MEMORANDUM

To: Tad Stearn, Kimley-Horn

From: Noemi Wyss AICP, Environmental Planner, Kimley-Horn
Tanay Pradhan, Environmental Analyst, Kimley-Horn

Date: December 20, 2023

Subject: 1055 Commercial Court Project – Acoustical Analysis

1.0 PURPOSE

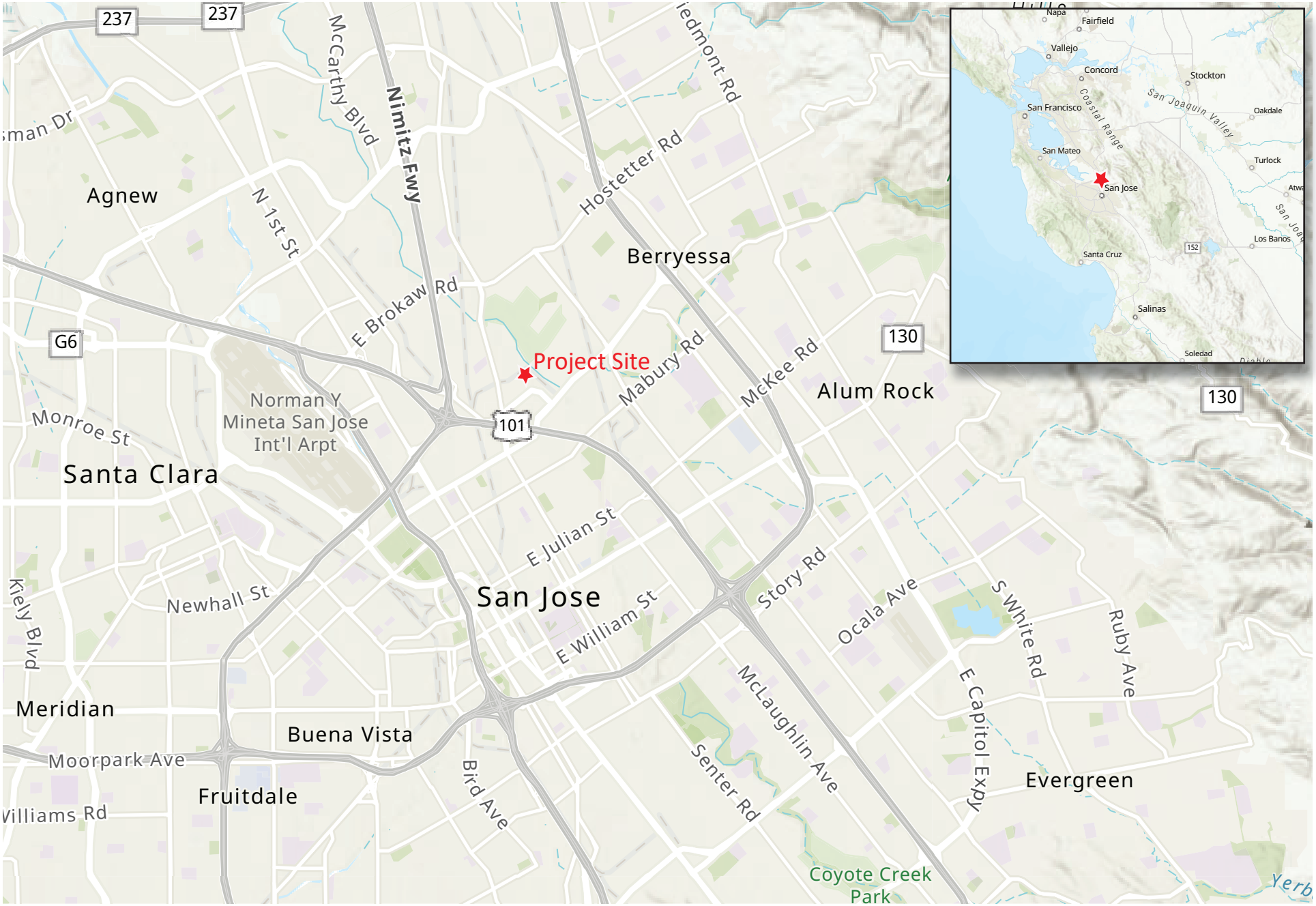
The purpose of this memorandum is to identify the noise impacts associated with construction and operations of the proposed 1055 Commercial Court Project (project), located in the City of San José, California.

2.0 PROJECT DESCRIPTION

The project is in the City of José (City) in the northern portion of the City. The project site is located at 1055 Commercial Court. **Figure 1: Regional Location** and **Figure 2: Project Vicinity Map**, depict the project site in a regional and local context. The project site is located approximately 2.5 miles north of downtown San José, in an urbanized area. Surrounding land uses consist of a mix of heavy industrial, business park, residential, and open space (Coyote Creek). The proposed project site includes two existing parcels (Assessor Parcel Numbers 241-10-002 and 241-10-003) on approximately 4.88 gross acres.

The project proposes to demolish approximately 9,150 sf of existing storage buildings and sheds, remove existing cargo containers, and add approximately 193,639 sf of paving to the property. As shown in **Figure 3: Site Plan**, the project would develop a commercial vehicle parking lot which would include vehicle storage for private buses, vans, trucks, and/or automobiles, with the associated vehicle maintenance equipment on-site. It is assumed that site operations could occur seven days per week with no late-night operations (12:00 a.m. to 6:00 a.m.). While vehicles would be stored on site 24 hours per day, it is assumed that vehicle drop-off and pick-up in and out of the site would occur during regular daytime hours. As an industrial use with no permanent vertical structures proposed, the number of employees would be the minimum required to manage site operations, estimated at five to ten employees during daytime hours and possibly one to two security employees during other times.

Construction and demolition activities would occur in one phase over a four to six-month period. Construction activities are expected to commence in spring or summer 2024.



