NOISE ASSESSMENT

York Drive Active Senior Living Development
PDS2021-MPA-21-001
County of San Diego, CA

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GLOSSARY OF COMMON TERMS

Sound Pressure Level (SPL): a ratio of one sound pressure to a reference pressure (L_{ref}) of 20 µPa. Because of the dynamic range of the human ear, the ratio is calculated logarithmically by 20 log (L/L_{ref}).

A-weighted Sound Pressure Level (dBA): Some frequencies of noise are more noticeable than others. To compensate for this fact, different sound frequencies are weighted more.

Minimum Sound Level (L_{min}): Minimum SPL or the lowest SPL measured over the time interval using the A-weighted network and slow time weighting.

Maximum Sound Level (L_{max}): Maximum SPL or the highest SPL measured over the time interval the A-weighted network and slow time weighting.

Equivalent sound level (L_{eq}): the true equivalent sound level measured over the run time. Leq is the A-weighted steady sound level that contains the same total acoustical energy as the actual fluctuating sound level.

Day Night Sound Level (LDN): Representing the Day/Night sound level, this measurement is a 24 –hour average sound level where 10 dB is added to all the readings that occur between 10 pm and 7 am. This is primarily used in community noise regulations where there is a 10 dB "Penalty" for nighttime noise. Typically, LDN's are measured using A weighting.

Community Noise Exposure Level (CNEL): The accumulated exposure to sound measured in a 24-hour sampling interval and artificially boosted during certain hours. For CNEL, samples taken between 7 pm and 10 pm are boosted by 5 dB; samples taken between 10 pm and 7 am are boosted by 10 dB.

Octave Band: An octave band is defined as a frequency band whose upper band-edge frequency is twice the lower band frequency.

Third-Octave Band: A third-octave band is defined as a frequency band whose upper band-edge frequency is 1.26 times the lower band frequency.

Response Time (F,S,I): The response time is a standardized exponential time weighting of the input signal according to fast (F), slow (S) or impulse (I) time response relationships. Time response can be described with a time constant. The time constants for fast, slow and impulse responses are 1.0 seconds, 0.125 seconds and 0.35 milliseconds, respectively.

EXECUTIVE SUMMARY

This noise study has been completed to determine the noise impacts associated with the development of the proposed project. The project known as "York Drive Active Seniors Living" proposes the development of a four-story senior living center consisting of 183 senior units and amenities including a common kitchen area and dining room, theater, chapel, arts and craft room gym, offices, reception area, pool area, putting green, and patio. The project is generally located northeast of State Route 78 (SR-78) and S Santa Fe Avenue between Mar Vista Drive and Buena Creek Road in the North County Metro community in San Diego County, CA.

- On-Site Noise Analysis

  It was determined from the detailed analysis from the combined roadway and railroad noise that the proposed outdoor NSLU's will comply with the County of San Diego 60 dBA CNEL exterior noise standard with no mitigation measures. Additionally, all building facades with direct line of sight to S Santa Fe Avenue were found to be above the General Plan Noise Element Standard of 60 dBA CNEL. Therefore, per the General Plan Noise Element a noise easement is required for the entire site and an interior noise study is required for all units, to determine the mitigation required to achieve an interior noise level of 45 dBA CNEL. This report would finalize the noise requirements based upon precise grading plans and actual building design specifications. This is to ensure that interior noise levels for the proposed residential structures comply with the interior noise level requirement of 45 dBA pursuant to the County Noise Element.

- Off-Site Noise Analysis

  The Project does not create a direct or cumulative impact of more than 3 dBA CNEL on any roadway segment. Therefore, the proposed Project's direct and cumulative contributions to off-site roadway noise increases will not cause any significant impacts to any existing or future noise sensitive land uses.

- Construction Noise Analysis

  The grading activities will consist of the preparation of the proposed internal roadways, the finished pads, and graded slopes. The grading equipment will be spread out over the project site from distances near the occupied property to distances of 200-feet or more away. Based upon the proposed site plan the majority of the grading operations will occur more than 100-feet from the property lines. At average distances over 100-feet the grading activities are anticipated not to exceed the County's 75-dBA standard and would not require any mitigation measures. No blasting or rock crushing is anticipated during the grading operations. Therefore, no impulsive noise sources are expected and the Project will comply

with Section 36.410 of the County Noise Ordinance.

- Onsite Train Vibration

  Train vibration depends on the weight of the train, travel speed, the condition of the track and soil characteristics. The proposed project buildings would be more than 140 feet from the centerline of the tracks. Federal Transit Administration Transit Noise and Vibration Impact Assessment Manual (FTA 2018) predicts that freight train vibration levels are as high as 73 VdB at 175 feet from the track centerline for a locomotive-powered freight train traveling at speeds of 50 MPH and up to 62 VdB for commuter rail train events at that speed.

  Therefore, the infrequent freight train activities will be below the 80 VdB, infrequent event for the freight train and the frequent commuter train activities will be below the 72 VdB frequent event annoyance thresholds as identified by the FTA. Additionally, due to the close proximity of the Transit Center, the commuter trains will be traveling at a slower speed of approximately 15 MPH, which would reduce the vibration levels 8 VdB and the freight train travel at speeds of 30 MPH or less which would reduce the vibration levels at least 4 VdB. Therefore, the train activities would have a less than significant impact on the proposed project.

- Operational Noise Analysis

  Proposed operational noise sources include roof-mounted HVAC systems. Based on noise levels, the distances to the property lines and the proposed fencing the proposed operations are anticipated to be below the County's Property Lines standards. No impacts are anticipated and no mitigation is required.

1.0 INTRODUCTION

1.1 Project Description

This noise study was completed to determine the noise impacts associated with the development of the proposed York Drive Active Seniors Living Development. The project is located at 33° 10′ 33″ N and 117° 12′ 41″ W, northeast of State Route 78 (SR-78) and S Santa Fe Avenue between Mar Vista Drive and Buena Creek Road in the North County Metro community of San Diego County CA (APNs 184-040-18 through 184-040-22 and 184-040-04). More specifically, the project is located at the eastern intersection of S Santa Fe Avenue and York Drive. The general location of the project is shown on the Vicinity Map, Figure 1-A.

The proposed project seeks the development of a four-story senior living center consisting of 183 senior units and amenities including a common kitchen area and dining room, theater, chapel, arts and craft room gym, offices, reception area, pool area, putting green, and patio. The existing County of San Diego General Plan land use designation is VR-2 (Village Residential). A site development plan is shown in Figure 1-B of this report. The project site is 4.3 acres and is currently vacant.

1.2 Environmental Settings & Existing Conditions

a) Settings & Locations

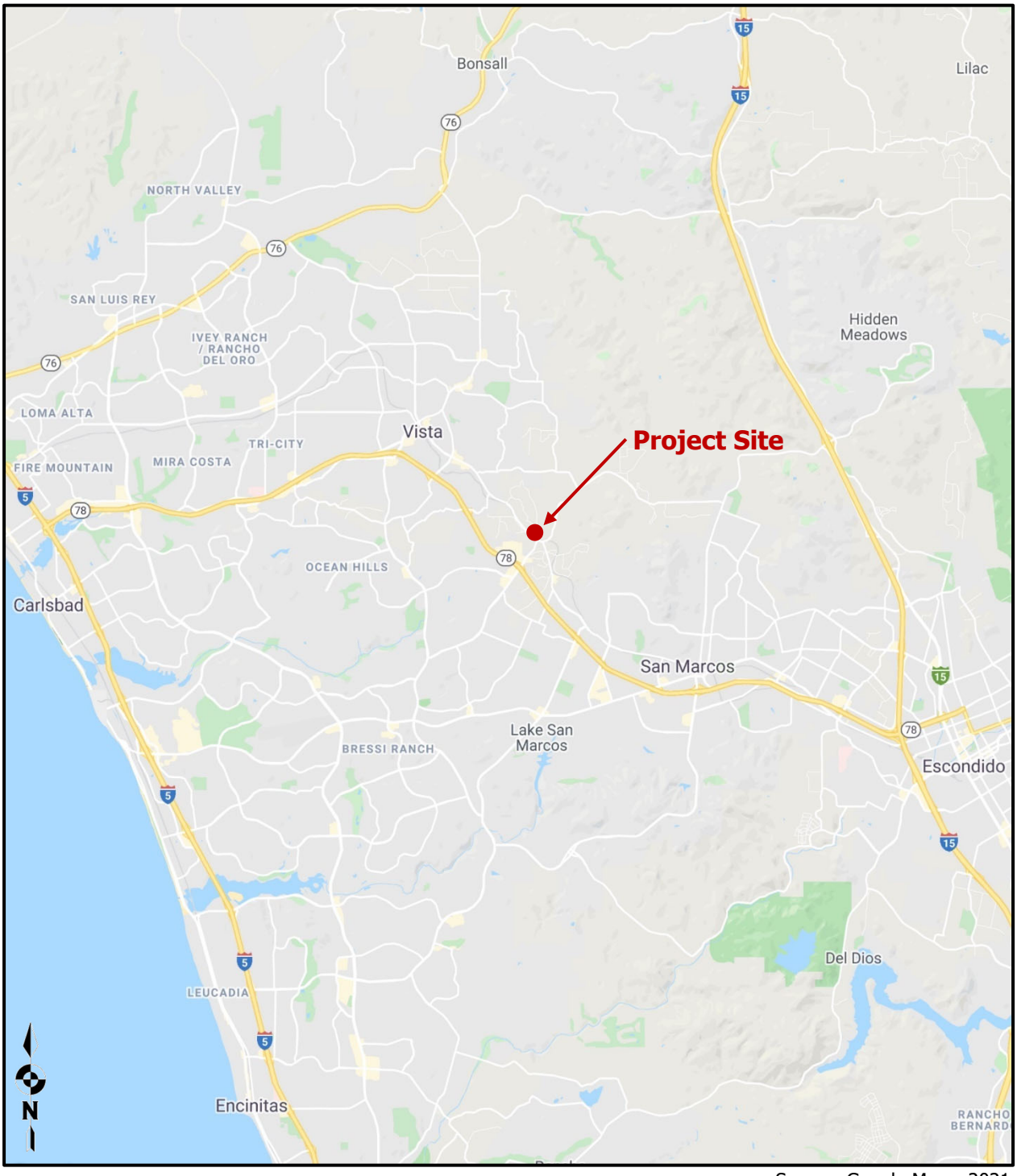
The project is located northeast of State Route 78 (SR-78) and S Santa Fe Avenue between Mar Vista Drive and Buena Creek Road in the North County Metro community of San Diego County CA. More specifically, the project is located at the eastern intersection of S Santa Fe Avenue and York Drive. The San Diego Northern Railroad (SDNR) consisting of Sprinter service operated by the NCTD is located between S Santa Fe Avenue and the project site.

The existing site is zoned RR (Rural Residential). Land uses surrounding the Project includes single family residential to the north, commercial uses across S Santa Fe Avenue to the southwest, and an existing memory care facility to the east. Hennalei Elementary School is located over 1,000 feet to the northwest along S Santa Fe Avenue.

b) Existing Noise Conditions

S Santa Fe Avenue has a roadway classification of 4 lane Major Road in the County of San Diego's Circulation Element with a design speed limit of 55 miles per hour (MPH). Existing noise occurs mainly from traffic traveling along S Santa Fe Avenue.

