NOISE IMPACT ANALYSIS

GARVEY WALNUT MIXED USE PROJECT

CITY OF ROSEMEAD, CALIFORNIA

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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 (dB) 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 "dB" 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

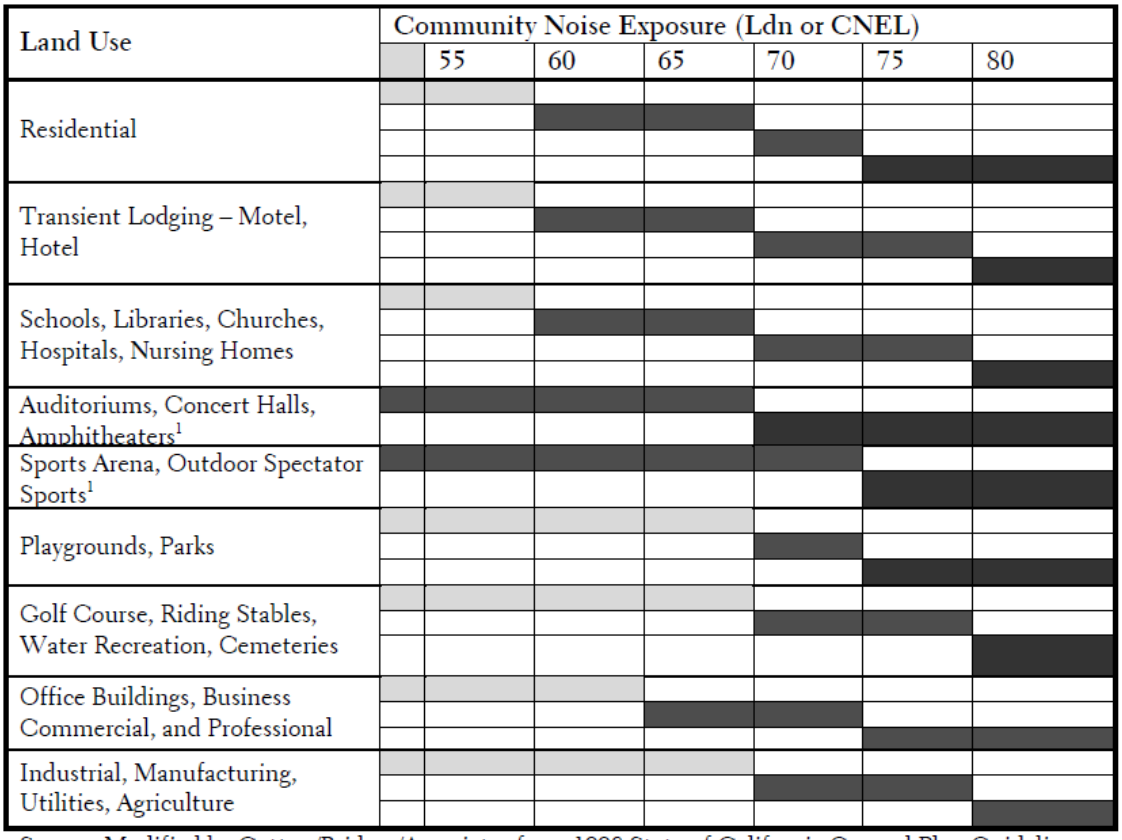
vehicle traffic on public streets, aircraft or trains. Since the City cannot regulate the noise level from the source, it exercises its land use decision authority to ensure that noise/land use incompatibility is minimized.

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 north and across Walnut Grove Avenue 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. Nighttime noise levels limits are reduced by 5 dB to reflect the increased sensitivity to noise occurring during that time period.

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 in order 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 Friday, November 20, 2020, at approximately 1:30-2:30 p.m., at the two locations indicated below. A map of the locations is provided in Figure 2.

Measured Noise Levels (dBA)

Site No.	Location	Leq	Lmax	Lmin	L_{50}
1	On-Site Walnut Grove, N of Garvey, 30 ft to closest home to the north	67	77	53	67
2	On-Site 50 ft N of Garvey	69	88	59	66

Monitoring experience shows that 24-hour weighted CNELs can be reasonably well estimated from mid-day noise readings. CNELs are approximately equal to Leq plus 2 dBA (Caltrans Technical Noise Supplement, 2009).