Source: USGS, 2023

Figure 1: Regional Location

1055 Commercial Court

Technical Studies

Not to scale

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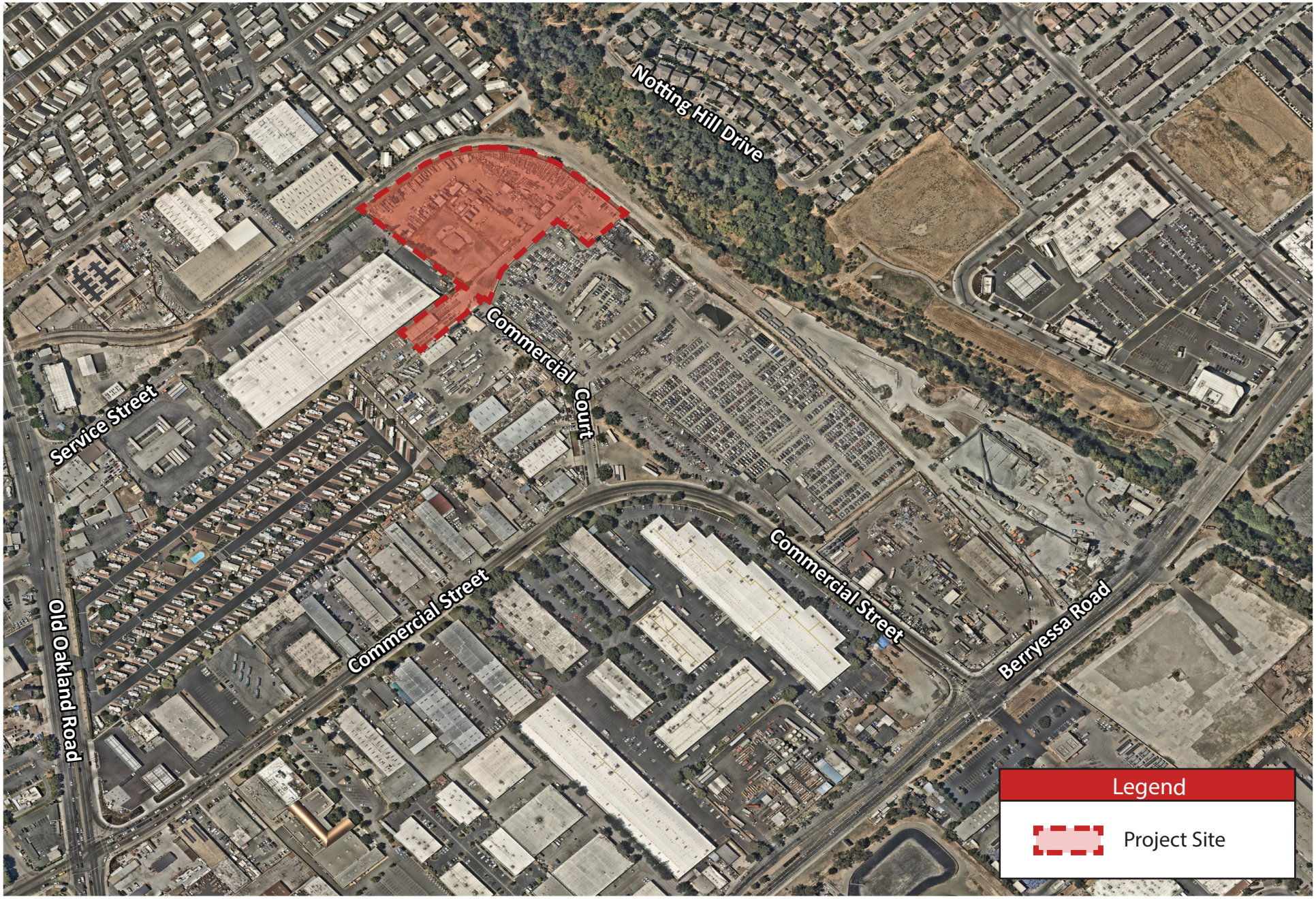

Source: Nearmap, 2023

Figure 2: Project Vicinity Map

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Not to scale

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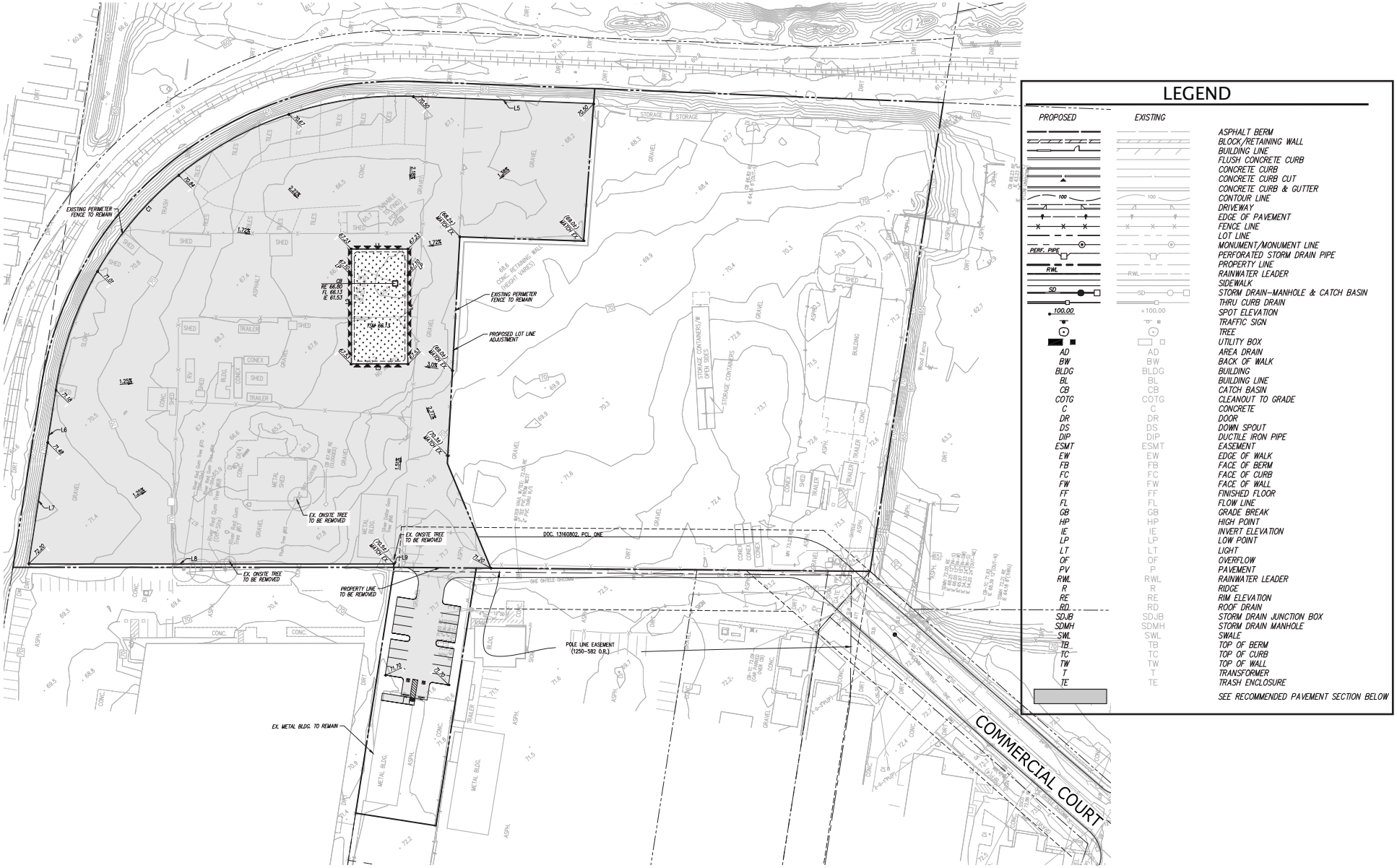

