3.13 NOISE

The following discussion is based in part on a Noise and Vibration Assessment prepared for the project by Illingworth & Rodkin in March 2022.

3.13.1 Environmental Setting

3.13.1.1 *Regulatory Framework*

Noise

Factors that influence sound as it is perceived by the human ear, include the actual level of sound, period of exposure, frequencies involved, and fluctuation in the noise level during exposure. Noise is measured on a decibel scale, which serves as an index of loudness. The zero on the decibel scale is based on the lowest sound level that the healthy, unimpaired human ear can detect. Each 10 decibel increase in sound level is perceived as approximately a doubling of loudness. Because the human ear cannot hear all pitches or frequencies, sound levels are frequently adjusted or weighted to correspond to human hearing. This adjusted unit is known as the A-weighted decibel, or dBA.

Since excessive noise levels can adversely affect human activities and human health, federal, state, and local governmental agencies have set forth criteria or planning goals to minimize or avoid these effects. Noise guidelines are generally expressed using one of several noise averaging methods, including L_{eq}, DNL, or CNEL.[1] These descriptors are used to measure a location's overall noise exposure, given that there are times when noise levels are higher (e.g., when a jet is taking off from an airport or when a leaf blower is operating) and times when noise levels are lower (e.g., during lulls in traffic flows on freeways or in the middle of the night). L_{max} is the maximum A-weighted noise level during a measurement period.

Vibration

Ground vibration consists of rapidly fluctuating motions or waves with an average motion of zero. Vibration amplitude can be quantified using Peak Particle Velocity (PPV), which is defined as the maximum instantaneous positive or negative peak of the vibration wave. PPV has been routinely used to measure and assess ground-borne construction vibration. Studies have shown that the threshold of perception for average persons is in the range of 0.008 to 0.012 inches/second (in/sec) PPV.

3.13.1.2 *Regulatory Framework*

Federal

Federal Transit Administration Vibration Limits

The Federal Transit Administration (FTA) has developed vibration impact assessment criteria for evaluating vibration impacts associated with transit projects. The FTA has proposed vibration impact

[1] L_{eq} is a measurement of average energy level intensity of noise over a given period of time. Day-Night Level (DNL) is a 24-hour average of noise levels, with a 10 dB penalty applied to noise occurring between 10:00 PM and 7:00 AM. Community Noise Equivalent Level (CNEL) includes an additional five dB applied to noise occurring between 7:00 PM and 10:00 PM. Where traffic noise predominates, the CNEL and DNL are typically within two dBA of the peak-hour L_{eq}.

criteria based on maximum overall levels for a single event. The impact criteria for groundborne vibration are shown in Table 3.13-1 below. These criteria can be applied to development projects in jurisdictions that lack vibration impact standards.

Table 3.13-1: Groundborne Vibration Impact Criteria

Land Use Category	Groundborne Vibration Impact Levels (VdB inch/sec)		
	Frequent Event	**Occasional Events**	**Infrequent Events**
Category 1: Buildings where vibration would interfere with interior operations	65	65	65
Category 2: Residences and buildings where people normally sleep	72	75	80
Category 3: Institutional land uses with primarily daytime use	75	78	83

Source: Federal Transit Administration. *Transit Noise and Vibration Assessment Manual.* September 2018.

State

California Building Standards Code

The CBC establishes uniform minimum noise insulation performance standards to protect persons within new buildings housing people, including hotels, motels, dormitories, apartments, and dwellings other than single-family residences. Title 24 mandates that interior noise levels attributable to exterior sources do not exceed 45 L_{dn}/CNEL in any habitable room. Exterior windows must have a minimum Sound Transmission Class (STC) of 40 or Outdoor-Indoor Transmission Class (OITC) of 30 when the property falls within the 65 dBA DNL noise contour for a freeway or expressway, railroad, or industrial source.

Local

Envision San José 2040 General Plan

The General Plan includes policies for the purpose of avoiding or mitigating impacts resulting from planned development projects with the City. The following policies are specific to noise and are applicable to the proposed project.

Envision San José 2040 Relevant Noise Policies

Policy	Description
EC-1.2	Minimize the noise impacts of new development on land uses sensitive to increased noise levels (Categories 1, 2, 3, and 6) by limiting noise generation and by requiring use of noise attenuation measures such as acoustical enclosures and sound barriers, where feasible. The City considers significant noise impacts to occur if a project would: • Cause the DNL at noise sensitive receptors to increase by five dBA DNL or more where the noise levels would remain "Normally Acceptable"; or • Cause the DNL at noise sensitive receptors to increase by three dBA DNL or more where noise levels would equal or exceed the "Normally Acceptable" level.
EC-1.3	Mitigate noise generation of new nonresidential land uses to 55 dBA DNL at the property line when located adjacent to existing or planned noise sensitive residential and public/quasi-public land uses.
EC-1.6	Regulate the effects of operational noise from existing and new industrial and commercial development on adjacent uses through noise standards in the City's Municipal Code.
EC-1.7	Require construction operations within San José to use best available noise suppression devices and techniques and limit construction hours near residential uses per the City's Municipal Code. The City considers significant construction noise impacts to occur if a project located within 500 feet of residential uses or 200 feet of commercial or office uses would: • Involve substantial noise generating activities (such as building demolition, grading, excavation, pile driving, use of impact equipment, or building framing) continuing for more than 12 months. For such large or complex projects, a construction noise logistics plan that specifies hours of construction, noise and vibration minimization measures, posting or notification of construction schedules, and designation of a noise disturbance coordinator who would respond to neighborhood complaints will be required to be in place prior to the start of construction and implemented during construction to reduce noise impacts on neighboring residents and other uses.
EC-2.3	Require new development to minimize vibration impacts to adjacent uses during demolition and construction. For sensitive historic structures, a vibration limit of 0.08 in/sec PPV (peak particle velocity) will be used to minimize the potential for cosmetic damage to a building. A vibration limit of 0.20 in/sec PPV will be used to minimize the potential for cosmetic damage at buildings of normal conventional construction.

