Appendix H

Noise and Vibration Study

Ventana at Duncan Canyon Specific Plan Amendment

Noise and Vibration Study

prepared for

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1.1 Introduction

This study analyzes the potential noise and vibration impacts of the proposed Ventana at Duncan Canyon Specific Plan Amendment (herein referred to as "project" or "Specific Plan Amendment") in Fontana, California. Rincon Consultants, Inc. (Rincon) prepared this study under contract to City of Fontana. The purpose of this study is to analyze the project's noise and vibration impacts related to both temporary construction activity and long-term operation of the project. Table 1 provides a summary of project impacts. This technical study was prepared in support of a Supplemental Environmental Impact Report (EIR) for the *Ventana at Duncan Canyon Specific Plan*, analyzed in a previous Final EIR (State Clearinghouse Number 2005111048) that was approved by the City of Fontana on March 27, 2007.

Table 1 Summary of Impacts

Impact Statement	Level of Significance	Applicable Recommendations
Would the project result in 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?	Less than significant impact with mitigation	NOI-1 (Construction Noise Best Management Practices)
Would the project result in generation of excessive groundborne vibration or groundborne noise levels?	Less than significant impact (Construction) Less than significant impact (Operation)	None
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?	No Impact	None
Would the project conflict with land use compatibility guidelines for noise?	Less than significant impact with mitigation	NOI-2 (Exterior-to-Interior Noise Analysis)

Recommendations

Implementation of the following recommendations would ensure noise impacts are less than significant.

NOI-1 Construction Noise Best Management Practices

The project applicant shall reduce construction noise levels at the adjacent single- and multi-family uses to the south of the project site, through measures such as, but not limited to:

- All construction equipment shall be equipped with noise-reduction devices such as mufflers to minimize construction noise and all internal combustion engines shall be equipped with exhaust and intake silencers in accordance with manufacturers' specifications.

- Equipment that is quieter than standard equipment shall be used, including electrically powered equipment instead of internal combustion equipment where use of such equipment is a readily available.
- The use of bells, whistles, alarms, and horns shall be restricted to safety warning purposes only.
- Construction areas for staging and warming up shall be located as far as possible from adjacent residential buildings and sensitive receptors.

NOI-2 Exterior-to-Interior Noise Analysis

For residential units where exterior noise levels exceed 70 dBA CNEL, the project applicant shall coordinate with the project architects and other contractors to ensure compliance with the 45 dBA CNEL interior noise level standard. This shall be achieved through additional exterior-to-interior noise analysis and incorporation of noise attenuation features once specific building plan information is available. The information in the analysis shall include wall heights and lengths, room volumes, window and door tables typical for a building plan, as well as information on other openings in the building shell. With this specific building plan information, the analysis shall determine the predicted interior noise levels at the planned on-site buildings. If predicted noise levels are found to be in excess of the applicable limit, the report shall identify architectural materials or techniques that could be included to reduce noise levels to the applicable limit. The project applicant shall comply with mitigation measures included in the interior noise report to reduce interior noise levels where applicable noise limits are exceeded.

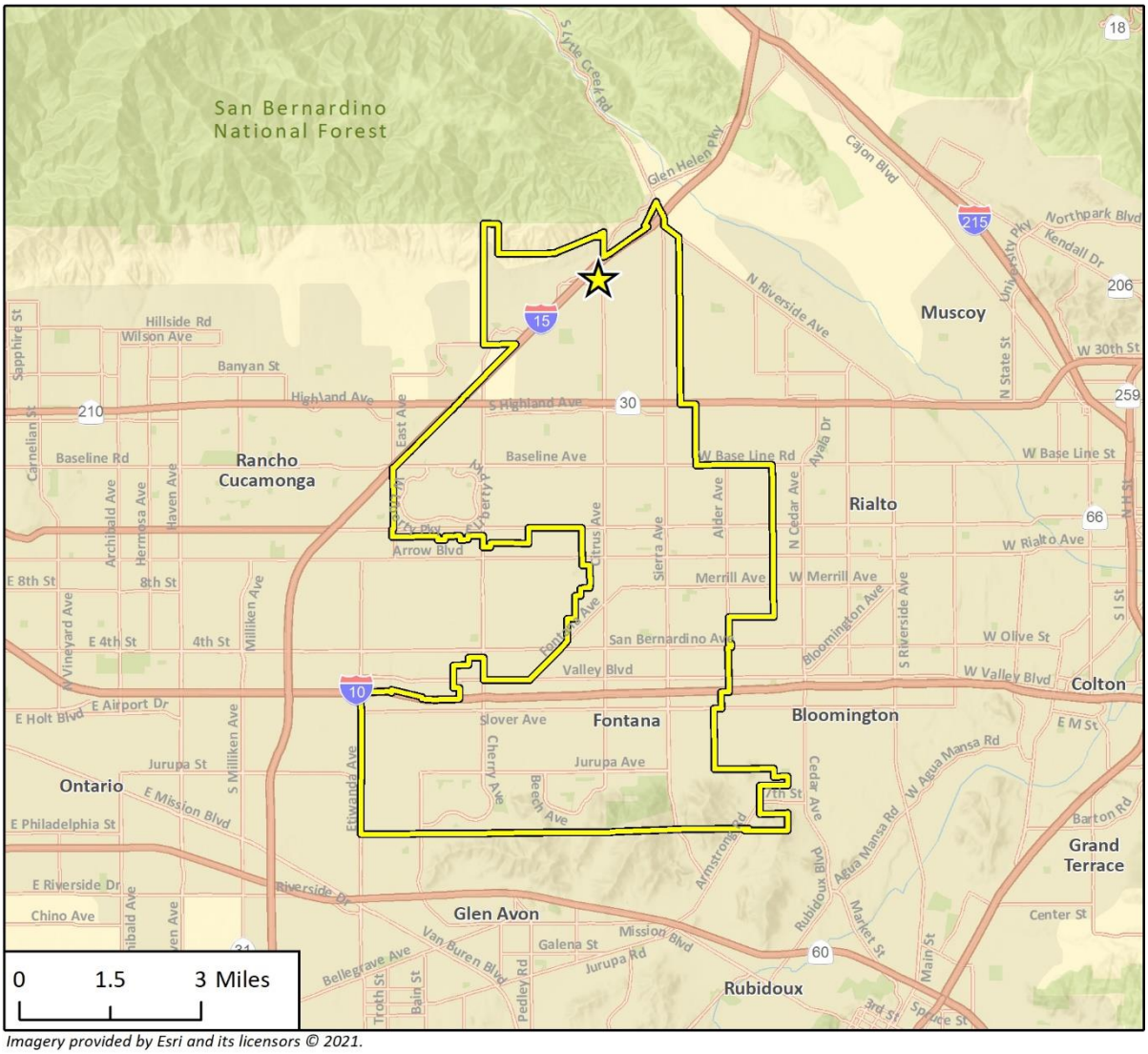
1.2 Project Summary

Project Location

The 102-acre Specific Plan area is east of Interstate 15 (I-15), west of Citrus Avenue, and both north and south of Duncan Canyon Road in the northern part of the City of Fontana, within San Bernardino County, California. The Specific Plan area is bound by I-15 to the north and west, Citrus Avenue to the east, and a Southern California Edison (SCE) transmission line corridor to the south. Figure 1 shows the project site's regional location and Figure 2 shows the Specific Plan area in its vicinity context.

Regional access is available from the west via I-15. Regional access is also provided by nearby Interstate 210 (I-210), Interstate 10 (I-10), and Interstate 215 (I-215). Direct access is provided by Duncan Canyon Road, which bisects the project area to the west/east and Citrus Avenue, which provides north/south access. Citrus Avenue currently terminates to the north at the intersection of Duncan Canyon Road, while Duncan Canyon Road terminates to the east of Citrus Avenue.

Figure 1 Regional Location



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Project Location

N

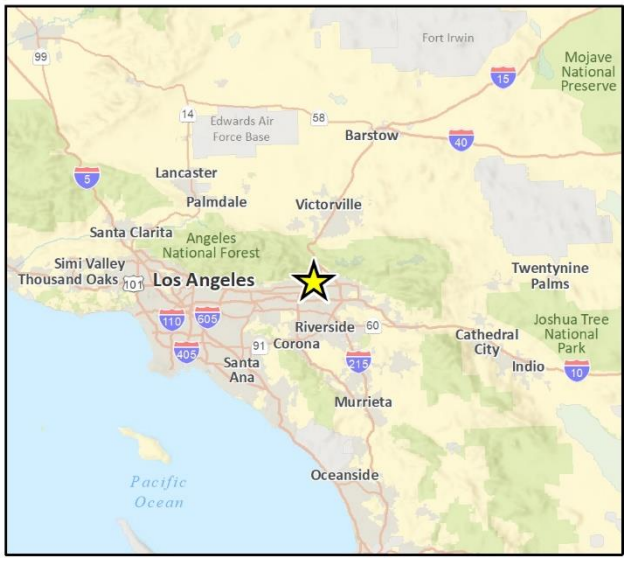
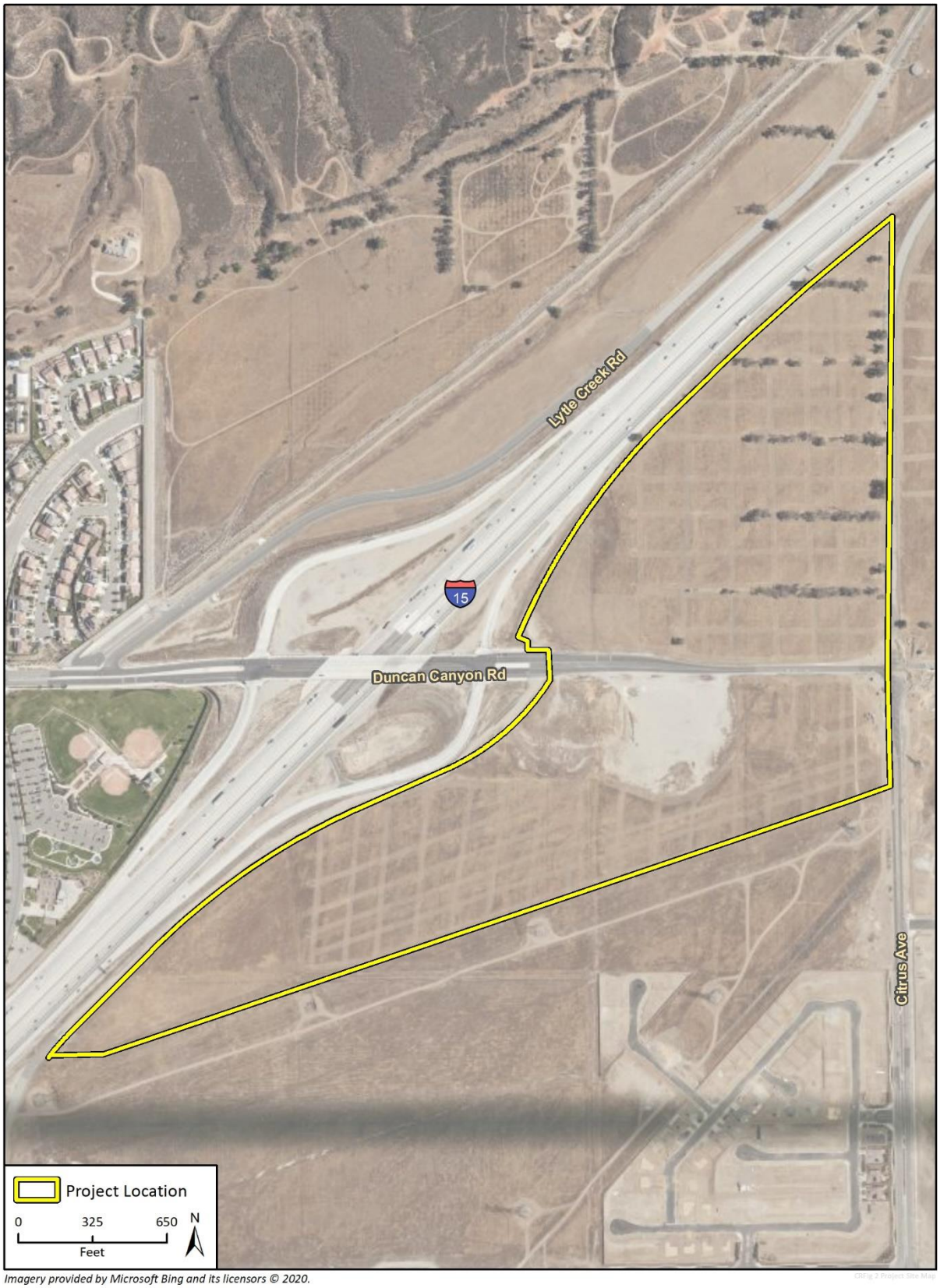


Figure 2 Project Site Location



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Project Background

The existing *Duncan Canyon at Ventana Specific Plan* (2007 Specific Plan) was established in March 2007 to create a unique master planned development that captured the City's vision for the "Regional Mixed Use" zoning classification in northern Fontana, and the City's vision for a Corporate Corridor along I-15. Ten distinct development areas, designated as "Planning Areas," were established to implement the goals and objectives of the 2007 Specific Plan.

The ten Planning Areas consisted of four types of land use designations including Commercial, Mixed Use, Medium Density Residential, and Medium-High Density Residential. The project included the development of up to 574,500 square feet of commercial uses; 842 dwelling units in three separate residential villages; a Corporate Office Corridor, including mid-rise office buildings, a multi-story hotel, quality business restaurants; a focal point "Piazza;" a ""campanile" tower feature; pedestrian corridors and bridges; and the construction of the realigned Lytle Creek Road on a 105-acre project site.

Project Description

The project includes a comprehensive Specific Plan Amendment to the 2007 Specific Plan. Six Planning Areas are proposed, instead of ten as previously analyzed, involving the following land uses: medium density residential, medium-high density residential, mixed-use entertainment, commercial uses, and open space. Planning Areas 5 and 6 are both split into A and B sub-parcels (i.e., 5a, 5b, 6a, and 6b). The Specific Plan Amendment would allow for development of 1,671 mid-rise multi-family dwelling units and 476,500 square feet of commercial use in phases by Planning Area, summarized in Table 2. There would be six phases with construction of certain Planning Areas overlapping. Accounting for the construction overlap, there would be four unique phases. Additionally, Duncan Canyon Road and Citrus Avenue (arterial roadways) and Lytle Creek Road (backbone road) would be developed during Phase 1. The arterial roadways are approximately 7.3-acres and the backbone roads are approximately 10.5-acres for a total of 17.8-acres of roadway. See Figure 3 for the land use Planning Areas for the Specific Plan Amendment.

Planning Areas 1 and 3 would be developed first between the years 2022 to late 2023. The first phase would consist of 538 mid-rise dwelling units in Planning Area 1, which is approximately 20.7-acres located in the northeastern corner of the plan area. In Planning Area 3, 154,000 square feet of commercial retail use and 26,000 square feet of medical-dental office use would be constructed over 9.7-acres along the plan area's northwestern edge. The arterial and backbone roads would also be constructed during this phase to provide development flexibility for all planning areas.

Phase 2 would occur from late 2023 to early 2025 with development occurring only in Planning Area 2. The 13.2-acre parcel is located in the southeastern corner of the site south of Duncan Canyon Road and west of Citrus Avenue. Under Phase 2, 396 mid-rise dwelling units would be constructed.

The third phase of development would include Planning Areas 4, 5a, and 5b. Construction is anticipated to occur from 2025 to 2028. Planning Area 4 is approximately 24 acres and located on the outer western edge below Duncan Canyon Road. Land uses proposed in this area include 600 mid-rise dwelling units, 26,000 square feet of commercial retail use, a 31,200 square foot supermarket, a 20,800 square foot pharmacy with a drive-thru, and 26,000 square feet of high-turnover sit-down restaurant use. In Planning Areas 5a and 5b, the same land uses are proposed

with both parcels totaling 46,250 square feet of commercial retail use, 10,853 square feet of high-turnover site down restaurant, and 15,417 square feet for a fast-food restaurant.

Phase four would be the final phase and it would include the development of Planning Areas 6a and 6b. Approximately 137 dwelling units and 74,000 square feet of medical-dental offices would be constructed in Planning Area 6a, while in Planning Area 6b only 26,000 square feet of commercial retail would be constructed. During this phase, 0.5 acres of open space would also be developed. These planning areas total 8.2-acres and are in the southeastern corner of the Specific Plan area.

Construction

Construction is assumed to begin January 2022 and is estimated to be completed in 2030 for a total construction period of approximately nine years. Construction activities would include site preparation, grading, building construction, paving, and architectural coating (i.e., painting). There would be no demolition phase since the site is vacant. Each Planning Area was assumed to be graded during its respective construction phase with no mass grading of the entire site. The total earthwork for the plan area is 150,000 cubic yards with each planning area being balanced on-site. All construction would occur within the current conceptual limits of the project.

Operation

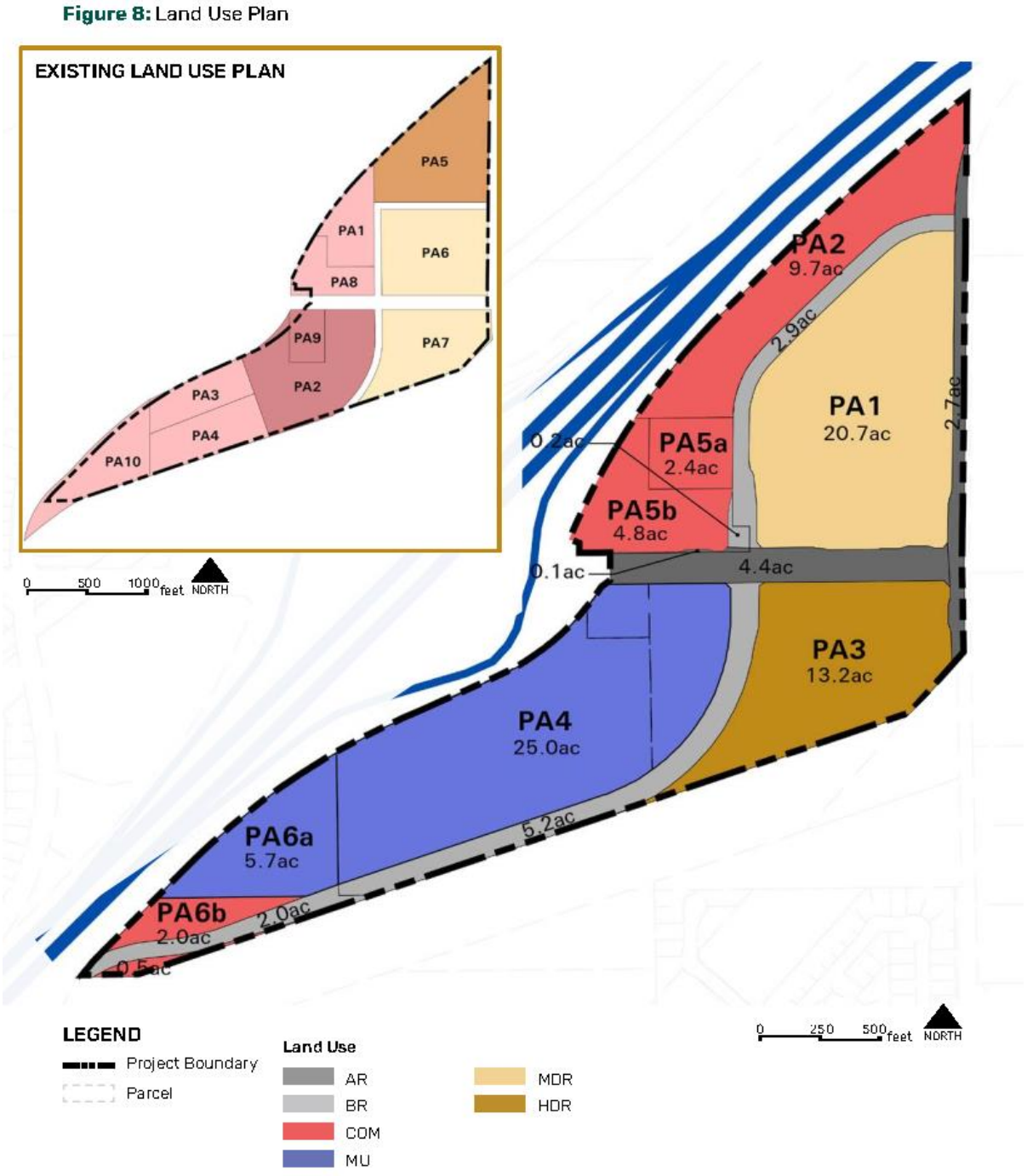
Planning Areas 1 and 3 would be operational in 2023. The remainder of the plan area would be fully built-out and operational by the year 2030.

Table 2 Project Summary for the Specific Plan Amendment

	Land Use Size	Acres
Phase 1 – Planning Ares 1 and 2		
Planning Area 1		
Mid-Rise Multi-Family Residences	538 dwelling units	20.7
Planning Area 2		
Commercial Retail (Strip Mall)	154,000 square feet	9.7
Medical-Dental Office	26,000 square feet	
Roadways		
Arterial Roadways (Duncan Canyon Road and Citrus Avenue)	10.5 acres	17.8
Backbone Road (Lytle Creek Road)	7.3 acres	
Phase 2 – Planning Area 3		
Mid-Rise Multi-Family Residences	396 dwelling units	13.2
Phase 3 – Planning Areas 4, 5a, and 5b		
Planning Area 4		
Mid-Rise Multi-Family Residences	600 dwelling units	25.0
Commercial Retail (Strip Mall)	26,000 square feet	
Supermarket	31,200 square feet	
Pharmacy with Drive-Through	20,800 square feet	
High Turnover Sit-Down Restaurant	26,000 square feet	
Planning Area 5a		
Commercial Retail (Strip Mall)	30,000 square feet	2.4
High Turnover Sit-Down Restaurant	20,000 square feet	

Fast-Food Restaurant with Drive-Through	10,000 square feet	
Planning Area 5b		
Commercial Retail (Strip Mall)	16,250 square feet	4.8
High Turnover Sit-Down Restaurant	10,833 square feet	
Fast-Food Restaurant with Drive-Through	5,417 square feet	
Phase 4 – Planning Areas 6a and 6b		
Planning Area 6a		
Mid-Rise Multi-Family Residences	137 dwelling units	5.7
Medical-Dental Office	74,000 square feet	
Planning Area 6b		
Commercial Retail (Strip Mall)	26,000 square feet	2.5
Open Space	0.5 acres	
Total		
Mid-Rise Multi-Family Residences	**1,671 dwelling units**	**101.5**
Commercial Retail (Strip Mall)	**252,250 square feet**	
Medical-Dental Office	**100,000 square feet**	
Supermarket	**31,200 square feet**	
Pharmacy with Drive-Through	**20,800 square feet**	
High Turnover Sit-Down Restaurant	**56,833 square feet**	
Fast-Food Restaurant with Drive-Through	**15,417 square feet**	
Arterial Roadways (Duncan Canyon Road and Citrus Avenue)	**10.5 acres**	
Backbone Road (Lytle Creek Road)	**7.3 acres**	

Figure 3 Existing and Proposed Land Use Planning Areas



Ventana at Duncan Canyon Specific Plan Final Environmental Impact Report

Noise Mitigation

The Ventana at Duncan Canyon Specific Plan 2007 Final Environmental Impact Report (2007 EIR) determined the following noise mitigation measures would be required:

- **Measure 4.6.1:** During construction, the following measures shall be implemented to reduce noise on sensitive receptors:
  - □ All off-road construction equipment shall have properly operated and maintained mufflers.
  - □ Stockpiling and equipment/vehicle staging shall be conducted as far as practicable from occupied dwelling units or other nearby noise-sensitive land uses.
  - □ Idling of construction equipment shall be limited to the extent feasible. Equipment shall be turned off when not in use.
  - □ Schedule noisy activities and impulsive noise generation such as pile driving or jack-hammers during the late morning and early afternoon hours, or erect temporary barriers, if necessary.
- **Mitigation Measure 4.6.2**: Homes in Planning Area 5 backing up to the I-15 Freeway shall be required to site outdoor recreational uses on the opposite side of the buildings, allowing the buildings to act as a sound wall. An 8-foot sound wall shall also be constructed at the edge of the Freeway right-of-way. If this cannot be accomplished, setbacks, obstructions to the noise path, or a 28-foot sound wall would be required to mitigate exterior noise to 65 dBA CNEL.
- **Mitigation Measure 4.6.3**: Homes along Duncan Canyon Road shall be constructed with dual-paned windows and supplemental ventilation to allow for 1 dBA CNEL attenuation to meet the City of Fontana's 45 dBA CNEL interior noise standard.
- **Mitigation Measure 4.6.4**: Homes in Planning Area 5 backing up to the I-15 Freeway shall be constructed with upgraded structural acoustical features to allow for up to 35 dBA CNEL attenuation to meet the City of Fontana's 45 dBA CNEL interior noise standard. Dual-paned windows and supplemental ventilation and highly upgraded structural features shall be provided for homes closest to the freeway. A supplemental acoustical analysis shall be submitted in conjunction with the issuance of building permits to verify that adequate structural noise protection will be provided.
- **Mitigation Measure 4.6.5**: Conditional use permits for commercial uses shall contain measures that control noise generation from goods deliveries, facility maintenance, and mechanical equipment. These may include:
  - □ Location of commercial HVAC equipment away from residences or shielding of HVAC equipment
  - □ Location of loading docks away from residences
  - □ Time restrictions on deliveries to commercial uses
  - □ Orientation of fast-food restaurant sound boards away from nearby residences; sound walls around the order boards; or time restrictions on sound board use

- □ Time restrictions on refuse collection or parking lot sweeping, or stacking or retrieval of temporary outdoor storage
- □ Location of the hotel's pool and outdoor entertainment areas on the opposite side of the hotel from the closest residential uses or construction of a sound wall

2 Background

2.1 Overview of Sound Measurement

Sound is a vibratory disturbance created by a moving or vibrating source, which is capable of being detected by the hearing organs. Noise is defined as sound that is loud, unpleasant, unexpected, or undesired and may therefore be classified as a more specific group of sounds. The effects of noise on people can include general annoyance, interference with speech communication, sleep disturbance, and, in the extreme, hearing impairment (California Department of Transportation [Caltrans] 2013).

Noise levels are commonly measured in decibels (dB) using the A-weighted sound pressure level (dBA). The A-weighting scale is an adjustment to the actual sound pressure levels so that they are consistent with the human hearing response, which is most sensitive to frequencies around 4,000 Hertz and less sensitive to frequencies around and below 100 Hertz (Kinsler, et. al. 1999). Decibels are measured on a logarithmic scale that quantifies sound intensity in a manner similar to the Richter scale used to measure earthquake magnitudes. A doubling of the energy of a noise source, such as doubling of traffic volume, would increase the noise level by 3 dBA; reducing the energy in half would result in a 3 dBA decrease (Crocker 2007).

Human perception of noise has no simple correlation with sound energy: the perception of sound is not linear in terms of dBA or in terms of sound energy. Two sources do not “sound twice as loud” as one source. It is widely accepted that the average healthy ear can barely perceive changes of 3 dBA, increase or decrease (i.e., twice the sound energy); that a change of 5 dBA is readily perceptible (8 times the sound energy); and that an increase (or decrease) of 10 dBA sounds twice (half) as loud ([10.5x the sound energy] Crocker 2007).

Sound changes in both level and frequency spectrum as it travels from the source to the receiver. The most obvious change is the decrease in level as the distance from the source increases. The manner in which noise reduces with distance depends on factors such as the type of sources (e.g., point or line, the path the sound will travel, site conditions, and obstructions). Noise levels from a point source typically attenuate, or drop off, at a rate of 6 dBA per doubling of distance (e.g., construction, industrial machinery, ventilation units). Noise from a line source (e.g., roadway, pipeline, railroad) typically attenuates at about 3 dBA per doubling of distance (Caltrans 2013). The propagation of noise is also affected by the intervening ground, known as ground absorption. A hard site, such as a parking lot or smooth body of water, receives no additional ground attenuation and the changes in noise levels with distance (drop-off rate) result from simply the geometric spreading of the source. An additional ground attenuation value of 1.5 dBA per doubling of distance applies to a soft site (e.g., soft dirt, grass, or scattered bushes and trees) (Caltrans 2013). Noise levels may also be reduced by intervening structures. The amount of attenuation provided by this “shielding” depends on the size of the object and the frequencies of the noise levels. Natural terrain features such as hills and dense woods, and man-made features such as buildings and walls, can substantially alter noise levels. Generally, any large structure blocking the line of sight will provide at least a 5-dBA reduction in source noise levels at the receiver (Federal Highway Administration [FHWA] 2011). Structures can substantially reduce exposure to noise as well. The FHWA’s guidelines indicate that modern building construction generally provides an exterior-to-interior noise level reduction of 20 to 35 dBA with closed windows.

The impact of noise is not a function of loudness alone. The time of day when noise occurs and the duration of the noise are also important factors of project noise impact. Most noise that lasts for more than a few seconds is variable in its intensity. Consequently, a variety of noise descriptors have been developed. One of the most frequently used noise metrics is the equivalent noise level (L_{eq}); it considers both duration and sound power level. L_{eq} is defined as the single steady A-weighted level equivalent to the same amount of energy as that contained in the actual fluctuating levels over time. Typically, L_{eq} is summed over a one-hour period. L_{max} is the highest root mean squared (RMS) sound pressure level within the sampling period, and L_{min} is the lowest RMS sound pressure level within the measuring period (Crocker 2007).

Noise that occurs at night tends to be more disturbing than that occurring during the day. Community noise is usually measured using Day-Night Average Level (L_{dn}), which is the 24-hour average noise level with a +10 dBA penalty for noise occurring during nighttime (10:00 p.m. to 7:00 a.m.) hours; it is also measured using Community Noise Equivalent Level (CNEL), which is the 24-hour average noise level with a +5 dBA penalty for noise occurring from 7:00 p.m. to 10:00 p.m. and a +10 dBA penalty for noise occurring from 10:00 p.m. to 7:00 a.m. (Caltrans 2013). Noise levels described by L_{dn} and CNEL usually differ by about 1 dBA or less. The relationship between the peak-hour L_{eq} value and the L_{dn}/CNEL depends on the distribution of traffic during the day, evening, and night. Quiet suburban areas typically have CNEL noise levels in the range of 40 to 50 dBA, while areas near arterial streets are in the 50 to 60-plus CNEL range. Normal conversational levels are in the 60 to 65-dBA L_{eq} range; ambient noise levels greater than 65 dBA L_{eq} can interrupt conversations (Federal Transit Administration [FTA] 2018).

2.2 Vibration

Groundborne vibration of concern in environmental analysis consists of the oscillatory waves that move from a source through the ground to adjacent structures. The number of cycles per second of oscillation makes up the vibration frequency, described in terms of Hz. The frequency of a vibrating object describes how rapidly it oscillates. The normal frequency range of most groundborne vibration that can be felt by the human body starts from a low frequency of less than 1 Hz and goes to a high of about 200 Hz (Crocker 2007).

While people have varying sensitivities to vibrations at different frequencies, in general they are most sensitive to low-frequency vibration. Vibration in buildings, such as from nearby construction activities, may cause windows, items on shelves, and pictures on walls to rattle. Vibration of building components can also take the form of an audible low-frequency rumbling noise, referred to as groundborne noise. Groundborne noise is usually only a problem when the originating vibration spectrum is dominated by frequencies in the upper end of the range (60 to 200 Hz), or when foundations or utilities, such as sewer and water pipes, physically connect the structure and the vibration source (FTA 2018). Although groundborne vibration is sometimes noticeable in outdoor environments, it is almost never annoying to people who are outdoors. The primary concern from vibration is that it can be intrusive and annoying to building occupants and vibration-sensitive land uses.

Vibration energy spreads out as it travels through the ground, causing the vibration level to diminish with distance away from the source. High-frequency vibrations diminish much more rapidly than low frequencies, so low frequencies tend to dominate the spectrum at large distances from the source. Discontinuities in the soil strata can also cause diffractions or channeling effects that affect the propagation of vibration over long distances (Caltrans 2020). When a building is affected by

vibration, a ground-to-foundation coupling loss will usually reduce the overall vibration level. However, under rare circumstances, the ground-to-foundation coupling may actually amplify the vibration level due to structural resonances of the floors and walls.

Vibration amplitudes are usually expressed in peak particle velocity (PPV) or RMS vibration velocity. The PPV and RMS velocity are normally described in inches per second. PPV is defined as the maximum instantaneous positive or negative peak of a vibration signal. PPV is often used in monitoring of blasting vibration because it is related to the stresses that are experienced by buildings (Caltrans 2020).

2.3 Sensitive Receivers

Noise exposure goals for various types of land uses reflect the varying noise sensitivities associated with those uses. Sensitive land uses are generally defined as locations where people reside or where the presence of noise could adversely affect the use of the land. The City of Fontana General Plan list of noise sensitive uses includes residential uses; hospitals; rest homes; long term care facilities; mental care facilities; schools; libraries; places of worship; and passive recreation uses (City of Fontana 2018). Sensitive receivers in the area include the single-family residences located across Citrus Avenue (Lennar at Arboretum) to the east of the project site and single-family residential developments approximately 500 feet (Laurel Oak at Shady Trails) and approximately 800 feet (Shady Trails Community) to the south of the project site.

Vibration sensitive receivers are similar to noise sensitive receivers, such as residences and institutional uses (e.g., schools, libraries, and religious facilities). The General Plan does not identify vibration sensitive receivers; however, concert halls, hospitals, libraries, research operations, residential areas, schools, and offices would also be considered vibration sensitive uses. Vibration sensitive receivers also include buildings where vibrations may interfere with vibration-sensitive equipment, affected by levels that may be well below those associated with human annoyance (FTA 2018; Caltrans 2013).

2.4 Project Noise Setting

The most common source of noise in the project site vicinity is vehicular traffic from I-15, Duncan Canyon Road, and Citrus Avenue. Aircraft over-flights are also audible on the project site. Construction was active during noise measurements across Citrus Avenue and along Lytle Creek Road adjacent to the project site. To characterize ambient sound levels at and near the project site, three short-term 15-minute noise level measurements were conducted on May 26, 2021. Noise Measurement (NM) 1 was conducted at the southeastern portion of the project site to capture noise levels from Citrus Avenue. NM2 was conducted at the central portion of the project site to capture ambient noise levels from Duncan Canyon Road. NM3 was conducted in the north central portion of the project site to capture noise levels from I-15 at project noise sensitive receivers. Table 3 summarizes the results of the noise measurement, Table 4 shows the recorded traffic volumes during noise measurements, and Figure 4 shows the measurement locations.

Table 3 Project Site Vicinity Sound Level Monitoring Results

Measurement Location	Measurement Location	Sample Times	Approximate Distance to Primary Noise Source	L_{eq} (dBA)	Lmin (dBA)	Lmax (dBA)
NM1	Southeastern project boundary, adjacent to Citrus Avenue	9:19 – 9:34 a.m.	Approximately 100 feet to centerline of Citrus Avenue	53	43	69
NM2	Central project area north of Duncan Canyon Road	8:03 – 8:18 a.m.	Approximately 100 feet from Duncan Canyon Road	58	42	78
NM3	North central portion of the project site	8:41 – 8:56 a.m.	Approximately 695 feet from I-15	51	45	62

Detailed sound level measurement data are included in Appendix A.

Table 4 Sound Level Monitoring Traffic Counts

Measurement	Roadway	Traffic	Autos	Medium Trucks	Heavy Trucks
NM1	Citrus Avenue	15-minute count	77	2	3
		One-hour Equivalent	308	8	12
Percent			**94%**	**2%**	**4%**
NM2	Duncan Canyon Road	15-minute count	101	1	3
		One-hour Equivalent	404	4	12
Percent			**96%**	**1%**	**3%**

Detailed sound level measurement data are included in Appendix A.