Figure 1-A: Project Vicinity Map



Source: Google Maps, 2021

Figure 1-B: Proposed Project Site Layout

Source: KPI, Inc., 2021

1.3 Methodology and Equipment

a) Noise Measuring Methodology and Procedures

To determine the existing noise environment and to assess potential noise impacts, measurements were taken at the center of the project having a relatively flat terrain and no obstruction from trees or rock outcroppings. This was done to determine the worst case conditions at the nearest proposed NSLU. The noise measurements were recorded on May 24, 2021 by Ldn Consulting between approximately 1:00 p.m. and 1:15 p.m.

Noise measurements were taken using a Larson-Davis Model LxT Type 1 precision sound level meter, programmed, in "slow" mode, to record noise levels in "A" weighted form. The sound level meter and microphone were mounted on a tripod, five feet above the ground and equipped with a windscreen during all measurements. The sound level meter was calibrated before and after the monitoring using a Larson-Davis calibrator, Model CAL 200.

The noise measurement location was determined based on site access and noise impact potential to the proposed sensitive uses. Monitoring location 1 (M1) was located approximately 160-feet from the centerline of S Santa Fe Avenue near the corner of York Drive. The noise monitoring locations are provided graphically in Figure 1-C on the following page.

The results of the noise level measurement are presented in Table 1-1. The noise measurement was monitored for a time period of 15 minutes. The ambient Leq noise levels measured in the area of the project during the morning hour was found to be 54.8 dBA. The existing noise levels in the project area consisted primarily of vehicular noise from S Santa Fe Drive.

Table 1-1: Existing Noise Levels

Location	Time	One Hour Noise Levels (dBA)					
		Leq	Lmin	Lmax	L10	L50	L90
M1	1:00–1:15 p.m.	54.8	42.8	66.9	58.3	52.8	46.3
Source: Ldn Consulting, Inc. May 24, 2021							

Figure 1-C: Noise Measurement Locations

b) Noise Modeling Software

The expected roadway noise levels from adjacent S Santa Fe Avenue was projected using Caltrans Sound32 Traffic Noise Prediction Model. Sound32 is a peak hour based traffic noise prediction model. The results of this analysis are based on the California Vehicle Noise Emission Levels (CALVENO). The Sound 32 model was calibrated in accordance with the FHWA Highway Traffic Noise Prediction Manual (Report RD-77-108) and in accordance with Caltrans Technical Noise Supplement (TeNS) section N-5400. The critical model input parameters, which determine the projected vehicular traffic noise levels, include vehicle travel speeds, the percentages of automobiles, medium trucks and heavy trucks in the roadway volume, the site conditions ("hard" or "soft") and the peak hour traffic volume.

The peak hour traffic volumes range between 6-12% of the average daily traffic (ADT) and 10% is generally acceptable for noise modeling purposes. The required coordinate information necessary for the Sound32 traffic noise prediction model input was taken from the preliminary site plans provided by BHA, Inc., 2021. To predict the future noise levels the preliminary site plans were used to identify the pad elevations, the roadway elevations, and the relationship between the noise source(s) and the NSLU areas. Traffic was consolidated into a single lane located along the centerline of each roadway. Longer roadway segments were subdivided into a series of adjoining segments for analysis. For this analysis, the roadway segments were extended a minimum of 300 feet beyond the observer locations. No grade correction or calibration factor (according to Caltrans Policy TAN-02-01 dated January 17, 2002) was included as part of the Sound32 traffic noise prediction model analysis.

To evaluate the potential noise impacts on the proposed development, outdoor observers were located in NSLU areas and placed five feet above the pad elevation and near the center of the rear yard a minimum of ten feet from the top/bottom of slope. All second floor observers were located fifteen feet above the proposed pad elevation at the anticipated building facades.

c) Noise Calculations and Factors

Noise is defined as unwanted or annoying sound which interferes with or disrupts normal activities. Exposure to high noise levels has been demonstrated to cause hearing loss. The individual human response to environmental noise is based on the sensitivity of that individual, the type of noise that occurs and when the noise occurs.

Sound is measured on a logarithmic scale consisting of sound pressure levels known as a decibel (dB). The sounds heard by humans typically do not consist of a single frequency but of a broadband of frequencies having different sound pressure levels. The method for evaluating all the frequencies of the sound is to apply an A-weighting to reflect how the

human ear responds to the different sound levels at different frequencies. The A-weighted sound level adequately describes the instantaneous noise whereas the equivalent sound level depicted as Leq represents a steady sound level containing the same total acoustical energy as the actual fluctuating sound level over a given time interval.

The Community Noise Equivalent Level (CNEL) is the 24 hour A-weighted average for sound, with corrections for evening and nighttime hours. The corrections require an addition of 5 decibels to sound levels in the evening hours between 7 p.m. and 10 p.m. and an addition of 10 decibels to sound levels at nighttime hours between 10 p.m. and 7 a.m. These additions are made to account for the increased sensitivity during the evening and nighttime hours when sound appears louder.

A vehicle's noise level is from a combination of the noise produced by the engine, exhaust and tires. The cumulative traffic noise levels along a roadway segment are based on three primary factors: the amount of traffic, the travel speed of the traffic, and the vehicle mix ratio or number of medium and heavy trucks. The intensity of traffic noise is increased by higher traffic volumes, greater speeds and increased number of trucks.

Because mobile/traffic noise levels are calculated on a logarithmic scale, a doubling of the traffic noise or acoustical energy results in a noise level increase of 3 dBA. Therefore, the doubling of the traffic volume, without changing the vehicle speeds or mix ratio, results in a noise increase of 3 dBA. Mobile noise levels radiate in an almost oblique fashion from the source and drop off at a rate of 3 dBA for each doubling of distance under hard site conditions and at a rate of 4.5 dBA for soft site conditions. Hard site conditions consist of concrete, asphalt and hard pack dirt while soft site conditions exist in areas having slight grade changes, landscaped areas and vegetation. On the other hand, fixed/point sources radiate outward uniformly as sound travels away from the source. Their sound levels attenuate or drop off at a rate of 6 dBA for each doubling of distance.

The most effective noise reduction methods consist of controlling the noise at the source, blocking the noise transmission with barriers or relocating the receiver. Any or all of these methods may be required to reduce noise levels to an acceptable level.

d) Vibration Calculations and Factors

Vibration is a trembling or oscillating motion of the ground. Like noise, vibration is transmitted in waves, but in this case through the ground or solid objects. Unlike noise, vibration is typically felt rather than heard. Vibration can be either natural as in the form of earthquakes, volcanic eruptions; or manmade as from explosions, heavy machinery, or trains. Both natural and manmade vibration may be continuous, such as from operating

machinery; or infrequent, as from an explosion.

As with noise, vibration can be described by both its amplitude and frequency. Amplitude may be characterized in three ways: displacement, velocity, and acceleration. Particle displacement is a measure of the distance that a vibrated particle travels from its original position and for the purposes of soil displacement is typically measured in inches or millimeters. Particle velocity is the rate of speed at which soil particles move in inches per second or millimeters per second. Particle acceleration is the rate of change in velocity with respect to time and is measured in inches per second or millimeters per second. Typically, particle velocity (measured in inches or millimeters per second) and/or acceleration (measured in gravities) are used to describe vibration. Table 1-2 shows the human reaction to various levels of peak particle velocity.

Vibrations also vary in frequency and this affects perception. Typical construction vibrations fall in the 10 to 30 Hz range and usually occur around 15 Hz. Traffic vibrations exhibit a similar range of frequencies; however, due to their suspension systems, it is less common, to measure traffic frequencies above 30 Hz.

Propagation of ground-borne vibrations is complicated and difficult to predict because of the endless variations in the soil through which the waves travel. There are three main types of vibration propagation: surface, compression, and shear waves. Surface waves, or Rayleigh waves, travel along the ground's surface. These waves carry most of their energy along an expanding circular wave front, similar to ripples produced by dropping an object into water. P-waves, or compression waves, are waves that carry their energy along an expanding spherical wave front. The particle motion in these waves is longitudinal. S-waves, or shear waves, are also body waves that carry energy along an expanding spherical wave front. However, unlike P-waves, the particle motion is transverse, or side-to-side and perpendicular to the direction of propagation.

As vibration waves propagate from a source, the energy is spread over an ever-increasing area such that the energy level is reduced with the distance from the energy source. This geometric spreading loss is inversely proportional to the square of the distance. Wave energy is also reduced with distance as a result of material damping in the form of internal friction, soil layering, and special voids. The amount of attenuation provided by material damping varies with soil type and condition as well as the frequency of the wave.

Table 1-2: Human Reaction to Typical Vibration Levels

Vibration Level Peak Particle Velocity (in/sec)	Human Reaction	Effect on Buildings
0.006–0.019	Threshold of perception, possibility of intrusion	Vibrations unlikely to cause damage of any type
0.08	Vibrations readily perceptible	Recommended upper level of vibration to which ruins and ancient monuments should be subjected
0.10	Level at which continuous vibration begins to annoy people	Virtually no risk of "architectural" (i.e., not structural) damage to normal buildings
0.20	Vibrations annoying to people in buildings	Threshold at which there is a risk to "architectural" damage to normal dwelling – houses with plastered walls and ceilings
0.4–0.6	Vibrations considered unpleasant by people subjected to continuous vibrations and unacceptable to some people walking on bridges	Vibrations at a greater level than normally expected from traffic, but would cause "architectural" damage and possibly minor structural damage

Source: Caltrans, Division of Environmental Analysis, *Transportation Related Earthborne Vibration, Caltrans Experiences*, Technical Advisory, Vibration, TAV-02-01-R9601, 2002.

2.0 NOISE SENSITIVE LAND USES (NSLU)

2.1 Guidelines for the Determination of Significance

The County's General Plan Chapter 8 Noise Element uses the Noise Compatibility Guidelines listed in Table N-1 of the General Plan Noise Element (provided below) to determine the compatibility of land use when evaluating proposed development projects. The Noise Compatibility Guidelines indicate ranges of compatibility and are intended to be flexible enough to apply to a range of projects and environments. For example, a commercial project would be evaluated differently than a residential project in a rural area or a mixed-use project in a more densely developed area of the County.

TABLE N-1: NOISE COMPATIBILITY GUIDELINES (CNEL)

Table N-1 Noise Compatibility Guidelines

	Land Use Category	Exterior Noise Level (CNEL)						
			55	60	65	70	75	80
A	Residential—single family residences, mobile homes, senior housing, convalescent homes							
B	Residential—multi-family residences, mixed-use (commercial/residential)							
C	Transient lodging—motels, hotels, resorts							
D*	Schools, churches, hospitals, nursing homes, child care facilities							
E*	Passive recreational parks, nature preserves, contemplative spaces, cemeteries							
F*	Active parks, golf courses, athletic fields, outdoor spectator sports, water recreation							
G*	Office\professional, government, medical\dental, commercial, retail, laboratories							
H*	Industrial, manufacturing, utilities, agriculture, mining, stables, ranching, warehouse, maintenance/repair							

	ACCEPTABLE—Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal construction, without any special noise insulation requirements.
	CONDITIONALLY ACCEPTABLE—New construction or development should be undertaken only after a detailed noise analysis is conducted to determine if noise reduction measures are necessary to achieve acceptable levels for land use. Criteria for determining exterior and interior noise levels are listed in Table N-2, Noise Standards. If a project cannot mitigate noise to a level deemed Acceptable, the appropriate county decision-maker must determine that mitigation has been provided to the greatest extent practicable or that extraordinary circumstances exist.
	UNACCEPTABLE—New construction or development shall not be undertaken.

* Denotes facilities used for part of the day; therefore, an hourly standard would be used rather than CNEL (refer to Table N-2).

Note: For projects located within an Airport Influence Area of an adopted Airport Land Use Compatibility Plan (ALUCP), additional Noise Compatibility Criteria restrictions may apply as specified in the ALUCP.