City of San José Municipal Code

The City's Municipal Code contains a Zoning Ordinance that limits noise levels at adjacent properties. Chapter 20.50.300 states that sound pressure levels generated by any use or combination of uses on a property zoned for industrial use shall not exceed 55 dBA at any property line shared with land zoned for residential purposes, 60 dBA at any property line shared with land zoned for commercial purposes, and 70 dBA at any property line shared with land zoned for industrial or use other than commercial or residential purposes, except upon issuance and in compliance with a

Conditional Use Permit. The code is not explicit in terms of the acoustical descriptor associated with the noise level limit. Consistent with General Plan policy EC-1.3, a reasonable interpretation of this standard would identify the ambient base noise level criteria as the day/night noise level (DNL).

Chapter 20.100.450 of the Municipal Code establishes allowable hours of construction within 500 feet of a residential unit between 7:00 AM and 7:00 PM Monday through Friday unless permission is granted with a development permit or other planning approval. No construction activities are permitted on the weekends at sites within 500 feet of a residence unless permission is granted with a development permit or other planning approval.

City of Milpitas General Plan

Trade Zone Boulevard, which borders the project site to the north, forms the boundary of the Cities of San José and Milpitas. Due to the proximity of the project to the City of Milpitas, this SPPE Application includes a discussion of relevant noise regulations in the Milpitas General Plan.

The Noise Element in the Milpitas General Plan (Adopted March 9, 2021) sets forth policies to address major noise sources and to promote safe and comfortable noise levels throughout Milpitas. The Noise Element contains goals, policies, and actions that seek to reduce community exposure to excessive noise levels through the establishment of noise level standards for a variety of land uses. The following policies are applicable to the proposed project:

N 1-2 Consider the noise compatibility of existing and future development when making land use planning decisions. Require development and infrastructure projects to be consistent with the land use compatibility standards contained in Tables N-1 and N-2 to ensure acceptable noise exposure levels for existing and future development.

N 1-2 Require new development to mitigate excessive noise to the standards indicated in Tables N-1 and N-2 through best practices, including building location and orientation, building design features, placement of noise-generating equipment, placement of noise-tolerant features between noise sources and sensitive receptors, and use of noise-minimizing materials.

N 1-6 For projects that are required to prepare an acoustical study to analyze noise impacts, the following criteria shall be used to determine the significance of those impacts:

Stationary and Non-Transportation Noise Sources

- A significant impact will occur if the project results in an exceedance of the noise level standards contained in this element, in instances where the ambient noise level is already above the standards contained in this element, a significant impact will occur if the project results in an increase in ambient noise levels by more than 3 dB. This does not apply to temporary construction activities.

Transportation Noise Sources

- Where existing traffic noise levels are 60 dB L_{dn} or less at the outdoor activity areas of noise-sensitive uses, a +5 dB L_{dn} increase in roadway noise levels will be considered significant;

- Where existing traffic noise levels are greater than 60 dB L_{dn} and up to 65 dB L_{dn} at the outdoor activity areas of noise-sensitive uses, a +3 dB L_{dn} increase in roadway noise levels will be considered significant; and

- Where existing traffic noise levels are greater than 65 dB L_{dn} at the outdoor activity areas of noise-sensitive uses, a +1.5 dB L_{dn} increase in roadway noise levels will be considered significant.

N 1-8 Require construction activities to comply with standard best practices to reduce noise exposure to adjacent sensitive receptors (see Action N-1d).

N 1-12 Require non-transportation related noise from specific noise sources to comply with the standards shown in Table N-2.

N 1-15 Temporary emergency operations or emergency equipment usage authorized by the City shall be exempt from noise standard criteria set by this element.

Table N-2: Stationary (Non-Transportation) Noise Source Standards

Land Use Receiving the Noise	*Hourly Noise-Level Descriptor*	*Exterior Noise-Level Standard (dBA)*	
		Daytime (7am-10pm)	*Nighttime (10pm-7am)*
Residential	L_{eq}	55	45
	L_{max}	70	65

Notes:

a) The residential standards apply to all properties that are zoned for residential use. The exterior noise level standard is to be applied at the property line of the receiving land use or at a designated outdoor activity area. For mixed-use projects, the exterior noise level standard may be waived in conjunction with Policy N 2-2 (at the discretion of the decision-making body) if the residential portion of the project does not include a designated activity area and mitigation of property line noise is not practical.

b) Each of the noise levels specified above shall be lowered by 5 dBA for tonal noises characterized by a whine, screech, or hum, noises consisting primarily of speech or music, or recurring impulsive noises. In no case shall mitigation be required to a level that is less than existing ambient noise levels, as determined through measurements conducted during the same operational period as the subject noise source.

c) In situations where the existing noise level exceeds the noise levels indicated in the above table, any new noise source must include mitigation that reduces the noise level of the noise source to the existing level plus 3 dB.

Tonal Noises are characterized by a whine, screech, beep, or hum, consisting primarily of speech or music, or recurring impulsive noises. Tonal noises can cause unpleasant experiences in spaces adjacent to areas that produce tonal noise, which annoys occupants and, in turn, lead to increased complaints from nearby sensitive receptors.

3.13.1.3 *Existing Conditions*

The project includes the development of the Trade Zone Boulevard Technology Park located east of Ringwood Avenue between Fortune Drive and Trade Zone Boulevard in San José, California. The site is currently developed with two buildings used for office space and light industrial use, and a parking lot. Directly east of the site is an office building located at 1931 Fortune Drive. Office and commercial uses are located to the south and west along Fortune Drive and Ringwood Avenue. The nearest residential uses are to the north across Trade Zone Boulevard within the City of Milpitas.

A noise measurement survey was conducted between Wednesday, September 29, 2021 and Friday, October 1, 2021. The survey included two long-term measurements (LT-1 and LT-2) and two short-term measurements (ST-1 and ST-2). Noise measurement locations are shown in Figure 3.13-1. Noise measurement results are summarized in Tables 3.13-2 and 3.13-3.

Long-term measurement LT-1 was made approximately 50 feet north of the centerline of Fortune Drive at the southern end of the project site. Hourly average noise levels at this location ranged from 52 to 64 dBA L_{eq} during the day and from 49 to 61 dBA L_{eq} at night. The day-night average noise level at this location was 62 dBA L_{dn}/DNL on Thursday, September 30, 2021. Long-term measurement LT-2 was made approximately 40 feet north of the centerline of Trade Zone Boulevard adjacent to the residential uses nearest to the project site and located in the City of Milpitas. Hourly average noise levels at this location range from 69 to 74 dBA L_{eq} during the day and from 63 to 73 dBA L_{eq} at night. The day-night average noise level at this location was 76 dBA L_{dn}/DNL on Thursday, September 30, 2021.

