# 3.2 Noise

This Chapter describes the regulatory setting and environmental setting for noise in the City of Menlo Park as it pertains to traffic noise from Project-related vehicle trips. The Project site is within the Specific Plan. Since the Project's site plan and development parameters would be consistent with the Specific Plan, the Specific Plan EIR is applicable to this Project. In accordance with Sections 15128 and 15183.3(d) of the CEQA Guidelines, this section is limited to those effects that have either not been analyzed in the Specific Plan EIR or that are not substantially mitigated by uniformly applicable development policies or standards. No comments related to noise were received in response to the Notice of Preparation (NOP).

## Existing Conditions

### Regulatory Setting

Federal, state, and local agencies regulate different aspects of environmental noise. Generally, the federal government sets noise standards for transportation-related noise sources closely linked to interstate commerce. These sources include aircraft, locomotives, and trucks. No federal noise standards are directly applicable to the Project. The state government sets noise standards for transportation noise sources such as automobiles, light trucks, and motorcycles. Noise sources associated with industrial, commercial, and construction activities are generally subject to local control through noise ordinances and general plan policies. Local general plans identify general principles intended to guide and influence development plans. State and local noise policies and regulations applicable to the Project are described below.

#### California Code

Part 2, Title 24 of the California Code of Regulations, "California Noise Insulation Standards," establishes minimum noise insulation standards to protect persons within new hotels, motels, dormitories, long-term care facilities, apartment houses, and dwellings other than single-family residences. Under this regulation, interior noise levels attributable to exterior noise sources cannot exceed a day-night average sound level ($L_{dn}$) of 45 decibels in any habitable room. Where such residences are located in an environment in which exterior noise is 60 $L_{dn}$ or greater, an acoustical analysis is required to ensure that interior levels do not exceed the 45 $L_{dn}$ interior standard.

#### Local

##### Menlo Park General Plan

The California Government Code requires that a noise element be included in the general plan of each county and city in the state. The noise element establishes the local government's goals, objectives, and policies related to noise control. The Noise Element of the City's General Plan, which was updated in 2013, establishes goals and policies for ensuring that existing and proposed land uses are compatible with their noise environments. Therefore, the City has adopted quantitative exterior noise compatibility criteria for various land uses. The purpose of these criteria is to reduce the potential adverse noise effects of new developments on people, including sleep disturbance,

interference with speech communication, and the general sense of dissatisfaction that is often associated with high noise exposure.

Land use compatibility noise standards are included in the City's Noise Element. According to the Noise Element, noise levels up to 60 A-weighted decibels (dBA) day-night level ($L_{dn}$) are considered normally acceptable for single-family residential land uses, while noise levels are conditionally acceptable up to 70 dBA $L_{dn}$ for these uses provided that noise insulation features are included in the design to reduce interior noise levels. For multi-family residential and hotel uses, noise levels of up to 65 $L_{dn}$ are considered normally acceptable, with noise levels of 70 or $L_{dn}$ considered to be conditionally acceptable. For office buildings and commercial uses, noise levels of up to 70 dBA $L_{dn}$ are also considered to be normally acceptable, with noise levels of up to 77.5 $L_{dn}$ being considered conditionally acceptable. For industrial uses, noise levels up to 75 dBA $L_{dn}$ are considered normally acceptable, and noise levels of up to 80 dBA $L_{dn}$ are conditionally acceptable. For schools and churches, playgrounds, and neighborhood parks, noise levels up to 70 dBA $L_{dn}$ are considered normally acceptable; there are no separate conditionally acceptable noise limits for these uses.

The following goal and policies from the Noise Element of the City's General Plan pertain to traffic noise from Project-related vehicle trips:

**Goal N1:** Achieve Acceptable Noise Levels.

*Policy N1.1*, *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, and subdivision and zoning codes.

*Policy N1.2, Land Use Compatibility Noise Standards*. Protect people in new development from excessive noise by applying the City's Land Use Compatibility Noise Standards for New Development to the siting and required mitigation for new uses in existing noise environments.

*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 N1.4, Noise Sensitive Uses*. Protect existing residential neighborhoods and noise sensitive uses from unacceptable noise levels and vibration impacts. Noise sensitive uses include, but are not limited to, hospitals, schools, religious facilities, convalescent homes, and businesses with highly sensitive equipment. Discourage the siting of noise-sensitive uses in areas in excess of 65 dBA CNEL without appropriate mitigation and locate noise sensitive uses away from noise sources unless mitigation measures are included in development plans.