Meter location 1 is representative of noise levels along Walnut Grove Avenue near the closest residences to the north. At approximately 45 feet from the Walnut Grove centerline, existing noise levels are expected to be approximately 69 dBA CNEL.

Meter 2 was selected to represent existing noise levels at approximately 50 feet north of the Garvey Avenue centerline. At this location, closer to Garvey Avenue, noise levels of 71 dBA Leq would translate to a CNEL of 71 dBA.

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 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 Project site. Such impacts would be important for any nearby noise-sensitive receptors, such as any 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 insure that the Project does not adversely impact the acoustic environment of the surrounding community, as well as to insure 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.

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.

SENSITIVE USES

The closest sensitive use is a residence directly north of the site. The Community Center will be located closest to this home. However, a fire lane is located between the Community Center and the shared residential property line, with a minimal 50 feet setback from the nearest Community Center building façade. There is an upgraded 6-foot high block wall at the shared property line.

There is a house accessed via Willard Avenue northwest of the site, approximately 70 feet from the Project, across the adjoining alley. There is a 6-foot high block wall along the perimeter.

There are also residential uses across Walnut Grove Avenue. These homes are more than 85 feet from the project perimeter.

CONSTRUCTION NOISE IMPACTS

The Project site is located at the northwest corner of Garvey Avenue and Walnut Grove Avenue in the City of Rosemead. Existing on-site structures will be demolished as part of the Project. The Project is proposing to develop the site with a 4-story structure with 204 parking spaces split between the ground floor and mezzanine. Project uses include residential condominiums, office space, a community center, retail uses and a café.

For this analysis, a noise impact is considered potentially significant if Project 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 demolition and clearing, grading and improvements, construction of the building shells, interior finishing, 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.

The table below identifies highest (L_{max}) noise levels associated with each type of equipment identified for use, then adjusts this noise level for distance to the closest sensitive receptor and the extent of equipment usage (usage factor), which is represented as L_{eq}. 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):

$$Leq = Lmax @ 50' - 20 \log (D/50') + 10\log (U.F\%/100) - I.L.(bar)$$

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 shows a probable construction fleet provides the associated noise levels at a reference distance of 50 feet.

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
	Grader	40%	85	81
	Loader/Backhoe	37%	78	74
Grading	Dozer	40%	82	78
	Scraper	40%	84	80
	Concrete Saw	20%	90	84
	Excavator	40%	81	78
	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

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

Typical hourly average construction generated noise levels are about 68 dBA to 84 dBA Leq measured at a distance of 50 feet from the site. Construction generated noise levels drop off 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. 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.

Table 3 adjusts the expected maximal construction noise level from a reference distance of 50 feet to the actual distance separation unique to each receptor.

Table 3
Construction Noise Exposure at Adjoining Sensitive Uses
(dBA Leq)

Phase Name	Equipment	Noise Levels at Residence to the North	Noise Levels at Residence off Willard Ave	Noise Levels at Homes Across Walnut Grove
Demolition	Dozer	78	75	73
	Grader	81	78	76
	Loader/Backhoe	74	71	69
Grading	Dozer	78	75	73
	Scraper	80	77	75
	Concrete Saw	84	81	79
	Excavator	78	75	73
	Loader/Backhoe	74	71	69
Building Construction	Forklift	68	65	63
	Loader/Backhoe	74	71	69
	Crane	73	70	68
	Welder	71	68	66
Paving	Paver	74	71	69
	Paving Equip	72	69	67
	Roller	76	73	71

Therefore, because of distance separation, construction noise would not exceed 85 dBA at any adjacent sensitive use. No credit was taken for the 6-foot perimeter block wall. However, 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 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 25 ft (in/sec)	PPV at 40 ft (in/sec)	PPV at 50 ft (in/sec)	PPV at 60 ft (in/sec)	PPV at 75 ft (in/sec)
Large Bulldozer	0.089	0.044	0.031	0.024	0.017
Loaded trucks	0.076	0.037	0.027	0.020	0.015
Jackhammer	0.035	0.017	0.012	0.009	0.007
Small Bulldozer	0.003	0.001	<0.001	<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.

