NOISE ASSESSMENT

ATTACHMENT D

to the
841 Old County Road Project Initial Study / Mitigated Negative Declaration

COFFMAN ENGINEERS

Memorandum

Date:	April 14, 2022	**Project:**	841 Old County Road San Carlos, CA Noise Assessment Revision Based on Comments
To:	Rebecca Auld Lamphier-Gregory	**From:**	Christopher Barnobi Coffman Engineers

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This memorandum contains an acoustical analysis of the proposed project located at 841 Old County Road in San Carlos, CA.

Project Description

The applicant proposes redevelopment of the 3.4-acre site bounded by Bransten Road to the north, Commercial Street to the south, and Old County Road to the west. All existing uses would be removed, including a garden supply center, kennels, and a tree services office. Noise sensitive receptors start at residences about 600 feet to the southwest and about 700 feet to the north.

The proposed development totals about 340,000 gross square feet of office / R&D / life science use plus two subterranean levels of parking and would include a central courtyard and roof decks for tenant use. Construction would proceed in two phases, beginning with a 5-story, 204,057 square foot structure on the south lot and continuing to a 4-story 135,676 sf structure on the north lot. These two phases would be connected as one building through a pedestrian bridge on the 3rd and 4th floors and two levels of underground parking that span the entire site.

Regulatory Setting

The proposed Project would be subject to noise-related regulations, plans, and policies established via planning documents prepared by the State of California and the City of San Carlos. These documents are implemented during the environmental review process to limit noise exposure at existing and proposed noise sensitive land uses. Applicable planning documents include:

1) The California Environmental Quality Act (CEQA) Guidelines, Appendix G,
2) The City of San Carlos Noise Element of the General Plan, and
3) The City of San Carlos Municipal Code.

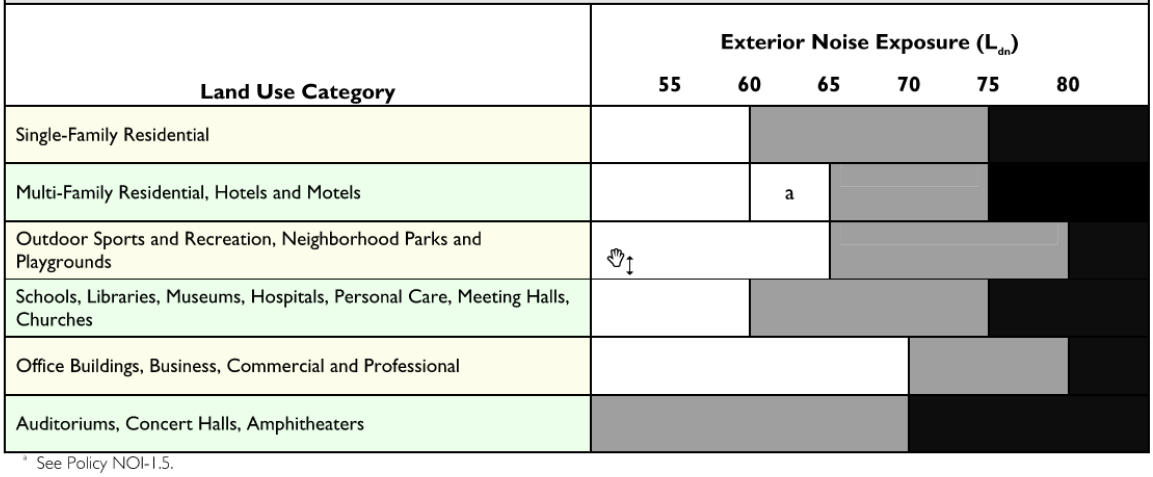
Regulations, plans, and policies presented within these documents form the basis of the significance criteria used to assess Project impacts.

City of San Carlos General Plan

The Noise Element of the City of San Carlos General Plan addresses noise sources in the community and identifies ways to reduce the impacts of these noise sources. The Noise Element contains policies and programs to achieve and maintain noise levels compatible with various types of land uses. Land uses that are sensitive to noise are identified and future noise generating land uses are located so that they do not impact those sensitive areas. The following are the guiding policies contained in the Noise Element of the City of San Carlos relevant to the project.

Policy NOI-1.3 Limit noise impacts on noise-sensitive uses to noise level standards as indicated in [Figure] 9-1.