A land use located in an area identified as "acceptable" indicates that standard construction methods would attenuate exterior noise to an acceptable indoor noise level and that people can carry out outdoor activities with minimal noise interference. Land uses that fall into the "conditionally acceptable" noise environment should have an acoustical study that considers the type of noise source, the sensitivity of the noise receptor, and the degree to which the noise source may interfere with sleep, speech, or other activities characteristic of the land use. For land uses indicated as "conditionally acceptable," structures must be able to attenuate the exterior noise to the indoor noise level as indicated in the Noise Standards listed in Table N-2 of the General Plan Noise Element (provided below). For land uses where the exterior noise levels fall within the "unacceptable" range, new construction generally should not be undertaken.

TABLE N-2: NOISE STANDARDS

Table N-2 Noise Standards[Note]
1. The exterior noise level (as defined in Item 3) standard for Category A shall be 60 CNEL, and the interior noise level standard for indoor habitable rooms shall be 45 CNEL.
2. The exterior noise level standard for Categories B and C shall be 65 CNEL, and the interior noise level standard for indoor habitable rooms shall be 45 CNEL.
3. The exterior noise level standard for Categories D and G shall be 65 CNEL and the interior noise level standard shall be 50 dBA L_{eq} (one hour average).
4. For single-family detached dwelling units, "exterior noise level" is defined as the noise level measured at an outdoor living area which adjoins and is on the same lot as the dwelling, and which contains at least the following minimum net lot area: *(i)* for lots less than 4,000 square feet in area, the exterior area shall include 400 square feet, *(ii)* for lots between 4,000 square feet to 10 acres in area, the exterior area shall include 10 percent of the lot area; *(iii)* for lots over 10 acres in area, the exterior area shall include 1 acre.
5. For all other residential land uses, "exterior noise level" is defined as noise measured at exterior areas which are provided for private or group usable open space purposes. "Private Usable Open Space" is defined as usable open space intended for use of occupants of one dwelling unit, normally including yards, decks, and balconies. When the noise limit for Private Usable Open Space cannot be met, then a Group Usable Open Space that meets the exterior noise level standard shall be provided. "Group Usable Open Space" is defined as usable open space intended for common use by occupants of a development, either privately owned and maintained or dedicated to a public agency, normally including swimming pools, recreation courts, patios, open landscaped areas, and greenbelts with pedestrian walkways and equestrian and bicycle trails, but not including off-street parking and loading areas or driveways.
6. For non-residential noise sensitive land uses, exterior noise level is defined as noise measured at the exterior area provided for public use.
7. For noise sensitive land uses where people normally do not sleep at night, the exterior and interior noise standard may be measured using either CNEL or the one-hour average noise level determined at the loudest hour during the period when the facility is normally occupied.
8. The exterior noise standard does not apply for land uses where no exterior use area is proposed or necessary, such as a library.
9. For Categories E and F the exterior noise level standard shall not exceed the limit defined as "Acceptable" in Table N-1 or an equivalent one-hour noise standard.

Note: Exterior Noise Level compatibility guidelines for Land Use Categories A-H are identified in Table N-1, Noise Compatibility Guidelines.

2.2 Potential Onsite Noise Impacts

It is expected that the primary source of potential noise impacts to the project site will occur from traffic noise along S Santa Fe Avenue and rail noise from Sprinter service along the SDNR.

a) Potential Build Out Noise Conditions

The Buildout scenario includes the future year 2030 traffic volume forecasts provided by the County's General Plan Update for 2030. The future traffic along S Santa Fe Avenue is estimated to be 31,000 ADT in the year 2030. The future roadway parameters and inputs utilized in this analysis are provided in Table 2-1. Based on the County of San Diego Department of Public Works Public Road Standards, S Santa Fe Avenue is considered a 4-lane Major Road with a designed traffic speed of 55 MPH. To assess the peak hour traffic noise conditions, 10% of the ADT was utilized and a conservative vehicle mix was also utilized to predict the worst case noise levels. York Drive is not classified in the County's North County Metro Mobility Element but operates as a Residential Road with a posted speed of 25 MPH. According to the Project's traffic study, York Drive has a peak hour traffic volume of 2,610 ADT (*Source: York Drive Independent Living Project Transportation Study, Linscott, Law & Greenspan Engineers, 2025*).

Table 2-1: Buildout 2030 Traffic Parameters

Roadway	Average Daily Traffic (ADT)	Peak Hour Volume[1]	Modeled Speeds (MPH)	Vehicle Mix %[2]		
				Auto	Medium Trucks	Heavy Trucks
S Santa Fe Avenue	31,000	3,100	55	95	3	2
York Drive[3]	2,610	261	25	95	3	2

[1] 10% of the ADT.
[2] Conservative vehicle mix.
[3] York Drive Independent Living Project Transportation Study, LLG 2021

b) Detailed Analysis and Mitigation Measures

Roadway Noise

The Buildout analysis was modeled assuming future year traffic parameters as shown previously in Table 2-1. Outdoor group usable space will be provided by the proposed pool and deck area that will be shielded from the roadways by the proposed 4-story building. The building was modeled to determine if any additional mitigation would be required. The

resultant noise levels for the roadway are provided below in Table 2-2 for the outdoor usable areas and the building facades.

Table 2-2: Future Exterior Noise Levels

Modeled Receptor Number	Receptor Type or Use [1]	Unmitigated Outdoor Noise Level from all sources (dBA CNEL)[2]	Second Level Façade Noise Level (dBA CNEL)[3]	Third Level Façade Noise Level (dBA CNEL)[3]	Fourth Level Façade Noise Level (dBA CNEL)[3]
1	Building Façade	58	59	**61**	**62**
2	Building Façade	58	**61**	**63**	**63**
3	Building Façade	64	**67**	**69**	**69**
4	Building Façade	65	**69**	**69**	**69**
5	Building Façade	66	**68**	**69**	**69**
6	Building Façade	66	**68**	**68**	**68**
7	Recreational Area / Pool	47	-	-	-

[1] Receptor Elevation is 5-feet above the Pad Elevation for ground level and 15-feet above pad for second floor.
[2] Exterior Mitigation required per County Guidelines if **BOLD**
[3] Interior Noise Study required per County Guidelines if **BOLD**

Rail Noise

The proposed Project is located a minimum of 140 feet from the San Diego Northern Railroad (SDNR) consisting of Sprinter service operated by the NCTD. Based on the posted NCTD schedule for the Sprinter, the frequency was found to be four Sprinter trains per hour during daytime hours (7:00 a.m. to 10:00 p.m.), and an average of 1.3 trains per hour during nighttime hours (10:00 p.m. and 7:00 a.m.). The AT&SF railroad passes the site area twice a day; it was found that these pass-bys occurred during nighttime hours. According to the City of Vista General Plan Noise Element, the 65 dBA CNEL noise contour from the rail activity, with no shielding, is located 140 feet from the centerline of the railroad.

Typically, three decibels of attenuation is allowed for the first row of buildings when they block 40 to 65% of the line of sight to the noise source, and three to five decibels of attenuation is allowed when the buildings obstruct more than 65% of the line of sight (Source: CALTRANS Technical Noise Supplement Section N-5515). The line of sight to the railroad from the outdoor use area is blocked by the proposed structure by more than 40%, therefore a factor of 3 dBA was taken into account.

Cumulative Noise

The noise levels determined for the roadway and train activities were combined to determine the overall cumulative noise levels at the proposed outdoor usable areas. The resultant cumulative noise levels from the traffic and train activities are provided below in Table 2-3 for the outdoor usable areas and the building facades.

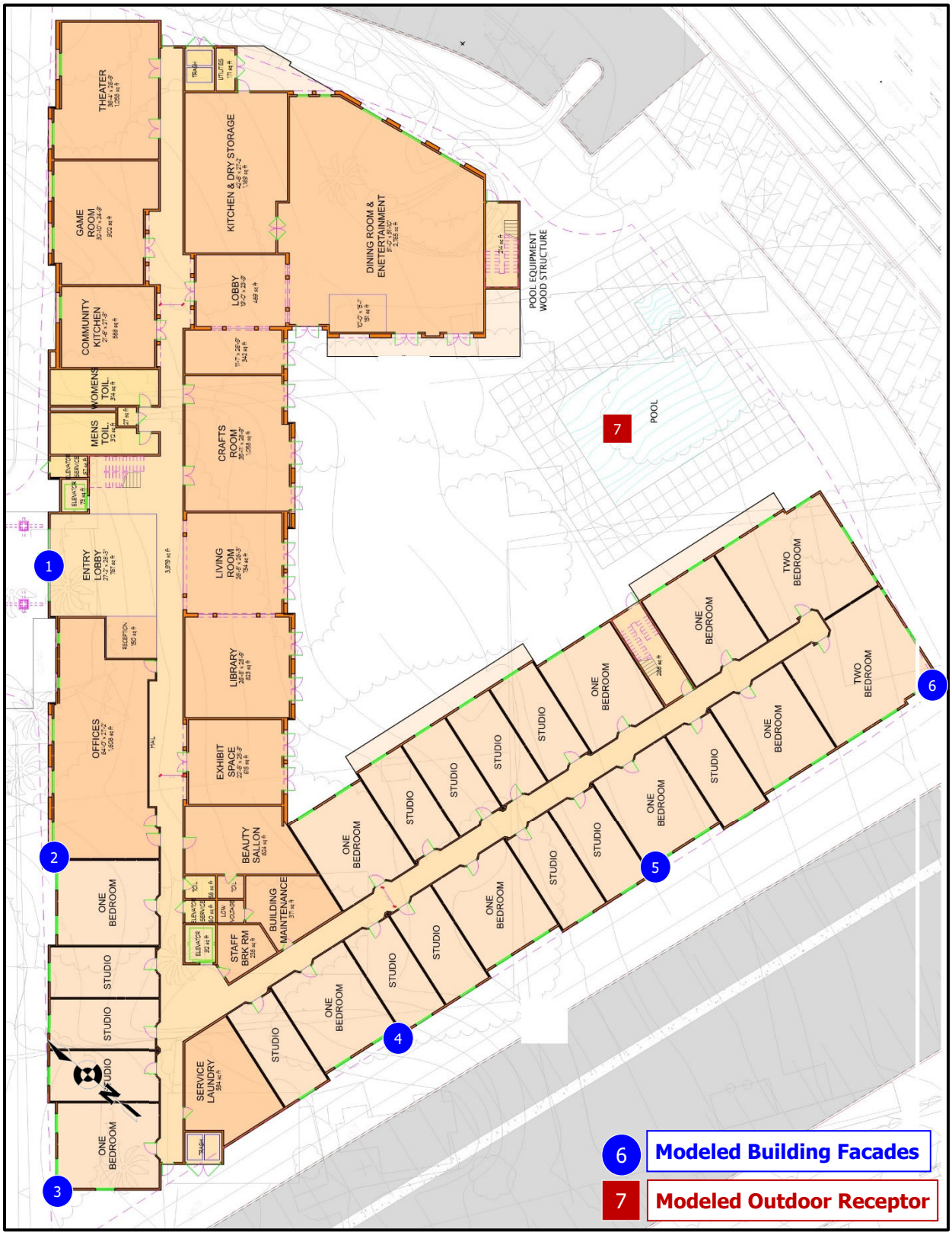
It was determined from the detailed analysis that the outdoor group usable space will comply with the County of San Diego 60 dBA CNEL exterior noise standard without mitigation measures. Modeled observer locations of the potentially affected NSLU's are presented in Figure 2-A. The results of the specific noise modeling for the site are provided in Table 2-3 below. The S32 models input and output files for the future conditions are provided in Attachment A.

