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Noise Analysis for the Blue Wave Hotel and Residential Project Imperial Beach, California

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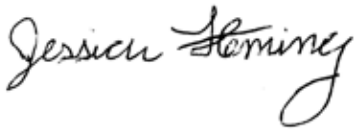

Jessica Fleming, Environmental Analyst

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Acronyms and Abbreviations

ADT	Average daily traffic
CalGreen	California Green Building Standards Code
Caltrans	California Department of Transportation
City	City of San Diego
CNEL	community noise equivalent level
dB	decibel
dB(A)	A-weighted decibel
FHWA	Federal Highway Administration
HVAC	heating, ventilation, and air conditioning
L_{eq}	one-hour equivalent noise level
$L_{eq(8)}$	eight-hour equivalent noise level
L_{pw}	sound power level
MSCP	Multiple Species Conservation Program
project	Blue Wave Hotel and Residential project
RV	recreational vehicle
SEL	sound exposure level
SR-75	State Route 75
STC	Sound Transmission Class

Executive Summary

The Blue Wave Hotel and Residential project (project) site is located at 550 State Route 75 (SR-75) in the city of Imperial Beach, California. The 1.27~~1.3~~-acre project site is currently undeveloped. The project would construct an approximate 73,847~~228~~-gross-square-foot multi-use facility consisting of a four-story building containing 51~~40~~ residential dwelling units and 47~~51~~ hotel rooms. In addition, the project would construct 6,675 square feet of office/shop/restaurant space in a two-story building, and 1,205~~1,168~~ square feet of retail space.

This report discusses potential noise impacts from the construction and operation of the project. As part of this assessment, noise levels due to vehicle traffic were calculated and evaluated against City of Imperial Beach (City) noise and land use compatibility guidelines. In addition to compatibility, the potential for noise to impact adjacent receivers from future on-site sources and construction activity was assessed. Where impacts were identified, measures have been identified to comply with the City's noise standards. A summary of the findings is provided below.

Construction Noise

Project construction noise would be generated by diesel engine-driven construction equipment used for site preparation and grading, building construction, loading, unloading, and placing materials and paving. Construction noise would potentially result in short-term impacts to surrounding properties. Residential uses are located north and east of the project site, and a recreational vehicle (RV) park is located south of the project site. The Municipal Code does not set daytime noise level limits on construction activities. However, the City commonly uses the County of San Diego's Noise Ordinance limit of 75 A-weighted decibels [dB(A)] eight-hour equivalent noise level ($L_{eq(8)}$) at residential uses during the daytime hours.

As calculated in this analysis, construction noise levels are not anticipated to exceed 75 dB(A) $L_{eq(8)}$ at the adjacent residential uses. Although the existing adjacent residences would be exposed to construction noise levels that could be heard above ambient conditions, the exposure would be temporary. Additionally, construction activities would occur during the daytime hours and would comply with Section 9.32.020(H) of the City's Municipal Code. As construction activities associated with the project would comply with Municipal Code Section 9.32.020(H) and daytime noise levels would not exceed 75 dB(A) L_{eq} at adjacent residential uses, temporary increases in noise levels from construction activities would be less than significant.

Vehicle Traffic Noise

On-site Noise Compatibility

The main source of noise at the project site is vehicle traffic on SR-75. Exterior use areas include a rooftop pool for residential use, a second-floor ~~brewery~~restaurant terrace, and a ground-floor kids play area and courtyard. Due to the unique mixed-use nature of the project, various standards were applied based on the primary use of the area. The residential and transient lodging standards were applied to the residential uses (including the pool deck) and hotel uses, the playground standards were applied to the kids play area and courtyard, and the commercial standards were applied to the second-floor ~~brewery~~restaurant terrace. As shown, residential uses are "acceptable" with exterior noise levels up to 60 community noise equivalent level (CNEL) and "conditionally acceptable" with exterior noise levels up to 70 CNEL. Hotel uses are "acceptable" with exterior noise levels up to 60 CNEL and "conditionally acceptable" with exterior noise levels up to 75 CNEL. Playgrounds are "acceptable" with exterior noise levels up to 70 CNEL and "conditionally acceptable" with exterior noise levels up to 75 CNEL. Commercial uses "acceptable" with exterior noise levels up to 75 CNEL.

As calculated in this analysis, noise levels at the kids play area and courtyard would range from 66 to 68 CNEL and would be considered "acceptable" with playground uses, and noise levels at the second-floor terrace would range from 67 to 70 CNEL and would be considered "acceptable" with commercial uses. However, exterior noise levels at the rooftop pool deck would range from 63 to 64 CNEL and would be considered "conditionally acceptable" with residential uses. Therefore, mitigation would be required to reduce noise levels to comply with the City's compatibility standards. Based on the current site plan, required mitigation would include a 3.5-foot barrier adjacent to the rooftop pool. By incorporating this barrier in to the project, exterior noise levels would be reduced to 60 CNEL or less.

MM N-1: On-site Noise Barrier. Prior to the issuance of building permits, the City shall verify the building plans state the following and identify noise barriers, as applicable:

> Exterior noise levels at the rooftop pool deck identified as Receivers 31 through 33 on Noise Analysis Figure 7 shall be reduced to the City's Noise Element threshold of 60 CNEL for residential uses. Noise reduction for exterior traffic noise impacts can be accomplished through an on-site noise barrier. A 3.5-foot-high barrier adjacent to the rooftop pool, as shown in Noise Analysis Figure 7, shall be constructed. The sound attenuation wall must be solid and free of cracks or holes. It can be constructed of masonry, wood, plastic, fiberglass, steel, or a combination of those materials, as long as there are no cracks or gaps, through or below the wall. Any seams or cracks must be filled or caulked. If wood is used, it can be tongue and groove and must be at least one-inch total thickness or have a density of at least 4 pounds per square foot.

The interior noise level standard for residential units and sleeping units (e.g., hotel rooms) is 45 CNEL. Assuming standard light-frame construction with double-glazed windows, interior noise levels would be reduced to 45 CNEL or less in buildings exposed to exterior noise levels of 70 CNEL or less. Exterior noise levels at the residential and hotel façades would range from 40 to 72 CNEL. Exterior noise levels would exceed 70 CNEL at the building façades located closest to SR-75 (Receivers 8, 9, 23, 24, and 25). For the residential units and hotel rooms located where exterior noise exceeds 70 CNEL, building components that achieve a greater composite sound transmission class (STC) rating of up to 27 dB would be required.

MM N-2: Interior Noise. Prior to the issuance of building permits for the hotel and residential buildings, the City shall verify the building plans state the following and identify sound resistant construction specifications, as applicable:

Interior noise levels shall be reduced to 45 CNEL or less in all habitable rooms for the residential units and hotel rooms located adjacent to Receivers 8, 9, 23, 24, and 25 as identified in Noise Analysis Figure 7. Sound-resistant construction for walls adjacent to these receivers shall achieve a combined minimum STC rating ranging of 27 dB. This can be achieved with typical exterior wall construction consisting of wood framing, drywall, insulation, and exterior stucco siding, and window and door components with a minimum STC rating of 27. This minimum STC rating shall be identified on the building plans window and door schedule.

Off-site Vehicle Traffic Noise

The project would increase traffic volumes on local roadways. However, the project would not substantially alter the vehicle classifications mix on local or regional roadways, nor would the project alter the speed on an existing roadway or create a new roadway. Thus, the primary factor affecting off-site noise levels would be increased traffic volumes. A substantial noise increase is defined as an increase of 3 dB, which would require a doubling of traffic volumes.

Based on the project traffic report, the project would generate 1,227 trips per day (Linscott, Law & Greenspan 2018). Given the existing traffic volumes on affected roadways, direct off-site noise level increases due to the project would be less than 1 dB. Therefore, direct off-site noise impacts associated with the project would be less than significant.

The cumulative “year 2040 with project” increase over the existing condition would range from less than 1 dB to 3 dB. However, the project’s contribution to the increase over ambient noise levels would be less than 1 dB. Therefore, the project would result in a less than cumulatively considerable off-site noise level increase.

On-site Generated Noise

The City's Municipal Code does not identify specific property line noise standards for stationary noise sources; however, the City commonly utilizes the County of San Diego's Noise Ordinance limits for projects within the City. The most restrictive property line noise level limits are 50 dB(A) L_{eq} between 7:00 a.m. and 10:00 p.m. and 45 dB(A) L_{eq} between 10:00 p.m. and 7:00 a.m. The primary noise sources on-site would be rooftop heating, ventilation, and air conditioning (HVAC) equipment, occasional music at the second-floor ~~brewery~~restaurant terrace, and people gathering on the rooftop pool deck. Noise levels due to these sources were modeled at the adjacent properties. As calculated in this analysis, daytime on-site generated noise levels with all HVAC units operating at full capacity, music playing and people gathered on the ~~brewery~~restaurant terrace, and people gathered on the pool deck would range from 36 to 44 dB(A) L_{eq} at the adjacent properties, and nighttime noise levels with all HVAC units operating at full capacity would range from 32 to 44 dB(A) L_{eq} at the adjacent properties. Noise levels would be less than the most restrictive noise limit of 45 dB(A) L_{eq}.

1.0 Introduction

1.1 Project Description

The Blue Wave Hotel and Residential project (project) site is located at 550 State Route 75 (SR-75) in the city of Imperial Beach, California. Figure 1 shows the regional location. An aerial photograph of the project site and vicinity is shown in Figure 2. The project site is bounded by SR-75 to the southwest, residential uses to the north and east, and restaurants to the southeast. A recreational vehicle (RV) park and commercial uses are located on the opposite side of SR-75 to the southwest. The portion of the project site adjacent to SR-75 is currently undeveloped and the portion adjacent to 7th Street is developed with a single-family home and accessory structure.

The project involves the construction of an approximately 73,847~~228~~-square-foot multi-use facility. The facility would include one four-story Z-shaped hotel/apartment building that follows the northern perimeter of the site, and a separate two-story building with a restaurant along the southwestern perimeter. Overall, the project would provide 51 residential dwelling units (40,149 square feet), 47 hotel rooms (18,148 square feet), 1,800 square feet of courtyard patio space, 4,306 square feet of a pool terrace, 6,675 square feet of office/shop/restaurant space, 21,995~~19,976~~ square feet of interior and exterior corridor space, and 1,768~~0~~ square feet of outdoor deck space. Figure 3 shows the proposed site plan. A wireless communication facility may also be included in the project, with any necessary back-up generator and equipment provided inside of a building.

Project Location

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FIGURE 1

Regional Location

Image Source: Nearmap (flown June 2018)

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Project Boundary

FIGURE 2

Project Location on Aerial Photograph

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Map Source: M + C Corp

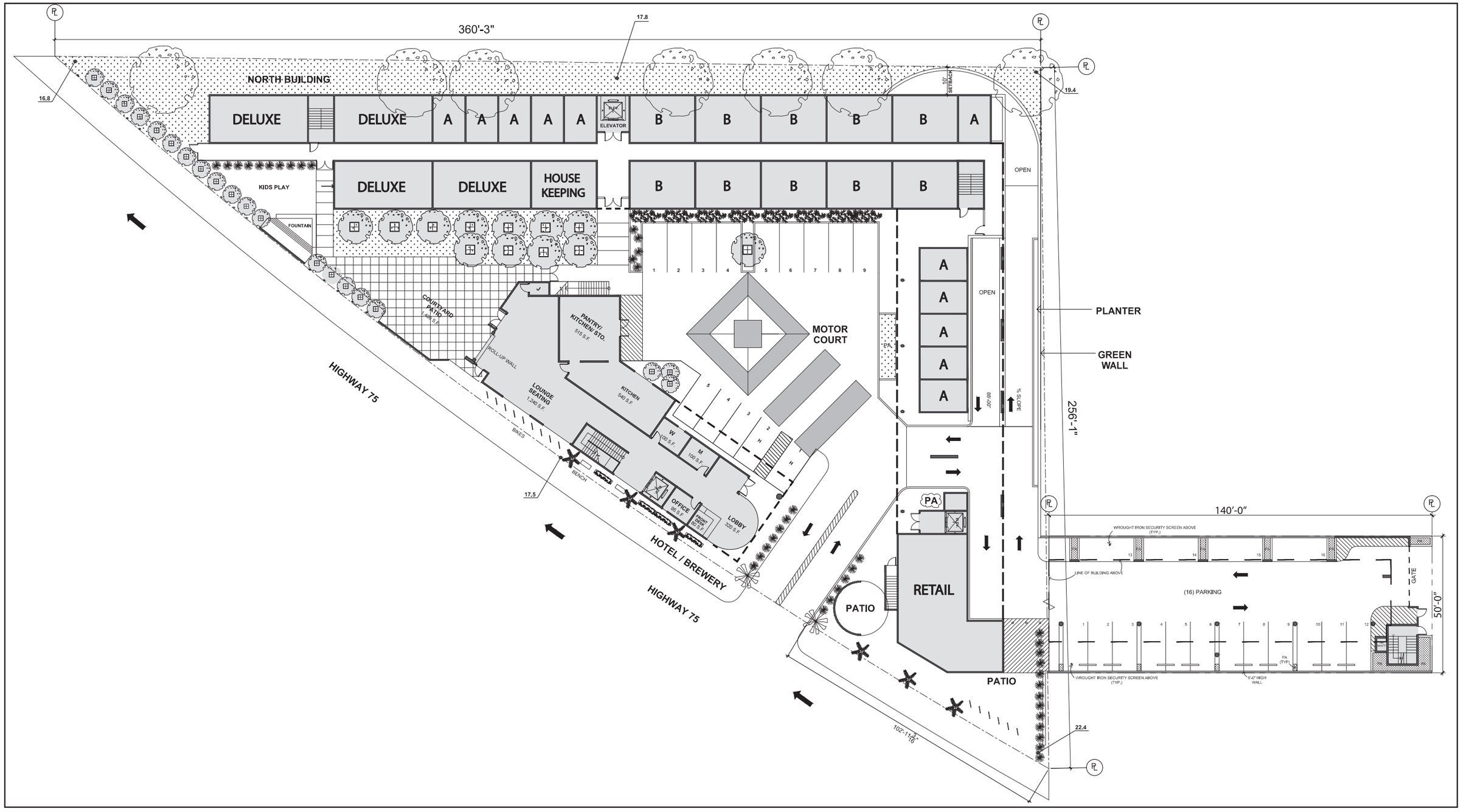

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FIGURE 3
Site Plan

The residential component would consist of 30 one-bedroom apartments and 21 two-bedroom apartments, for a total of 51 dwelling units. The third and fourth floors of the facility would consist only of residential apartments and studios, while 11 one-bedroom units would be located on the second floor. A pool would be provided to serve the residential component of the project and may be utilized occasionally by residents to host private daytime events.