2.5 Applicable Regulatory Setting

Federal

FTA Transit and Noise Vibration Impact Assessment Manual

The FTA provides reasonable criteria for assessing construction noise impacts based on the potential for adverse community reaction in their *Transit and Noise Vibration Impact Assessment Manual* (FTA 2018). For residential, commercial, and industrial uses, the daytime noise threshold is 80 dBA L_{eq}, 85 dBA L_{eq}, and 90 dBA L_{eq} for an 8-hour period, respectively.

State

California regulates freeway noise, sets standards for sound transmission, provides occupational noise control criteria, identifies noise standards, and provides guidance for local land use compatibility. State law requires each county and city to adopt a General Plan that includes a Noise Element prepared per guidelines adopted by the Governor's Office of Planning and Research. The purpose of the Noise Element is to limit the exposure of the community to excessive noise levels. The California Environmental Quality Act (CEQA) requires all known environmental effects of a project be analyzed, including environmental noise impacts.

Figure 4 Noise Measurement Locations

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California Noise Control Act of 1973

California Health and Safety Code Sections 46000 through 46080, known as the California Noise Control Act, find that excessive noise is a serious hazard to public health and welfare and that exposure to certain levels of noise can result in physiological, psychological, and economic damage. The act also finds that there is a continuous and increasing bombardment of noise in urban, suburban, and rural areas. The California Noise Control Act declares that the State of California has a responsibility to protect the health and welfare of its citizens by the control, prevention, and abatement of noise. It is the policy of the State to provide an environment for all Californians that is free from noise that jeopardizes their health or welfare.

California Building Code

CCR Title 24, Building Standards Administrative Code, Part 2, and the California Building Code codify the state noise insulation standards. These noise standards apply to new construction in California to control interior noise levels as they are affected by exterior noise sources. The regulations specify that interior noise levels for residential and school land uses should not exceed 45 dBA CNEL.

City of Fontana Noise Standards

City of Fontana General Plan Noise and Safety Element

The City maintains the health and welfare of its residents with respect to noise through abatement ordinances and land use planning. The City's General Plan includes goals and policies with the intent to reduce excessive noise impacts.

Goal 8: The City of Fontana protects sensitive land uses from excessive noise by diligent planning through 2035.

Policies:

- New sensitive land uses shall be prohibited in incompatible areas.
- Noise-tolerant land uses shall be guided into areas irrevocably committed to land uses that are noise-producing, such as transportation corridors.
- Where sensitive uses are to be placed along transportation routes, mitigation shall be provided to ensure compliance with state- mandated noise levels.
- Noise spillover or encroachment from commercial, industrial and educational land uses shall be minimized into adjoining residential neighborhoods or noise-sensitive uses.

Actions:

A. The following uses shall be considered noise-sensitive and discouraged in areas in excess of 65 dBA CNEL (Community Noise Equivalent Level): Residential Uses; Hospitals; Rest Homes; Long Term Care Facilities; and Mental Care Facilities.

B. The following uses shall be considered noise-sensitive and discouraged in areas in excess of 65 L_{eq} (12) (Equivalent Continuous Sound Level): Schools; Libraries; Places of Worship; and Passive Recreation Uses.

C. The State of California Office of Planning and Research General Plan Guidelines shall be followed with respect to acoustical study requirements.

Goal 9: The City of Fontana provides a diverse and efficiently operated ground transportation system that generates the minimum feasible noise on its residents through 2035.

Policies:

- All noise section of the State Motor Vehicle Code shall be enforced.
- Roads shall be maintained such that the paving is in good condition and free of cracks, bumps, and potholes.
- Noise mitigation measures shall be included in the design of new roadway projects in the city.

  Actions:

  A. On-road trucking activities shall continue to be regulated in the City to ensure noise impacts are minimized, including, including the implementation of truck-routes based on traffic studies.
  B. Development that generates increased traffic and subsequent increases in the ambient noise level adjacent to noise-sensitive land uses shall provide appropriate mitigation measures.
  C. Noise mitigation practices shall be employed when designing all future streets and highways, and when improvements occur along existing highway segments.
  D. Explore the use of "quiet pavement" materials for street improvements

Goal 10: Fontana's residents are protected from the negative effects of "spillover" noise.

Policy:

- Residential land uses and areas identified as noise-sensitive shall be protected from excessive noise from non-transportation sources including industrial, commercial, and residential activities and equipment.

  Actions:

  A. Projects located in commercial areas shall not exceed stationary- source noise standards at the property line of proximate residential or commercial uses.
  B. Industrial uses shall not exceed commercial or residential stationary source noise standards at the most proximate land uses.
  C. Non-transportation noise shall be considered in land use planning decisions.
  D. Construction shall be performed as quietly as feasible when performed in proximity to residential or other noise sensitive land uses.

City of Fontana Municipal Code

Chapter 18, Article II (Noise) and Chapter 30 Articles V (Residential Zoning Districts) and VII (Industrial Zoning Districts) of the Fontana Municipal Code seeks to control unnecessary, excessive, and annoying noise and vibration. The following sections would be applicable to the proposed project:

- **Section 18-63(b)(6), Loading, unloading or opening boxes.** The creation of a loud, excessive, impulsive or intrusive and excessive noise in connection with loading or unloading of any vehicle or the opening and destruction of bales, boxes, crates and containers within 50 feet or more from the edge of the property.
- **Section 18-63(b)(7), Construction or repairing of buildings or structures.** Construction activity is limited between the hours of 7:00 a.m. and 6:00 p.m. on weekdays and between the hours of 8:00 a.m. and 5:00 p.m. on Saturdays except in the case of urgent necessity. Project construction noise levels are, therefore, considered exempt from municipal regulation if

activities occur within the hours specified in the City of Fontana Municipal Code, Section 18-63(7) of 7:00 a.m. to 6:00 p.m. on weekdays and between the hours of 8:00 a.m. to 5:00 p.m. on Saturdays. However, if activity occurs outside of these hours, the City of Fontana stationary-source (operational) noise level standards of 70 dBA L_{eq} during the daytime hours, and 65 dBA L_{eq} during the nighttime hours shall apply.

- **Section 18-63(b)(8), Noise near schools, courts, place of worship or hospitals.** The creation of any loud, excessive, impulsive or intrusive noise on any street adjacent to any school, institution of learning, places of worship or court while the premises are in use, or adjacent to any hospital which unreasonably interferes with the workings of such institution or which disturbs or unduly annoys patients in the hospital; provided conspicuous signs are displayed in such streets indicating that the street is a school, hospital or court street.
- **Section 18-63(b)(10), Piledrivers, hammers, etc.** The operation between the hours of 6:00 p.m. and 7:00 a.m. of any piledriver, steamshovel, pneumatic hammer, derrick, steam or electric hoist or other appliance, the use of which is attended by loud, excessive, impulsive or intrusive noise.
- **Section 18-63(b)(11), Blowers.** The operation of any noise-creating blower or power fan or any internal combustion engine other than from the hours of 7:00 a.m. and 6:00 p.m. on a weekday and the hours of 8:00 a.m. and 5:00 p.m. on a Saturday, the operation of which causes noise due to the explosion of operating gases or fluids, unless the noise from such blower or fan is muffled and such engine is equipped with a muffler device sufficient to deaden such noise.

In addition, Section 30-469 states that no use shall create or cause to be created any sound that exceeds the ambient noise standards in Table 5 in residential zones.

Table 5 Noise Standards

Location of Measurements	Maximum Allowable	
All Zoning Districts	**7:00 a.m. until 10:00 p.m.**	**10:00 p.m. until 7:00 a.m.**
Interior	45 dBA	45 dBA
Exterior	65 dBA	65 dBA

dBA=A-weighted decibels.
Source: Table 30-469 of the Fontana Municipal Code

Furthermore, Section 30-470 states that no use shall create or cause to be created any activity that causes a vibration that can be felt beyond the property line with or without the aid of an instrument.

3 Methodology

3.1 Construction Noise

Construction noise was estimated using the FHWA Roadway Construction Noise Model (RCNM) (FHWA 2006). RCNM predicts construction noise levels for a variety of construction operations based on empirical data and the application of acoustical propagation formulas. Using RCNM, construction noise levels were estimated at noise sensitive receivers near the project site. RCNM provides reference noise levels for standard construction equipment, with an attenuation rate of 6 dBA per doubling of distance for stationary equipment.

Variation in power imposes additional complexity in characterizing the noise source level from construction equipment. Power variation is accounted for by describing the noise at a reference distance from the equipment operating at full power and adjusting it based on the duty cycle of the activity to determine the L_{eq} of the operation (FHWA 2006). Each phase of construction has a specific equipment mix, depending on the work to be accomplished during that phase. Each phase also has its own noise characteristics; some will have higher continuous noise levels than others, and some have high-impact noise levels.

Construction activity would result in temporary noise in the project site vicinity, exposing surrounding nearby receivers to increased noise levels. Construction noise would typically be higher during the heavier periods of initial construction (i.e., site preparation and grading) and would be lower during the later construction phases (i.e., building construction and paving). Typical heavy construction equipment during project grading could include dozers, loaders, graders, and dump trucks. It is assumed that diesel engines would power all construction equipment. Construction equipment would not all operate at the same time or location. In addition, construction equipment would not be in constant use during the 8-hour operating day.

Project construction would occur nearest to single-family residences to the east (Arboretum Specific Plan) and south (Citrus Heights North Specific Plan) of the project site. Over the course of a typical construction day, construction equipment would be located as close as 300 feet and 400 feet to properties east and south, respectively, but would typically be located at an average distance farther away due to the nature of construction and the size of the project. Therefore, it is assumed that over the course of a typical construction day the construction equipment would operate at an average distance 350 feet from the single-family residences to the east and 450 feet from single family residences to the south of the project site.

Construction noise is typically loudest during activities that involve excavation and move soil, such as site preparation and grading. A potential high-intensity construction scenario includes a grader, loader, dozer, and dump truck working during grading to excavate and move soil. At a distance of 350 feet and 450 feet, a grader, a front-end loader, a dozer, and a dump truck would generate a noise level of 64 dBA L_{eq} and 62 dBA L_{eq}, respectively (RCNM calculations are included in Appendix B).

3.2 Groundborne Vibration

The project does not include any substantial vibration sources associated with operation. Therefore, construction activities have the greatest potential to generate groundborne vibration affecting

nearby receivers, especially during grading and excavation of the project site. The greatest vibratory source during construction within the project vicinity would be a vibratory roller. Neither blasting nor pile driving would be required for construction of the project. Construction vibration estimates are based on vibration levels reported by Caltrans and the FTA (Caltrans 2020, FTA 2018). Table 6 shows typical vibration levels for various pieces of construction equipment used in the assessment of construction vibration (FTA 2018).

Table 6 Vibration Levels Measured during Construction Activities

Equipment	PPV at 25 ft. (in./sec.)
Large Bulldozer	0.089
Loaded Trucks	0.076
Small Bulldozer	0.003

Source: FTA 2018

Vibration limits used in this analysis to determine a potential impact to local land uses from construction activities, such as blasting, pile-driving, vibratory compaction, demolition, drilling, or excavation, are based on information contained in Caltrans' *Transportation and Construction Vibration Guidance Manual* and the Federal Transit Administration and the FTA *Transit Noise and Vibration Impact Assessment Manual* (Caltrans 2020; FTA 2018). Maximum recommended vibration limits by the American Association of State Highway and Transportation Officials (AASHTO) are identified in Table 7.

Table 7 AASHTO Maximum Vibration Levels for Preventing Damage

Type of Situation	Limiting Velocity (in./sec.)
Historic sites or other critical locations	0.1
Residential buildings, plastered walls	0.2–0.3
Residential buildings in good repair with gypsum board walls	0.4–0.5
Engineered structures, without plaster	1.0–1.5

Source: Caltrans 2020

Based on AASHTO recommendations, limiting vibration levels to below 0.2 in./sec. PPV at residential structures would prevent structural damage regardless of building construction type. These limits are applicable regardless of the frequency of the source. However, as shown in Table 8 and Table 9, potential human annoyance associated with vibration is usually different if it is generated by a steady state or a transient vibration source.

Table 8 Human Response to Steady State Vibration

PPV (in./sec.)	Human Response
3.6 (at 2 Hz)–0.4 (at 20 Hz)	Very disturbing
0.7 (at 2 Hz)–0.17 (at 20 Hz)	Disturbing
0.10	Strongly perceptible
0.035	Distinctly perceptible
0.012	Slightly perceptible

Source: Caltrans 2020

Table 9 Human Response to Transient Vibration

PPV (in./sec.)	Human Response
2.0	Severe
0.9	Strongly perceptible
0.24	Distinctly perceptible
0.035	Barely perceptible

Source: Caltrans 2020

As shown in Table 9, the vibration level threshold at which transient vibration sources (such as construction equipment) are considered to be distinctly perceptible is 0.24 in./sec. PPV. This analysis uses the distinctly perceptible threshold for purposes of assessing vibration impacts.

Although groundborne vibration is sometimes noticeable in outdoor environments, it is almost never annoying to people who are outdoors; therefore, the vibration level threshold is assessed at occupied structures (FTA 2018). Therefore, all vibration impacts are assessed at the structure of an affected property.

3.3 Operational Noise Sources

On-site noise source would include general conversations, landscape maintenance, waste hauling, loading dock, parking lot, and the heating, ventilation, and air conditioning (HVAC) equipment. There are no large gathering areas on the project site and these sources would be transient in nature as people transit from vehicles to the stores or restaurants. Therefore, general conversations would not represent a substantial noise source. Landscape maintenance and waste hauling typically occur during the less noise sensitive daytime hours and would be active for short periods of time.

Heating, Ventilation, and Air Conditioning Units

Noise-generating mechanical equipment on building rooftops include HVAC units. The equipment was assumed to be placed on the approximate center of the rooftop; noise levels for the equipment are described below. This analysis conservatively assumes the equipment would operate continuously for a full hour (100 percent for 60 minutes) during the daytime and nighttime. For a conservative assessment, it has been assumed that the equipment would not include any type of screening. Noise propagation was estimated in SoundPLAN using algorithms from ISO Standard 9613-2, "Attenuation of Sound during Propagation Outdoors, Part 2: General Method of Calculation."

Based upon one ton of HVAC per 600 square feet of building space and the square footage of each proposed building shown on the conceptual site plan, 10-ton Trane T/YHC120E HVAC units of 87 dB were selected for analysis (see Appendix C for manufacturer's specifications). Table 10 shows the noise spectrum data and Table 11 shows the square footage and number of HVAC units applied to each building modeled. Figure 5 shows the conceptual site plan with corresponding building labels.

Table 10 HVAC Noise Levels

HVAC Unit	Noise Levels in dB[1] Measured at Octave Frequencies							Overall Noise Level in A-weighted Scale (dBA)[1]
	125 Hz	250 Hz	500 Hz	1 KHz	2 KHz	4 KHz	8 KHz	
T/YHC120E	87.0	91.0	85.0	80.0	77.0	73.0	66.0	87

[1] Noise Levels 10-ton Carrier 38AUD14 rooftop HVAC units (see Appendix C for specification sheets).

Hz = Hertz; KHz = kilohertz

Table 11 HVAC Assumptions

Planning Area	Building	Square Footage (feet)	Number of 10-Ton HVAC Units
Planning Area 1a	R-1	72,000	12
	R-2	50,000	8
	R-3	100,000	17
	R-4	50,000	8
	R-5	72,000	12
	R-6	72,000	12
Planning Area 1b	R-1	140,000	23
	R-2	30,000	5
	R-3	56,000	9
	R-4	40,000	7
	R-5	30,000	5
	R-6	44,000	7
	R-7	55,000	9
Planning Area 2	C-1	40,000	7
	C-2	45,000	8
	C-3	45,000	8
	C-4	60,000	10
	C-5	45,000	8
	C-6	33,000	6
	C-7	25,000	4

Planning Area 3	R-1	56,000	9
	R-2	56,000	9
	R-3	100,000	17
	R-4	50,000	8
	R-5	72,000	12
	R-6	30,000	5
	R-7	50,000	8
	R-8	100,000	17
Planning Area 4	R-1	88,000	15
	R-2	48,000	8
	R-3	95,000	16
	R-4	90,000	15
	R-5	50,000	8
	R-6	56,000	9
	R-7	48,000	8
	R-8	60,000	10
	R-9	56,000	9
	R-10	56,000	9
	Market	30,000	5
	R/R-1	21,000	4
	R/R-2	20,000	3
	Pharmacy	26,000	4
	R/R-3	22,000	4
	R/R-4	22,000	4

See Figure 5 for corresponding building labels.

Figure 5 Conceptual Site Plan with Building Labels

3.4 Traffic Noise

Noise affecting the project site is primarily from traffic on I-15, Duncan Canyon Road, and Citrus Avenue. Future noise levels affecting the compatibility of the project site were estimated in SoundPLAN using algorithms and reference traffic noise reference levels from the FHWA's Traffic Noise Model (TNM). The off-site traffic noise increases were modeled with the FHWA RD-77-108 Traffic Noise Prediction Model.

The traffic vehicle classification mix for I-15 was based on Caltrans Truck Counts (Caltrans 2016). I-5 was modeled with a vehicle classification mix of 94.4 percent automobiles, 2.5 percent medium trucks, and 3.1 percent heavy trucks and a posted speed limit of 65 miles per hour (mph).

Future traffic volumes on local roadways were obtained from the Ventana Specific Plan Amendment Traffic Study (Urban Crossroads 2021). Traffic volumes were input into the model as shown in Table 12. The posted speed limits on Duncan Canyon Road, Citrus Avenue, Casa Grande, Summit Avenue, Sierra Avenue and Lytle Creek Drive are 45 mph, 40 to 45 mph, 35 mph,45 to 50 mph, 55 mph, and 35 mph, respectively. Traffic counts conducted during noise monitoring consisted of primarily active construction traffic vehicles and are not considered representative of typical vehicle classification mix for Specific Plan area roadways. Therefore, the vehicle classification mix for modeling assumes a typical breakdown of 96 percent automobiles, 2.5 percent medium trucks, and 1.5 percent heavy trucks for local roadways.

Traffic distribution through the day was modeled assuming 75 percent of total daily vehicle traffic during daytime hours, 15 percent of daily vehicle traffic during evening hours, and 10 percent of daily vehicle traffic during nighttime hours. For determining noise-land use compatibility, exterior traffic noise levels at the residential exterior common use areas (pool areas) and residential building façades were calculated. Receivers were placed on the ground floor at 5 feet above ground level; receivers at 2nd and 3rd stories were placed 15 and 25 feet above ground level.

Table 12 Traffic Volumes

Roadway	Segment	Existing ADT	Existing with Phase 1 ADT	2023 ADT	2023 with Project ADT	2030 ADT	2030 with Project ADT	2040 ADT	2040 with Project ADT
Duncan Canyon Road	Roadrunner Road to Coyote Canyon Road	6,850	7,000	7,900	8,050	9,100	9,550	10,000	10,450
	Coyote Canyon Road to I-15 NB Ramp	10,250	10,450	13,350	13,750	16,150	16,800	17,800	18,400
	I-15 NB Ramp to Lytle Creek Road	--	14,850	17,550	22,150	23,150	31,250	25,450	33,600
	Lytle Creek Road to Citrus Avenue	10,200	3,650	17,650	18,300	23,300	26,300	25,650	28,650
	Citrus Avenue to the east	3,000	3,200	4,050	4,300	5,000	5,850	5,500	7,400
Citrus Avenue	From the north to Lytle Creek Road	--	1,200	1,050	2,250	1,800	2,450	1,950	2,650
	Lytle Creek Road to Duncan Canyon Road	--	1,950	1,050	3,000	1,800	2,600	1,800	2,600
	Duncan Canyon Road to Casa Grande	8,200	10,800	14,100	16,700	18,000	21,050	19,800	22,100
	Casa Grande to Summit Avenue	7,300	8,950	11,750	13,400	14,700	16,200	14,700	16,200
	Summit Avenue to Sierra Lakes Parkway	16,750	17,250	21,400	21,900	25,650	27,450	28,200	30,050
Casa Grande	Citrus Avenue to Sierra Avenue	3,300	4,250	9,600	10,550	14,000	15,550	15,400	15,900
Summit Drive	Beech Avenue to Lytle Creek Road	17,650	18,000	20,850	21,350	24,250	26,200	26,650	28,600
	Lytle Creek Road Citrus Avenue	22,650	23,650	26,000	26,550	29,850	31,800	32,850	34,800
	Citrus Avenue to Sierra Avenue	13,900	14,900	15,150	15,650	15,950	17,450	17,550	19,050
Sierra Avenue	Riverside Avenue to Casa Grande	19,850	20,600	23,150	23,150	26,450	27,500	29,350	29,100
	Summit Avenue to Sierra Lakes Parkway	24,300	24,750	27,800	28,250	31,850	33,100	35,050	36,250
Lytle Creek Road	Citrus Avenue to Duncan Canyon Road	--	--	--	4,950	--	4,850	--	4,850
	Duncan Canyon Road to Summit Drive	--	--	100	100	150	5,700	200	5,700

Source: Urban Crossroads 2021

3.5 Significance Thresholds

The following thresholds are based on City of Fontana noise standards and Appendix G of the CEQA Guidelines. Noise impacts would be considered significant if:

- **Item 1.** The project would result in the 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.
  - Based on the Fontana Municipal Code Section 18-63(b)(7) and FTA construction noise standards, construction noise would be significant if:
    - Construction and demolition work are conducted between the hours of 6:00 p.m. and 7:00 a.m. on weekdays and between the hours of 5:00 p.m. to 8:00 a.m. on Saturdays.
    - Noise levels exceed the FTA daytime criteria of 80 dBA L_{eq}, 85 dBA L_{eq}, and 90 dBA L_{eq} for an 8-hour period for residential, commercial, and industrial land uses, respectively.
  - Based on the Fontana Municipal Code Section 30-469, operational noise would be significant if:
    - Noise levels exceed 45 dBA at interior areas and 65 dBA at exterior areas.
  - Traffic-related noise impacts would be considered significant if project-generated traffic would result in exposure of sensitive receivers to an unacceptable increase in noise levels.
    - For purposes of this analysis, a significant impact would occur if project-related traffic increases the ambient noise environment of noise-sensitive land uses by 3 dBA or more if the locations are subject to noise levels in excess of conditionally compatible levels, or by 5 dBA or more if the locations are not subject to noise levels in excess of the conditionally compatible levels identified in the City of Fontana General Plan.
- **Item 2.** The project would result in the generation of excessive groundborne vibration or groundborne noise levels.
  - Vibration levels equal to or below 0.4 in./sec. PPV at residential structures would prevent structural damage for most residential building and vibration levels equal to or less than 1.0 in./sec. PPV would prevent damage to more substantial construction, such as high-rise, commercial, and industrial buildings. For human annoyance, the vibration level threshold at which transient, or temporary, vibration sources are considered to be distinctly perceptible is 0.24 in./sec. PPV.
- **Item 3.** For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, if the project exposes people residing or working in the project area to excessive noise levels.

4 Impact Analysis

4.1 Item 1 – Temporary and Permanent Noise Increase

Item: Would the project result in 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? *(Less Than Significant Impact with Mitigation)*

Construction

As described in Section 3.1, at a distance of 350 feet and 450 feet, a grader, a front-end loader, a dozer, and a dump truck would generate a noise level of 64 dBA L_{eq} and 62 dBA L_{eq}, respectively. The entire project would not be constructed all at once but built out in six phases. Actual buildout would be subject to market and economic conditions, jurisdictional processing of approvals, and infrastructure timing, and may vary from the construction phasing currently anticipated. As the project Planning Areas are developed, residential uses in Planning Areas 1-A, 1-B, 3, and 4 may be exposed to other Planning Area construction noise. Table 13 shows the combined hourly and maximum construction noise levels attributable to construction of each Planning Area modeled, noise sensitive receivers analyzed, and resulting exterior and interior noise levels.

Table 13 Construction Noise Levels at Noise Sensitive Receivers

Receiver	Land Use	Distance to Receiver, Feet	Approximate Noise Level, dBA			
			Exterior Spaces		Interior Spaces[1]	
			L_{eq}	L_{max}	L_{eq}	L_{max}
Arboretum Specific Plan	Residential	350	64[2]	65[2]	39	40
Citrus Heights North Specific Plan	Residential	450	62[2]	63[2]	37	38
Planning Area 1-a	Residential	250	70	71	45	41
Planning Area 1-b	Residential	185	73	74	48	49
Planning Area 3	Residential	200	72	73	47	48
Planning Area 4	Residential	150	75	76	50	51

[1]Assuming an exterior to interior noise reduction of 25 dBA due to typical building standards and windows closed.
L_{eq}: one-hour equivalent noise level; L_{max}: instantaneous maximum noise level; dBA: A-weighted decibel
See Appendix B for RCNM results.

As shown in Table 13, Planning Area construction exterior hourly noise levels would range from 62 dBA L_{eq} to 75 dBA L_{eq} at the nearest noise sensitive receivers, with maximum noise levels ranging from 63 dBA L_{max} to 76 dBA L_{max} (see Appendix B for construction noise modeling results). Planning Area construction interior hourly noise levels would range from 37 dBA L_{eq} to 50 dBA L_{eq} at the

nearest noise sensitive receivers, with maximum noise levels ranging from 38 dBA L_{max} to 51 dBA L_{max}. The FTA's daytime construction noise limit is 80 dBA L_{eq} for residential uses; therefore, project construction noise levels would not exceed construction noise thresholds. In addition, construction activities would be restricted to daytime hours per the City of Fontana Municipal Code, Section 18-63(7) of 7:00 a.m. to 6:00 p.m. on weekdays and between the hours of 8:00 a.m. to 5:00 p.m. on Saturdays, avoiding noise sensitive nighttime hours where interior noise levels could be considered an impact. Therefore, construction noise impacts would be less than significant.

However, the timing of construction would be market dependent and the potential exists for construction noise to expose built out noise sensitive receivers in Planning Areas to subsequent Planning Area construction noise. Therefore, the following recommendation should be taken into consideration to benefit occupied on-site dwelling units.

Recommendation

The following recommendation would reduce construction noise levels at on-site noise sensitive uses adjacent to Planning Areas under construction:

NOI-1 Construction Noise Best Management Practices

The project applicant shall reduce construction noise levels at the adjacent single- and multi-family uses to the south of the project site, through measures such as, but not limited to:

- Locate stationary equipment as far as practicable from occupied on-site dwelling units.
- Electrically powered equipment instead of internal combustion equipment shall be used where feasible.
- The use of bells, whistles, alarms, and horns shall be restricted to safety warning purposes only.
- Construction areas for staging and warming up shall be located as far as possible from occupied on-site dwelling units.

Operation

The project would introduce sources of operational noise to the site, including mechanical equipment (i.e., HVAC units). Assumptions for these sources are discussed in Section 3.3. Noise levels at the nearest properties from each noise source and their combined noise levels are shown in Table 14 and ground-floor noise contours are shown in Figure 6. As shown in Table 14, operational HVAC noise on the project site would generate noise levels up to 47 dBA L_{eq} at nearby residential-zoned properties. The operational noise from project HVAC mechanical equipment would not exceed Fontana's operational noise standards of 65 dBA L_{eq}.

Figure 6 HVAC Contours

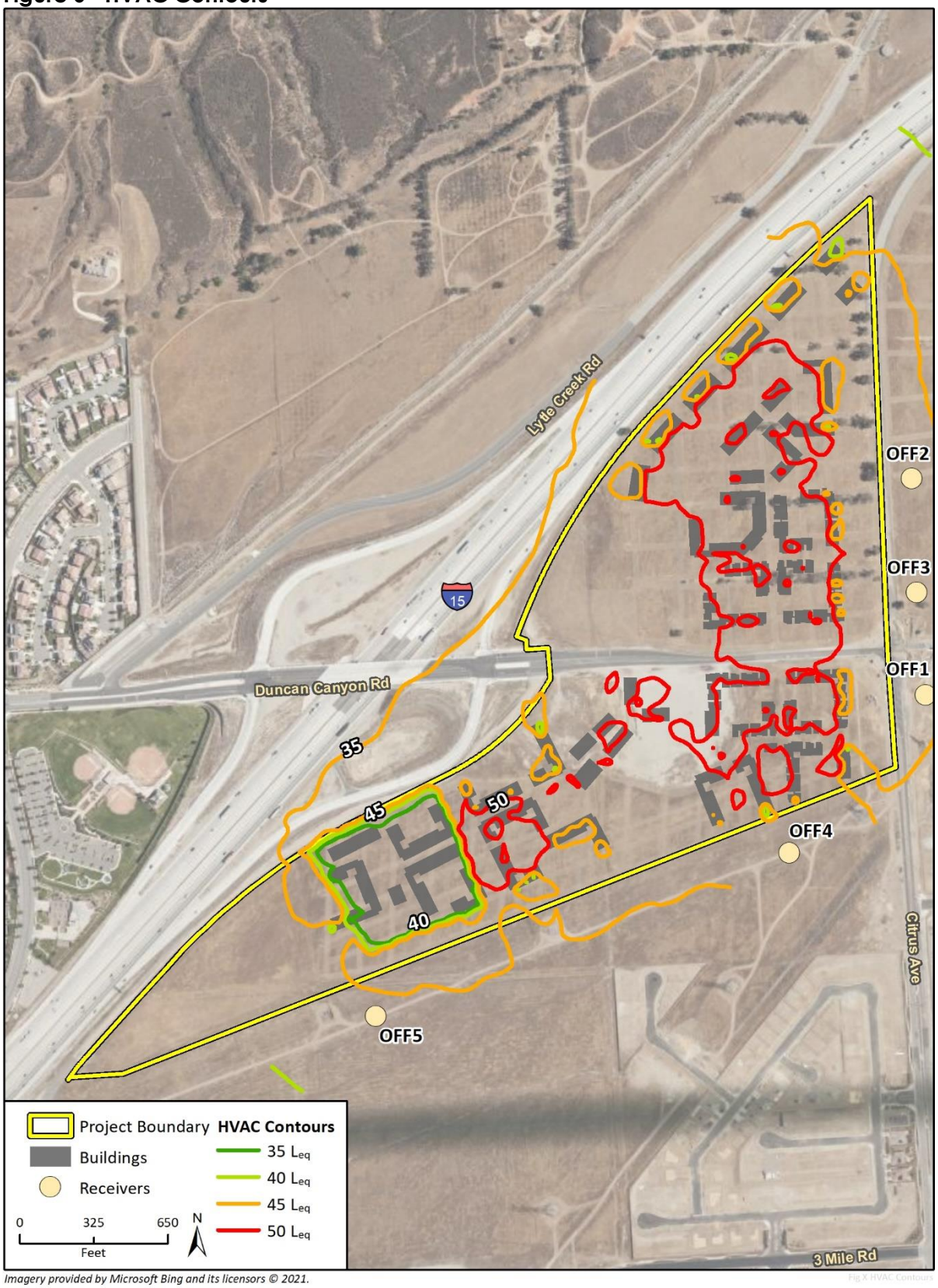

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Table 14 Operational Noise Levels at Off-site Land Uses

Receiver Group	Description	Modeled Noise Level (dBA)	Exceed Standard?[1]
OFF 1	Receivers east of project site across Citrus Avenue and south of Duncan Canyon Road	46	No
OFF 2	Receivers east of project site across Citrus Avenue and Planning Area 1b	47	No
OFF 3	Receivers east of project site across Citrus Avenue and north of Duncan Canyon Road	47	No
OFF 4	Receivers south of Planning Area 2	46	No
OFF 5	Receivers south of Planning Area 4	44	No

[1] Based on Fontana Municipal Code Section 30-469 the applicable threshold for all hours of the day is 65 dBA L_{eq} at residential properties.

See Appendix B for SoundPLAN results.

Off-site Traffic Noise Increases

The project would generate new vehicle trips that would increase noise levels on nearby roadways. As discussed in the project Traffic Study, the project is anticipated to generate a net total of 17,352 daily vehicle trips with 1,786 AM peak hour trips and 1,531 PM peak hour trips (Urban Crossroads 2021). The Traffic Study area includes roadway segments of Duncan Canyon Road, Citrus Avenue, Casa Grande, Summit Avenue, Sierra Avenue, and Lytle Creek Road (Urban Crossroads 2021). Roadway segment volumes with and without project-generated traffic are shown in Table 15.

The project would make alterations to roadway alignments of Lytle Creek Road, however, substantial changes to the vehicle classifications mix on local roadways is not expected. Therefore, the primary factor affecting off-site noise levels would be increased traffic volumes. Noise levels with and without project generated traffic were developed based on algorithms and reference levels from FHWA TNM. Noise levels with and without project-generated traffic are shown in Table 15.

As discussed in Section 2.1, *Overview of Sound*, a doubling of the energy of a noise source, such as doubling of traffic volume, would increase the noise level by 3 dBA. It is widely accepted that the average healthy ear can barely perceive changes of 3 dBA, increase or decrease. Project-generated traffic noise level increases would range between less than 1 dBA CNEL to 4 dBA CNEL. Two project area roadway segments of Citrus Avenue, from the north to Lytle Creek Road and Lytle Creek Road to Duncan Canyon Road, would experience the largest traffic noise level increases, 3 dBA CNEL and 4 dBA CNEL, respectively, when comparing 2023 to 2023 with and without project traffic scenarios. It should be noted that there are no existing noise sensitive receivers along these roadway segments.

For purposes of this analysis, a significant impact would occur if project-related traffic increases the ambient noise environment of noise-sensitive land uses by 3 dBA or more if the locations are subject to noise levels in excess of conditionally compatible levels, or by 5 dBA or more if the locations are not subject to noise levels in excess of the conditionally compatible levels identified in the City of Fontana General Plan. Therefore, impacts would be less than significant.

Table 15 Offsite Traffic Noise Levels (dBA CNEL at 100 Feet)

Roadway	Segment	Existing Noise Level (dBA)	Existing + Phase 1 Noise Level (dBA)	Noise Level Change (dBA)	2023 (dBA)	2023+ Project Noise Level (dBA)	Noise Level Change (dBA)	2030 (dBA)	2030 + Project (dBA)	Noise Level Change (dBA)	2040 (dBA)	2040 + Project (dBA)	Noise Level Change (dBA)
Duncan Canyon Road	Roadrunner Road to Coyote Canyon Road	59	59	<1	59	59	<1	60	60	<1	60	60	<1
	Coyote Canyon Road to I-15 NB Ramp	60	62	2	61	62	1	62	62	<1	63	63	<1
	I-15 NB Ramp to Lytle Creek Road	60	62	2	63	64	1	64	65	1	64	65	1
	Lytle Creek Road to Citrus Avenue	60	62	2	63	63	<1	64	64	<1	64	65	1
	Citrus Avenue to the east	55	55	<1	56	57	1	57	58	1	58	59	1
Citrus Avenue	From the north to Lytle Creek Road	--	--	--	50	53	3	52	53	1	52	54	2
	Lytle Creek Road to Duncan Canyon Road	--	--	--	50	54	4	52	54	2	52	54	2
	Duncan Canyon Road to Casa Grande	59	60	1	61	62	1	62	63	1	62	63	1
	Casa Grande to Summit Avenue	59	60	1	61	61	<1	62	62	<1	62	62	<1
	Summit Avenue to	62	63	<1	64	64	<1	64	65	1	65	65	<1

	Sierra Lakes Parkway												
Casa Grande	Citrus Avenue to Sierra Avenue	54	55	1	59	59	<1	60	61	1	61	61	<1
Summit Avenue	Beech Avenue to Lytle Creek Road	63	63	<1	63	63	<1	64	64	<1	64	65	1
	Lytle Creek Road to Citrus Avenue	64	64	<1	64	64	<1	65	65	<1	65	66	1
	Citrus Avenue to Sierra Avenue	62	63	<1	63	63	<1	63	63	<1	63	64	1
Sierra Avenue	Riverside Avenue to Casa Grande	65	65	<1	66	66	<1	66	66	<1	67	67	<1
	Summit Avenue to Sierra Lakes Parkway	66	66	<1	66	66	<1	67	67	<1	67	67	<1
Lytle Creek Road	Citrus Avenue to Duncan Canyon Road	--	56	--		56	--	--	56	--	--	56	--
	Duncan Canyon Road to Summit Avenue	--	--	--		39	--	--	57	--	--	57	--

A dash indicates that traffic data for the segment does not exist.