FIGURE 9-1 LAND USE COMPATIBILITY FOR COMMUNITY NOISE ENVIRONMENT



[a] See Policy NOI-1.5.

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

CONDITIONALLY ACCEPTABLE. Specified land use may be permitted only after detailed analysis of the noise reduction requirements and needed noise insulation features included in the design.

UNACCEPTABLE. New construction or development should generally not be undertaken because mitigation is usually not feasible to comply with noise element policies.

Policy NOI-1.8 During all phases of construction activity, reasonable noise reduction measures shall be utilized to minimize the exposure of neighboring properties to excessive noise levels.

a. Construction activities shall comply with the City's noise ordinance.

The City's website, in the Frequently Asked Questions section (https://www.cityofsancarlos.org/government/departments/community-development/building/building-permits/frequently-asked-questions-faqs), includes a note about construction hours:

> *What are the construction noise hours in San Carlos?*
>
> *In response to concerns surrounding COVID-19, the San Carlos City Manager issued an emergency order limiting construction hours. Effective immediately, construction hours are: 8 a.m. to 5 p.m. Monday through Friday and 9 a.m. to 5 p.m. on Saturday. Construction hours include set up and securing of the site.*
>
> *Construction work on Sunday is prohibited. No construction noise-related activities are allowed on the following holidays: New Year's Day, Martin Luther King, Jr. Day, Memorial Day, Fourth of July, Labor Day, Veterans Day, Thanksgiving Day, Christmas Day*

City of San Carlos Municipal Code

The noise regulations of the City of San Carlos Municipal Code are contained in Chapter 9.30 of the Code. The following excerpts contain relevant noise limits.

> *9.30.030 Basic noise regulation.*
>
> *Except as otherwise permitted under this chapter, no person shall cause and no property owner shall permit, as to property owned by him, a noise produced by any person, amplified sound or device, or any combination thereof in excess of the noise limits established in **Table 18.21.050-A** to emanate from any property, public or private, as measured at the receiving property line. (Ord. 1439 § 4 (Exh. B (part)), 2011: Ord. 1086 § 1 (part), 1991)*
>
> *9.30.070 Exempt activities. Amended Res. 2020-026 – Temporary Construction Hours*
>
> *The following noise-generating activities are exempt from the provisions of this chapter:*
>
> *B. Construction activities; such activities, however, shall be limited to the hours of eight a.m. to six p.m. Monday through Friday, and nine a.m. to five p.m. on Saturdays and Sundays. No construction noise-related activities on the following holidays: New Year's Day, Martin Luther King Jr. Day, President's Day, Memorial Day, 4th of July, Labor Day, Veteran's Day, Thanksgiving Day and Christmas Day. All gasoline-powered construction equipment shall be equipped with an*

operating muffler or baffling system as originally provided by the manufacturer, and no modification to these systems is permitted (the Building Official shall have the authority to grant exceptions to construction noise-related activities);

From Chapter 18.21 Noise Performance Standards:

A. Noise Limits. No use or activity shall create noise levels that exceed the following standards. The maximum allowable noise levels specified in Table 18.21.050-A, Noise Limits, do not apply to noise generated by automobile traffic or other mobile noise sources in the public right-of-way.

TABLE 18.21.050-A: NOISE LIMITS					
Land Use Receiving the Noise	**Noise-Level Descriptor**	**Exterior Noise Level Standard in Any Hour (dBA)**		**Interior Noise-Level Standard in Any Hour (dBA)**	
		Daytime (7 a.m. – 10 p.m.)	**Nighttime (10 p.m. – 7 a.m.)**	**Daytime (7 a.m. – 10 p.m.)**	**Nighttime (10 p.m. – 7 a.m.)**
Residential	L50	55	45	40	30
	Lmax	70	60	55	45

1. Adjustments to Noise Limits. The maximum allowable noise levels of Table 18.21.050-A, Noise Limits, shall be adjusted according to the following provisions. No more than one increase in the maximum permissible noise level shall be applied to the noise generated on each property.

A. Ambient Noise. If the ambient noise level at a noise-sensitive use is ten dBA or more below the standard, the allowable noise standard shall be decreased by five decibels.

B. Duration. The maximum allowable noise level (L50) shall be increased as follows to account for the effects of duration:

i. Noise that is produced for no more than a cumulative period of fifteen minutes in any hour may exceed the noise limit by five decibels; and

ii. Noise that is produced for no more than a cumulative period of five minutes in any hour may exceed the noise limits by ten decibels;

iii. Noise that is produced for no more than a cumulative period of one minute in any hour may exceed the noise limits by fifteen decibels.