*Policy N1.5, 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 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 N1.7, 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.

## City of Menlo Park Municipal Code

In addition to the General Plan, noise regulations are also contained in the City of Menlo Park Municipal Code (Municipal Code). Chapter 8.06 of the Municipal Code contains noise limitations and exclusions for land uses (but not moving vehicles) within the City. The Noise Ordinance addresses noise limits that would constitute a noise disturbance, primarily as measured on residential land uses. The following regulations would be applicable to the Project:

**8.06.030 Noise Limitations**

a. Except as otherwise permitted in this chapter, any source of sound in excess of the sound level limits set forth in Section 8.06.030 shall constitute a noise disturbance. For purposes of determining sound levels from any source of sound, sound level measurements shall be made at a point on the receiving property nearest where the sound source at issue generates the highest sound level.

    1. For all sources of sound measured from any residential property:

        A. "Nighttime" hours (10:00 p.m. to 7:00 a.m.) — 50 dBA

        B. "Daytime" hours (7:00 a.m. to 10:00 p.m.) — 60 dBA

**8.06.040 Exceptions**

a. Construction Activities

    1. Construction activities between the hours of 8:00 a.m. and 6:00 p.m. Monday through Friday.

    4. Notwithstanding any other provision set forth above, all powered equipment shall comply with the limits set forth in Section 8.06.040(b).

b. Powered Equipment

    1. Powered equipment used on a temporary, occasional or infrequent basis operated between the hours of 8:00 a.m. and 6:00 p.m. Monday through Friday. No piece of equipment shall generate noise in excess of 85 dBA at 50 feet.

c. Deliveries

    1. Deliveries to food retailers and restaurants.

    2. Deliveries to other commercial and industrial businesses between the hours of 7:00 a.m. and 6:00 p.m. Monday through Friday and 9:00 a.m. to 5:00 p.m. Saturdays, Sundays, and holidays.

**8.06.050 Exemptions**

a. Sound Generated by Motor Vehicles. Sound generated by motor vehicles, trucks, and buses operated on streets and highways, aircraft, trains, and other public transport.

    1. This exemption shall not apply to the operation of any vehicle including any equipment attached to any vehicle (such as attached refrigeration and/or heating units or any attached auxiliary equipment) for a period in excess of 10 minutes in any hour while the vehicle is stationary, for reasons other than traffic congestion.

### Town of Atherton

For some of the analyzed roadway segments, part or all of the roadway segment is located in the Town of Atherton. The Town of Atherton has its own municipal code (and associated noise

ordinance) and general plan (and associated noise element) that involve guidelines and regulations that differ slightly from the regulations for the City of Menlo Park. The Noise Ordinance for the Town of Atherton has comparable noise regulations:

- 7:00 a.m. to 10:00 p.m. — 60 dBA
- 10:00 p.m. to 7:00 a.m. — 50 dBA

The Noise Element Land Use Compatibility standards for the Town of Atherton are slightly more conservative than those of the City of Menlo Park. For Residential land uses, noise levels up to 55 dBA CNEL are considered normally acceptable; noise levels up to 70 dBA CNEL are conditionally acceptable for these uses.

## Fundamentals of Environmental Noise and Vibration

### Terminology

A brief description of noise and vibration concepts and terminology used in this assessment is provided below.

- **Sound**. A vibratory disturbance transmitted by pressure waves through a medium such as air or water and 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 unitless measure of sound on a logarithmic scale that indicates the squared ratio of sound pressure amplitude to a reference sound pressure amplitude. The reference pressure is 20 micropascals.
- **A-Weighted Decibel (dBA).** An overall frequency-weighted sound level in decibels that approximates the frequency response of the human ear. The dBA scale is the most widely used for environmental noise assessments.
- **Maximum Sound Levels ($L_{max}$).** The maximum sound level measured during the measurement period.
- **Equivalent Sound Level ($L_{eq}$)**. The equivalent steady state sound level that in a stated period of time would contain the same acoustical energy. The 1-hour A-weighted equivalent sound level ($L_{eq}$ 1h) is the energy average of A-weighted sound levels occurring during a 1-hour period.
- **Day-Night Level ($L_{DN}$).** The energy average of the A-weighted sound levels occurring during a 24-hour period, with a 10-dB penalty added to sound levels between 10:00 p.m. and 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 sound 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. $L_{DN}$ and CNEL are typically within 1 dBA of each other and, for all intents and purposes, are interchangeable.

