-sensitive land uses. Use sound walls only when other methods are not practical or when recommended by an acoustical expert.
- Policy N-1.3: Exterior and Interior Noise Standards for Residential Use Areas. Strive to achieve acceptable interior noise levels and exterior noise levels for backyards and/or common usable outdoor areas in new residential development, and reduce outdoor noise levels in existing residential areas where economically and aesthetically feasible.
- Policy N-1.8: Potential Annoying or Harmful Noise. Preclude the generation of annoying or harmful noise on stationary noise sources, such as construction and property maintenance activity and mechanical equipment.

2. Expose persons to or generate excessive ground-borne vibration or ground-borne noise levels.

CEQA does not specify quantitative thresholds for what is considered "excessive" vibration or ground-borne noise, nor do the City of Menlo Park or the County of San Mateo establish such thresholds. Therefore, based on criteria from the FTA, a significant impact would occur if:

a. Implementation of the Plan Components would exceed the criteria for annoyance presented in Table 4.10-5.

b. Implementation of the Plan Components would result in vibration exceeding the criteria presented in Table 4.10-6 that could cause buildings architectural damage.

The following discusses long-term operation and short-term construction impacts from implementation of the Plan Components:

i. Long-Term Operational Impacts from the Plan Components

The future development under the Plan Components does not propose any new roads or transportation infrastructure and therefore would not itself result directly in any new transportation-related sources of vibration. The land use changes proposed under the Plan Components would consist of development of residential development. As residential uses do not include vibration generating equipment, these sites would not result in long-term operational vibration impacts. There would be no long-term vibration impacts related to the Plan Components.

ii. Short-Term Construction Impacts

The effect on buildings in the vicinity of a construction site varies depending on soil type, ground strata, and receptor-building construction. The results from vibration can range from no perceptible effects at the lowest vibration levels, to low rumbling sounds and perceptible vibrations at moderate levels, to slight structural damage at the highest levels. Vibration from construction activities rarely reaches the levels that can damage structures, but groundborne vibration and groundborne noise can reach perceptible and audible levels in buildings that are close to the construction site. Table 4.10-8 lists vibration levels for construction equipment.

As shown in Table 4.10-8, vibration generated by construction equipment has the potential to be substantial. However, groundborne vibration is almost never annoying to people who are outdoors, so it is usually evaluated in terms of indoor receivers.[2] Significant vibration impacts may occur from construction activities for the housing sites. Implementation of the Plan Components anticipates an increase in development intensity, but specific locations, site plans, and construction details have not been developed at this time.

Construction would be localized and would occur intermittently for varying periods of time. Because specific, project-level information is not available at this time, it is not possible to quantify the construction vibration impacts at specific sensitive receptors.

In construction projects, grading and demolition activities typically generate the highest vibration levels during construction activities. Except for pile driving, maximum vibration levels measured at a distance of 25 feet from an individual piece of typical construction equipment do not exceed the thresholds for human annoyance for industrial uses, nor the thresholds for architectural damage.

[2] Federal Transit Administration, 2006. Transit Noise and Vibration Impact Assessment.

TABLE 4.10-8 **GROUNDBORNE VIBRATION LEVELS FOR CONSTRUCTION EQUIPMENT**

Equipment	Approximate Velocity Level at 25 Feet (VdB)	Approximate RMS[a] Velocity at 25 Feet (in/sec)
Pile Driver (impact) Upper Range	112	1.518
Pile Driver (impact) Lower Range	104	0.644
Pile Driver (sonic) Upper Range	105	0.734
Pile Driver (sonic) Lower Range	93	0.170
Large Bulldozer	87	0.089
Caisson Drilling	87	0.089
Jackhammer	79	0.035
Small Bulldozer	58	0.003
Loaded Trucks	86	0.076
FTA Criteria – Human Annoyance (Daytime)	78 to 90[b]	—
FTA Criteria – Structural Damage	—	0.2 to 0.5[c]

[a] RMS velocity calculated from vibration level (VdB) using the reference of 1 micro-inch/second.
[b] Depending on affected land use. For residential 78VdB, for offices 84 VdB, workshops 90 VdB.
[c] Depending on affected building structure, for timber and masonry buildings 0.2 in/sec, for reinforced-concrete, steel, or timber 0.5 in/sec.
Source: Federal Transit Administration, Transit Noise, and Vibration Impact Assessment, 2006.

