NOISE IMPACT ANALYSIS

STRATHMORE AND GARVEY MIXED-USE PROJECT

CITY OF ROSEMEAD, CALIFORNIA

Prepared by:

Sara Friedman Gerrick
Giroux & Associates

Prepared for:

Phil Martin
Phil Martin & Associates

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PROJECT DESCRIPTION

The 1.21-acre Project site is located at the northwest corner of Strathmore Avenue and Garvey Avenue in the City of Rosemead. The site is currently developed with retail and outdoor storage uses. The Project involves redevelopment with a seven-story mixed-use structure comprised of 93 apartment dwelling units, 6,040 sf of retail space, 12,801 sf of office space with 208 parking spaces provided on lower levels. The Project is anticipated to be operational by 2024.

NOISE SETTING

Sound is mechanical energy transmitted by pressure waves in a compressible medium such as air. Noise is generally considered to be unwanted sound. Sound is characterized by various parameters that describe the rate of oscillation of sound waves, the distance between successive troughs or crests, the speed of propagation, and the pressure level or energy content of a given sound. In particular, the sound pressure level has become the most common descriptor used to characterize the loudness of an ambient sound level.

The decibel (dBA) scale is used to quantify sound pressure levels. Although decibels are most commonly associated with sound, "dB" is a generic descriptor that is equal to ten times the logarithmic ratio of any physical parameter versus some reference quantity. For sound, the reference level is the faintest sound detectable by a young person with good auditory acuity.

Since the human ear is not equally sensitive to all sound frequencies within the entire auditory spectrum, human response is factored into sound descriptions by weighting sounds within the range of maximum human sensitivity more heavily in a process called “A-weighting,” written as dB(A). Any further reference in this discussion to decibels written as "dBA" should be understood to be A-weighted.

Time variations in noise exposure are typically expressed in terms of a steady-state energy level equal to the energy content of the time varying period (called LEQ), or alternately, as a statistical description of the sound pressure level that is exceeded over some fraction of a given observation period. Finally, because community receptors are more sensitive to unwanted noise intrusion during the evening and at night, state law requires that, for planning purposes, an artificial dB increment be added to quiet time noise levels in a 24-hour noise descriptor called the Ldn (day-night) or the Community Noise Equivalent Level (CNEL). The CNEL metric has gradually replaced the Ldn factor, but the two descriptors are essentially identical.

CNEL-based standards are generally applied to transportation-related sources because local jurisdictions are pre-empted from exercising direct noise control over vehicles on public streets, aircraft, trains, etc. The City of Rosemead therefore regulates the noise exposure of the receiving property through land use controls.

For “stationary” noise sources, or noise sources emanating from private property, such as a parking structure, the City does have legal authority to establish noise performance standards designed to not adversely impact adjoining uses. These standards are typically articulated in the jurisdictional

Municipal Code. These standards recognize the varying noise sensitivity of both transmitting and receiving land uses. The property line noise performance standards are normally structured according to land use and time-of-day.