Source: Kier + Wright, 2023

Figure 3: Site Plan

1055 Commercial Court
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Not to scale

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3.0 THRESHOLDS AND SIGNIFICANCE CRITERIA

Based upon the criteria derived from Appendix G of the CEQA Guidelines, a project normally would have a significant effect on the environment if it would:

1. Generate 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;
2. Generate excessive groundborne vibration or groundborne noise levels; and
3. 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, expose people residing or working in the project area to excessive noise levels.

The City of San José is impacted by various noise sources. Mobile sources of noise, especially cars and trucks, are the most common and significant sources of noise in most communities. Other sources of noise are the various land uses (i.e., residential, commercial, institutional, and recreational and parks activities) throughout the City that generate stationary-source noise. This analysis relies on the following standards and significance criteria to evaluate potential noise and vibration impacts from the proposed project in accordance with the CEQA thresholds of significance.

City of San José General Plan Thresholds

The San José General Plan identifies goals, policies, and implementations in the Noise Element. The Noise Element provides a basis for comprehensive local programs to regulate environmental noise and protect citizens from excessive exposure. **Table 1: Land-Use Compatibility Guidelines for Community Noise in San José** highlights five land-use categories and the outdoor noise compatibility guidelines.

Table 1: Land-Use Compatibility Guidelines for Community Noise in San José

Land-Use Category	Exterior Noise Exposure (DNL), in dBA		
	Normally Acceptable[1]	Conditionally Acceptable[2]	Unacceptable[3]
Residential, Hotels and Motels, Hospitals, and Residential Care	Up to 60	>60 to 75	>75
Outdoor Sports and Recreation, Neighborhood Parks and Playgrounds	Up to 65	>65 to 80	>80
Schools, Libraries, Museums, Meeting Halls, Churches	Up to 60	>60 to 75	>75
Office Buildings, Business Commercial, and Professional Offices	Up to 70	>70 to 80	>80
Sports Area, Outdoor Spectator Sports	Up to 70	>70 to 80	>80
Public and Quasi-Public Auditoriums, Concert Halls, Amphitheaters		>55 to 70	>70

1. Normally Acceptable – Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction. There are no special noise insulation requirements. 2. Conditionally Acceptable – Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction. There are no special noise insulation requirements. New construction should be undertaken only after a detailed analysis of the noise reduction requirement is conducted and needed noise insulation features included in the design. 3. Unacceptable – New construction or development should generally not be undertaken because mitigation is usually not feasible to comply with noise element policies.
Source: City of San José General Plan, 2014. *Chapter 3, Pg. 40.*

City of San José Municipal Code Thresholds

According to San José Municipal Code[1], Section 20.100.450, construction hours within 500 feet of a residential unit are limited to the hours of 7:00 a.m. to 7:00 p.m. on Monday through Friday, unless otherwise allowed in a Development Permit or other planning approval. The Municipal Code does not establish quantitative noise limits for construction activities in the City. **Table 2: City of San José Zoning Ordinance Noise Standards** shows the San José standards for maximum noise level at the property line.

Table 2: City of San José Zoning Ordinance Noise Standards

Land Use Types	Maximum Noise Level in Decibels at Property Line
Industrial use adjacent to a property used or zoned for residential purposes	55
Industrial use adjacent to a property used or zoned for commercial purposes	60
Industrial use adjacent to a property used or zoned for industrial or use other than commercial or residential purposes	70
Source: City of San José Municipal Code section 20.50.300.	

4.0 EXISTING CONDITIONS

4.1 Existing Noise Sources

The City of San José (including the project site) is impacted by various noise sources. Mobile sources, especially cars and trucks, are the most common and significant sources of noise in most communities. Other sources of noise are the various land uses (i.e., residential, commercial, institutional, and recreational and parks activities) throughout the City that generate stationary-source noise.

4.2 Noise Measurements

To determine ambient noise levels in the project area, four short-term (10-minute) noise measurements were taken using a Larson Davis SoundExpert LxT Type I integrating sound level meter on June 26, 2023; refer to **Appendix A** for existing noise measurement data.

[1] City of San José, *Municipal Code Section 20.100.450*.

As shown in **Table 3: Noise Measurements**, short-term measurement 1 (ST-1) was taken to represent the ambient noise level at the residential sources and traffic within the community at the South Bay Mobile Park closest to the project site; ST-2 was taken to represent existing noise levels of construction and industrial noise, traffic on Notting Hill Drive, and residential noise along Notting Hill Drive; ST-3 was taken to represent existing noise levels of residential sources, traffic within the community, and industrial noise at the Trailer Tel RV Park closest to the project site; ST-4 was taken to represent existing noise levels from traffic along Commercial Street and industrial noise sources along the industrial uses located south of the project site on Commercial Street. **Figure 4: Noise Measurement Locations** provides the locations of the noise measurements. The primary noise sources during the noise measurements were industrial noise, residential noise, traffic along nearby roadways, and construction noise. **Table 3** provides the ambient noise levels measured at these locations.