Table 2-3: Combined Future Exterior Noise Levels

Modeled Receptor Number	Receptor Type or Use [1]	Unmitigated Outdoor Noise Level from all sources (dBA CNEL)[2]	Second Level Façade Noise Level (dBA CNEL)[3]	Third Level Façade Noise Level (dBA CNEL)[3]	Fourth Level Façade Noise Level (dBA CNEL)[3]
1	Building Façade	63	**64**	**65**	**65**
2	Building Façade	64	**65**	**66**	**66**
3	Building Façade	68	**69**	**71**	**71**
4	Building Façade	68	**70**	**70**	**70**
5	Building Façade	69	**70**	**70**	**70**
6	Building Façade	68	**70**	**70**	**70**
7	Recreational Area / Pool	59	-	-	-

[1] Receptor Elevation is 5-feet above the Pad Elevation for ground level and 15-feet above pad for second floor.
[2] Exterior Mitigation required per County Guidelines if **BOLD**
[3] Interior Noise Study required per County Guidelines if **BOLD**

Figure 2-A: Modeled NSLU Receptor Locations



Additionally, all building facades with direct line of sight to the S Sante Fe Avenue were found to be above the General Plan Noise Element Standard of 60 dBA CNEL. Therefore, per the General Plan Noise Element a noise protection easement is required for the entire site and an interior noise study is required for all units, to determine the mitigation required to achieve an interior noise level of 45 dBA CNEL. This report would finalize the noise requirements based upon precise grading plans and actual building design specifications. This is to ensure that interior noise levels for the proposed residential structures comply with the interior noise level requirement of 45 dBA pursuant to the County Noise Element.

It should be noted, the project is located adjacent to the intersection of S. Santa Fe Avenue and York Drive. An at grade rail crossing is located at the intersection and therefore, would generate increased noise levels from rail-related noises such as train horns, street crossing and warning bells. The Federal Rail Administration (FRA) establishes standards for maximum noise limits which are exempt from local noise regulations. Appropriate disclosures should be provided to the future property tenants regarding potential rail-related noise impacts.

2.3 Off-site Noise Impacts

To determine if direct or cumulative off-site noise level increases associated with the development of the proposed project would create noise impacts, the traffic volumes for the existing conditions were compared with the traffic volume increase of existing plus the proposed project. The project's traffic assessment states that the proposed project site generates 677 average daily trips (ADT) (*Source: York Drive Independent Living Project Transportation Study, Linscott, Law & Greenspan Engineers, 2025*).

The future ADT volumes are over 30,000 on S Santa Fe Avenue. Typically, it requires a project to double (or add 100%) to the traffic volumes to have a direct impact of 3 dBA CNEL or be a major contributor to the cumulative traffic volumes. The project will add less than a 3% increase to the future S Santa Fe Avenue volumes and no direct impacts are anticipated. Cumulatively the traffic volumes along S Santa Fe Ave are expected to increase but the project related increase would be even less and therefore no impacts are anticipated.

The future volumes along York Avenue are forecasted to be 2,610 ADT according to the project's traffic study. The project contribution would have a direct impact of 1.0 dBA CNEL and therefore be less than the 3 dBA CNEL threshold. Additionally, the existing noise levels along York Drive is 59 dBA CNEL at 50 feet from the centerline. With the project contribution, the noise levels will be 60 dBA CNEL and therefore meets the 60 dBA CNEL threshold. Therefore, no direct impacts are anticipated.

2.4 Conclusions

It was determined from the detailed analysis that the proposed outdoor NSLU's will comply with the County of San Diego 60 dBA CNEL exterior noise standard with no mitigation. Additionally, all building facades with direct line of sight to S Sante Fe Avenue were found to be above the General Plan Noise Element Standard of 60 dBA CNEL. Therefore, per the General Plan Noise Element a noise easement is required for the entire site and an interior noise study is required for all units, to determine the mitigation required to achieve an interior noise level of 45 dBA CNEL. This report would finalize the noise requirements based upon precise grading plans and actual building design specifications. This is to ensure that interior noise levels for the proposed residential structures comply with the interior noise level requirement of 45 dBA pursuant to the County Noise Element.

The Project does not create a direct or cumulative impact of more than 3 dBA CNEL on any roadway segment. Therefore, the proposed Project's direct and cumulative contributions to off-site roadway noise increases will not cause any significant impacts to any existing or future noise sensitive land uses.

3.0 GROUND-BORNE VIBRATION AND NOISE IMPACTS

3.1 Guidelines for the Determination of Significance

Project implementation will expose uses to ground-borne vibration or noise levels equal to or in excess of the levels listed in Table 4 of the County of San Diego Guidelines for the Determination of Significance. For simplicity, the pertaining Table 4 is shown below.

Table 4
Guideline for Determining the Significance of
Ground-borne Vibration and Noise Impacts

Land Use Category	Ground-Borne Vibration Impact Levels (inches/sec rms)		Ground-Borne Noise Impact Levels (dB re 20 micro Pascals)	
	Frequent Events[1]	Occasional or Infrequent Events[2]	Frequent Events[1]	Occasional or Infrequent Events[2]
Category 1: Buildings where low ambient vibration is essential for interior operations. (research & manufacturing facilities with special vibration constraints)	0.0018 [3]	0.0018 [3]	Not applicable[5]	Not applicable[5]
Category 2: Residences and buildings where people normally sleep. (hotels, hospitals, residences, & other sleeping facilities)	0.0040	0.010	35 dBA	43 dBA
Category 3: Institutional land uses with primarily daytime use. (schools, churches, libraries, other institutions, & quiet offices)	0.0056	0.014	40 dBA	48 dBA

Source: U.S Department of Transportation, Federal Transit Administration, "Transit Noise and Vibration Impact Assessment," May 2006.

Notes to Table 4:

1. "Frequent Events" is defined as more than 70 vibration events per day. Most rapid transit projects fall into this category.
2. "Occasional or Infrequent Events" are defined as fewer than 70 vibration events per day. This combined category includes most commuter rail systems.
3. This criterion limit is based on levels that are acceptable for most moderately sensitive equipment such as optical microscopes. Vibration sensitive manufacturing or research will require detailed evaluation to define acceptable vibration levels. Ensuring lower vibration levels in a building often requires special design of the HVAC systems and stiffened floors.
4. Vibration-sensitive equipment is not sensitive to ground-borne noise.
5. There are some buildings, such as concert halls, TV and recording studios, and theaters that can be very sensitive to vibration and noise but do not fit into any of the three categories. Table 5 gives criteria for acceptable levels of ground-borne vibration and noise for these various types of special uses.
6. For Categories 2 and 3 with occupied facilities, isolated events such as blasting are significant when the peak particle velocity (PPV) exceeds one inch per second. Non-transportation vibration sources such as impact pile drivers or hydraulic breakers are significant when their PPV exceeds 0.1 inch per second. More specific criteria for structures and potential annoyance were developed by Caltrans (2004) and will be used to evaluate these continuous or transient sources in San Diego County.

The United States Department of Transportation Federal Transit Administration (FTA) provides criteria for acceptable levels of groundborne vibration for various types of special buildings that are sensitive to vibration. For purposes of identifying potential project-related

vibration impacts, the FTA criteria will be used. The human reaction to various levels of vibration is highly subjective. The upper end of the range shown for the threshold of perception, or roughly 65 VdB, may be considered annoying by some people. Vibration below 65 VdB may also cause secondary audible effects, such as a slight rattling of doors, suspended ceilings/fixtures, windows, and dishes, any of which may result in additional annoyance. Table 3-1 below, shows the FTA groundborne vibration and noise impact criteria for human annoyance.

In addition to the vibration annoyance standards presented above, the FTA also applies the following standards for construction vibration damage. As shown in Table 3-2 on the following page, structural damage is possible for typical residential construction when the peak particle velocity (PPV) exceeds 0.2 inch per second (in/sec). This criterion is the threshold at which there is a risk of damage to normal dwellings.

In the context of this analysis, the noise and vibration impacts associated with the construction, rock crushing operations and blasting operations will be conditioned to comply with the thresholds stated above. The potential noise and vibration impacts are analyzed separately below.

Table 3-1: Groundborne Vibration and Noise Impact Criteria (Human Annoyance)

Category	Groundborne Vibration Impact Levels (VdB re 1 microinch/second)			Groundborne Noise Impact Levels (dB re 20 micropascals)		
	Frequent Events[1]	Occasional Events[2]	Infrequent Events[3]	Frequent Events[1]	Occasional Events[2]	Infrequent Events[3]
Category 1: Buildings where low ambient vibration is essential for interior operations.	65 VdB[4]	65 VdB[4]	65 VdB[4]	N/A[4]	N/A[4]	N/A[4]
Category 2: Residences and buildings where people normally sleep.	72 VdB	75 VdB	80 VdB	35 dBA	38 dBA	43 dBA
Category 3: Institutional land uses with primarily daytime use.	75 VdB	78 VdB	83 VdB	40 dBA	43 dBA	48 dBA

Source: United States Department of Transportation Federal Transit Administration (FTA), *Transit Noise and Vibration Impact Assessment,* June 2006.

[1] "Frequent Events" are defined as more than 70 vibration events per day. Most rapid transit projects fall into this category.

[2] "Occasional Events" are defined as between 30 and 70 vibration events of the same source per day. Most commuter truck lines have this many operations.

[3] "Infrequent Events" are defined as fewer than 30 vibration events of the same kind per day. This category includes most commuter rail branch lines

[4] This criterion limit is based on levels that are acceptable for most moderately sensitive equipment such as optical microscopes. Vibration-sensitive manufacturing or research will require detailed evaluation to define the acceptable vibration levels. Ensuring lower vibration levels in a building often requires special design of the HVAC systems and stiffened floors.

[5] Vibration-sensitive equipment is not sensitive to groundborne noise.

Table 3-2: Groundborne Vibration Impact Criteria (Structural Damage)

Building Category	PPV (in/sec)	VdB
I. Reinforced-concrete, steel, or timber (no plaster)	0.5	102
II. Engineered concrete and masonry (no plaster)	0.3	98
III. Non-engineered timber and masonry buildings	0.2	94
IV. Buildings extremely susceptible to vibration damage	0.12	90
Source: United States Department of Transportation Federal Transit Administration (FTA), *Transit Noise and Vibration Impact Assessment,* June 2006. Notes: RMS velocity calculated from vibration level (VdB) using the reference of one microinch/second.		

3.2 Train Vibration

Train vibration depends on the weight of the train, travel speed, the condition of the track and soil characteristics. The proposed project buildings would be more than 140 feet from the centerline of the tracks. Federal Transit Administration Transit Noise and Vibration Impact Assessment Manual (FTA 2018) predicts that freight train vibration levels are as high as 73 VdB at 175 feet from the track centerline for a locomotive-powered freight train traveling at speeds of 50 MPH and up to 62 VdB for commuter rail train events at that speed.

Therefore, the infrequent freight train activities will be below the 80 VdB, infrequent event for the freight train and the frequent commuter train activities will be below the 72 VdB frequent event annoyance thresholds as identified in Category 2 of Table 3-1. Additionally, due to the close proximity of the Transit Center, the commuter trains will be traveling at a slower speed of approximately 15-20 MPH, which would reduce the vibration levels 6-8 VdB and the freight train travel at speeds of 30 MPH or less which would reduce the vibration levels at least 4 VdB. Therefore, the train activities would have a less than significant impact on the proposed project.