NOISE COMPATIBILITY GUIDELINES

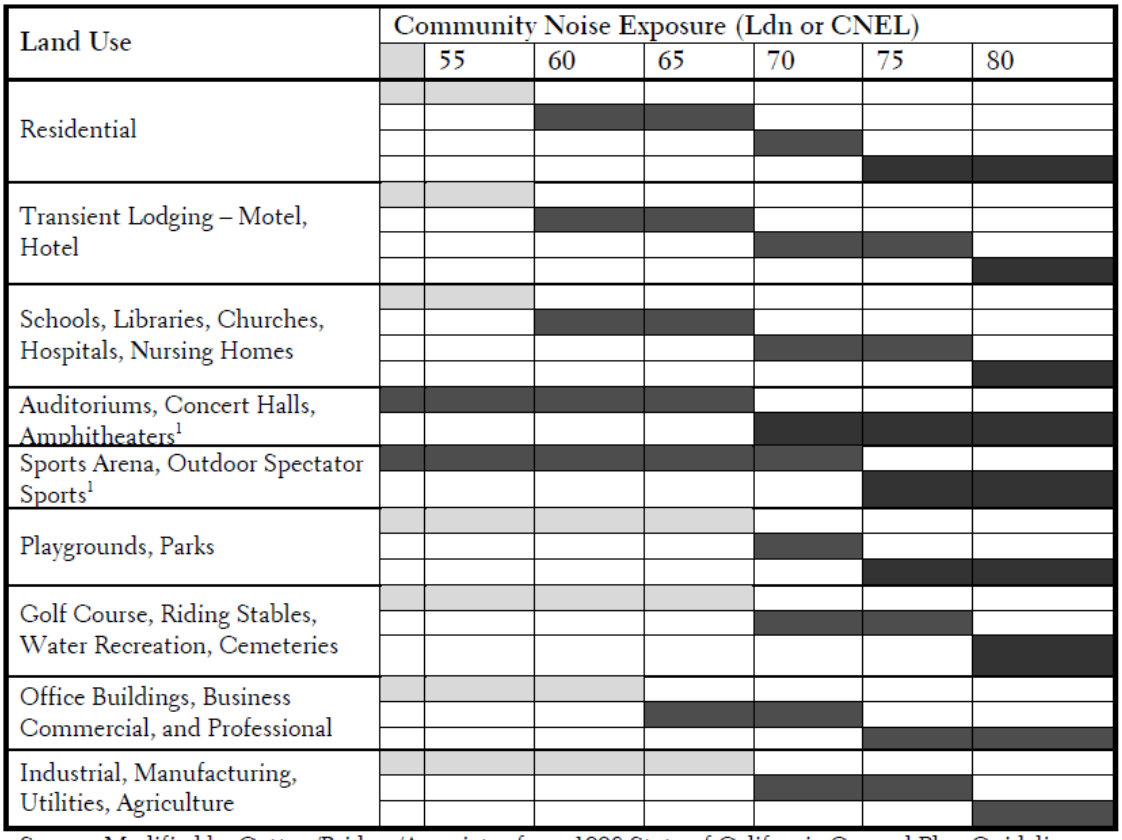
The City of Rosemead considers noise compatibility standards in evaluating land use projects. A proposed land use must be shown to be compatible with the ambient noise environment, particularly for noise sources over which direct City control is preempted by other agencies. Such sources include vehicle traffic on public streets, aircraft or trains. Since the City cannot regulate the noise level from the source, it exercises its land use decision authority to ensure that noise/land use incompatibility is minimized.

Table 1 shows the noise/land use compatibility guideline for the City of Rosemead, as contained in the Noise Element of the General Plan. The City of Rosemead considers noise exposures for residential/transient lodging use to be "normally acceptable" if the maximum exterior noise level is 60 dBA CNEL or less. Exterior residential noise levels of up to 70 dBA CNEL are allowed if a noise analysis is conducted to identify possible noise reduction measures. Noise levels above 70 dBA CNEL are considered normally unacceptable except in unusual circumstances for residences. These standards apply to outdoor recreational use at backyards, patios or balconies.

Because retail/commercial/office uses are not occupied on a 24-hour basis, the exterior noise exposure standard for less sensitive land uses is generally less stringent. Unless commercial Projects include noise-sensitive uses such as outdoor dining, noise exposure is generally not considered a commercial facility siting constraint for typical Project area noise exposures.

An interior CNEL of 45 dB is mandated by the State of California Noise Insulation Standards (CCR, Title 24, Part 6, Section T25-28) for multiple family dwellings and hotel and motel rooms. In 1988, the State Building Standards Commission expanded that standard to include all habitable rooms in residential use, included single-family dwelling units. Since normal noise attenuation within residential structures with closed windows is 25-30A dB, an exterior noise exposure of 70-75 dBA CNEL allows the interior standard to be met without any specialized structural attenuation (dual paned windows, etc.), but with closed windows and fresh air supply systems or air conditioning in order to maintain a comfortable living environment.

Figure 1
City of Rosemead Noise Compatibility Guidelines



Source: Modified by Cotton/Bridges/Associates from 1998 State of California General Plan Guidelines.

Normally Acceptable: Specified land use is satisfactory, based upon the assumption that any buildings involved meet conventional Title 24 construction standards. No special noise insulation requirements.

Conditionally Acceptable: New construction or development shall be undertaken only after a detailed noise analysis is made and noise reduction measures are identified and included in the project design.

Normally Unacceptable: New construction or development is discouraged. If new construction is proposed, a detailed analysis is required, noise reduction measures must be identified, and noise insulation features included in the design.

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

NOISE STANDARDS

For noise generated on one property affecting an adjacent use, the City of Rosemead limits the amount of noise crossing the boundary between the two uses. There are residential uses abutting the site to the west and to the east. The noise standards described below must be met at these uses.

For regulated on-site sources of noise generation, the Rosemead noise ordinance prescribes limits that are considered an acceptable exposure for residential uses in proximity to regulated noise sources. The L_{50} metric used in the Rosemead noise ordinance is the level exceeded for 50% of the measurement period of thirty minutes in an hour. One-half of all readings may exceed this average standard with larger excursions from the average allowed for progressively shorter periods. The larger the deviation, the shorter the allowed duration up to a never-to-exceed 20 dB increase above the 50^{th} percentile standard.