Table 3: Noise Measurements

Site No.	Location	L_{eq} (dBA)	L_{min} (dBA)	L_{max} (dBA)	L_{peak} (dBA)	Time
ST-1	South Bay Mobile Park	46.1	42.8	55.4	96.1	1:14 p.m.
ST-2	Notting Hill Drive	51.2	43.5	63.5	92.7	12:18 p.m.
ST-3	Trailer Tel RV Park closest to Project site	51.3	47.5	63.5	102.3	12:54 p.m.
ST-4	Commercial uses south of the project site on Commercial Street	70.4	54.3	86.6	105.6	12:36 p.m.
Source: Noise Measurements taken by Kimley-Horn on September 26, 2023.						

4.3 Sensitive Receptors

Noise exposure standards and guidelines for various types of land uses reflect the varying noise sensitivities associated with each of these uses. Residences, hospitals, schools, guest lodging, libraries, and churches are treated as the most sensitive to noise intrusion and therefore have more stringent noise exposure targets than do other uses, such as manufacturing or agricultural uses that are not subject to impacts such as sleep disturbance.

As shown in **Table 4: Sensitive Receptors**, sensitive receptors near the project site are residential communities consisting of mobile home parks and single-family residential. Other uses such as open space (Coyote Creek) are either not sensitive receptors and other sensitive uses (such as a private school) are too far away to be negatively affected by the project. Refer to **Figure 5: Sensitive Receptor Locations.** These distances are from the project site boundary to the sensitive receptor property line.

Table 4: Sensitive Receptors

Receptor Description	Distance and Direction from the Project Site[1]
South Bay Mobile Home Park	65 feet northwest
Residential Community (Single-family)	330 feet northeast
Trailer Tel RV Park	450 feet southwest
Distances are measured from the project site boundary to the property line.	
Source: Google Earth, 2023.	

Source: Nearmap, 2023

Figure 4: Noise Measurement Locations

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Not to scale

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Source: Nearmap, 2023

Figure 5: Sensitive Receptors

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5.0 IMPACT ANALYSIS

Threshold (a) Generate 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

Construction-related activities would temporarily increase ambient noise levels in the proposed project vicinity. Construction-related noise levels at and near the project site would fluctuate depending on the level and type of construction activity on a given day. During construction, exterior noise levels could affect the various uses surrounding the site. Construction activities would occur throughout the project site and would not be concentrated at a single point near sensitive receptors. However, the conservative distance from the edge of the construction area to the sensitive receptor property line is used for construction noise level. Thus, Project construction would occur approximately 65 feet from an existing mobile home community to the northwest and 330 feet from single-family residential to the northeast. Noise levels typically attenuate (or drop off) at a rate of 6 dB per doubling of distance from point sources, such as industrial machinery. During construction, exterior noise levels could affect the buildings near the construction site.

Construction activities associated with development of the project would include demolition, site preparation, grading, infrastructure improvements, paving, building construction, and architectural coating. Such activities would require excavators and bulldozers during demolition, graders, scrapers, and tractors during site preparation; graders, dozers, and tractors during grading; cranes, forklifts, generators, tractors, and welders during building construction; pavers, rollers, mixers, tractors, and paving equipment during paving; and air compressors during architectural coating. It should be noted that only a limited amount of equipment can operate near a given location at a particular time. Typical noise levels associated with individual construction equipment and noise levels at the nearest sensitive receptors are listed in **Table 5: Typical Construction Noise Levels.**

Noise impacts from project-related construction activities occurring within or adjacent to the project site would be a function of the noise generated by construction equipment, the location of the equipment, the timing and duration of the noise-generating construction activities, and the relative distance to the noise-sensitive receptors. Noise levels may also be reduced by intervening structures; generally, a single row of buildings between the receptor and the noise source reduces the noise level by about 5 dBA, while a solid wall or berm reduces noise levels by 5 to 10 dBA.

The City of San José does not have a quantitative construction noise standard. Per General Plan Policy EC-1.7, project construction is considered significant when substantial noise generating activities last more than 12 months and are within 500 feet of residential spaces or 200 feet of commercial spaces. While the site is within 500 feet of residential uses, the substantial noise generation activities involved with project construction would last less than 12 months and would, therefore, not be significant per Policy EC-1.7 of the San José General Plan.

Table 5: Typical Construction Noise Levels

Equipment	Typical Noise Level (dBA) at 50 feet from Source	Typical Noise Level (dBA) at 65 feet from Source[1]	Typical Noise Level (dBA) at 330 feet from Source[1]
Air Compressor	80	78	64
Backhoe	80	78	64
Compactor	82	80	66
Concrete Mixer	85	83	69
Concrete Pump	82	80	66
Concrete Vibrator	76	74	60
Crane, Derrick	88	86	72
Crane, Mobile	83	81	67
Dozer	85	83	69
Generator	82	80	66
Grader	85	83	69
Impact Wrench	85	83	69
Jack Hammer	88	86	72
Loader	80	78	64
Paver	85	83	69
Pneumatic Tool	85	83	69
Pump	77	75	61
Roller	85	83	69
Saw	76	74	60
Scraper	85	83	69
Shovel	82	80	66
Truck	84	82	68

[1] Calculated using the inverse square law formula for sound attenuation: $dBA_2 = dBA_1+20Log(d_1/d_2)$
Where: dBA_2 = estimated noise level at receptor; dBA_1 = reference noise level; d_1 = reference distance; d_2 = receptor location distance.
Source: Federal Transit Administration, *Transit Noise and Vibration Impact Assessment Manual*, September 2018.

As shown in **Table 5**, noise levels at the closest sensitive receptors are at or below 86 dBA at 65 feet and 72 dBA at 330 feet. The highest anticipated construction noise level of 86 dBA at 65 feet may occur during the demolition phase (jackhammer). However, the majority of construction would occur throughout the project site and would not be concentrated at a single point near sensitive receptors. Actual construction-related noise activities would be lower than the conservative levels described above and would cease upon completion of construction. Due to the variability of construction activities and equipment for the project, overall construction noise levels would be intermittent and would fluctuate over time. These assumptions represent the worst-case noise scenario because construction activities would typically be spread throughout the project site, and thus some equipment would be farther away from the affected receptors. In addition, the noise levels above assume that construction noise is constant, when, in fact, construction activities and associated noise levels would generally be brief and sporadic, depending on the type, intensity, and location of construction activities. The Contractor would also equip all construction equipment, fixed and mobile, with properly operating and maintained noise mufflers, consistent with manufacturer's standards.