C. Character of Sound. If a noise contains a steady audible tone or is a repetitive noise (such as hammering or riveting) or contains music or speech conveying informational content, the maximum allowable noise levels shall be reduced by five decibels.

D. Prohibited Noise. Noise for a cumulative period of thirty minutes or more in any hour which exceeds the noise standard for the receiving land use.

B. Noise Exposure—Land Use Requirements and Limitations. Table 18.21.050-B, Noise Exposure—Land Requirements and Limitations, describes the requirements and limitations of various land uses within the listed day/night average sound level (Ldn) ranges.

TABLE 18.21.050-B: NOISE EXPOSURE—LAND USE REQUIREMENTS AND LIMITATIONS		
Land Use	**Day/Night Average Sound Level (Ldn)**	**Requirements and Limitations**
Residential (1) and Other Noise-Sensitive Uses (e.g., Schools, Hospitals, and Churches)	Less than 60	Satisfactory
	60 to 75	Acoustic study and noise attenuation measures required
	Over 75	Acoustic study and noise attenuation measures required
Commercial and Industrial	Less than 70	Satisfactory
	70 to 80	Acoustic study and noise attenuation measures required
	Over 80	Airport-related development only; noise attenuation measures required

Vibration Standards

Numerous public and private organizations and governing bodies have provided guidelines to assist in the analysis of ground-borne noise and vibration. To date, the City has not adopted a quantifiable threshold for ground-borne vibration impacts. Section *18.21.060 Vibration* of the San Carlos Municipal Code limits vibrations from being discernable without instrumentation at the lot lines of a site. In the same section, it states that vibration from temporary construction and demolition activities are exempt.

However, the Department of Transportation (Caltrans) has adopted vibration standards to evaluate potential impacts related to construction activities. For engineered concrete and masonry buildings, 0.3 inches/second PPV is a limit where building damage is possible (Caltrans 2004). This 0.3 inches/second vibration damage threshold is applied to the project at the closest structure(s), the neighboring commercial buildings in this case.

California CEQA Guidelines Appendix G

The California Environmental Quality Act (CEQA) is a statute that requires state and local agencies to identify significant environmental impacts of their actions and to avoid or mitigate those impacts when feasible. Appendix G of CEQA includes a set of guidelines for impacts. In December 2018, those guidelines were updated (http://opr.ca.gov/ceqa/updates/guidelines/).

In accordance with Appendix G of the State CEQA Guidelines, the project would have a significant impact with regard to noise or vibration if it would 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 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?

Project Thresholds

For (a), temporary increases in noise levels are addressed in the construction noise analysis section. The San Carlos Municipal Code and website provide exemptions for limited construction hours. Construction noise levels are analyzed and discussed for informational purposes in the Construction Noise Section.

For permanent increases in traffic noise levels, NOI-1.3 states noise impacts should be limited based on the noise level standards in Table 9-1. Existing traffic noise levels are considered during significance threshold comparison in the analysis. Additionally, on-site mechanical equipment is assessed by applying the noise limits from Table 18.21.050.