The City's L_{50} noise standard for residential uses is 60 dB during the day (7 a.m. – 10 p.m.), and 45 dB at night (10 p.m. – 7 a.m.). For commercial uses the L_{50} standard is 65 dB during the day (7 a.m. – 10 p.m.), and 60 dB at night (10 p.m. – 7 a.m.). These noise standards for residential and commercial uses are shown in Table 1. In the event that the ambient noise level exceeds any of the noise standards, the standards shall be increased to reflect the ambient noise level.

In accordance with Section 8.36.030 of the Municipal Code, noise associated with construction related activities is restricted between the hours of 8:00 p.m. and 7:00 a.m. on weekdays, including Saturday, or at any time on Sunday or a federal holiday.

Table 1
ROSEMEAD NOISE ORDINANCE LIMITS
(Exterior Noise Level not to be Exceeded)

	Residential Use		**Commercial Use**	
Maximum Allowable Duration of Exceedance	**7 AM to 10 PM (Daytime)**	**10 PM to 7 AM (Nighttime)**	**7 AM to 10 PM (Daytime)**	**10 PM to 7 AM (Nighttime)**
30 minutes/Hour (L50)	60 dB	45 dB	65 dB	60 dB
15 minutes/Hour (L25)	65 dB	50 dB	70 dB	65 dB
5 minutes/Hour (L8)	70 dB	55 dB	75 dB	70 dB
1 minute/Hour (L1)	75 dB	60 dB	80 dB	75 dB
Never (Lmax)	80 dB	65 dB	85 dB	80 dB

Source: Municipal Code Section 8.36.060

BASELINE NOISE LEVELS

Short term on-site noise measurements were made to document baseline levels in the Project area. These help to serve as a basis for projecting future noise exposure from the Project upon the surrounding community and noise from the community on the Project. Noise measurements were conducted on Monday, September 19, 2022, at approximately 11 a.m., at the three locations indicated below and shown in Figure 2.

Measured Noise Levels (dBA)

Site No.	Location	Leq	Lmin	Lmax
1	60-feet to Garvey Ave centerline	70	64	79
2	Along Strathmore on-site	64	58	71
3	Nearest home to the north	62	52	65

The City of Rosemead considers CNELS of up to 70 dBA to be conditionally acceptable for residential use with the requirement of a noise analysis. Noise levels of up to 75 dB CNEL are considered to be conditionally acceptable for commercial use. However, unless commercial Projects include noise-sensitive uses such as outdoor dining, exterior noise exposure is generally not considered a commercial facility siting constraint.

Figure 2
Noise Meter Locations

NOISE IMPACTS

IMPACT SIGNIFICANCE CRITERIA

Noise impacts are considered significant if they 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.

Three characteristic noise sources are typically identified with land use intensification such as that proposed for the development of the proposed mixed-use Project. Construction activities, especially heavy equipment, will create short-term noise increases near the site. Such impacts would be important for any nearby noise-sensitive receptors, such as existing residential uses. Upon completion, Project-related traffic will cause an incremental increase in area-wide noise levels throughout the Project area. Traffic noise impacts are generally analyzed both to ensure that the Project does not adversely impact the acoustic environment of the surrounding community, as well as to ensure that the Project site is not exposed to an unacceptable level of noise resulting from the ambient noise environment acting on the Project. Finally, the Project analysis examines operational noise on adjacent receptors. There are no airports within proximity to the Project.

The term "substantial increase" is not defined by any responsible agency. The limits of perceptibility by ambient grade instrumentation (sound meters) or by humans in a laboratory environment is around 1.5 dB. Under ambient conditions, people generally do not perceive that noise has clearly changed until there is a 3 dB difference. A threshold of 3 dB is commonly used to define "substantial increase." An increase of +3 dBA CNEL in traffic noise would be consistent a significant impact if the General Plan noise threshold for residential use were also to be exceeded.