See Appendix B for traffic noise modeling results.

Traffic Noise Land Use Compatibility

As discussed in Section 2.5, the Fontana General Plan Noise and Safety Element includes the criteria for evaluating whether a given land use is compatible with the existing noise environment. The project proposes a mix of uses, including noise sensitive residential uses. For noise sensitive residential uses, noise levels up to 65 dBA CNEL are considered compatible with the City's Noise and Safety Element exterior noise criteria for land use compatibility.

Following the methodology discussed in Section 3.4, traffic noise levels were modeled at a series of receivers at and residential building façades and exterior use areas were calculated in SoundPLAN. Modeled noise levels are summarized in Table 16 and ground-floor noise contours are shown in Figure 7.

Table 16 Traffic Noise Levels

Receiver	Building	Modeled Noise Level (dBA CNEL) 1st Floor	2nd Floor	3rd Floor	Compatibility
Exterior Use Areas					
Planning Area 1B Pool		55	-	-	Compatible
Planning Area 3 Pool		53	-	-	Compatible
Planning Area 4 Pool		62	-	-	Compatible
Planning Area 2 – Commercial		77			Compatible
Planning Area 4 – Commercial		71			Compatible
Planning Areas 5a - Commercial		70			Compatible
Planning Areas 5b - Commercial		70			Compatible
Planning Areas 6 - Commercial		74			Compatible
Building Facades					
Planning Area 1a	R 1 South	**70**	**71**	**71**	**Conditionally Compatible**
	R 1 West	65	68	69	Compatible
	R 2 West	61	65	66	Compatible
	R 3 South	**71**	**72**	**72**	**Conditionally Compatible**
	R 3 East	60	62	63	Compatible
	R 6 South	57	59	60	Compatible
	R 6 East	57	59	61	Compatible
Planning Area 1b	R 1 West	67	69	70	Compatible
	R 2 North	60	63	64	Compatible
	R 2 West	62	66	67	Compatible
	R 3 North	55	59	61	Compatible
	R 4 North	62	65	66	Compatible
	R 4 South	62	65	66	Compatible
	R 4 West	66	68	69	Compatible
	R 5 West	66	68	68	Compatible
	R 6 North	55	58	59	Compatible
	R 6 South	53	56	57	Compatible
	R 6 West	55	58	59	Compatible
	R 7 East	57	60	62	Compatible
	R 7 West	56	60	61	Compatible
	R 7 North	63	66	67	Compatible

Receiver	Building	Modeled Noise Level (dBA CNEL)			Compatibility
		1st Floor	2nd Floor	3rd Floor	
Planning Area 3	R 1 North	62	63	63	Compatible
	R 1 West	59	60	61	Compatible
	R 3 North	**72**	**73**	**73**	**Conditionally Compatible**
	R 3 West	64	65	66	Compatible
	R 6 East	62	63	63	Compatible
	R 8 East	64	65	66	Compatible
	R 8 North	**72**	**72**	**72**	**Conditionally Compatible**
Planning Area 4	R 1 South	69	**73**	**73**	**Conditionally Compatible**
	R 2 South	**71**	**74**	**74**	**Conditionally Compatible**
	R 2 West	**72**	**74**	**75**	**Conditionally Compatible**
	R 4 Northwest	67	**72**	**73**	**Conditionally Compatible**
	R 4 Southwest	68	**72**	**72**	**Conditionally Compatible**
	R 5 West	66	66	66	Compatible
	R 6 West	69	**72**	**72**	**Conditionally Compatible**
	R 8 East	64	64	64	Compatible
	R 9 Northwest	68	**70**	**72**	**Conditionally Compatible**
	R 10 East	63	63	63	Compatible

Bolded values are conditionally compatible. A dash indicates that the floor does not exist.

See Figure 5 for corresponding building labels

See Appendix B for SoundPLAN results.

For multi-family residential uses, the exterior noise level standard is typically applied at common outdoor activity areas. Planning Areas 1b, 3, and 4 include a common outdoor activity area at the pool areas. As shown in Table 16, the pool areas would be exposed to traffic noise levels below 65 dBA CNEL. These noise levels would not conflict with the City's compatibility standards.

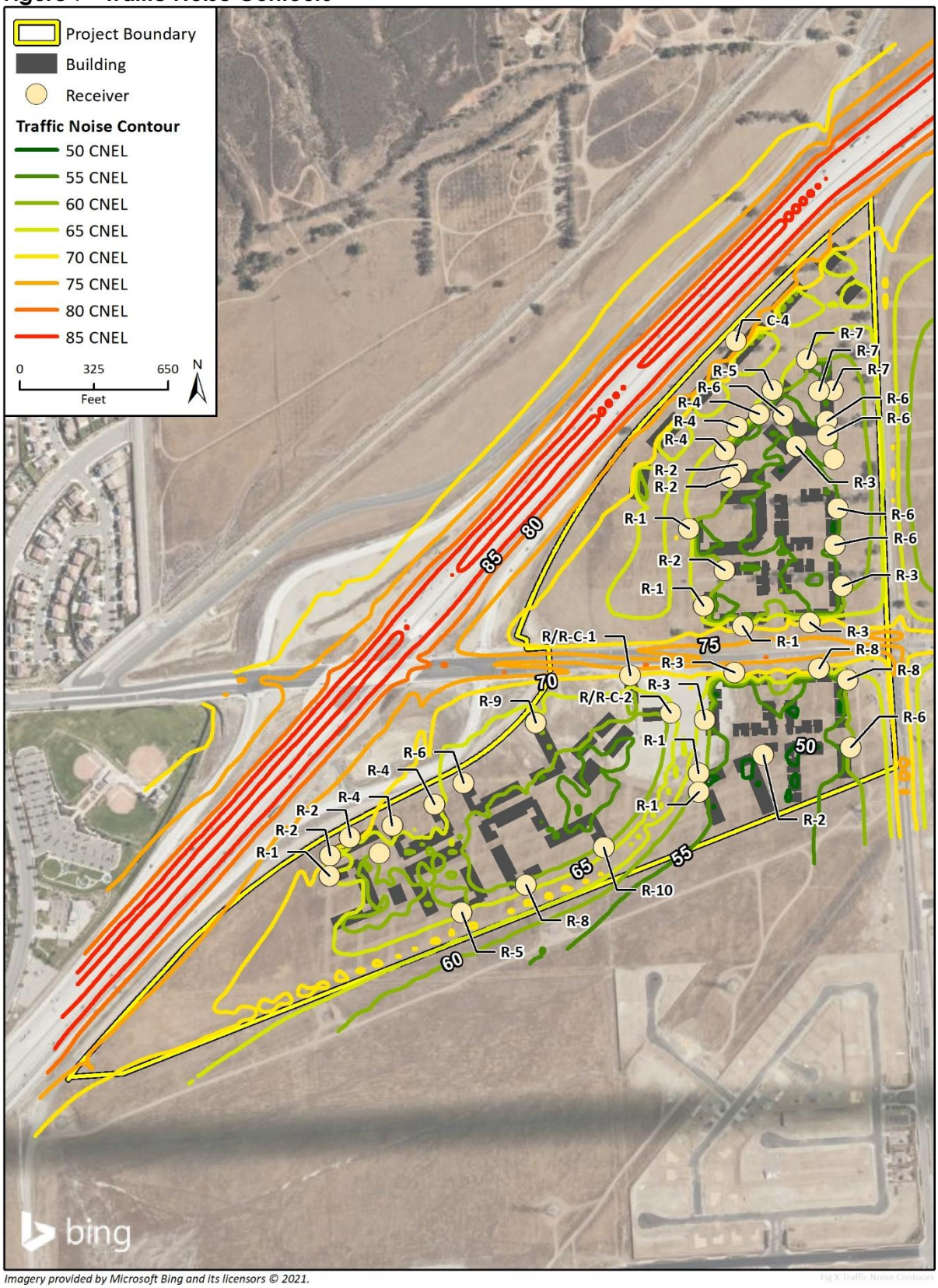
The commercial component of the Specific Plan would generally be exposed to traffic noise levels between 64 and 77 dBA CNEL, see Table 16. The commercial uses of Planning Area 2, Planning Area 4, Planning Area 5a, Planning Area 5b, and Planning Area 6 would be exposed to traffic noise levels up to 77 dBA CNEL at facades adjacent to I-15. The commercial uses of Planning Area 4 would be exposed to traffic noise levels up to 71 dBA CNEL at the nearest façade adjacent to Duncan Canyon Road. The proposed commercial uses would not generally be considered noise sensitive. These noise levels would not conflict with the City's compatibility standards and the commercial component of the project would be compatible with the ambient noise environment.

Planning Area 1a residential buildings would be exposed to traffic noise levels between 57 dBA and 72 dBA CNEL at first through third floor facades. The south facades of Buildings 1 and 3 would be exposed to Duncan Canyon Road traffic noise levels of 70 dBA to 72 dBA CNEL at the first through third floors. The west façade of Buildings 1 and 2 would be exposed to Lytle Creek Road traffic noise levels of 66 dBA to 68 dBA CNEL at the second and third floors.

Planning Area 1b residential buildings would be exposed to traffic noise levels between 53 dBA and 70 dBA CNEL at first through third floor facades. The west facades of Buildings 1, 2, 4, 5, and north façade of Building 7 would be exposed to Lytle Creek Road traffic noise levels of 66 dBA to 70 dBA CNEL at the first through third floors.

Planning Area 3 residential buildings would be exposed to traffic noise levels between 62 dBA and 73 dBA CNEL at first through third floor facades. The north facades of Buildings 3 and 8 would be exposed to Duncan Canyon Road traffic noise levels of 72 dBA to 73 dBA CNEL at the first through third floors. The west façade of Building 3 would also be exposed to Lytle Creek Road traffic noise level 66 dBA CNEL at the third-floor façade. The east façade of Building 8 would also be exposed to Citrus Avenue traffic noise level of 66 dBA at the third-floor façade.

Figure 7 Traffic Noise Contours



Imagery provided by Microsoft Bing and its licensors © 2021.

Planning Area 4 residential buildings would be exposed to traffic noise levels between 63 dBA and 75 dBA CNEL at the first through third floor facades. The west, northwest, and southwest facades of Buildings 2, 4, 6, and 9 would be exposed to I-15 traffic noise levels of 67 dBA to 75 dBA CNEL at the first through third floor facades. The south facades of Buildings 1 and 2 would also be exposed to I-15 traffic noise levels of 69 dBA to 74 dBA CNEL at the first through third floor facades.

As noise levels would exceed 65 dBA CNEL, the project would be conditionally acceptable with the noise environment based on community noise exposure standards from the General Plan. Therefore, additional analysis to determine whether interior noise levels would not exceed 45 dBA CNEL are discussed below.

The FHWA's guidelines indicate that modern building construction generally provides an exterior-to-interior noise level reduction of 20 to 35 dBA with closed windows (FHWA 2011). Based on a noise exposure level of up to 75 dBA CNEL and a noise attenuation of 20 dBA, the interior noise levels would be up to 55 dBA CNEL. Therefore, where building façade noise levels would exceed 65 dBA CNEL (i.e., residential units adjacent to I-15 and Duncan Canyon Road), interior noise levels for the project would not comply with the City's interior noise standard of 45 dBA CNEL for residential uses. Implementation of recommendation NOI-2, a detailed exterior-to-interior noise analysis of the noise reduction requirements and needed noise insulation features included in the design to achieve compliance with the interior noise standard, would be required.

Recommendation

NOI-2 Exterior-to-Interior Noise Analysis

For residential units where exterior noise levels exceed 65 dBA CNEL, the project applicant shall coordinate with the project architects and other contractors to ensure compliance with the 45 dBA CNEL interior noise level standard. This shall be achieved through additional exterior-to-interior noise analysis and incorporation of noise attenuation features once specific building plan information is available. The information in the analysis shall include wall heights and lengths, room volumes, window and door tables typical for a building plan, as well as information on other openings in the building shell. With this specific building plan information, the analysis shall determine the predicted interior noise levels at the planned on-site buildings. If predicted noise levels are found to be in excess of the applicable limit, the report shall identify architectural materials or techniques that could be included to reduce noise levels to the applicable limit. The project applicant shall comply with mitigation measures included in the interior noise report to reduce interior noise levels where applicable noise limits are exceeded.

4.2 Item 2 – Vibration

Item:	Would the project result in generation of excessive groundborne vibration or groundborne noise levels? *(Less Than Significant Impact)*

Construction activities known to generate excessive groundborne vibration, such as pile driving, would not be conducted by the project. The greatest anticipated source of vibration during general project construction activities would be from a dozer, which may be used within 50 feet of the nearest on-site vibration sensitive use. A dozer creates approximately 0.089 in./sec. PPV at a distance of 25 feet (Caltrans 2020). This would equal a vibration level of 0.0315 in./sec. PPV at

50 feet. This vibration level is lower than the human annoyance threshold of 0.24 in./sec. PPV and the structural damage threshold of 0.4 in./sec. PPV. Therefore, temporary impacts associated with construction would be less than significant.

The project does not include any substantial vibration sources associated with operation. Therefore, operational vibration impacts would be less than significant.

4.3 Item 3 – Airport Noise

Item:	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? *(No Impact)*

The Ontario International Airport is approximately 10.7 miles southwest of the project site, and San Bernardino International Airport is approximately 12.9 miles southeast of the project site. The proposed project would not be situated within two miles of a public airport, public use airport, or an airport land use plan area. Therefore, no substantial noise exposure from airport noise would occur to construction workers, users, or employees of the project, and no impacts would occur.

5 Conclusions

The project would generate both temporary construction-related noise and long-term noise associated with operation of the project. Implementation of recommendation NOI-1 (Construction Noise Best Management Practices) would include locating stationary equipment as far as practicable from occupied on-site dwelling units, using electrically powered equipment instead of internal combustion equipment where feasible, restricting the use of bells, whistles, alarms and horns, and locating construction staging and warming areas as far as possible from occupied on-site dwelling units. With implementation of recommendation NOI-1 and complying with daytime construction hours of 7:00 a.m. to 6:00 p.m. on weekdays and between the hours of 8:00 a.m. to 5:00 p.m. on Saturdays, construction noise levels would be reduced to a level that does not exceed applicable noise level limits from the Fontana Municipal Code Construction noise would not exceed Fontana Municipal Code noise standards at the nearby land uses and impacts from construction noise would be less than significant.

Operational HVAC activities on the project site would generate noise levels up to 47 dBA L_{eq} at nearby residential-zoned properties to the south and east of the site. The operational noise from the mechanical equipment would comply with Fontana's daytime and nighttime noise standards, and impacts would be less than significant.

Project-generated traffic would generate an increase of up to 4 dBA CNEL on analyzed roadways. The roadway segments of Citrus Avenue, from the north to Lytle Creek Road and Lytle Creek Road to Duncan Canyon Road, would experience the largest traffic noise level increases, 3 dBA CNEL and 4 dBA CNEL, respectively, when comparing 2023 to 2023 with and without project traffic scenarios. It should be noted that there are no existing noise sensitive receivers along these roadway segments to be impacted. Furthermore, the project's traffic noise increase would not exceed 60 dBA CNEL, the City's threshold for exterior noise impacts on residential areas. Therefore, off-site traffic impacts would be less than significant.

Traffic noise levels at the residential common outdoor activity areas (pools areas) would range between 53 dBA to 62 dBA CNEL and traffic noise levels at residential building façades would reach 75 dBA CNEL for residential buildings adjacent to Duncan Canyon Road and I-15. Therefore, based on community noise exposure standards from the General Plan, the proposed uses are conditionally compatible with the noise environment. With an exterior-to-interior noise level reduction of at least 20 dBA, interior noise levels for the project would exceed the City's interior noise standard of 45 dBA CNEL. With implementation of NOI-2 (Exterior-to-Interior Noise Analysis) incorporation of noise attenuation features once specific building plan information is available would comply with the City's interior noise threshold and impacts from interior traffic noise would be less than significant.

The project would generate groundborne vibration during construction. Groundborne vibration would not exceed the applicable vibration threshold at the nearest structures, and construction-related vibration impacts would be less than significant.

The project site is outside the noise contours for the Ontario International Airport and San Bernardino International Airport. Therefore, no substantial noise exposure would occur to construction workers, employees, or users of the project from aircraft noise.

6 References

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Appendix A

Noise Measurement Data

NM1

- Freq Weight : A
- Time Weight : SLOW
- Level Range : 40-100
- Max dB : 69.2 - 2021/05/26 09:29:18
- Level Range : 40-100
- SEL : 82.7
- Leq : 53.2
-

No.s	Date Time	(dB)				
1	2021/05/26 09:19:14	47.2	46.5	49.3	56.2	55.7
6	2021/05/26 09:19:29	53.2	53.6	57.0	51.4	46.0
11	2021/05/26 09:19:44	43.9	44.4	49.6	56.7	52.8
16	2021/05/26 09:19:59	50.4	53.6	58.6	55.5	49.7
21	2021/05/26 09:20:14	46.9	45.5	46.9	46.6	45.9
26	2021/05/26 09:20:29	47.7	52.3	49.9	49.3	53.4
31	2021/05/26 09:20:44	48.8	45.2	43.1	43.4	44.0
36	2021/05/26 09:20:59	45.0	45.3	45.1	45.5	45.0
41	2021/05/26 09:21:14	45.8	46.0	46.9	46.4	52.4
46	2021/05/26 09:21:29	55.6	50.9	49.7	50.9	45.9
51	2021/05/26 09:21:44	45.3	47.1	48.3	48.4	48.3
56	2021/05/26 09:21:59	49.3	51.9	55.1	56.7	55.8
61	2021/05/26 09:22:14	52.1	50.4	49.7	48.5	46.4
66	2021/05/26 09:22:29	46.3	47.2	51.5	55.1	54.6
71	2021/05/26 09:22:44	48.5	46.9	45.9	45.2	47.0
76	2021/05/26 09:22:59	48.0	47.9	45.9	44.4	44.8
81	2021/05/26 09:23:14	45.1	52.0	49.6	51.4	52.8
86	2021/05/26 09:23:29	53.6	55.3	53.5	51.3	48.4
91	2021/05/26 09:23:44	52.8	52.6	49.2	48.7	45.5
96	2021/05/26 09:23:59	43.9	44.3	47.3	49.6	48.4
101	2021/05/26 09:24:14	48.5	45.3	43.3	47.0	49.4
106	2021/05/26 09:24:29	50.4	46.5	45.3	48.3	48.3
111	2021/05/26 09:24:44	46.0	45.2	49.8	51.5	49.8
116	2021/05/26 09:24:59	52.4	61.0	61.1	59.8	54.2
121	2021/05/26 09:25:14	50.3	48.2	49.1	49.3	48.9
126	2021/05/26 09:25:29	44.8	43.6	45.5	43.7	43.6
131	2021/05/26 09:25:44	43.2	43.4	43.7	44.5	44.4
136	2021/05/26 09:25:59	45.5	48.2	52.5	60.3	61.0
141	2021/05/26 09:26:14	55.6	51.9	48.4	47.2	47.7
146	2021/05/26 09:26:29	46.5	46.2	47.2	43.4	43.6
151	2021/05/26 09:26:44	46.7	51.9	48.6	48.6	56.8
156	2021/05/26 09:26:59	53.9	48.1	51.1	51.2	47.5
161	2021/05/26 09:27:14	48.9	46.4	45.9	47.1	48.0
166	2021/05/26 09:27:29	48.8	46.0	45.2	47.5	50.4
171	2021/05/26 09:27:44	47.5	46.8	47.2	50.4	52.3
176	2021/05/26 09:27:59	48.3	46.1	44.8	45.1	44.3
181	2021/05/26 09:28:14	45.0	48.6	49.5	58.2	67.5
186	2021/05/26 09:28:29	65.3	55.5	48.2	46.6	46.0
191	2021/05/26 09:28:44	44.3	44.3	44.9	44.9	44.3
196	2021/05/26 09:28:59	44.8	44.3	43.9	52.4	56.5
201	2021/05/26 09:29:14	66.3	67.4	59.2	51.2	48.2
206	2021/05/26 09:29:29	49.2	53.7	53.8	51.0	52.0
211	2021/05/26 09:29:44	63.8	62.0	54.2	50.0	53.0
216	2021/05/26 09:29:59	54.9	51.8	48.7	50.3	49.0
221	2021/05/26 09:30:14	48.7	48.0	54.0	53.5	49.0
226	2021/05/26 09:30:29	47.1	47.4	50.7	49.5	51.1
231	2021/05/26 09:30:44	51.5	51.1	47.4	46.4	47.1
236	2021/05/26 09:30:59	47.3	47.1	49.0	53.2	49.7
241	2021/05/26 09:31:14	49.7	55.4	54.5	55.4	54.4
246	2021/05/26 09:31:29	53.3	51.2	51.2	48.1	47.1
251	2021/05/26 09:31:44	46.0	47.7	49.0	49.4	49.3
256	2021/05/26 09:31:59	49.9	50.2	48.7	47.2	47.0
261	2021/05/26 09:32:14	46.5	51.9	50.1	50.1	54.6
266	2021/05/26 09:32:29	56.0	49.9	46.5	51.4	54.7
271	2021/05/26 09:32:44	49.5	48.8	55.2	51.6	48.0
276	2021/05/26 09:32:59	47.0	46.9	47.9	48.2	49.7
281	2021/05/26 09:33:14	50.1	49.0	51.9	50.6	45.7
286	2021/05/26 09:33:29	43.8	43.3	43.3	43.1	44.7
291	2021/05/26 09:33:44	53.6	50.7	46.2	45.7	50.6
296	2021/05/26 09:33:59	47.7	51.3	51.7	48.8	47.2

NM2

- Freq Weight : A
- Time Weight : SLOW
- Level Range : 40-100
- Max dB : 78.1 - 2021/05/26 08:17:08
- Level Range : 40-100
- SEL : 87.3
- Leq : 57.8
-

No.s	Date Time	(dB)				
1	2021/05/26 08:03:29	52.3	54.8	47.1	47.4	52.3
6	2021/05/26 08:03:44	52.0	46.2	44.2	48.1	46.4
11	2021/05/26 08:03:59	44.1	46.5	56.7	48.5	45.3
16	2021/05/26 08:04:14	46.9	45.4	44.9	44.7	44.5
21	2021/05/26 08:04:29	44.9	44.5	46.0	51.4	47.6
26	2021/05/26 08:04:44	44.4	44.7	47.4	50.6	49.0
31	2021/05/26 08:04:59	52.5	53.2	53.5	50.9	50.2
36	2021/05/26 08:05:14	56.8	52.6	48.9	49.9	52.1
41	2021/05/26 08:05:29	55.5	49.8	49.6	49.1	52.9
46	2021/05/26 08:05:44	56.4	59.3	59.9	56.1	50.4
51	2021/05/26 08:05:59	46.4	45.0	45.0	44.6	43.8
56	2021/05/26 08:06:14	46.2	55.4	62.9	52.5	45.3
61	2021/05/26 08:06:29	44.4	50.7	53.6	51.0	46.3
66	2021/05/26 08:06:44	50.7	52.3	53.0	51.1	50.5
71	2021/05/26 08:06:59	53.9	47.5	46.1	52.8	50.7
76	2021/05/26 08:07:14	46.4	45.1	44.9	44.8	51.4
81	2021/05/26 08:07:29	50.7	47.5	54.2	50.4	45.6
86	2021/05/26 08:07:44	44.8	46.7	54.4	57.3	52.1
91	2021/05/26 08:07:59	55.0	54.7	50.6	51.2	51.1
96	2021/05/26 08:08:14	47.4	44.4	44.2	44.0	44.0
101	2021/05/26 08:08:29	46.5	53.2	50.9	54.0	64.3
106	2021/05/26 08:08:44	57.4	51.9	54.9	60.9	60.9
111	2021/05/26 08:08:59	53.7	51.8	52.7	50.0	50.4
116	2021/05/26 08:09:14	57.2	53.0	51.7	52.1	46.5
121	2021/05/26 08:09:29	44.7	44.1	44.6	44.8	51.0
126	2021/05/26 08:09:44	52.9	53.7	52.3	48.4	45.6
131	2021/05/26 08:09:59	44.5	44.9	44.8	48.2	51.4
136	2021/05/26 08:10:14	51.3	48.1	45.6	48.6	57.2
141	2021/05/26 08:10:29	58.5	50.9	55.4	51.1	44.7
146	2021/05/26 08:10:44	47.1	54.6	48.6	43.3	43.1
151	2021/05/26 08:10:59	47.4	48.7	43.8	42.2	42.2
156	2021/05/26 08:11:14	42.7	45.0	51.1	54.8	53.8
161	2021/05/26 08:11:29	49.4	46.0	49.5	52.6	53.5
166	2021/05/26 08:11:44	69.4	76.3	71.1	61.6	54.9
171	2021/05/26 08:11:59	51.1	54.7	54.7	57.0	54.1
176	2021/05/26 08:12:14	57.8	54.9	48.5	51.5	48.6
181	2021/05/26 08:12:29	44.1	45.8	47.9	49.0	52.3
186	2021/05/26 08:12:44	46.5	43.3	42.7	43.1	42.8
191	2021/05/26 08:12:59	43.0	42.7	43.1	43.6	48.6
196	2021/05/26 08:13:14	48.5	44.7	44.4	50.9	57.2
201	2021/05/26 08:13:29	51.1	45.1	43.9	44.5	44.7
206	2021/05/26 08:13:44	51.1	53.9	50.9	48.4	49.7
211	2021/05/26 08:13:59	51.7	50.6	49.4	44.5	43.3
216	2021/05/26 08:14:14	43.1	43.3	43.4	43.3	43.4
221	2021/05/26 08:14:29	43.9	45.0	53.9	53.6	53.5
226	2021/05/26 08:14:44	48.1	44.6	46.5	55.9	55.4
231	2021/05/26 08:14:59	50.9	55.2	50.7	46.6	46.4
236	2021/05/26 08:15:14	45.8	45.4	51.4	52.3	52.9
241	2021/05/26 08:15:29	50.5	54.7	49.6	52.8	52.9
246	2021/05/26 08:15:44	48.6	44.1	43.1	43.0	50.1
251	2021/05/26 08:15:59	49.9	44.6	44.7	53.2	54.9
256	2021/05/26 08:16:14	47.5	43.5	43.2	43.8	45.0
261	2021/05/26 08:16:29	48.0	57.1	60.7	58.2	54.5
266	2021/05/26 08:16:44	54.7	51.7	52.2	48.4	50.5
271	2021/05/26 08:16:59	54.0	63.8	77.4	72.9	61.3
276	2021/05/26 08:17:14	51.0	45.2	47.3	51.8	54.4
281	2021/05/26 08:17:29	50.7	44.7	43.3	44.0	49.5
286	2021/05/26 08:17:44	49.2	51.5	52.8	47.6	44.4
291	2021/05/26 08:17:59	44.1	44.9	44.0	43.3	43.4
296	2021/05/26 08:18:14	45.6	49.8	48.0	48.3	51.0

NM3

- Freq Weight : A
- Time Weight : SLOW
- Level Range : 40-100
- Max dB : 62.4 - 2021/05/26 08:47:31
- Level Range : 40-100
- SEL : 80.2
- Leq : 50.7
-

No.s	Date Time	(dB)				
1	2021/05/26 08:40:38	47.7	47.5	49.6	49.5	48.4
6	2021/05/26 08:40:53	48.6	48.3	47.6	48.1	49.4
11	2021/05/26 08:41:08	49.5	49.7	50.2	50.4	50.3
16	2021/05/26 08:41:23	50.0	49.7	49.5	49.7	49.9
21	2021/05/26 08:41:38	50.8	50.1	49.5	49.2	49.0
26	2021/05/26 08:41:53	49.4	48.8	48.9	48.8	49.7
31	2021/05/26 08:42:08	49.0	49.1	49.7	49.7	49.6
36	2021/05/26 08:42:23	49.0	49.1	48.9	49.2	48.3
41	2021/05/26 08:42:38	47.8	47.8	48.3	47.8	47.6
46	2021/05/26 08:42:53	47.8	48.2	48.7	48.8	49.0
51	2021/05/26 08:43:08	49.5	49.7	51.2	53.2	52.6
56	2021/05/26 08:43:23	50.8	51.0	50.0	49.7	49.9
61	2021/05/26 08:43:38	50.4	51.2	49.8	48.9	48.7
66	2021/05/26 08:43:53	48.8	48.8	48.4	48.8	49.6
71	2021/05/26 08:44:08	50.1	50.4	50.4	50.0	49.6
76	2021/05/26 08:44:23	49.6	50.2	50.3	49.8	49.6
81	2021/05/26 08:44:38	49.7	49.9	49.5	50.6	50.9
86	2021/05/26 08:44:53	51.1	51.0	51.0	51.1	51.0
91	2021/05/26 08:45:08	50.9	51.1	53.1	51.4	52.9
96	2021/05/26 08:45:23	51.4	50.8	50.6	51.0	50.7
101	2021/05/26 08:45:38	50.3	49.8	49.7	50.1	49.6
106	2021/05/26 08:45:53	49.7	49.3	48.8	48.6	48.6
111	2021/05/26 08:46:08	48.9	48.6	48.7	49.0	49.2
116	2021/05/26 08:46:23	48.6	48.7	49.0	48.7	49.0
121	2021/05/26 08:46:38	49.2	49.1	48.8	49.3	48.9
126	2021/05/26 08:46:53	48.9	48.6	48.6	49.5	48.9
131	2021/05/26 08:47:08	49.6	49.8	51.2	52.5	53.9
136	2021/05/26 08:47:23	55.7	56.9	61.6	57.2	55.3
141	2021/05/26 08:47:38	54.7	52.5	53.1	51.4	51.0
146	2021/05/26 08:47:53	49.9	49.6	48.5	49.9	49.3
151	2021/05/26 08:48:08	50.0	49.9	48.8	48.7	47.5
156	2021/05/26 08:48:23	46.8	46.3	46.0	45.8	46.3
161	2021/05/26 08:48:38	47.0	46.7	46.3	46.2	46.5
166	2021/05/26 08:48:53	46.9	46.6	46.4	45.9	46.3
171	2021/05/26 08:49:08	46.5	46.4	46.5	47.2	46.9
176	2021/05/26 08:49:23	47.3	48.5	47.6	46.4	47.8
181	2021/05/26 08:49:38	48.8	49.5	51.8	54.2	59.1
186	2021/05/26 08:49:53	57.6	56.6	51.5	50.0	49.4
191	2021/05/26 08:50:08	48.9	49.0	49.5	48.9	48.9
196	2021/05/26 08:50:23	48.3	48.3	47.3	46.6	46.5
201	2021/05/26 08:50:38	46.3	46.8	46.8	46.6	47.0
206	2021/05/26 08:50:53	46.9	47.2	47.3	48.0	48.5
211	2021/05/26 08:51:08	48.0	48.2	48.3	48.4	48.1
216	2021/05/26 08:51:23	48.5	47.9	47.7	48.4	48.2
221	2021/05/26 08:51:38	47.8	47.9	47.5	47.1	47.1
226	2021/05/26 08:51:53	47.1	47.4	47.4	47.8	48.0
231	2021/05/26 08:52:08	47.8	48.1	47.7	47.4	47.4
236	2021/05/26 08:52:23	48.1	48.6	48.0	47.9	48.6
241	2021/05/26 08:52:38	48.0	47.6	47.3	46.7	46.9
246	2021/05/26 08:52:53	47.7	48.0	49.7	50.9	49.6
251	2021/05/26 08:53:08	50.1	49.3	49.0	50.2	50.3
256	2021/05/26 08:53:23	49.4	47.8	47.5	47.3	47.8
261	2021/05/26 08:53:38	47.6	47.4	48.2	48.9	49.6
266	2021/05/26 08:53:53	51.1	52.6	53.6	53.7	54.7
271	2021/05/26 08:54:08	58.7	57.7	59.1	58.4	58.6
276	2021/05/26 08:54:23	58.1	59.2	55.2	55.0	55.6
281	2021/05/26 08:54:38	54.6	53.0	49.4	52.0	48.4
286	2021/05/26 08:54:53	46.9	47.7	49.6	46.3	45.3
291	2021/05/26 08:55:08	45.5	46.2	45.6	45.8	46.4
296	2021/05/26 08:55:23	47.1	46.1	46.3	46.4	46.6

Appendix B

Noise Modeling Results

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 06/23/2021
Case Description: Ventana Specific Plan

**** Receptor #1-Arboretum Specific Plan Receiver ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Arboretum Residences	Residential	55.0	50.0	50.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Grader	No	40	85.0		350.0	3.0
Front End Loader	No	40		79.1	350.0	3.0
Dozer	No	40		81.7	350.0	3.0
Dump Truck	No	40		76.5	350.0	3.0

Results

Equipment	Calculated (dBA) Lmax	Leq	Noise Limits (dBA) Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq	Noise Limit Exceedance (dBA) Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq
Grader	65.1	61.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Front End Loader	59.2	55.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	61.8	57.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dump Truck	56.5	52.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	65.1	63.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

**** Receptor #2-Citrus Heights North Specific Plan Receiver ****

Baselines (dBA)

Description	Land Use	Daytime	Evening	Night
Cirtrus Heights North Residences	Residential	55.0	50.0	50.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Grader	No	40	85.0		450.0	3.0
Front End Loader	No	40		79.1	450.0	3.0
Dozer	No	40		81.7	450.0	3.0
Dump Truck	No	40		76.5	450.0	3.0

Results

	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Grader	62.9	58.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Front End Loader	57.0	53.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	59.6	55.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dump Truck	57.9	54.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	62.9	62.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

**** Receptor #3-Planning Area 1-a Receiver ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Planning Area 1-A	Residential	55.0	50.0	50.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Grader	No	40	85.0		250.0	0.0
Front End Loader	No	40		79.1	250.0	0.0
Dozer	No	40		81.7	250.0	0.0
Dump Truck	No	40		76.5	250.0	0.0

Results

	Calculated (dBA)		Noise Limits (dBA) Day		Evening		Night		Noise Limit Exceedance (dBA) Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Grader	71.0	67.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Front End Loader	65.1	61.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	67.7	63.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dump Truck	66.0	63.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	71.0	70.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

**** Receptor #4-Planning Area 1-b Receiver ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Planning Area 1-B	Residential	55.0	50.0	50.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Grader	No	40	85.0		185.0	0.0
Front End Loader	No	40		79.1	185.0	0.0
Dozer	No	40		81.7	185.0	0.0
Dump Truck	No	40		76.5	185.0	0.0

Results

	Calculated (dBA)		Noise Limits (dBA) Day		Evening		Night		Noise Limit Exceedance (dBA) Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Grader	73.6	69.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Front End Loader	67.7	63.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	70.3	66.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dump Truck	68.6	65.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	73.6	72.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

**** Receptor #5-Planning Area 3 Receiver ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Planning Area 2	Residential	55.0	50.0	50.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Grader	No	40	85.0		200.0	0.0
Front End Loader	No	40		79.1	200.0	0.0
Dozer	No	40		81.7	200.0	0.0
Dump Truck	No	40		76.5	200.0	0.0

Results

	Calculated (dBA)		Noise Limits (dBA) Day		Evening		Night		Noise Limit Exceedance (dBA) Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Grader	73.0	69.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Front End Loader	67.1	63.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	69.6	65.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dump Truck	68.0	64.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	73.0	72.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