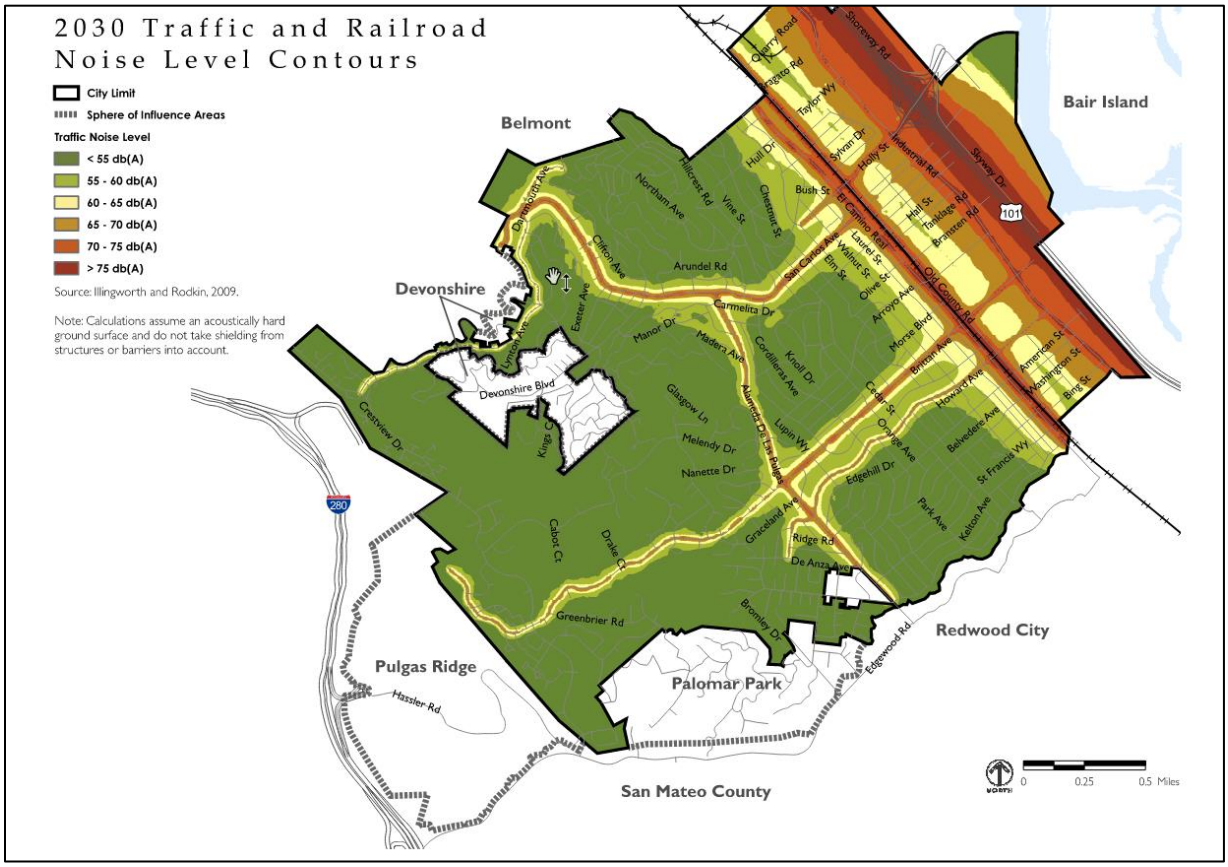
For (b), excessive ground-borne vibration and noise would be significant if construction or operational vibration levels exceed 0.3 inches/second peak particle velocity (PPV) per the FTA standard for structural damage at the nearby commercial buildings. Other demolition or construction related vibration is exempt from the San Carlos Municipal Code's perceptibility vibration limit.

For (c), the project is located about 0.5 miles southwest of the San Carlos Airport. Based on the San Carlos Airport Noise Contour Map contained within the General Plan Noise Element, the site is outside of the 55 CNEL noise contour for the airport. Aircraft noise plays a part in establishing the ambient levels in the site vicinity, but at this distance no significant impact is expected from the aircraft noise on the project site.

Existing Ambient Environment

The City's General Plan Noise Element includes discussion and data related to the expected noise levels from traffic in 2030. Figure 9-3 (from the Noise Element) shows noise contours based on the expected traffic in 2030.

Figure 9-3. General Plan Noise Element: 2030 Traffic Noise Level Contours



The 2030 traffic noise levels from Figure 9-3 show that the project site has expected noise levels at some locations along El Camino Real and Old Country Road that exceed 65 dBA. The existing site areas that are farthest away from traffic noise are expected to have noise levels above about 60 dBA on the site.

Noise sensitive residences about 600 feet to the southwest and about 700 feet to the north of the site have a range of existing and future noise exposure. At worst case residential locations, traffic noise is expected to be greater than 65 dBA. At residential locations farther from traffic noise sources existing and future traffic noise levels may be as low as 55 dBA.

Construction Noise

The noise levels generated by construction equipment would vary depending on factors such as the type and specific model of the equipment, the condition of the equipment, and the operation being performed. The average sound level of the construction activity also depends upon the

amount of time that the equipment operates and the intensity of the construction during the time period. Construction activities would occur during the City's allowable hours of operation.

The maximum noise level ranges for various pieces of construction equipment at a distance of 50 feet are depicted in Table 1. Note that these are maximum noise levels, not the average sound level generally used in this assessment. The average sound level at construction sites is typically less than the maximum noise level because the equipment operates in alternating cycles of full power and lower power. Thus, the average noise levels produced are less than the maximum level. Additionally, due to the dynamic nature of a construction site, noise levels are calculated from the center of the activity.