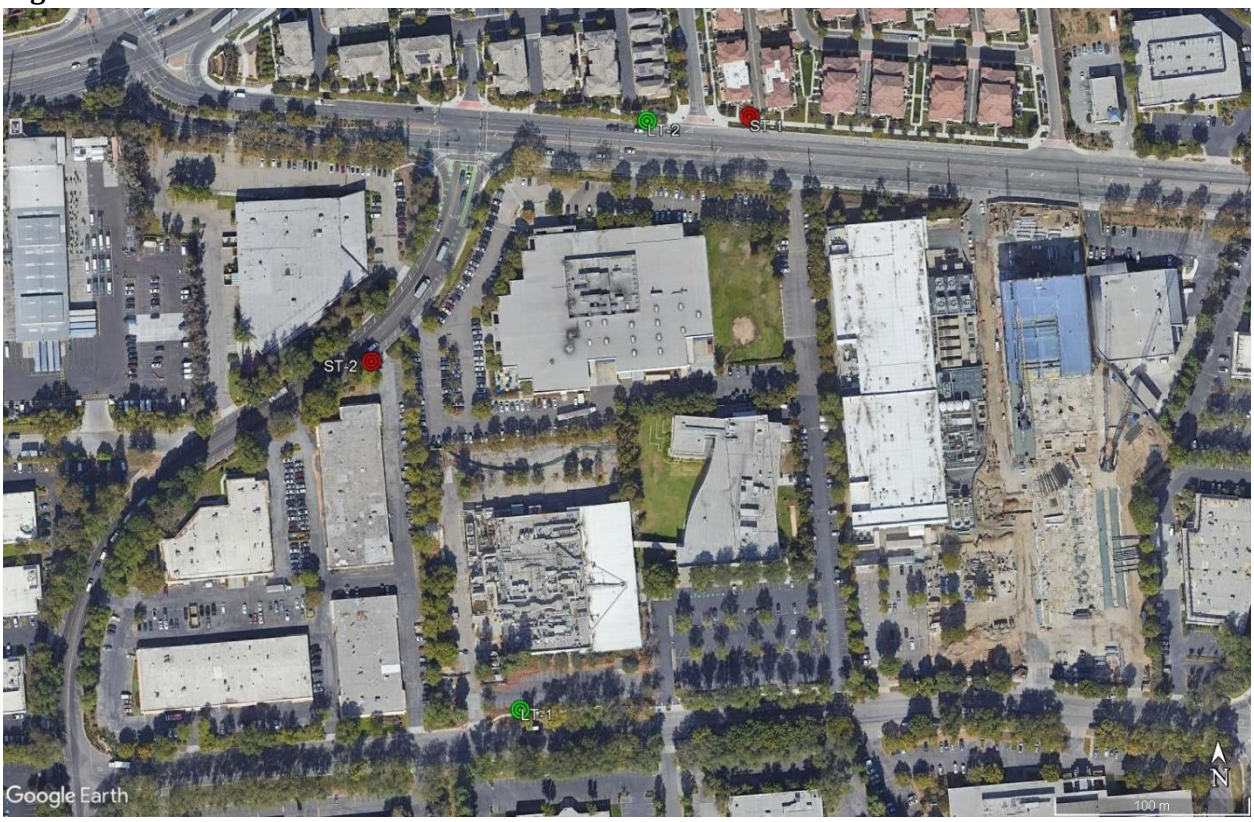
Short-term measurement ST-1 was made near the LT-1 measurement location at 315 Trade Zone Boulevard. The 10-minute L_{eq} at this location, measured from 1:10 to 1:20 p.m. on Wednesday, September 29, 2021, was 69 dBA L_{eq}. Short-term measurement ST-2 was made west of the site near 2290 Ringwood Avenue. The 10-minute L_{eq} at this location, measured from 1:10 to 1:20 p.m. on Wednesday, September 29, 2021, was 67 dBA L_{eq}.

Table 3.13-2: Summary of Long-Term Noise Measurements (dBA)

Location	Date	Hourly-Average Noise Level, L_{eq}		L_{dn}/DNL
		Daytime	Nighttime	
LT-1: ~50 ft. North of Fortune Drive Centerline	Wednesday, 9/29/2021	52 to 62	52 to 53	-
	Thursday, 9/30/2021	53 to 64	49 to 59	62
	Friday, 10/1/2021	60 to 63	50 to 61	-
LT-2: ~40 ft. North of Trade Zone Boulevard Centerline	Wednesday, 9/29/2021	69 to 74	67 to 68	-
	Thursday, 9/30/2021	69 to 73	63 to 73	76
	Friday, 10/1/2021	71 to 73	63 to 72	-

Table 3.13-3: Summary of Short-Term Noise Measurements (dBA)						
Noise Measurement Location	**$L_{(1)}$**	**$L_{(10)}$**	**$L_{(50)}$**	**$L_{(90)}$**	**L_{eq}**	**Primary Noise Sources**
ST-1: 315 Trade Zone Boulevard. (Wednesday, 9/29/2021, 1:10 p.m.-1:20 p.m.)	77	73	67	56	69	Traffic on Trade Zone Boulevard
ST-2: 2290 Ringwood Avenue. (Wednesday, 9/29/2021, 1:10 p.m. - 1:20 p.m.)	79	70	63	54	67	Traffic on Ringwood Avenue and Trade Zone Boulevard

Figure 3.13-1: Noise Measurement Locations



3.13.2 Impact Discussion

For the purpose of determining the significance of the project's impact on noise, would the project result in:

a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?
b) Generation of excessive groundborne vibration or groundborne noise levels?
c) For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

3.13.2.1 *Project Impacts*

a) Would the project result in generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

Construction Noise

Chapter 20.100.450 of the City of San José's Municipal Code establishes allowable hours of construction within 500 feet of a residential unit between 7:00 am and 7:00 pm Monday through Friday unless permission is granted with a development permit or other planning approval. No construction activities are permitted on the weekends at sites within 500 feet of a residence. Policy EC-1.7 of the City of San José's General Plan requires that all construction operations within the City use best available noise suppression devices and techniques and to limit construction hours near residential uses per the Municipal Code allowable hours. Further, the City of San José considers significant construction noise impacts to occur if a project located within 500 feet of residential uses or 200 feet of commercial or office uses would involve substantial noise-generating activities (such as building demolition, grading, excavation, pile driving, use of impact equipment, or building framing) continuing for more than 12 months. Action N 1-d of the Milpitas General Plan applies the same limit to hours of construction and additionally prohibits construction occurring on national holidays.