Goals and policies to reduce potential vibration impacts are listed below. Methods to reduce vibration during construction would include the use of smaller equipment, use of static rollers instead of vibratory rollers, and drilling piles as opposed to pile driving.

iii. Long-Term Operational Impacts to the Plan Components

Potential vibration impacts to the future development under the Plan Components would include vibration from stationary sources (industries) adjacent to the housing sites, and transportation sources such as heavy trucks and trains.

iv. Vibration Related to Transportation Activity

The California Department of Transportation (Caltrans) has studied the effects of propagation of vehicle vibration on sensitive land uses and notes that "heavy trucks, and, quite frequently, buses, generate the highest earthborn vibrations of normal traffic." Caltrans further notes that the highest traffic-generated vibrations are along freeways and state routes. Their study finds that typically, trucks do not generate high levels of vibration because they travel on rubber wheels and do not have vertical movement, which generates ground vibration. Vibrations from trucks may be noticeable if there are any roadway imperfections such as potholes.[3]

Vibration from transportation sources are mostly related to rail activity. The potential development of residential projects in close proximity to rail lines could result in the perception of vibration by residents of those developments. According to the General Assessment methodology included in the Transit Noise and Vibration Assessment Manual,[4] the screening distance to evaluate vibration impacts to residential areas due to commuter trains with diesel locomotives is 600 feet. Housing Site 4 (Hamilton Avenue) is adjacent to rail line would have the potential to be exposed to perceptible levels of vibration related to train activity. The rail line in proximity of housing Site 4 is a former Union Pacific line, which once crossed San Francisco Bay. There is currently very limited rail activity along this line. This rail line may be reconnected to the east bay to provide commuter rail service as part of the Dumbarton Rail Corridor. Several Goals and Policies to reduce vibration impacts are listed below. Environmental analyses would address potential vibration impacts along the rail line from increased train activity. It shall be noted that several residential areas exist in proximity of the railroad lines at similar distances to the tracks as the proposed housing sites. The City is unaware of complaints regarding excessive vibration from train activity. Through evaluation at the project level, any potential impacts could effectively be mitigated through appropriate building and site design. Therefore, development under the Plan Components is not expected to result in exposure to excessive transportation-related vibration and the impact would be *less than significant*.

v. Vibration Related to Industrial Activity

Of the five housing sites where land use changes are proposed, housing Sites 2, 3, 4, and 5 are located in close proximity to land currently designated for industrial use. At its nearest point, the northern portions of housing Site 2 is located approximately 200 feet across Willow Road from a light industrial moving and storage facility. Housing Site 3 (MidPen's Gateway Apartments) is located approximately 200 feet across

[3] Federal Transit Administration, 2006. Transit Noise and Vibration Impact Assessment.

[4] Federal Transit Administration, 2006. Transit Noise and Vibration Impact Assessment.

Willow Road from a collection of scientific research and precision manufacturing facilities, none of which feature stand-alone machinery or indications of on-site power generation. Housing Site 4 (Hamilton Avenue) is located approximately 150 feet across a rail line from two industrial sites, one of which is currently vacant land with the other containing vacant industrial office use, with no apparent stand-alone machinery or on-site power generation. Housing Site 5 (Haven Avenue) would be located immediately adjacent to an existing garden and building materials supplier, as well as approximately 40 feet across Haven Avenue from a variety of automotive, and mechanical and plumbing repair uses. Due to distance and an initial review of the types of light industrial uses, it is anticipated that the operation of nearby industrial uses do not generate substantial vibration levels that would be incompatible with the development of the proposed housing sites.

Implementation of the following current, modified, and new General Plan goals, policies, and programs would ensure these impacts identified above are *less than significant*.

a) Amended General Plan Noise Element

- Policy N1.6: Noise Reduction Measures. Encourage the use of construction methods, state-of-the-art noise abating materials and technology and creative site design including, but not limited to, open space, earthen berms, parking, accessory buildings, and landscaping to buffer new and existing development from noise and to reduce potential conflicts between ambient noise levels and noise-sensitive land uses. Use sound walls only when other methods are not practical or when recommended by an acoustical expert.
- Policy N1.3: Exterior and Interior Noise Standards for Residential Use Areas. Strive to achieve acceptable interior noise levels and exterior noise levels for backyards and/or common usable outdoor areas in new residential development, and reduce outdoor noise levels in existing residential areas where economically and aesthetically feasible.
- Policy N1.7: Noise and Vibration from New Non-Residential Development. Design non-residential development to minimize noise impacts on nearby uses. Where vibration impacts may occur, reduce impacts on residences and businesses through the use of setbacks and/or structural design features that reduce vibration to levels at or below the guidelines of the Federal Transit Administration near rail lines and industrial uses.