As mentioned above, uses near the project site include mobile home communities, single-family residential uses, and industrial uses. These sensitive uses may be exposed to elevated noise levels during project construction. However, the proposed project would be required to adhere to the Standard Permit Conditions which would ensure that all construction equipment is equipped with properly operating and

maintained mufflers and other state required noise attenuation devices, helping to reduce noise at the source. The Standard Permit Conditions are required to ensure that construction noise levels do not exceed the City's standards and that time-of-day restrictions are adhered to. The proposed project would have limited site preparation, and no building construction and would last less than 12 months. Additionally, site preparation would only last eleven (11) days. Therefore, with implementation of these conditions, construction noise impacts to nearby receptors would be less than significant.

Standard Permit Conditions

Construction-Related Noise. Noise minimization measures include, but are not limited to, the following:

i. Pile Driving is prohibited.
ii. Limit construction to the hours of 7:00 a.m. to 7:00 p.m. Monday through Friday for any on-site or off-site work within 500 feet of any residential unit. 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 Planning, Building and Code Enforcement that the construction noise mitigation plan is adequate to prevent noise disturbance of affected residential use.
iii. Construct solid plywood fences around ground level construction sites adjacent to operational businesses, residences, or other noise-sensitive land uses.
iv. Equip all internal combustion engine-driven equipment with intake and exhaust mufflers that are in good condition and appropriate for the equipment.
v. Prohibit unnecessary idling of internal combustion engines.
vi. 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.
vii. Utilize "quiet" air compressors and other stationary noise sources where technology exists.
viii. Control noise from construction workers' radios to a point where they are not audible at existing residences bordering the project site.
ix. 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 the adjacent land uses and nearby residences.
x. 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.
xi. Designate a "disturbance coordinator" who shall be responsible for responding to any complaints about construction noise. The disturbance coordinator shall determine the cause of the noise complaint (e.g., bad muffler, etc.) and shall require that reasonable measures be implemented to correct 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.

Construction Traffic Noise

Construction noise may be generated by large trucks moving materials to and from the project site. Large trucks would be necessary to deliver building materials as well as remove dump materials. Cut and fill would not be required during the grading process. Based on the California Emissions Estimator Model (CalEEMod) default assumptions for this project, as analyzed in *1055 Commercial Court Air Quality and Greenhouse Gas Emissions Analysis,* the project would generate the highest number of daily trips during the paving phase. The model estimates that the project would generate up to 20 worker trips per day for paving. Because of the logarithmic nature of noise levels, a doubling of a traffic volume (assuming that the speed and vehicle mix do not also change) would result in a noise level increase of 3 dBA. Therefore, approximately 20 worker trips would not double the existing traffic volume per day of 18,934 average daily trips (ADT) on Commercial Street south of Commercial Court.[2] Construction related traffic noise would not be noticeable and would not create a significant noise impact.

Operation

As a discussed above, the closest sensitive receptors are mobile home communities and residential spaces surrounding the project site. The City of San José stationary source exterior Zoning Ordinance Noise Standards for industrial areas is 55 dBA L_{eq} when adjacent to residential uses and 70 dBA L_{eq} at nearby industrial uses.

Traffic Noise

Implementation of the project would generate increased traffic volumes along study roadway segments. The project is expected to generate 108 trips associated the vehicle storage facility, including tenant and employee trips, which would result in noise increases on project area roadways. In general, a traffic noise increase of less than 3 dBA is barely perceptible to people, while a 5-dBA increase is readily noticeable.[3] Generally, traffic volumes on project area roadways would have to approximately double for the resulting traffic noise levels to increase by 3 dBA. Therefore, permanent increases in ambient noise levels of less than 3 dBA are considered to be less than significant. As mentioned previously, surrounding roadways, such as Commercial Street, has approximately 18,934 ADT and an additional 108 trips would not double existing traffic volumes. Therefore, operational traffic noise associated with the project would be less than significant.

Stationary Noise Sources

The proposed project would operate as a commercial vehicle storage facility. Therefore, implementation of the project would create new sources of noise in the project vicinity from vehicle maintenance, parking lot noise, and landscape maintenance.

Vehicle Maintenance

[2] City of San José, *San José GIS Open Data Average Daily Traffic*, 2021.
[3] Caltrans, *Technical Noise Supplement to the Traffic Noise Analysis Protocol,* 2013.

As mentioned previously, the project would provide vehicle maintenance services to vehicles stored on-site. Maintenance activity would require only small hand-held pieces of equipment that would not generate substantial levels of noise. Further, maintenance activities would be short-term and irregular. Therefore, vehicle maintenance activity would not permanently increase ambient noise in the project vicinity and would be consistent with activities that currently occur at surrounding uses. Thus, noise associated with parking/vehicle storage lot activities is not anticipated to exceed the City's Noise Standards or the California Land Use Compatibility Standards during operation, and impacts would be less than significant.

Vehicle Storage Areas

Traffic associated with vehicle storage areas is typically not of sufficient volume to exceed community noise standards, which are based on a time-averaged scale such as the CNEL scale. However, the instantaneous maximum sound levels generated by a car door slamming, engine starting up and car pass-by range from 53 to 61 dBA[4] and may be an annoyance to adjacent noise-sensitive receptors. Parking lot noise can also be considered a "stationary" noise source. Conversations in parking areas may also be an annoyance to sensitive receptors. Sound levels of speech typically range from 33 dBA at 48 feet for normal speech to 50 dBA at 50 feet for very loud speech.[5] It should be noted that parking lot noise are instantaneous noise levels compared to noise standards in the CNEL scale, which are averaged over time. As a result, actual noise levels over time resulting from parking lot activities would be far lower.

The proposed project includes a surface parking area to be used for vehicle storage. Noise impacts associated with outdoor parking would be 59 dBA at the closest sensitive receptor, the South Bay Mobile Home Park, without accounting for any attenuating structures. The mobile home park is surrounded by a protective wall that would provide a significant noise reduction for operational noise produced on-site and would bring noise levels below the City's 55 dBA Municipal Code standard and the 60 dBA General Plan standard. Additionally, parking lot noise at the closest industrial use would reach approximately 60 dBA which would remain below the 70 dBA municipal code standard.[6] Parking lot noise would be partially masked by the background noise of the surrounding industrial uses. Thus, noise associated with parking lot activities is not anticipated to exceed the City's Noise Standards or the California Land Use Compatibility Standards during operation. Therefore, noise impacts from parking lots would be less than significant.