Construction activities for individual projects are typically carried out in stages. During each stage of construction, there would be a different mix of equipment operating, and noise levels would vary by stage and vary within stages, based on the amount of equipment in operation and the location at which the equipment is operating. Typical construction noise levels at a distance of 50 feet are shown in Tables 3.13-4 and 3.13-5. Table 3.13-4 shows the average noise level ranges by construction phase, and Table 3.13-5 shows the average and maximum noise level ranges for different construction equipment. Construction-generated noise levels drop off at a rate of about 6 dBA per doubling of the distance between the source and receptor. Shielding by buildings or terrain can provide an additional 5 to 10 dBA noise reduction at distant receptors.

Table 3.13-4: Typical Ranges of Construction Noise Levels at 50 Feet, L_{eq} (dBA)								
	Domestic Housing		**Office Building, Hotel, Hospital, School, Public Works**		**Industrial Parking Garage, Religious Amusement & Recreations, Store, Service Station**		**Public Works Roads & Highways, Sewers, and Trenches**	
	I	**II**	**I**	**II**	**I**	**II**	**I**	**II**
Ground Clearing	83	83	84	84	84	83	84	84
Excavation	88	75	89	79	89	71	88	78
Foundations	81	81	78	78	77	77	88	88
Erection	81	65	87	75	84	72	79	78
Finishing	88	72	89	75	89	74	84	84

I - All pertinent equipment present at site.
II - Minimum required equipment present at site.
Source: U.S.E.P.A., Legal Compilation on Noise, Vol. 1, p. 2-104, 1973.

Table 3.13-5: Construction Equipment 50-foot Noise Emission Levels (dBA)		
Equipment Category	$L_{eq}^{1,2,3}$	$L_{max}^{1,2}$
Air Hose	93	100
Air-Operated Post Driver	83	85
Asphalt Distributor Truck (Asphalt Sprayer)	-	70
Auger Drill	88	101
Backhoe	76	84
Bar Bender	66	75
Blasting (Abrasive)	100	103
Blasting (Explosive)	83	93
Chainsaw	79	83
Chip Spreader	-	77
Chipping Gun	95	100
Circular Saw	73	76
Compactor (Plate)	-	75
Compactor (Roller)	82	83
Compressor	66	67
Concrete Batch Plant	87	90
Concrete Grinder	-	97
Concrete Mixer Truck	81	82
Concrete Pump Truck	84	88
Concrete Saw	85	88
Crane	74	76
Directional Drill Rig	68	80
Drum Mixer	66	71
Dump Truck (Cyclical)	82	92
Dump Truck (Passby)	-	73

Table 3.13-5: Construction Equipment 50-foot Noise Emission Levels (dBA)		
Equipment Category	**$L_{eq}^{1,2,3}$**	**$L_{max}^{1,2}$**
Excavator	76	87
Flatbed Truck	-	74
Front End Loader (Cyclical)	72	81
Front End Loader (Passby)	-	71
Generator	67	68
Grader (Passby)	-	79
Grinder	68	71
Hammer Drill	72	75
Hoe Ram	92	99
Horizontal Bore Drill	87	88
Impact Pile Driver	99	105
Impact Wrench	68	72
Jackhammer	91	95
Jig Saw	92	95
Joint Sealer	-	74
Man Lift	72	73
Movement Alarm	79	80
Mud Recycler	73	74
Nail Gun	70	74
Pavement Scarifier (Milling Machine)	-	84
Paving – Asphalt (Paver, Dump Truck)	-	82
Paving – Asphalt (Paver, MTV, Dump Truck)	-	83
Paving – Concrete (Placer, Slipform Paver)	87	91
Paving – Concrete (Texturing/Curing Machine)	73	74
Paving – Concrete (Triple Roller Tube Paver)	85	88
Power Unit (Power Pack)	81	82
Pump	73	74
Reciprocating Saw	64	66
Rivet Buster	100	107
Rock Drill	92	95
Rumble Strip Grinding	-	87
Sander	65	68
Scraper	-	92
Shot Crete Pump/Spray	78	87
Street Sweeper	-	81
Telescopic Handler (Forklift)	-	88
Vacuum Excavator (Vac-Truck)	86	87
Ventilation Fan	62	63
Vibratory Concrete Consolidator	78	80
Vibratory Pile Driver	99	105
Warning Horn (Air Horn)	94	99
Water Spray Truck	-	72
Welding Machine	71	72

Notes: [1] Measured at 50 feet from the construction equipment, with a "slow" (1 sec.) time constant
[2] Noise levels apply to total noise emitted from equipment and associated components operating at full power while engaged in its intended operation.
[3] Equipment without average (L_{eq}) noise levels are non-stationary and best represented only by maximum instantaneous noise level (L_{max}).
Source: Project 25-49 Data, National Cooperative Highway Research Program, https://apps.trb.org/cmsfeed/trbnetprojectdisplay.asp?projectid=3889, October 2018

Construction would occur over a period of approximately 35 months. Typical hourly average construction noise levels for projects of this type would range from 75 to 89 dBA L_{eq} at a distance of 50 feet, depending on the intensity of construction activity at a given time. The nearest residences are located about 200 feet to the north of the approximate center of construction of the northern Advanced Manufacturing building and would be exposed to construction noise levels of about 63 to 77 dBA L_{eq} during busy periods of construction of the Advanced Manufacturing building. Construction of the SVY05 and SVY06 data center buildings and of the generator yard would result in lower noise levels at these residences. The office building located to the east at 1931 Fortune Drive would be exposed to high noise levels resulting from project construction. The nearest building façades are located about 250 feet from the approximate centers of construction of the SVY05 and SVY06 data center buildings. At this distance, construction noise levels at the nearest office façades would range from 61 to 75 dBA L_{eq} during busy periods of construction. The commercial buildings to the west located at 2290 Ringwood Avenue are about the same distance from the approximate centers of construction of SVY05 and SVY06 and would also be exposed to construction noise levels ranging from 61 to 75 dBA L_{eq} during busy construction periods. The nearest façade of the church building located to the northwest at 2371 Ringwood Avenue is at a distance of about 300 feet from the approximate center of construction of the SVY05 data center building. At this distance, construction noise levels at the nearest church façade would range from 59 to 73 dBA L_{eq}.