The typical operating cycles for construction equipment involve one or two minutes of full power operation followed by three or four minutes at lower power settings. Noise from construction equipment generally exhibits point source acoustical characteristics.

Construction noise in a well-defined area typically attenuates at approximately 6 dB per doubling of distance. When the sites have an absorptive ground surface, such as soft dirt, grass, or scattered bushes and trees, an excess ground attenuation value of 1.5 dB per doubling distance can be assumed. These rules apply to the propagation of sound waves with no obstacles between source and receivers, such as topography (ridges or berms) or structures (Caltrans 2013, FTA 2006).

Table 1. Construction Equipment Noise Emission Levels

Equipment Description	Impact Device?	Acoustical Use Factor (%)	Measured Lmax @50ft (dBA, slow)
All Other Equipment > 5 HP	No	50	N/A (85 Spec)
Backhoe	No	40	78
Compressor (air)	No	40	78
Concrete Saw	No	20	90
Crane	No	16	81
Dozer	No	40	82
Dump Truck	No	40	76
Excavator	No	40	81
Flat Bed Truck	No	40	74
Front End Loader	No	40	79
Generator	No	50	81
Grader	No	40	N/A (85 Spec)
Man Lift	No	20	75
Mounted Impact Hammer (hoe ram)	Yes	20	90
Paver	No	50	77
Pickup Truck	No	40	75
Pneumatic Tools	No	50	85
Roller	No	20	80
Scraper	No	40	84

Equipment Description	Impact Device?	Acoustical Use Factor (%)	Measured Lmax @50ft (dBA, slow)
Tractor	No	40	N/A (84 Spec)
Welder/Torch	No	40	74

Source: DOT 2006.

The Federal Highway Administration's Roadway Construction Noise Model (RCNM; FHWA 2008) and project-specific construction equipment were used to estimate construction noise levels at the nearest noise-sensitive land uses. Input variables for the RCNM consist of the receiver/land use types, the equipment type and number of each (e.g., two excavators, a loader, a dump truck), the duty cycle for each piece of equipment (i.e., percentage of hours the equipment typically works per day), and the distance from the sensitive noise receptor. The RCNM has default duty cycle values for the various pieces of equipment, which were derived from an extensive study of typical construction activity patterns. Those default duty cycle values were used for this noise analysis.

Project Specific Construction Details

Construction is estimated to take place over approximately 38.4 months. Demolition is expected to take 45 days. Excavation and grading are expected to take 65 days. Foundation work is expected to take 50 days. Phased construction for the North Building is expected to take place over 180 days, while 200 days is expected for the South Building. Paving and sitework are expected to take about 80 days for the North Site and 80 days for the South site. The time between phases is assumed to have no gaps.

Table 2 provides a summary of the construction phases and expected daily construction equipment.

Table 2. Summary of Construction Phases and Equipment

Phase ID	Phase	Project Equipment	Quantity of Equipment
1	Demolition	Concrete/Industrial Saws	1
1	Demolition	Excavators	3
1	Demolition	Rubber-Tired Dozers	2
2	Below Grade Garage Excavation and Grading	Excavators	2
2	Below Grade Garage Excavation and Grading	Graders	1
2	Below Grade Garage Excavation and Grading	Rubber Tired Dozers	1
2	Below Grade Garage Excavation and Grading	Tractors/Loaders/Backhoes	2
3	Below Grade Garage Foundations	Excavators	1
3	Below Grade Garage Foundations	Tractors/Loaders/Backhoes	1
4	Garage Concrete	Cranes	1
4	Garage Concrete	Forklifts	3
4	Garage Concrete	Generator Sets	1
5	Phase 1 - Building Construction North	Cranes	1
5	Phase 1 - Building Construction North	Forklifts	3

Phase ID	Phase	Project Equipment	Quantity of Equipment
5	Phase 1 - Building Construction North	Tractors/Loaders/Backhoes	2
5	Phase 1 - Building Construction North	Welders	3
6	Phase 1 - Site	Pavers	2
6	Phase 1 - Site	Rollers	2
6	Phase 1 - Site	Tractors/Loaders/Backhoes	2
7	Phase 2 - Building Construction South	Cranes	1
7	Phase 2 - Building Construction South	Forklifts	3
7	Phase 2 - Building Construction South	Tractors/Loaders/Backhoes	2
7	Phase 2 - Building Construction South	Welders	3
8	Phase 2 - Site	Pavers	2
8	Phase 2 - Site	Rollers	2
8	Phase 2 - Site	Tractors/Loaders/Backhoes	2

Construction Noise Results

Construction equipment with substantially higher noise-generation characteristics (such as pile drivers, rock drills, blasting equipment) are not expected to be necessary. Construction of the proposed project would be operated and managed strictly in accordance with City regulations.