The closest residence adjacent to the Project boundary is 50 feet from the closest building façade. As seen in Table 6, the predicted vibration levels generated by construction equipment such as a large

bulldozer would be below levels that could create structural damage of older residential structures (i.e., 0.3 in/sec). Large bulldozers will not likely operate directly at the shared property line, and therefore, effects of vibration such as rattling windows is not expected to occur at the nearest structures. In the event that such equipment may pass directly along the property line of adjacent residences, vibration effects would only slightly exceed the "barely perceptible" response range, and for a very limited time, which would not be considered substantial.

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 nine roadway segments. Four traffic scenarios were evaluated: existing conditions and future conditions "with Project" and "without Project". The data used for 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. Because the area is mostly built out, addition of Project traffic to area roadways causes minimal impact. The largest Project related impact is +0.2 dBA CNEL at 50 feet from the roadway centerline and some segments show no discernable impact. These increases are much less than the +3 dBA significance threshold. Project only 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
Garvey Ave/	Willard-Walnut Grove	70.2	70.3	70.5	70.6
	Walnut Grove-Burton	70.6	70.6	70.8	70.8
Hellman Ave/	E of Willard	63.5	63.5	64.2	64.2
	W of Walnut Grove	65.7	65.8	65.9	66.0
	E of Walnut Grove	64.0	64.0	64.1	64.1
Walnut Grove/	N of Hellman	69.9	69.9	70.1	70.1
	S of Hellman	68.6	68.7	68.8	68.9
	N of Garvey	68.7	68.9	68.9	69.0
	S of Garvey	68.5	68.6	68.7	68.7

Project Impact
(dBA CNEL at 50 feet from centerline)

Segment		Existing Impact	Future Impact
Garvey Ave/	Willard-Walnut Grove	0.1	0.1
	Walnut Grove-Burton	0.0	0.0
Hellman Ave/	E of Willard	0.0	0.0
	W of Walnut Grove	0.1	0.1
	E of Walnut Grove	0.0	0.0
Walnut Grove/	N of Hellman	0.0	0.0
	S of Hellman	0.1	0.1
	N of Garvey	0.2	0.1
	S of Garvey	0.1	0.0

SITE OPERATIONAL NOISE

Vehicles will enter the Site at the Walnut Grove entrance, which is just south of the Community Center. Trucks will leave the lot at the same point and turn right towards Garvey Avenue. Automotive traffic could turn either left of right on Walnut Grove Ave. The Projects 204 parking spaces are split between the ground floor and mezzanine parking and are interior to the site. Any off-site uses will be noise protected by the Project structure surrounding the parking areas. The Traffic Report estimates 143 trips during the a.m. peak hour and 65 trips during the p.m. peak hour. The noise signature associated with 143 trips would be 51.6 dBA Leq. A combination of distance attenuation to the closest sensitive uses and shielding provided by the buildings themselves would provide at least -10 dBA of attenuation. On-site traffic would be significantly less than the daytime 60 dBA Leq noise standard. There would be much less trips at night than during the daytime peak hours.

The operation of mechanical equipment typical for developments like the project, such as, air conditioners, fans, generators, and related equipment may generate audible noise levels. For this Project, mechanical equipment is typically located on rooftops or within buildings, and is shielded from nearby land uses to attenuate noise and avoid conflicts with adjacent uses. Project plans show a 4-foot high rooftop parapet. Only the Community Hall is adjacent to off-site uses and equipment will not operate after 10 p.m.

The Project would install mechanical equipment that would generate characteristic noise levels for the type of equipment, consistent with applicable regulatory requirements. Therefore, operation of mechanical equipment would not exceed the City's thresholds of significance, and impacts would be less than significant and will be located behind the planned 4-foot high parapet screen

ON-SITE TRAFFIC NOISE

Along the Garvey Avenue frontage, the first story will be commercial use only. Residential units on upper levels are somewhat recessed and have a greater setback distance to traffic. Using traffic volumes provided in the Traffic Analysis, as shown in Table 7, traffic noise along Garvey Avenue is expected to be less than 71 dBA CNEL at 50 feet from the centerline, even with the Project. With

setbacks, it is not anticipated that residential balconies would observe exterior traffic noise levels of above 70 dBA CNEL. Much recreational space would be common space comprised of the interior courtyard, common decks at each floor and the rooftop garden.

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.

- 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

Construction vibration will not cause any structural damage at existing off-site sensitive uses.

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

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