The hotel area would consist of three unit types: micro, standard, and deluxe. The first and second floors of the facility would contain 10 and 9 micro units, respectively. In addition, the first and second floors would both contain 10 standard units and 4 deluxe units, while a manager's unit would be located on the first floor. The total hotel dwelling unit count would be 47 units.

The office/shop/restaurant space would consist of a two-story building, totaling 6,675 square feet. The first floor would contain a lobby, front desk/reception area, and office space, in addition to a lounge seating area, a kitchen and associated pantry area, as well as restrooms. A roll-up wall would be located at the westerly end of the lounge area, which would provide access to a 1,800-square-foot outdoor courtyard patio area. The second floor would consist of a bar area and associated storage room, a lounge, office space, and restrooms. In addition, a 1,768-square-foot deck area ~~and 405-square-foot eco-roof~~ would be constructed on the second floor. Entertainment, such as music, may occur in the outdoor patio area at the restaurant until approximately 9:00 p.m.

1.2 Fundamentals of Noise

Sound levels are described in units called the decibel (dB). Decibels are measured on a logarithmic scale that quantifies sound intensity in a manner similar to the Richter scale used for earthquake magnitudes. Thus, a doubling of the energy of a noise source, such as doubling of traffic volume, would increase the noise level by 3 dB; a halving of the energy would result in a 3 dB decrease.

Additionally, in technical terms, sound levels are described as either a "sound power level" or a "sound pressure level," which while commonly confused are two distinct characteristics of sound. Both share the same unit of measure, the dB. However, sound power, expressed as L_{pw}, is the energy converted into sound by the source. The L_{pw} is used to estimate how far a noise will travel and to predict the sound levels at various distances from the source. As sound energy travels through the air, it creates a sound wave that exerts pressure on receivers such as an eardrum or microphone and is the sound pressure level. Noise measurement instruments only measure sound pressure, and noise level limits used in standards are generally sound pressure levels.

The human ear is not equally sensitive to all frequencies within the sound spectrum. To accommodate this phenomenon, the A-scale, which approximates the frequency response of the average young ear when listening to most ordinary everyday sounds, was devised. When people make relative judgments of the loudness or annoyance of a sound, their judgments correlate well with the A-scale sound levels of those sounds. Therefore, the

"A-weighted" noise scale is used for measurements and standards involving the human perception of noise. Noise levels using A-weighted measurements are designated with the notation dB(A).

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. In addition, most noise that lasts for more than a few seconds is variable in its intensity. Consequently, a variety of noise descriptors has been developed. The noise descriptors used for this study are the one-hour equivalent noise level (L_{eq}), the community noise equivalent level (CNEL), and the sound exposure level (SEL). The CNEL is a 24-hour equivalent sound level. The CNEL calculation applies an additional 5 dB(A) penalty to noise occurring during evening hours, between 7:00 p.m. and 10:00 p.m., and an additional 10 dB(A) penalty is added to noise occurring during the night, between 10:00 p.m. and 7:00 a.m. These increases for certain times are intended to account for the added sensitivity of humans to noise during the evening and night. The SEL is a noise level over a stated period of time or event and normalized to one second.

Sound from a small, localized source (approximating a "point" source) radiates uniformly outward as it travels away from the source in a spherical pattern, known as geometric spreading. The sound level decreases or drops off at a rate of 6 dB(A) for each doubling of the distance.

Traffic noise is not a single, stationary point source of sound. The movement of vehicles makes the source of the sound appear to emanate from a line (line source) rather than a point when viewed over some time interval. The drop-off rate for a line source is 3 dB(A) for each doubling of distance.

The propagation of noise is also affected by the intervening ground, known as ground absorption. A hard site (such as parking lots or smooth bodies of water) receives no additional ground attenuation, and the changes in noise levels with distance (drop-off rate) are simply the geometric spreading of the source. A soft site (such as soft dirt, grass, or scattered bushes and trees) receives an additional ground attenuation value of 1.5 dB(A) per doubling of distance. Thus, a point source over a soft site would attenuate at 7.5 dB(A) per doubling of distance.

Human perception of noise has no simple correlation with acoustical energy. A change in noise levels is generally perceived as follows: 3 dB(A) barely perceptible, 5 dB(A) readily perceptible, and 10 dB(A) perceived as a doubling or halving of noise (California Department of Transportation [Caltrans] 2013).

2.0 Applicable Standards

2.1 City of Imperial Beach General Plan

The City's Noise Element of the General Plan specifies compatibility standards for different land use categories (Table 1). The project proposes a hotel and residential uses along with a retail space and a ~~brewery~~restaurant. Exterior use areas include a rooftop pool for

residential use, a second-floor ~~brewery~~restaurant terrace, and a ground-floor kids play area and courtyard. Due to the unique mixed-use nature of the project, various standards were applied based on the primary use of the area. The residential and transient lodging standards were applied to the residential uses (including the pool deck) and hotel uses, the playground standards were applied to the kids play area and courtyard, and the commercial standards were applied to the second-floor ~~brewery~~restaurant terrace. As shown, residential uses are "acceptable" with exterior noise levels up to 60 CNEL and "conditionally acceptable" with exterior noise levels up to 70 CNEL. Hotel uses are "acceptable" with exterior noise levels up to 60 CNEL and "conditionally acceptable" with exterior noise levels up to 75 CNEL. Playgrounds are "acceptable" with exterior noise levels up to 70 CNEL and "conditionally acceptable" with exterior noise levels up to 75 CNEL. Commercial uses "acceptable" with exterior noise levels up to 75 CNEL.

Table 1
City of Imperial Beach Land Use – Noise Compatibility Guidelines

Land Use Category	Exterior Noise Exposure [dB(A) CNEL]					
	60	65	70	75	80	
Residential, Theaters, Auditoriums, Music Halls, Meeting Halls, Churches						
Transient Lodging – Motels, Hotels						
Schools, Libraries, Museums, Hospitals, Nursing Homes						
Playgrounds, Parks						
Commercial and Office Buildings						

	Acceptable	Specific land use is satisfactory. No noise mitigation measures are required.
	Conditionally Acceptable	Use should be permitted only after careful study and inclusion of protective measures as needed to satisfy the policies of the Noise Element.
	Unacceptable	Development is usually not feasible in accordance with the goals of the Noise Element.

SOURCE: City of Imperial Beach 2015.

According to the City Noise Element, "[f]or areas where the noise environment is conditionally acceptable for a particular land use, development shall be allowed only after noise mitigation has been incorporated into the design of the project to reduce noise levels." Therefore, if noise levels are in the "conditionally acceptable" levels, the City requires exterior noise levels to be reduced to comply with the "acceptable" noise level for the particular land use.

2.2 City of Imperial Beach Municipal Code

2.2.1 Construction Noise

Construction noise is regulated by Chapter 9.32 of the Imperial Beach Municipal Code. According to Section 9.32.020(H), the use of any tools, power machinery, or equipment so as

to cause noises disturbing to the comfort and repose of any person residing or working in the vicinity, or in excess of 75 dB(A) L_{eq}, between the hours of 10:00 p.m. and 7:00 a.m. is prohibited, except when the same is necessary for emergency repairs required for the health and safety of any member of the community. The Municipal Code does not set daytime noise level limits on construction activities. However, for purposes of environmental review the City uses the County of San Diego's Noise Ordinance limit of 75 dB(A) $L_{eq(8)}$ at residential uses during the daytime hours.

2.2.2 On-Site Generated Noise

The City's Municipal Code does not identify specific property line noise standards for stationary noise sources; however, for purposes of environmental review, the City utilizes the County's Noise Ordinance limits for projects within the City (Table 2). As shown, the most restrictive property line noise level limits are 50 dB(A) L_{eq} between 7:00 a.m. and 10:00 p.m. and 45 dB(A) L_{eq} between 10:00 p.m. and 7:00 a.m.

Table 2
County of San Diego Noise Ordinance Sound Level Limits

Zone	Applicable Hours	Sound Level Limit dB(A) L_{eq}
(1) RS, RD, RR, RMH, A70, A72, S80, S81, S90, S92, RV, and RU with a General Plan Land Use Designation density of less than 10.9 dwelling units per acre.	7 a.m. to 10 p.m. 10 p.m. to 7 a.m.	50 45
(2) RRO, RC, RM, S86, V5, RV and RU with a General Plan Land Use Designation density of 10.9 or more dwelling units per acre.	7 a.m. to 10 p.m. 10 p.m. to 7 a.m.	55 50
(3) S-94, V4 and all other commercial zones.	7 a.m. to 10 p.m. 10 p.m. to 7 a.m.	60 55
(4) V1 V2 V1 V2 V3	7 a.m. to 10 p.m. 10 p.m. to 7 a.m. 10 p.m. to 7 a.m. 7 a.m. to 10 p.m. 10 p.m. to 7 a.m.	55 55 50 70 65
(5) M-50, M-52, and M-54	Anytime	70
(6) S82, M56 and M58	Anytime	75
(7) S88 (see subsection (c) below)		

SOURCE: County Noise Ordinance, Section 36.404.
dB(A) L_{eq} = A-weighted decibels average sound level.

2.3 California Code of Regulations

Interior noise levels for habitable rooms are regulated also by Title 24 of the California Code of Regulations California Noise Insulation Standards. Title 24, Chapter 12, Section 1207.4, of the California Building Code requires that interior noise levels attributable to exterior sources not exceed 45 CNEL in any habitable room. A habitable room is a room used for living, sleeping, eating, or cooking. Bathrooms, closets, hallways, utility spaces, and similar areas are not considered habitable rooms for this regulation (24 California Code of Regulations, Chapter 12, Section 1207.4 2016).

Section 5.507, Environmental Comfort, of Part 11 of Title 24 (California Green Building Standards Code [CalGreen]) addresses interior noise control in non-residential buildings. This section provides the minimum Sound Transmission Class (STC) and Outdoor–Indoor Sound Transmission Class for wall, roof–ceiling assemblies, and windows for buildings located within the 65 dB(A) CNEL contour of an airport, freeway, expressway, railroad, industrial source, or fixed guideway source as determined by the Noise Element of the General Plan. As indicated, buildings shall be constructed to provide an interior noise environment attributable to exterior sources that does not exceed an hourly average equivalent level of 50 dB(A) L_{eq}.

3.0 Existing Conditions

Existing noise levels at the project site were measured on June 21, 2018, using one Larson-Davis LxT Sound Expert Sound Level Meters, serial number 3828. The following parameters were used:

Filter:	A-weighted
Response:	Slow
Time History Period:	5 seconds

The meter was calibrated before and after each measurement. The meter was set 5 feet above the ground level for each measurement.

Noise measurements were taken to obtain typical ambient noise levels at the project site and in the vicinity. The weather was cool and overcast. Two 15-minute measurements were taken, as described below. The primary sources of on-site noise were due to traffic on SR-75. The measurement locations are shown on Figure 4, and detailed data is contained in Attachment 1. Noise measurements are summarized in Table 3, and vehicle traffic counts are summarized in Table 4.

Measurement 1 was located at the southern edge of the project site, approximately 40 feet northeast of SR-75. The main source of noise at this location was vehicle traffic on SR-75. During the 15-minute measurement period, vehicle traffic on SR-75 was counted. The average measured noise level was 69.5 dB(A) L_{eq}.

Measurement 2 was located at the northern property line, approximately 130 feet northeast of SR-75. The main source of noise at this location was vehicle traffic on SR-75. A 5-foot wooden fence along the property line obstructed line-of-sight to SR-75 and was observed to reduce traffic noise levels. The average measured noise level was 54.9 dB(A) L_{eq}.