Policy EC-1.7 of the City of San José General Plan states that for large or complex projects within 500 feet of residential land uses or within 200 feet of commercial land uses or offices involving substantial noise-generating activities lasting more than 12 months, a construction noise logistics plan that specifies hours of construction, noise and vibration minimization measures, posting or notification of construction schedules, and designation of a noise disturbance coordinator who would respond to neighborhood complaints will be required to be in place prior to the start of construction and implemented during construction to reduce noise impacts on neighboring residents and other uses.

Policy N 1-8 of the City of Milpitas General Plan requires construction activities comply with best standard practices to reduce noise exposure to surrounding sensitive uses as specified in Action N-1d.

Construction would not produce noise levels exceeding 80 dBA L_{eq} at residential land uses or 90 dBA L_{eq} at commercial land uses in the project vicinity. However, since project construction would last for a period of more than one year and considering that the project site is within 500 feet of existing residential uses and within 200 feet of existing commercial uses, this temporary construction impact would be considered significant in accordance with Policy EC-1.7 of the City's General Plan.

Mitigation Measures:

MM NOI-1.1: Pursuant to General Plan Policy EC-1.7, a construction noise logistics plan shall be prepared that specifies hours of construction, noise and vibration minimization measures, posting or notification of construction schedules, and designation of a noise disturbance coordinator who would respond to neighborhood complaints will be required to be in place prior to the start of construction and implemented during construction to reduce noise impacts on neighboring residents and other uses. Project construction operations shall use best available noise suppression devices and techniques including, but not limited to the following:

1. Limit construction hours to between 7:00 AM and 7:00 PM, Monday through Friday, with no construction on national holidays, unless permission is granted with a development permit or other planning approval. No construction activities are permitted on the weekends at sites within 500 feet of a residence. Construction outside of these hours may be approved through a development permit based on a site-specific "construction noise mitigation plan" and a finding by the Director of PBCE that the construction noise mitigation plan is adequate to prevent noise disturbance of affected residential uses.
2. Equip all internal combustion engine-driven equipment with intake and exhaust mufflers that are in good condition and appropriate for the equipment.
3. Prohibit unnecessary idling of internal combustion engines.
4. Locate stationary noise-generating equipment such as air compressors or portable power generators as far as possible from sensitive receptors. Construct temporary noise barriers to screen stationary noise-generating equipment when located near adjoining sensitive land uses.
5. Utilize "quiet" air compressors and other stationary noise sources where technology exists.
6. Control noise from construction workers' radios to a point where they are not audible at existing residences bordering the project site.
7. Notify all adjacent business, residences, and other noise-sensitive land uses of the construction schedule, in writing, and provide a written schedule of "noisy" construction activities to adjacent land uses and nearby residences.
8. If complaints are received or excessive noise levels cannot be reduced using the measures above, erect a temporary noise control blanket barrier along surrounding building facades that face the construction sites.
9. Designate a "disturbance coordinator" who would be responsible for responding to any complaints about construction noise. The disturbance coordinator will determine the cause of the noise complaint (e.g., bad muffler, etc.) and will require that reasonable measures be implemented to current the problem. Conspicuously post a telephone number for the disturbance coordinator at the construction site and include it in the notice sent to neighbors regarding the construction schedule.

With implementation of identified mitigation measures, the project would not result in generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project due to construction noise. **(Less than Significant Impact with Mitigation Incorporated)**

Operational Noise

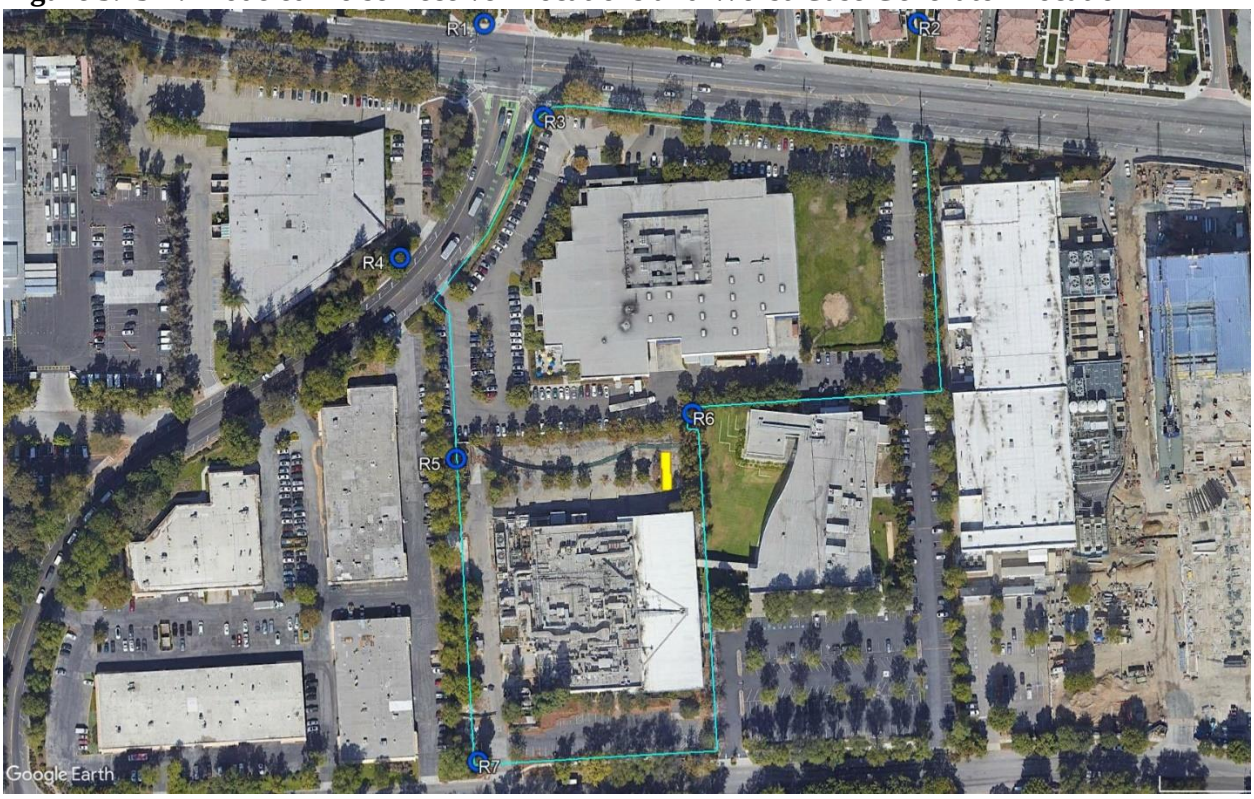
The primary source of noise from operation of the project would be related to mechanical equipment associated with data center operations. Section 20.50.300 of the City of San José Municipal Code establishes noise level performance standards for sources of noise originating from land zoned for industrial use. Noise levels are not to exceed 55 dBA at property lines shared with property used or zoned for residential purposes, 60 dBA at property lines shared with property used or zoned for commercial purposes, or 70 dBA at property lines shared with property used or zoned for industrial or use other than commercial or residential purposes. The City's Municipal Code would only be applicable to operational sources such as heating, ventilation, and air conditioning (HVAC) equipment and the testing of the generators and not to the operation of emergency generators necessary to provide services during an emergency. The City of Milpitas General Plan limits noise from stationary sources, as measured at the receiving residential property line or designated outdoor use area, to 55 dBA L_{eq} and 70 dBA L_{max} during daytime hours, and 45 dBA L_{eq} and 65 dBA L_{max} during nighttime hours.