The results presented below are from the RCNM model and based on construction equipment defaults assumed for the proposed project based on the phase description. The noise levels shown in Tables 3 take into account operation of multiple pieces of construction equipment operating simultaneously for the Leq results. The Lmax results only consider the single loudest piece of equipment. This is because the Lmax noise level from a piece of equipment would come from an almost instantaneous duration. It would only be a short, worst-case instance of the equipment operation so it's unrealistic that multiple pieces of equipment would produce their Lmax levels simultaneously. The table shows construction noise results at the nearest residences to the project site, which are located 600 feet southwest and 700 feet north from the project site.

Table 3. Construction Noise Modeling Summary Results

Construction Phase	L_{eq}/L_{max}* (dBA)	
	Residential 600 feet SW	*Residential 700 feet N*
Demolition	65/68	64/67
Below Grade Garage Excavation and Grading	65/63	63/62
Below Grade Garage Foundations	60/62	59/61
Garage Concrete	59/59	58/58

Phase 1 - Building Construction North	62/62	60/61
Phase 1 - Site	62/62	60/61
Phase 2 - Building Construction South	62/62	60/61
Phase 2 - Site	62/62	60/61
*Leq is the sum of the average noise levels for all pieces of equipment operating during this phase. Whereas Lmax is the value for the single loudest piece of equipment during the phase. This is because it is unlikely that all pieces of equipment will experience their loudest instantaneous condition at the same time.		

Leq is a metric that represents the energy average of sound measured over a specified amount of time. Whereas the L50 metric is more equivalent to a median value. The Leq is used throughout various situations and is the standard metric for most calculations and limits used in the field of acoustics. The L50 is something that cannot usually be calculated but must be measured. For these reasons, the calculated Leq levels are the most appropriate metric that can be used to predict compliance against the L50 limit.

The estimated construction noise levels generated by the proposed project would range from 58 to 65 dBA Leq and 58 to 68 dBA Lmax for typical, moderate construction efforts at the nearest residential properties. When intense construction is conducted the noise levels will be higher. The City's noise limits during construction hours are 55 dBA L50 and 70 dBA Lmax. Construction noise would likely remain under the Lmax limit but exceed L50 limit.

However, the City's Municipal Code and website include exemptions for construction activities conducted during certain daytime hours. All construction is expected to be conducted within the allowable hours. **The construction noise will have a less than significant temporary noise impact** due to the exemption in the Municipal Code.

Construction Vibration

Construction vibration is evaluated to determine if it would result in building damage or annoyance at residential areas. In general, on-site construction equipment that would cause the most ground-borne vibration would be associated with demolition, site excavation, and grading. During these construction efforts, the largest ground-borne vibration levels are anticipated to be generated by vibratory rollers, large bulldozers, and loaded trucks used for earthmoving. According to the FTA, vibration levels associated with the use of bulldozers range from approximately 0.003 to 0.089 inches per second PPV at 25 feet, as shown in Table 4. Additionally, loaded trucks used for soil hauling during grading could generate vibration levels of approximately 0.076 inches per second PPV at 25 feet.

Table 4. Construction Equipment Vibration Levels

Equipment	PPV at 25 feet (inches per second)
Vibratory roller	0.210
Jackhammer	0.035
Caisson Drilling	0.089
Large bulldozer	0.089
Loaded trucks	0.076
Small bulldozer	0.003

Sources: FTA 2006; Caltrans 2011.
PPV = peak particle velocity

The nearest building to the construction site would be the adjacent commercial buildings, approximately 5 feet from the construction boundary. For engineered concrete and masonry buildings, 0.3 inches/second PPV is a limit where building damage is possible (Caltrans 2004).

Using the distance and established criteria, vibration from construction activity was calculated at the nearby commercial building(s) (as close as 5 feet away). Results are presented below, in Table 5.