Image Source: Nearmap (flown June 2018)

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Project Boundary

Noise Measurement Locations

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FIGURE 4

Noise Measurement Locations

Table 3 Noise Measurements						
Measurement	Location	Time	Noise Sources	L_{eq}	L_{90}	L_{10}
1	Southern end of project site	1:10 P.M. – 1:25 P.M.	Vehicle traffic on SR-75	69.5	55.0	69.2
2	Northern end of project site	1:35 P.M. – 1:50 P.M.		54.9	49.4	57.8
NOTE: Noise measurement data is contained in Attachment 1.						

Table 4 15-minute Traffic Counts							
Measurement	Roadway	Direction	Autos	Medium Trucks	Heavy Trucks	Buses	Motorcycles
1	SR-75	Northwest-bound	116	1	0	0	1
		Southeast-bound	166	1	1	1	1

4.0 Analysis Methodology

Noise level predictions and contour mapping were developed using noise modeling software, SoundPlan Essential, version 3.0 (Navcon Engineering 2015). SoundPLAN calculates noise propagation based on the International Organization for Standardization method (ISO 9613-2 – Acoustics, Attenuation of Sound during Propagation Outdoors). The model calculates noise levels at selected receiver locations using input parameter estimates such as total noise generated by each noise source; distances between sources, barriers, and receivers; and shielding provided by intervening terrain, barriers, and structures. The model outputs can be developed as noise level contour maps or noise levels at specific receivers. In all cases, receivers were modeled at 5 feet above ground elevation, which represents the average height of the human ear.

4.1 Construction Noise Analysis

Project construction noise would be generated by diesel engine-driven construction equipment used for site preparation and grading, building construction, loading, unloading, and placing materials and paving. Diesel engine-driven trucks also would bring materials to the site and remove the soils from excavation.

Construction equipment with a diesel engine typically generates maximum noise levels from 80 to 90 dB(A) L_{eq} at a distance of 50 feet (FHWA 2006). Table 5 summarizes typical construction equipment noise levels.

During excavation, grading, and paving operations, equipment moves to different locations and goes through varying load cycles, and there are breaks for the operators and for non-equipment tasks, such as measurement. Although maximum noise levels may be 80 to 90 dB(A) at a distance of 50 feet during most construction activities, hourly average noise levels from the grading phase of construction would be 82 dB(A) L_{eq} at 50 feet from the center of construction activity when assessing the loudest pieces of equipment working simultaneously.

Table 5 Typical Construction Equipment Noise Levels		
Equipment	Noise Level at 50 Feet [dB(A) L_{eq}][1]	Typical Duty Cycle
Auger Drill Rig	85	20%
Backhoe	80	40%
Blasting	94	1%
Chain Saw	85	20%
Clam Shovel	93	20%
Compactor (ground)	80	20%
Compressor (air)	80	40%
Concrete Mixer Truck	85	40%
Concrete Pump	82	20%
Concrete Saw	90	20%
Crane (mobile or stationary)	85	20%
Dozer	85	40%
Dump Truck	84	40%
Excavator	85	40%
Front End Loader	80	40%
Generator (25 kilovolt ampts or less)	70	50%
Generator (more than 25 kilovolt amps)	82	50%
Grader	85	40%
Hydra Break Ram	90	10%
Impact Pile Driver (diesel or drop)	95	20%
Insitu Soil Sampling Rig	84	20%
Jackhammer	85	20%
Mounted Impact Hammer (hoe ram)	90	20%
Paver	85	50%
Pneumatic Tools	85	50%
Pumps	77	50%
Rock Drill	85	20%
Roller	74	40%
Scraper	85	40%
Tractor	84	40%
Vacuum Excavator (vac-truck)	85	40%
Vibratory Concrete Mixer	80	20%
Vibratory Pile Driver	95	20%
SOURCE: FHWA 2006. [1]Noise levels based on those specified in FHWA Road Construction Noise Model.		

4.2 Traffic Noise Analysis

4.2.1 On-site Noise Compatibility

The SoundPLAN program uses the Federal Highway Administration (FHWA) Traffic Noise Model algorithms and reference levels to calculate traffic noise levels at selected receiver locations. The model uses various input parameters, such as projected hourly average traffic rates; vehicle mix, distribution, and speed; roadway lengths and gradients; distances between sources, barriers, and receivers; and shielding provided by intervening terrain,

barriers, and structures. Receivers, roadways, and barriers were input into the model using three-dimensional coordinates. The locations of future buildings were obtained from project drawings.

The main source of traffic noise at the project site is vehicle traffic on SR-75. SR-75 is a four-lane Major Arterial adjacent to and north of the project site, and a six-lane Major Arterial east of 7th Street. For the purpose of the future traffic noise compatibility analysis, future year 2040 plus project traffic volumes were modeled. These volumes are summarized in Table 6. Vehicle classification mixes were obtained from the Caltrans truck counts (Caltrans 2015). According to Caltrans truck counts, SR-75 carries 97.2 percent automobiles, 1.8 percent medium trucks, and 1.0 percent heavy trucks. Caltrans does not maintain traffic counts for motorcycles or buses. For the purposes of this analysis, 2 percent of the automobiles were modeled as motorcycles (1 percent) and buses (1 percent). Peak hour traffic volumes were calculated as 10 percent of the total average daily traffic (ADT). Based on Caltrans traffic counts (Caltrans 2016), this is conservative. Calculations were completed for a peak daytime hour, and the resulting noise levels were weighted and combined into CNEL values. Typically, the predicted CNEL and the maximum daytime hourly L_{eq} calculated are equal.

Table 6 summarizes the traffic parameters used in this compatibility analysis.

Table 6
On-Site Noise Compatibility Traffic Parameters

Roadway	Year 2040 + Project Volume (ADT)	Total Peak Hour Volume	Speed (mph)	Vehicle Mix (percent)				
				Auto	MT	HT	Bus	MC
SR-75								
North of Rainbow Drive	31,930	3,193	55	95.2	1.8	1.0	1.0	1.0
Rainbow Drive to 7th Street	27,011	2,701	40	95.2	1.8	1.0	1.0	1.0
7th Street to Delaware Street	34,623	3,462	40	95.2	1.8	1.0	1.0	1.0
Delaware Street to 9th Street	42,369	4,237	40	95.2	1.8	1.0	1.0	1.0

ADT = average daily traffic; mph = miles per hour;
Auto = Automobile, MT = Medium Truck, HT = Heavy Truck, MC = Motorcycle

4.2.2 Off-site Vehicle Traffic Noise

Off-site traffic noise was modeled using the FHWA Traffic Noise Prediction Model algorithms and reference levels. Traffic noise levels were calculated at 50 feet from the centerline of the affected roadways to determine the noise level increase associated with the project. The model uses various input parameters, such as traffic volumes, vehicle mix, distribution, and speed.

The main source of local roadway traffic noise in the vicinity of the project site would be vehicle traffic on SR-75, Palm Avenue, and Rainbow Drive. Traffic noise levels were calculated based on the total average daily traffic volume on each roadway segment. For modeling purposes, “hard” ground conditions were used for the analysis of future

conditions, since a majority of the project area is paved and the hard site provides the most conservative impact assessment.

Existing and cumulative (year 2040) traffic volumes with and without the project were obtained from the project traffic report (Linscott, Law & Greenspan, Engineers 2018). Table 7 summarizes the traffic volumes for the analyzed segments of SR-75, Palm Avenue, and Rainbow Drive. Modeled noise levels do not account for shielding provided by intervening barriers and structures.

Table 7
Traffic Volumes

Roadway Segment	Existing	Existing + Project	Year 2040	Year 2040 + Project
SR-75				
North of Rainbow Drive/ Project Driveway	19,300	19,600	31,630	31,930
Rainbow Drive/ Project Driveway to 7th Street	16,400	17,091	26,320	27,011
7th Street to Delaware Street	20,900	21,513	34,010	34,623
Delaware Street to 9th Street	23,400	23,989	41,780	42,369
9th Street to Florida Street	34,500	35,041	46,970	47,511
Palm Avenue				
Rainbow Drive to SR-75	13,640	13,820	14,940	15,120
Rainbow Drive				
SR-75 to Palm Avenue	5,710	5,710	5,490	5,490

4.3 On-site Generated Noise Analysis

The noise sources on the project site after completion of construction are anticipated to be those that would be typical of any residential and hotel use, such as vehicles arriving and leaving, children at play, and landscape maintenance machinery. None of these noise sources is anticipated to violate the County's Noise Ordinance standards that the City utilizes, or result in a substantial permanent increase in existing noise levels. However, the project would HVAC units that have the potential to produce noise in excess of the limits (see Table 2). The project would also include occasional music at the outdoor patio area and outdoor pool events that have the potential to produce noise levels in excess of the limits. The wireless facility back-up generator and equipment is not anticipated to result in noise in excess of the limit due to it being located within a structure.

It is not known at this time which manufacturer, brand, or model of unit or units will be selected for use in the project. HVAC units would be located on the rooftop of the buildings. Typical, a capacity of 1-ton per 500 to 600 square feet is required for residential and hotel space. For the purposes of this analysis, to determine what general noise levels the HVAC units would generate, it was assumed that the residential and hotel rooftop units would be similar to a Trane split system unit (Trane Model HDR) with a sound power level of 72 dB(A). An HVAC unit would also be located on the roof of the lobby/~~brewery~~restaurant building. Typically, a capacity of 1-ton per 340 square feet would be required for commercial buildings. Based on this, the building would require an HVAC capacity of approximately

16 tons. Based on review of manufacturer specifications for a sample unit (Trane Model T/YSCE120ED), a representative noise level for a 10-ton unit would be a sound power level of 79 dB. Two of these units were modeled on the roof of the lobby/~~brewery~~restaurant building. The unit specification sheets for the modeled HVAC units are included in Attachment 2. As a worst-case scenario, all HVAC units were modeled at full capacity during the daytime and nighttime hours.

The project would also include two outdoor use areas that could generate noise: the ~~brewery~~restaurant terrace and the rooftop pool deck. As discussed, entertainment, such as music, may occur in the outdoor patio area at the restaurant until approximately 9:00 p.m. The SoundPLAN emissions database contains sound power levels for various noise sources. According to the SoundPLAN emissions database, restaurants with modest conversation generate a sound power level of 75 dB while restaurants with music generate a sound power level of 80 dB. The sound power level of 75 dB was modeled as a representative noise level for the pool deck, and a sound power level of 80 dB was modeled as a representative noise level for the second-floor ~~brewery~~restaurant terrace with music. These areas would not be in use during the nighttime hours.

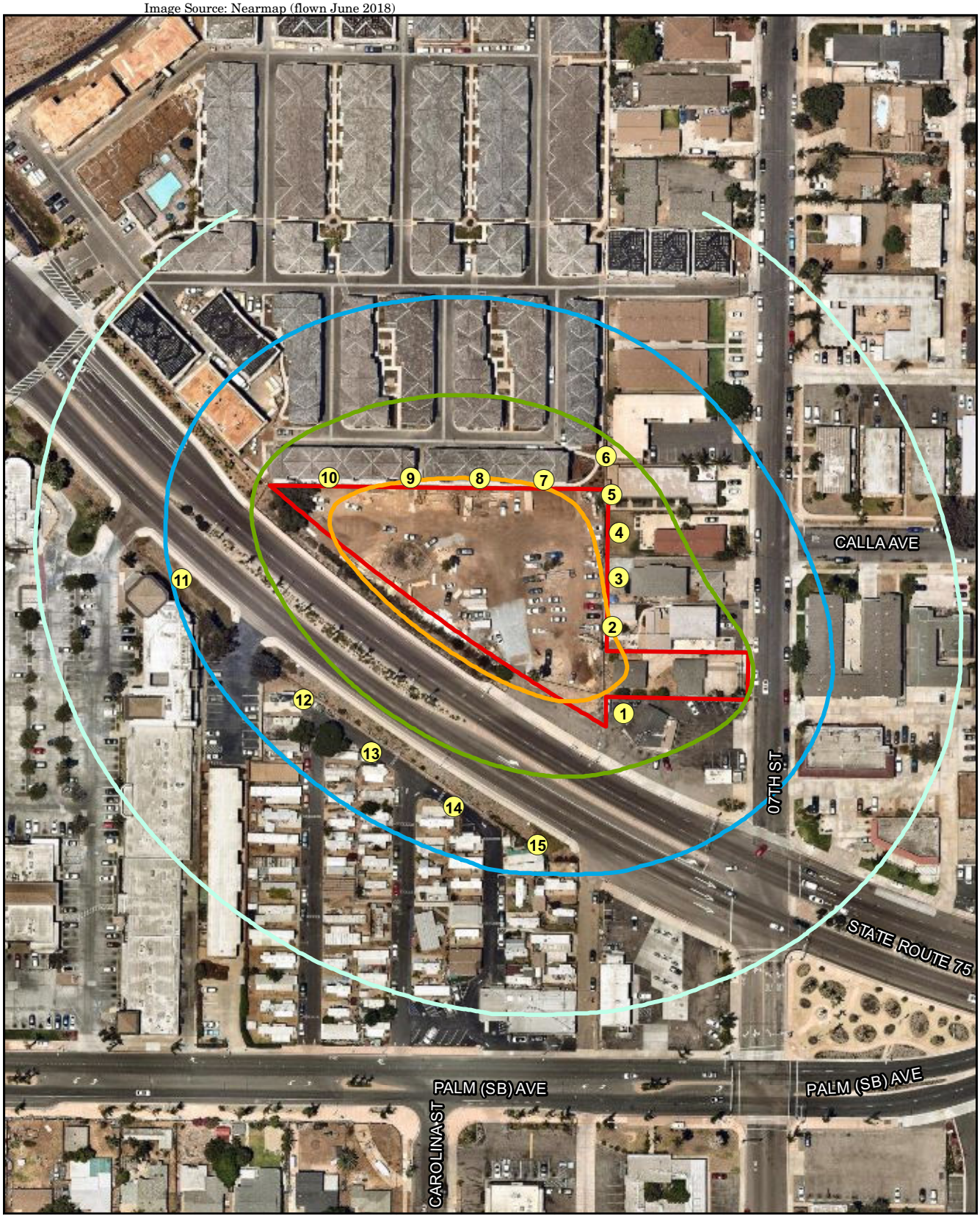
5.0 Future Acoustical Environment and Impacts