The project would include 36 3-MW diesel-fueled generators and two 1-MW diesel-fueled house generators, located within generator yards adjacent to the north side of the SVY06 building and the south side of the SVY05 building. Each generator would be enclosed and tested only during daytime hours. Under full load, each 3 MW generator would meet a design goal of 70 dBA at a distance of 23 feet. HVAC equipment including a total of 78 chillers would be located on the rooftops of the SVY05 and SVY06 data center buildings. Noise data provided for the chillers indicated a sound power level of 100 dBA L_w when operating at 100% load. Other mechanical and electrical equipment located inside the buildings would not be anticipated to emit audible noise outside.

Proposed fixed sources of noise at the site were modeled using SoundPLAN, a three-dimensional noise modeling software that considers site geometry, the characteristics of the noise sources, and shielding from structures and barriers. The two primary noise scenarios evaluated were operational noise resulting from all chillers running at 100% load, and all chillers running at 100% load with concurrent testing of one generator, also at 100% load. A detailed generator testing schedule was not available at the time of this writing, however, due to limits on generator testing frequency imposed by the City of San José and the Bay Area Air Quality Management District and testing schedules of similar projects, a worst-case scenario of a yearly, hour-long "load bank" test of one generator at the worst-case individual generator location was considered. These two scenarios are representative of what would be the peak-hour noise level resulting from project operations during the daytime when generator testing would occur, and during the nighttime when only HVAC equipment would be running. Results of the two scenarios with no additional noise mitigation are summarized in Table 3.13-6. Noise levels which exceed the relevant standards are bolded. Receptor locations and land uses are identified in Figure 3.13-2.

Table 3.13-6: Calculated Noise Levels Resulting from On-Site Operations (With No Additional Mitigation)			
Receiver Number	**Receiver Location**	**Calculated Noise Levels, dBA L_{eq}**	
		HVAC Only	**HVAC and Generator Testing**
R1	Milpitas Residential Property Line to North	**53**	**53**
R2	Trento Loop Greenspace	49	50
R3	Northern Property Line of Project Site	51	51
R4	Church Property Line to West	57	58
R5	Western Property Line of Project Site	59	63
R6	Office Property Line to East	**64**	**68**
R7	Southwestern Corner of Project Site	53	53

Figure 3.13-2: Modeled Noise Receiver Locations and Worst-Case Generator Location



As seen in Table 3.13-6, with no additional noise mitigation, noise levels would exceed City of San José and City of Milpitas standards at the office property line to the east, represented by receiver R6, and at the nearest residential property line to the north in Milpitas, represented by Receptor R1. However, Milpitas General Plan Policy N 1-6 states that in instances where the existing ambient noise level is already above the standards, a significant impact would occur if the project were to result in an ambient noise level increase of more than 3 dBA. Existing noise levels at the residential property line were measured during the noise survey (see Table 3.13-2 and Figure 3.13-1). Nighttime hourly average noise levels along this property line ranged from 63 to 73 dBA L_{eq}. Project-generated noise levels would be 10 dBA L_{eq} below the existing noise levels during the quietest hour and would therefore not result in an increase to the existing ambient noise environment on an hourly average or daily average basis.

The applicable standard for project-generated noise at the neighboring office property line represented by receiver R6 is 60 dBA at any time of day, as established in Chapter 20.50.300 of the City of San José Municipal Code. Without further mitigation, noise resulting from operation of chillers alone would result in an hourly average noise level of 64 dBA L_{eq} at the shared property line.

Two potential forms of noise level mitigation were evaluated to reduce noise at this location: taller parapet walls along the perimeters of the SVY05 and SVY06 data center buildings, and reduced chiller sound power levels. A scenario was evaluated in which parapet walls were increased to a height of 16 feet above the roof level and a 3 dBA L_w sound power level reduction was applied to each individual chiller. This sound power reduction could be achieved through a noise reduction package, operational load limits, or alternative chiller model selection. Figure 3.13-3 shows the locations of the increased parapet wall heights, and Table 3.13-7 lists the noise levels at evaluated receivers after mitigation.