3. A permanent increase in ambient noise levels in the project vicinity above levels existing without the project.

Based on applicable thresholds, a significant impact would occur if:

a. Implementation of the Plan Components would cause traffic increases that would result in an increase in ambient noise at any noise-sensitive receptor by 5 dB. Although a 3 dB change in noise levels is the minimum necessary for human hearing to discern a change in noise levels, the Menlo Park Noise Element identifies 5 dBA as the amount of change needed to result in a noticeable change in community response.

Potential impacts from future development associated with the Plan Components stem mainly from the addition of *vehicles along roadways in the City. The average daily traffic (ADT) volumes derived from the Traffic Study for the Updated Housing Element in the City of Menlo Park*[5] were used to identify roadway segments where future traffic noise levels would or may be substantially increased over existing conditions (2012). Traffic noise contour boundaries are often utilized by local land planning and zoning authorities to evaluate sound level exposures on land near roadways that is being considered for development. Noise contour boundaries are utilized in this analysis to assess the traffic noise level impacts associated with future development from implementation of the Plan Components under "2035 plus Plan Components conditions." The 2035 with Plan Components conditions assume a one percent compound growth per year for increases in traffic volume within 21 years. In addition, this scenario adds traffic generated by the pending/approved projects within the City of Menlo Park and the El Camino Real/Downtown Specific Plan projects, plus the Stanford University Medical Center (SUMC), and the proposed trips generated from the Plan Components.

The traffic noise contour boundaries for existing and long-range conditions were estimated using the Federal Highway Administration (FHWA) Highway Traffic Noise Prediction Model (RD-77-108). The calculations showing the anticipated 60, 65, and 70 dBA CNEL contours represented as a distance from the centerline of each roadway segment for existing and 2035 plus-Plan Components scenario are included in Appendix E.

Figures 4.10-2 and 4.10-3 show the noise contours from railroad activities and roadway traffic along major thoroughfares within the EA Study Area for existing and 2035 plus Plan Components conditions, respectively. Noise levels in these figures do not account for noise attenuation provided by intervening structures or topographical barriers. Table 4.10-9 compares the calculated future (2035) noise levels for 2035 plus Plan Components conditions to the existing noise levels. Table 4.10-9 shows increases in noise levels adjacent to the EA Study Area roadway segments of up to 2.4 dBA.