5.1 Construction Noise

Noise associated with the grading, building, and paving for the project would potentially result in short-term impacts to surrounding properties. Residential uses are located north and east of the project site, and an RV park is located south of the project site. A variety of noise-generating equipment would be used during the construction phase of the project, such as excavators, backhoes, front-end loaders, and concrete saws, along with others. The exact number and pieces of construction equipment required are not known at this time. Although maximum noise levels may be 80 to 90 dB(A) at a distance of 50 feet during most construction activities, hourly average noise levels would be lower when taking into account the equipment usage factors. The loudest phase of construction would be the grading/excavation phase and would include dozers, loaders, and excavators. Construction noise levels were calculated based on all three pieces of equipment being active simultaneously.

Construction noise is considered a point source and would attenuate at approximately 6 dB(A) for every doubling of distance. Average hourly noise levels due to simultaneous activity would be 82 dB(A) L_{eq} at 50 feet. To reflect the nature of grading and construction activities, equipment was modeled as an area source distributed over the project footprint. The total sound energy of the area source was modeled with all pieces of equipment operating simultaneously. Noise levels were modeled at a series of 15 receivers located at the adjacent uses. The results are summarized in Table 8. Modeled receiver locations and construction noise contours are shown in Figure 5. SoundPLAN data is contained in Attachment 3.

Image Source: Nearmap (flown June 2018)



Project Boundary

Modeled Receivers

Construction Noise Contours

60 dB(A) Leq

65 dB(A) Leq

70 dB(A) Leq

75 dB(A) Leq

0 Feet 150

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FIGURE 5

Construction Noise Contours

Table 8 Construction Noise Levels		
Receiver	Land Use	Construction Noise Level [dB(A) L_{eq}]
1	Restaurant	73
2	Residential	75
3	Residential	74
4	Residential	73
5	Residential	73
6	Residential	72
7	Residential	75
8	Residential	75
9	Residential	75
10	Residential	74
11	Commercial	66
12	RV Park	68
13	RV Park	68
14	RV Park	67
15	RV Park	66
dB(A) L_{eq} = A-weighted decibels equivalent noise level		

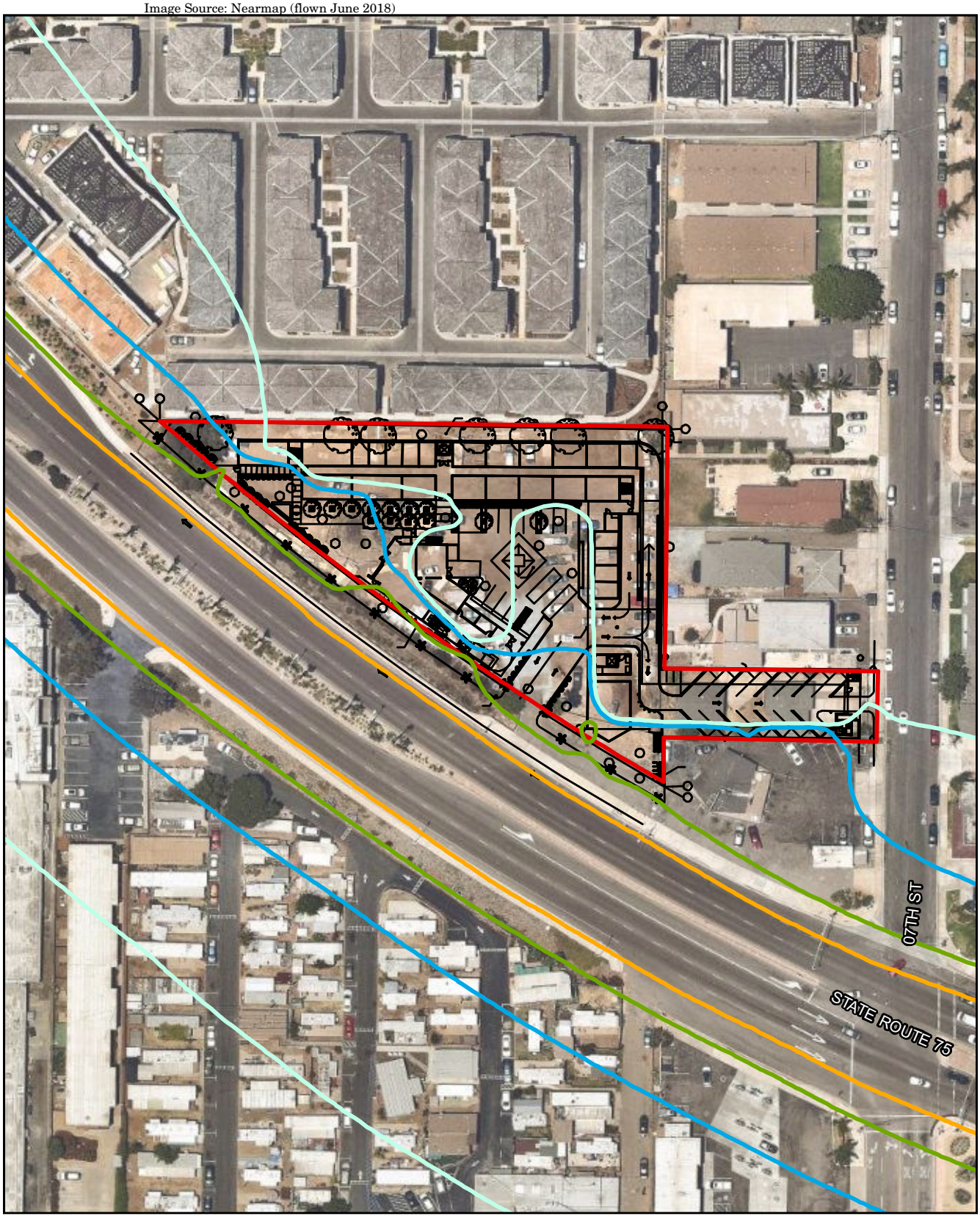
As shown, construction noise levels are not anticipated to exceed 75 dB(A) L_{eq} at the adjacent residential uses. Although the existing adjacent residences would be exposed to construction noise levels that could be heard above ambient conditions, the exposure would be temporary. Additionally, construction activities would occur during the daytime hours and would comply with Section 9.32.020(H) of the City's Municipal Code. As construction activities associated with the project would comply with Municipal Code Section 9.32.020(H) and daytime noise levels would not exceed 75 dB(A) L_{eq} at adjacent residential uses, temporary increases in noise levels from construction activities would be less than significant.

5.2 Vehicle Traffic Noise

5.2.1 On-site Noise Compatibility

Vehicle traffic noise level contours across the project site were calculated using SoundPLAN. These contours take into account shielding provided by proposed buildings, topography, and proposed grading. These noise contours are shown in Figure 6. As shown, first-floor exterior noise levels would exceed 60 CNEL at the portion of the project site closest to SR-75.

Image Source: Nearmap (flown June 2018)



Project Boundary
Site Plan

Vehicle Traffic Noise Contours

60 CNEL
65 CNEL
70 CNEL
75 CNEL

0 Feet 100

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FIGURE 6
Vehicle Traffic Noise Contours

To determine exterior noise levels at the exterior use areas and the building façades, noise levels were modeled at 33 specific receiver locations, as shown in Figure 7. Exterior noise levels were modeled at the exterior use areas (pool, deck, courtyard, and kids play area) for the purposes of determine compatibility with the City's exterior noise standards (see Section 2.1). Exterior noise levels were modeled at first- through fourth-floor building façade elevations to determine the need for an interior analysis. The results are summarized in Table 9. SoundPLAN data are provided in Attachment 4.

Table 9
Future Vehicle Traffic Noise Levels without Barriers

Receiver	Location	Exterior Noise Level (CNEL)				
		1st Floor	2nd Floor	3rd Floor	4th Floor	Roof
1	Lobby/Office/~~Brewery~~Restaurant Building Façade	70	71	--	--	--
2	Lobby/Office/~~Brewery~~Restaurant Building Façade	70	73	--	--	--
3	Lobby/Office/~~Brewery~~Restaurant Building Façade	67	70	--	--	--
4	Hotel/Residential Building Façade	66	68	68	67	--
5	Hotel/Residential Building Façade	62	64	64	64	--
6	Hotel/Residential Building Façade	60	62	63	63	--
7	Hotel/Residential Building Façade	61	62	63	65	--
8	Hotel/Residential Building Façade	68	69	70	71	--
9	Hotel/Residential Building Façade	70	72	72	71	--
10	Hotel/Residential Building Façade	60	64	64	64	--
11	Hotel/Residential Building Façade	57	61	62	62	--
12	Hotel/Residential Building Façade	56	60	61	60	--
13	Hotel/Residential Building Façade	56	59	59	59	--
14	Hotel/Residential Building Façade	55	57	58	58	--
15	Hotel/Residential Building Façade	50	51	51	52	--
16	Hotel/Residential Building Façade	49	50	50	51	--
17	Hotel/Residential Building Façade	42	41	44	47	--
18	Hotel/Residential Building Façade	40	43	43	48	--
19	Residential Building Façade	40	41	43	46	--
20	Residential Building Façade	40	41	41	46	--
21	Residential Building Façade	59	62	62	62	--
22	Residential Building Façade	68	70	70	70	--
23	Residential Building Façade	68	71	71	71	--
24	Residential Building Façade/Retail Patio	69	71	72	71	--
25	Residential Building Façade/Retail Patio	69	71	71	71	--
26	Courtyard	66	--	--	--	--
27	Courtyard	67	--	--	--	--
28	Kids Play Area	68	--	--	--	--
29	Second-Floor Terrace	--	67	--	--	--
30	Second-Floor Terrace	--	70	--	--	--
31	Rooftop Pool	--	--	--	--	64
32	Rooftop Pool	--	--	--	--	63
33	Rooftop Pool	--	--	--	--	63

Image Source: Nearmap (flown June 2018)