Table 5. Calculated Construction Vibration Levels at Adjacent Receivers

Receiver	Equipment	Distance to Construction	Calculated Vibration Level, PPV	Criteria PPV	Below PPV?
Nearest Commercial Building	Vibratory Roller	5	1.23	0.3	N
	Large Bulldozer	5	0.52	0.3	N
	Loaded Trucks	5	0.45	0.3	N

As shown in Table 5, construction-related vibration levels at nearby commercial building(s) could exceed the damage threshold applicable to the buildings of 0.3 inches/second PPV when activities are 5 feet away from existing structures. Further analysis of vibratory roller vibration shows that at distances farther than 20 feet from existing structures, the vibration levels fall below the criteria. For other equipment such as large bulldozers and loaded trucks, vibration levels are expected to fall below the criteria at about 10 feet from the existing structures. Thus, damage to adjacent commercial buildings is **a potentially significant impact from construction vibration due to the project**. Mitigation measures are provided below to reduce the potentially significant impact to less than significant.

Construction Vibration Mitigation

- Wherever feasible, avoid operation of vibratory rollers within 20 feet of existing buildings and operation of other construction equipment such as large bulldozers or loaded trucks within 10 feet of existing structures on adjacent lots.

- If vibratory rollers must operate within 20 feet of existing buildings or other major construction equipment must operate within 10 feet of existing buildings, then prepare a vibration monitoring plan to monitor construction vibration at the nearest structures.

Operational Noise: Mechanical Equipment

The project consists of office, research & development, and life science spaces. To support these uses, various pieces of mechanical equipment are expected to be part of the project.

Based on the Planning Resubmission set dated 2021-12-02 from Studios Architecture, the rooftop also includes heat pumps, cooling towers, and air handling units.

From Table 18.21.050-A, the residential noise limit is 45 dBA L50 at nighttime. The closest residential area is 600 feet away. This distance would provide approximately 42 dB of attenuation (reduction) in the noise from rooftop equipment compared to about 5 feet from the

acoustic center of the equipment. Thus, if the L50 of rooftop equipment exceeds 87 dBA at 5 feet, then there is **a potential significant impact for equipment noise levels** to exceed to local noise ordinance. With various equipment that has not yet been specified, there is potential for noise levels from mechanical equipment to exceed the noise ordinance limits. Thus, noise impacts from rooftop mechanical equipment are potentially significant. To assess any potential impact, the project should include a noise study once exterior mechanical equipment has been selected. Shielding from noise barriers is a common practice for mechanical equipment exceeding noise criteria and can provide more than 10 dB of noise reduction (if well-designed for noise), making it possible for mechanical equipment to be located closer to sensitive uses with potentially less than significant impact.

Rooftop Mechanical Equipment Mitigation

- Conduct a detailed mechanical noise analysis once rooftop equipment has been selected. Provide silencers, barriers, or other noise mitigation treatments to reduce expected noise levels from the mechanical equipment to within the noise ordinance limits.

Emergency Generator

The project includes one (1) emergency standby generator serving both buildings. The generator is sized at 450kW to serve code-mandated life-safety and legally-required loads. The generator will be enclosed within a Level II sound enclosure and is currently located within the surface parking lot.

In addition to the standby generator, there is also space allocated for a future tenant generator. The space allocation is for a 500kW tenant standby generator serving tenants' optional standby loads. The generators are expected to be in locations without line of sight to the residential areas. This would mean that generator noise would be largely blocked by existing structures.

Applying the generator data from RCNM to two generators placed on the site, the calculated noise level at the nearest residential receptors 600 feet away is approximately 47 dBA Leq. Because the generators are only expected to run during regular testing that would occur during daytime hours, the L50 exterior noise limit is 55 dBA for this noise source as shown in Table 18.21.050-A. Additionally, the exterior Lmax noise limit from that table is 70 dBA. Based on the RCNM calculation, the Lmax from both generators running at the same time at the nearest residential location is 49 dBA. Thus, the expected noise from the backup generators that are part of the project are below the local noise limits at the nearest residential areas. Therefore, **a less than significant noise impact is expected from the backup generators** that are part of the project.

Operational Noise: Traffic

The Existing Ambient Environment section of this memorandum includes Figure 9-3 from the City's General Plan Noise Element. The figure shows that US 101 is the largest source of traffic noise in the City with El Camino Real as the second largest source of traffic noise. In the project vicinity, Industrial Road also adds to the traffic noise from US 101, east of the site. Refer to the Existing Ambient Environment section of this memorandum for details regarding the existing traffic noise levels in the site vicinity and at the closest residential locations.