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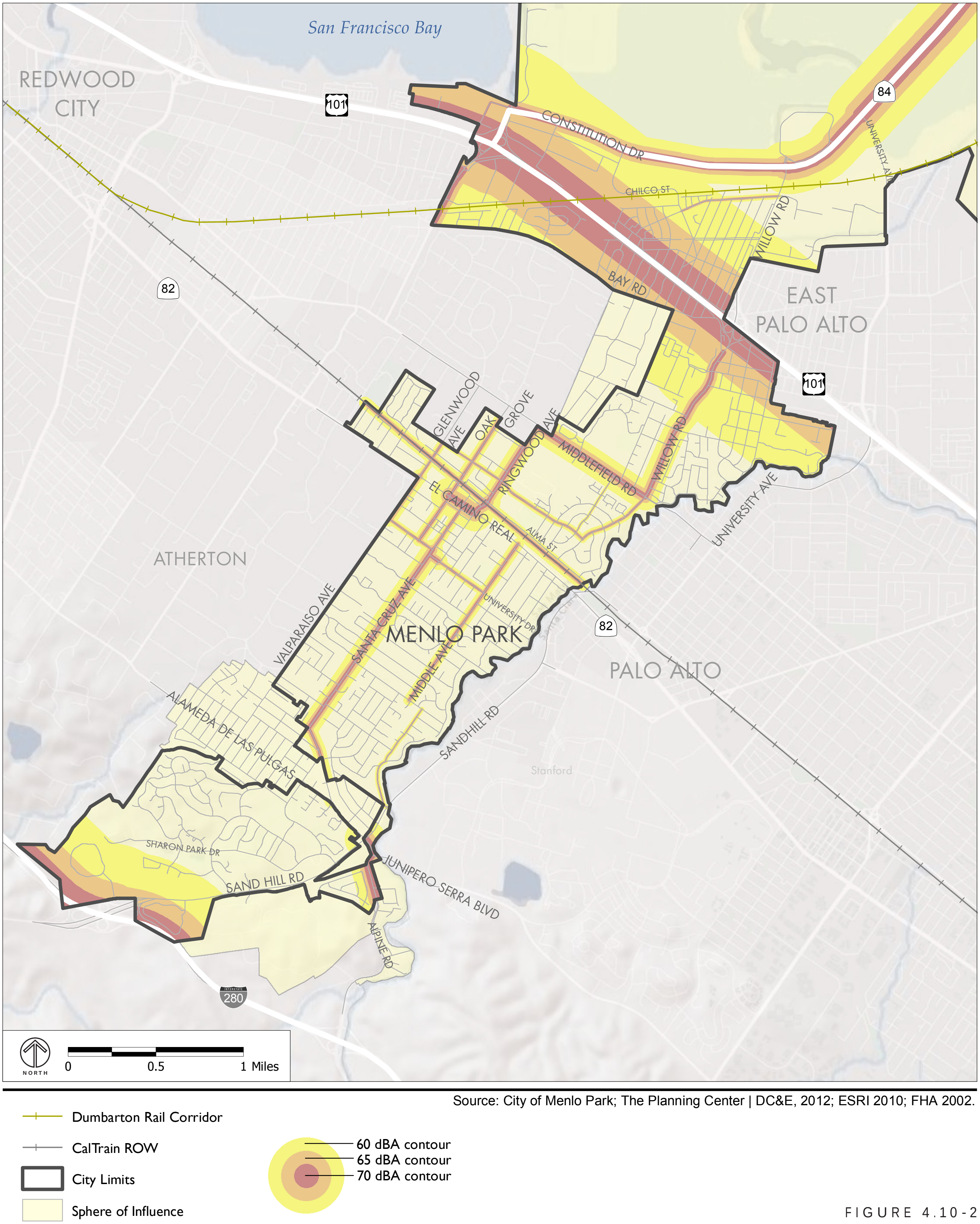
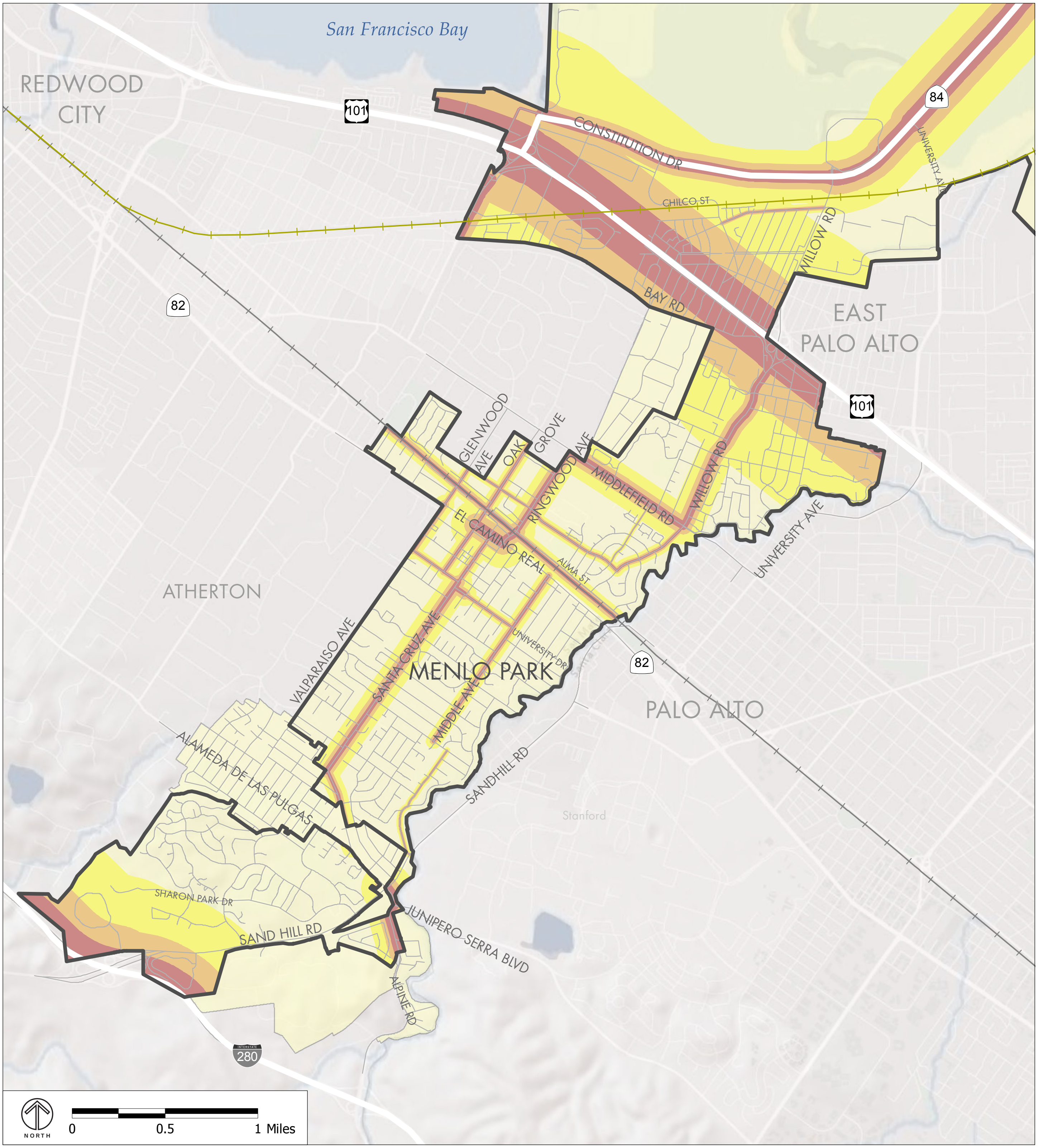
[5] TJKM Transportation Consultants, 2013. *Traffic Study of updated Housing Element in the City of Menlo Park.*