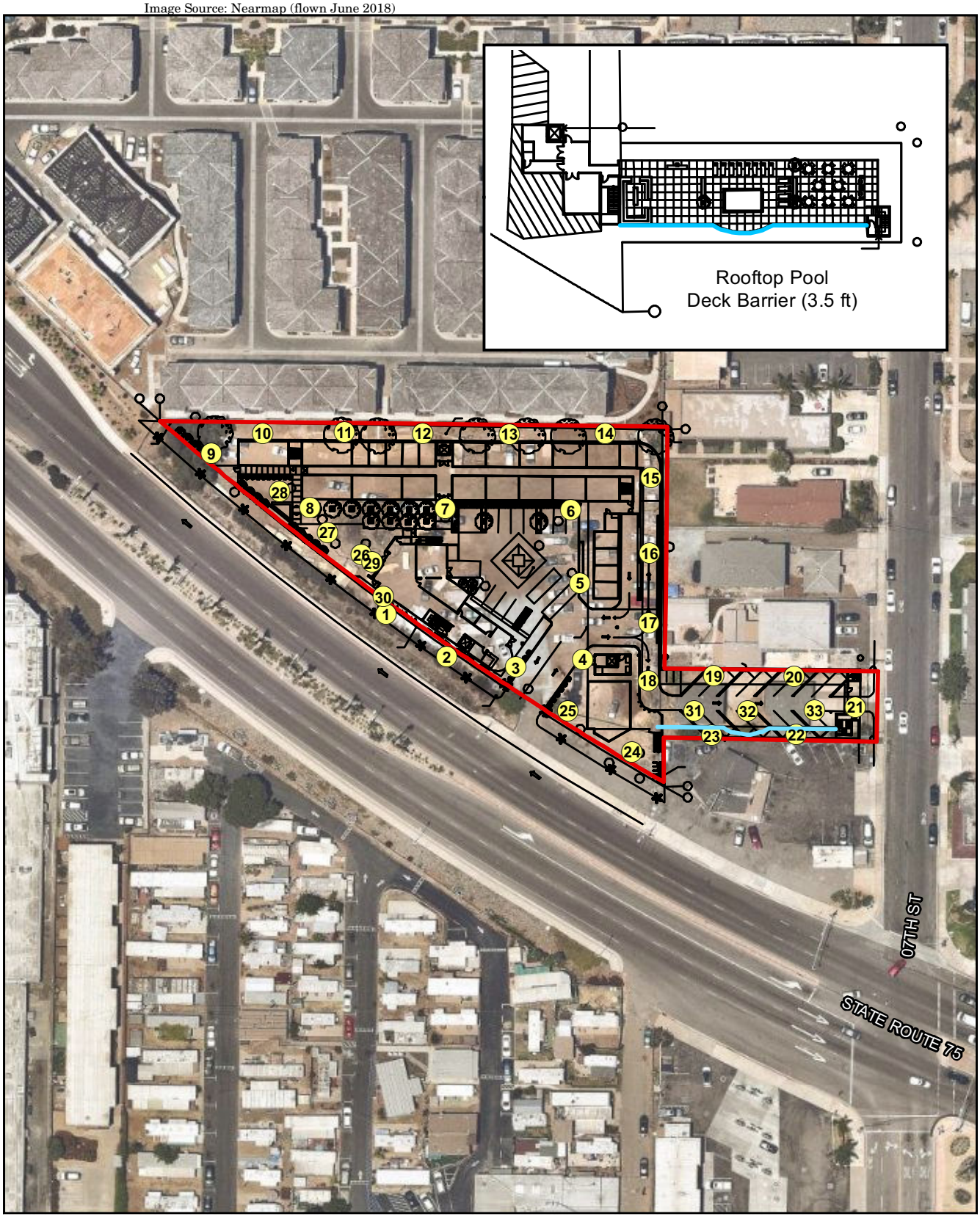

FIGURE 7

Modeled Receivers and Barrier Locations

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Exterior Use Areas

The exterior use areas include the courtyard (Receivers 26 and 27), kids play area (Receiver 28), deck (Receivers 29 and 30), and pool (Receivers 31, 32, and 33). As discussed in Section 2.1, the residential standard of 60 CNEL was applied to the rooftop pool deck, the playground standard of 70 CNEL was applied to the ground-floor kids play area and courtyard, and the commercial standard of 75 CNEL was applied to the second-floor ~~brewery~~restaurant terrace. As shown, noise levels at the kids play area and courtyard would range from 66 to 68 CNEL, and noise levels at the second-floor ~~brewery~~restaurant terrace would range from 67 to 70 CNEL. These areas would be compatible with the City's playground and commercial "acceptable" noise level limits of 70 and 75 CNEL, respectively.

As shown in Table 9, exterior noise levels at the rooftop pool deck would range from 63 to 64 CNEL and would be considered "conditionally acceptable" with residential uses. A 3.5-foot-high barrier was modeled adjacent to the rooftop pool, as shown in Figure 7. Noise levels with and without this barrier are summarized in Table 10. As shown, with incorporation of this barrier, exterior noise levels at the rooftop pool deck would be reduced to 60 CNEL or less.

Table 10
Future Vehicle Traffic Noise Levels at Exterior Use Areas with and without Barriers

Receiver	Location	Exterior Noise Level (CNEL)	
		Without Barriers	With Barriers
31	Rooftop Pool	64	59
32	Rooftop Pool	63	58
33	Rooftop Pool	63	59

MM N-1: On-site Noise Barrier. Prior to the issuance of building permits, the City shall verify the building plans state the following and identify noise barrier, as applicable:

Exterior noise levels at the rooftop pool deck identified as Receivers 31 through 33 on Figure 7 shall be reduced to the City's Noise Element threshold of 60 CNEL for residential uses. Noise reduction for exterior traffic noise impacts can be accomplished through an on-site noise barrier. A 3.5-foot-high barrier adjacent to the rooftop pool, as shown in Figure 7, shall be constructed. The sound attenuation wall must be solid and free of cracks or holes. It can be constructed of masonry, wood, plastic, fiberglass, steel, or a combination of those materials, as long as there are no cracks or gaps, through or below the wall. Any seams or cracks must be filled or caulked. If wood is used, it can be tongue and groove and must be at least one-inch total thickness or have a density of at least 4 pounds per square foot.

Interior Noise

Interior noise levels can be reduced through standard construction techniques. When windows are closed, standard construction techniques provide various exterior-to-interior noise level reductions depending on the type of structure and window. According to the FHWA's Highway Traffic Noise Analysis and Abatement Guidance, buildings with masonry façades and double-glazed windows in the closed position provide a noise level reduction of 35 dB, while light-frame structures with double glazed windows in the closed position would provide noise level reductions of 25 dB (FHWA 2011).

Non-residential portions of the project would be exposed to exterior noise levels up to 73 CNEL. Assuming standard light-frame construction with double-glazed windows, peak hour interior noise levels would be reduced 48 dB(A) L_{eq} which would be less than the 50 dB(A) L_{eq} standard specified in CalGreen Section 5.507.

The interior noise level standard for residential units and sleeping units (e.g., hotel rooms) is 45 CNEL. Assuming standard light-frame construction with double-glazed windows, interior noise levels would be reduced to 45 CNEL or less in buildings exposed to exterior noise levels of 70 CNEL or less. Exterior noise levels at the residential and hotel façades would range from 40 to 72 CNEL. Exterior noise levels would exceed 70 CNEL at the building façades located closest to SR-75 (Receivers 8, 9, 23, 24, and 25). For the residential units and hotel rooms located where exterior noise exceeds 70 CNEL, building components (i.e., exterior wall construction, windows, and doors) that achieve a greater composite STC rating of up to 27 dB would be required.

MM N-2: Interior Noise. Prior to the issuance of building permits for the hotel and residential buildings, the City shall verify the building plans state the following and identify sound resistant construction specifications, as applicable:

Interior noise levels shall be reduced to 45 CNEL or less in all habitable rooms for the residential units and hotel rooms located adjacent to Receivers 8, 9, 23, 24, and 25 as identified in Figure 7. Sound-resistant construction for walls adjacent to these receivers shall achieve a combined minimum STC rating ranging of 27 dB. This can be achieved with typical exterior wall construction consisting of wood framing, drywall, insulation, and exterior stucco siding, and window and door components with a minimum STC rating of 27. This minimum STC rating shall be identified on the building plans window and door schedule.

5.2.2 Off-Site Vehicle Traffic Noise

The project would increase traffic volumes on local roadways. However, the project would not substantially alter the vehicle classifications mix on local or regional roadways nor would the project alter the speed on an existing roadway or create a new roadway. Thus, the primary factor affecting off-site noise levels would be increased traffic volumes. While changes in noise levels would occur along any roadway where project-related traffic occurs, for noise assessment purposes, noise level increases are assumed to be greatest nearest the

project site, as this location would represent the greatest concentration of project-related traffic. A substantial noise increase is defined as an increase of 3 dB.

Table 11 presents a conservative assessment of traffic noise levels based on the existing, existing plus project, year 2040, and year 2040 plus project noise levels generated by traffic. Table 11 also summarizes the traffic noise level increases due to the project. Noise level calculations are contained in Attachment 5.

Table 11
Traffic Noise Levels with and without Project and Ambient Noise Increase (CNEL)

Roadway Segment	Existing			Year 2040			Total Increase Over Existing
	Without Project	With Project	Increase	Without Project	With Project	Increase	
SR-75							
North of Rainbow Drive/ Project Driveway	71	71	<1	73	73	<1	2
Rainbow Drive/ Project Driveway to 7th Street	71	71	<1	73	73	<1	2
7th Street to Delaware Street	72	72	<1	74	74	<1	2
Delaware Street to 9th Street	72	72	<1	75	75	<1	<3
9th Street to Florida Street	74	74	<1	75	75	<1	1
Palm Avenue							
Rainbow Drive to SR-75	68	69	<1	69	69	<1	<1
Rainbow Drive							
SR-75 to Palm Avenue	63	63	<1	63	63	<1	<1

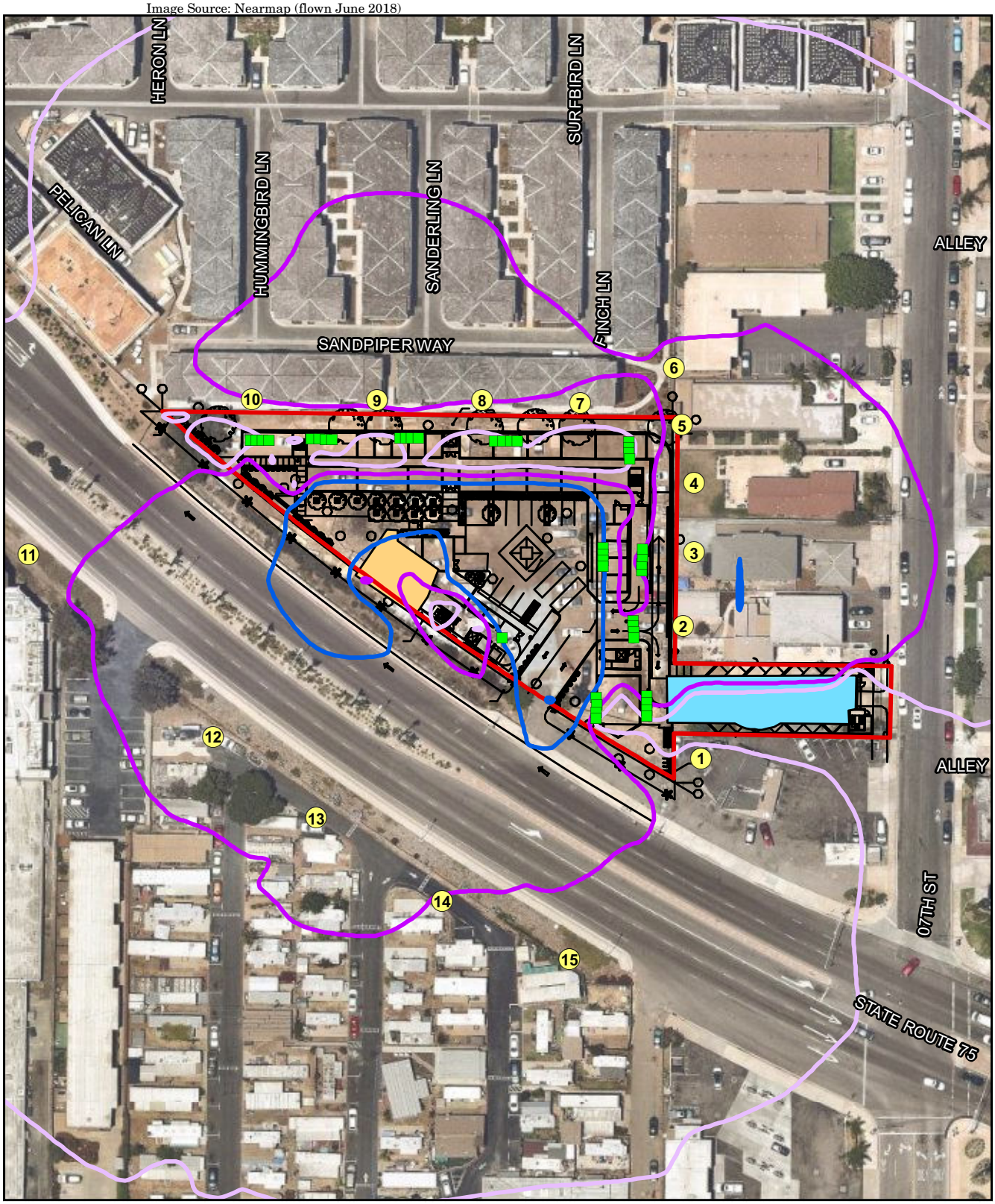
As shown in Table 11, direct off-site noise level increases due to the project would be less than 1 dB. Therefore, direct off-site noise impacts associated with the project would be less than significant.

Similar to direct traffic noise impacts, a cumulative traffic noise impact occurs when the noise level would exceed the applicable standard and a substantial noise level increase compared to existing noise occurs. As shown, the total year 2040 with project increase over the existing condition would range from less than 1 dB to less than 3 dB. However, the project's contribution to the increase over ambient noise levels would be less than 1 dB. Therefore, the project would result in a less than cumulatively considerable off-site noise level increase, and cumulative traffic noise impacts associated with the project would be less than significant.

5.3 On-site Generated Noise

The primary noise sources on-site would be rooftop HVAC equipment, people gathering, and occasional music at the second-floor ~~brewery~~restaurant terrace, and people gathering on the rooftop pool deck. Using the on-site noise source parameters discussed in Section 4.3, noise levels were modeled at a series of 15 receivers located at the adjacent property lines. Modeled receivers and the on-site generated noise contours during the daytime and nighttime hours are shown in Figures 8a and 8b, respectively. Modeled data is included in Attachment 6. Future projected noise levels are summarized in Table 12.