### Overview of Noise and Sound

*Noise* is commonly defined as unwanted sound that annoys or disturbs people and potentially causes an adverse psychological or physiological effect on human health. Because noise is an

environmental pollutant that can interfere with human activities, evaluation of noise is necessary when considering the environmental impacts of a proposed project.

*Sound* is characterized by various parameters that include the rate of oscillation of sound waves (frequency), the speed of propagation, and the pressure level or energy content (amplitude). In particular, the sound pressure level is the most common descriptor used to characterize the loudness of an ambient (existing) sound level. Although the dB scale, a logarithmic scale, is used to quantify sound intensity, it does not accurately describe how sound intensity is perceived by human hearing. The human ear is not equally sensitive to all frequencies in the entire spectrum, so noise measurements are weighted more heavily for frequencies to which humans are sensitive in a process referred to as A-weighted decibels (dBA). Table 3.2-1 summarizes typical A-weighted sound levels for different noise sources.

Human sound perception, in general, is such that a change in sound level of 1 dB cannot typically be perceived by the human ear; a change in sound level of 3 dB is just noticeable; a change of 5 dB is clearly noticeable; and a change of 10 dB is perceived as doubling or halving the sound level. A doubling of actual sound energy is required to result in a 3-dB (i.e., barely noticeable) increase in noise; in practice, for example, this means that the volume of traffic on a roadway would typically need to double to result in a noticeable increase in noise.

The decibel level of a sound decreases (or attenuates) exponentially as the distance from the source of that sound increases. For a point source such as a stationary compressor or construction equipment, sound attenuates at a rate of 6 dB per doubling of distance. For a line source such as free flowing traffic on a freeway, sound attenuates at a rate of 3 dB per doubling of distance. [38] Atmospheric conditions including wind, temperature gradients, and humidity can change how sound propagates over distance and can affect the level of sound received at a given location. The degree to which the ground surface absorbs acoustical energy also affects sound propagation. Sound that travels over an acoustically absorptive surface, such as grass, attenuates at a greater rate than sound that travels over a hard surface such as pavement. The increase in attenuation is typically in the range of 1 to 2 dB per doubling of distance. Barriers such as buildings and topography that block the line of sight between a source and receiver also increase the attenuation of sound over distance.

[38] California Department of Transportation 2013. *Caltrans Technical Noise Supplement to the Traffic Noise Analysis Protocol*. September. Available: http://www.dot.ca.gov/hq/env/noise/pub/TeNS_Sept_2013B.pdf. Accessed: September 1, 2016.

**Table 3.2-1. Typical A-Weighted Sound Levels**

| Common Outdoor Activities | Sound Level (dBA) | Common Indoor Activities |
|---|---|---|
| | 110 | Rock band |
| Jet flyover at 1,000 feet | | |
| | 100 | |
| Gas lawnmower at 3 feet | | |
| | 90 | |
| Diesel truck at 50 mph at 50 feet | | Food blender at 3 feet |
| | 80 | Garbage disposal at 3 feet |
| Noisy urban area, daytime | | |
| Gas lawnmower at 100 feet | 70 | Vacuum cleaner at 3 feet |
| Commercial area | | Normal speech at 3 feet |
| Heavy traffic at 300 feet | 60 | |
| | | Large business office |
| Quiet urban area, daytime | 50 | Dishwasher in next room |
| Quiet urban area, nighttime | 40 | Theater, large conference room (background) |
| Quiet suburban area, nighttime | | |
| | 30 | Library |
| Quiet rural area, nighttime | | Bedroom at night, concert hall (background) |
| Rustling of leaves | 20 | |
| | | Broadcast/recording studio |
| | 10 | |
| Lowest threshold of human hearing | 0 | Lowest threshold of human hearing |

Source: California Department of Transportation 2013. *Caltrans Technical Noise Supplement to the Traffic Noise Analysis Protocol*. September. Available: http://www.dot.ca.gov/hq/env/noise/pub/TeNS_Sept_2013B.pdf. Accessed: September 1, 2016.

dBA = A-weighted decibels; mph = miles per hour

## Environmental Setting

Locations where people reside or where the presence of noise could adversely affect the use of the land are generally considered sensitive land uses. Typical sensitive receptors include residents, school children, hospital patients, and the elderly.