Traffic data for the project was provided by W-Trans via email on March 17, 2022. That data has been processed to calculate the percent difference between the 2040 no-project average daily traffic (ADT) and the 2040 with project-related traffic scenarios. Traffic data for existing traffic is shown within the 2019 column. The same increase in traffic that was indicated in 2040 was applied to the 2019 data to produce the 2019 with project-related traffic data. This data is summarized in Table 6.

Table 6. Traffic Data

North-South Streets	2019	2019 with Project	2040 No Project	2040 with Project	2040 Percent Difference
US 101 South of Brittan Ave					
Total ADT	272265	272492	333500	333727	0%
US 101 between Brittan Ave and Holly St					
Total ADT	260962	260896	335388	335322	0%
US 101 North of Holly Street					
Total ADT	27690	27909	73922	74141	0%
Industrial Rd south of Brittan Ave					
Total ADT	7502	7671	14739	14908	1%
Industrial Rd between Brittan Ave and Commercial					
Total ADT	6029	6300	13582	13853	2%
Industrial Rd between Commercial and Bransten					
Total ADT	6029	5937	13578	13486	-1%
Industrial Rd between Bransten and Terminal					
Total ADT	4087	4840	11865	12618	6%
Industrial Rd between Terminal and Montgomery					
Total ADT	4087	4840	11865	12618	6%
Industrial Rd between Montgomery and San Carlos Ave					
Total ADT	3544	4300	11324	12080	7%
Industrial Rd between San Carlos Ave and Holly St					
Total ADT	9994	10739	16807	17552	4%
Industrial Rd north of Holly St					
Total ADT	4378	4410	3707	3739	1%

El Camino Real (SR 82) south of Brittan Ave					
Total ADT	20307	20307	30212	30684	2%
El Camino Real (SR 82) from Brittan Ave to Commercial					
Total ADT	16147	16147	23844	23666	-1%
El Camino Real (SR 82) from Commercial to San Carlos Ave					
Total ADT	21278	21278	27240	26985	-1%
El Camino Real (SR 82) between San Carlos Ave & Holly St					
Total ADT	30143	30143	36251	36025	-1%
El Camino Real (SR 82) north of Holly St					
Total ADT	18709	18709	26202	26614	2%

Table 6 shows that the major roads do not see large percentage increases in ADT due to the project. For roadway traffic, a doubling (100% increase) in ADT corresponds to approximately a 3 dB increase in traffic noise. For typical hearing, a difference of 3 dB is a barely perceptible change in noise level. With all roadways experiencing a small percentage increase, the expected traffic noise increase due to the project would be less than 1 dB. This is less than the typical minimum perceptible difference. Additionally, the local noise limits do not apply to noise generated by automobile traffic or other mobile noise sources in the public right-of-way, per the San Carlos Muncipal code sections 9.30.070 (A) and 18.21.050 (A). Thus, **traffic noise impacts from the project are expected to be less than significant**.

Lower-volume roadways were not analyzed as these would have much lower traffic volumes and speeds, meaning much lower noise levels. As mentioned above, it would take a doubling of traffic volumes to increase their noise levels by only 3 dB. Anything less would not be perceptible to the typical person with healthy hearing. Additionally, noise from automobile traffic on roadways is exempt from the San Carlos noise limits.

Additionally, a raised BART line exists between Old County Road and El Camino Real. The new project building will include large vertical surfaces at the exterior which can reflect sound. Coffman analyzed the potential for increased noise at residential areas due to these new sound reflections. For residences to the north, the location of the building would not produce significant additional noise from roadways or BART based on the angle between these noise sources, the new façade, and the receivers. For receivers to the southwest, a small increase in noise due to the reflections may occur. Calculations based on conservative assumptions show that the increase in noise at these receivers would be less than 0.5 dB due to the sound reflections off of the building. This is less than a perceptible difference. Thus, **noise impacts from sound reflections off the new building are expected to be less than significant**.

Conclusion

This noise analysis memorandum includes analyses of potential noise and vibration impacts related to the proposed project. Most impacts are expected to be less than significant. Construction vibration and rooftop mechanical equipment noise impacts are potentially significant. Mitigation measures included in this memorandum are expected to reduce the construction vibration and rooftop mechanical equipment noise impacts to less than significant.

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