Image Source: Nearmap (flown June 2018)



Project Boundary
Site Plan
Modeled Receivers
HVAC Units
Second Floor Terrace
Rooftop Pool Deck

On-Site Generated Noise Contours
35 dB(A) Leq
40 dB(A) Leq
45 dB(A) Leq

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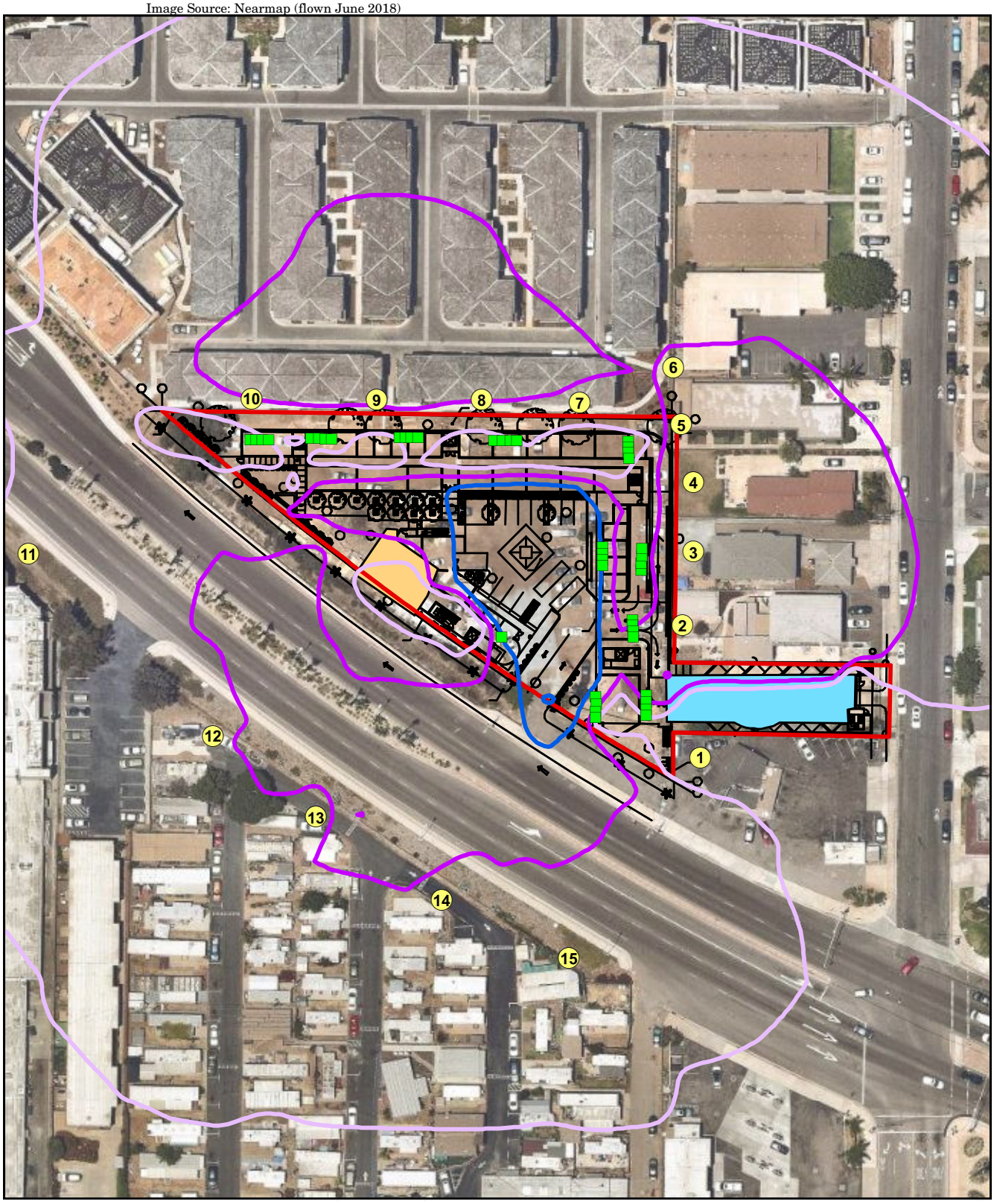
FIGURE 8a

On-Site Generated Noise Contours - Daytime

Image Source: Nearmap (flown June 2018)



0 Feet 100

Project Boundary
Site Plan
Modeled Receivers
HVAC Units
Second Floor Terrace
Rooftop Pool Deck

On-Site Generated Noise Contours

35 dB(A) Leq
40 dB(A) Leq
45 dB(A) Leq

FIGURE 8b

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On-Site Generated Noise Contours - Nighttime

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Table 12
On-Site Generated Noise Levels at Adjacent Property Lines

Receiver	Daytime Noise Level [dB(A) L_{eq}]	Nighttime Noise Level [dB(A) L_{eq}] (i.e., no terrace or pool)
1	36	32
2	44	43
3	44	44
4	43	43
5	41	41
6	41	41
7	39	38
8	41	41
9	41	41
10	40	40
11	38	36
12	42	40
13	41	39
14	40	39
15	39	38

As shown, daytime on-site generated noise levels with all HVAC units operating at full capacity, people gathered and music playing on the ~~brewery~~restaurant terrace, and people gathered on the pool deck would range from 36 to 44 dB(A) L_{eq} at the adjacent properties, and nighttime noise levels with all HVAC units operating at full capacity would range from 32 to 44 dB(A) L_{eq} at the adjacent properties. Noise levels would be less than the most restrictive noise limit of 45 dB(A) L_{eq}.

6.0 Conclusions

6.1 Construction Noise

As shown in Table 8, construction noise levels are not anticipated to exceed 75 dB(A) $L_{eq(8)}$ at the adjacent residential uses. Although the existing adjacent residences would be exposed to construction noise levels that could be heard above ambient conditions, the exposure would be temporary. Additionally, construction activities would occur during the daytime hours and would comply with Section 9.32.020(H) of the City's Municipal Code. As construction activities associated with the project would comply with Municipal Code Section 9.32.020(H) and daytime noise levels would not exceed 75 dB(A) L_{eq} at adjacent residential uses, temporary increases in noise levels from construction activities would be less than significant.

6.2 Vehicle Traffic Noise

6.2.1 On-site Noise Compatibility

The main source of noise at the project site is vehicle traffic on SR-75. Exterior use areas include a rooftop pool for residential use, a second-floor ~~brewery~~restaurant terrace, and a ground-floor kids play area and courtyard. Due to the unique mixed-use nature of the

project, various standards were applied based on the primary use of the area. The residential and transient lodging standards were applied to the residential uses (including the pool deck) and hotel uses, the playground standards were applied to the kids play area and courtyard, and the commercial standards were applied to the second-floor ~~brewery~~restaurant terrace. According to the City's General Plan, residential uses are "acceptable" with exterior noise levels up to 60 CNEL and "conditionally acceptable" with exterior noise levels up to 70 CNEL. Hotel uses are "acceptable" with exterior noise levels up to 60 CNEL and "conditionally acceptable" with exterior noise levels up to 75 CNEL. Playgrounds are "acceptable" with exterior noise levels up to 70 CNEL and "conditionally acceptable" with exterior noise levels up to 75 CNEL. Commercial uses "acceptable" with exterior noise levels up to 75 CNEL.

As shown in Table 9, noise levels at the kids play area and courtyard would range from 66 to 68 CNEL and would be considered "acceptable" with playground uses, and noise levels at the second-floor terrace would range from 67 to 70 CNEL and would be considered "acceptable" with commercial uses. However, exterior noise levels at the rooftop pool deck would range from 63 to 64 CNEL and would be considered "conditionally acceptable" with residential uses. Therefore, mitigation would be required to reduce noise levels to comply with the City's compatibility standards. Based on the current site plan, required mitigation would include a 3.5-foot-high barrier adjacent to the rooftop pool. By incorporating this barrier in to the project, exterior noise levels would be reduced to 60 CNEL or less.

MM N-1: On-site Noise Barrier. Prior to the issuance of building permits, the City shall verify the building plans state the following and identify noise barriers, as applicable:

> Exterior noise levels at the rooftop pool deck identified as Receivers 31 through 33 on Figure 7 shall be reduced to the City's Noise Element threshold of 60 CNEL for residential uses. Noise reduction for exterior traffic noise impacts can be accomplished through an on-site noise barrier. A 3.5-foot-high barrier adjacent to the rooftop pool, as shown in Figure 7, shall be constructed. The sound attenuation wall must be solid and free of cracks or holes. It can be constructed of masonry, wood, plastic, fiberglass, steel, or a combination of those materials, as long as there are no cracks or gaps, through or below the wall. Any seams or cracks must be filled or caulked. If wood is used, it can be tongue and groove and must be at least one-inch total thickness or have a density of at least 4 pounds per square foot.

The interior noise level standard for residential units and sleeping units (e.g., hotel rooms) is 45 CNEL. Assuming standard light-frame construction with double-glazed windows, interior noise levels would be reduced to 45 CNEL or less in buildings exposed to exterior noise levels of 70 CNEL or less. Exterior noise levels at the residential and hotel façades would range from 40 to 72 CNEL. Exterior noise levels would exceed 70 CNEL at the building façades located closest to SR-75 (Receivers 8, 9, 23, 24, and 25). For the residential units and hotel rooms located where exterior noise exceeds 70 CNEL, building components that achieve a greater composite STC rating of up to 27 dB would be required.

MM N-2: Interior Noise. Prior to the issuance of building permits for the hotel and residential buildings, the City shall verify the building plans state the following and identify sound resistant construction specifications, as applicable:

Interior noise levels shall be reduced to 45 CNEL or less in all habitable rooms for the residential units and hotel rooms located adjacent to Receivers 8, 9, 23, 24, and 25 as identified in Figure 7. Sound-resistant construction for walls adjacent to these receivers shall achieve a combined minimum STC rating ranging of 27 dB. This can be achieved with typical exterior wall construction consisting of wood framing, drywall, insulation, and exterior stucco siding, and window and door components with a minimum STC rating of 27. This minimum STC rating shall be identified on the building plans window and door schedule.

6.2.2 Off-site Vehicle Traffic Noise

The project would increase traffic volumes on local roadways. However, the project would not substantially alter the vehicle classifications mix on local or regional roadways, nor would the project alter the speed on an existing roadway or create a new roadway. Thus, the primary factor affecting off-site noise levels would be increased traffic volumes. A substantial noise increase is defined as an increase of 3 dB, which would require a doubling of traffic volumes.

Based on the project traffic report, the project would generate 1,227 trips per day (Linscott, Law, and Greenspan 2018). As shown in Table 11, given the existing traffic volumes on affected roadways, direct off-site noise level increases due to the project would be less than 1 dB. Therefore, direct off-site noise impacts associated with the project would be less than significant. The cumulative year 2040 with project increase over the existing condition would range from less than 1 dB to 3 dB. However, the project's contribution to the increase over ambient noise levels would be less than 1 dB. Therefore, the project would result in a less than cumulatively considerable off-site noise level increase.

6.3 On-site Generated Noise

The primary noise sources on-site would be rooftop HVAC equipment, occasional music at the second-floor ~~brewery~~restaurant terrace, and people gathering on the rooftop pool deck. Noise levels due to these sources were modeled at the adjacent properties. As shown in Table 12, daytime on-site generated noise levels with all HVAC units operating at full capacity, music playing and people gathered on the ~~brewery~~restaurant terrace, and people gathered on the pool deck would range from 36 to 44 dB(A) L_{eq} at the adjacent properties, and nighttime noise levels with all HVAC units operating at full capacity would range from 32 to 44 dB(A) L_{eq} at the adjacent properties. Noise levels would be less than the most restrictive noise limit of 45 dB(A) L_{eq}.