The land uses surrounding the Project consist of a commercial plaza to the north; Burgess Park and single- and multi-family residential units east of the Caltrain right-of-way and Alma Street; the Stanford Park Hotel to the south; and a mix of commercial uses, including a retail shopping center, and multi-family residential uses to the west of El Camino Real. Downtown Menlo Park is approximately 0.3 mile northwest of the Project site. Sensitive receptors located in proximity to the Project site include multiple neighborhoods of single- and multi-family residences east and west of the Project site and Burgess Park east of the Project site.

## Existing Noise Levels

Existing on-site noise sources are primarily associated with rail operations on the Caltrain tracks and traffic surrounding the Project site.

Ambient noise levels in the Project area were measured at several sites for the Specific Plan EIR. The two noise measurement locations closest to the Project site are the Willow Road site (located approximately 50 feet northeast of Alma Street) and the Live Oak Avenue site (located approximately 100 feet southwest of El Camino Real); these locations have 10-minute average ambient noise levels of 57.6 dBA $L_{eq}$ and 59.0 $L_{eq}$, respectively.[39] Noise at these locations, which are located approximately 215 feet (for the Willow Road site) northeast of the Project site and approximately 950 feet (for the Live Oak Avenue site) west of the Project site, was mostly influenced by the moderate vehicle traffic on surrounding roadways.

Existing traffic noise levels on roadway segments located in the vicinity of the Project have been characterized with traffic noise modeling using existing traffic volumes presented in Section 3.3, *Transportation/Traffic*, and the Federal Highway Administration's (FHWA) Traffic Noise Model (TNM) version 2.5.[40] Using these tools, existing traffic noise was modeled along nine roadway segments in the Project area that were not analyzed in the Specific Plan EIR. Note that a total of 18 roadway segments were previously analyzed in the Specific Plan EIR, and all were determined to have less-than-significant noise impacts related to the Specific Plan; these segments are not further assessed in this Infill EIR. Refer to Table 3.2-2 for the list of nine segments analyzed in this EIR that were not previously assessed, and for the modeled existing noise levels (based on existing traffic volumes in Section 3.3, *Transportation/Traffic*) for these roadway segments at a standard distance of 50 feet from the centerline of the roadway segment.

**Table 3.2-2. Modeled Existing Traffic Noise Levels at 50 Feet**

| Roadway | Segment | Existing $L_{DN}$ at 50 Feet |
|---|---|---|
| 1. Middlefield Road | Oak Grove Avenue to Ravenswood Avenue[a] | 64.1 |
| 2. Middlefield Road | Ravenswood Avenue to Ringwood Avenue | 63.8 |
| 3. Ravenswood Avenue | Laurel Street to Middlefield Road | 64.8 |
| 4. Alma Street | Ravenswood Avenue to Burgess Drive | 56.7 |
| 5. Middle Avenue | University Drive to El Camino Real | 62.4 |
| 6. College Avenue | University Drive to El Camino Real | 51.1 |
| 7. Partridge Avenue | University Drive to El Camino Real | 50.1 |
| 8. Cambridge Avenue | University Drive to El Camino Real | 54.4 |
| 9. Harvard Avenue | University Drive to El Camino Real | 50.1 |

Source: ICF International 2016, W-Trans 2016.

Notes:

a. Part or all of the roadway segment is located in the Town of Atherton.

$L_{DN}$ = Day-Night level

[39] Federal Highway Administration. 2004. Traffic Noise Model, Version 2.5.

[40] Federal Highway Administration. 2004. Traffic Noise Model, Version 2.5.

### Existing Groundborne Vibration Levels

Existing groundborne vibration in the Project area is associated with passenger vehicles and heavy-duty trucks along with existing rail operations. Because the rubber tires and suspension systems of passenger vehicles and heavy-duty vehicles provide vibration isolation, it is unusual for passenger vehicles or heavy-duty trucks to cause groundborne noise or vibration problems. Passenger vehicles and heavy-duty trucks cause effects such as rattling of windows; however, the source is almost always airborne noise and not vibration. Most causes of passenger vehicle and heavy-duty truck-related vibration can be directly related to a pothole, bump, expansion joint, or other discontinuity in the road surface. Smoothing the bump or filling the pothole usually solves the problem. For these reasons, vehicular traffic in the Project vicinity does not contribute substantially to existing groundborne vibration levels. The nearby Caltrain tracks also produce groundborne vibration. According to the FTA's groundborne vibration and noise impact criteria, the existing railroad operation is considered frequent because there are more than 70 train events per day. The groundborne vibration standard for commercial uses subject to frequent train events is 75 VdB.[41] For residential uses, the vibration standard is 72 VdB.