4.0 CONSTRUCTION ACTIVITIES

4.1 Guidelines for the Determination of Significance

Construction Noise: Noise generated by construction activities related to the project will exceed the standards listed in San Diego County Code Sections as follows.

SEC. 36.408: HOURS OF OPERATION OF CONSTRUCTION EQUIPMENT

Except for emergency work, it shall be unlawful for any person to operate or cause to be operated, construction equipment:

a. Between 7 p.m. and 7 a.m.

b. On a Sunday or a holiday. For purposes of this section, a holiday means January 1st, the last Monday in May, July 4th, the first Monday in September, December 25th and any day appointed by the President as a special national holiday or the Governor of the State as a special State holiday. A person may, however, operate construction equipment on a Sunday or holiday between the hours of 10 a.m. and 5 p.m. at the person's residence or for the purpose of constructing a residence for himself or herself, provided that the operation of construction equipment is not carried out for financial consideration or other consideration of any kind and does not violate the limitations in sections 36.409 and 36.410.

SEC. 36.409: SOUND LEVEL LIMITATIONS ON CONSTRUCTION EQUIPMENT

Except for emergency work, it shall be unlawful for any person to operate construction equipment or cause construction equipment to be operated, that exceeds an average sound level of 75 decibels for an eight-hour period, between 7 a.m. and 7 p.m., when measured at the boundary line of the property where the noise source is located or on any occupied property where the noise is being received.

SEC. 36.410: SOUND LEVEL LIMITATIONS ON IMPULSIVE NOISE

In addition to the general limitations on sound levels in section 36.404 and the limitations on construction equipment in section 36.409, the following additional sound level limitations shall apply:

(a) Except for emergency work or work on a public road project, no person shall produce or cause to be produced an impulsive noise that exceeds the maximum sound level shown in Table 36.410A (provided below), when measured at the boundary line of the property where the noise source is located or on any occupied property where the noise is received, for 25 percent of the minutes in the measurement period, as described in subsection (c) below. The maximum sound level depends on the use being made of the occupied property. The uses in Table 36.410A are as described in the County Zoning Ordinance.

TABLE 36.410A: MAXIMUM SOUND LEVEL (IMPULSIVE) MEASURED AT OCCUPIED PROPERTY IN DECIBELS (dBA)

OCCUPIED PROPERTY USE	DECIBELS (dBA)
Residential, village zoning or civic use	82
Agricultural, commercial or industrial use	85

(b) Except for emergency work, no person working on a public road project shall produce or cause to be produced an impulsive noise that exceeds the maximum sound level shown in Table 36.410B, when measured at the boundary line of the property where the noise source is located or on any occupied property where the noise is received, for 25 percent of the minutes in the measurement period, as described in subsection (c) below. The maximum sound level depends on the use being made of the occupied property. The uses in Table 36.410B are as described in the County Zoning Ordinance.

TABLE 36.410B: MAXIMUM SOUND LEVEL (IMPULSIVE) MEASURED AT OCCUPIED PROPERTY IN DECIBELS (dBA) FOR PUBLIC ROAD PROJECTS

OCCUPIED PROPERTY USE	dB(A)
Residential, village zoning or civic use	85
Agricultural, commercial or industrial use	90

(c) The minimum measurement period for any measurements conducted under this section shall be one hour. During the measurement period a measurement shall be conducted every minute from a fixed location on an occupied property. The measurements shall measure the maximum sound level during each minute of the measurement period. If the sound level caused by construction equipment or the producer of the impulsive noise exceeds the maximum sound level for any portion of any minute, it will be deemed that the maximum sound level was exceeded during that minute.

4.2 Potential Property Line Noise Impacts

a) Potential Build Out Noise Conditions

Construction noise represents a short-term impact on the ambient noise levels. Noise generated by construction equipment includes haul trucks, water trucks, graders, dozers, loaders and scrapers can reach relatively high levels. Grading activities typically represent one of the highest potential sources for noise impacts. The most effective method of controlling construction noise is through local control of construction hours and by limiting the hours of construction to normal weekday working hours.

The U.S. Environmental Protection Agency (U.S. EPA) has compiled data regarding the noise generating characteristics of specific types of construction equipment. Noise levels generated by heavy construction equipment can range from 60 dBA to in excess of 100 dBA when measured at 50 feet. However, these noise levels diminish rapidly with distance from the construction site at a rate of approximately 6 dBA per doubling of distance. For example, a noise level of 75 dBA measured at 50 feet from the noise source to the receptor would be reduced to 69 dBA at 100 feet from the source to the receptor, and reduced to 63 dBA at 200 feet from the source.

b) Potential Noise Impact Identification

Using a point-source noise prediction model, calculations of the expected construction noise impacts were completed. The essential model input data for these performance equations include the source levels of each type of equipment, relative source to receiver horizontal and vertical separations, the amount of time the equipment is operating in a given day, also referred to as the duty-cycle and any transmission loss from topography or barriers.

Based empirical data and the amount of equipment needed, worst case noise impacts from this construction equipment would occur during the grading operations. In order to determine the worst case scenario for the grading activities all the equipment was place in a common location, which is not physically possible. As can be seen in Table 4-1, even if all the equipment were placed together the cumulative grading activities noise levels would be 81.1 dBA and would attenuate 6.0 dBA at a distance of 100-feet from the point source noise and would be at or below the 75 dBA threshold.

Table 4-1: Construction Noise Levels

Construction Equipment	Quantity	Source Level @ 50-Feet (dBA)[1]	Duty Cycle (Hours/Day)	Cumulative Noise Level @ 50-Feet (dBA)
Dozer - D8	1	74	8	74.0
Tractor/Backhoe	1	72	8	72.0
Loader/Grader	1	73	8	73.0
Water Trucks	1	70	8	70.0
Paver/Blade	1	75	8	75.0
Roller/Compactor	1	74	8	74.0
			Cumulative Levels @ 50 Feet	81.1
			Distance to Property Line (Feet)	100
			Noise Reduction Due to Distance	-6.0
			NEAREST PROPERTY LINE NOISE LEVEL	**75.0**
[1] Source: U.S. Environmental Protection Agency (U.S. EPA) and Empirical Data				

The grading equipment will be spread out over the project site from distances near the occupied property to distances of over 300-feet away. Based upon the proposed site plan the majority of the grading operations will occur more than 100-feet from the property lines. At average distances over 100-feet the grading activities are anticipated not to exceed the County's 75-dBA standard and would not require any mitigation measures. This means that most of the time the average distance from the equipment to the occupied properties is more than 100-feet and in that situation no impacts are anticipated.

No blasting or rock crushing is anticipated during the grading operations. Therefore, no impulsive noise sources are expected and the Project is anticipated to comply with Section 36.410 of the County Noise Ordinance and no further analysis is required.

4.3 Conclusions

The grading activities will consist of the preparation of the proposed internal roadways, the finished pads, and the water quality detention basins. The grading equipment will be spread out over the project site from distances near the occupied property to distances of 300-feet or more away. Based upon the proposed site plan the majority of the grading operations will occur more than 100-feet from the property lines. At average distances over 100-feet the grading activities are anticipated not to exceed the County's 75-dBA standard and would not require any mitigation measures.

No blasting or rock crushing is anticipated during the grading operations. Therefore, no impulsive noise sources are expected and the Project will comply with Section 36.410 of the County Noise Ordinance.

5.0 OPERATIONAL ACTIVITIES

5.1 Guidelines for the Determination of Significance

Section 36.404 of the County of San Diego noise ordinance provides performance standards and noise control guidelines for determining and mitigating non-transportation, or stationary, noise source impacts to adjacent properties. The purpose of the noise ordinance is to protect, create and maintain an environment free from noise and vibration that may jeopardize the health or welfare, or degrade the quality of life. The sound level limits in Table 36.404 of the County's Noise Ordinance are provided below in Table 5-1.

Table 5-1: Property Line Sound Level Limits in Decibels (dBA)

Zone	Time	One-Hour Average Sound Level Limits (dBA)
(1) RS, RD, RR, RMH, A70, A72, S80, S81, S87, S90, S92, RV, and RU with a density of less than 11 dwelling units per acre.	7 a.m. to 10 p.m.	50
	10 p.m. to 7 a.m.	45
(2) RRO, RC, RM, S86, V5, RV and RU with a density of 11 or more dwelling units per acre.	7 a.m. to 10 p.m.	55
	10 p.m. to 7 a.m.	50
(3) S94, V4, and all commercial zones.	7 a.m. to 10 p.m.	60
	10 p.m. to 7 a.m.	55
(4) V1, V2	7 a.m. to 7 p.m.	60
V1, V2	7 p.m. to 10 p.m.	55
V1	10 p.m. to 7 a.m.	55
V2	10 p.m. to 7 a.m.	50
V3	7 a.m. to 10 p.m.	70
	10 p.m. to 7 a.m.	65
(5) M50, M52, and M54	Anytime	70
(6) S82, M56, and M58.	Anytime	75
(7) S88 (see subsection (c) below)		

Source: County of San Diego Noise Ordinance Section 36.404

a) Except as provided in section 36.409 of this chapter, it shall be unlawful for any person to cause or allow the creation of any noise, which exceeds the one-hour average sound level limits in Table 36.404, when the one-hour average sound level is measured at the property line of the property on which the noise is produced or at any location on a property that is receiving the noise.

b) Where a noise study has been conducted and the noise mitigation measures recommended by that study have been made conditions of approval of a Major Use Permit, which authorizes the noise-generating use or activity and the decision making body approving the Major Use Permit determined that those mitigation measures reduce potential noise impacts to a level below significance, implementation and compliance with those noise mitigation measures shall constitute compliance with subsection (a) above.

c) S88 zones are Specific Planning Areas which allow different uses. The sound level limits in Table 36.404 above that apply in an S88 zone depend on the use being made of the property. The limits in Table 36.404, subsection (1) apply to property with a residential, agricultural or civic use. The limits in subsection (3) apply to property with a commercial use. The limits in subsection (5) apply to property with an industrial use that would only be allowed in an M50, M52 or M54 zone. The limits in subsection (6) apply to all property with an extractive use or a use that would only be allowed in an M56 or M58 zone.

d) If the measured ambient noise level exceeds the applicable limit in Table 36.404, the allowable one-hour average sound level shall be the one-hour average ambient noise level, plus three decibels. The ambient noise level shall be measured when the alleged noise violation source is not operating.

e) The sound level limit at a location on a boundary between two zones is the arithmetic mean of the respective limits for the two zones. The one-hour average sound level limit applicable to extractive industries, however, including but not limited to borrow pits and mines, shall be 75 decibels at the property line regardless of the zone in which the extractive industry is located.

f) A fixed-location public utility distribution or transmission facility located on or adjacent to a property line shall be subject to the sound level limits of this section measured at or beyond six feet from the boundary of the easement upon which the facility is located.

According to the noise standards, no person shall operate any source of sound at any location within the County or allow the creation of any noise on a property which causes the noise levels to exceed the exterior noise limits at the property boundary. Additionally, Section 36.404(e) states that the sound level limits at a location on a boundary between two zones are the arithmetic mean of the respective limits for the two zones.

5.2 Potential Noise Impacts

This section examines the potential stationary noise source impacts associated with the development and operation of the proposed project. The Project is zoned Rural Residential (RR) with residential to the north, west, and east zoned RR. Section 36.404 sets an operational exterior noise limit of 50 dBA Leq for daytime hours of 7 a.m. to 10 p.m. and 45 dBA Leq during the nighttime hours of 10 p.m. to 7 a.m. for the surrounding residential noise sensitive land uses as shown in Table 5-1 above. To be conservative, the most restrictive evening noise thresholds 45 dBA Leq for the nighttime hours of 10 p.m. to 7 a.m. were applied.