**** Receptor #6-Planning Area 4 Receiver ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Planning Area 4	Residential	55.0	50.0	50.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Grader	No	40	85.0		150.0	0.0
Front End Loader	No	40		79.1	150.0	0.0
Dozer	No	40		81.7	150.0	0.0
Dump Truck	No	40		76.5	150.0	0.0

Results

	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Grader	75.5	71.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Front End Loader	69.6	65.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	72.1	68.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dump Truck	70.5	67.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	75.5	74.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Ventana at Canyon Creek Specific Plan

HVAC Noise - Receiver table

No.	Floor	Name	Usage	Direction	Limit		HVAC Points	
					Lr,lim	Lr,lim	Leq,d	Leq,n
					[dB(A)]		[dB(A)]	
1	G	Off-1	SCR		0	0	46.1	46.1
2	G	Off-2	SCR		0	0	46.7	46.7
3	G	Off-3	SCR		0	0	47.0	47.0
4	G	Off-4	SCR		0	0	45.7	45.7
5	G	Off-5	SCR		0	0	43.8	43.8

Ventana at Canyon Creek Specific Plan
Octave spectra of the sources in dB(A) - HVAC Points

Name	Source type	l or A	Li	R'w	L'w	Lw	KI	KT	LwMax	DO-Wall	Time histogram	Emission spectrum	125Hz	250Hz	500Hz	1kHz	2kHz	4kHz	8kHz	
		m,m²	dB(A)	dB	dB(A)	dB(A)	dB	dB	dB(A)	dB			dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	
PA-1A R1.1	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-1A R1.2	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-1A R1.3	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-1A R1.4	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-1A R1.5	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-1A R1.6	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-1A R1.7	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-1A R1.8	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-1A R1.9	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-1A R1.10	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-1A R1.11	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-1A R1.12	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-1A R-2.1	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-1A R-2.2	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-1A R-2.3	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-1A R-2.4	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	

Ventana at Canyon Creek Specific Plan
Octave spectra of the sources in dB(A) - HVAC Points

Name	Source type	l or A m,m²	Li dB(A)	R'w dB	L'w dB(A)	Lw dB(A)	KI dB	KT dB	LwMax dB(A)	DO-Wall dB	Time histogram	Emission spectrum	125Hz dB(A)	250Hz dB(A)	500Hz dB(A)	1kHz dB(A)	2kHz dB(A)	4kHz dB(A)	8kHz dB(A)	
PA-1A R-2.5	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-1A R-2.6	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-1A R-2.7	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-1A R-2.8	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-1A R-3.1	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-1A R-3.2	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-1A R-3.3	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-1A R-3.4	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-1A R-3.5	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-1A R-3.6	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-1A R-3.7	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-1A R-3.8	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-1A R-3.9	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-1A R-3.10	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-1A R-3.11	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-1A R-3.12	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	

Ventana at Canyon Creek Specific Plan
Octave spectra of the sources in dB(A) - HVAC Points

Name	Source type	l or A	Li	R'w	L'w	Lw	KI	KT	LwMax	DO-Wall	Time histogram	Emission spectrum	125Hz	250Hz	500Hz	1kHz	2kHz	4kHz	8kHz	
		m,m²	dB(A)	dB	dB(A)	dB(A)	dB	dB	dB(A)	dB			dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	
PA-1A R-3.13	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-1A R-3.14	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-1A R-3.15	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-1A R-3.16	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-1A R-3.17	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-1A R-4.1	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-1A R-4.2	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-1A R-4.3	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-1A R-4.4	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-1A R-4.5	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-1A R-4.6	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-1A R-4.7	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-1A R-4.8	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-1A R-6.1	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-1A R-6.2	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-1A R-6.3	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	

Ventana at Canyon Creek Specific Plan
Octave spectra of the sources in dB(A) - HVAC Points

Name	Source type	l or A	Li	R'w	L'w	Lw	KI	KT	LwMax	DO-Wall	Time histogram	Emission spectrum	125Hz	250Hz	500Hz	1kHz	2kHz	4kHz	8kHz	
		m,m²	dB(A)	dB	dB(A)	dB(A)	dB	dB	dB(A)	dB			dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	
PA-1A R-6.4	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-1A R-6.5	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-1A R-6.6	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-1A R-6.7	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-1A R-6.8	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-1A R-6.9	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-1A R-6.10	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-1A R-6.11	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-1A R-6.12	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-1A-R5.1	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-1A-R5.2	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-1A-R5.3	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-1A-R5.4	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-1A-R5.5	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-1A-R5.6	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-1A-R5.7	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	

Ventana at Canyon Creek Specific Plan
Octave spectra of the sources in dB(A) - HVAC Points

Name	Source type	l or A	Li	R'w	L'w	Lw	KI	KT	LwMax	DO-Wall	Time histogram	Emission spectrum	125Hz	250Hz	500Hz	1kHz	2kHz	4kHz	8kHz	
		m,m²	dB(A)	dB	dB(A)	dB(A)	dB	dB	dB(A)	dB			dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	
PA-1A-R5.8	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-1A-R5.9	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-1A-R5.10	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-1A-R5.11	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-1A-R5.12	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-1B R1.1	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-1B R1.3	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-1B R1.4	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-1B R1.5	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-1B R1.6	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-1B R1.7	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-1B R1.8	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-1B R1.9	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-1B R1.10	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-1B R1.11	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-1B R1.12	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	

Ventana at Canyon Creek Specific Plan
Octave spectra of the sources in dB(A) - HVAC Points

Name	Source type	l or A m,m²	Li dB(A)	R'w dB	L'w dB(A)	Lw dB(A)	KI dB	KT dB	LwMax dB(A)	DO-Wall dB	Time histogram	Emission spectrum	125Hz dB(A)	250Hz dB(A)	500Hz dB(A)	1kHz dB(A)	2kHz dB(A)	4kHz dB(A)	8kHz dB(A)	
PA-1B R1.13	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-1B R1.14	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-1B R1.15	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-1B R1.16	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-1B R1.17	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-1B R1.18	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-1B R1.19	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-1B R1.20	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-1B R1.21	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-1B R1.22	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-1B R1.23	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-1B R-2.1	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-1B R-2.2	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-1B R-2.3	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-1B R-2.4	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-1B R-2.5	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	

Ventana at Canyon Creek Specific Plan
Octave spectra of the sources in dB(A) - HVAC Points

Name	Source type	l or A m,m²	Li dB(A)	R'w dB	L'w dB(A)	Lw dB(A)	KI dB	KT dB	LwMax dB(A)	DO-Wall dB	Time histogram	Emission spectrum	125Hz dB(A)	250Hz dB(A)	500Hz dB(A)	1kHz dB(A)	2kHz dB(A)	4kHz dB(A)	8kHz dB(A)	
PA-1B R-3.1	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-1B R-3.2	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-1B R-3.3	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-1B R-3.4	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-1B R-3.5	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-1B R-3.6	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-1B R-3.7	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-1B R-3.8	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-1B R-3.9	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-1B R-4.1	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-1B R-4.2	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-1B R-4.3	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-1B R-4.4	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-1B R-4.5	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-1B R-4.6	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-1B R-4.7	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	

Ventana at Canyon Creek Specific Plan
Octave spectra of the sources in dB(A) - HVAC Points

Name	Source type	l or A	Li	R'w	L'w	Lw	KI	KT	LwMax	DO-Wall	Time histogram	Emission spectrum	125Hz	250Hz	500Hz	1kHz	2kHz	4kHz	8kHz	
		m,m²	dB(A)	dB	dB(A)	dB(A)	dB	dB	dB(A)	dB			dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	
PA-1B R-5.1	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-1B R-5.2	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-1B R-5.3	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-1B R-5.4	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-1B R-5.5	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-1B R-6.1	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-1B R-6.2	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-1B R-6.3	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-1B R-6.4	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-1B R-6.5	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-1B R-6.6	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-1B R-6.7	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-1B R-7.1	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-1B R-7.2	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-1B R-7.3	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-1B R-7.4	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	

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Octave spectra of the sources in dB(A) - HVAC Points

Name	Source type	l or A	Li	R'w	L'w	Lw	KI	KT	LwMax	DO-Wall	Time histogram	Emission spectrum	125Hz	250Hz	500Hz	1kHz	2kHz	4kHz	8kHz	
		m,m²	dB(A)	dB	dB(A)	dB(A)	dB	dB	dB(A)	dB			dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	
PA-1B R-7.5	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-1B R-7.6	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-1B R-7.7	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-2 C1.1	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-2 C1.2	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-2 C1.3	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-2 C1.4	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-2 C1.5	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-2 C1.6	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-2 C1.7	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-2 C-2.1	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-2 C-2.2	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-2 C-2.3	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-2 C-2.4	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-2 C-2.5	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-2 C-2.6	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	

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Octave spectra of the sources in dB(A) - HVAC Points

Name	Source type	l or A	Li	R'w	L'w	Lw	KI	KT	LwMax	DO-Wall	Time histogram	Emission spectrum	125Hz	250Hz	500Hz	1kHz	2kHz	4kHz	8kHz	
		m,m²	dB(A)	dB	dB(A)	dB(A)	dB	dB	dB(A)	dB			dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	
PA-2 C-2.7	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-2 C-2.8	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-2 C-3.1	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-2 C-3.2	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-2 C-3.3	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-2 C-3.4	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-2 C-3.5	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-2 C-3.6	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-2 C-3.7	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-2 C-3.8	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-2 C-4.1	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-2 C-4.2	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-2 C-4.3	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-2 C-4.4	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-2 C-4.5	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-2 C-4.6	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	

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		m,m²	dB(A)	dB	dB(A)	dB(A)	dB	dB	dB(A)	dB			dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	
PA-2 C-4.7	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-2 C-4.8	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-2 C-4.9	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-2 C-4.10	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-2 C-5.1	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-2 C-5.2	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-2 C-5.3	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-2 C-5.4	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-2 C-5.5	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-2 C-5.6	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-2 C-5.7	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-2 C-5.8	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-2 C-6.1	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-2 C-6.2	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-2 C-6.3	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-2 C-6.4	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	

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		m,m²	dB(A)	dB	dB(A)	dB(A)	dB	dB	dB(A)	dB			dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	
PA-2 C-6.5	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-2 C-6.6	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-2 C-7.1	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-2 C-7.2	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-2 C-7.3	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-2 C-7.4	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-3 R2.1	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-3 R2.2	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-3 R2.3	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-3 R2.4	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-3 R2.5	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-3 R2.6	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-3 R2.7	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-3 R2.8	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-3 R2.9	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-3 R3.1	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	

Ventana at Canyon Creek Specific Plan
Octave spectra of the sources in dB(A) - HVAC Points

Name	Source type	l or A	Li	R'w	L'w	Lw	KI	KT	LwMax	DO-Wall	Time histogram	Emission spectrum	125Hz	250Hz	500Hz	1kHz	2kHz	4kHz	8kHz	
		m,m²	dB(A)	dB	dB(A)	dB(A)	dB	dB	dB(A)	dB			dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	
PA-3 R3.2	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-3 R3.3	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-3 R3.4	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-3 R3.5	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-3 R3.6	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-3 R3.7	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-3 R3.8	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-3 R3.9	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-3 R3.10	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-3 R3.11	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-3 R3.12	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-3 R3.13	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-3 R3.14	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-3 R3.15	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-3 R3.16	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-3 R3.17	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	

Ventana at Canyon Creek Specific Plan
Octave spectra of the sources in dB(A) - HVAC Points

Name	Source type	l or A	Li	R'w	L'w	Lw	KI	KT	LwMax	DO-Wall	Time histogram	Emission spectrum	125Hz	250Hz	500Hz	1kHz	2kHz	4kHz	8kHz	
		m,m²	dB(A)	dB	dB(A)	dB(A)	dB	dB	dB(A)	dB			dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	
PA-3 R4.1	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-3 R4.2	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-3 R4.3	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-3 R4.4	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-3 R4.5	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-3 R4.6	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-3 R4.7	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-3 R4.8	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-3 R5.1	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-3 R5.2	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-3 R5.3	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-3 R5.4	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-3 R5.5	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-3 R5.6	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-3 R5.7	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-3 R5.8	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	

Ventana at Canyon Creek Specific Plan
Octave spectra of the sources in dB(A) - HVAC Points

Name	Source type	l or A	Li	R'w	L'w	Lw	KI	KT	LwMax	DO-Wall	Time histogram	Emission spectrum	125Hz	250Hz	500Hz	1kHz	2kHz	4kHz	8kHz	
		m,m²	dB(A)	dB	dB(A)	dB(A)	dB	dB	dB(A)	dB			dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	
PA-3 R5.9	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-3 R5.10	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-3 R5.11	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-3 R5.12	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-3 R7.1	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-3 R7.2	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-3 R7.3	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-3 R7.5	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-3 R7.6	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-3 R7.7	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-3 R7.8	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-3 R7.8	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-3 R8.1	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-3 R8.2	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-3 R8.3	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-3 R8.4	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	

Ventana at Canyon Creek Specific Plan
Octave spectra of the sources in dB(A) - HVAC Points

Name	Source type	l or A	Li	R'w	L'w	Lw	KI	KT	LwMax	DO-Wall	Time histogram	Emission spectrum	125Hz	250Hz	500Hz	1kHz	2kHz	4kHz	8kHz	
		m,m²	dB(A)	dB	dB(A)	dB(A)	dB	dB	dB(A)	dB			dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	
PA-3 R8.5	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-3 R8.6	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-3 R8.7	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-3 R8.8	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-3 R8.9	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-3 R8.10	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-3 R8.11	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-3 R8.12	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-3 R8.13	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-3 R8.14	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-3 R8.15	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-3 R8.16	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-3 R8.17	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-3 R-1.1	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-3 R-1.2	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-3 R-1.3	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	

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Name	Source type	l or A	Li	R'w	L'w	Lw	KI	KT	LwMax	DO-Wall	Time histogram	Emission spectrum	125Hz	250Hz	500Hz	1kHz	2kHz	4kHz	8kHz	
		m,m²	dB(A)	dB	dB(A)	dB(A)	dB	dB	dB(A)	dB			dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	
PA-3 R-1.4	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-3 R-1.5	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-3 R-1.6	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-3 R-1.7	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-3 R-1.8	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-3 R-1.9	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-3 R-6.1	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-3 R-6.2	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-3 R-6.3	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-3 R-6.4	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-3 R-6.5	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-4 Market.1	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-4 Market.2	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-4 Market.3	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-4 Market.4	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-4 Market.5	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	

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		m,m²	dB(A)	dB	dB(A)	dB(A)	dB	dB	dB(A)	dB			dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	
PA-4 Pharmacy.1	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-4 Pharmacy.2	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-4 Pharmacy.3	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-4 Pharmacy.4	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-4 Rest/Retail-1.1	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-4 Rest/Retail-1.2	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-4 Rest/Retail-1.3	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-4 Rest/Retail-1.4	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-4 Rest/Retail-2.1	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-4 Rest/Retail-2.2	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-4 Rest/Retail-2.3	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-4 Rest/Retail-3.1	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-4 Rest/Retail-3.2	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-4 Rest/Retail-3.3	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-4 Rest/Retail-3.4	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-4 Rest/Retail-4.1	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	

Ventana at Canyon Creek Specific Plan
Octave spectra of the sources in dB(A) - HVAC Points

Name	Source type	l or A	Li	R'w	L'w	Lw	KI	KT	LwMax	DO-Wall	Time histogram	Emission spectrum	125Hz	250Hz	500Hz	1kHz	2kHz	4kHz	8kHz	
		m,m²	dB(A)	dB	dB(A)	dB(A)	dB	dB	dB(A)	dB			dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	
PA-4 Rest/Retail-4.2	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-4 Rest/Retail-4.3	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-4 Rest/Retail-4.4	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-4.R-1.1	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-4.R-1.2	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-4.R-1.3	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-4.R-1.4	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-4.R-1.5	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-4.R-1.6	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-4.R-1.7	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-4.R-1.8	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-4.R-1.9	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-4.R-1.10	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-4.R-1.11	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-4.R-1.12	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-4.R-1.13	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	

Ventana at Canyon Creek Specific Plan
Octave spectra of the sources in dB(A) - HVAC Points

Name	Source type	l or A	Li	R'w	L'w	Lw	KI	KT	LwMax	DO-Wall	Time histogram	Emission spectrum	125Hz	250Hz	500Hz	1kHz	2kHz	4kHz	8kHz	
		m,m²	dB(A)	dB	dB(A)	dB(A)	dB	dB	dB(A)	dB			dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	
PA-4.R-1.14	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-4.R-1.15	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-4.R-2.1	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-4.R-2.2	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-4.R-2.3	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-4.R-2.4	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-4.R-2.5	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-4.R-2.6	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-4.R-2.7	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-4.R-2.8	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-4.R-3.1	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-4.R-3.2	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-4.R-3.3	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-4.R-3.4	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-4.R-3.5	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-4.R-3.6	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	

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Octave spectra of the sources in dB(A) - HVAC Points

Name	Source type	l or A	Li	R'w	L'w	Lw	KI	KT	LwMax	DO-Wall	Time histogram	Emission spectrum	125Hz	250Hz	500Hz	1kHz	2kHz	4kHz	8kHz	
		m,m²	dB(A)	dB	dB(A)	dB(A)	dB	dB	dB(A)	dB			dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	
PA-4.R-3.7	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-4.R-3.8	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-4.R-3.9	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-4.R-3.10	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-4.R-3.11	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-4.R-3.12	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-4.R-3.13	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-4.R-3.14	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-4.R-3.15	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-4.R-3.16	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-4.R-4.1	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-4.R-4.2	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-4.R-4.3	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-4.R-4.4	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-4.R-4.5	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-4.R-4.6	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	

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Name	Source type	l or A	Li	R'w	L'w	Lw	KI	KT	LwMax	DO-Wall	Time histogram	Emission spectrum	125Hz	250Hz	500Hz	1kHz	2kHz	4kHz	8kHz	
		m,m²	dB(A)	dB	dB(A)	dB(A)	dB	dB	dB(A)	dB			dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	
PA-4.R-4.7	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-4.R-4.8	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-4.R-4.9	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-4.R-4.10	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-4.R-4.11	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-4.R-4.12	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-4.R-4.13	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-4.R-4.14	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-4.R-4.15	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-4.R-5.1	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-4.R-5.2	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-4.R-5.3	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-4.R-5.4	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-4.R-5.5	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-4.R-5.6	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-4.R-5.7	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	

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		m,m²	dB(A)	dB	dB(A)	dB(A)	dB	dB	dB(A)	dB			dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	
PA-4.R-5.8	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-4.R-6.1	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-4.R-6.2	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-4.R-6.3	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-4.R-6.4	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-4.R-6.5	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-4.R-6.6	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-4.R-6.7	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-4.R-6.8	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-4.R-6.9	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-4.R-7.1	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-4.R-7.2	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-4.R-7.3	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-4.R-7.4	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-4.R-7.5	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-4.R-7.6	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	

Ventana at Canyon Creek Specific Plan
Octave spectra of the sources in dB(A) - HVAC Points

Name	Source type	l or A	Li	R'w	L'w	Lw	KI	KT	LwMax	DO-Wall	Time histogram	Emission spectrum	125Hz	250Hz	500Hz	1kHz	2kHz	4kHz	8kHz	
		m,m²	dB(A)	dB	dB(A)	dB(A)	dB	dB	dB(A)	dB			dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	
PA-4.R-7.7	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-4.R-7.8	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-4.R-8.1	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-4.R-8.2	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-4.R-8.3	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-4.R-8.4	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-4.R-8.5	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-4.R-8.6	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-4.R-8.7	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-4.R-8.8	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-4.R-8.9	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-4.R-8.10	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-4.R-9.1	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-4.R-9.2	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-4.R-9.3	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-4.R-9.4	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	

Ventana at Canyon Creek Specific Plan
Octave spectra of the sources in dB(A) - HVAC Points

Name	Source type	l or A	Li	R'w	L'w	Lw	KI	KT	LwMax	DO-Wall	Time histogram	Emission spectrum	125Hz	250Hz	500Hz	1kHz	2kHz	4kHz	8kHz	
		m,m²	dB(A)	dB	dB(A)	dB(A)	dB	dB	dB(A)	dB			dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	
PA-4.R-9.5	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-4.R-9.6	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-4.R-9.7	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-4.R-9.8	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-4.R-9.9	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-4.R-10.1	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-4.R-10.2	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-4.R-10.3	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-4.R-10.4	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-4.R-10.5	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-4.R-10.6	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-4.R-10.7	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-4.R-10.8	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	
PA-4.R-10.9	Point				87.2	87.2	0.0	0.0		0	100%/24h	10-ton HVAC (Trane T/YHC120E)	70.9	82.4	81.8	80.0	78.2	74.0	64.9	

Appendix B

Rincon FHWA Traffic Noise Model

Model Input

Project Name :	Ventana Specific Plan		
Project Number :	20-09930		
Modeling Condition :	Existing		
Ground Type :	Soft	**Peak ratio to ADT:**	
Metric (L_{eq}, L_{dn}, CNEL) :	CNEL	**Traffic Desc. (Peak or ADT) :**	ADT

Segment Number	Roadway	Segment		Traffic Volume	Speed (mph)	Distance to Centerline	Vehicle Cassification Mix (%)					24-Hour Traffic Distribution (%)			K-Factor
		From	To				Automobiles	Motorcycles	Bus	Medium Trucks	Heavy Trucks	Day	Evening	Night	
1	Duncan Canyon Road	Roadrunner Road	Coyote Canyon Road	6,850	45	100	96			2.5	1.5	75	15	10	
2	Duncan Canyon Road	Coyote Canyon Road	I-15 SB Ramp	10,250	45	100	96			2.5	1.5	75	15	10	
3	Duncan Canyon Road	I-15 NB Ramp	Citrus Avne	10,200	45	100	96			2.5	1.5	75	15	10	
4	Duncan Canyon Road	Citrus Avenue	to the East	3,000	45	100	96			2.5	1.5	75	15	10	
5	Citrus Avenue	Duncan Canyon Road	Casa Grande	8,200	40	100	96			2.5	1.5	75	15	10	
6	Citrus Avenue	Casa Grande	Summit Avenue	7,300	45	100	96			2.5	1.5	75	15	10	
7	Citrus Avenue	Summit Avenue	Sierra Lakes Parkway	16,750	45	100	96			2.5	1.5	75	15	10	
8	Casa Grande	Ciotrus Avenue	Sierra Avenue	3,300	35	100	96			2.5	1.5	75	15	10	
9	Summit Avenue	Beech Avenue	Lytle Creek Road	17,650	45	100	96			2.5	1.5	75	15	10	
10	Summit Avenue	Lytle Creek Road	Citurs Avenue	22,650	45	100	96			2.5	1.5	75	15	10	
11	Summit Avenue	Citrus Avenue	Sierra Avenue	13,900	50	100	96			2.5	1.5	75	15	10	
12	Sierra Avenue	Riverside Avenue	Casa Grande	19,850	55	100	96			2.5	1.5	75	15	10	
13	Sierra Avenue	Summit Avenue	Sierra Lakes Parkway	24,300	55	100	96			2.5	1.5	75	15	10	

Appendix B

Rincon FHWA Traffic Noise Model

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Project Number :	Ventana Specific Plan
Modeling Condition :	20-09930
Ground Type :	Existing
Metric (Leq, Ldn, CNEL) :	CNEL

Model Results

Segment Number	Roadway	Segment		Noise Levels (dB) CNEL						Distance to Traffic Noise Contours (feet)				
		From	To	Automobiles	Motorcycles	Bus	Medium Trucks	Heavy Trucks	Total	70 dB	65 dB	60 dB	55 dB	50 dB
1	Duncan Canyon Road	Roadrunner Road	Coyote Canyon Road	57.3	0.0	0.0	48.1	50.6	58.6	17	37	80	173	372
2	Duncan Canyon Road	Coyote Canyon Road	I-15 SB Ramp	59.1	0.0	0.0	49.9	52.3	60.3	23	49	105	226	487
3	Duncan Canyon Road	I-15 NB Ramp	Citrus Avne	59.0	0.0	0.0	49.9	52.3	60.3	23	49	105	225	485
4	Duncan Canyon Road	Citrus Avenue	to the East	53.7	0.0	0.0	44.6	47.0	55.0	10	21	46	100	215
5	Citrus Avenue	Duncan Canyon Road	Casa Grande	57.3	0.0	0.0	48.4	51.0	58.6	17	38	81	175	376
6	Citrus Avenue	Casa Grande	Summit Avenue	57.6	0.0	0.0	48.4	50.8	58.8	18	39	84	180	388
7	Citrus Avenue	Summit Avenue	Sierra Lakes Parkway	61.2	0.0	0.0	52.0	54.4	62.4	31	68	145	313	675
8	Casa Grande	Ciotrus Avenue	Sierra Avenue	52.7	0.0	0.0	44.0	46.9	54.2	9	19	41	88	190
9	Summit Avenue	Beech Avenue	Lytle Creek Road	61.4	0.0	0.0	52.3	54.7	62.7	32	70	151	325	699
10	Summit Avenue	Lytle Creek Road	Citurs Avenue	62.5	0.0	0.0	53.3	55.8	63.8	38	83	178	383	826
11	Summit Avenue	Citrus Avenue	Sierra Avenue	61.3	0.0	0.0	51.8	54.1	62.5	31	68	146	314	676
12	Sierra Avenue	Riverside Avenue	Casa Grande	63.8	0.0	0.0	54.0	56.2	64.9	46	98	211	456	981
13	Sierra Avenue	Summit Avenue	Sierra Lakes Parkway	64.7	0.0	0.0	54.9	57.1	65.8	52	112	242	521	1,123

Appendix B

Rincon FHWA Traffic Noise Model

Model Input

Project Name :	Ventana Specific Plan		
Project Number :	20-09930		
Modeling Condition :	Existing Plus Phase 1		
Ground Type :	Soft	**Peak ratio to ADT:**	
Metric (L_{eq}, L_{dn}, CNEL) :	CNEL	**Traffic Desc. (Peak or ADT) :**	ADT

Segment Number	Roadway	Segment		Traffic Volume	Speed (mph)	Distance to Centerline	Vehicle Cassification Mix (%)					24-Hour Traffic Distribution (%)			K-Factor
		From	To				Automobiles	Motorcycles	Bus	Medium Trucks	Heavy Trucks	Day	Evening	Night	
1	Duncan Canyon Road	Roadrunner Road	Coyote Canyon Road	7,000	45	100	96			2.5	1.5	75	15	10	
2	Duncan Canyon Road	Coyote Canyon Road	I-15 SB Ramp	10,450	45	100	96			2.5	1.5	75	15	10	
3	Duncan Canyon Road	I-15 NB Ramp	Lytle Creek Road	14,850	45	100	96			2.5	1.5	75	15	10	
4	Duncan Canyon Road	Lytle Creek Road	Citrus Avenue	3,650	45	100	96			2.5	1.5	75	15	10	
5	Duncan Canyon Road	Citrus Avenue	to the East	3,200	45	100	96			2.5	1.5	75	15	10	
6	Citrus Avenue	from the north	Lytle Creek Road	1,200	40	100	96			2.5	1.5	75	15	10	
7	Citrus Avenue	Lytle Creek Road	Duncan Canyon Road	1,950	40	100	96			2.5	1.5	75	15	10	
8	Citrus Avenue	Duncan Canyon Road	Casa Grande	10,800	40	100	96			2.5	1.5	75	15	10	
9	Citrus Avenue	Casa Grande	Summit Avenue	8,950	45	100	96			2.5	1.5	75	15	10	
10	Citrus Avenue	Summit Avenue	Sierra Lakes Parkway	17,250	45	100	96			2.5	1.5	75	15	10	
11	Casa Grande	Citrus Avenue	Sierra Avenue	4,250	35	100	96			2.5	1.5	75	15	10	
12	Summit Avenue	Beech Avenue	Lytle Creek Road	18,000	45	100	96			2.5	1.5	75	15	10	
13	Summit Avenue	Lytle Creek Road	Citrus Avenue	23,650	45	100	96			2.5	1.5	75	15	10	
14	Summit Avenue	Citrus Avenue	Sierra Avenue	14,900	50	100	96			2.5	1.5	75	15	10	
15	Sierra Avenue	Riverside Avenue	Casa Grande	20,600	55	100	96			2.5	1.5	75	15	10	
16	Sierra Avenue	Summit Avenue	Sierra Lakes Parkway	24,750	55	100	96			2.5	1.5	75	15	10	
17	Lytle Creek Road	Citrus Avenue	Duncan Canyon Road	4,950	35	100	96			2.5	1.5	75	15	10	

Appendix B

Rincon FHWA Traffic Noise Model

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Project Number :	Ventana Specific Plan
Modeling Condition :	20-09930
Ground Type :	Existing Plus Phase 1
Metric (Leq, Ldn, CNEL) :	CNEL

Model Results

Segment Number	Roadway	Segment		Noise Levels (dB) CNEL						Distance to Traffic Noise Contours (feet)				
		From	To	Automobiles	Motorcycles	Bus	Medium Trucks	Heavy Trucks	Total	70 dB	65 dB	60 dB	55 dB	50 dB
1	Duncan Canyon Road	Roadrunner Road	Coyote Canyon Road	57.4	0.0	0.0	48.2	50.7	58.7	18	38	81	175	377
2	Duncan Canyon Road	Coyote Canyon Road	I-15 SB Ramp	59.1	0.0	0.0	50.0	52.4	60.4	23	49	106	229	493
3	Duncan Canyon Road	I-15 NB Ramp	Lytle Creek Road	60.7	0.0	0.0	51.5	53.9	61.9	29	62	134	289	623
4	Duncan Canyon Road	Lytle Creek Road	Citrus Avenue	54.6	0.0	0.0	45.4	47.8	55.8	11	24	53	113	245
5	Duncan Canyon Road	Citrus Avenue	to the East	54.0	0.0	0.0	44.8	47.3	55.3	10	22	48	104	224
6	Citrus Avenue	from the north	Lytle Creek Road	48.9	0.0	0.0	40.0	42.7	50.3	5	10	23	49	105
7	Citrus Avenue	Lytle Creek Road	Duncan Canyon Road	51.0	0.0	0.0	42.2	44.8	52.4	7	14	31	67	144
8	Citrus Avenue	Duncan Canyon Road	Casa Grande	58.5	0.0	0.0	49.6	52.2	59.8	21	45	97	210	452
9	Citrus Avenue	Casa Grande	Summit Avenue	58.5	0.0	0.0	49.3	51.7	59.7	21	44	96	206	445
10	Citrus Avenue	Summit Avenue	Sierra Lakes Parkway	61.3	0.0	0.0	52.2	54.6	62.6	32	69	148	320	689
11	Casa Grande	Citrus Avenue	Sierra Avenue	53.8	0.0	0.0	45.1	48.0	55.3	10	22	48	104	225
12	Summit Avenue	Beech Avenue	Lytle Creek Road	61.5	0.0	0.0	52.3	54.8	62.8	33	71	153	329	708
13	Summit Avenue	Lytle Creek Road	Citrus Avenue	62.7	0.0	0.0	53.5	55.9	63.9	39	85	183	394	850
14	Summit Avenue	Citrus Avenue	Sierra Avenue	61.6	0.0	0.0	52.1	54.4	62.8	33	71	153	329	709
15	Sierra Avenue	Riverside Avenue	Casa Grande	64.0	0.0	0.0	54.2	56.4	65.0	47	101	217	467	1,006
16	Sierra Avenue	Summit Avenue	Sierra Lakes Parkway	64.8	0.0	0.0	55.0	57.2	65.8	53	114	245	528	1,137
17	Lytle Creek Road	Citrus Avenue	Duncan Canyon Road	54.5	0.0	0.0	45.8	48.6	55.9	12	25	54	115	249

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Rincon FHWA Traffic Noise Model

Model Input

Project Name :	Ventana Specific Plan		
Project Number :	20-09930		
Modeling Condition :	Existing Plus Phase 1		
Ground Type :	Soft	**Peak ratio to ADT:**	
Metric (L_{eq}, L_{dn}, CNEL) :	CNEL	**Traffic Desc. (Peak or ADT) :**	ADT

Segment Number	Roadway	Segment		Traffic Volume	Speed (mph)	Distance to Centerline	Vehicle Cassification Mix (%)					24-Hour Traffic Distribution (%)			K-Factor
		From	To				Automobiles	Motorcycles	Bus	Medium Trucks	Heavy Trucks	Day	Evening	Night	
1	Duncan Canyon Road	Roadrunner Road	Coyote Canyon Road	7,900	45	100	96			2.5	1.5	75	15	10	
2	Duncan Canyon Road	Coyote Canyon Road	I-15 SB Ramp	13,350	45	100	96			2.5	1.5	75	15	10	
3	Duncan Canyon Road	I-15 NB Ramp	Lytle Creek Road	17,550	45	100	96			2.5	1.5	75	15	10	
4	Duncan Canyon Road	Lytle Creek Road	Citrus Avenue	17,650	45	100	96			2.5	1.5	75	15	10	
5	Duncan Canyon Road	Citrus Avenue	to the East	4,050	45	100	96			2.5	1.5	75	15	10	
6	Citrus Avenue	from the north	Lytle Creek Road	1,050	40	100	96			2.5	1.5	75	15	10	
7	Citrus Avenue	Lytle Creek Road	Duncan Canyon Road	1,050	40	100	96			2.5	1.5	75	15	10	
8	Citrus Avenue	Duncan Canyon Road	Casa Grande	14,100	40	100	96			2.5	1.5	75	15	10	
9	Citrus Avenue	Casa Grande	Summit Avenue	11,750	45	100	96			2.5	1.5	75	15	10	
10	Citrus Avenue	Summit Avenue	Sierra Lakes Parkway	21,400	45	100	96			2.5	1.5	75	15	10	
11	Casa Grande	Citrus Avenue	Sierra Avenue	9,600	35	100	96			2.5	1.5	75	15	10	
12	Summit Avenue	Beech Avenue	Lytle Creek Road	20,850	45	100	96			2.5	1.5	75	15	10	
13	Summit Avenue	Lytle Creek Road	Citurs Avenue	26,000	45	100	96			2.5	1.5	75	15	10	
14	Summit Avenue	Citrus Avenue	Sierra Avenue	15,150	50	100	96			2.5	1.5	75	15	10	
15	Sierra Avenue	Riverside Avenue	Casa Grande	23,150	55	100	96			2.5	1.5	75	15	10	
16	Sierra Avenue	Summit Avenue	Sierra Lakes Parkway	27,800	55	100	96			2.5	1.5	75	15	10	
17	Lytle Creek Road	Duncan Canyon Road	Summit Avenue	100	35	100	96			2.5	1.5	75	15	10	

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Rincon FHWA Traffic Noise Model

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Project Number :	Ventana Specific Plan
Modeling Condition :	20-09930
Ground Type :	Opening Year 2023
Metric (Leq, Ldn, CNEL) :	CNEL