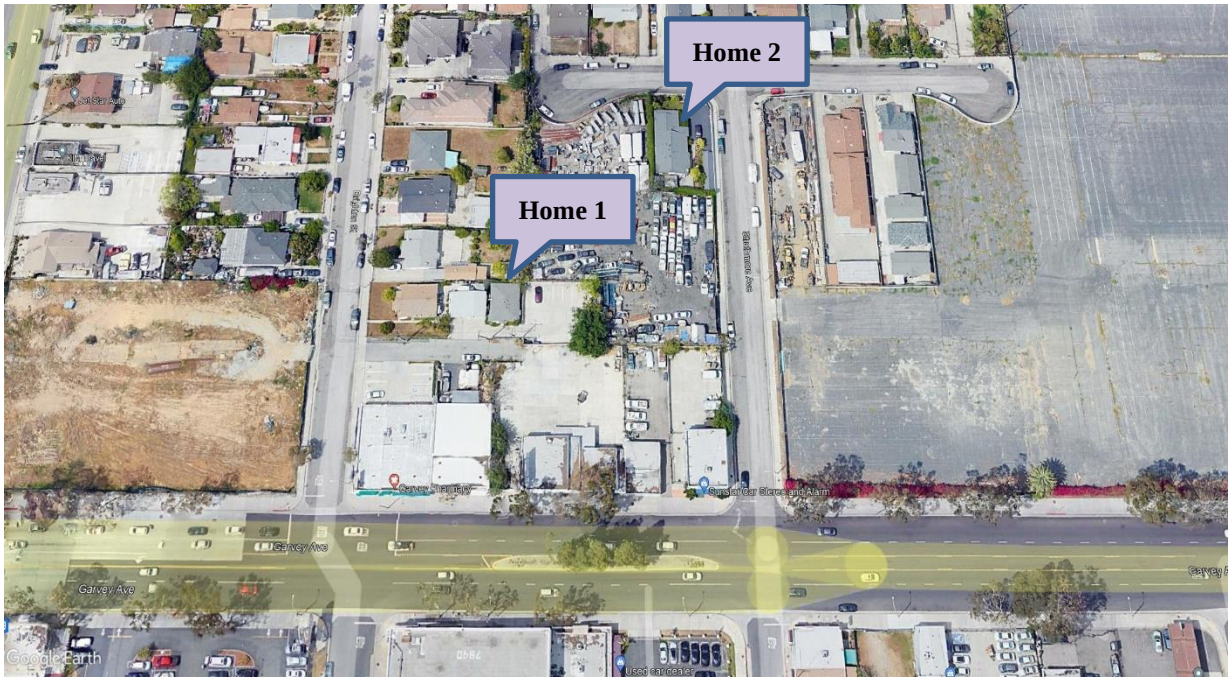
SENSITIVE USES

Garvey Avenue bounds the site to the south and Strathmore Avenue bounds the site to the east. There is a pharmacy to the west of the site along Garvey Avenue. To the north of the pharmacy are single story homes accessed from Brighton Street. Not including accessory structures, most residences have a 70-foot setback but there is one home immediately adjacent to the site (Home 1) with a small parking lot to the east, which will remain. This home is approximately 10-feet to the shared property line and approximately 16 feet to the closest building façade including the planned landscaping strip.

There is a residence which is not a part of the project on the NE corner of the site at Strathmore Avenue and Virginia Street (Home 2). There is a planned 10-foot-wide landscaping strip adjacent to the home which, in additional to the Project setback affords an approximate 13-foot separation distance. This home will be closest to the utility room and the hallway for several live/work units.

To the north of the site across Virginia Street are residential uses. These homes are more than 80-feet to the project perimeter. The Project plans an access point on the south side of Virginia Street which could impact these uses. But this location has a much larger setback than the other homes immediately adjacent to the site and therefore were not evaluated. Figure 3 shows the location of the two sensitive uses immediately adjacent to the site.

Figure 3
Location of Closest Sensitive Uses



CONSTRUCTION NOISE IMPACTS

The Project site is located at the corner of Garvey Avenue and Strathmore Avenue in the City of Rosemead. For this analysis, a noise impact is considered potentially significant if construction activities extended beyond ordinance time limits for construction or construction-related noise levels exceed the ordinance noise level standards unless technically infeasible to do so. Construction noise levels will vary at any given receptor and are dependent on the construction phase, equipment type, duration of use, distance between the noise source and receptor, and the presence or absence of barriers between the noise source and receptor.

The City of Rosemead limits construction activities to the hours of 7:00 a.m. and 8:00 p.m. on weekdays and Saturdays. For a numerical noise standard, the 65 dBA Leq for stationary noise was increased by the maximum allowable 20 dBA noise level for a not to exceed noise level of 85 dBA at any residential property line.

The exact construction schedule for the proposed development is not known at this time. Construction activities proposed for similar projects typically include grading, construction of the building shells, interior finishing, paving and landscaping. Construction equipment such as bulldozers, backhoes, loaders, and assorted other hand tools and professional grade equipment would likely be used

In 2006, the Federal Highway Administration (FHWA) published the Roadway Construction Noise Model that includes a national database of construction equipment reference noise emissions levels. The database provides an acoustical usage factor to estimate the fraction of time each piece of construction equipment is operating at full power during a construction phase. The usage factor is a key input variable that is used to calculate the average Leq noise levels.