To predict the worst-case future noise environment, continuous reference noise levels were used to represent the mechanical ventilation system. Even though the mechanical ventilation system will cycle on and off throughout the day, this approach presents the worst-case noise condition. In addition, these units have been designed to provide cooling during the peak summer daytime periods, and it is unlikely that all the units will be operating continuously throughout the noise sensitive nighttime periods.

Sound from a small localized source (a "point" source) radiates uniformly outward as it travels away from the source. The sound level attenuates or drops-off at a rate of 6 dBA for

each doubling of distance. A drop-off rate of 6 dBA per doubling of distance was used for this piece of equipment.

5.3 Reference Noise Levels

The analysis of similar medical care facilities determined that 10 Ton Samsung Heat Pump condensers or similar could be used with a noise rating of 60 dBA. The manufacture's specifications are provided as an Attachment to this letter. Based on square footage, the building may need up to 28 of the 10 Ton units rated at 60 dBA each. It was determined based on the site configuration and equipment locations that the worst case noise exposure would occur at the southwestern property line. Figure 5-A on the following page shows the typical locations of the HVAC units.

Utilizing a 6 dBA decrease per doubling of distance, noise levels at the edge of the nearest property line to the southeast at the distances shown above were calculated for all the mechanical units. No reductions from the existing topography located between the equipment and property lines were taken to determine the worst-case noise levels. The units would be separated along the length of the buildings and would not cumulatively increase the noise levels but were combined to show the worst case scenario. As can been seen in Table 5-2, the unshielded noise level would be 38.9 dBA. Additionally, the mechanical units will be shielded by the mechanical wells and portions of the building and the combined noise level would be reduced by at least 5 decibels at the property line.

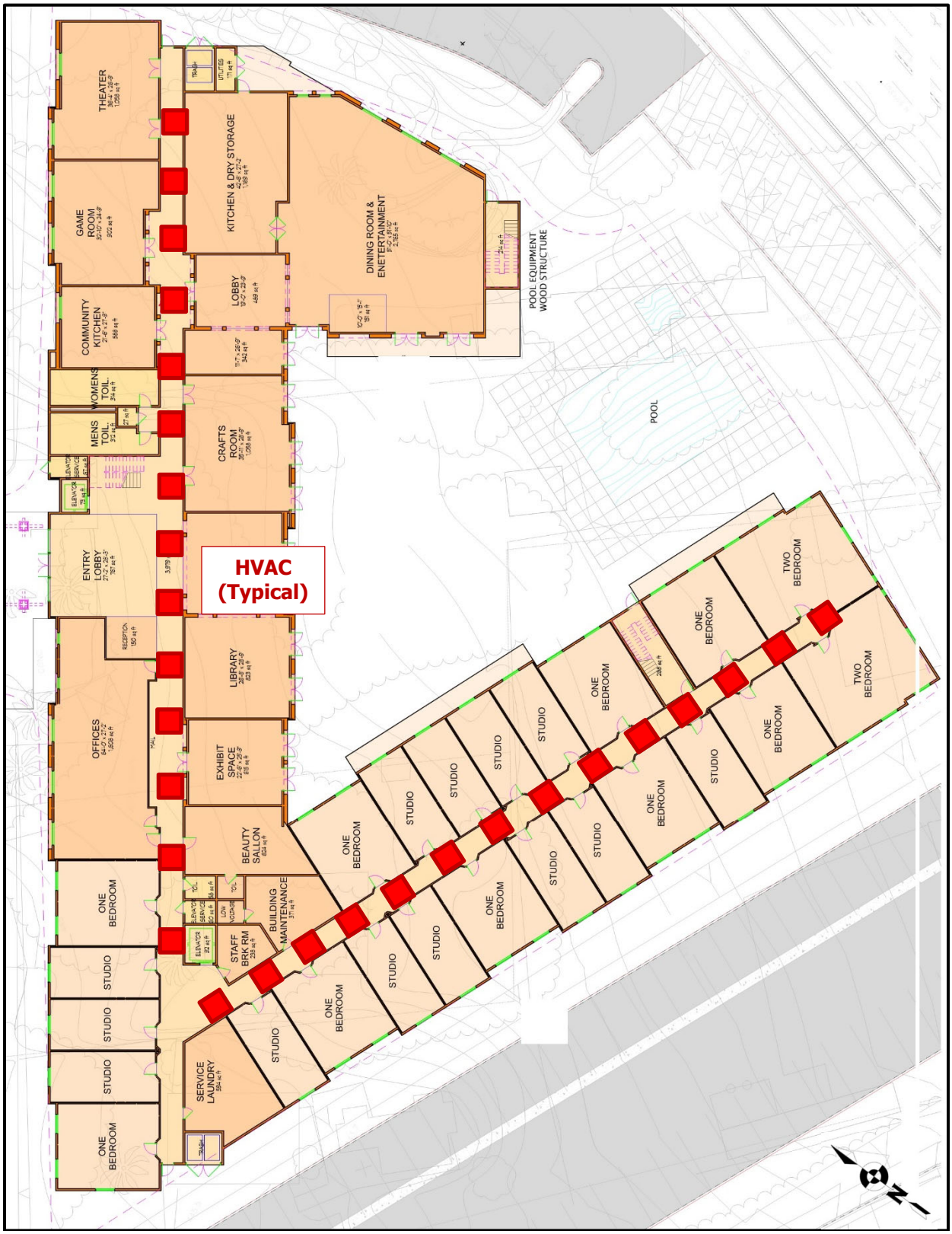
Table 5-2: Unshielded Noise Level Reductions due to Distance

Noise Level @ 3-feet (dBA)[1]	Quantity	Combined Noise Level (dBA)	Distance to Nearest Property Line (Feet)	Reduction from Distance (dBA)	Resultant Noise Level (dBA)
60	28	74.5	180	-35.6	38.9
				Unshielded Cumulative Noise Level (dBA)	**38.9**
[1] Reference Noise Level provided in Attachments					

5.4 Conclusions

Based upon the property line noise levels determined above none of the proposed noise sources directly or cumulatively exceeds the most restrictive nighttime property line standards at the shared property lines. Therefore, the proposed developments related operational noise levels comply with the noise standards at the property lines. No Impacts are anticipated and no mitigation is required.

Figure 5-A: Proposed Equipment Location



6.0 SUMMARY OF PROJECT IMPACTS, MITIGATION & CONCLUSIONS

- On-Site Noise Analysis

  It was determined from the detailed analysis that the proposed outdoor NSLU's will comply with the County of San Diego 60 dBA CNEL exterior noise standard with no mitigation measures. Additionally, all building facades with direct line of sight to S Santa Fe Avenue were found to be above the General Plan Noise Element Standard of 60 dBA CNEL. Therefore, per the General Plan Noise Element a noise easement is required for the entire site and an interior noise study is required for all units, to determine the mitigation required to achieve an interior noise level of 45 dBA CNEL. This report would finalize the noise requirements based upon precise grading plans and actual building design specifications. This is to ensure that interior noise levels for the proposed residential structures comply with the interior noise level requirement of 45 dBA pursuant to the County Noise Element.

- Off-Site Noise Analysis

  The Project does not create a direct or cumulative impact of more than 3 dBA CNEL on any roadway segment. Therefore, the proposed Project's direct and cumulative contributions to off-site roadway noise increases will not cause any significant impacts to any existing or future noise sensitive land uses.

- Construction Noise Analysis

  The grading activities will consist of the preparation of the proposed internal roadways, the finished pads, and graded slopes. The grading equipment will be spread out over the project site from distances near the occupied property to distances of 200-feet or more away. Based upon the proposed site plan the majority of the grading operations will occur more than 100-feet from the property lines. At average distances over 100-feet the grading activities are anticipated not to exceed the County's 75-dBA standard and would not require any mitigation measures. No blasting or rock crushing is anticipated during the grading operations. Therefore, no impulsive noise sources are expected and the Project will comply with Section 36.410 of the County Noise Ordinance.

- Onsite Train Vibration

  Train vibration depends on the weight of the train, travel speed, the condition of the track and soil characteristics. The proposed project buildings would be more than 140 feet from the centerline of the tracks. Federal Transit Administration Transit Noise and Vibration Impact Assessment Manual (FTA 2018) predicts that freight train vibration levels are as high as 73 VdB at 175 feet from the track centerline for a locomotive-powered freight train traveling at speeds

of 50 MPH and up to 62 VdB for commuter rail train events at that speed.

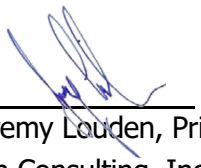
Therefore, the infrequent freight train activities will be below the 80 VdB, infrequent event for the freight train and the frequent commuter train activities will be below the 72 VdB frequent event annoyance thresholds as identified by the FTA. Additionally, due to the close proximity of the Transit Center, the commuter trains will be traveling at a slower speed of approximately 15 MPH, which would reduce the vibration levels 8 VdB and the freight train travel at speeds of 30 MPH or less which would reduce the vibration levels at least 4 VdB. Therefore, the train activities would have a less than significant impact on the proposed project.

- Operational Noise Analysis

  Based on noise levels, the distances to the property lines and the proposed fencing the proposed operations are anticipated to be below the County's Property Lines standards. No impacts are anticipated and no mitigation is required.

7.0 CERTIFICATIONS

The contents of this report represent an accurate depiction of the future acoustical environment and impacts within and surrounding the proposed development. This report was prepared utilizing the latest guidelines and reduction methodologies. This report was prepared by Jeremy Louden; a County approved CEQA Consultant for Acoustics.



Jeremy Louden, Principal
Ldn Consulting, Inc.
760-473-1253
jlouden@ldnconsulting.net

Date April 4, 2025

ATTACHMENT A

S32 NOISE MODEL OUTPUT

```
York Drive Active Senior Living - Ground Level Unmitigated
T-PEAK HOUR TRAFFIC CONDITIONS, 1
 2945 , 55 , 93 , 55 , 62 , 55
T-PEAK HOUR TRAFFIC CONDITIONS, 2
 248 , 25 , 8 , 25 , 5 , 25
L-S SANTA FE, 1
N,32,861,460,
N,186,656,455,
N,358,452,448,
N,505,346,435,
N,631,255,429,
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344,624,455,455,
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R, 5 , 65 ,10
632,535,449,FAC5
R, 6 , 65 ,10
709,494,449,FAC6
R, 7 , 65 ,10
696,620,449,POOL
C,C
```

SOUND32 - RELEASE 07/30/91

TITLE:
York Drive Active Senior Living - Ground Level Unmitigated

REC	REC ID	DNL	PEOPLE	LEQ(CAL)
1	FAC1	65.	10.	57.7
2	FAC2	65.	10.	58.3
3	FAC3	65.	10.	63.8
4	FAC4	65.	10.	64.5
5	FAC5	65.	10.	66.3
6	FAC6	65.	10.	66.3
7	POOL	65.	10.	46.7