# Environmental Impacts

This section describes the impact analysis relating to noise for the Project. It describes the methods used to determine the impacts of the Project and lists the thresholds used to conclude whether an impact would be significant. Measures to mitigate (i.e., avoid, minimize, rectify, reduce, eliminate, or compensate for) significant impacts accompany each impact discussion, as necessary.

## Thresholds of Significance

In accordance with Appendix G of the CEQA Guidelines, the Project would be considered to have a significant effect due to traffic noise from Project-related vehicle trips if it would:

- Expose persons to or generate noise levels in excess of standards established in a local general plan or noise ordinance or applicable standards of other agencies.
- Result in a substantial permanent increase in ambient noise levels in the Project vicinity above levels existing without the Project.
- Result in a substantial temporary or periodic increase in ambient noise levels in the Project vicinity above levels existing without the Project.

## Methods for Analysis

As discussed in the Specific Plan EIR, impacts related to groundborne vibration, and temporary or periodic increases in ambient noise levels were determined to be less than significant with mitigation. As also discussed in the Specific Plan EIR, there are no public airports or private airstrips within the vicinity of the project site, and no impacts related to airports or airstrips would occur. These noise topics are discussed in the *Infill Environmental Checklist* (Appendix 1-1) and the Specific Plan EIR, and are not discussed further in this Infill EIR.

Only impacts related to operational traffic noise were determined to require further analysis in the *Infill Environmental Checklist* (Appendix 1-1). This is discussed further below.

[41] Federal Highway Administration. 2004. Traffic Noise Model, Version 2.5

Traffic noise in the Project vicinity was modeled using segment Average Daily Traffic (ADT) volumes from the Project's transportation analysis (Section 3.3, *Transportation/Traffic*) and the FHWA TNM.[42] This model consists of a spreadsheet that calculates the traffic noise level at a fixed distance of 50 feet from the centerline of a roadway based on the ADT volume, roadway speed, and vehicle mix that is predicted to occur. Operational traffic noise would be considered a significant impact where with-Project noise levels would exceed local land use noise standards for the affected land use and the Project would increase existing traffic noise levels by 3.0 dB or more (3 dB is the threshold level for most people noticing a change in noise).

# Impacts and Mitigation Measures

**Impact NOI-1: Exposure of Off-site Noise-Sensitive Land Uses to Increased Traffic Noise. The Project would not result in traffic noise levels in excess of thresholds at nearby noise-sensitive land uses, nor would it result in a substantial permanent increase in ambient noise levels at existing noise-sensitive uses in the project vicinity above levels existing without the project. (LTS)**

Operational noise from roadway traffic generated by the Project could increase noise levels along roadway segments in the vicinity of the Project resulting in Project-related traffic noise impacts.

The Specific Plan EIR analyzed traffic noise on a total of 18 roadway segments. These segments were modeled to determine future noise levels based on the buildout assumed in the Specific Plan EIR, which includes the Project. The segments modeled in the Specific Plan EIR included segments of Oak Grove Avenue, Santa Cruz Avenue, Menlo Avenue, Ravenswood Avenue, University Avenue, El Camino Real, and Middlefield Road. According to the Specific Plan EIR, traffic noise increases for all of the analyzed segments under buildout conditions were determined to be less than 1 dB as compared to existing conditions with the exception of one segment (El Camino Real from Menlo College to Valparaiso), where the increase would be 1.1 dB. As discussed in the *Fundamentals of Environmental Noise and Vibration* section, a change in sound level of 1 dB is not perceptible to the human ear, and a change in sound level of 3 dB is just barely noticeable. According to the Specific Plan EIR, as a 3-dB change is barely perceptible to humans, it can be assumed that changes in noise levels of less than 3 dB due to increased roadway traffic would not result in substantial noise level increases that could impact sensitive receptors. Therefore, impacts related to traffic noise were determined to be less than significant for the segments assessed in the Specific Plan EIR.