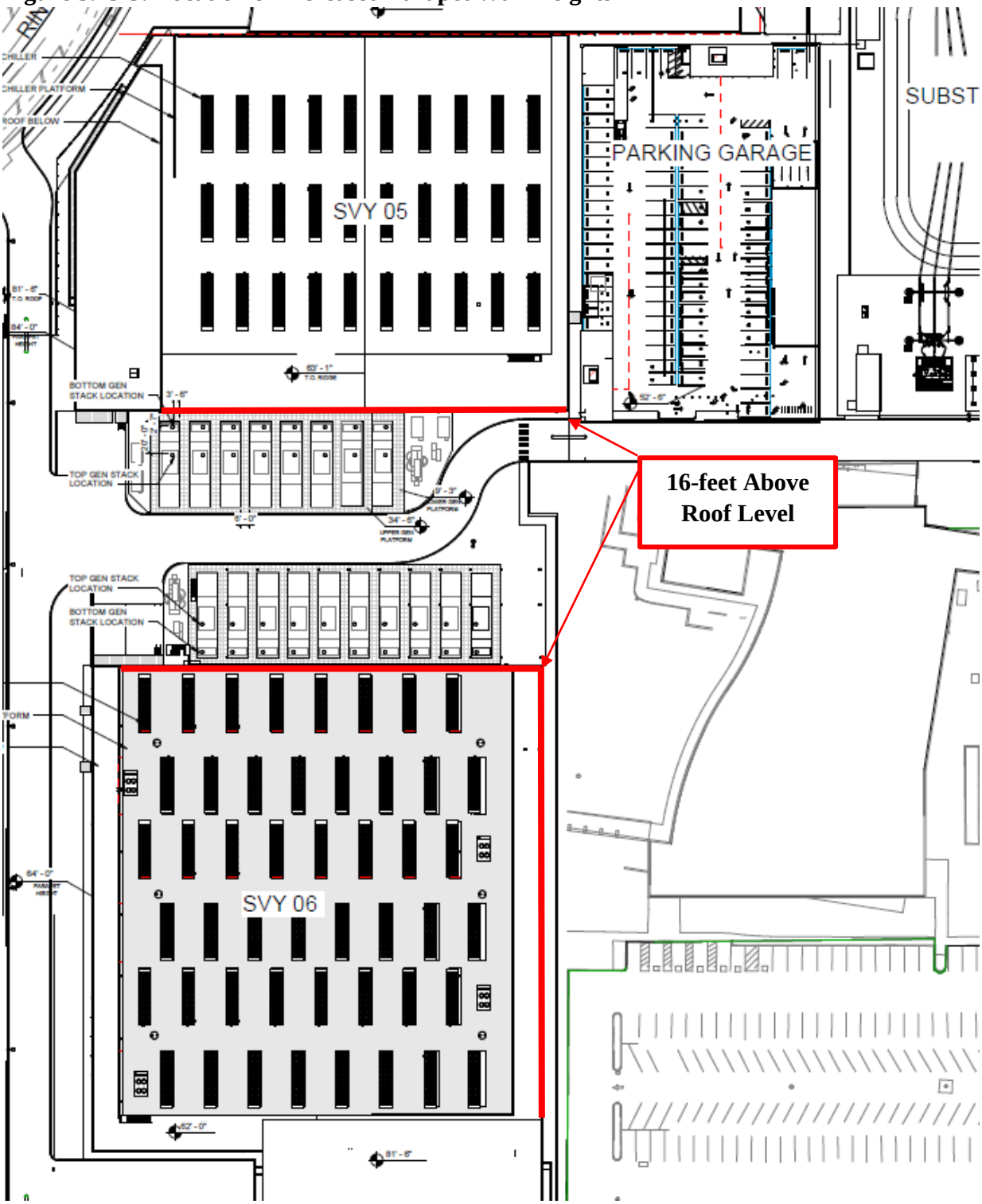
Table 3.13-7: Calculated Noise Levels Resulting from On-Site Operations with 16-foot Parapet Walls and 3 dBA L_w Chiller Noise Reduction

Receiver Number	Receiver Location	Calculated Noise Levels, dBA L_{eq}	
		HVAC Only	HVAC and Generator Testing
R1	Milpitas Residential Property Line to North	53	53
R2	Trento Loop Greenspace	49	50
R3	Northern Property Line of Project Site	51	51
R4	Church Property Line to West	52	54
R5	Western Property Line of Project Site	54	62
R6	Office Property Line to East	59	**67**
R7	Southwestern Corner of Project Site	50	50

As seen in Table 3.13-7, increasing the height of parapet walls at the locations shown and reducing chiller sound power levels by 3 dBA would reduce the overall operational noise to below the relevant standards at all receptors, with the exception of at the office property line during generator testing. Generator testing is limited to 50 hours of testing per year. Of this maximum of 50 hours per generator per year, it is anticipated that only one hour would be a test at full load. Most generator testing is done at a lower load or no load. Noise levels from zero-load testing are lower than those of full load testing, and typically occur for durations of less than one hour.

While testing of generators located near the property line shared with the office use to the east would occasionally exceed the 60 dBA L_{eq} standard, it should be noted that the noise level at the nearest office building façade would be less than that experienced at the property line. The nearest office building façade is located approximately 90 feet east of the shared property line. At this increased distance, noise levels would attenuate by about 3 dBA, resulting in a noise exposure of about 64 dBA at the building façade. Assuming a 20 dBA exterior-to-interior noise reduction resulting from modern office construction, worst-case interior noise levels within the office building would reach approximately 44 dBA $L_{eq\ (1\text{-}hr)}$, well below the California Building Code limit of 50 dBA $L_{eq\ (1\text{-}hr)}$. Additionally, with generator testing not exceeding one hour per day, the increase to the average day-night noise level would be minimal. Considering these factors, operation of the proposed data center would not result in a significant noise impact to the adjacent office building.

Figure 3.13-3: Location of Increased Parapet Wall Heights



To ensure the project conditions assumed in this noise analysis are enforceable, the project would be required to implement the following mitigation measures to reduce operational noise to less than significant levels.

Mitigation Measures:

MM NOI-2.1: Rooftop chillers shall be modified so as not to exceed sound power levels of 97 dBA Lw per unit.

MM NOI-2.2: Rooftop parapet walls at the locations shown in Figure 3.13-3 shall be constructed at a height of 16 feet to shield the nearby uses from operational noise. Suitable materials for sound wall construction should have a minimum surface weight of 3 pounds per square foot (such as ¾-inch-thick plywood or other solid sheet materials).