Table 2 shows a probable construction fleet and provides the associated noise levels at a reference distance of 50 feet. The table identifies highest (L_{max}) noise levels associated with each type of equipment identified for use along with the extent of equipment usage (usage factor), which is represented as L_{eq}. Table 3 then adjusts this noise level for distance to the closest sensitive receptor. The table is organized by construction activity and equipment associated with each activity

Quantitatively, the primary noise prediction equation is expressed as follows for the hourly average noise level (Leq) at distance D between the source and receiver (dBA):

Leq = Lmax @ 50’ – 20 log (D/50’) + 10log (U.F%/100) – I.L.(bar)

Where:

Lmax @ 50’ is the published reference noise level at 50 feet
U.F.% is the usage factor for full power operation per hour
I.L.(bar) is the insertion loss for intervening barriers

Table 2
Construction Equipment Noise Levels

Phase Name	Equipment	Usage Factor[1]	Measured Noise @ 50 feet (dBA)	Cumulative Noise @ 50 feet (dBA)
Demolition	Dozer	40%	82	78
	Loader/Backhoe	37%	78	74
Grading	Dozer	40%	82	78
	Grader	40%	85	81
	Loader/Backhoe	37%	78	74
Building Construction	Forklift	20%	75	68
	Loader/Backhoe	37%	78	74
	Crane	16%	81	73
	Welder	46%	74	71
Paving	Paver	50%	77	74
	Paving Equip	40%	76	72
	Roller	38%	80	76
	Loader/Backhoe	37%	78	74

Source: FHWA's Roadway Construction Noise Model, 2006

1. Estimates the fraction of time each piece of equipment is operating at full power during a construction operation

Construction generated noise levels drop off or increase at a rate of about 6 dBA per doubling of distance between the source and receptor. Shielding by buildings or terrain often results in lower construction noise levels at distant receptors. The potential for construction-related noise to adversely affect nearby residential receptors would depend on the location and proximity of construction activities to these receptors. For this project, since there are adjacent sensitive uses closer than 50-feet, the adjusted noise levels at each receptor will be higher than those shown in Table 2.

Table 3 adjusts the expected maximal construction noise level from a reference distance of 50 feet to the actual distance separation unique to the nearest residential receptors identified for analysis. There is a planned 6-foot masonry wall along project perimeters adjacent to residential neighborhoods. The calculations show a 4 dBA credit for the wall. The two evaluated homes are adjacent to landscaping strips, therefore paving equipment noise was not calculated.

Table 3
Construction Noise Exposure at Adjoining Receptor
(dBA Leq)

Phase Name	Equipment	Home 1	Home 2
Demo	Dozer	**88**	**86**
	Loader/Backhoe	84	82
Grading	Dozer	**88**	**86**
	Grader	**91**	**89**
	Loader/Backhoe	84	82
Building Construction	Forklift	70	76
	Loader/Backhoe	76	82
	Crane	75	81
	Welder	73	79
Paving	Paver	na	na
	Paving Equip	na	na
	Roller	na	na
	Loader/Backhoe	na	na

Home 1: W of site, homes taking access from Brighton, N of alley
Home 2: NE corner of site, Virginia/Strathmore

As seen in Table 3, the adjacent homes could be exposed to noise levels in excess of 85 dBA Leq when dozers or graders operate close to the property line with noise levels of up to 91 dBA for a grader and 88 for a dozer. However, by 35-feet from the perimeter noise levels would decrease to 81 dBA for the dozer and 84 dBA for the grader.

Therefore, the following measure is recommended:

- Any dozer or grader shall not operate closer than 35 feet along the western perimeter and the NE corner of the site. Any grading should be accomplished with quieter equipment such as a loader/backhoe.

In addition, given the proximity of adjacent residential uses, the following recommended measures are recommended:

- All construction equipment shall be equipped with mufflers and other suitable noise attenuation devices (e.g., engine shields).
- Grading and construction contractors shall use quieter equipment as opposed to noisier equipment (such as rubber-tired equipment rather than track equipment), to the maximum extent feasible.
- If feasible, electric hook-ups shall be provided to avoid the use of generators. If electric service is determined to be infeasible for the site, only whisper-quiet generators shall be used (i.e., inverter generators capable of providing variable load.
- Use electric air compressors and similar power tools rather than diesel equipment, where feasible.
- Locate staging area, generators and stationary construction equipment as far from the adjacent residential structures as feasible.

- Construction-related equipment, including heavy-duty equipment, motor vehicles, and portable equipment, shall be turned off when not in use for more than 5 minutes.
- Post a sign in a readily visible location at the Project site that indicates the dates and duration of construction activities, as well as provide a telephone number where residents can enquire about the construction process and register complaints to an assigned construction noise disturbance coordinator

With inclusion of these measures, construction noise impacts from the Project would be reduced to less than significant level.