Model Results

Segment Number	Roadway	Segment		Noise Levels (dB) CNEL						Distance to Traffic Noise Contours (feet)				
		From	To	Automobiles	Motorcycles	Bus	Medium Trucks	Heavy Trucks	Total	70 dB	65 dB	60 dB	55 dB	50 dB
1	Duncan Canyon Road	Roadrunner Road	Coyote Canyon Road	57.9	0.0	0.0	48.8	51.2	59.2	19	41	88	190	409
2	Duncan Canyon Road	Coyote Canyon Road	I-15 SB Ramp	60.2	0.0	0.0	51.0	53.5	61.5	27	58	125	269	580
3	Duncan Canyon Road	I-15 NB Ramp	Lytle Creek Road	61.4	0.0	0.0	52.2	54.6	62.6	32	70	150	323	697
4	Duncan Canyon Road	Lytle Creek Road	Citrus Avenue	61.4	0.0	0.0	52.3	54.7	62.7	32	70	151	325	699
5	Duncan Canyon Road	Citrus Avenue	to the East	55.0	0.0	0.0	45.9	48.3	56.3	12	26	56	122	262
6	Citrus Avenue	from the north	Lytle Creek Road	48.4	0.0	0.0	39.5	42.1	49.7	4	10	21	44	96
7	Citrus Avenue	Lytle Creek Road	Duncan Canyon Road	48.4	0.0	0.0	39.5	42.1	49.7	4	10	21	44	96
8	Citrus Avenue	Duncan Canyon Road	Casa Grande	59.6	0.0	0.0	50.7	53.4	61.0	25	54	116	251	540
9	Citrus Avenue	Casa Grande	Summit Avenue	59.7	0.0	0.0	50.5	52.9	60.9	25	53	115	247	533
10	Citrus Avenue	Summit Avenue	Sierra Lakes Parkway	62.3	0.0	0.0	53.1	55.5	63.5	37	80	171	369	795
11	Casa Grande	Citrus Avenue	Sierra Avenue	57.4	0.0	0.0	48.7	51.5	58.8	18	39	83	180	387
12	Summit Avenue	Beech Avenue	Lytle Creek Road	62.1	0.0	0.0	53.0	55.4	63.4	36	78	168	363	781
13	Summit Avenue	Lytle Creek Road	Citurs Avenue	63.1	0.0	0.0	53.9	56.4	64.4	42	91	195	420	905
14	Summit Avenue	Citrus Avenue	Sierra Avenue	61.7	0.0	0.0	52.2	54.5	62.8	33	72	154	333	716
15	Sierra Avenue	Riverside Avenue	Casa Grande	64.5	0.0	0.0	54.7	56.9	65.5	50	109	234	505	1,087
16	Sierra Avenue	Summit Avenue	Sierra Lakes Parkway	65.3	0.0	0.0	55.5	57.7	66.3	57	123	265	570	1,229
17	Lytle Creek Road	Duncan Canyon Road	Summit Avenue	37.5	0.0	0.0	28.9	31.7	39.0	1	2	4	9	18

Appendix B

Rincon FHWA Traffic Noise Model

Model Input

Project Name :	Ventana Specific Plan		
Project Number :	20-09930		
Modeling Condition :	Opening Year 2023 Plus Project		
Ground Type :	Soft	**Peak ratio to ADT:**	
Metric (L_{eq}, L_{dn}, CNEL) :	CNEL	**Traffic Desc. (Peak or ADT) :**	ADT

Segment Number	Roadway	Segment		Traffic Volume	Speed (mph)	Distance to Centerline	Vehicle Cassification Mix (%)					24-Hour Traffic Distribution (%)			K-Factor
		From	To				Automobiles	Motorcycles	Bus	Medium Trucks	Heavy Trucks	Day	Evening	Night	
1	Duncan Canyon Road	Roadrunner Road	Coyote Canyon Road	8,050	45	100	96			2.5	1.5	75	15	10	
2	Duncan Canyon Road	Coyote Canyon Road	I-15 SB Ramp	13,750	45	100	96			2.5	1.5	75	15	10	
3	Duncan Canyon Road	I-15 NB Ramp	Lytle Creek Road	22,150	45	100	96			2.5	1.5	75	15	10	
4	Duncan Canyon Road	Lytle Creek Road	Citrus Avenue	18,300	45	100	96			2.5	1.5	75	15	10	
5	Duncan Canyon Road	Citrus Avenue	to the East	4,300	45	100	96			2.5	1.5	75	15	10	
6	Citrus Avenue	from the north	Lytle Creek Road	2,250	40	100	96			2.5	1.5	75	15	10	
7	Citrus Avenue	Lytle Creek Road	Duncan Canyon Road	3,000	40	100	96			2.5	1.5	75	15	10	
8	Citrus Avenue	Duncan Canyon Road	Casa Grande	16,700	40	100	96			2.5	1.5	75	15	10	
9	Citrus Avenue	Casa Grande	Summit Avenue	13,400	45	100	96			2.5	1.5	75	15	10	
10	Citrus Avenue	Summit Avenue	Sierra Lakes Parkway	21,900	45	100	96			2.5	1.5	75	15	10	
11	Casa Grande	Citrus Avenue	Sierra Avenue	10,550	35	100	96			2.5	1.5	75	15	10	
12	Summit Avenue	Beech Avenue	Lytle Creek Road	21,350	45	100	96			2.5	1.5	75	15	10	
13	Summit Avenue	Lytle Creek Road	Citurs Avenue	26,550	45	100	96			2.5	1.5	75	15	10	
14	Summit Avenue	Citrus Avenue	Sierra Avenue	15,650	50	100	96			2.5	1.5	75	15	10	
15	Sierra Avenue	Riverside Avenue	Casa Grande	23,150	55	100	96			2.5	1.5	75	15	10	
16	Sierra Avenue	Summit Avenue	Sierra Lakes Parkway	28,250	55	100	96			2.5	1.5	75	15	10	
17	Lytle Creek Road	Citrus Avenue	Duncan Canyon Road	4,950	35	100	96			2.5	1.5	75	15	10	
18	Lytle Creek Road	Duncan Canyon Road	Summit Avenue	100	35	100	96			2.5	1.5	75	15	10	

Appendix B

Rincon FHWA Traffic Noise Model

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Model Results

Project Number :	Ventana Specific Plan
Modeling Condition :	20-09930
Ground Type :	Opening Year 2023 Plus Project
Metric (Leq, Ldn, CNEL) :	CNEL

Segment Number	Roadway	Segment		Noise Levels (dB) CNEL						Distance to Traffic Noise Contours (feet)				
		From	To	Automobiles	Motorcycles	Bus	Medium Trucks	Heavy Trucks	Total	70 dB	65 dB	60 dB	55 dB	50 dB
1	Duncan Canyon Road	Roadrunner Road	Coyote Canyon Road	58.0	0.0	0.0	48.8	51.3	59.3	19	41	89	192	414
2	Duncan Canyon Road	Coyote Canyon Road	I-15 SB Ramp	60.3	0.0	0.0	51.2	53.6	61.6	27	59	128	275	592
3	Duncan Canyon Road	I-15 NB Ramp	Lytle Creek Road	62.4	0.0	0.0	53.2	55.7	63.7	38	81	175	378	813
4	Duncan Canyon Road	Lytle Creek Road	Citrus Avenue	61.6	0.0	0.0	52.4	54.8	62.8	33	72	154	332	716
5	Duncan Canyon Road	Citrus Avenue	to the East	55.3	0.0	0.0	46.1	48.5	56.5	13	27	59	127	273
6	Citrus Avenue	from the north	Lytle Creek Road	51.7	0.0	0.0	42.8	45.4	53.0	7	16	34	74	159
7	Citrus Avenue	Lytle Creek Road	Duncan Canyon Road	52.9	0.0	0.0	44.0	46.6	54.3	9	19	41	89	193
8	Citrus Avenue	Duncan Canyon Road	Casa Grande	60.4	0.0	0.0	51.5	54.1	61.7	28	60	130	281	605
9	Citrus Avenue	Casa Grande	Summit Avenue	60.2	0.0	0.0	51.1	53.5	61.5	27	58	125	270	582
10	Citrus Avenue	Summit Avenue	Sierra Lakes Parkway	62.4	0.0	0.0	53.2	55.6	63.6	37	81	174	375	807
11	Casa Grande	Citrus Avenue	Sierra Avenue	57.8	0.0	0.0	49.1	51.9	59.2	19	41	89	191	412
12	Summit Avenue	Beech Avenue	Lytle Creek Road	62.2	0.0	0.0	53.1	55.5	63.5	37	79	171	368	794
13	Summit Avenue	Lytle Creek Road	Citurs Avenue	63.2	0.0	0.0	54.0	56.4	64.4	43	92	198	426	918
14	Summit Avenue	Citrus Avenue	Sierra Avenue	61.8	0.0	0.0	52.3	54.6	63.0	34	73	158	340	732
15	Sierra Avenue	Riverside Avenue	Casa Grande	64.5	0.0	0.0	54.7	56.9	65.5	50	109	234	505	1,087
16	Sierra Avenue	Summit Avenue	Sierra Lakes Parkway	65.3	0.0	0.0	55.6	57.7	66.4	58	124	268	576	1,242
17	Lytle Creek Road	Citrus Avenue	Duncan Canyon Road	54.5	0.0	0.0	45.8	48.6	55.9	12	25	54	115	249
18	Lytle Creek Road	Duncan Canyon Road	Summit Avenue	37.5	0.0	0.0	28.9	31.7	39.0	1	2	4	9	18

Appendix B

Rincon FHWA Traffic Noise Model

Model Input

Project Name :	Ventana Specific Plan		
Project Number :	20-09930		
Modeling Condition :	Opening Year 2030		
Ground Type :	Soft	**Peak ratio to ADT:**	
Metric (L_{eq}, L_{dn}, CNEL) :	CNEL	**Traffic Desc. (Peak or ADT) :**	ADT

Segment Number	Roadway	Segment		Traffic Volume	Speed (mph)	Distance to Centerline	Vehicle Cassification Mix (%)					24-Hour Traffic Distribution (%)			K-Factor
		From	To				Automobiles	Motorcycles	Bus	Medium Trucks	Heavy Trucks	Day	Evening	Night	
1	Duncan Canyon Road	Roadrunner Road	Coyote Canyon Road	9,100	45	100	96			2.5	1.5	75	15	10	
2	Duncan Canyon Road	Coyote Canyon Road	I-15 SB Ramp	16,150	45	100	96			2.5	1.5	75	15	10	
3	Duncan Canyon Road	I-15 NB Ramp	Lytle Creek Road	23,150	45	100	96			2.5	1.5	75	15	10	
4	Duncan Canyon Road	Lytle Creek Road	Citrus Avenue	23,300	45	100	96			2.5	1.5	75	15	10	
5	Duncan Canyon Road	Citrus Avenue	to the East	5,000	45	100	96			2.5	1.5	75	15	10	
6	Citrus Avenue	from the north	Lytle Creek Road	1,800	40	100	96			2.5	1.5	75	15	10	
7	Citrus Avenue	Lytle Creek Road	Duncan Canyon Road	1,800	40	100	96			2.5	1.5	75	15	10	
8	Citrus Avenue	Duncan Canyon Road	Casa Grande	18,000	40	100	96			2.5	1.5	75	15	10	
9	Citrus Avenue	Casa Grande	Summit Avenue	14,700	45	100	96			2.5	1.5	75	15	10	
10	Citrus Avenue	Summit Avenue	Sierra Lakes Parkway	25,650	45	100	96			2.5	1.5	75	15	10	
11	Casa Grande	Citrus Avenue	Sierra Avenue	14,000	35	100	96			2.5	1.5	75	15	10	
12	Summit Avenue	Beech Avenue	Lytle Creek Road	24,250	45	100	96			2.5	1.5	75	15	10	
13	Summit Avenue	Lytle Creek Road	Citurs Avenue	29,850	45	100	96			2.5	1.5	75	15	10	
14	Summit Avenue	Citrus Avenue	Sierra Avenue	15,950	50	100	96			2.5	1.5	75	15	10	
15	Sierra Avenue	Riverside Avenue	Casa Grande	26,450	55	100	96			2.5	1.5	75	15	10	
16	Sierra Avenue	Summit Avenue	Sierra Lakes Parkway	31,850	55	100	96			2.5	1.5	75	15	10	
17	Lytle Creek Road	Duncan Canyon Road	Summit Avenue	150	35	100	96			2.5	1.5	75	15	10	

Appendix B

Rincon FHWA Traffic Noise Model

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Project Number :	Ventana Specific Plan
Modeling Condition :	20-09930
Ground Type :	Opening Year 2030
Metric (Leq, Ldn, CNEL) :	CNEL

Model Results

Segment Number	Roadway	Segment		Noise Levels (dB) CNEL						Distance to Traffic Noise Contours (feet)				
		From	To	Automobiles	Motorcycles	Bus	Medium Trucks	Heavy Trucks	Total	70 dB	65 dB	60 dB	55 dB	50 dB
1	Duncan Canyon Road	Roadrunner Road	Coyote Canyon Road	58.5	0.0	0.0	49.4	51.8	59.8	21	45	97	209	450
2	Duncan Canyon Road	Coyote Canyon Road	I-15 SB Ramp	61.0	0.0	0.0	51.9	54.3	62.3	31	66	142	306	659
3	Duncan Canyon Road	I-15 NB Ramp	Lytle Creek Road	62.6	0.0	0.0	53.4	55.9	63.8	39	84	180	389	838
4	Duncan Canyon Road	Lytle Creek Road	Citrus Avenue	62.6	0.0	0.0	53.5	55.9	63.9	39	84	181	391	841
5	Duncan Canyon Road	Citrus Avenue	to the East	55.9	0.0	0.0	46.8	49.2	57.2	14	30	65	140	302
6	Citrus Avenue	from the north	Lytle Creek Road	50.7	0.0	0.0	41.8	44.4	52.0	6	14	30	64	137
7	Citrus Avenue	Lytle Creek Road	Duncan Canyon Road	50.7	0.0	0.0	41.8	44.4	52.0	6	14	30	64	137
8	Citrus Avenue	Duncan Canyon Road	Casa Grande	60.7	0.0	0.0	51.8	54.4	62.0	30	64	137	295	636
9	Citrus Avenue	Casa Grande	Summit Avenue	60.6	0.0	0.0	51.5	53.9	61.9	29	62	133	287	619
10	Citrus Avenue	Summit Avenue	Sierra Lakes Parkway	63.0	0.0	0.0	53.9	56.3	64.3	42	90	193	416	897
11	Casa Grande	Citrus Avenue	Sierra Avenue	59.0	0.0	0.0	50.3	53.2	60.5	23	50	107	231	498
12	Summit Avenue	Beech Avenue	Lytle Creek Road	62.8	0.0	0.0	53.6	56.1	64.0	40	86	186	401	864
13	Summit Avenue	Lytle Creek Road	Citurs Avenue	63.7	0.0	0.0	54.5	57.0	65.0	46	99	214	461	992
14	Summit Avenue	Citrus Avenue	Sierra Avenue	61.9	0.0	0.0	52.4	54.7	63.1	34	74	160	344	741
15	Sierra Avenue	Riverside Avenue	Casa Grande	65.1	0.0	0.0	55.3	57.5	66.1	55	119	256	552	1,188
16	Sierra Avenue	Summit Avenue	Sierra Lakes Parkway	65.9	0.0	0.0	56.1	58.3	66.9	62	135	290	624	1,345
17	Lytle Creek Road	Duncan Canyon Road	Summit Avenue	39.3	0.0	0.0	30.6	33.5	40.8	1	2	5	11	24

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Rincon FHWA Traffic Noise Model

Model Input

Project Name :	Ventana Specific Plan		
Project Number :	20-09930		
Modeling Condition :	Opening Year 2030 Plus Project		
Ground Type :	Soft	**Peak ratio to ADT:**	
Metric (L_{eq}, L_{dn}, CNEL) :	CNEL	**Traffic Desc. (Peak or ADT) :**	ADT

Segment Number	Roadway	Segment		Traffic Volume	Speed (mph)	Distance to Centerline	Vehicle Cassification Mix (%)					24-Hour Traffic Distribution (%)			K-Factor
		From	To				Automobiles	Motorcycles	Bus	Medium Trucks	Heavy Trucks	Day	Evening	Night	
1	Duncan Canyon Road	Roadrunner Road	Coyote Canyon Road	9,550	45	100	96			2.5	1.5	75	15	10	
2	Duncan Canyon Road	Coyote Canyon Road	I-15 SB Ramp	16,800	45	100	96			2.5	1.5	75	15	10	
3	Duncan Canyon Road	I-15 NB Ramp	Lytle Creek Road	31,250	45	100	96			2.5	1.5	75	15	10	
4	Duncan Canyon Road	Lytle Creek Road	Citrus Avenue	26,300	45	100	96			2.5	1.5	75	15	10	
5	Duncan Canyon Road	Citrus Avenue	to the East	5,850	45	100	96			2.5	1.5	75	15	10	
6	Citrus Avenue	from the north	Lytle Creek Road	2,450	40	100	96			2.5	1.5	75	15	10	
7	Citrus Avenue	Lytle Creek Road	Duncan Canyon Road	2,600	40	100	96			2.5	1.5	75	15	10	
8	Citrus Avenue	Duncan Canyon Road	Casa Grande	21,050	40	100	96			2.5	1.5	75	15	10	
9	Citrus Avenue	Casa Grande	Summit Avenue	16,200	45	100	96			2.5	1.5	75	15	10	
10	Citrus Avenue	Summit Avenue	Sierra Lakes Parkway	27,450	45	100	96			2.5	1.5	75	15	10	
11	Casa Grande	Citrus Avenue	Sierra Avenue	15,550	35	100	96			2.5	1.5	75	15	10	
12	Summit Avenue	Beech Avenue	Lytle Creek Road	26,200	45	100	96			2.5	1.5	75	15	10	
13	Summit Avenue	Lytle Creek Road	Citurs Avenue	31,800	45	100	96			2.5	1.5	75	15	10	
14	Summit Avenue	Citrus Avenue	Sierra Avenue	17,450	50	100	96			2.5	1.5	75	15	10	
15	Sierra Avenue	Riverside Avenue	Casa Grande	27,500	55	100	96			2.5	1.5	75	15	10	
16	Sierra Avenue	Summit Avenue	Sierra Lakes Parkway	33,100	55	100	96			2.5	1.5	75	15	10	
17	Lytle Creek Road	Citrus Avenue	Duncan Canyon Road	4,850	35	100	96			2.5	1.5	75	15	10	
18	Lytle Creek Road	Duncan Canyon Road	Summit Avenue	5,700	35	100	96			2.5	1.5	75	15	10	

Appendix B

Rincon FHWA Traffic Noise Model

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Project Number :	Ventana Specific Plan
Modeling Condition :	20-09930
Ground Type :	Opening Year 2030 Plus Project
Metric (Leq, Ldn, CNEL) :	CNEL

Model Results

Segment Number	Roadway	Segment		Noise Levels (dB) CNEL						Distance to Traffic Noise Contours (feet)				
		From	To	Automobiles	Motorcycles	Bus	Medium Trucks	Heavy Trucks	Total	70 dB	65 dB	60 dB	55 dB	50 dB
1	Duncan Canyon Road	Roadrunner Road	Coyote Canyon Road	58.8	0.0	0.0	49.6	52.0	60.0	22	46	100	215	464
2	Duncan Canyon Road	Coyote Canyon Road	I-15 SB Ramp	61.2	0.0	0.0	52.0	54.5	62.5	31	68	146	314	677
3	Duncan Canyon Road	I-15 NB Ramp	Lytle Creek Road	63.9	0.0	0.0	54.7	57.2	65.1	47	102	220	475	1,023
4	Duncan Canyon Road	Lytle Creek Road	Citrus Avenue	63.2	0.0	0.0	54.0	56.4	64.4	42	91	197	423	912
5	Duncan Canyon Road	Citrus Avenue	to the East	56.6	0.0	0.0	47.5	49.9	57.9	16	33	72	155	335
6	Citrus Avenue	from the north	Lytle Creek Road	52.0	0.0	0.0	43.1	45.8	53.4	8	17	36	78	168
7	Citrus Avenue	Lytle Creek Road	Duncan Canyon Road	52.3	0.0	0.0	43.4	46.0	53.6	8	18	38	81	175
8	Citrus Avenue	Duncan Canyon Road	Casa Grande	61.4	0.0	0.0	52.5	55.1	62.7	33	71	152	328	706
9	Citrus Avenue	Casa Grande	Summit Avenue	61.0	0.0	0.0	51.9	54.3	62.3	31	66	142	307	660
10	Citrus Avenue	Summit Avenue	Sierra Lakes Parkway	63.3	0.0	0.0	54.2	56.6	64.6	44	94	202	436	939
11	Casa Grande	Citrus Avenue	Sierra Avenue	59.5	0.0	0.0	50.8	53.6	60.9	25	53	115	248	534
12	Summit Avenue	Beech Avenue	Lytle Creek Road	63.1	0.0	0.0	54.0	56.4	64.4	42	91	196	422	910
13	Summit Avenue	Lytle Creek Road	Citurs Avenue	64.0	0.0	0.0	54.8	57.2	65.2	48	104	223	481	1,035
14	Summit Avenue	Citrus Avenue	Sierra Avenue	62.3	0.0	0.0	52.8	55.1	63.4	37	79	170	365	787
15	Sierra Avenue	Riverside Avenue	Casa Grande	65.2	0.0	0.0	55.4	57.6	66.3	57	122	263	566	1,220
16	Sierra Avenue	Summit Avenue	Sierra Lakes Parkway	66.0	0.0	0.0	56.2	58.4	67.1	64	138	297	641	1,380
17	Lytle Creek Road	Citrus Avenue	Duncan Canyon Road	54.4	0.0	0.0	45.7	48.6	55.8	11	25	53	114	245
18	Lytle Creek Road	Duncan Canyon Road	Summit Avenue	55.1	0.0	0.0	46.4	49.3	56.5	13	27	59	127	273

Appendix B

Rincon FHWA Traffic Noise Model

Model Input

Project Name :	Ventana Specific Plan		
Project Number :	20-09930		
Modeling Condition :	Horizon Year 2040		
Ground Type :	Soft	**Peak ratio to ADT:**	
Metric (L_{eq}, L_{dn}, CNEL) :	CNEL	**Traffic Desc. (Peak or ADT) :**	ADT

Segment Number	Roadway	Segment		Traffic Volume	Speed (mph)	Distance to Centerline	Vehicle Cassification Mix (%)					24-Hour Traffic Distribution (%)			K-Factor
		From	To				Automobiles	Motorcycles	Bus	Medium Trucks	Heavy Trucks	Day	Evening	Night	
1	Duncan Canyon Road	Roadrunner Road	Coyote Canyon Road	10,000	45	100	96			2.5	1.5	75	15	10	
2	Duncan Canyon Road	Coyote Canyon Road	I-15 SB Ramp	17,800	45	100	96			2.5	1.5	75	15	10	
3	Duncan Canyon Road	I-15 NB Ramp	Lytle Creek Road	25,450	45	100	96			2.5	1.5	75	15	10	
4	Duncan Canyon Road	Lytle Creek Road	Citrus Avenue	25,650	45	100	96			2.5	1.5	75	15	10	
5	Duncan Canyon Road	Citrus Avenue	to the East	5,500	45	100	96			2.5	1.5	75	15	10	
6	Citrus Avenue	from the north	Lytle Creek Road	1,950	40	100	96			2.5	1.5	75	15	10	
7	Citrus Avenue	Lytle Creek Road	Duncan Canyon Road	1,800	40	100	96			2.5	1.5	75	15	10	
8	Citrus Avenue	Duncan Canyon Road	Casa Grande	19,800	40	100	96			2.5	1.5	75	15	10	
9	Citrus Avenue	Casa Grande	Summit Avenue	14,700	45	100	96			2.5	1.5	75	15	10	
10	Citrus Avenue	Summit Avenue	Sierra Lakes Parkway	28,200	45	100	96			2.5	1.5	75	15	10	
11	Casa Grande	Citrus Avenue	Sierra Avenue	15,400	35	100	96			2.5	1.5	75	15	10	
12	Summit Avenue	Beech Avenue	Lytle Creek Road	26,650	45	100	96			2.5	1.5	75	15	10	
13	Summit Avenue	Lytle Creek Road	Citurs Avenue	32,850	45	100	96			2.5	1.5	75	15	10	
14	Summit Avenue	Citrus Avenue	Sierra Avenue	17,550	50	100	96			2.5	1.5	75	15	10	
15	Sierra Avenue	Riverside Avenue	Casa Grande	29,350	55	100	96			2.5	1.5	75	15	10	
16	Sierra Avenue	Summit Avenue	Sierra Lakes Parkway	35,050	55	100	96			2.5	1.5	75	15	10	
17	Lytle Creek Road	Duncan Canyon Road	Summit Avenue	200	35	100	96			2.5	1.5	75	15	10	

Appendix B

Rincon FHWA Traffic Noise Model

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Model Results

Project Number :	Ventana Specific Plan
Modeling Condition :	20-09930
Ground Type :	Horizon Year 2040
Metric (Leq, Ldn, CNEL) :	CNEL

Segment Number	Roadway	Segment		Noise Levels (dB) CNEL						Distance to Traffic Noise Contours (feet)				
		From	To	Automobiles	Motorcycles	Bus	Medium Trucks	Heavy Trucks	Total	70 dB	65 dB	60 dB	55 dB	50 dB
1	Duncan Canyon Road	Roadrunner Road	Coyote Canyon Road	59.0	0.0	0.0	49.8	52.2	60.2	22	48	103	222	479
2	Duncan Canyon Road	Coyote Canyon Road	I-15 SB Ramp	61.5	0.0	0.0	52.3	54.7	62.7	33	70	151	326	703
3	Duncan Canyon Road	I-15 NB Ramp	Lytle Creek Road	63.0	0.0	0.0	53.8	56.3	64.3	41	89	192	414	892
4	Duncan Canyon Road	Lytle Creek Road	Citrus Avenue	63.0	0.0	0.0	53.9	56.3	64.3	42	90	193	416	897
5	Duncan Canyon Road	Citrus Avenue	to the East	56.4	0.0	0.0	47.2	49.6	57.6	15	32	69	149	321
6	Citrus Avenue	from the north	Lytle Creek Road	51.0	0.0	0.0	42.2	44.8	52.4	7	14	31	67	144
7	Citrus Avenue	Lytle Creek Road	Duncan Canyon Road	50.7	0.0	0.0	41.8	44.4	52.0	6	14	30	64	137
8	Citrus Avenue	Duncan Canyon Road	Casa Grande	61.1	0.0	0.0	52.2	54.8	62.5	31	68	146	314	677
9	Citrus Avenue	Casa Grande	Summit Avenue	60.6	0.0	0.0	51.5	53.9	61.9	29	62	133	287	619
10	Citrus Avenue	Summit Avenue	Sierra Lakes Parkway	63.5	0.0	0.0	54.3	56.7	64.7	44	96	206	444	956
11	Casa Grande	Citrus Avenue	Sierra Avenue	59.4	0.0	0.0	50.7	53.6	60.9	25	53	114	246	530
12	Summit Avenue	Beech Avenue	Lytle Creek Road	63.2	0.0	0.0	54.0	56.5	64.5	43	92	198	427	920
13	Summit Avenue	Lytle Creek Road	Citurs Avenue	64.1	0.0	0.0	55.0	57.4	65.4	49	106	228	491	1,058
14	Summit Avenue	Citrus Avenue	Sierra Avenue	62.3	0.0	0.0	52.8	55.1	63.5	37	79	170	367	790
15	Sierra Avenue	Riverside Avenue	Casa Grande	65.5	0.0	0.0	55.7	57.9	66.6	59	127	274	591	1,274
16	Sierra Avenue	Summit Avenue	Sierra Lakes Parkway	66.3	0.0	0.0	56.5	58.7	67.3	67	143	309	666	1,434
17	Lytle Creek Road	Duncan Canyon Road	Summit Avenue	40.6	0.0	0.0	31.9	34.7	42.0	1	3	6	14	29

Appendix B

Rincon FHWA Traffic Noise Model

Model Input

Project Name :	Ventana Specific Plan		
Project Number :	20-09930		
Modeling Condition :	Horizon Year 2040		
Ground Type :	Soft	**Peak ratio to ADT:**	
Metric (L_{eq}, L_{dn}, CNEL) :	CNEL	**Traffic Desc. (Peak or ADT) :**	ADT

Segment Number	Roadway	Segment		Traffic Volume	Speed (mph)	Distance to Centerline	Vehicle Cassification Mix (%)					24-Hour Traffic Distribution (%)			K-Factor
		From	To				Automobiles	Motorcycles	Bus	Medium Trucks	Heavy Trucks	Day	Evening	Night	
1	Duncan Canyon Road	Roadrunner Road	Coyote Canyon Road	10,450	45	100	96			2.5	1.5	75	15	10	
2	Duncan Canyon Road	Coyote Canyon Road	I-15 SB Ramp	18,400	45	100	96			2.5	1.5	75	15	10	
3	Duncan Canyon Road	I-15 NB Ramp	Lytle Creek Road	33,600	45	100	96			2.5	1.5	75	15	10	
4	Duncan Canyon Road	Lytle Creek Road	Citrus Avenue	28,650	45	100	96			2.5	1.5	75	15	10	
5	Duncan Canyon Road	Citrus Avenue	to the East	7,400	45	100	96			2.5	1.5	75	15	10	
6	Citrus Avenue	from the north	Lytle Creek Road	2,650	40	100	96			2.5	1.5	75	15	10	
7	Citrus Avenue	Lytle Creek Road	Duncan Canyon Road	2,600	40	100	96			2.5	1.5	75	15	10	
8	Citrus Avenue	Duncan Canyon Road	Casa Grande	22,100	40	100	96			2.5	1.5	75	15	10	
9	Citrus Avenue	Casa Grande	Summit Avenue	16,200	45	100	96			2.5	1.5	75	15	10	
10	Citrus Avenue	Summit Avenue	Sierra Lakes Parkway	30,050	45	100	96			2.5	1.5	75	15	10	
11	Casa Grande	Citrus Avenue	Sierra Avenue	15,900	35	100	96			2.5	1.5	75	15	10	
12	Summit Avenue	Beech Avenue	Lytle Creek Road	28,600	45	100	96			2.5	1.5	75	15	10	
13	Summit Avenue	Lytle Creek Road	Citurs Avenue	34,800	45	100	96			2.5	1.5	75	15	10	
14	Summit Avenue	Citrus Avenue	Sierra Avenue	19,050	50	100	96			2.5	1.5	75	15	10	
15	Sierra Avenue	Riverside Avenue	Casa Grande	29,100	55	100	96			2.5	1.5	75	15	10	
16	Sierra Avenue	Summit Avenue	Sierra Lakes Parkway	36,250	55	100	96			2.5	1.5	75	15	10	
17	Lytle Creek Road	Citrus Avenue	Duncan Canyon Road	4,850	35	100	96			2.5	1.5	75	15	10	
18	Lytle Creek Road	Duncan Canyon Road	Summit Avenue	5,700	35	100	96			2.5	1.5	75	15	10	

Appendix B

Rincon FHWA Traffic Noise Model

rincon

Project Number :	Ventana Specific Plan
Modeling Condition :	20-09930
Ground Type :	Horizon Year 2040
Metric (Leq, Ldn, CNEL) :	CNEL

Model Results

Segment Number	Roadway	Segment		Noise Levels (dB) CNEL						Distance to Traffic Noise Contours (feet)				
		From	To	Automobiles	Motorcycles	Bus	Medium Trucks	Heavy Trucks	Total	70 dB	65 dB	60 dB	55 dB	50 dB
1	Duncan Canyon Road	Roadrunner Road	Coyote Canyon Road	59.1	0.0	0.0	50.0	52.4	60.4	23	49	106	229	493
2	Duncan Canyon Road	Coyote Canyon Road	I-15 SB Ramp	61.6	0.0	0.0	52.4	54.9	62.8	33	72	155	334	719
3	Duncan Canyon Road	I-15 NB Ramp	Lytle Creek Road	64.2	0.0	0.0	55.1	57.5	65.5	50	107	231	498	1,074
4	Duncan Canyon Road	Lytle Creek Road	Citrus Avenue	63.5	0.0	0.0	54.4	56.8	64.8	45	97	208	448	966
5	Duncan Canyon Road	Citrus Avenue	to the East	57.6	0.0	0.0	48.5	50.9	58.9	18	39	84	182	392
6	Citrus Avenue	from the north	Lytle Creek Road	52.4	0.0	0.0	43.5	46.1	53.7	8	18	38	82	177
7	Citrus Avenue	Lytle Creek Road	Duncan Canyon Road	52.3	0.0	0.0	43.4	46.0	53.6	8	18	38	81	175
8	Citrus Avenue	Duncan Canyon Road	Casa Grande	61.6	0.0	0.0	52.7	55.3	62.9	34	73	157	338	729
9	Citrus Avenue	Casa Grande	Summit Avenue	61.0	0.0	0.0	51.9	54.3	62.3	31	66	142	307	660
10	Citrus Avenue	Summit Avenue	Sierra Lakes Parkway	63.7	0.0	0.0	54.6	57.0	65.0	46	100	215	463	997
11	Casa Grande	Citrus Avenue	Sierra Avenue	59.6	0.0	0.0	50.9	53.7	61.0	25	54	117	251	542
12	Summit Avenue	Beech Avenue	Lytle Creek Road	63.5	0.0	0.0	54.4	56.8	64.8	45	96	208	448	965
13	Summit Avenue	Lytle Creek Road	Citurs Avenue	64.4	0.0	0.0	55.2	57.6	65.6	51	110	237	510	1,099
14	Summit Avenue	Citrus Avenue	Sierra Avenue	62.7	0.0	0.0	53.2	55.5	63.8	39	83	180	387	835
15	Sierra Avenue	Riverside Avenue	Casa Grande	65.5	0.0	0.0	55.7	57.9	66.5	59	127	273	588	1,267
16	Sierra Avenue	Summit Avenue	Sierra Lakes Parkway	66.4	0.0	0.0	56.6	58.8	67.5	68	147	316	681	1,466
17	Lytle Creek Road	Citrus Avenue	Duncan Canyon Road	54.4	0.0	0.0	45.7	48.6	55.8	11	25	53	114	245
18	Lytle Creek Road	Duncan Canyon Road	Summit Avenue	55.1	0.0	0.0	46.4	49.3	56.5	13	27	59	127	273

Ventana at Canyon Creek Specific Plan
Assessed receiver levels
Roadway Points

2

Receiver	Usage	Fl	Dir		Lr,lim	Lr,lim	Ldn	Leq,d	
				dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	
ON_1A.R1.1S	SCR	G					70.3	68.6	
ON_1A.R1.1W	SCR	G					65.2	62.5	
ON_1A.R1.2S	SCR	G					71.4	69.6	
ON_1A.R1.2W	SCR	G					67.5	64.3	
ON_1A.R1.3S	SCR	G					71.4	69.7	
ON_1A.R1.3W	SCR	G					68.6	65.1	
ON_1A.R2.1W	SCR	G					61.1	57.4	
ON_1A.R2.2W	SCR	G					64.7	60.6	
ON_1A.R2.3W	SCR	G					66.3	62.1	
ON_1A.R3.1E	SCR	G					59.5	57.2	
ON_1A.R3.1S	SCR	G					70.5	68.8	
ON_1A.R3.2E	SCR	G					62.1	59.8	
ON_1A.R3.2S	SCR	G					71.5	69.8	
ON_1A.R3.3E	SCR	G					62.9	60.5	
ON_1A.R3.3S	SCR	G					71.5	69.8	
ON_1A.R6.1E	SCR	G					56.5	53.1	
ON_1A.R6.1S	SCR	G					56.9	53.8	
ON_1A.R6.2E	SCR	G					59.4	55.9	
ON_1A.R6.2S	SCR	G					59.1	56.2	
ON_1A.R6.3E	SCR	G					60.6	57.0	
ON_1A.R6.3S	SCR	G					59.8	57.1	
ON_1B.R7.1E	SCR	G					56.5	52.1	
ON_1B.R7.1N	SCR	G					62.7	58.9	
ON_1B.R7.1W	SCR	G					56.4	52.1	
ON_1B.R7.2E	SCR	G					59.7	55.6	
ON_1B.R7.2N	SCR	G					65.7	62.0	
ON_1B.R7.2W	SCR	G					59.5	55.3	
ON_1B.R7.3E	SCR	G					61.5	57.2	
ON_1B.R7.3N	SCR	G					67.1	63.2	
ON_1B.R7.3W	SCR	G					61.2	56.9	
ON_3.R1.1N	SCR	G					61.5	59.4	
ON_3.R1.1W	SCR	G					59.3	57.2	
ON_3.R1.2N	SCR	G					62.5	60.2	
ON_3.R1.2W	SCR	G					60.2	58.0	
ON_3.R1.3N	SCR	G					63.2	60.6	
ON_3.R1.3W	SCR	G					60.9	58.5	
ON_3.R3.1N	SCR	G					72.1	70.4	
ON_3.R3.1W	SCR	G					63.9	61.8	
ON_3.R3.2N	SCR	G					72.8	71.1	
ON_3.R3.2W	SCR	G					65.3	62.8	
ON_3.R3.3N	SCR	G					73.0	71.1	