MM NOI-2.3: To reduce noise at the the office building to the east of the project site, full-load testing of generators shall be limited to the hours of 5 p.m. to 7 p.m. so as not to overlap with the typical workday.

With implementation of the identified mitigation measures, and with the consideration that generator testing will most often occur at zero-load for short periods of time, noise from on-site equipment operations would be less than significant. **(Less than Significant Impact with Mitigation Incorporated)**

Noise from Project-Generated Traffic

Policy EC-1.2 of the City of San José General Plan identifies a significant permanent noise increase to occur if the project would increase noise levels at noise-sensitive receptors by 3 dBA DNL or more where ambient noise levels exceed the "normally acceptable" noise level standard. Where ambient noise levels are at or below the "normally acceptable" noise level standard, noise level increases of 5 dBA DNL or more would be considered significant. The City of Milpitas General Plan imposes similar permanent noise increase standards, but with a more sensitive upper bound limit of 1.5 dBA L_{dn}/DNL for areas with existing traffic noise levels exceeding 65 dBA L_{dn}/DNL. For reference, a 3 dBA DNL noise increase would be expected if the project would double existing traffic volumes along a roadway.

A traffic study for the project was not available at the time this analysis was prepared. The project site would include a total of 339 parking spaces provided in the proposed parking structure. This would be an increase of 19 spaces over those currently provided by the occupied Olympus building located at 2400 Ringwood Avenue which would be demolished for the proposed project. Additionally, the total employment for the proposed project is anticipated to be approximately 198 employees. Traffic counts performed during the noise measurement survey during non-peak hours recorded hourly-equivalent bi-directional traffic volumes of 576 vehicles travelling along Ringwood Avenue and 1,572 vehicles travelling along Trade Zone Boulevard. A net increase of 19 vehicles along either of these roads would result in a noise increase of 0 dBA L_{dn}/DNL. From these details, it can reasonably be expected that the project would not result in generation of new traffic volumes large enough to cause a significant increase in traffic noise levels at nearby noise-sensitive uses. **(Less than Significant Impact)**

b) Would the project result in generation of excessive groundborne vibration or groundborne noise levels?

Construction of the project would occur over a period of approximately 35 months. A significant impact would be identified if the construction of the project would generate groundborne vibration levels at adjacent structures exceeding 0.2 in/sec PPV, as these levels would have the potential to result in "architectural" damage to normal buildings. The vibration limits contained in this policy are conservative and designed to provide the ultimate level of protection for existing buildings in San José.

Project construction activities, such as drilling, the use of jackhammers, rock drills and other high-power or vibratory tools, and rolling stock equipment (tracked vehicles, compactors, etc.) may generate substantial vibration in the immediate vicinity of the work area. Impact or vibratory pile driving is not proposed as a method of construction. Vibration levels would vary depending on soil conditions, construction methods, and equipment used. Table 3.13-8 presents typical vibration levels that could be expected from construction equipment at a distance of 25 feet, and calculated vibrations levels that could be expected at distances of 100 and 150 feet, representative of the distances from the site to the nearest structures. There are no historic structures in the project vicinity which would be susceptible to vibration.

Table 3.13-8: Vibration Source Levels for Construction Equipment (in/sec PPV)

Equipment		Reference Distance (25 feet)	Office Building (95 feet)	Commercial Building (120 feet)	Church and Residences (150 feet)
Vibratory Roller		0.210	0.048	0.037	0.029
Clam Shovel Drop		0.202	0.047	0.036	0.028
Hoe Ram		0.089	0.020	0.016	0.012
Large bulldozer		0.089	0.020	0.016	0.012
Caisson drilling		0.089	0.020	0.016	0.012
Loaded trucks		0.076	0.018	0.014	0.011
Jackhammer		0.035	0.008	0.006	0.005
Hydromill (slurry wall)	in soil	0.017	0.004	0.003	0.002
	in rock	0.008	0.002	0.001	0.001
Small bulldozer		0.003	0.001	0.001	0.000

Source: Transit Noise and Vibration Impact Assessment, United States Department of Transportation, Office of Planning and Environment, Federal Transit Administration, September 2018 as modified by Illingworth & Rodkin, Inc., March 2022.

These levels calculated assuming normal propagation conditions, using a standard equation of *PPVeqmt-PPVref * (25/D) 1.5*, from FTA, May 2006.

The closest existing structures to the project site the office building located approximately 95 feet to the east, the commercial buildings located approximately 120 feet to the west, and the church building and residences located approximately 150 feet to the northwest and north, respectively. As seen in Table 3.13-8, construction-generated vibration levels would not exceed 0.2 in/sec PPV at any structure in the project vicinity. **(Less than Significant Impact)**

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

Norman Y. Mineta International Airport is located approximately three miles southwest of the project site. The project site located outside of the 60 dBA CNEL airport noise exposure contour shown in the Norman Y. Mineta International Airport Master Plan Update Project Report. This noise level would be considered compatible with the proposed industrial use. **(Less than Significant Impact)**

3.13.2.2 *Cumulative Impacts*

Would the project result in a cumulatively considerable contribution to a significant cumulative noise impact?

Temporary Construction Noise

The geographic area for cumulative construction noise impacts is the immediate project vicinity. There are no pending/approved projects in the immediate vicinity of the project that will involve substantial construction activities. Should any construction activities occur in the project vicinity, construction noise would be temporary and construction measures (required by the Municipal Code) would be implemented to reduce construction noise. Therefore, construction of the project would not result in a significant cumulative construction noise impact. **(Less Than Significant Cumulative Impact)**

Permanent Noise

The geographic area for cumulative permanent noise impacts includes the project site and surrounding roadways. A significant impact would occur if the cumulative traffic noise level increase was three dBA CNEL or greater for future levels exceeding normally acceptable levels or was five dBA CNEL or greater for future levels at or below normally acceptable levels and if the project would make a "cumulatively considerable" contribution to the overall traffic noise increase. The project would not substantially increase daily roadway volumes compared to existing site uses, and would not exceed acceptable noise levels. Therefore, the cumulative projects (including the proposed project) would not result in a significant cumulative permanent noise increase. **(Less than Significant Cumulative Impact)**