CONSTRUCTION ACTIVITY VIBRATION

Construction activities generate ground-borne vibration when heavy equipment travels over unpaved surfaces or when it is engaged in soil movement. The effects of ground-borne vibration include discernible movement of building floors, rattling of windows, shaking of items on shelves or hanging on walls, and rumbling sounds. Vibration related problems generally occur due to resonances in the structural components of a building because structures amplify groundborne vibration. Within the "soft" sedimentary surfaces of much of Southern California, ground vibration is quickly damped out. Groundborne vibration is almost never annoying to people who are outdoors (FTA 2006).

Groundborne vibrations from construction activities rarely reach levels that can damage structures. Because vibration is typically not an issue, very few jurisdictions have adopted vibration significance thresholds. Vibration thresholds have been adopted for major public works construction Projects, but these relate mostly to structural protection (cracking foundations or stucco) rather than to human annoyance.

A vibration descriptor commonly used to determine structural damage is the peak particle velocity (ppv) which is defined as the maximum instantaneous positive or negative peak of the vibration signal, usually measured in in/sec. The range of such vibration is as follows in Table 4:

Table 4
Human Response To Transient Vibration

Average Human Response	ppv (in/sec)
Severe	2.00
Strongly perceptible	0.90
Distinctly perceptible	0.24
Barely perceptible	0.03

Source: Caltrans Transportation and Construction Vibration Guidance Manual, 2013.

Over the years, numerous vibration criteria and standards have been suggested by researchers, organizations, and governmental agencies. As shown in Table 5**,** according to Caltrans and the FTA, the threshold for structural vibration damage for modern structures is 0.5 in/sec for intermittent sources, which include impact pile drivers, pogo-stick compactors, crack-and-seat equipment,

vibratory pile drivers, and vibratory compaction equipment. Older, typically historical residential structures have a 0.3 in/sec threshold. Below this level there is virtually no risk of building damage.

Table 5
FTA and Caltrans Guideline Vibration Damage Potential Threshold Criteria

Building Type	PPV (in/sec)
FTA Criteria	
Reinforced concrete, steel or timber (no plaster)	0.5
Engineered concrete and masonry (no plaster)	0.3
Non-engineered timber and masonry buildings	0.2
Buildings extremely susceptible to vibration damage	0.12
Caltrans Criteria	
Modern industrial/commercial buildings	0.5
New residential structures	0.5
Older residential structures	0.3
Historic old buildings	0.25
Fragile Buildings	0.1
Extremely fragile ruins, ancient monuments	0.08

To be conservative, the damage threshold of 0.3 in/sec for older residential structures was used in this analysis. The predicted vibration levels generated by construction equipment anticipated for use are shown below in Table 6.

Table 6
Estimated Vibration Levels During Project Construction

Equipment	PPV at 10 ft (in/sec)	PPV at 15 ft (in/sec)	PPV at 25 ft (in/sec)	PPV at 40 ft (in/sec)	PPV at 50 ft (in/sec)
Large Bulldozer	0.352	0.191	0.089	0.044	0.031
Loaded trucks	0.300	0.163	0.076	0.037	0.027
Jackhammer	0.138	0.075	0.035	0.017	0.012
Small Bulldozer	0.012	0.006	0.003	0.001	<0.001

Source: FHWA Transit Noise and Vibration Impact Assessment

The calculation to determine PPV at a given distance is:

PPVdistance = PPVref*(25/D)^1.5

Where:

PPVdistance = the peak particle velocity in inches/second of the equipment adjusted for distance,

PPVref = the reference vibration level in inches/second at 25 feet, and

D = the distance from the equipment to the receiver.

As seen in Table 6, the predicted vibration levels generated by construction equipment such as a large bulldozer could be above levels that could create structural damage of older residential structures (i.e., 0.3 in/sec) if the dozer were to operate closer than 15-feet to the property line.

Large bulldozers will not likely operate directly at the shared property line. Regardless, any fine grading at the property line should be performed with small bulldozers which are seen above to have much less vibration potential. Therefore, to ensure adequate vibration protection the following mitigation measure is recommended:

- Only small bulldozers shall be permitted to operate within 35 feet of the nearest off-site structures.

Since a dozer or grader noise can exceed the adopted construction noise thresholds, it is already recommended that dozers or graders operate no closer than 35 feet to the western perimeter or NE corner. Construction activity vibration impacts are judged as less-than-significant with this limitation.

OFF-SITE PROJECT-RELATED VEHICULAR NOISE IMPACTS

Long-term noise concerns from the residential and commercial uses at the Project site can be derived from vehicular operations on Project area roadways. These concerns were addressed using the California specific vehicle noise curves (CALVENO) in the federal roadway noise model (the FHWA Highway Traffic Noise Prediction Model, FHWA-RD-77-108). The model calculates the Leq noise level for a reference set of input conditions, and then makes a series of adjustments for site-specific traffic volumes, distances, speeds, or noise barriers.