Ventana at Canyon Creek Specific Plan
Assessed receiver levels
Roadway Points

Receiver	Usage	Fl	Dir		Lr,lim	Lr,lim	Ldn	Leq,d	
				dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	
ON_3.R3.3W	SCR	G					66.3	63.6	
ON_3.R6.1E	SCR	G					61.6	59.9	
ON_3.R6.2E	SCR	G					62.5	60.8	
ON_3.R6.3E	SCR	G					62.8	61.0	
ON_3.R7.1E	SCR	G					64.4	62.6	
ON_3.R7.1N	SCR	G					71.6	70.0	
ON_3.R7.2E	SCR	G					65.3	63.6	
ON_3.R7.2N	SCR	G					72.0	70.4	
ON_3.R7.3E	SCR	G					66.0	64.2	
ON_3.R7.3N	SCR	G					72.1	70.4	
ON_4.R1.1S	SCR	G					69.3	64.2	
ON_4.R1.2S	SCR	G					72.6	67.4	
ON_4.R1.3S	SCR	G					73.1	68.0	
ON_4.R2.1S	SCR	G					71.1	65.9	
ON_4.R2.1W	SCR	G					71.5	66.2	
ON_4.R2.2S	SCR	G					73.8	68.6	
ON_4.R2.2W	SCR	G					73.8	68.6	
ON_4.R2.3S	SCR	G					74.2	69.0	
ON_4.R2.3W	SCR	G					74.5	69.4	
ON_4.R4.1NW	SCR	G					67.4	63.2	
ON_4.R4.1SW	SCR	G					68.8	64.2	
ON_4.R4.2NW	SCR	G					71.7	66.9	
ON_4.R4.2SW	SCR	G					71.9	66.9	
ON_4.R4.3NW	SCR	G					72.6	67.8	
ON_4.R4.3SW	SCR	G					72.4	67.4	
ON_4.R5.1E	SCR	G					65.7	62.0	
ON_4.R5.2E	SCR	G					65.5	61.8	
ON_4.R5.3E	SCR	G					65.4	61.7	
ON_4.R6.1SW	SCR	G					68.6	63.8	
ON_4.R6.2SW	SCR	G					71.5	66.8	
ON_4.R6.3SW	SCR	G					72.4	67.6	
ON_4.R8.1E	SCR	G					63.9	59.8	
ON_4.R8.2E	SCR	G					64.1	60.2	
ON_4.R8.3E	SCR	G					64.1	60.3	
ON_4.R9.1NW	SCR	G					67.5	63.8	
ON_4.R9.2NW	SCR	G					70.1	66.0	
ON_4.R9.3NW	SCR	G					71.8	67.6	
ON_4.R10.1E	SCR	G					63.1	60.6	
ON_4.R10.2E	SCR	G					63.3	60.9	
ON_4.R10.3E	SCR	G					63.3	60.9	
PA-2 C 1W	SCR	G					76.5	70.9	

Ventana at Canyon Creek Specific Plan
Assessed receiver levels
Roadway Points

Receiver	Usage	Fl	Dir		Lr,lim	Lr,lim	Ldn	Leq,d	
				dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	
PA-4 C.1E	SCR	G					64.0	62.2	
PA-4 C.1N	SCR	G					71.3	69.4	
PA-5a	SCR	G					70.2	64.6	
PA-5b	SCR	G					70.2	64.8	
PA-6	SCR	G					74.3	68.7	
PA_1B.R.1.1W	SCR	G					66.7	63.7	
PA_1B.R.1.2W	SCR	G					69.1	65.3	
PA_1B.R.1.3W	SCR	G					69.9	65.9	
PA_1B.R.2.1N	SCR	G					59.6	55.6	
PA_1B.R.2.1W	SCR	G					62.1	58.0	
PA_1B.R.2.2N	SCR	G					62.9	58.5	
PA_1B.R.2.2W	SCR	G					65.5	61.1	
PA_1B.R.2.3N	SCR	G					64.4	60.1	
PA_1B.R.2.3W	SCR	G					66.8	62.4	
PA_1B.R.3.1N	SCR	G					55.4	50.8	
PA_1B.R.3.2N	SCR	G					59.4	54.7	
PA_1B.R.3.2W	SCR	G					67.6	64.0	
PA_1B.R.3.3N	SCR	G					60.7	56.0	
PA_1B.R.4.1N	SCR	G					62.3	58.5	
PA_1B.R.4.1S	SCR	G					62.4	59.0	
PA_1B.R.4.1W	SCR	G					65.6	62.6	
PA_1B.R.4.2N	SCR	G					65.4	61.0	
PA_1B.R.4.2S	SCR	G					65.1	61.2	
PA_1B.R.4.2W	SCR	G					67.7	64.1	
PA_1B.R.4.3N	SCR	G					66.0	61.6	
PA_1B.R.4.3S	SCR	G					66.2	62.3	
PA_1B.R.4.3W	SCR	G					68.6	64.8	
PA_1B.R.5.1W	SCR	G					65.7	62.7	
PA_1B.R.5.3W	SCR	G					68.2	64.4	
PA_1B.R.6.1N	SCR	G					54.8	50.5	
PA_1B.R.6.1S	SCR	G					52.9	49.3	
PA_1B.R.6.1W	SCR	G					55.3	51.2	
PA_1B.R.6.2N	SCR	G					57.9	53.5	
PA_1B.R.6.2S	SCR	G					55.5	52.1	
PA_1B.R.6.2W	SCR	G					57.6	53.6	
PA_1B.R.6.3N	SCR	G					59.2	54.9	
PA_1B.R.6.3S	SCR	G					56.5	53.2	
PA_1B.R.6.3W	SCR	G					59.2	55.1	
PA_1B_Pool	SCR	G					54.9	50.9	
PA_3_Pool	SCR	G					52.5	49.1	
PA_4_Pool	SCR	G					61.6	57.0	

Appendix C

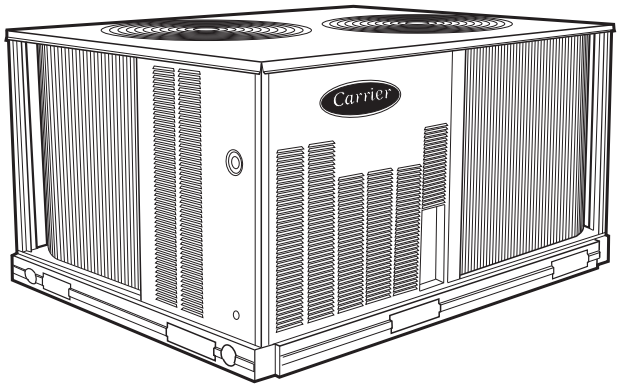
HVAC Unit Specifications

38AUZ/D 50 Hz
Commercial Split Systems
Air Conditioning Condensing Units
18.3 kW to 59.2 kW

Carrier
turn to the experts

Product Data

Gemini



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38AUZ07-08 shown

Certified to ISO 9001

Carrier's air-cooled air conditioning split systems:

- provide a logical solution for commercial needs
- have a rugged, dependable construction
- are available in single and circuit scroll compressor capacity control
- have cooling capability up to 52°C (125°F) ambient and down to 2°C (35°F) ambient standard

FEATURES/BENEFITS

These dependable outdoor air cooled condensing units match Carrier's indoor-air handlers to meet a wide selection of cooling solutions.

Constructed for long life

The 38AUZ single circuit and 38AUD dual circuit, scroll compressor models are designed and built to last. The high efficient designed outdoor coil construction allows for a more efficient design in a smaller cabinet size that utilizes an overall reduction in refrigerant charge. Where conditions require, special coil coating coil protection option is available. Cabinets are constructed of prepainted galvanized steel, delivering unparalleled protection from the environment. Inside and outside surfaces are protected to ensure long life, good looks, and reliable operation. Safety controls are used for enhanced system protection and reliability.

Each unit utilizes the Comfort Alert diagnostic and troubleshoot control system. This protects the units operation and provides valuable diagnostic information when required.

Factory-installed options (FIOPs)

Certified and pre-engineered factory-installed options (FIOPs) allow units to be installed in less time, thereby reducing installed cost. FIOPs include:

- low ambient controls which provide cooling operation down to -29°C (-20°F) ambient temperatures
- non-fused disconnect
- special coil coating coil protection
- louvered hail guard

FEATURES AND BENEFITS (cont.)

Efficient operation

These air cooled condensing units will provide EER's up to 12.6 (tested in accordance with ASHRAE 90.1 standards).

This high efficiency will help reduce overall operating cost and energy consumption.

Controls for performance dependability

The 38AU condensing units offer operating controls and components designed for performance dependability. The high efficiency hermetic scroll compressor is engineered for long life and durability. The compressors include vibration isolation for quiet operation. The high-pressure switch protects the entire refrigeration system from abnormally high operating pressures. A low-pressure switch protects the system from loss of charge. These units also include anti-short-cycling protection, which helps to protect the units against compressor failure.

All units include a crankcase heater to eliminate liquid slugging at start-up. Each unit comes standard with the Comfort Alert™ control system. This provides:

- System Go LED indicator
- Fault LED indicator
- Compressor fault LED indicator
- Phase loss protection
- Phase reversal protection
- Safety pressure indicator
- Anti-short cycle protection

Innovative Carrier 40RU packaged air handlers are custom matched to 38AUZ/D condensing units

Information on matching 40RU DX packaged air handler follows for convenience. See separate product data for more details. The 40RU Series has excellent fan performance, efficient direct-expansion (DX) coils, a unique combination of indoor-air quality features, and is easy to install. Its versatility and state-of-the-art features help to ensure economical performance of the split system both now and in the future.

Indoor-air quality (IAQ) features

The unique combination of IAQ features in the 40RU Series air handlers help to ensure that only clean, fresh, conditioned air is delivered to the occupied space.

Direct-expansion (DX) 4 row cooling coils prevent the build-up of humidity in the room, even during part-load conditions.

Standard 2-in. (51mm) disposable filters remove dust and airborne particles from the occupied space for cleaner air.

The pitched, non-corroding drain pan can be adjusted for a right-hand or left-hand connection to suit many applications and provide positive drainage and prevent standing condensate.

The accessory economizer can provide ventilation air to improve indoor-air quality by using demand control ventilation. When used in conjunction with Carrier Comfort System and CO_2 sensors, the economizer admits fresh outdoor air to replace stale, recirculated indoor air.

Economy

The 40RU Series packaged air handlers provide reduced installation expense and energy-efficient performance.

Quick installation is ensured by the multipoise design. Units can be installed in either the horizontal or vertical configuration without modifications. Fan motors and contactors are pre-wired and thermostatic expansion valves (TXVs) are factory-installed on all 40RU models.

High efficiency, precision-balanced fans minimize air turbulence, surging, and unbalanced operation, cutting operation expenses.

The economizer accessory precisely controls the blend of outdoor air and room air to achieve comfort levels. When the outside air enthalpy is suitable, outside air dampers can fully open to provide "free" cooling without energizing mechanical cooling.

Rugged dependability

The 40RU series units are made to last. The die-formed galvanized steel panels ensure structural integrity under all operating conditions. Galvanized steel fan housings are securely mounted to a die-formed galvanized steel fan deck.

Rugged pillow-block bearings (40RU14) are securely fastened to the solid steel fan shaft with split collets and clamp locking devices. Smaller unit sizes have spider-type bearings.

Coil flexibility

Model 40RU direct- expansion coils have galvanized steel casings; inlet and outlet connections are on the same end. The coils are designed for use with Puron (R-410A) refrigerant and have $^3/_8$-in. diameter copper tubes mechanically bonded to aluminum sine-wave fins. The coils include matched, factory-installed thermostatic expansion valves (TXVs) with matching distributor nozzles and offers a removable power element and extended connections.

Easier installation and service

The multipoise design and component layout ensures quick unit installation and operation. Units can be converted from horizontal to vertical operation by simply repositioning the unit. Drain pan connections are duplicated on both sides of the unit. The filters, motor, drive, TXVs, and coil connections are all easily accessed by removing a single side panel.

MODEL NUMBER NOMENCLATURE

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
3	8	A	U	Z	A	0	7	A	0	A	9	–	0	A	0	A	0

Model Type
Commercial Air Cooled Cond. Unit
Puron® R–410A Refrigerant

Type of Coil
D = Dual Circuit
Z = Single Circuit

Refrigerant Options
A = Standard
B = Low Ambient Controls

Nominal Tonnage
07 = 18.3 kW (5.2 Tons)
08 = 23.2 kW (6.6 Tons)
12 = 29.1 kW (8.3 Tons)
14 = 35.2 kW (10.0 Tons)
16 = 45.8 kW (13.0 Tons)
25 = 59.2 kW (16.8 Tons)

Factory Assigned
A = Default

Factory Assigned
0 = Default

Coil Options (Condenser)
With Round Tube/Plate Fin Design
All models except 14 size (12.5 Ton)
A = Al/Cu Standard
B = Pre Coat Al/Cu
C = E–Coat Al/Cu
E = Cu/Cu
M = Al/Cu Standard with louvered hail guard
N = Pre Coat Al/Cu with louvered hail guard
P = E–Coat Al/Cu with louvered hail guard
R = Cu/Cu – Louvered hail guard
Coil Options (Condenser)
With All Aluminum – NOVATION Design (07–16 sizes)
G = Al/Al Standard
K = E–Coat Al/Al
T = Al/Al with louvered hail guard
W = E–Coat Al/Al with louvered hail guard

Voltage
9 = 400–3–50

Design Rev
– = Factory Assigned

Base Unit Controls
0 = Standard Electro–Mechanical Controls

Factory Assigned
A = Default

Service Options
0 = None

Electrical Options
A = None
C = Non–Fused Disconnect

Brand / Packaging
0 = Standard
1 = LTL

AHRI CAPACITY RATINGS

UNIT	COOLING STAGES	NOM. CAPACITY (TONS)	NET COOLING CAPACITY (MBH)	TOTAL POWER (kW)	EER
38AUZ07/40RU07	1	5	62.7	5.1	12.2
38AUZ08/40RU08	1	6.3	79.3	6.9	11.5
38AUD12/40RU12	2	8.3	103.0	8.2	12.6
38AUD14/40RU14	2	10.4	125.0	10.9	11.5
38AUD16/40RU16	2	12.5	162.0	13.5	12.0
38AUD25/40RU25	2	16.7	202.2	16.6	12.2

LEGEND

AHRI – Air Conditioning, Heating and Refrigeration Institute
ASHRAE – American Society of Heating, Refrigerating and Air Conditioning, Inc.
EER – Energy Efficiency Ratio
IEER – Integrated Energy Efficiency Ratio

NOTES

1. Rated in accordance with AHRI Standard 340/360, as appropriate.
2. Ratings are based on:
   Cooling Standard: 27°C (80°F) db, 19°C (67°F) wb indoor air temp and 35°C (95°F) db outdoor air temp.
3. All units comply with ASHRAE 90.1 Energy Standard for minimum EER and IEER requirements.

SOUND POWER LEVELS, dB

UNIT	COOLING STAGES	OUTDOOR SOUND (dB)								
		A–WEIGHTED	63	125	250	500	1000	2000	4000	8000
NOVATION – All Aluminum Coil Design										
38AUZ07	1	82	78.7	91.2	84.4	79.7	76.9	73.5	71.9	67.5
38AUZ08	1	81	81.7	89.7	82.6	77.6	74.4	70.3	68.0	64.2
38AUD12	2	78	79.2	81.1	78.4	75.0	72.9	68.2	66.4	68.2
38AUD14	2	79	76.2	78.6	78.1	75.1	75.2	71.4	67.9	65.1
38AUD16	2	80	90.3	81.8	78.0	76.7	75.2	70.5	66.4	61.9
RTPF – Round Tube/Plate Fin Coil Design										
38AUZ07	1	83	81.7	88.2	84.0	79.7	78.1	74.0	71.4	68.0
38AUZ08	1	83	81.7	88.2	84.0	79.7	78.1	74.0	71.4	68.0
38AUD12	2	80	76.0	79.9	79.8	77.4	75.6	69.8	67.8	66.4
38AUD16	2	83	86.7	81.2	78.9	80.4	78.0	74.2	70.2	65.0
38AUD25	2	85	91.0	85.0	80.0	86.0	79.0	73.0	68.0	63.0

NOTE: Outdoor sound data is measure in accordance with AHRI standard 270–2008.
LEGEND:
dB = Decibel

PHYSICAL DATA

SINGLE CIRCUIT MODELS with RTPF – Round Tube/Plate Fin Coil Design		
	38AUZ07	**38AUZ08**
Refrigeration System		
# Circuits / # Comp. / Type	1 / 1 / Scroll	1 / 1 / Scroll
R–410a shipping charge A/B (lbs, 50 Hz)	11	13
System charge w/ fan coil* (50 Hz)	14	17
Metering device	TXV	TXV
High–press. Trip / Reset (psig)	630 / 505	630 / 505
Low–press. Trip / Reset (psig)	54 / 117	54 / 117
Cond. Coil		
Material	Al/Cu	Al/Cu
Coil type	RTPF	RTPF
Rows / FPI	2 / 17	2 / 17
Total face area (ft2)	17.5	17.5
Cond. fan / motor		
Qty / Motor drive type	2 / direct	2 / direct
Motor HP / RPM	1/4 / 1100	1/4 / 1100
Fan diameter (in)	22	22
Nominal Airflow (cfm)	6000	6000
Watts (total)	610	610
Piping Connections		
Qty / Suction (in. ODS)	1 / 1 1/8	1 / 1 1/8
Qty / Liquid (in. ODS)	1 / 3/8	1 / 1/2

SINGLE CIRCUIT MODELS with NOVATION – All Aluminum coil Design		
	38AUZ07	**38AUZ08**
Refrigeration System		
# Circuits / # Comp. / Type	1 / 1 / Scroll	1 / 1 / Scroll
R–410a shipping charge A/B (lbs)	4.4	4.9
System charge w/ fan coil	8.4	10.2
System charge w/ fan coil (50hz)	9.0	12.3
Metering device	TXV	TXV
High–press. Trip / Reset (psig)	630 / 505	630 / 505
Low–press. Trip / Reset (psig)	54 / 117	54 / 117
Cond. Coil		
Material	Al	Al
Coil type	microchannel	microchannel
Rows / FPI	1 / 17	1 / 17
total face area (ft2)	17.5	20.5
Cond. fan / motor		
Qty / Motor drive type	2 / direct	2 / direct
Motor HP / RPM	1/4 / 1100	1/4 / 1100
Fan diameter (in)	22	22
Nominal Airflow (cfm)	6,000	6,000
Watts (total)	610	610

RTPF – Round tube /plate fin design

* Approximate system charge with about 25 ft piping of sizes indicated with matched 40RU.

PHYSICAL DATA (CONT)

DUAL CIRCUIT MODELS with RTPF – Round Tube/Plate Fin Coil Design			
	38AUD12	**38AUD16**	**38AUD25**
Refrigeration System			
# Circuits / # Comp. / Type	2 / 2 / Scroll	2 / 2 / Scroll	2 / 2 / Scroll
R–410a shipping charge A/B (lbs, 50 Hz)	8.0 / 8.0	16.0 / 16.0	14.0 / 14.0
System charge w/ fan coil* (50 Hz)	11.0 / 10.0	22.0 / 22.0	19.0 / 19.0
Metering device	TXV	TXV	TXV
High–press. Trip / Reset (psig)	630 / 505	630 / 505	630 / 505
Low–press. Trip / Reset (psig)	54 / 117	54 / 117	54 / 117
Compressor			
Model	ZP51 (2)	ZP83 (2)	ZP103 (2)
Oil Charge A/B (oz)	42 / 42	60 / 60	110 / 110
Speed rpm 50 Hz	2900	2900	2900
Cond. Coil			
Material	Al/Cu	Al/Cu	Al/Cu
Coil type	RTPF	RTPF	RTPF
Rows / FPI	2 / 17	2 / 17	2 / 17
Total face area (ft2)	25.1	23.5 x 2	25.0 x 2
Cond. fan / motor			
Qty / Motor drive type	2 / direct	3 / direct	4 / direct
Motor HP / RPM	1/4 / 1100	1/4 / 1100	1/4 / 1100
Fan diameter (in)	22	22	22
Nominal Airflow (cfm)	6000	9000	12000
Watts (total)	610	970	1150
Piping Connections			
Qty / Suction (in. ODS)	2 / 1 1/8	2 / 1 3/8	2 / 1 3/8
Qty / Liquid (in. ODS)	2 / 3/8	2 / 1/2	2 / 1/2

DUAL CIRCUIT MODELS with NOVATION – All Aluminum coil Design			
	38AUD12	**38AUD14**	**38AUD16**
Refrigeration System			
# Circuits / # Comp. / Type	2/2/Scroll	2/2/Scroll	2/2/Scroll
R–410a shipping charge A/B (lbs)	3.0 /3.1	3.7/3.9	6.1/6.1
System charge w/ fan coil	7.4 / 7.4	10.8 / 10.8	12.0/12.0
System charge w/ fan coil (50hz)	7.5 / 7.5	11.2 / 11.2	14.0 /14.0
Metering device	TXV	TXV	TXV
High–press. Trip / Reset (psig)	630 / 505	630 / 505	630 / 505
Low–press. Trip / Reset (psig)	54 / 117	54 / 117	54 / 117
Cond. Coil			
Material	Al	Al	Al
Coil type	microchannel	microchannel	microchannel
Rows / FPI	1 / 17	1 / 17	1 / 17
total face area (ft2)	25.0	31.8	25.0 x 2
Cond. fan / motor			
Qty / Motor drive type	2 / direct	2 / direct	3 / direct
Motor HP / RPM	1/4 / 1100	1/4 / 1100	1/4 / 1100
Fan diameter (in)	22	22	22
Nominal Airflow (cfm)	6,000	6,000	10,000
Watts (total)	610	610	970

RTPF – Round tube /plate fin design

* Approximate system charge with about 25 ft piping of sizes indicated with matched 40RU.

DIMENSIONS

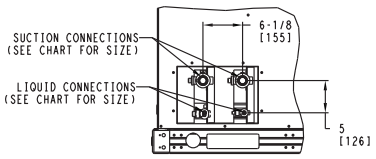
UNIT	STD. UNIT WT.		CORNER A		CORNER B		CORNER C		CORNER D		CENTER OF GRAVITY			UNIT HEIGHT
	KG.	LBS.	KG.	LBS.	KG.	LBS.	KG.	LBS.	KG.	LBS.	X	Y	Z	H
38AUZ-07 (MCHX)	149	328	58	128	31	68	28	62	32	70	21 [533.4]	19 [482.6]	13 [330.2]	42-3/8 [1076.0]
38AUZ-08 (MCHX)	160	353	63	138	33	72	29	65	35	78	19 [482.6]	23 [584.2]	13 [330.2]	42-3/8 [1076.0]
38AUD-12 (MCHX)	226	499	88	193	50	111	38	72	56	123	20 [508.0]	23 [584.2]	15 [381.0]	50-3/8 [1279.2]
38AUD-14 (MCHX)	229	505	86	190	40	88	34	76	68	151	20 [508.0]	24 [609.6]	15 [381.0]	50-3/8 [1279.2]
38AUZ-07 (RTPF)	176	389	64	141	44	96	28	62	41	91	18 [457.2]	24 [609.6]	21 [533.4]	42-3/8 [1076.0]
38AUZ-08 (RTPF)	177	391	64	142	44	96	28	62	41	91	18 [457.2]	24 [609.6]	21 [533.4]	42-3/8 [1076.0]
38AUD-12 (RTPF)	234	516	84	185	53	117	38	83	59	131	19 [482.6]	23 [584.2]	24 [609.6]	50-3/8 [1279.2]

CG CENTER OF GRAVITY

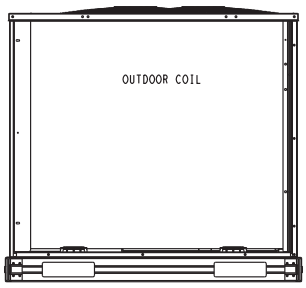
DIRECTION OF AIR FLOW

DIMENSIONS IN [ ] ARE IN MM

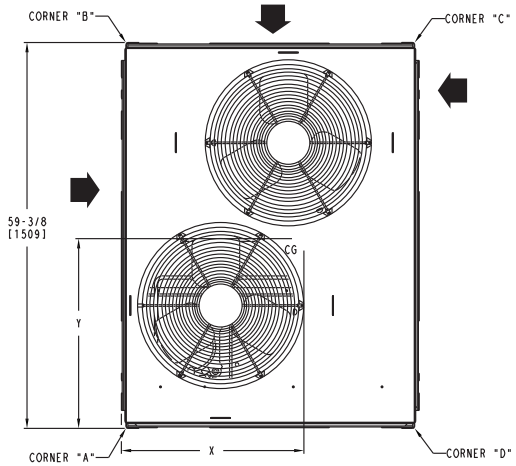
SERVICE VALVE CONNECTIONS		
UNIT	SUCTION	LIQUID
38AUZ07	1-1/8 [28.6]	3/8 [9.5]
38AUZ08	1-1/8 [28.6]	1/2 [12.7]
38AUD12	1-1/8 [28.6]	3/8 [9.5]
38AUD14	1-3/8 [34.9]	1/2 [12.7]

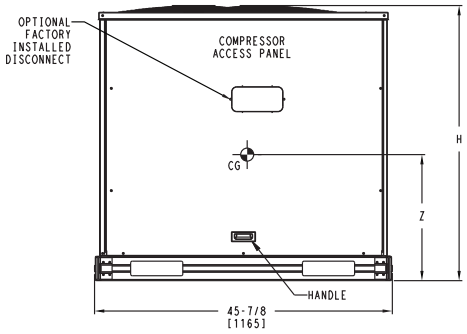


RIGHT SIDE VIEW
(FOR 38AUD SYSTEMS)

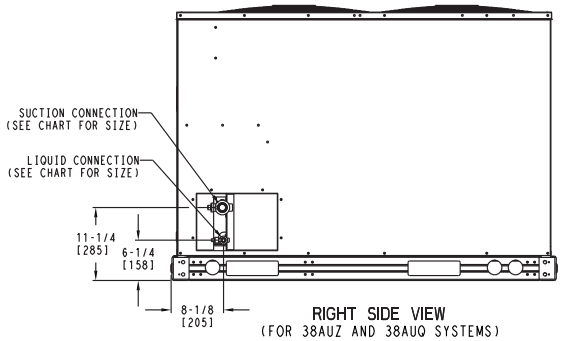


TOP VIEW

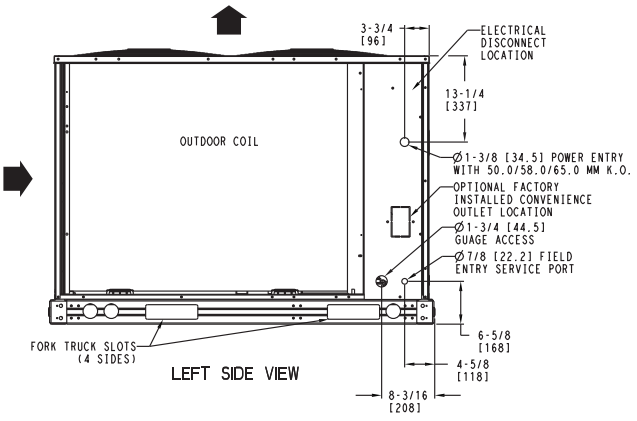




FRONT VIEW



RIGHT SIDE VIEW
(FOR 38AUZ AND 38AUQ SYSTEMS)



LEFT SIDE VIEW

NOTES:

1. MINIMUM CLEARANCE (LOCAL CODES OR JURISDICTION MAY PREVAIL):
   A. BOTTOM TO COMBUSTIBLE SURFACES: 0 INCHES.
   B. OUTDOOR COIL, FOR PROPER AIR FLOW: 36 INCHES ONE SIDE, 12 INCHES THE OTHER. THE SIDE GETTING THE GREATER CLEARANCE IS OPTIONAL.
   C. OVERHEAD: 60 INCHES, TO ASSURE PROPER OUTDOOR FAN OPERATION.
   D. BETWEEN UNITS: CONTROL BOX SIDE, 42 INCHES PER NEC.
   E. BETWEEN UNIT AND UNGROUNDED SURFACES: CONTROL BOX SIDE, 36 INCHES PER NEC.
   F. BETWEEN UNIT AND BLOCK OR CONCRETE WALLS AND OTHER GROUNDED SURFACES: CONTROL BOX SIDE, 42 INCHES PER NEC.
2. WITH EXCEPTION OF THE CLEARANCE FOR THE OUTDOOR COIL AS STATED IN NOTE 1B, A REMOVABLE FENCE OR BARRICADE REQUIRES NO CLEARANCE.
3. UNITS MAY BE INSTALLED ON COMBUSTIBLE FLOORS MADE FROM WOOD OR CLASS A, B OR C ROOF COVERING MATERIAL.

C10590

DIMENSIONS (cont.)

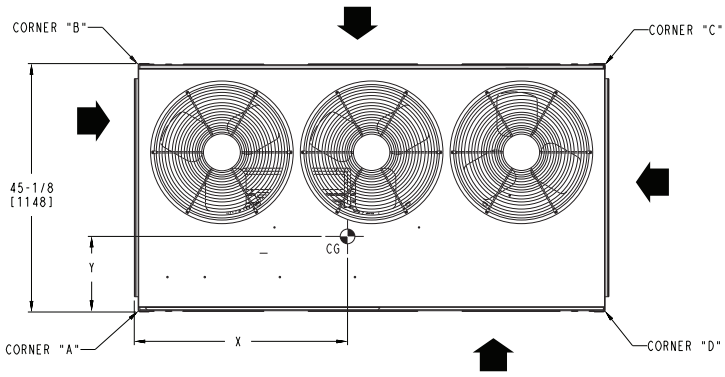
UNIT	STD. UNIT WT.		CORNER A		CORNER B		CORNER C		CORNER D		CENTER OF GRAVITY			UNIT HEIGHT
	KG.	LBS.	KG.	LBS.	KG.	LBS.	KG.	LBS.	KG.	LBS.	X	Y	Z	H
38AUD16 (MCHX)	288	633	100	220	61	134	61.5	135	65.5	144	38 [965.2]	19 [482.6]	15 [381]	50-3/8 [1279.2]
38AUD16 (RTPF)	332	731	107	237	78	172	61	135	84	186	38 [965.2]	19 [482.6]	17 [431.8]	50-3/8 [1279.2]

CG CENTER OF GRAVITY

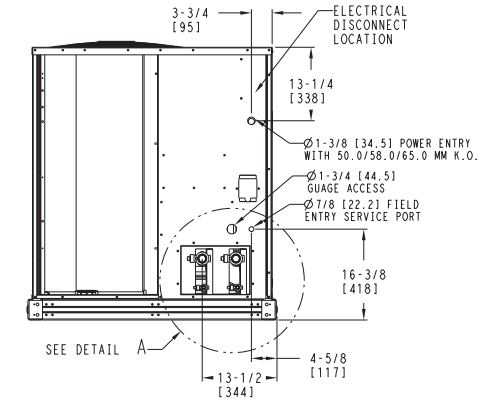
DIRECTION OF AIR FLOW

DIMENSIONS IN [ ] ARE IN MM

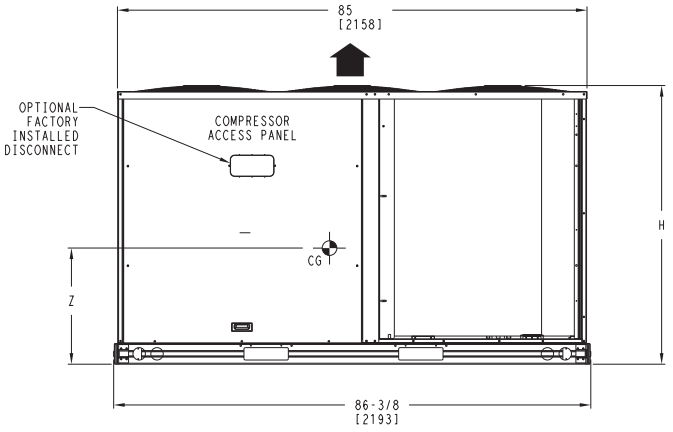
SERVICE VALVE CONNECTIONS			QTY
UNIT	SUCTION	LIQUID	
38AUD16	1-3/8 [34.9]	1/2 [12.7]	2 EA



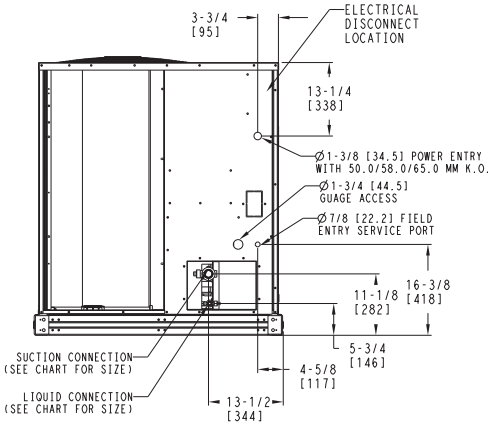
TOP VIEW



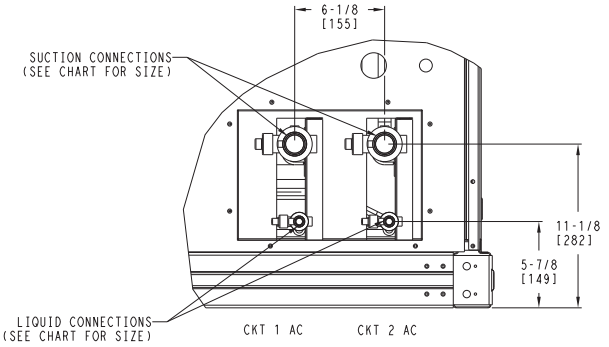
LEFT SIDE VIEW FOR 38AUD SYSTEMS



FRONT VIEW



LEFT SIDE VIEW



DETAIL A
(NOTE POSITION OF CKT 1)

NOTES:
1. MINIMUM CLEARANCE (LOCAL CODES OR JURISDICTION MAY PREVAIL):
   A. BOTTOM TO COMBUSTIBLE SURFACES: 0 INCHES.
   B. OUTDOOR COIL, FOR PROPER AIR FLOW: 36 INCHES ONE SIDE, 12 INCHES THE OTHER. THE SIDE GETTING THE GREATER CLEARANCE IS OPTIONAL.
   C. OVERHEAD: 60 INCHES, TO ASSURE PROPER OUTDOOR FAN OPERATION.
   D. BETWEEN UNITS: CONTROL BOX SIDE, 42 INCHES PER NEC.
   E. BETWEEN UNIT AND UNGROUNDED SURFACES: CONTROL BOX SIDE, 36 INCHES PER NEC.
   F. BETWEEN UNIT AND BLOCK OR CONCRETE WALLS AND OTHER GROUNDED SURFACES: CONTROL BOX SIDE, 42 INCHES PER NEC.
2. WITH EXCEPTION OF THE CLEARANCE FOR THE OUTDOOR COIL AS STATED IN NOTE 1B, A REMOVABLE FENCE OR BARRICADE REQUIRES NO CLEARANCE.
3. UNITS MAY BE INSTALLED ON COMBUSTIBLE FLOORS MADE FROM WOOD OR CLASS A, B OR C ROOF COVERING MATERIAL.