York Drive Active Senior Living - Second Level Facade
T-PEAK HOUR TRAFFIC CONDITIONS, 1
2945 , 55 , 93 , 55 , 62 , 55
T-PEAK HOUR TRAFFIC CONDITIONS, 2
248 , 25 , 8 , 25 , 5 , 25
L-S SANTA FE, 1
N,32,861,460,
N,186,656,455,
N,358,452,448,
N,505,346,435,
N,631,255,429,
N,927,45,436,
L-YORK, 2
N,186.,656,455,
N,393.,731,455,
N,562.,822,450,
N,666.,890,445,
N,767.,980,440,
B-ROAD EDGE, 1 , 2 , 0 ,0
583,793,450,450,
447,723,455,455,
368,682,455,455,
316,644,455,455,
344,624,455,455,
488,519,445,445,
577,455,440,440,
675,382,438,438,
1027,121,435,435,
B-BUILDING, 2 , 2 , 0 ,0
760.,784,444,484,
642.,727,444,484,
483.,644,444,484,
495.,619,444,484,
542.,594,444,484,
709.,495,444,484,
740.,546,444,484,
R, 1 , 65 ,10
628,722,459.,FAC1
R, 2 , 65 ,10
552,683,459.,FAC2
R, 3 , 65 ,10
479,644,459.,FAC3
R, 4 , 65 ,10
545,587,459.,FAC4
R, 5 , 65 ,10
632,535,459.,FAC5
R, 6 , 65 ,10
709,494,459.,FAC6
C,C

SOUND32 - RELEASE 07/30/91

TITLE:
York Drive Active Senior Living - Second Level Facade

REC	REC ID	DNL	PEOPLE	LEQ(CAL)
1	FAC1	65.	10.	59.3
2	FAC2	65.	10.	60.6
3	FAC3	65.	10.	67.2
4	FAC4	65.	10.	68.7
5	FAC5	65.	10.	68.4
6	FAC6	65.	10.	68.0

York Drive Active Senior Living - Third Level Facade
T-PEAK HOUR TRAFFIC CONDITIONS, 1
2945 , 55 , 93 , 55 , 62 , 55
T-PEAK HOUR TRAFFIC CONDITIONS, 2
248 , 25 , 8 , 25 , 5 , 25
L-S SANTA FE, 1
N,32,861,460,
N,186,656,455,
N,358,452,448,
N,505,346,435,
N,631,255,429,
N,927,45,436,
L-YORK, 2
N,186.,656,455,
N,393.,731,455,
N,562.,822,450,
N,666.,890,445,
N,767.,980,440,
B-ROAD EDGE, 1 , 2 , 0 ,0
583,793,450,450,
447,723,455,455,
368,682,455,455,
316,644,455,455,
344,624,455,455,
488,519,445,445,
577,455,440,440,
675,382,438,438,
1027,121,435,435,
B-BUILDING, 2 , 2 , 0 ,0
760.,784,444,484,
642.,727,444,484,
483.,644,444,484,
495.,619,444,484,
542.,594,444,484,
709.,495,444,484,
740.,546,444,484,
R, 1 , 65 ,10
628,722,469.,FAC1
R, 2 , 65 ,10
552,683,469.,FAC2
R, 3 , 65 ,10
479,644,469.,FAC3
R, 4 , 65 ,10
545,587,469.,FAC4
R, 5 , 65 ,10
632,535,469.,FAC5
R, 6 , 65 ,10
709,494,469.,FAC6
C,C

SOUND32 - RELEASE 07/30/91

TITLE:
York Drive Active Senior Living - Third Level Facade

REC	REC ID	DNL	PEOPLE	LEQ(CAL)
1	FAC1	65.	10.	61.2
2	FAC2	65.	10.	62.9
3	FAC3	65.	10.	69.0
4	FAC4	65.	10.	68.9
5	FAC5	65.	10.	68.5
6	FAC6	65.	10.	68.1

York Drive Active Senior Living - Fourth Level Facade
T-PEAK HOUR TRAFFIC CONDITIONS, 1
2945 , 55 , 93 , 55 , 62 , 55
T-PEAK HOUR TRAFFIC CONDITIONS, 2
248 , 25 , 8 , 25 , 5 , 25
L-S SANTA FE, 1
N,32,861,460,
N,186,656,455,
N,358,452,448,
N,505,346,435,
N,631,255,429,
N,927,45,436,
L-YORK, 2
N,186.,656,455,
N,393.,731,455,
N,562.,822,450,
N,666.,890,445,
N,767.,980,440,
B-ROAD EDGE, 1 , 2 , 0 ,0
583,793,450,450,
447,723,455,455,
368,682,455,455,
316,644,455,455,
344,624,455,455,
488,519,445,445,
577,455,440,440,
675,382,438,438,
1027,121,435,435,
B-BUILDING, 2 , 2 , 0 ,0
760.,784,444,484,
642.,727,444,484,
483.,644,444,484,
495.,619,444,484,
542.,594,444,484,
709.,495,444,484,
740.,546,444,484,
R, 1 , 65 ,10
628,722,479.,FAC1
R, 2 , 65 ,10
552,683,479.,FAC2
R, 3 , 65 ,10
479,644,479.,FAC3
R, 4 , 65 ,10
545,587,479.,FAC4
R, 5 , 65 ,10
632,535,479.,FAC5
R, 6 , 65 ,10
709,494,479.,FAC6
C,C

SOUND32 - RELEASE 07/30/91

TITLE:
York Drive Active Senior Living - Fourth Level Facade

REC	REC ID	DNL	PEOPLE	LEQ(CAL)
1	FAC1	65.	10.	61.5
2	FAC2	65.	10.	63.3
3	FAC3	65.	10.	69.0
4	FAC4	65.	10.	68.9
5	FAC5	65.	10.	68.5
6	FAC6	65.	10.	68.1

ATTACHMENT B

HVAC NOISE LEVELS AND SPECIFICATIONS

SAMSUNG

SUBMITTAL RVXVHT100FE

DVM Plus III Heat Pump Condenser

Job Name	Location
Purchaser	Engineer
Submitted to	Reference ☐ Approval ☐ Construction ☐
Unit Designation	Schedule#

Specifications

Performance	US Ton/HP		8.0/10.0
	Nominal Capacity*	Cooling (Btu/h)	96,000
		Heating (Btu/h)	108,000
	System Modulation (%)		10-100
Power	Voltage (ø/V/Hz)		3/208 - 230/60
	Nominal Running Current (A)	Cooling	28.9
		Heating	24.9
	Max. Circuit Breaker (MCCB/ELB/ELCB)		70 A
	Minimum Circuit Ampacity		53.8 A
Fan	Type/Control		Propeller/BLDC
	Motor	Qty.	1
		Output (W)	630
		FLA (A)	7.0
Airflow	Airflow Rate (CFM)		6000
	Max External Static Pressure ("WC)		0.315
Compressor	Model		ZPJ72KCE-TF5 / ZPI61KCE-TF5
	Type		DVI Scroll / FVI Scroll
	Number		1 / 1
	Piston Displacement (in³/Rev)		4.095 / 3.545
	Output (kW)		6.94 / 5.83
	RLA (A)		21.8 / 19.6
	Lubricant	Type	3MAF POE
		Charging (fl. Oz)	57 / 57
Refrigerant	Type		R410A
	Factory Charge (lbs.)		16.53
Piping Connections (inches)	Liquid		3/8
	Gas		7/8
	Oil (flare)		1/4
	Installation Limitation	Max. Length (Feet)	656
		Max. Height (Feet)	164
Dimensions	Width (inches)		34 5/8
	Height (inches)		67 7/8
	Depth (inches)		30 1/8
	Weight (lbs.)		529
Sound Level	dB		58
Operating Temperature	Cooling (°F)		23 - 115
	Heating (°F)		-4 - 75
Control	Communication Cable (AWG #)		Shielded AWG 16
Protection Devices	Mechanical Type		High pressure switch
			Compressor/accumulator crank case heater
			PCB fuse
	Electronic Type		Over-voltage protection
			Current transformer
			Fan motor voltage protection
Indoor Units	Total Capacity (%)		50 - 130% of outdoor capacity
	Max. Indoor Unit Quantity		64
Safety Certifications			ETL & ETLc

Construction
The unit shall be galvanized steel with a baked on powder coated finish

Heat Exchanger
The heat exchanger shall be mechanically bonded fin to copper tube

Controls
The unit shall be operated via a DDC type signal

Controls shall integrate with a BMS system

Control wiring shall be 16AWG shielded wire

Refrigerant System
The refrigerant shall be R410A

The compressors shall be hermetically sealed Digital Vapor Injection Scroll and Fixed Vapor Injection Scroll

Refrigerant flow shall be controlled by EEV (electronic expansion valve)

*Nominal cooling capacities are based on: Indoor temperature: 80°F DB, 67°F WB. Outdoor temperature: 95°F DB, 75°F WB.
*Nominal heating capacities are based on: Indoor temperature: 70°F DB, 60°F WB. Outdoor temperature: 47°F DB, 43°F WB.
Quietside maintains a policy of ongoing development, specifications are subject to change without notice.

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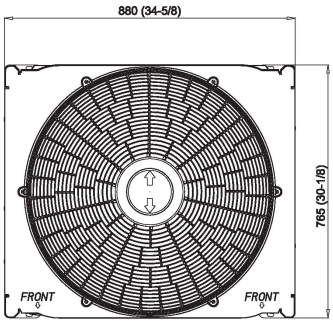
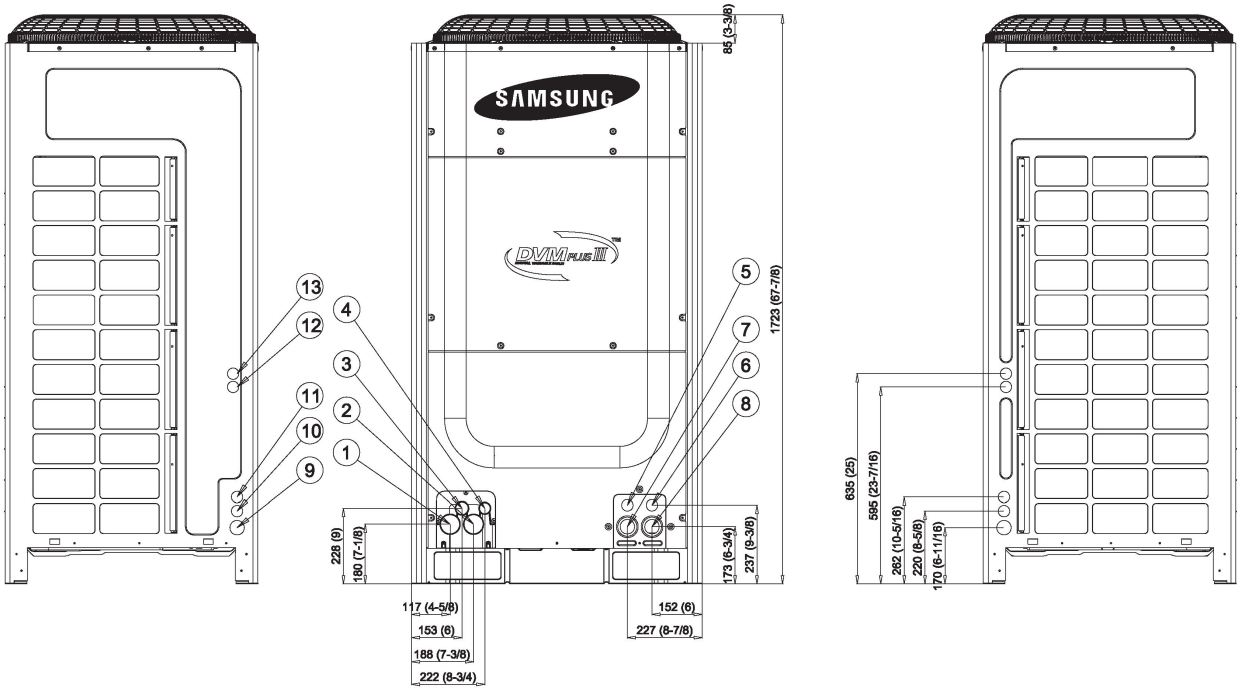
Quietside Central : 3001 Northern Cross Blvd. Suite 361, Fort Worth, TX 76137 • Phone : 817-838-6066 • Fax : 817-838-8670
Quietside East : 6 Pine Hill Drive, Carlisle, PA 17013 • Phone : 1-877-262-4731 • Fax : 717-243-7917
www.SamsungSystemAC.com