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ATTACHMENTS

ATTACHMENT 1

Noise Measurement Data

Summary				
Filename	LxT_Data.004			
Serial Number	3828			
Model	SoundExpert™ LxT			
Firmware Version	2.302			
User				
Location				
Job Description				
Note				
Measurement Description				
Start	2018/06/21 13:10:37			
Stop	2018/06/21 13:25:38			
Duration	0:15:01.3			
Run Time	0:15:01.3			
Pause	0:00:00.0			
Pre Calibration	2018/06/21 13:05:39			
Post Calibration	None			
Calibration Deviation	---			
Overall Settings				
RMS Weight	A Weighting			
Peak Weight	A Weighting			
Detector	Slow			
Preamp	PRMLxT1L			
Microphone Correction	Off			
Integration Method	Linear			
OBA Range	Normal			
OBA Bandwidth	1/1 and 1/3			
OBA Freq. Weighting	A Weighting			
OBA Max Spectrum	At Lmax			
Overload	121.8 dB			

	A	C	Z
Under Range Peak	**78.1**	75.1	80.1 dB
Under Range Limit	**27.1**	25.8	33.1 dB
Noise Floor	16.8	16.7	22.9 dB

Results			
LAeq	69.5 dB		
LAE	99.0 dB		
EA	886.343 µPa²h		
LApeak (max)	2018/06/21 13:11:59	107.6 dB	
LASmax	2018/06/21 13:11:59	93.0 dB	
LASmin	2018/06/21 13:21:23	52.6 dB	
SEA	-99.9 dB		
LAS > 85.0 dB (Exceedence Counts / Duration)	1	4.9 s	
LAS > 115.0 dB (Exceedence Counts / Duration)	0	0.0 s	
LApeak > 135.0 dB (Exceedence Counts / Duration)	0	0.0 s	
LApeak > 137.0 dB (Exceedence Counts / Duration)	0	0.0 s	
LApeak > 140.0 dB (Exceedence Counts / Duration)	0	0.0 s	

Community Noise	**Ldn**	**LDay 07:00-22:00**	**LNight 22:00-07:00**	**Lden**	**LDay 07:00-19:00**	**LEvening 19:00-22:00**	**LNight 22:00-07:00**
	69.5	69.5	-99.9	69.5	69.5	-99.9	-99.9

LCeq	75.4 dB
LAeq	69.5 dB
LCeq - LAeq	5.9 dB
LAleq	72.2 dB
LAeq	69.5 dB
LAleq - LAeq	2.7 dB
# Overloads	0
Overload Duration	0.0 s
# OBA Overloads	0
OBA Overload Duration	0.0 s
Statistics	
LAS5.00	70.7 dB
LAS10.00	69.2 dB
LAS33.30	63.9 dB
LAS50.00	61.0 dB
LAS66.60	58.5 dB
LAS90.00	55.0 dB

Summary				
Filename	LxT_Data.005			
Serial Number	3828			
Model	SoundExpert™ LxT			
Firmware Version	2.302			
User				
Location				
Job Description				
Note				
Measurement Description				
Start	2018/06/21 13:35:37			
Stop	2018/06/21 13:50:38			
Duration	0:15:00.8			
Run Time	0:15:00.8			
Pause	0:00:00.0			
Pre Calibration	2018/06/21 13:34:10			
Post Calibration	None			
Calibration Deviation	---			
Overall Settings				
RMS Weight	A Weighting			
Peak Weight	A Weighting			
Detector	Slow			
Preamp	PRMLxT1L			
Microphone Correction	Off			
Integration Method	Linear			
OBA Range	Normal			
OBA Bandwidth	1/1 and 1/3			
OBA Freq. Weighting	A Weighting			
OBA Max Spectrum	At Lmax			
Overload	121.8 dB			

	A	C	Z
Under Range Peak	**78.1**	75.1	80.1 dB
Under Range Limit	**27.1**	25.8	33.1 dB
Noise Floor	16.8	16.7	22.9 dB

Results			
LAeq	54.9 dB		
LAE	84.4 dB		
EA	30.595 µPa²h		
LApeak (max)	2018/06/21 13:37:09	86.1 dB	
LASmax	2018/06/21 13:42:08	63.1 dB	
LASmin	2018/06/21 13:45:28	46.8 dB	
SEA	-99.9 dB		
LAS > 85.0 dB (Exceedence Counts / Duration)	0	0.0 s	
LAS > 115.0 dB (Exceedence Counts / Duration)	0	0.0 s	
LApeak > 135.0 dB (Exceedence Counts / Duration)	0	0.0 s	
LApeak > 137.0 dB (Exceedence Counts / Duration)	0	0.0 s	
LApeak > 140.0 dB (Exceedence Counts / Duration)	0	0.0 s	

Community Noise	**Ldn**	**LDay 07:00-22:00**	**LNight 22:00-07:00**	**Lden**	**LDay 07:00-19:00**	**LEvening 19:00-22:00**	**LNight 22:00-07:00**
	54.9	54.9	-99.9	54.9	54.9	-99.9	-99.9

LCeq	68.5 dB
LAeq	54.9 dB
LCeq - LAeq	13.6 dB
LAleq	56.2 dB
LAeq	54.9 dB
LAleq - LAeq	1.4 dB
# Overloads	0
Overload Duration	0.0 s
# OBA Overloads	0
OBA Overload Duration	0.0 s

Statistics	
LAS5.00	58.9 dB
LAS10.00	57.8 dB
LAS33.30	55.1 dB
LAS50.00	53.8 dB
LAS66.60	52.4 dB
LAS90.00	49.4 dB

ATTACHMENT 2

HVAC Specifications

38HDR
Performance™ Series Air Conditioner with Puron® Refrigerant
1–1/2 to 5 Nominal Tons

Carrier
turn to the experts

Product Data

Puron
the environmentally sound refrigerant

Performance SERIES

Carrier's Air Conditioners with Puron® refrigerant provide a collection of features unmatched by any other family of equipment. The 38HDR has been designed utilizing Carrier's Puron refrigerant. The environmentally sound refrigerant allows you to make a responsible decision in the protection of the earth's ozone layer.

This product has been designed and manufactured to meet Energy Star® criteria for energy efficiency when matched with appropriate coil components. Refer to the combination ratings in the Product Data for system combinations that meet Energy Star® guidelines.

NOTE: Ratings contained in this document are subject to change at any time. Always refer to the AHRI directory (www.ahridirectory.org) for the most up-to-date ratings information.

INDUSTRY LEADING FEATURES / BENEFITS

Energy Efficiency

- 13 - 15 SEER/10.9 - 12.5 EER

Sound

- Levels as low as 68 dBA

Design Features

- New aesthetics
- Small footprint, same as old model and "stackable"
- WeatherArmor™ cabinet
  - — All steel cabinet construction
  - — Baked on powder paint
  - — Mesh coil guard

Reliability, Quality and Toughness

- Scroll compressor
- Crankcase Heater standard on sizes 030-060
- Factory-supplied filter drier
- High pressure switch
- Low pressure switch
- Line lengths up to 250' (76.2 m)
- Low ambient operation (down to -20°F/-28.9°C) with low ambient accessories.

MODEL NUMBER NOMENCLATURE

1	2	3	4	5	6	7	8	9	10	11	12	13
N	N	A	A	A/N	N	N	N	A/N	A/N	A/N	N	N
3	8	H	D	R	0	1	8	A	0	0	3	0
Product Series	HDR = Horizontal Discharge Condensing Unit			Cooling Capacity				Variations	Open	Open	Voltage	Minor Series
38=AC/HP	Major Model			1,000 Btuh Nominal				A=Standard	0=Not Defined	0=Not Defined	3=208/230–1 5=208/230–3 6=460/3	0, 1, 2...

Puron™
the environmentally sound refrigerant

AHRI CERTIFIED™ www.ahridirectory.org

Use of the AHRI Certified TM Mark indicates a manufacturer's participation in the program For verification of certification for individual products, go to www.ahridirectory.org.

Certified System™
ISO 9001
QMI-SAI Global

c UL us

energy ENERGY STAR

This product has been designed and manufactured to meet Energy Star® criteria for energy efficiency when matched with appropriate coil components. However, proper refrigerant charge and proper air flow are critical to achieve rated capacity and efficiency. Installation of this product should follow all manufacturing refrigerant charging and air flow instructions. **Failure to confirm proper charge and air flow may reduce energy efficiency and shorten equipment life.**

PHYSICAL DATA

UNIT 38HDR	018	024	030	036	048	060
NOMINAL CAPACITY (Tons)	1.5	2.0	2.50	3.0	4.0	5.0
OPERATING WEIGHT lb (kg)	155 (70.3)	180 (81.6)	200 (90.7)	218 (98.9)	284 (128.8)	294 (133.4)
REFRIGERANT TYPE	R–410A					
METERING DEVICE	TXV					
CHARGE lb (kg)	6.3 (2.86)	6.0 (2.73)	8.7 (3.95)	8.7 (3.95)	11.5 (5.23)	12.0 (5.45)
COMPRESSOR						
Type	Scroll					
Oil Charge (POE –oz)	25.0	25.0	25.0	25.0	42.0	42.0
Crankcase Heater (watts)	—	—	40	40	40	40
OUTDOOR FAN						
Rpm/Cfm	840/1720	840/1720	850/3900	850/3900	850/3900	850/3900
Diameter in. (mm)	18 (457)	18 (457)	24 (610)	24 (610)	24 (610)	24 (610)
No. Blades	3	3	3	3	3	3
Motor hp (w)	1/8 (93)	1/8 (93)	1/4 (187)	1/4 (187)	1/4 (187)	1/4 (187)
OUTDOOR COIL						
Face Area (sq ft)	5.8	7.3	12.1	12.1	14.1	14.1
No. Rows	2	2	2	2	2	2
FPI	20	20	20	20	20	20
HIGH PRESSURE SWITCH						
Cut–In (psig) Cutout (psig)	420 ± 25 650 ± 10	420 ± 25 650 ± 10	420 ± 25 650 ± 10	420 ± 25 650 ± 10	420 ± 25 650 ± 10	420 ± 25 650 ± 10
LOW PRESSURE SWITCH						
Cut–In (psig) Cutout (psig)	45 ± 25 20 ± 5	45 ± 25 20 ± 5	45 ± 25 20 ± 5	45 ± 25 20 ± 5	45 ± 25 20 ± 5	45 ± 25 20 ± 5
REFRIGERANT LINES						
Connection Type	Sweat					
Max. Liquid Line* (in.) OD	3/8	3/8	3/8	3/8	3/8	3/8
Rated Vapor Line† (in.) OD	5/8	5/8	3/4	3/4	7/8	1–1/8**
CONTROLS						
Control Voltage‡	24 vac					
System Voltage	208/230 v	208/230 v	208/230 v	208/230 v, Single and 3 Phase, 460 v, 3 Phase		
FINISH	Gray					

* See *Liquid Line Sizing For Cooling Only Systems with Puron Refrigerant* tables.

† Units are rated with 25 ft (7.6 m) of lineset length. See *Vapor Line Sizing and Cooling Capacity Loss* table when using other sizes and lengths of lineset.

‡ 24 v and a minimum of 40 va is provided in the fan coil unit.

** Vapor connection size is 7/8 inch.

FPI – Fins Per Inch

POE – Polyol Ester

REFRIGERANT PIPING LENGTH LIMITATIONS

Liquid Line Sizing and Maximum Total Equivalent Lengths† for Cooling Only Systems with Puron® Refrigerant:

The maximum allowable length of a residential split system depends on the liquid line diameter and vertical separation between indoor and outdoor units.

See Table below for liquid line sizing and maximum lengths :

Maximum Total Equivalent Length
Outdoor Unit BELOW Indoor Unit

Size	Liquid Line Connection	Liquid Line Diam. w/ TXV	AC with Puron Refrigerant Maximum Total Equivalent Length†: Outdoor unit BELOW Indoor Vertical Separation ft (m)								
			0–5 (0–1.5)	6–10 (1.8–3.0)	11–20 (3.4–6.1)	21–30 (6.4–9.1)	31–40 (9.4–12.2)	41–50 (12.5–15.2)	51–60 (15.5–18.3)	61–70 (18.6–21.3)	71–80 (21.6–24.4)
018 AC with Puron	3/8	1/4	150	150	125	100	100	75	– –	– –	– –
		5/16	250*	250*	250*	250*	250*	250*	250*	225*	150
		3/8	250*	250*	250*	250*	250*	250*	250*	250*	250*
024 AC with Puron	3/8	1/4	75	75	75	50	50	– –	– –	– –	– –
		5/16	250*	250*	250*	250*	250*	225*	175	125	100
		3/8	250*	250*	250*	250*	250*	250*	250*	250*	250*
030 AC with Puron	3/8	1/4	30	– –	– –	– –	– –	– –	– –	– –	– –
		5/16	175	225*	200	175	125	100	75	– –	– –
		3/8	250*	250*	250*	250*	250*	250*	250*	250*	250*
036 AC with Puron	3/8	5/16	175	150	150	100	100	100	75	– –	– –
		3//8	250*	250*	250*	250*	250*	250*	250*	250*	250*
048 AC with Puron	3/8	3/8	250*	250*	250*	250*	250*	250*	230	160	– –
060 AC with Puron	3/8	3/8	250*	250*	250*	225*	190	150	110	– –	– –

*** Maximum actual length not to exceed 200 ft (61 m)**

† Total equivalent length accounts for losses due to elbows or fitting. See the Long Line Guideline for details.

– – = outside acceptable range

Maximum Total Equivalent Length
Outdoor Unit ABOVE Indoor Unit

Size	Liquid Line Connection	Liquid Line Diam. w/ TXV	AC with Puron Refrigerant Maximum Total Equivalent Length†: Outdoor unit ABOVE Indoor Vertical Separation ft (m)							
			25 (7.6)	26–50 (7.9–15.2)	51–75 (15.5–22.9)	76–100 (23.2–30.5)	101–125 (30.8–38.1)	126–150 (38.4–45.7)	151–175 (46.0–53.3)	176–200 (53.6–61.0)
018 AC with Puron	3/8	1/4	175	250*	250*	250*	250*	250*	250*	250*
		5/16	250*	250*	250*	250*	250*	250*	250*	250*
		3/8	250*	250*	250*	250*	250*	250*	250*	250*
024 AC with Puron	3/8	1/4	100	125	175	200	225*	250*	250*	250*
		5/16	250*	250*	250*	250*	250*	250*	250*	250*
		3/8	250*	250*	250*	250*	250*	250*	250*	250*
030 AC with Puron	3/8	1/4	30	– –	– –	– –	– –	– –	– –	– –
		5/16	250*	250*	250*	250*	250*	250*	250*	250*
		3/8	250*	250*	250*	250*	250*	250*	250*	250*
036 AC with Puron	3/8	5/16	225*	250*	250*	250*	250*	250*	250*	250*
		3/8	250*	250*	250*	250*	250*	250*	250*	250*
048 AC with Puron	3/8	3/8	250*	250*	250*	250*	250*	250*	250*	250*
060 AC with Puron	3/8	3/8	250*	250*	250*	250*	250*	250*	250*	250*

*** Maximum actual length not to exceed 200 ft (61 m)**

† Total equivalent length accounts for losses due to elbows or fitting. See the Long Line Guideline for details.