C10591

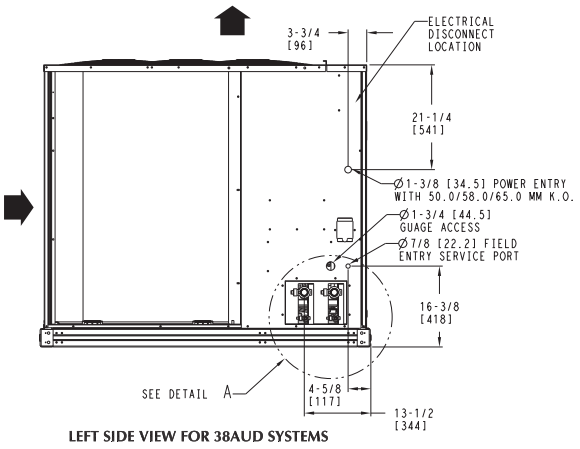
DIMENSIONS (cont.)

UNIT	STD. UNIT WT.		CORNER A		CORNER B		CORNER C		CORNER D		CENTER OF GRAVITY			UNIT HEIGHT
	KG.	LBS.	KG.	LBS.	KG.	LBS.	KG.	LBS.	KG.	LBS.	X	Y	Z	H
38AUD25 (RTPF)	444	978	163	360	85	188	67	147	128	283	38 [965.2]	23 [584.2]	17 [431.8]	50-3/8 [1279.2]

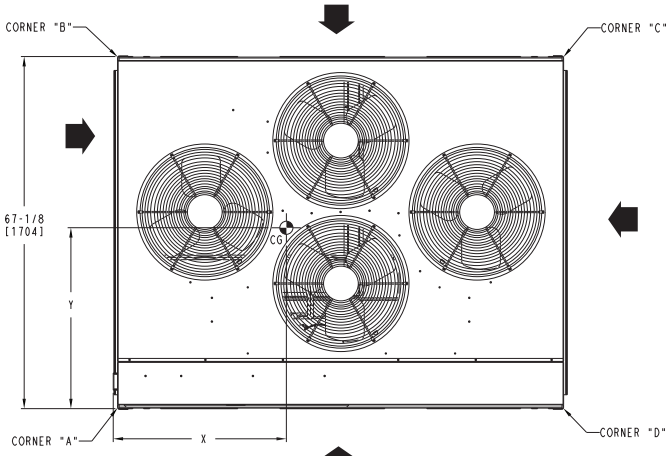
CG CENTER OF GRAVITY

DIRECTION OF AIR FLOW

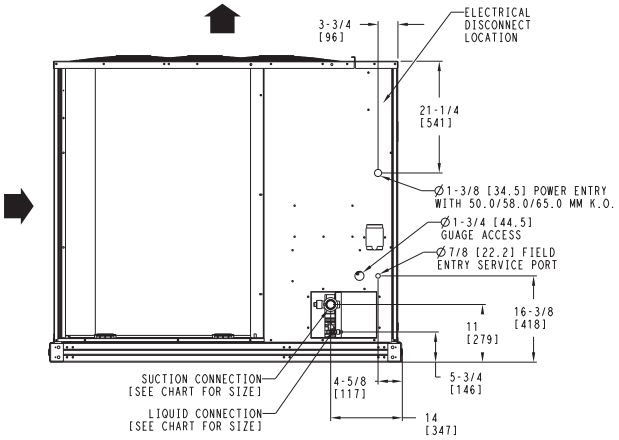
DIMENSIONS IN [ ] ARE IN MM



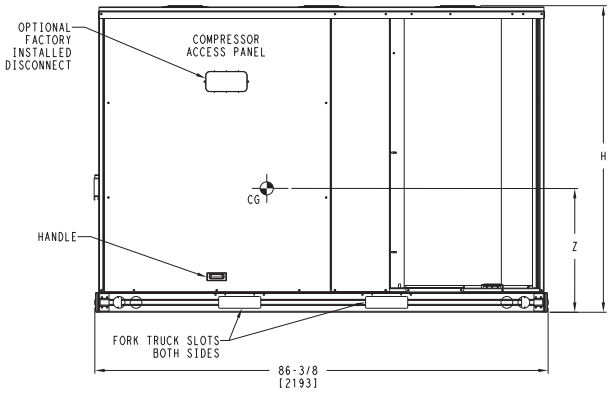
LEFT SIDE VIEW FOR 38AUD SYSTEMS



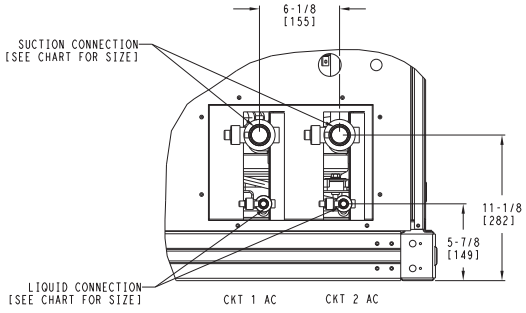
TOP VIEW



LEFT SIDE VIEW



FRONT VIEW



DETAIL A
(NOTE POSITION OF CKT 1)

NOTES:
1. MINIMUM CLEARANCE (LOCAL CODES OR JURISDICTION MAY PREVAIL):
   A. BOTTOM TO COMBUSTIBLE SURFACES: 0 INCHES.
   B. OUTDOOR COIL, FOR PROPER AIR FLOW: 36 INCHES ONE SIDE, 12 INCHES THE OTHER. THE SIDE GETTING THE GREATER CLEARANCE IS OPTIONAL.
   C. OVERHEAD: 60 INCHES, TO ASSURE PROPER OUTDOOR FAN OPERATION.
   D. BETWEEN UNITS: CONTROL BOX SIDE, 42 INCHES PER NEC.
   E. BETWEEN UNIT AND UNGROUNDED SURFACES: CONTROL BOX SIDE, 36 INCHES PER NEC.
   F. BETWEEN UNIT AND BLOCK OR CONCRETE WALLS AND OTHER GROUNDED SURFACES: CONTROL BOX SIDE, 42 INCHES PER NEC.
2. WITH EXCEPTION OF THE CLEARANCE FOR THE OUTDOOR COIL AS STATED IN NOTE 1B, A REMOVABLE FENCE OR BARRICADE REQUIRES NO CLEARANCE.
3. UNITS MAY BE INSTALLED ON COMBUSTIBLE FLOORS MADE FROM WOOD OR CLASS A, B OR C ROOF COVERING MATERIAL.

SERVICE VALVE CONNECTIONS			QTY
UNIT	SUCTION	LIQUID	
38AUD25	1-3/8 [34.9]	1/2 [12.7]	2 EA

C10592

OPTIONS AND ACCESSORIES

38AUZ/D OPTIONS AND ACCESSORIES

ITEM	OPTION*	ACCESSORY†
Disconnect Switch (non-fused)	X	
Special–coated Coil Protection	X	
Low Ambient Temperature MotorMaster I® Control	X	X
Wired Condenser Coil Grille (Novation 07–14 models only)		X
Louvered Hail Guard	X	X
Programmable Thermostats		X

* Factory-installed option.

† Field-installed accessory.

38AUZ/38AUD factory-installed options

E-coated aluminum-fin coils have a flexible and durable epoxy coating uniformly applied to all coil surfaces. Unlike brittle phenolic dip and bake coatings, E-coating provides superior protection with unmatched flexibility, edge coverage, metal adhesion, thermal performance, and most importantly, corrosion resistance.

E-coated coils provide this protection since all coil surfaces are completely encapsulated from environmental contamination. This coating is especially suitable in industrial environments.

Pre-coated coils (RTPF coils only) provide protection in mild coastal environments.

–29°C (–20°F) low-ambient temperature kit option (MotorMaster I®) controls outdoor-fan motor operation to maintain the correct head pressure at low outdoor ambient temperatures.

Louvered hail guard package protects coils against damage from flying debris and hail.

Non-fused disconnect switch is used to remove power locally at the condensing unit. This switch also includes a power lockout capability to protect the service person. This lockout switch saves the service person time and effort because there is no need to access a distant disconnect switch while servicing the unit.

NOTE: Non-fused disconnect switch cannot be used when unit MOCP electrical rating exceeds 80 amps.

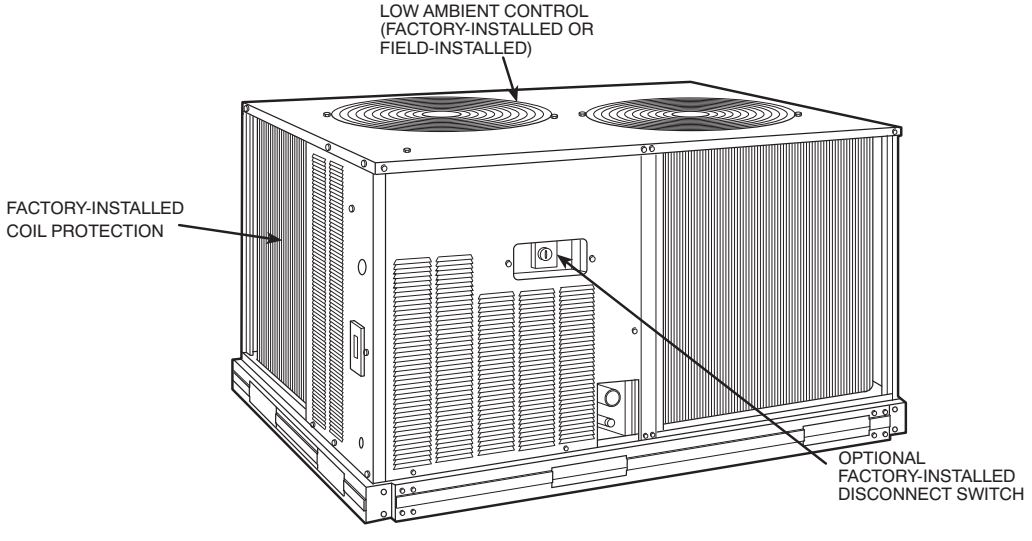
38AUZ/D field-installed accessories

–29°C (–20°F) low-ambient temperature kit accessory (MotorMaster I®) controls outdoor-fan motor operation to maintain the correct head pressure at low outdoor ambient temperatures.

Louvered hail guard package protects coils against damage from flying debris and hail.

Condenser coil grille package protects condensing unit coil from impact by large objects and vandalism.

Carrier's line of thermostats provide both programmable and non-programmable capability with the new **Debonair®** line of commercial programmable thermostats. The **Commercial Electronic** thermostats provide 7-day programmable capability for economical applications.



C10609

OPTIONS AND ACCESSORIES (cont.)

40RU OPTIONS AND ACCESSORIES

ITEM	OPTION*	ACCESSORY†
Alternate Fan Motors	X	
Alternate Drives	X	
CO_2 Sensors		X
Condensate Drain Trap		X
Discharge Plenum		X
Economizer		X
Electric Heat		X
Hot Water Heating Coils		X
Overhead Suspension Package		X
Prepainted Units	X	
Return Air Grille		X
Steam Heating Coil		X
Subbase		X

* Factory-installed option.

† Field-installed accessory.

40RU factory-installed options

Alternate fan motors and drives are available to provide the widest possible range of performance.

Units constructed of prepainted steel are available from the factory for applications that require painted units. Unit color is American Sterling Gray.

40RU field-installed accessories

Two-row hot water coils have $^5/_8$-in. diameter copper tubes mechanically bonded to aluminum plate fins. Coils have non-ferrous headers.

One-row steam coil has 1-in. OD copper tube and aluminum fins. The Inner Distributing Tube (IDT) design provides uniform temperatures across the coil face. The IDT steam coils are especially suited to applications where sub-freezing air enters the unit.

Electric resistance heat coils have an open-wire design and are mounted in a rigid frame. Safety cutouts for high temperature conditions are standard.

Economizer (enthalpy controlled) provides ventilation air and provides "free" cooling if the outside ambient temperature and humidity are suitable. The economizer can also be used in conjunction with Carrier Comfort System thermostats and CO_2 sensors to help meet indoor air quality requirements. The economizer can be used in both vertical and horizontal positions.

Discharge plenum directs the air discharge into the occupied space; integral horizontal and vertical louvers enable redirection of airflow. This accessory is available unpainted or painted.

Return-air grille provides a protective barrier over the return-air opening and gives a finished appearance to units installed in the occupied space. This accessory is available unpainted or painted.

Subbase provides a stable, raised platform and room for condensate drain connection for floor-mounted units. This accessory is available unpainted or painted.

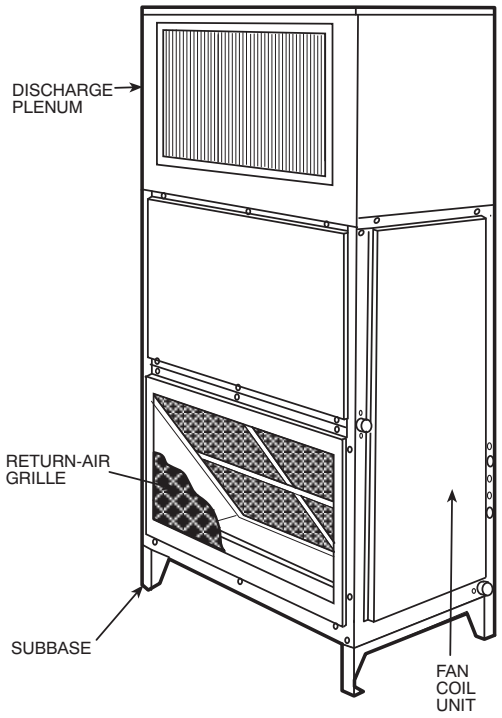
Overhead suspension package includes necessary brackets to support units in horizontal installations.

CO_2 sensors can be used in conjunction with the economizer accessory to help meet indoor air quality requirements. The sensor signals the economizer to open when the CO_2 level in the space exceeds the setpoint. A Carrier Comfort System programmable thermostat can also be used to override the sensor if the outside-air temperature is too high or too low.

Condensate drain trap includes an overflow shutoff switch that can be wired to turn off the unit if the trap becomes plugged. The kit also includes a wire harness that can be connected to an alarm if desired. The transparent trap is designed for easy service and maintenance.

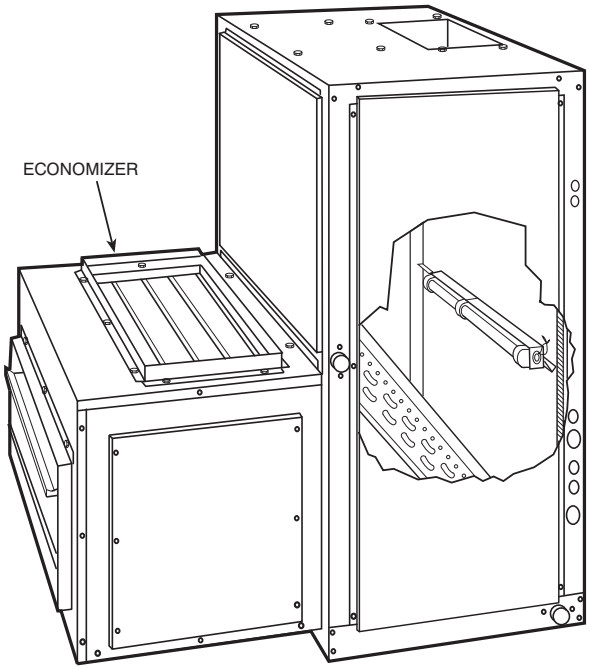
OPTIONS AND ACCESSORIES (cont.)

40RU WITH DISCHARGE PLENUM RETURN-AIR GRILLE AND SUBBASE

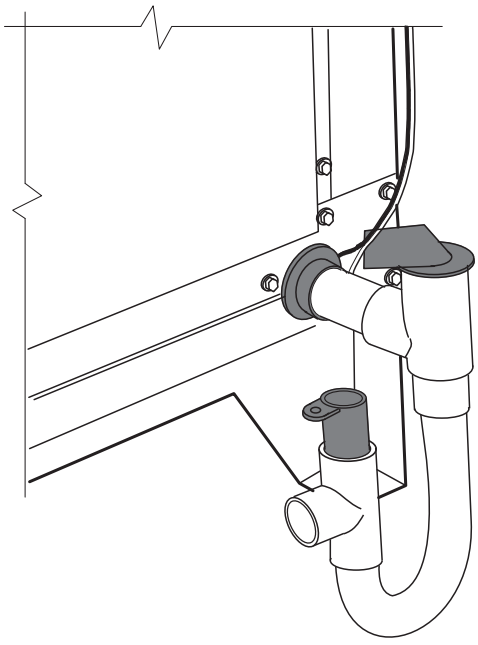


40RU WITH HOT WATER OR STEAM COIL

40RU WITH ECONOMIZER

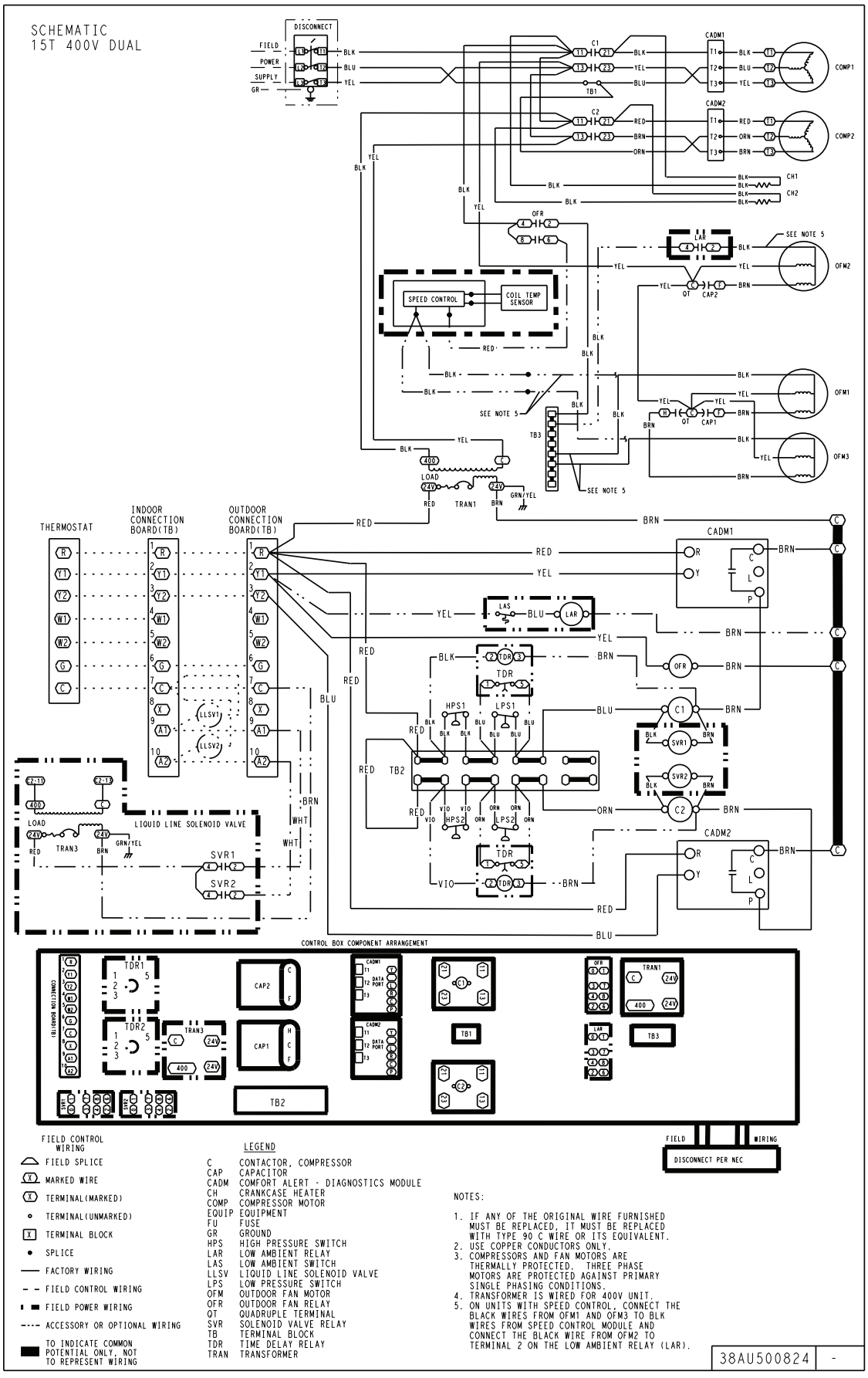


40RU WITH CONDENSATE TRAP



C10610

TYPICAL WIRING SCHEMATIC



C10593

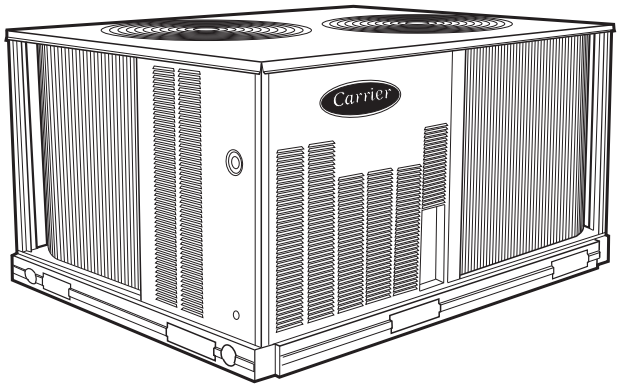
Typical 38AUD16 Dual Circuit

38AUZ/D 50 Hz
Commercial Split Systems
Air Conditioning Condensing Units
18.3 kW to 59.2 kW

Carrier
turn to the experts

Product Data

Gemini



C09227

38AUZ07-08 shown

Certified to ISO 9001

Carrier's air-cooled air conditioning split systems:

- provide a logical solution for commercial needs
- have a rugged, dependable construction
- are available in single and circuit scroll compressor capacity control
- have cooling capability up to 52°C (125°F) ambient and down to 2°C (35°F) ambient standard

FEATURES/BENEFITS

These dependable outdoor air cooled condensing units match Carrier's indoor-air handlers to meet a wide selection of cooling solutions.

Constructed for long life

The 38AUZ single circuit and 38AUD dual circuit, scroll compressor models are designed and built to last. The high efficient designed outdoor coil construction allows for a more efficient design in a smaller cabinet size that utilizes an overall reduction in refrigerant charge. Where conditions require, special coil coating coil protection option is available. Cabinets are constructed of prepainted galvanized steel, delivering unparalleled protection from the environment. Inside and outside surfaces are protected to ensure long life, good looks, and reliable operation. Safety controls are used for enhanced system protection and reliability.

Each unit utilizes the Comfort Alert diagnostic and troubleshoot control system. This protects the units operation and provides valuable diagnostic information when required.

Factory-installed options (FIOPs)

Certified and pre-engineered factory-installed options (FIOPs) allow units to be installed in less time, thereby reducing installed cost. FIOPs include:

- low ambient controls which provide cooling operation down to -29°C (-20°F) ambient temperatures
- non-fused disconnect
- special coil coating coil protection
- louvered hail guard

FEATURES AND BENEFITS (cont.)

Efficient operation

These air cooled condensing units will provide EER's up to 12.6 (tested in accordance with ASHRAE 90.1 standards).

This high efficiency will help reduce overall operating cost and energy consumption.

Controls for performance dependability

The 38AU condensing units offer operating controls and components designed for performance dependability. The high efficiency hermetic scroll compressor is engineered for long life and durability. The compressors include vibration isolation for quiet operation. The high-pressure switch protects the entire refrigeration system from abnormally high operating pressures. A low-pressure switch protects the system from loss of charge. These units also include anti-short-cycling protection, which helps to protect the units against compressor failure.

All units include a crankcase heater to eliminate liquid slugging at start-up. Each unit comes standard with the Comfort Alert™ control system. This provides:

- System Go LED indicator
- Fault LED indicator
- Compressor fault LED indicator
- Phase loss protection
- Phase reversal protection
- Safety pressure indicator
- Anti-short cycle protection

Innovative Carrier 40RU packaged air handlers are custom matched to 38AUZ/D condensing units

Information on matching 40RU DX packaged air handler follows for convenience. See separate product data for more details. The 40RU Series has excellent fan performance, efficient direct-expansion (DX) coils, a unique combination of indoor-air quality features, and is easy to install. Its versatility and state-of-the-art features help to ensure economical performance of the split system both now and in the future.

Indoor-air quality (IAQ) features

The unique combination of IAQ features in the 40RU Series air handlers help to ensure that only clean, fresh, conditioned air is delivered to the occupied space.

Direct-expansion (DX) 4 row cooling coils prevent the build-up of humidity in the room, even during part-load conditions.

Standard 2-in. (51mm) disposable filters remove dust and airborne particles from the occupied space for cleaner air.

The pitched, non-corroding drain pan can be adjusted for a right-hand or left-hand connection to suit many applications and provide positive drainage and prevent standing condensate.

The accessory economizer can provide ventilation air to improve indoor-air quality by using demand control ventilation. When used in conjunction with Carrier Comfort System and CO_2 sensors, the economizer admits fresh outdoor air to replace stale, recirculated indoor air.

Economy

The 40RU Series packaged air handlers provide reduced installation expense and energy-efficient performance.

Quick installation is ensured by the multipoise design. Units can be installed in either the horizontal or vertical configuration without modifications. Fan motors and contactors are pre-wired and thermostatic expansion valves (TXVs) are factory-installed on all 40RU models.

High efficiency, precision-balanced fans minimize air turbulence, surging, and unbalanced operation, cutting operation expenses.

The economizer accessory precisely controls the blend of outdoor air and room air to achieve comfort levels. When the outside air enthalpy is suitable, outside air dampers can fully open to provide "free" cooling without energizing mechanical cooling.

Rugged dependability

The 40RU series units are made to last. The die-formed galvanized steel panels ensure structural integrity under all operating conditions. Galvanized steel fan housings are securely mounted to a die-formed galvanized steel fan deck.

Rugged pillow-block bearings (40RU14) are securely fastened to the solid steel fan shaft with split collets and clamp locking devices. Smaller unit sizes have spider-type bearings.

Coil flexibility

Model 40RU direct- expansion coils have galvanized steel casings; inlet and outlet connections are on the same end. The coils are designed for use with Puron (R-410A) refrigerant and have $^3/_8$-in. diameter copper tubes mechanically bonded to aluminum sine-wave fins. The coils include matched, factory-installed thermostatic expansion valves (TXVs) with matching distributor nozzles and offers a removable power element and extended connections.

Easier installation and service

The multipoise design and component layout ensures quick unit installation and operation. Units can be converted from horizontal to vertical operation by simply repositioning the unit. Drain pan connections are duplicated on both sides of the unit. The filters, motor, drive, TXVs, and coil connections are all easily accessed by removing a single side panel.

MODEL NUMBER NOMENCLATURE

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
3	8	A	U	Z	A	0	7	A	0	A	9	–	0	A	0	A	0

Model Type
Commercial Air Cooled Cond. Unit
Puron® R–410A Refrigerant

Type of Coil
D = Dual Circuit
Z = Single Circuit

Refrigerant Options
A = Standard
B = Low Ambient Controls

Nominal Tonnage
07 = 18.3 kW (5.2 Tons)
08 = 23.2 kW (6.6 Tons)
12 = 29.1 kW (8.3 Tons)
14 = 35.2 kW (10.0 Tons)
16 = 45.8 kW (13.0 Tons)
25 = 59.2 kW (16.8 Tons)

Factory Assigned
A = Default

Factory Assigned
0 = Default

Coil Options (Condenser)
With Round Tube/Plate Fin Design
All models except 14 size (12.5 Ton)
A = Al/Cu Standard
B = Pre Coat Al/Cu
C = E–Coat Al/Cu
E = Cu/Cu
M = Al/Cu Standard with louvered hail guard
N = Pre Coat Al/Cu with louvered hail guard
P = E–Coat Al/Cu with louvered hail guard
R = Cu/Cu – Louvered hail guard
Coil Options (Condenser)
With All Aluminum – NOVATION Design (07–16 sizes)
G = Al/Al Standard
K = E–Coat Al/Al
T = Al/Al with louvered hail guard
W = E–Coat Al/Al with louvered hail guard

Voltage
9 = 400–3–50

Design Rev
– = Factory Assigned

Base Unit Controls
0 = Standard Electro–Mechanical Controls

Factory Assigned
A = Default

Service Options
0 = None

Electrical Options
A = None
C = Non–Fused Disconnect

Brand / Packaging
0 = Standard
1 = LTL

AHRI CAPACITY RATINGS

UNIT	COOLING STAGES	NOM. CAPACITY (TONS)	NET COOLING CAPACITY (MBH)	TOTAL POWER (kW)	EER
38AUZ07/40RU07	1	5	62.7	5.1	12.2
38AUZ08/40RU08	1	6.3	79.3	6.9	11.5
38AUD12/40RU12	2	8.3	103.0	8.2	12.6
38AUD14/40RU14	2	10.4	125.0	10.9	11.5
38AUD16/40RU16	2	12.5	162.0	13.5	12.0
38AUD25/40RU25	2	16.7	202.2	16.6	12.2

LEGEND

AHRI – Air Conditioning, Heating and Refrigeration Institute
ASHRAE – American Society of Heating, Refrigerating and Air Conditioning, Inc.
EER – Energy Efficiency Ratio
IEER – Integrated Energy Efficiency Ratio

NOTES

1. Rated in accordance with AHRI Standard 340/360, as appropriate.
2. Ratings are based on:
   Cooling Standard: 27°C (80°F) db, 19°C (67°F) wb indoor air temp and 35°C (95°F) db outdoor air temp.
3. All units comply with ASHRAE 90.1 Energy Standard for minimum EER and IEER requirements.

SOUND POWER LEVELS, dB

UNIT	COOLING STAGES	OUTDOOR SOUND (dB)								
		A–WEIGHTED	63	125	250	500	1000	2000	4000	8000
NOVATION – All Aluminum Coil Design										
38AUZ07	1	82	78.7	91.2	84.4	79.7	76.9	73.5	71.9	67.5
38AUZ08	1	81	81.7	89.7	82.6	77.6	74.4	70.3	68.0	64.2
38AUD12	2	78	79.2	81.1	78.4	75.0	72.9	68.2	66.4	68.2
38AUD14	2	79	76.2	78.6	78.1	75.1	75.2	71.4	67.9	65.1
38AUD16	2	80	90.3	81.8	78.0	76.7	75.2	70.5	66.4	61.9
RTPF – Round Tube/Plate Fin Coil Design										
38AUZ07	1	83	81.7	88.2	84.0	79.7	78.1	74.0	71.4	68.0
38AUZ08	1	83	81.7	88.2	84.0	79.7	78.1	74.0	71.4	68.0
38AUD12	2	80	76.0	79.9	79.8	77.4	75.6	69.8	67.8	66.4
38AUD16	2	83	86.7	81.2	78.9	80.4	78.0	74.2	70.2	65.0
38AUD25	2	85	91.0	85.0	80.0	86.0	79.0	73.0	68.0	63.0

NOTE: Outdoor sound data is measure in accordance with AHRI standard 270–2008.
LEGEND:
dB = Decibel

PHYSICAL DATA

SINGLE CIRCUIT MODELS with RTPF – Round Tube/Plate Fin Coil Design		
	38AUZ07	**38AUZ08**
Refrigeration System		
# Circuits / # Comp. / Type	1 / 1 / Scroll	1 / 1 / Scroll
R–410a shipping charge A/B (lbs, 50 Hz)	11	13
System charge w/ fan coil* (50 Hz)	14	17
Metering device	TXV	TXV
High–press. Trip / Reset (psig)	630 / 505	630 / 505
Low–press. Trip / Reset (psig)	54 / 117	54 / 117
Cond. Coil		
Material	Al/Cu	Al/Cu
Coil type	RTPF	RTPF
Rows / FPI	2 / 17	2 / 17
Total face area (ft2)	17.5	17.5
Cond. fan / motor		
Qty / Motor drive type	2 / direct	2 / direct
Motor HP / RPM	1/4 / 1100	1/4 / 1100
Fan diameter (in)	22	22
Nominal Airflow (cfm)	6000	6000
Watts (total)	610	610
Piping Connections		
Qty / Suction (in. ODS)	1 / 1 1/8	1 / 1 1/8
Qty / Liquid (in. ODS)	1 / 3/8	1 / 1/2

SINGLE CIRCUIT MODELS with NOVATION – All Aluminum coil Design		
	38AUZ07	**38AUZ08**
Refrigeration System		
# Circuits / # Comp. / Type	1 / 1 / Scroll	1 / 1 / Scroll
R–410a shipping charge A/B (lbs)	4.4	4.9
System charge w/ fan coil	8.4	10.2
System charge w/ fan coil (50hz)	9.0	12.3
Metering device	TXV	TXV
High–press. Trip / Reset (psig)	630 / 505	630 / 505
Low–press. Trip / Reset (psig)	54 / 117	54 / 117
Cond. Coil		
Material	Al	Al
Coil type	microchannel	microchannel
Rows / FPI	1 / 17	1 / 17
total face area (ft2)	17.5	20.5
Cond. fan / motor		
Qty / Motor drive type	2 / direct	2 / direct
Motor HP / RPM	1/4 / 1100	1/4 / 1100
Fan diameter (in)	22	22
Nominal Airflow (cfm)	6,000	6,000
Watts (total)	610	610

RTPF – Round tube /plate fin design

* Approximate system charge with about 25 ft piping of sizes indicated with matched 40RU.

PHYSICAL DATA (CONT)

DUAL CIRCUIT MODELS with RTPF – Round Tube/Plate Fin Coil Design			
	38AUD12	**38AUD16**	**38AUD25**
Refrigeration System			
# Circuits / # Comp. / Type	2 / 2 / Scroll	2 / 2 / Scroll	2 / 2 / Scroll
R–410a shipping charge A/B (lbs, 50 Hz)	8.0 / 8.0	16.0 / 16.0	14.0 / 14.0
System charge w/ fan coil* (50 Hz)	11.0 / 10.0	22.0 / 22.0	19.0 / 19.0
Metering device	TXV	TXV	TXV
High–press. Trip / Reset (psig)	630 / 505	630 / 505	630 / 505
Low–press. Trip / Reset (psig)	54 / 117	54 / 117	54 / 117
Compressor			
Model	ZP51 (2)	ZP83 (2)	ZP103 (2)
Oil Charge A/B (oz)	42 / 42	60 / 60	110 / 110
Speed rpm 50 Hz	2900	2900	2900
Cond. Coil			
Material	Al/Cu	Al/Cu	Al/Cu
Coil type	RTPF	RTPF	RTPF
Rows / FPI	2 / 17	2 / 17	2 / 17
Total face area (ft2)	25.1	23.5 x 2	25.0 x 2
Cond. fan / motor			
Qty / Motor drive type	2 / direct	3 / direct	4 / direct
Motor HP / RPM	1/4 / 1100	1/4 / 1100	1/4 / 1100
Fan diameter (in)	22	22	22
Nominal Airflow (cfm)	6000	9000	12000
Watts (total)	610	970	1150
Piping Connections			
Qty / Suction (in. ODS)	2 / 1 1/8	2 / 1 3/8	2 / 1 3/8
Qty / Liquid (in. ODS)	2 / 3/8	2 / 1/2	2 / 1/2

DUAL CIRCUIT MODELS with NOVATION – All Aluminum coil Design			
	38AUD12	**38AUD14**	**38AUD16**
Refrigeration System			
# Circuits / # Comp. / Type	2/2/Scroll	2/2/Scroll	2/2/Scroll
R–410a shipping charge A/B (lbs)	3.0 /3.1	3.7/3.9	6.1/6.1
System charge w/ fan coil	7.4 / 7.4	10.8 / 10.8	12.0/12.0
System charge w/ fan coil (50hz)	7.5 / 7.5	11.2 / 11.2	14.0 /14.0
Metering device	TXV	TXV	TXV
High–press. Trip / Reset (psig)	630 / 505	630 / 505	630 / 505
Low–press. Trip / Reset (psig)	54 / 117	54 / 117	54 / 117
Cond. Coil			
Material	Al	Al	Al
Coil type	microchannel	microchannel	microchannel
Rows / FPI	1 / 17	1 / 17	1 / 17
total face area (ft2)	25.0	31.8	25.0 x 2
Cond. fan / motor			
Qty / Motor drive type	2 / direct	2 / direct	3 / direct
Motor HP / RPM	1/4 / 1100	1/4 / 1100	1/4 / 1100
Fan diameter (in)	22	22	22
Nominal Airflow (cfm)	6,000	6,000	10,000
Watts (total)	610	610	970

RTPF – Round tube /plate fin design

* Approximate system charge with about 25 ft piping of sizes indicated with matched 40RU.