Landscape Maintenance Activities

Development and operation of the project includes new landscaping that would require periodic maintenance. Noise generated by a gasoline-powered lawnmower is estimated to be approximately 70 dBA at a distance of 5 feet. Landscape maintenance activities would be 48 dBA at the closest sensitive receptor approximately 65 feet northwest from the edge of the project site and 48 dBA at the closest industrial site located 60 feet southwest of the project site. This would be at noise levels below the City's

[4] Kariel, H. G., *Noise in Rural Recreational Environments*, Canadian Acoustics 19(5), 3-10, 1991.

[5] Elliott H. Berger, Rick Neitzel, and Cynthia A. Kladden, *Noise Navigator Sound Level Database with Over 1700 Measurement Values*, 2010.

[6] City of San José, *Envision San José 2040 General Plan*, Pg. 39-40, 2011.

noise standard for residential uses. Maintenance activities would operate during daytime hours for brief periods of time as allowed by the City Municipal Code and would not permanently increase ambient noise levels in the project vicinity and would be consistent with activities that currently occur at the surrounding uses. Therefore, with adherence to the City's Municipal Code, impacts associated with landscape maintenance would be less than significant.

Threshold (b) Generate excessive groundborne vibration or groundborne noise levels.

Increases in groundborne vibration levels attributable to the project would be primarily associated with construction-related activities. Construction on the project site would have the potential to result in varying degrees of temporary groundborne vibration, depending on the specific construction equipment used and the operations involved. Ground vibration generated by construction equipment spreads through the ground and diminishes in magnitude with increases in distance. The effect on buildings located in the vicinity of the construction site often varies depending on soil type, ground strata, and construction characteristics of the receiver building(s). The results from vibration can range from no perceptible effects at the lowest vibration levels, to low rumbling sounds and perceptible vibration at moderate levels, to slight damage at the highest levels. Groundborne vibrations from construction activities rarely reach levels that damage structures.

The nearest receptor includes the industrial building 60 feet southwest of the project site. Based on Federal Transit Administration (FTA) vibration data[7], at 60 feet the vibration velocities from construction equipment would be 0.024 in/sec PPV, which is well below the City's 0.20 PPV threshold listed under Policy EC-2.3 in the San José General Plan. It can be assumed that at a greater distance this vibration would be even less. It is also acknowledged that construction activities would occur throughout the project site and would not be concentrated at the point closest to the nearest commercial structure. Therefore, vibration impacts associated with the proposed project would be less than significant.

The project would not generate groundborne vibration during operations that could be felt at surrounding uses. Project operations would not involve railroads or substantial heavy truck operations, and therefore would not result in vibration impacts at surrounding uses. As a result, impacts from vibration associated with project operation would be less than significant.

Threshold (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, expose people residing or working in the Project area to excessive noise levels?

The nearest airports to the project site are the San José Mineta International Airport located approximately 1.7 miles west of the project and the Reid-Hillview County Airport located approximately 4.2 miles southeast of the project. The project is within 2 miles of the San José International Airport. However, the airport has a Land Use Compatibility Plan. According to the City's aircraft noise contour

[7] Federal Transit Administration, *Transit Noise and Vibration Impact Assessment Manual*, September 2018.

projections, the project site is located well outside the noise impact area of San José International Airport.[8] Additionally, there are no private airstrips located within the project vicinity Therefore, the project would not expose people residing or working in the project area to excessive airport- or airstrip-related noise levels and no mitigation is required.

[8] City of San José, Norman Y. Mineta San Jose International Airport Noise Assessment for the Master Plan Environmental Impact Report, October 2019.

6.0 REFERENCES

1. City of San José, *Envision San José 2040 General Plan*, 2011.
2. City of San José, *Municipal Code Section 20.100.450*., 2023
3. City of San José, *Norman Y. Mineta San Jose International Airport Noise Assessment for the Master Plan Environmental Impact Report*, October 2019.
4. City of San José, *San José GIS Open Data Average Daily Traffic*, 2021.
5. Caltrans, *Technical Noise Supplement to the Traffic Noise Analysis Protocol*, 2013.
6. Elliott H. Berger, Rick Neitzel, and Cynthia A. Kladden, *Noise Navigator Sound Level Database with Over 1700 Measurement Values,* 2010
7. Kariel, H. G., *Noise in Rural Recreational Environments*, Canadian Acoustics 19(5), 3-10, 1991.
8. Elliott H. Berger, Rick Neitzel, and Cynthia A. Kladden, *Noise Navigator Sound Level Database with Over 1700 Measurement Values,* 2010.
9. Federal Transit Administration, *Transit Noise and Vibration Impact Assessment Manual*, September 2018.

Appendix A

Noise Measurement Data

Noise Measurement Field Data

Project:	1055 Commercial Court	**Job Number:**	097115016
Site No.:	ST-1	**Date:**	9/26/2023
Analyst:	Mia Berg and Tanay Pradhan	**Time:**	1:14 PM
Location:	Location within South Bay Mobile Park closest to the Project Site		
Noise Sources:	Residential Sources, Traffic within the community		
Comments:			

Results (dBA):

Leq:	Lmin:	Lmax:	Peak:
46.1	42.8	55.4	96.1

Equipment	
Sound Level Meter:	LD SoundExpert LxT
Calibrator:	CAL200
Response Time:	Slow
Weighting:	A
Microphone Height:	5 feet

Weather	
Temp. (degrees F):	75
Wind (mph):	<5
Sky:	Clear
Bar. Pressure:	30.12 in Hg
Humidity:	56%

Photo:

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Measurement Report

Report Summary

Meter's File Name	LxT_Data.057.s	Computer's File Name	LxTse_0006073-20230824 033556-LxT_Data.057.ldbin
Meter	LxT SE 0006073	Firmware	2.404
User		Location	
Job Description			
Note			

Start Time	2023-08-24 03:35:56	Duration	0:10:00.0		
End Time	2023-08-24 03:45:56	Run Time	0:10:00.0	Pause Time	0:00:00.0
Pre-Calibration	2023-08-24 02:37:27	Post-Calibration	None	Calibration Deviation	---