Table 7 summarizes the 24-hour CNEL level at 50 feet from the roadway centerline along 11 roadway segments. Four traffic scenarios were evaluated: existing conditions and future conditions "with Project" and "without Project". The data used for the analysis was provided in the traffic report prepared by Ganddini Group, Inc. for this Project.

As shown in Table 7, Project implementation in either the opening year or future year does little to change the traffic noise environment on larger roadways such as Garvey Avenue or San Gabriel Boulevard. Because the area is mostly built out, addition of Project traffic to arterial roadways causes minimal impact.

However, Strathmore Avenue and Virginia Street are currently exposed to very low traffic volumes such that the addition of Project traffic is potentially significant as it causes an exceedance of the +3dBA threshold as shown in Table 8. Because current traffic volumes even with Project traffic are so low, so are the associated CNELs. As shown in Table 9, on the roadway segments that experience the largest Project related traffic noise increases of +3.1 dBA to +6.8 dBA, total future CNELs including Project traffic are less than 52 dBA which is much less than the recommended significance guideline of 60-70 dBA CNEL for residential uses.

Therefore, Project traffic noise increases are less-than-significant.

Table 7
Traffic Noise Impact Analysis
(dBA CNEL at 50 feet from centerline)

Segment		Existing No Project	Existing With Project	Future No Project	Future With Project
Virginia St/	E of Strathmore	44.9	48.7	44.9	48.7
Strathmore/	Virginia to Site Entrance	44.9	48.7	46.3	49.4
	Site Entrance to Garvey	44.9	51.7	44.9	51.7
	S of Garvey	52.1	52.1	52.1	52.1
Garvey/	W of Brighton	70.6	70.7	71.1	71.2
	Brighton-Strathmore	70.7	70.8	71.2	71.2
	E of Strathmore	70.7	70.8	71.2	71.3
	W of San Gabriel	71.2	71.2	71.6	71.7
	E of San Gabriel	70.9	70.9	71.3	71.4
San Gabriel/	N of Garvey	71.6	71.6	72.1	72.1
	S of Garvey	71.8	71.8	72.1	72.1

Table 8
Project Impact
(dBA CNEL at 50 feet from centerline)

Segment		Existing Impact	Future Impact
Virginia St/	E of Strathmore	**3.8**	**3.8**
Strathmore/	Virginia to Site Entrance	**3.8**	**3.1**
	Site Entrance to Garvey	**6.8**	**6.8**
	S of Garvey	0.0	0.0
Garvey/	W of Brighton	0.1	0.1
	Brighton-Strathmore	0.1	0.0
	E of Strathmore	0.1	0.1
	W of San Gabriel	0.0	0.1
	E of San Gabriel	0.0	0.1
San Gabriel/	N of Garvey	0.0	0.0
	S of Garvey	0.0	0.0

*bolded entries are in exceedance of the +3 dBA traffic noise increase threshold

Table 9
CNEL for Segments Exceeding +3 dBA Threshold
(dBA CNEL at 50 feet from centerline)

Segment		Existing Project Impact/ CNEL	Future Project Impact/ CNEL
Virginia St/	E of Strathmore	3.8 / 48.7	3.8 / 48.7
Strathmore/	Virginia to Site Entrance	3.8 / 48.7	3.1 / 49.4
	Site Entrance to Garvey	6.8 / 51.7	6.8 / 51.7

SITE OPERATIONAL VEHICULAR NOISE

There are three site entrance/exit points. Vehicle access is proposed at Strathmore Avenue, Virginia Street, and a public alley connecting to Brighton Street at the west side of the property. Most of the Project traffic is expected to utilize the Strathmore Avenue entrance (60%). The Virginia Street entrance is expected to handle 35% of the Project traffic and the Brighton Street public alley access 5%.

The traffic analysis shows a peak AM hour of 62 vehicular entries or exits and the peak PM hour to include 74 vehicular entries or exits. Table 10 provides the calculated number of vehicles and associated noise levels for each entrance based on the PM peak hour traffic volume as it is higher than the AM peak hour.

Table 10
Peak Hour Traffic Noise at Site Access Points

Entrance Point	Number of Vehicles	Associated Noise Level
Strathmore Entrance	44	47 dBA Leq
Virginia St Entrance	26	44 dBA Leq
Alley Access	4	36 dBA Leq

The homes west of the site will be exposed to traffic noise from the alley access drive aisle. This entrance is expected to incur a peak hour noise level of 36 dBA Leq. Homes across Virginia Street will be exposed to traffic noise from the Virginia Street entrance with a peak hour noise level of 44 dBA Leq. No sensitive uses are impacted by the Strathmore Avenue entrance.