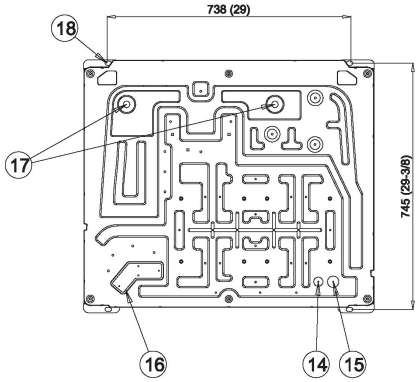
SUBMITTAL RVXVHT100FE

DVM Plus III Heat Pump Condenser

Unit: mm (inch)







No.	Name	Description	No.	Name	Description
①	Gas pipe connection	Ø57.10, knock-out hole	⑩	Power & communication wiring conduit	Ø34.50, knock-out hole hole-side
②	High pressure gas pipe connection	Ø57.10, knock-out hole	⑪	Power & communication wiring conduit	Ø34.50, knock-out hole hole-side
③	Liquid pipe connection	Ø37.10, knock-out hole	⑫	Power & communication wiring conduit	Ø34.50, knock-out hole hole-side
④	Oil balance pipe connection between units	Ø32.10, knock-out hole	⑬	Power & communication wiring conduit	Ø34.50, knock-out hole hole-side
⑤	Power & communication wiring conduit	Ø34.50, knock-out hole hole-front	⑭	Power & communication wiring conduit	Ø27.80, knock-out hole hole-side
⑥	Power & communication wiring conduit	Ø34.50, knock-out hole hole-front	⑮	Power & communication wiring conduit	Ø34.50, knock-out hole hole-side
⑦	Power & communication wiring conduit	Ø43.70, knock-out hole hole-front	⑯	Pipe connection through base	Pipes connection opening with cover
⑧	Power & communication wiring conduit	Ø43.70, knock-out hole hole-front	⑰	Condensate drain holes	Ø20mm-2 holes
⑨	Power & communication wiring conduit	Ø43.70, knock-out hole hole-front	⑱	Foundation bolts positions	4-12 x 20 slit-hole

SAMSUNG

SUBMITTAL RVXVHT125FE

DVM Plus III Heat Pump Condenser

Job Name	Location
Purchaser	Engineer
Submitted to	Reference ☐ Approval ☐ Construction ☐
Unit Designation	Schedule#

Specifications

Performance	US Ton/HP		10 / 12.5
	Nominal Capacity*	Cooling (Btu/h)	120,000
		Heating (Btu/h)	135,000
	System Modulation (%)		10-100
Power	Voltage (ø/V/Hz)		3/208 - 230/60
	Nominal Running Current (A)	Cooling	36.8
		Heating	33
	Max. Circuit Breaker (MCCB/ELB/ELCB)		80 A
	Minimum Circuit Ampacity		61.1 A
Fan	Type/Control		Propeller/BLDC
	Motor	Qty.	1
		Output (W)	630
		FLA (A)	7.0
Airflow	Airflow Rate (CFM)		6350
	Max External Static Pressure ("WC)		0.315
Compressor	Model		ZPJ83KCE-TF7 / ZPI83KCE-TF7
	Type		DVI Scroll / FVI Scroll
	Number		1 / 1
	Piston Displacement (in³/Rev)		4.711 / 4.711
	Output (kW)		7.91 / 7.91
	RLA (A)		24.6 / 23.4
	Lubricant	Type	3MAF POE
		Charging (fl. Oz)	57 / 57
Refrigerant	Type		R410A
	Factory Charge (lbs.)		19.84
Piping Connections (inches)	Liquid		1/2
	Gas		1 1/8
	Oil (flare)		1/4
	Installation Limitation	Max. Length (Feet)	656
		Max. Height (Feet)	164
Dimensions	Width (inches)		47 1/4
	Height (inches)		67 7/8
	Depth (inches)		30 1/8
	Weight (lbs.)		617
Sound Level	dB		60
Operating Temperature	Cooling (°F)		23 - 115
	Heating (°F)		-4 - 75
Control	Communication Cable (AWG #)		Shielded AWG 16
Protection Devices	Mechanical Type		High pressure switch
			Compressor/accumulator crank case heater
			PCB fuse
	Electronic Type		Over-voltage protection
			Current transformer
			Fan motor voltage protection
Indoor Units	Total Capacity (%)		50 - 130% of outdoor capacity
	Max. Indoor Unit Quantity		64
Safety Certifications			ETL & ETLc

Construction
The unit shall be galvanized steel with a baked on powder coated finish

Heat Exchanger
The heat exchanger shall be mechanically bonded fin to copper tube

Controls
The unit shall be operated via a DDC type signal

Controls shall integrate with a BMS system

Control wiring shall be 16AWG shielded wire

Refrigerant System
The refrigerant shall be R410A

The compressors shall be hermetically sealed Digital Vapor Injection Scroll and Fixed Vapor Injection Scroll

Refrigerant flow shall be controlled by EEV (electronic expansion valve)

*Nominal cooling capacities are based on: Indoor temperature: 80°F DB, 67°F WB. Outdoor temperature: 95°F DB, 75°F WB.
*Nominal heating capacities are based on: Indoor temperature: 70°F DB, 60°F WB. Outdoor temperature: 47°F DB, 43°F WB.
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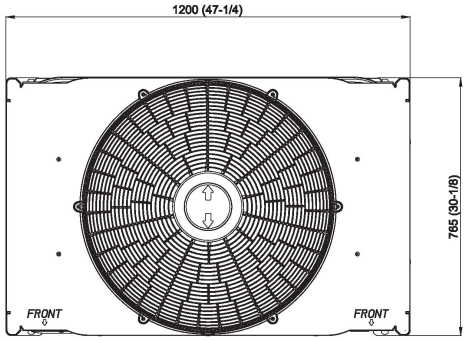
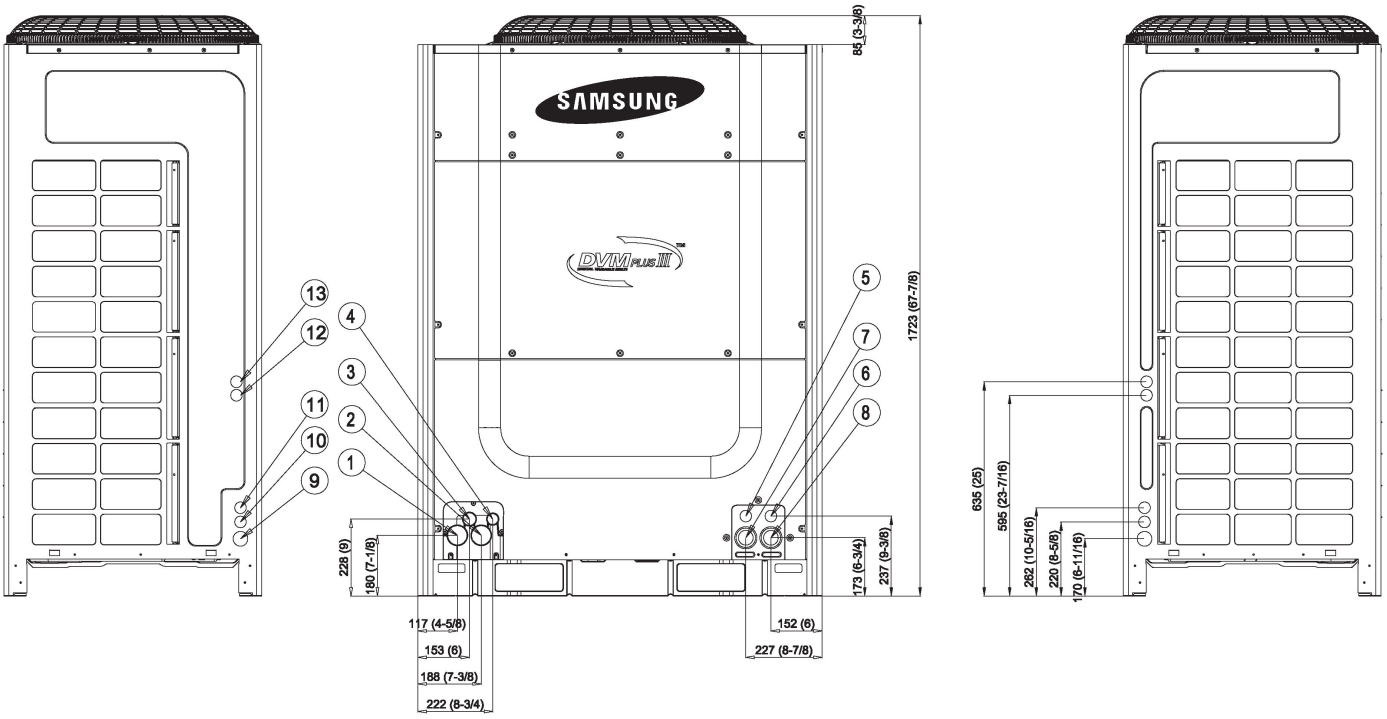
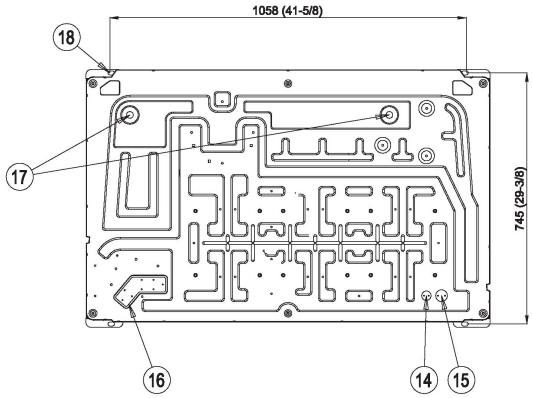
SUBMITTAL RVXVHT125FE

DVM Plus III Heat Pump Condenser

Unit: mm (inch)







No.	Name	Description	No.	Name	Description
①	Gas pipe connection	Ø57.10, knock-out hole	⑩	Power & communication wiring conduit	Ø34.50, knock-out hole hole-side
②	High pressure gas pipe connection	Ø57.10, knock-out hole	⑪	Power & communication wiring conduit	Ø34.50, knock-out hole hole-side
③	Liquid pipe connection	Ø37.10, knock-out hole	⑫	Power & communication wiring conduit	Ø34.50, knock-out hole hole-side
④	Oil balance pipe connection between units	Ø32.10, knock-out hole	⑬	Power & communication wiring conduit	Ø34.50, knock-out hole hole-side
⑤	Power & communication wiring conduit	Ø34.50, knock-out hole hole-front	⑭	Power & communication wiring conduit	Ø27.80, knock-out hole hole-side
⑥	Power & communication wiring conduit	Ø34.50, knock-out hole hole-front	⑮	Power & communication wiring conduit	Ø34.50, knock-out hole hole-side
⑦	Power & communication wiring conduit	Ø43.70, knock-out hole hole-front	⑯	Pipe connection through base	Pipes connection opening with cover
⑧	Power & communication wiring conduit	Ø43.70, knock-out hole hole-front	⑰	Condensate drain holes	Ø20mm-2 holes
⑨	Power & communication wiring conduit	Ø43.70, knock-out hole hole-front	⑱	Foundation bolts positions	4-12 x 20 slit-hole