Results

Overall Metrics

LA_{eq}	46.1 dB		
LAE	73.9 dB	SEA	--- dB
EA	2.7 µPa²h		
LZ_{peak}	96.1 dB	2023-08-24 03:45:39	
LAS_{max}	55.4 dB	2023-08-24 03:40:30	
LAS_{min}	42.8 dB	2023-08-24 03:37:24	
LA_{eq}	46.1 dB		
LC_{eq}	57.7 dB	LC_{eq} - LA_{eq}	11.6 dB
LAI_{eq}	49.0 dB	LAI_{eq} - LA_{eq}	2.9 dB

Exceedances

	Count	Duration
LAS > 85.0 dB	0	0:00:00.0
LAS > 115.0 dB	0	0:00:00.0
LZpk > 135.0 dB	0	0:00:00.0
LZpk > 137.0 dB	0	0:00:00.0
LZpk > 140.0 dB	0	0:00:00.0

Community Noise

LDN	LDay	LNight
56.1 dB	--- dB	0.0 dB

LDEN	LDay	LEve	LNight
56.1 dB	--- dB	--- dB	46.1 dB

Any Data

	A		C		Z	
	Level	Time Stamp	Level	Time Stamp	Level	Time Stamp
L_{eq}	46.1 dB		57.7 dB		--- dB	
$Ls_{(max)}$	55.4 dB	2023-08-24 03:40:30	--- dB	None	--- dB	None
$LS_{(min)}$	42.8 dB	2023-08-24 03:37:24	--- dB	None	--- dB	None
$L_{Peak(max)}$	--- dB	None	--- dB	None	96.1 dB	2023-08-24 03:45:39

Overloads

Count	Duration	OBA Count	OBA Duration
0	0:00:00.0	2	0:00:04.2

Statistics

LAS 5.0	49.2 dB
LAS 10.0	48.0 dB
LAS 33.3	45.9 dB
LAS 50.0	45.3 dB
LAS 66.6	44.8 dB
LAS 90.0	43.9 dB

Noise Measurement Field Data

Project:	1055 Commercial Court	**Job Number:**	097115016
Site No.:	ST-2	**Date:**	9/26/2023
Analyst:	Mia Berg and Tanay Pradhan	**Time:**	12:18 PM
Location:	Notting Hill Drive		
Noise Sources:	Construction/Industrial Noise, Traffic on Notting Hill Drive, Residential Noise		
Comments:			

Results (dBA):

Leq:	Lmin:	Lmax:	Peak:
51.2	43.5	63.5	92.7

Equipment	
Sound Level Meter:	LD SoundExpert LxT
Calibrator:	CAL200
Response Time:	Slow
Weighting:	A
Microphone Height:	5 feet

Weather	
Temp. (degrees F):	72
Wind (mph):	<5
Sky:	Clear
Bar. Pressure:	30.12 in Hg
Humidity:	56%

Photo:

Kimley»Horn

Measurement Report

Report Summary

Meter's File Name	LxT_Data.054.s	Computer's File Name	LxTse_0006073-20230824 023921-LxT_Data.054.ldbin
Meter	LxT SE 0006073	Firmware	2.404
User		Location	
Job Description			
Note			

Start Time	2023-08-24 02:39:21	Duration	0:10:00.0		
End Time	2023-08-24 02:49:21	Run Time	0:10:00.0	Pause Time	0:00:00.0
Pre-Calibration	2023-08-24 02:37:48	Post-Calibration	None	Calibration Deviation	---

Results

Overall Metrics

LA_{eq}	51.2 dB		
LAE	79.0 dB	SEA	--- dB
EA	8.8 µPa²h		
LZ_{peak}	92.7 dB	2023-08-24 02:48:23	
LAS_{max}	63.5 dB	2023-08-24 02:48:26	
LAS_{min}	43.5 dB	2023-08-24 02:43:20	
LA_{eq}	51.2 dB		
LC_{eq}	62.2 dB	LC_{eq} - LA_{eq}	11.0 dB
LAI_{eq}	55.0 dB	LAI_{eq} - LA_{eq}	3.8 dB

Exceedances

	Count	Duration
LAS > 85.0 dB	0	0:00:00.0
LAS > 115.0 dB	0	0:00:00.0
LZpk > 135.0 dB	0	0:00:00.0
LZpk > 137.0 dB	0	0:00:00.0
LZpk > 140.0 dB	0	0:00:00.0

Community Noise

LDN	LDay	LNight
61.2 dB	--- dB	0.0 dB

LDEN	LDay	LEve	LNight
61.2 dB	--- dB	--- dB	51.2 dB

Any Data

	A		C		Z	
	Level	Time Stamp	Level	Time Stamp	Level	Time Stamp
L_{eq}	51.2 dB		62.2 dB		--- dB	
$Ls_{(max)}$	63.5 dB	2023-08-24 02:48:26	--- dB	None	--- dB	None
$LS_{(min)}$	43.5 dB	2023-08-24 02:43:20	--- dB	None	--- dB	None
$L_{Peak(max)}$	--- dB	None	--- dB	None	92.7 dB	2023-08-24 02:48:23

Overloads

Count	Duration	OBA Count	OBA Duration
0	0:00:00.0	1	0:00:02.0

Statistics

LAS 5.0	56.4 dB
LAS 10.0	54.5 dB
LAS 33.3	49.9 dB
LAS 50.0	49.1 dB
LAS 66.6	48.3 dB
LAS 90.0	47.1 dB

Noise Measurement Field Data

Project:	1055 Commercial Court	**Job Number:**	097115016
Site No.:	ST-3	**Date:**	9/26/2023
Analyst:	Mia Berg and Tanay Pradhan	**Time:**	12:54 PM
Location:	Location within Trailer Tel RV Park closest to the Project Site		
Noise Sources:	Residential Sources, Traffic within the community, Industrial Noise		
Comments:			

Results (dBA):

Leq:	Lmin:	Lmax:	Peak:
51.3	47.5	63.5	102.3

Equipment	
Sound Level Meter:	LD SoundExpert LxT
Calibrator:	CAL200
Response Time:	Slow
Weighting:	A
Microphone Height:	5 feet

Weather	
Temp. (degrees F):	75
Wind (mph):	<5
Sky:	Clear
Bar. Pressure:	30.12 in Hg
Humidity:	56%

Photo:

Kimley»Horn

Measurement Report

Report Summary

Meter's File Name	LxT_Data.056.s	Computer's File Name	LxTse_0006073-20230824 031613-LxT_Data.056.ldbin
Meter	LxT SE 0006073	Firmware	2.404
User		Location	
Job Description			
Note			