The City of Rosemead Noise Ordinance limits noise from a private property adjacent to a residential use to not exceed 60 dBA Leq at the property line from 7 AM to 10 PM which is when peak hour traffic would occur. Therefore, the Project peak hourly traffic entering or leaving the site would not exceed the daytime noise standards. The nocturnal noise standard is 45 dBA Leq, but as shown in Table 10, even peak hour noise levels won't exceed 44 dBA Leq at the Virginia Street entrance.

Additionally, the observed ambient noise levels were higher than those provided above. Therefore, it is likely that Project traffic will not be audible over background noise levels.

MECHANICAL EQUIPMENT NOISE

The operation of mechanical equipment typical for developments like the Project, such as, air conditioners, fans, and related equipment may generate audible noise levels. For this Project, the mechanical equipment is located on the rooftop and will be shielded from nearby land uses to attenuate noise and avoid conflicts with adjacent uses. Project plans show a requirement for adequate screening. Most of the roof top units are interior to the roof, and not near the edge.

The Project would install mechanical equipment that would generate characteristic noise levels for the type of equipment, consistent with applicable regulatory requirements and with adequate

screening. Therefore, operation of mechanical equipment would not exceed the City's thresholds of significance, and impacts would be less than significant.

ON-SITE TRAFFIC NOISE EXPOSURE

Although the site is bound by Garvey Avenue and Strathmore Avenue only Garvey traffic could cause on-site residential uses to be exposed to high noise levels. Along the Garvey frontage, the first three levels are either commercial use or parking lot use. Residential uses are on levels 4-7. The balconies are primarily recessed within the building façade and are therefore shielded from directional noise. It is not expected that residential balconies would observe exterior traffic noise levels of above 70 dBA CNEL. Most residential recreational space is provided by the two courtyards, and the two community decks which are setback from the roadway, or interior to the site. Private balconies comprise only 17% of the site open space and the percentage of those decks that have a line-of-sight to Garvey Avenue is even less.

CONCLUSIONS

Short-term construction noise intrusion shall be mitigated by compliance with the City of Rosemead Noise Ordinance. The allowed hours of construction are from 7 a.m. to 8 p.m. Monday through Saturday. However, given the proximity of adjacent residential uses, the following measures are recommended. With inclusion of these measures, construction noise impacts from the Project would be reduced to less than significant level.

- Any large dozer or grader shall not operate closer than 35 feet to the property lines adjoining residential uses. A small dozer would be acceptable.
- All construction equipment shall be equipped with mufflers and other suitable noise attenuation devices (e.g., engine shields).
- Grading and construction contractors shall use quieter equipment as opposed to noisier equipment (such as rubber-tired equipment rather than track equipment), to the maximum extent feasible.
- If feasible, electric hook-ups shall be provided to avoid the use of generators. If electric service is determined to be infeasible for the site, only whisper-quiet generators shall be used (i.e., inverter generators capable of providing variable load.
- Use electric air compressors and similar power tools rather than diesel equipment, where feasible.
- Locate staging area, generators and stationary construction equipment as far from the adjacent residential structures as feasible.
- Construction-related equipment, including heavy-duty equipment, motor vehicles, and portable equipment, shall be turned off when not in use for more than 5 minutes.
- Post a sign in a readily visible location at the Project site that indicates the dates and duration of construction activities, as well as provide a telephone number where residents can enquire about the construction process and register complaints to an assigned construction noise disturbance coordinator

In the abundance of caution, to ensure adequate vibration protection a dozer or grader will operate at least 25 feet from the property line. Therefore, the following mitigation measure is recommended:

- Only small bulldozers shall be permitted to operate within 25 feet of the nearest off-site structures

Project-related off-site traffic noise changes on existing streets are less than significant.

There are three site access points, at Strathmore Avenue, Virginia Street, and a public alley connecting to Brighton. There are no sensitive uses adjacent to the Strathmore access point. Even peak hour traffic is less than 44 dBA Leq at the Virginia Street entrance which is less than the daytime noise threshold of 60 dBA Leq. If the peak hour daytime noise level is less than the 45 dBA Leq nocturnal threshold it can be assumed that nighttime noise levels would be much lower.

Rooftop mechanical equipment shall provide adequate screening to ensure noise levels do not exceed the daytime noise standard at any adjacent sensitive use of 60 dBA Leq and nighttime standard of 45 dBA Leq.

The Project is not expected to exceed the City of Rosemead noise standards at any residential property line.