Section 3.3, *Transportation/Traffic*, of this Infill EIR analyzes traffic effects on nine additional roadway segments not included in the Specific Plan EIR to which the Project would add traffic. Traffic analysis of these segments was conducted for the existing, Near-Term 2021, Near-Term 2021 Plus Project, Cumulative 2040, and Cumulative 2040 Plus Project conditions. As discussed above, the future noise levels at the following segments were already modeled in the Specific Plan EIR: segments of Oak Grove Avenue, Santa Cruz Avenue, Menlo Avenue, Ravenswood Avenue, University Avenue, El Camino Real, and Middlefield Road. For the purposes of this noise analysis, impacts associated with increased traffic volumes along the nine additional segments generated by the Project were evaluated by determining noise levels under existing conditions as compared to noise levels associated with Existing Plus Project conditions using the FHWA TNM methodology. This model calculates the traffic noise level at a fixed distance from the centerline of a roadway based on

[42] Federal Highway Administration. 2004. Traffic Noise Model, Version 2.5.

the ADT volume, roadway speed, and vehicle mix that is predicted to occur under each condition. The vehicle mix (i.e., the proportion of automobiles, trucks, buses, and other vehicles) utilized in the analysis was based on information from W-Trans, the preparers of the transportation analysis. The percentage of heavy trucks was assumed to be two percent for the roadway segments included in the analysis. Traffic noise was evaluated in terms of the degree by which Project-related traffic noise increases could combine with existing noise levels and affect existing noise-sensitive land uses along the analyzed segments. Table 3.2-3 summarizes the increase in traffic-related noise at a standard reference distance of 50 feet from the centerline of the roadway segment along identified roadway segments under the existing and Existing Plus Project conditions.

**Table 3.2-3. Existing and Existing Plus Project Traffic Noise Levels at 50 Feet**

| Roadway | Segment | Existing $L_{DN}$ at 50 Feet | Existing Plus Project $L_{DN}$ at 50 Feet | Project Contribution to Noise Level at 50 Feet (dB) | Greater than or Equal to 60 $L_{DN}$? | > 3 dB Change at 50 Feet? | Significant Impact? |
|---|---|---|---|---|---|---|---|
| 1. Middlefield Road | Oak Grove Avenue to Ravenswood Avenue[a] | 64.1 | 64.1 | 0.0 | Yes | No | No |
| 2. Middlefield Road | Ravenswood Avenue to Ringwood Avenue | 63.8 | 64.0 | 0.2 | Yes | No | No |
| 3. Ravenswood Avenue | Laurel Street to Middlefield Road | 64.8 | 65.0 | 0.2 | Yes | No | No |
| 4. Alma Street | Ravenswood Avenue to Burgess Drive | 57.1 | 57.1 | 0.0 | No | No | No |
| 5. Middle Avenue | University Drive to El Camino Real | 62.4 | 62.7 | 0.3 | Yes | No | No |
| 6. College Avenue | University Drive to El Camino Real | 51.1 | 51.2 | 0.1 | No | No | No |
| 7. Partridge Avenue | University Drive to El Camino Real | 50.1 | 50.2 | 0.1 | No | No | No |
| 8. Cambridge Avenue | University Drive to El Camino Real | 54.4 | 54.6 | 0.2 | No | No | No |
| 9. Harvard Avenue | University Drive to El Camino Real | 50.1 | 50.1 | 0.0 | No | No | No |

Notes:

- Traffic noise was modeled using Average Daily Traffic segment volumes from the transportation analysis (W-Trans 2016, Appendix 3.3).
- City of Menlo Park regulations limit noise levels to 60 dBA $L_{DN}$ residential uses

[a] Part or all of the roadway segment is located in the Town of Atherton.

dB = decibel; $L_{DN}$ = Day-Night Level

Under Existing Plus Project conditions, traffic noise levels at four of the nine analyzed roadway segments could exceed the City's thresholds of 60 dBA $L_{DN}$ for residential land uses. Because Project noise levels would exceed local land use noise standards in some areas, impacts would result if the Project would increase existing traffic noise levels by 3.0 dB or more. Project-generated traffic noise increases were found to add between 0.0 and 0.3 dB at a standard reference distance of 50 feet from

the roadway centerline to the existing $L_{DN}$ for the four roadway segments where noise levels would exceed thresholds under Existing Plus Project conditions. Project traffic would increase noise levels by no more than 0.3 dB on any of the nine analyzed roadway segments, five of which have Existing and Existing Plus Project noise levels of below 60 dBA $L_{DN}$. Because there are no roadway segments where the Project would cause Existing Plus Project noise levels to exceed 60 $L_{DN}$, and because the Project would not increase noise by 3 dB or more along any segment, the Project would not result in traffic noise levels in excess of thresholds. The Project would not result in a substantial permanent increase in noise, and impacts from Project-generated traffic would be ***less than significant***.