Start Time	2023-08-24 03:16:13	Duration	0:10:00.0		
End Time	2023-08-24 03:26:13	Run Time	0:10:00.0	Pause Time	0:00:00.0
Pre-Calibration	2023-08-24 02:37:27	Post-Calibration	None	Calibration Deviation	---

Results

Overall Metrics

LA_{eq}	51.3 dB		
LAE	79.1 dB	SEA	--- dB
EA	9.0 µPa²h		
LZ_{peak}	102.3 dB	2023-08-24 03:16:25	
LAS_{max}	63.5 dB	2023-08-24 03:16:34	
LAS_{min}	47.5 dB	2023-08-24 03:17:32	
LA_{eq}	51.3 dB		
LC_{eq}	64.3 dB	LC_{eq} - LA_{eq}	13.0 dB
LAI_{eq}	54.3 dB	LAI_{eq} - LA_{eq}	3.0 dB

Exceedances

	Count	Duration
LAS > 85.0 dB	0	0:00:00.0
LAS > 115.0 dB	0	0:00:00.0
LZpk > 135.0 dB	0	0:00:00.0
LZpk > 137.0 dB	0	0:00:00.0
LZpk > 140.0 dB	0	0:00:00.0

Community Noise

LDN	LDay	LNight
61.3 dB	--- dB	0.0 dB

LDEN	LDay	LEve	LNight
61.3 dB	--- dB	--- dB	51.3 dB

Any Data

	A		C		Z	
	Level	Time Stamp	Level	Time Stamp	Level	Time Stamp
L_{eq}	51.3 dB		64.3 dB		--- dB	
$Ls_{(max)}$	63.5 dB	2023-08-24 03:16:34	--- dB	None	--- dB	None
$LS_{(min)}$	47.5 dB	2023-08-24 03:17:32	--- dB	None	--- dB	None
$L_{Peak(max)}$	--- dB	None	--- dB	None	102.3 dB	2023-08-24 03:16:25

Overloads

Count	Duration	OBA Count	OBA Duration
0	0:00:00.0	9	0:00:19.3

Statistics

LAS 5.0	53.9 dB
LAS 10.0	53.1 dB
LAS 33.3	51.2 dB
LAS 50.0	50.5 dB
LAS 66.6	50.0 dB
LAS 90.0	48.9 dB

Noise Measurement Field Data

Project:	1055 Commercial Court	**Job Number:**	097115016
Site No.:	ST-4	**Date:**	9/26/2023
Analyst:	Mia Berg and Tanay Pradhan	**Time:**	12:36 PM
Location:	Commercial Uses south of the Project site on Commercial Street		
Noise Sources:	Traffic along Commercial Street, Industrial Noise Sources		
Comments:			

Results (dBA):

Leq:	Lmin:	Lmax:	Peak:
70.4	54.3	86.6	105.6

Equipment	
Sound Level Meter:	LD SoundExpert LxT
Calibrator:	CAL200
Response Time:	Slow
Weighting:	A
Microphone Height:	5 feet

Weather	
Temp. (degrees F):	75
Wind (mph):	<5
Sky:	Clear
Bar. Pressure:	30.12 in Hg
Humidity:	56%

Photo:

Kimley»Horn

Measurement Report

Report Summary

Meter's File Name	LxT_Data.055.s	Computer's File Name	LxTse_0006073-20230824 025714-LxT_Data.055.ldbin
Meter	LxT SE 0006073	Firmware	2.404
User		Location	
Job Description			
Note			

Start Time	2023-08-24 02:57:14	Duration	0:10:00.0		
End Time	2023-08-24 03:07:14	Run Time	0:10:00.0	Pause Time	0:00:00.0
Pre-Calibration	2023-08-24 02:37:27	Post-Calibration	None	Calibration Deviation	---

Results

Overall Metrics

LA_{eq}	70.4 dB		
LAE	98.2 dB	SEA	--- dB
EA	731.0 µPa²h		
LZ_{peak}	105.6 dB	2023-08-24 02:59:44	
LAS_{max}	86.6 dB	2023-08-24 02:58:11	
LAS_{min}	54.3 dB	2023-08-24 03:06:43	
LA_{eq}	70.4 dB		
LC_{eq}	78.0 dB	LC_{eq} - LA_{eq}	7.6 dB
LAI_{eq}	71.7 dB	LAI_{eq} - LA_{eq}	1.3 dB

Exceedances	Count	Duration
LAS > 85.0 dB	1	0:00:02.8
LAS > 115.0 dB	0	0:00:00.0
LZpk > 135.0 dB	0	0:00:00.0
LZpk > 137.0 dB	0	0:00:00.0
LZpk > 140.0 dB	0	0:00:00.0

Community Noise	LDN	LDay	LNight
	80.4 dB	--- dB	0.0 dB

	LDEN	LDay	LEve	LNight
	80.4 dB	--- dB	--- dB	70.4 dB

Any Data	A		C		Z	
	Level	Time Stamp	Level	Time Stamp	Level	Time Stamp
L_{eq}	70.4 dB		78.0 dB		--- dB	
$Ls_{(max)}$	86.6 dB	2023-08-24 02:58:11	--- dB	None	--- dB	None
$LS_{(min)}$	54.3 dB	2023-08-24 03:06:43	--- dB	None	--- dB	None
$L_{Peak(max)}$	--- dB	None	--- dB	None	105.6 dB	2023-08-24 02:59:44

Overloads	Count	Duration	OBA Count	OBA Duration
	0	0:00:00.0	18	0:01:28.7

Statistics

LAS 5.0	74.4 dB
LAS 10.0	72.6 dB
LAS 33.3	69.6 dB
LAS 50.0	68.1 dB
LAS 66.6	66.4 dB
LAS 90.0	61.1 dB

Noise Source	Reference Level (dBA)	Reference Distance (feet)	Distance to Receptor (feet)	Level at Receptor (dBA)[3]
Landscape Maintanence[1]	50	50	65	47.7
Parking[2]	61	50	65	58.7

1. U.S. EPA, Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances, 1971.

2. Loading dock reference noise level measurements conducted by Kimley-Horn on December 18, 2018.

3. Calculated using the inverse square law formula for sound attenuation: $dBA_2 = dBA_1+20Log(d_1/d_2)$, where dBA_2 = estimated noise level at receptor; dBA_1 = reference noise level; d_1 = reference distance; d_2 = receptor location distance.