Source: City of Menlo Park; The Planning Center | DC&E, 2012; ESRI 2010; FHA 2002.

FIGURE 4.10-2

EXISTING NOISE CONTOURS



Source: City of Menlo Park; The Planning Center | DC&E, 2012; ESRI 2010; FHA 2002.

Dumbarton Rail Corridor
CalTrain ROW
City Limits
Sphere of Influence
60 dBA contour
65 dBA contour
70 dBA contour

FIGURE 4.10-3

2035 NOISE CONTOURS

TABLE 4.10-9 **LONG-RANGE NOISE INCREASE (2035 – EXISTING)**

		CNEL at 100 Feet (dBA)		
Roadway	Segment	Existing	2035	Increase
Haven Ave	City Limits-Bayfront Expwy/Marsh Rd	62.6	64.5	1.9
Marsh Rd	Bay Rd-Bohannon Dr/Florence St	70.4	72.6	2.2
Marsh Rd	Bohannon Dr/Florence St-Scott Dr	71.2	73.3	2.1
Hamilton Ave	Chilco St-Willow Rd	59.8	62.0	2.1
Willow Rd	Laurel St-Middlefield Rd	61.1	63.5	2.4
Willow Rd	Middlefield Rd-Gilbert Ave	68.2	70.6	2.4
Willow Rd	Gilbert Ave-Coleman Ave	68.2	70.6	2.4
Willow Rd	Coleman Ave-Durham St/Hospital Ave	68.5	70.8	2.3
Willow Rd	Durham St/Hospital Ave-Bay Rd	69.1	71.2	2.1
Middlefield Rd	Ravenswood Ave-Willow Rd	69.2	70.9	1.7
Laurel St	Glenwood Ave-Oak Grove Ave	59.9	61.6	1.7
Laurel St	Oak Grove Ave-Ravenswood Ave	60.4	61.4	1.0
Laurel St	Ravenswood Ave-Willow Rd	60.9	62.8	1.9
University Dr	Middle Ave-Menlo Ave	61.5	63.2	1.7
University Dr	Menlo Ave-Santa Cruz Ave	66.4	67.9	1.5
University Dr	Santa Cruz Ave-Oak Grove Ave	62.4	63.6	1.2
University Dr	Oak Grove Ave-Valparaiso Ave	61.3	62.6	1.3
Valparaiso Ave/ Glenwood Ave	University Dr-El Camino Real	65.2	66.6	1.4
Valparaiso Ave/ Glenwood Ave	El Camino Real-Laurel St	61.7	63.0	1.3
Oak Grove Ave	University Dr -El Camino Real	64.0	65.0	1.1
Oak Grove Ave	El Camino Real-Laurel St	63.8	65.2	1.4
Oak Grove Ave	Laurel St-Middlefield Rd	63.3	64.3	1.0
Ravenswood Ave	El Camino Real-Alma St	68.9	70.9	2.0