DIMENSIONS

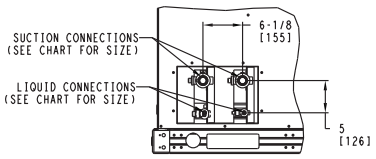
UNIT	STD. UNIT WT.		CORNER A		CORNER B		CORNER C		CORNER D		CENTER OF GRAVITY			UNIT HEIGHT
	KG.	LBS.	KG.	LBS.	KG.	LBS.	KG.	LBS.	KG.	LBS.	X	Y	Z	H
38AUZ-07 (MCHX)	149	328	58	128	31	68	28	62	32	70	21 [533.4]	19 [482.6]	13 [330.2]	42-3/8 [1076.0]
38AUZ-08 (MCHX)	160	353	63	138	33	72	29	65	35	78	19 [482.6]	23 [584.2]	13 [330.2]	42-3/8 [1076.0]
38AUD-12 (MCHX)	226	499	88	193	50	111	38	72	56	123	20 [508.0]	23 [584.2]	15 [381.0]	50-3/8 [1279.2]
38AUD-14 (MCHX)	229	505	86	190	40	88	34	76	68	151	20 [508.0]	24 [609.6]	15 [381.0]	50-3/8 [1279.2]
38AUZ-07 (RTPF)	176	389	64	141	44	96	28	62	41	91	18 [457.2]	24 [609.6]	21 [533.4]	42-3/8 [1076.0]
38AUZ-08 (RTPF)	177	391	64	142	44	96	28	62	41	91	18 [457.2]	24 [609.6]	21 [533.4]	42-3/8 [1076.0]
38AUD-12 (RTPF)	234	516	84	185	53	117	38	83	59	131	19 [482.6]	23 [584.2]	24 [609.6]	50-3/8 [1279.2]

CG CENTER OF GRAVITY

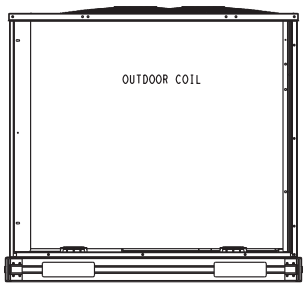
DIRECTION OF AIR FLOW

DIMENSIONS IN [ ] ARE IN MM

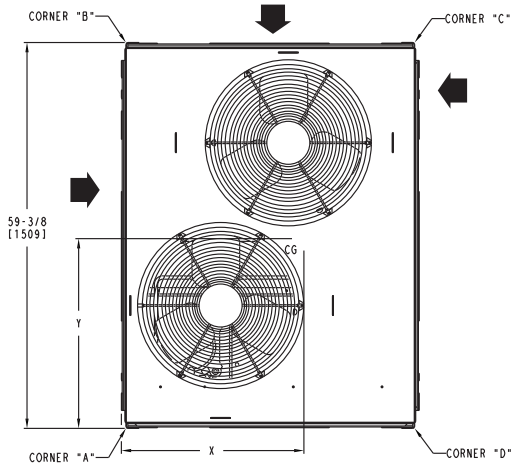
SERVICE VALVE CONNECTIONS		
UNIT	SUCTION	LIQUID
38AUZ07	1-1/8 [28.6]	3/8 [9.5]
38AUZ08	1-1/8 [28.6]	1/2 [12.7]
38AUD12	1-1/8 [28.6]	3/8 [9.5]
38AUD14	1-3/8 [34.9]	1/2 [12.7]

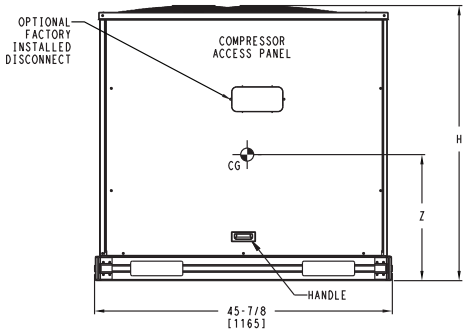


RIGHT SIDE VIEW
(FOR 38AUD SYSTEMS)

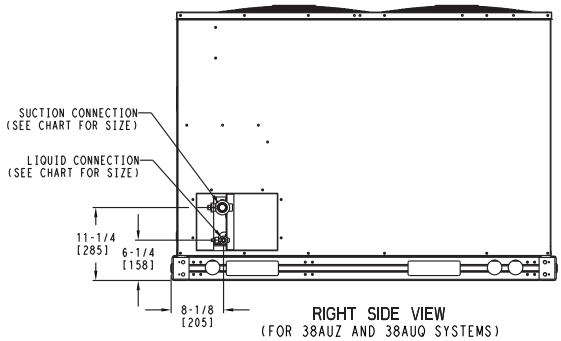


TOP VIEW

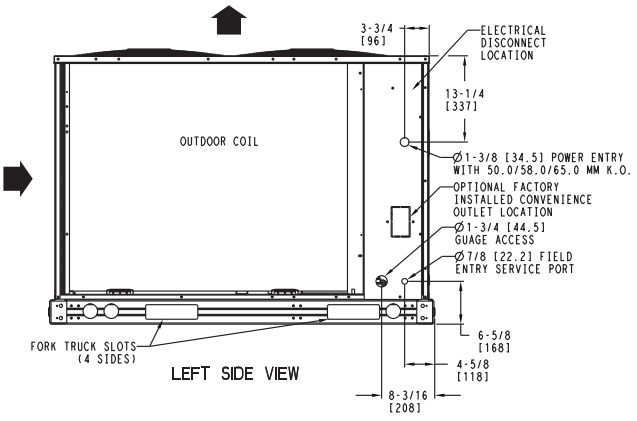




FRONT VIEW



RIGHT SIDE VIEW
(FOR 38AUZ AND 38AUQ SYSTEMS)



LEFT SIDE VIEW

NOTES:

1. MINIMUM CLEARANCE (LOCAL CODES OR JURISDICTION MAY PREVAIL):
   A. BOTTOM TO COMBUSTIBLE SURFACES: 0 INCHES.
   B. OUTDOOR COIL, FOR PROPER AIR FLOW: 36 INCHES ONE SIDE, 12 INCHES THE OTHER. THE SIDE GETTING THE GREATER CLEARANCE IS OPTIONAL.
   C. OVERHEAD: 60 INCHES, TO ASSURE PROPER OUTDOOR FAN OPERATION.
   D. BETWEEN UNITS: CONTROL BOX SIDE, 42 INCHES PER NEC.
   E. BETWEEN UNIT AND UNGROUNDED SURFACES: CONTROL BOX SIDE, 36 INCHES PER NEC.
   F. BETWEEN UNIT AND BLOCK OR CONCRETE WALLS AND OTHER GROUNDED SURFACES: CONTROL BOX SIDE, 42 INCHES PER NEC.
2. WITH EXCEPTION OF THE CLEARANCE FOR THE OUTDOOR COIL AS STATED IN NOTE 1B, A REMOVABLE FENCE OR BARRICADE REQUIRES NO CLEARANCE.
3. UNITS MAY BE INSTALLED ON COMBUSTIBLE FLOORS MADE FROM WOOD OR CLASS A, B OR C ROOF COVERING MATERIAL.

C10590

DIMENSIONS (cont.)

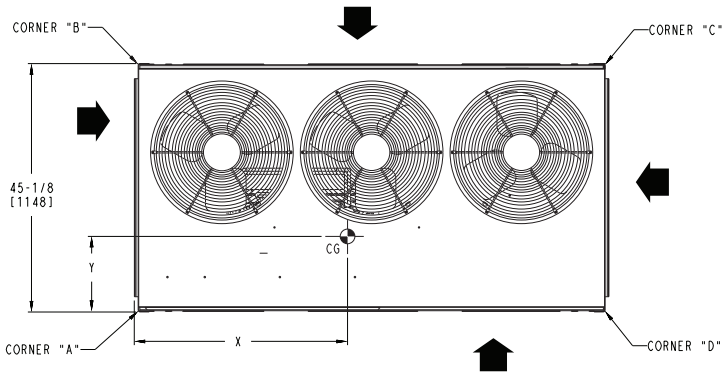
UNIT	STD. UNIT WT.		CORNER A		CORNER B		CORNER C		CORNER D		CENTER OF GRAVITY			UNIT HEIGHT
	KG.	LBS.	KG.	LBS.	KG.	LBS.	KG.	LBS.	KG.	LBS.	X	Y	Z	H
38AUD16 (MCHX)	288	633	100	220	61	134	61.5	135	65.5	144	38 [965.2]	19 [482.6]	15 [381]	50-3/8 [1279.2]
38AUD16 (RTPF)	332	731	107	237	78	172	61	135	84	186	38 [965.2]	19 [482.6]	17 [431.8]	50-3/8 [1279.2]

CG CENTER OF GRAVITY

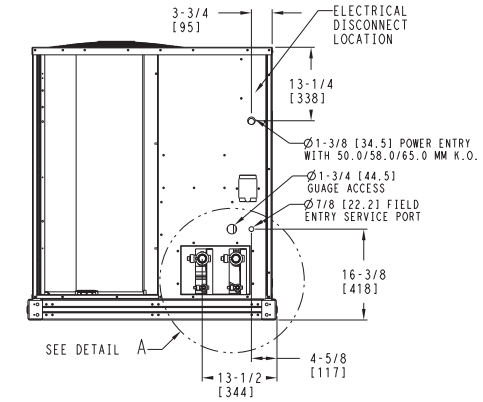
DIRECTION OF AIR FLOW

DIMENSIONS IN [ ] ARE IN MM

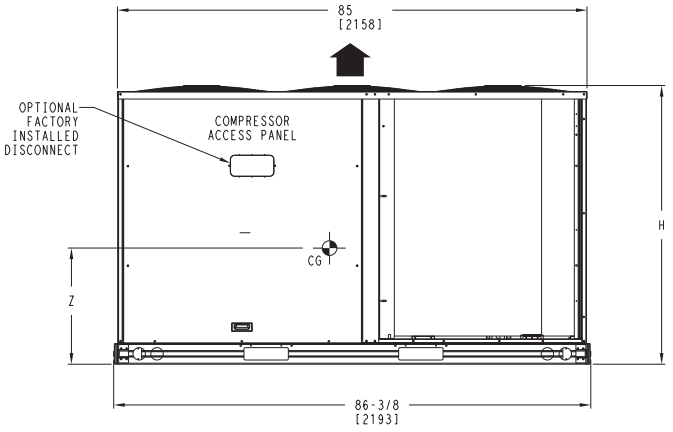
SERVICE VALVE CONNECTIONS			QTY
UNIT	SUCTION	LIQUID	
38AUD16	1-3/8 [34.9]	1/2 [12.7]	2 EA



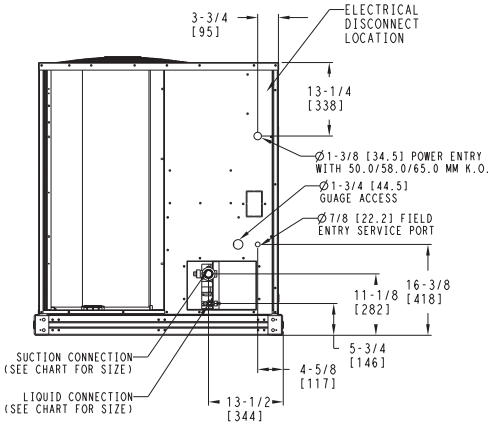
TOP VIEW



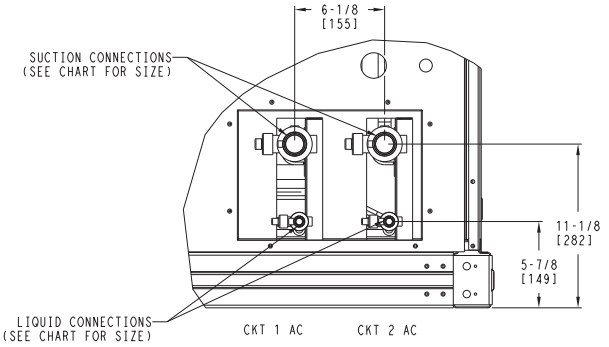
LEFT SIDE VIEW FOR 38AUD SYSTEMS



FRONT VIEW



LEFT SIDE VIEW



DETAIL A
(NOTE POSITION OF CKT 1)

NOTES:
1. MINIMUM CLEARANCE (LOCAL CODES OR JURISDICTION MAY PREVAIL):
   A. BOTTOM TO COMBUSTIBLE SURFACES: 0 INCHES.
   B. OUTDOOR COIL, FOR PROPER AIR FLOW: 36 INCHES ONE SIDE, 12 INCHES THE OTHER. THE SIDE GETTING THE GREATER CLEARANCE IS OPTIONAL.
   C. OVERHEAD: 60 INCHES, TO ASSURE PROPER OUTDOOR FAN OPERATION.
   D. BETWEEN UNITS: CONTROL BOX SIDE, 42 INCHES PER NEC.
   E. BETWEEN UNIT AND UNGROUNDED SURFACES: CONTROL BOX SIDE, 36 INCHES PER NEC.
   F. BETWEEN UNIT AND BLOCK OR CONCRETE WALLS AND OTHER GROUNDED SURFACES: CONTROL BOX SIDE, 42 INCHES PER NEC.
2. WITH EXCEPTION OF THE CLEARANCE FOR THE OUTDOOR COIL AS STATED IN NOTE 1B, A REMOVABLE FENCE OR BARRICADE REQUIRES NO CLEARANCE.
3. UNITS MAY BE INSTALLED ON COMBUSTIBLE FLOORS MADE FROM WOOD OR CLASS A, B OR C ROOF COVERING MATERIAL.

C10591

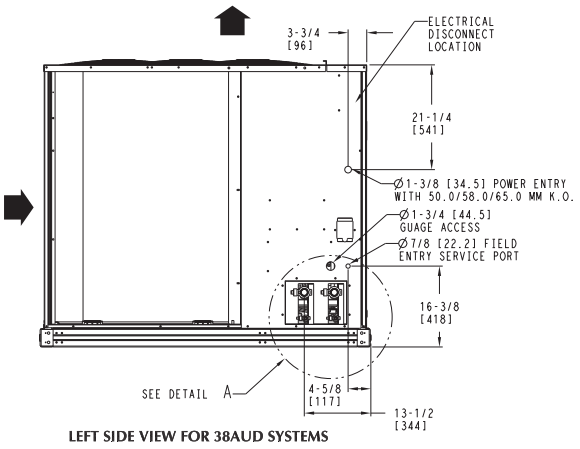
DIMENSIONS (cont.)

UNIT	STD. UNIT WT.		CORNER A		CORNER B		CORNER C		CORNER D		CENTER OF GRAVITY			UNIT HEIGHT
	KG.	LBS.	KG.	LBS.	KG.	LBS.	KG.	LBS.	KG.	LBS.	X	Y	Z	H
38AUD25 (RTPF)	444	978	163	360	85	188	67	147	128	283	38 [965.2]	23 [584.2]	17 [431.8]	50-3/8 [1279.2]

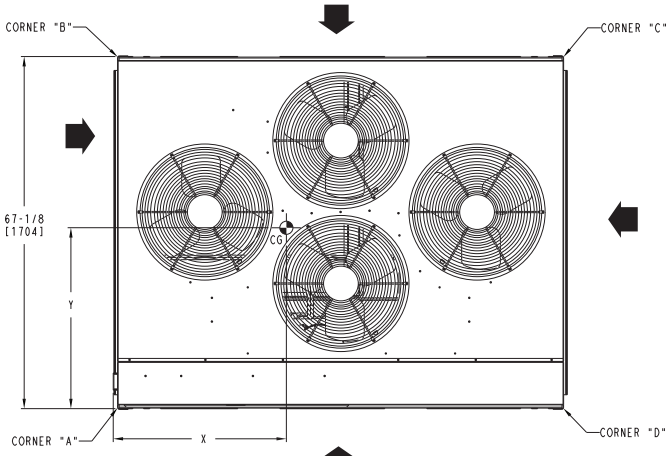
CG CENTER OF GRAVITY

DIRECTION OF AIR FLOW

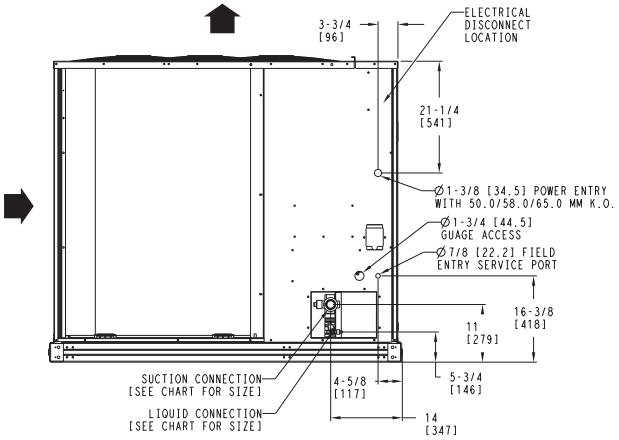
DIMENSIONS IN [ ] ARE IN MM



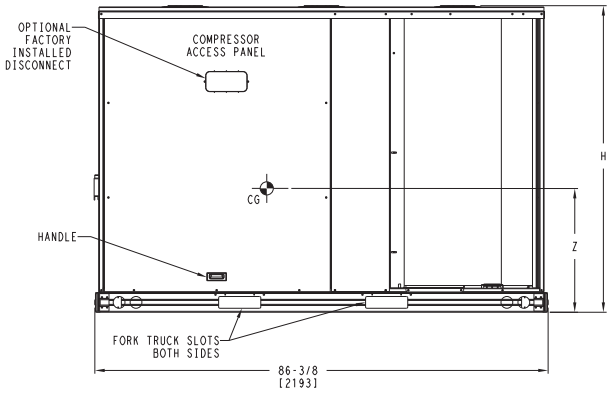
LEFT SIDE VIEW FOR 38AUD SYSTEMS



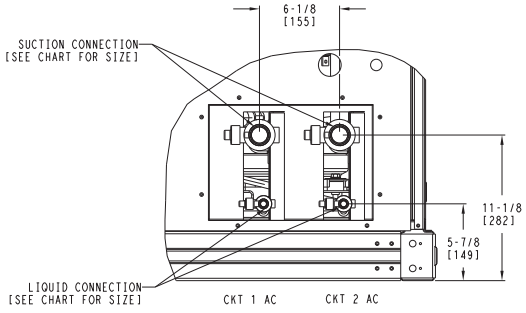
TOP VIEW



LEFT SIDE VIEW



FRONT VIEW



DETAIL A
(NOTE POSITION OF CKT 1)

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SERVICE VALVE CONNECTIONS			QTY
UNIT	SUCTION	LIQUID	
38AUD25	1-3/8 [34.9]	1/2 [12.7]	2 EA

C10592

OPTIONS AND ACCESSORIES

38AUZ/D OPTIONS AND ACCESSORIES

ITEM	OPTION*	ACCESSORY†
Disconnect Switch (non-fused)	X	
Special–coated Coil Protection	X	
Low Ambient Temperature MotorMaster I® Control	X	X
Wired Condenser Coil Grille (Novation 07–14 models only)		X
Louvered Hail Guard	X	X
Programmable Thermostats		X

* Factory-installed option.

† Field-installed accessory.

38AUZ/38AUD factory-installed options

E-coated aluminum-fin coils have a flexible and durable epoxy coating uniformly applied to all coil surfaces. Unlike brittle phenolic dip and bake coatings, E-coating provides superior protection with unmatched flexibility, edge coverage, metal adhesion, thermal performance, and most importantly, corrosion resistance.

E-coated coils provide this protection since all coil surfaces are completely encapsulated from environmental contamination. This coating is especially suitable in industrial environments.

Pre-coated coils (RTPF coils only) provide protection in mild coastal environments.

–29°C (–20°F) low-ambient temperature kit option (MotorMaster I®) controls outdoor-fan motor operation to maintain the correct head pressure at low outdoor ambient temperatures.

Louvered hail guard package protects coils against damage from flying debris and hail.

Non-fused disconnect switch is used to remove power locally at the condensing unit. This switch also includes a power lockout capability to protect the service person. This lockout switch saves the service person time and effort because there is no need to access a distant disconnect switch while servicing the unit.

NOTE: Non-fused disconnect switch cannot be used when unit MOCP electrical rating exceeds 80 amps.

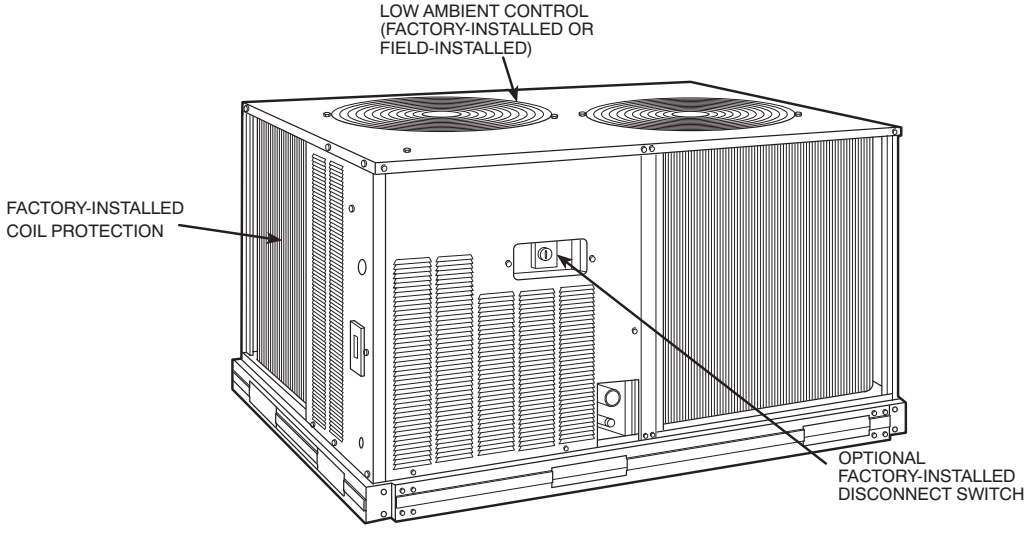
38AUZ/D field-installed accessories

–29°C (–20°F) low-ambient temperature kit accessory (MotorMaster I®) controls outdoor-fan motor operation to maintain the correct head pressure at low outdoor ambient temperatures.

Louvered hail guard package protects coils against damage from flying debris and hail.

Condenser coil grille package protects condensing unit coil from impact by large objects and vandalism.

Carrier's line of thermostats provide both programmable and non-programmable capability with the new **Debonair®** line of commercial programmable thermostats. The **Commercial Electronic** thermostats provide 7-day programmable capability for economical applications.



C10609

OPTIONS AND ACCESSORIES (cont.)

40RU OPTIONS AND ACCESSORIES

ITEM	OPTION*	ACCESSORY†
Alternate Fan Motors	X	
Alternate Drives	X	
CO_2 Sensors		X
Condensate Drain Trap		X
Discharge Plenum		X
Economizer		X
Electric Heat		X
Hot Water Heating Coils		X
Overhead Suspension Package		X
Prepainted Units	X	
Return Air Grille		X
Steam Heating Coil		X
Subbase		X

* Factory-installed option.

† Field-installed accessory.

40RU factory-installed options

Alternate fan motors and drives are available to provide the widest possible range of performance.

Units constructed of prepainted steel are available from the factory for applications that require painted units. Unit color is American Sterling Gray.

40RU field-installed accessories

Two-row hot water coils have $^5/_8$-in. diameter copper tubes mechanically bonded to aluminum plate fins. Coils have non-ferrous headers.

One-row steam coil has 1-in. OD copper tube and aluminum fins. The Inner Distributing Tube (IDT) design provides uniform temperatures across the coil face. The IDT steam coils are especially suited to applications where sub-freezing air enters the unit.

Electric resistance heat coils have an open-wire design and are mounted in a rigid frame. Safety cutouts for high temperature conditions are standard.

Economizer (enthalpy controlled) provides ventilation air and provides "free" cooling if the outside ambient temperature and humidity are suitable. The economizer can also be used in conjunction with Carrier Comfort System thermostats and CO_2 sensors to help meet indoor air quality requirements. The economizer can be used in both vertical and horizontal positions.

Discharge plenum directs the air discharge into the occupied space; integral horizontal and vertical louvers enable redirection of airflow. This accessory is available unpainted or painted.

Return-air grille provides a protective barrier over the return-air opening and gives a finished appearance to units installed in the occupied space. This accessory is available unpainted or painted.

Subbase provides a stable, raised platform and room for condensate drain connection for floor-mounted units. This accessory is available unpainted or painted.

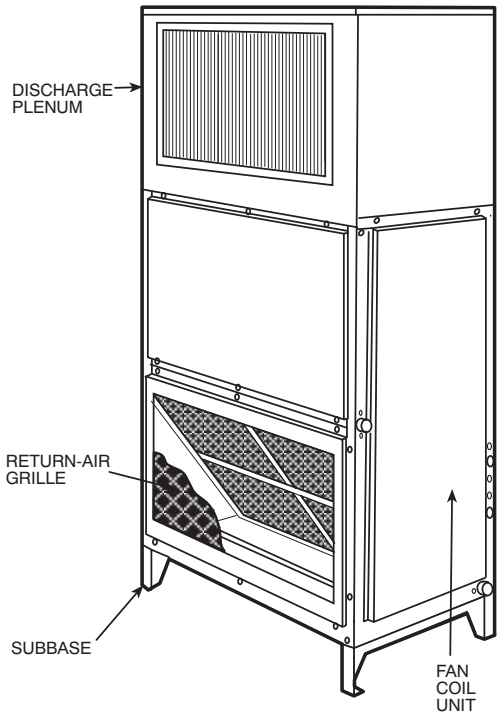
Overhead suspension package includes necessary brackets to support units in horizontal installations.

CO_2 sensors can be used in conjunction with the economizer accessory to help meet indoor air quality requirements. The sensor signals the economizer to open when the CO_2 level in the space exceeds the setpoint. A Carrier Comfort System programmable thermostat can also be used to override the sensor if the outside-air temperature is too high or too low.

Condensate drain trap includes an overflow shutoff switch that can be wired to turn off the unit if the trap becomes plugged. The kit also includes a wire harness that can be connected to an alarm if desired. The transparent trap is designed for easy service and maintenance.

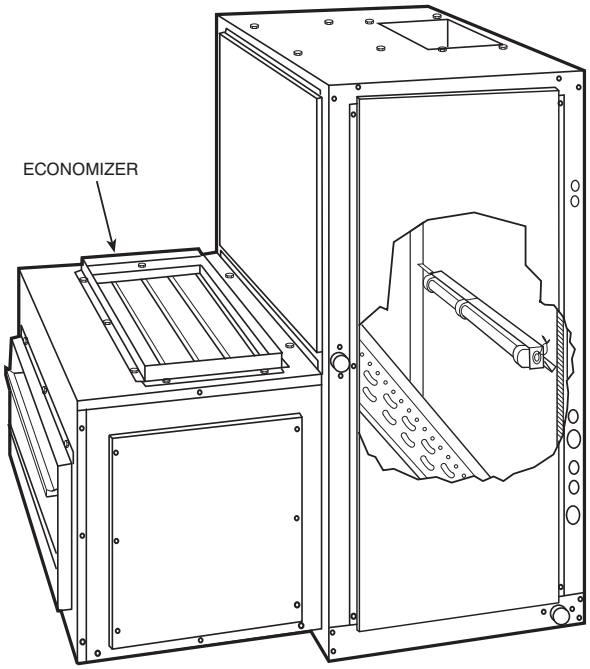
OPTIONS AND ACCESSORIES (cont.)

40RU WITH DISCHARGE PLENUM RETURN-AIR GRILLE AND SUBBASE

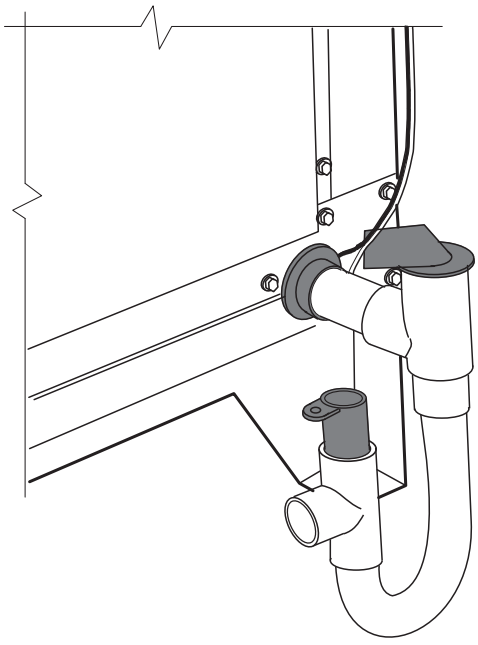


40RU WITH HOT WATER OR STEAM COIL

40RU WITH ECONOMIZER

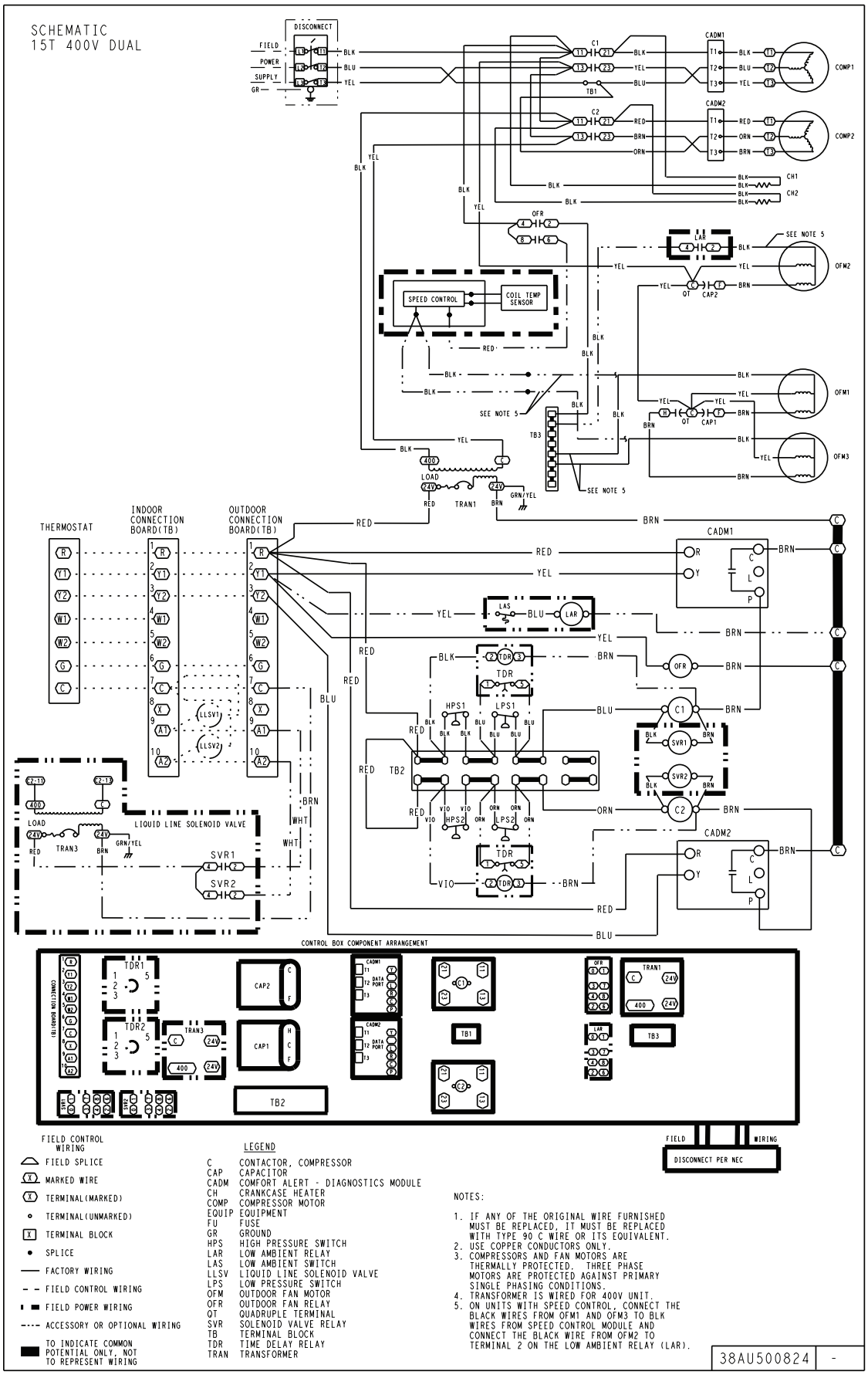


40RU WITH CONDENSATE TRAP



C10610

TYPICAL WIRING SCHEMATIC



C10593

Typical 38AUD16 Dual Circuit

Appendix D

Sample Noise Barrie

Acoustical Surfaces, Inc.

SOUNDPROOFING, ACOUSTICS, NOISE & VIBRATION CONTROL SPECIALISTS

123 Columbia Court North • Suite 201 • Chaska, MN 55318

(952) 448-5300 • Fax (952) 448-2613 • (800) 448-0121

Email: sales@acousticalsurfaces.com

Visit our Website: www.acousticalsurfaces.com

We Identify and S.T.O.P. Your Noise Problems

Echo Barrier™

The Industry's First Reusable, Indoor/ Outdoor Noise Barrier/Absorber

- Superior acoustic performance
- Industrial durability
- Simple and quick installation system
- Lightweight for easy handling
- Unique roll-up design for compact storage and transportation
- Double or triple up for noise 'hot spots'
- Ability to add branding or messages
- Range of accessories available
- Weatherproof – absorbs sound but not water
- Fire retardant
- 1 person can do the job of 2 or 3 people

Why is it all too often we see construction sites with fencing but no regard for sound issues created from the construction that is taking place? This is due to the fact that there has not been an efficient means of treating this type of noise that was cost effective ***until now.***

Echo Barrier temporary fencing is a reusable, outdoor noise barrier. Designed to fit on all types of temporary fencing. Echo Barrier absorbs sound while remaining quick to install, light to carry and tough to last.

BENEFITS: Echo Barrier can help reduce noise complaints, enhance your company reputation, extend site operating hours, reduce project timescales & costs, and improve working conditions.

APPLICATIONS: Echo Barrier works great for construction & demolition sites; rail maintenance & replacement; music, sports and other public events; road construction; utility/maintenance sites; loading and unloading areas; outdoor gun ranges.

DIMENSIONS: 6.56' × 4.49'.

WEIGHT: 13 lbs.

ACOUSTIC PERFORMANCE: 10-20dB noise reduction (greater if barrier is doubled up).

INSTALLATION: The Echo Barrier is easily installed using our quick hook system and specially designed elastic ties.

Echo Barrier Transmission Loss Field Data							
	125Hz	250Hz	500Hz	1KHz	2KHz	4KHz	8KHz
Single Layer	6	12	16	23	28	30	30
Double Layer	7	19	24	28	32	31	32