# Cumulative Impacts

For cumulative operational noise impacts, specifically from traffic, the overall growth of a city or jurisdiction is considered; future regional growth in the Project vicinity would result in increases in traffic that would cumulatively increase traffic noise.

In general, a significant cumulative traffic noise impact would occur if cumulative plus project noise levels at existing sensitive receptors are greater than the applicable thresholds (60 dBA $L_{DN}$ for single-family residential land uses). A project would have a cumulatively considerable contribution to the overall increase in traffic noise levels if it would increase cumulative traffic noise levels by greater than 1 dB under Cumulative 2040 Plus Project conditions.

The results of the Cumulative 2040 and the Cumulative 2040 Plus Project conditions traffic noise modeling, as well as the cumulative impact determination for the analyzed segments, are shown in Table 3.2-4.

Modeling results for cumulative traffic noise levels indicate that traffic noise would be in excess of 60 dBA $L_{DN}$ at a distance of 50 feet for four of the nine analyzed roadway segments in the vicinity of the Project site. Thus, significant cumulative traffic noise impacts are therefore considered to occur along these four roadway segments. However, the Project would not result in a cumulatively considerable contribution to any cumulative impacts due to the minor Project-related noise increases shown in Table 3.3-5. Specifically, the Project would only increase cumulative noise levels by between 0.0 and 0.2 dB along these roadway segments. Therefore, the Project would have a ***less-than-significant*** contribution to the four cumulative impacts identified in the vicinity of the Project site.

**Table 3.2-4. Cumulative 2040 and Cumulative 2040 Plus Project Traffic Noise Levels at 50 Feet**

| Roadway | Segment | Existing $L_{DN}$ at 50 Feet | Cumulative 2040 $L_{DN}$ at 50 Feet | Cumulative 2040 Plus Project $L_{DN}$ at 50 Feet | Significant Cumulative Impact at 50 Feet? (> 60 $L_{DN}$ Cumulative plus Project) | Project Contribution to Noise Level at 50 Feet (dB) | Cumulatively Considerable Contribution to Cumulative Impact at 50 Feet? (>1 dB change) |
|---|---|---|---|---|---|---|---|
| 1. Middlefield Road | Oak Grove Avenue to Ravenswood Avenue[a] | 64.1 | 65.5 | 65.5 | Yes | 0.0 | No |
| 2. Middlefield Road | Ravenswood Avenue to Ringwood Avenue | 63.8 | 65.3 | 65.4 | Yes | 0.1 | No |
| 3. Ravenswood Avenue | Laurel Street to Middlefield Road | 64.8 | 66.0 | 66.1 | Yes | 0.1 | No |
| 4. Alma Street | Ravenswood Avenue to Burgess Drive | 57.1 | 57.7 | 57.7 | No | 0.0 | No |
| 5. Middle Avenue | University Drive to El Camino Real | 62.4 | 63.2 | 63.4 | Yes | 0.2 | No |
| 6. College Avenue | University Drive to El Camino Real | 51.1 | 51.5 | 51.6 | No | 0.1 | No |
| 7. Partridge Avenue | University Drive to El Camino Real | 50.1 | 50.6 | 50.7 | No | 0.1 | No |
| 8. Cambridge Avenue | University Drive to El Camino Real | 54.4 | 55.0 | 55.1 | No | 0.1 | No |
| 9. Harvard Avenue | University Drive to El Camino Real | 50.1 | 50.6 | 50.6 | No | 0.0 | No |

Notes:

[a] Part or all of the roadway segment is located in the Town of Atherton.

- Traffic noise was modeled using Average Daily Traffic segment volumes from the transportation analysis (W-Trans 2016, Appendix 3.3).
- Noise levels up to 60 dBA $L_{DN}$ are normally acceptable for single-family residential uses, and noise levels up to 65 dBA $L_{DN}$ are normally acceptable for multi-family residential and hotel uses.

dB = decibel; $L_{DN}$ = Day-Night Level