TABLE 4.10-9 **LONG-RANGE NOISE INCREASE (2035 – EXISTING)**

		CNEL at 100 Feet (dBA)		
Roadway	Segment	Existing	2035	Increase
Ravenswood Ave	Alma St-Laurel St	67.0	68.8	1.8
Ravenswood Ave	Laurel St-Middlefield Rd	67.6	69.2	1.6
Santa Cruz Ave	Alameda de las Pulgas-Avy Ave/Orange Ave	64.7	66.3	1.6
Santa Cruz Ave	Avy Ave/Orange Ave-Olive St	67.1	68.8	1.7
Santa Cruz Ave	Olive St-University Dr	67.4	69.0	1.6
Santa Cruz Ave	University Dr-Crane St	63.5	65.3	1.8
Santa Cruz Ave	Crane St-El Camino Real	63.1	65.2	2.1
Middle Ave	Olive St-University Dr	63.6	65.1	1.5
Middle Ave	University Dr-El Camino Real	63.8	65.3	1.5
Alpine Rd/Santa Cruz Ave	Junipero Serra Blvd-City Limits	70.6	71.6	1.0
Alpine Rd/Santa Cruz Ave	Sand Hill Rd-Junipero Serra Blvd	71.7	72.9	1.1
Linfield Drive	Middlefield Rd - Laurel St	55.9	57.2	1.3
Oak Avenue	Sand Hill Rd - Olive St	58.0	59.6	1.6
El Camino Real	Oak Grove - Ravenswood	71.2	72.9	1.7
US 101	N/O Marsh Rd	82.3	83.2	1.0
US 101	S/O Marsh Rd	81.8	82.9	1.1
US 101	S/O Willow Rd	82.0	83.2	1.2
US 101	S/O University	82.0	83.2	1.2
SR 84	Marsh Rd - Willow Rd	70.8	73.0	2.2
SR 84	Willow Rd - University Ave	73.4	75.2	1.8
SR 84	W/O University Ave	74.9	76.4	1.5
I-280	N/O Sand Hill	80.0	81.4	1.4
I-280	S/O Sand Hill	79.6	81.0	1.4

According to the criteria described above, these noise increases would be below the 3 dB level where noise increases are generally perceptible, and well below the 5 dBA criteria described above. Therefore, noise impacts from the anticipated traffic increase associated with implementation of the Plan Components would be *less than significant*.

b. Noise generated by buildout of the proposed land use changes under the project would result in stationary, non-transportation noise which exceeds the applicable standards shown in Table 4.10-4 on noise-sensitive receptors.

The Plan Components would introduce high-density residential land uses concentrated on sites either already developed and/or in close proximity to existing residential and residential-serving development. As discussed above in Section E.1.a, residential uses, even those that are high-density, are not typically associated with high levels of stationary noise generation. Additionally, since the areas surrounding the selected sites are largely developed with other residential or non-residential uses (which tend to generate even greater noise), it is unlikely that any developments subsequent to the future residential development would directly contribute to a 5 dBA or greater increase in ambient noise levels in their surrounding areas. Therefore the impact would be *less than significant*.

In addition, implementation of the following amended General Plan goals, policies, and programs would ensure these impacts identified above are *less than significant*.

i. Amended General Plan Noise Element

- Program N-1.J: Evaluate Noise Related Impacts of City Actions as Appropriate. Analyze in detail the potential noise impacts of any actions that the City may take or act upon which could significantly alter noise level in the community.
- Goal N-1: Achieve Acceptable Noise Levels. It is the goal of Menlo Park to have acceptable noise levels. Excessive noise is a concern for many residents of Menlo Park. These concerns can be managed with proper mitigation or through the implementation of the City's noise ordinance. The City of Menlo Park recognizes the issue of noise and has standards to protect the peace, health, and safety of residents and the community from unreasonable noise from any and all sources in the community and to strive to locate uses compatible to the area to minimize escalation of noise from mobile and stationary sources.
- Policy N-1.1: Compliance with Noise Standards. Consider the compatibility of proposed land uses with the noise environment when preparing or revising community and/or specific plans. Require new

projects to comply with the noise standards of local, regional, and building code regulations, including but not limited to the City's Municipal Code, Title 24 of the California Code of Regulations, the California Green Building Code, and subdivision and zoning.

- Policy N-1.6: Noise Reduction Measures. Encourage the use of construction methods, state-of-the-art noise abating materials and technology and creative site design including, but not limited to, open space, earthen berms, parking, accessory buildings, and landscaping to buffer new and existing development from noise and to reduce potential conflicts between ambient noise levels and noise-sensitive land uses. Use sound walls only when other methods are not practical or when recommended by an acoustical expert.
- N-1.10: Nuisance Noise. Minimize impacts from noise levels that exceed community sound levels through enforcement of the City's Noise Ordinance. Control unnecessary, excessive, and annoying noises within the City where not preempted by Federal and State control through implementation and updating of the Noise Ordinance.
- Policy N-1.5: Planning and Design of New Development to Reduce Noise Impacts. Design residential developments to minimize the transportation-related noise impacts to adjacent residential areas and encourage new development to be site planned and architecturally designed to minimize noise impacts on noise-sensitive spaces. Proper site planning can be effective in reducing noise impacts.
- Policy N-1.8: Potential Annoying or Harmful Noise. Preclude the generation of annoying or harmful noise on stationary noise sources, such as construction and property maintenance activity and mechanical equipment.

4. **Create a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project.**

Based on applicable criteria stipulated by the Menlo Park noise ordinance, a significant impact would occur if construction of the housing sites:

a. Occur outside the hours of 8:00 a.m. and 6:00 p.m. Monday through Friday;

b. Utilizes equipment that results in noise levels exceeding 85 dBA at a distance of 50 feet.

Development of the future residential units would cause temporary noise impacts during construction at adjacent land uses. The future residential developments are generally located in proximity of noise-sensitive residential areas. Specific site plans and construction details have not been developed. Construction would be localized and would occur intermittently for varying periods of time. Because specific project-level information is not available at this time, it is not possible to quantify the construction noise impacts at specific sensitive receptors.

Construction is performed in distinct steps, each of which has its own mix of equipment, and, consequently, its own noise characteristics. However, despite the variety in the type and size of construction equipment, similarities in the dominant noise sources and patterns of operation allow construction-related noise ranges to be categorized by work phase. Table 4.10-10 lists typical construction equipment noise levels recommended for noise-impact assessments, based on a distance of 50 feet between the equipment and the noise receptor.

The highest noise impacts during construction would occur from operation of heavy earthmoving equipment and truck haul that would occur with construction of individual hosing sites. The City restricts the hours of construction activities[6] to the least noise-sensitive portions of the day (i.e. between 8:00 a.m. and 6:00 p.m. for Monday through Friday). In addition, the City prohibits the use of construction equipment that generates noise levels exceeding 85 dBA at a distance of 50 feet.

Prior to construction of each housing site, for projects that are not subject to separate environmental review construction noise impacts would be addressed through compliance with the City's General Plan and Zoning Ordinance through the City's building permitting process. Several methods can be implemented to reduce noise during construction such as equipment selection, selecting staging areas as far as possible from nearby noise sensitive areas and temporary construction walls.

Implementation of the following amended General Plan goals, policies, and programs would ensure these impacts identified above are *less than significant*.

i. Amended General Plan Noise Element

- Program N-1.J: Evaluate Noise Related Impacts of City Actions as Appropriate. Analyze in detail the potential noise impacts of any actions that the City may take or act upon which could significantly alter noise level in the community.

[6] Except for emergency work of public service utilities or by variance.

TABLE 4.10-10 **CONSTRUCTION EQUIPMENT NOISE EMISSION LEVELS**

Construction Equipment	Typical Noise Level (dBA) at 50 Feet	Construction Equipment	Typical Noise Level (dBA) at 50 Feet
Air Compressor	81	Pile-Driver (Impact)	101
Backhoe	80	Pile-Driver (Sonic)	96
Ballast Equalizer	82	Pneumatic Tool	85
Ballast Tamper	83	Pump	76
Compactor	82	Rail Saw	90
Concrete Mixer	85	Rock Drill	98
Concrete Pump	71	Roller	74
Concrete Vibrator	76	Saw	76
Crane, Derrick	88	Scarifier	83
Crane, Mobile	83	Scraper	89
Dozer	85	Shovel	82
Generator	81	Spike Driver	77
Grader	85	Tie Cutter	84
Impact Wrench	85	Tie Handler	80
Jack Hammer	88	Tie Inserter	85
Loader	85	Truck	88
Paver	89		

Source: Federal Transit Administration, Transit Noise, and Vibration Impact Assessment, 2006.

- Goal N-1: Achieve Acceptable Noise Levels. It is the goal of Menlo Park to have acceptable noise levels. Excessive noise is a concern for many residents of Menlo Park. These concerns can be managed with proper mitigation or through the implementation of the City's noise ordinance. The City of Menlo Park recognizes the issue of noise and has standards to protect the peace, health and safety of residents and the community from unreasonable noise from any and all sources in the community and to strive to locate uses compatible to the area to minimize escalation of noise from mobile and stationary sources.
- Policy N-1.6: Noise Reduction Measures. Encourage the use of construction methods, state-of-the-art noise abating materials and technology and creative site design including, but not limited to, open space, earthen berms, parking, accessory buildings, and landscaping to buffer new and existing development from noise and to reduce potential conflicts between ambient noise levels and noise-sensitive land uses. Use sound walls only when other methods are not practical or when recommended by an acoustical expert.
- Policy N-1.10: Nuisance Noise. Minimize impacts from noise levels that exceed community sound levels through enforcement of the City's Noise Ordinance. Control unnecessary, excessive and annoying noises within the City where not preempted by Federal and State control through implementation and updating of the Noise Ordinance.
- Policy N-1.8: Potential Annoying or Harmful Noise. Preclude the generation of annoying or harmful noise on stationary noise sources, such as construction and property maintenance activity and mechanical equipment.

5. For projects within an area covered by an airport land use plan or within 2 miles of a public airport or public use airport when such an airport land use plan has not been adopted, or within the vicinity of a private airstrip, expose people residing or working in the project area to excessive aircraft noise levels.

There are no areas of Menlo Park which fall within an airport land use plan for any of the airports located in close proximity to the EA Study Area. Although a small portion of Menlo Park falls within 2 miles of the Palo Alto Airport, this area is not covered by the airport's influence area,[7] nor is it within the airport's 55 dB noise contour. All other airports are located 4 or more miles away from the EA Study Area. Imple-

[7] Santa Clara County Airport Land Use Commission, 2008. Palo Alto Airport Comprehensive Land Use Plan, Figure 7, http://www.sccgov.org/sites/planning/Plans%20-%20Programs/Airport%20Land-Use%20Commission/Documents/PAO-adopted-11-19-08-CLUP.pdf, accessed on September 6, 2012.

mentation of the Plan Components would therefore not result in exposure to excessive aircraft noise levels and the impact would be *less than significant*.

6. For a project within the vicinity of a private airstrip, expose people residing or working in the project area to excessive noise levels.

There are no private airstrips located within Menlo Park. The Stanford University Hospital does operate one heliport, which is located approximately 0.4-mile to the southeast of border with Menlo Park, and over several miles from the nearest housing Site 1. Due to limited and sporadic heliport use for medical emergencies, and distance to the nearest housing sites, there would be *no impact* related to excessive noise levels related to private airstrips.

7. Cumulative Impacts

This section analyzes potential impacts from noise that could occur from a combination of the Plan Components with regional growth in the immediate area. The traffic noise levels predicted in 2035 and evaluated in Section E.1 are based on cumulative traffic conditions that take into account cumulative development in the region. Therefore, the impact discussion above incorporates the cumulative scenario by default and no further discussion is warranted.

F. Impacts and Mitigation Measures

The Plan Components would not result in any significant noise impacts; therefore, no mitigation measures are necessary.