– – = outside acceptable range

REFRIGERANT CHARGE ADJUSTMENTS

Liquid Line Size	Puron Charge oz/ft (g/m)
3/8	0.60 (17.74) (Factory charge for lineset = 9 oz / 266.16 g)
5/16	0.40 (11.83)
1/4	0.27 (7.98)

Units are factory charged for 15 ft (4.6 m) of 3/8" liquid line. The factory charge for 3/8" lineset 9 oz (266.16 g). When using other length or diameter liquid lines, charge adjustments are required per the chart above.

Charging Formula:

[(Lineset oz/ft x total length) – (factory charge for lineset)] = charge adjustment

Example 1: System has 15 ft of line set using existing 1/4" liquid line. What charge adjustment is required?

Formula: (.27 oz/ft x 15ft) – (9 oz) = (-4.95) oz.

Net result is to remove 4.95 oz of refrigerant from the system

Example 2: System has 45 ft of existing 5/16" liquid line. What is the charge adjustment?

Formula: (.40 oz/ft. x 45ft) – (9 oz.) = 9 oz.

Net result is to add 9 oz of refrigerant to the system

LONG LINE APPLICATIONS

An application is considered Long Line, when the refrigerant level in the system requires the use of accessories to maintain acceptable refrigerant management for systems reliability. See Accessory Usage Guideline table for required accessories. Defining a system as long line depends on the liquid line diameter, actual length of the tubing, and vertical separation between the indoor and outdoor units.

For Air Conditioner systems, the chart below shows when an application is considered Long Line.

AC WITH PURON® REFRIGERANT LONG LINE DESCRIPTION ft (m)
Beyond these lengths, long line accessories are required

Liquid Line Size	Units On Same Level	Outdoor Below Indoor	Outdoor Above Indoor
1/4	No accessories needed within allowed lengths	No accessories needed within allowed lengths	175 (53.3)
5/16	120 (36.6)	50 (15.2) vertical or 120 (36.6) total	120 (36.6)
3/8	80 (24.4)	35 (10.7) vertical or 80 24.4) total	80 (24.4)

Note: See Long Line Guideline for details

VAPOR LINE SIZING AND COOLING CAPACITY LOSS

Acceptable vapor line diameters provide adequate oil return to the compressor while avoiding excessive capacity loss. The suction line diameters shown in the chart below are acceptable for AC systems with Puron refrigerant:

Vapor Line Sizing and Cooling Capacity Losses — Puron® Refrigerant 1-Stage Air Conditioner Applications

Unit Nominal Size (Btuh)	Maximum Liquid Line Diameters (In. OD)	Vapor Line Diameters (In. OD)	Cooling Capacity Loss (%) Total Equivalent Line Length ft. (m)								
			26–50 (7.9–15.2)	51–80 (15.5–24.4)	81–100 (24.7–30.5)	101–125 (30.8–38.1)	126–150 (38.4–45.7)	151–175 (46.0–53.3)	176–200 (53.6–61.0)	201–225 (61.3–68.6)	226–250 (68.9–76.2)
018 1 Stage AC with Puron	3/8	1/2	1	2	3	5	6	7	8	9	11
		5/8	0	1	1	1	2	2	2	3	3
		3/4	0	0	0	0	1	1	1	1	1
024 1 Stage AC with Puron	3/8	5/8	0	1	2	2	3	3	4	5	5
		3/4	0	0	1	1	1	1	1	2	2
		7/8	0	0	0	0	0	1	1	1	1
030 1 Stage AC with Puron	3/8	5/8	1	2	3	3	4	5	6	7	8
		3/4	0	0	1	1	1	2	2	2	3
		7/8	0	0	0	0	1	1	1	1	1
036 1 Stage AC with Puron	3/8	5/8	1	2	4	5	6	8	9	10	12
		3/4	0	1	1	2	2	3	3	4	4
		7/8	0	0	0	1	1	1	1	2	2
048 1 Stage AC with Puron	3/8	3/4	0	1	2	3	4	5	5	6	7
		7/8	0	0	1	1	2	2	2	3	3
		1 1/8	0	0	0	0	0	0	0	1	1
060 1 Stage AC with Puron	3/8	3/4	1	2	4	5	6	7	9	10	11
		7/8	0	1	2	2	3	4	4	5	5
		1 1/8	0	0	0	1	1	1	1	1	1

Applications in this area may be long line and may have height restrictions. See the *Residential Piping and Long Line Guideline*.

ACCESSORY THERMOSTATS

THERMOSTAT / SUBBASE PKG.	DESCRIPTION
TP–PRH01–A	Programmable Thermidistat
TP–NRH01–A	Non–programmable Thermidistat
TP–PAC01	Performance Series Programmable AC Stat
TP–NAC01	Performance Series Non–programmable AC Stat
TSTATCCSEN01–B	Outdoor Air Temperature Sensor
TSTATXXBBP01	Backplate for Builder's Thermostat
TSTATXXNBP01	Backplate for Non–Programmable Thermostat
TSTATXXPBP01	Backplate for Programmable Thermostat
TSTATXXCNV10	Thermostat Conversion Kit (4 to 5 wires) – 10 Pack

ACCESSORIES

KIT NUMBER	KIT NAME	018	024	030	036	048	060
KAACH1401AAA	Crankcase Heater	X	X				
Standard	Crankcase Heater			S	S	S	S
KAAFT0101AAA	Evaporator Freeze Stat	X	X	X	X	X	X
KAATD0101TDR	Time Delay Relay	X	X	X	X	X	X
KAAWS0101AAA	Winter Start Kit (for low ambient)	X	X	X	X	X	X
53DS–900–––086	Low Ambient Control (Puron)	X	X	X	X	X	X
53DS–900–––070	Wind Baffle	X					
53DS–900–––087	Wind Baffle		X				
53DS–900–––071	Wind Baffle			X	X		
53DS–900–––088	Wind Baffle					X	X
53DS–900–––075	Stacking Kit	X	X				
53DS–900–––076	Stacking Kit			X	X	X	X
53DS–900–––077	Wall Mounting Kit	X	X				
53DS–900–––078	Wall Mounting Kit			X	X	X	X

X = Accessory, S = Standard

ACCESSORY USAGE GUIDELINE

ACCESSORY	REQUIRED FOR LOW–AMBIENT COOLING APPLICATIONS (Below 55°F/12.8°C)	REQUIRED FOR LONG LINE APPLICATIONS* (Over 80 ft. / 24.4 m)	REQUIRED FOR SEA COAST APPLICATIONS (Within 2 miles / 3.2 km)
Compressor Start Assist Capacitor and Relay	Yes	Yes	No
Crankcase Heater	Yes	Yes	No
Evaporator Freeze Thermostat	Yes	No	No
Hard Shutoff TXV	Yes	Yes	Yes
Liquid Line Solenoid Valve	No	See Longline Application Guideline	No
Low–ambient Control	Yes	No	No
Winter Start Control	Yes	No	No

* For tubing line sets between 80 and 200 ft. (24.38 and 60.96 m) and/or 35 ft. (10.7 m) vertical differential, refer to Residential Piping and Longline Guideline.

Accessory Description and Usage (Listed Alphabetically)

1. Crankcase Heater

An electric resistance heater which mounts to the base of the compressor to keep the lubricant warm during off cycles. Improves compressor lubrication on restart and minimizes the chance of liquid slugging.

Usage Guideline:

Required in low ambient cooling applications.

Required in long line applications.

Suggested in all commercial applications.

2. Evaporator Freeze Thermostat

An SPST temperature-actuated switch that stops unit operation when evaporator reaches freeze-up conditions.

Usage Guideline:

Required when low ambient kit has been added.

3. Low-Ambient Control

A fan-speed control device activated by a temperature sensor, designed to control condenser fan motor speed in response to the saturated, condensing temperature during operation in cooling mode only. For outdoor temperatures down to -20°F (-28.9°C), it maintains condensing temperature at 100°F ±10°F (37.8°C ± 5.5°C).

Usage Guideline:

A Low Ambient Controller must be used when cooling operation is used at outdoor temperatures below 55°F (12.8°C).

Suggested for all commercial applications.

4. Outdoor Air Temperature Sensor

Designed for use with Carrier Thermostats listed in this publication. This device enables the thermostat to display the outdoor temperature. This device also

is required to enable special thermostat features such as auxiliary heat lock out.

Usage Guideline:

Suggested for all Carrier thermostats listed in this publication.

5. Thermostatic Expansion Valve (TXV)

A modulating flow-control valve which meters refrigerant liquid flow rate into the evaporator in response to the superheat of the refrigerant gas leaving the evaporator.

Kit includes valve, adapter tubes, and external equalizer tube. Hard shut off types are available.

NOTE: When using a hard shut off TXV with single phase reciprocating compressors, a Compressor Start Assist Capacitor and Relay is required.

Usage Guideline:

Accessory required to meet AHRI rating and system reliability, where indoor not equipped.

Hard shut off TXV or LLS required in air conditioner long line applications.

Required for use on all zoning systems.

6. Time-Delay Relay

An SPST delay relay which briefly continues operation of indoor blower motor to provide additional cooling after the compressor cycles off.

NOTE: Most indoor unit controls include this feature. For those that do not, use the guideline below.

Usage Guideline:

Accessory required to meet AHRI rating, where indoor

not equipped.

7. Winter Start Control

This control is designed to alleviate nuisance opening of the low-pressure switch by bypassing it for the first 3 minutes of operation.

ELECTRICAL DATA

38HDR UNIT SIZE	V–PH–Hz	VOLTAGE RANGE*		COMPRESSOR		OUTDOOR FAN MOTOR			MIN CKT AMPS	FUSE/CKT BKR AMPS
		Min	Max	RLA	LRA	FLA	NEC Hp	kW Out		
018–31	208/230–1–60	187	253	9.0	48.0	0.8	0.125	0.09	12.1	20
024–32	208/230–1–60	187	253	13.5	58.3	0.8	0.125	0.09	17.7	25
030–31	208/230–1–60	187	253	14.1	73.0	1.5	0.250	0.19	19.1	30
036–31	208/230–1–60	187	253	14.1	77.0	1.5	0.250	0.19	19.1	30
	208/230–3–60	187	253	9.2	71.0	1.5	0.250	0.19	13.0	20
	460–3–60	414	506	5.6	38.0	0.8	0.250	0.19	7.9	10
048–32	208/230–1–60	187	253	19.9	109.0	1.5	0.250	0.19	26.4	40
	208/230–3–60	187	253	13.1	83.1	1.5	0.250	0.19	17.9	25
	460–3–60	414	506	6.1	41.0	0.8	0.250	0.19	8.4	15
060–32	208/230–1–60	187	253	26.4	134.0	1.5	0.250	0.19	34.5	60
	208/230–3–60	187	253	16.0	110.0	1.5	0.250	0.19	21.5	30
	460–3–60	414	506	7.8	52.0	0.8	0.250	0.19	10.6	15

* Permissible limits of the voltage range at which the unit will operate satisfactorily

FLA – Full Load Amps

HACR – Heating, Air Conditioning, Refrigeration

LRA – Locked Rotor Amps

NEC – National Electrical Code

RLA – Rated Load Amps (compressor)

NOTE: Control circuit is 24–V on all units and requires external power source. Copper wire must be used from service disconnect to unit. All motors/compressors contain internal overload protection.

Complies with 2007 requirements of ASHRAE Standards 90.1

A-WEIGHTED SOUND POWER (dBA)

Unit Size	Standard Rating (dBA)	Typical Octave Band Spectrum (dBA) (without tone adjustment)						
		125	250	500	1000	2000	4000	8000
018–31	68	52.0	57.5	60.5	63.5	60.5	57.5	46.5
024–32	69	57.5	61.5	63.0	61.0	60.0	56.0	45.0
030–31	72	56.5	63.0	65.0	66.0	64.0	62.5	57.0
036–31	72	65.0	61.5	63.5	65.0	64.5	61.0	54.5
048–32	72	58.5	61.0	64.0	67.5	66.0	64.0	57.0
060–32	72	63.0	61.5	64.0	66.5	66.0	64.5	55.5

NOTE: Tested in accordance with AHRI Standard 270–08 (not listed in AHRI).

CHARGING SUBCOOLING (TXV-TYPE EXPANSION DEVICE)

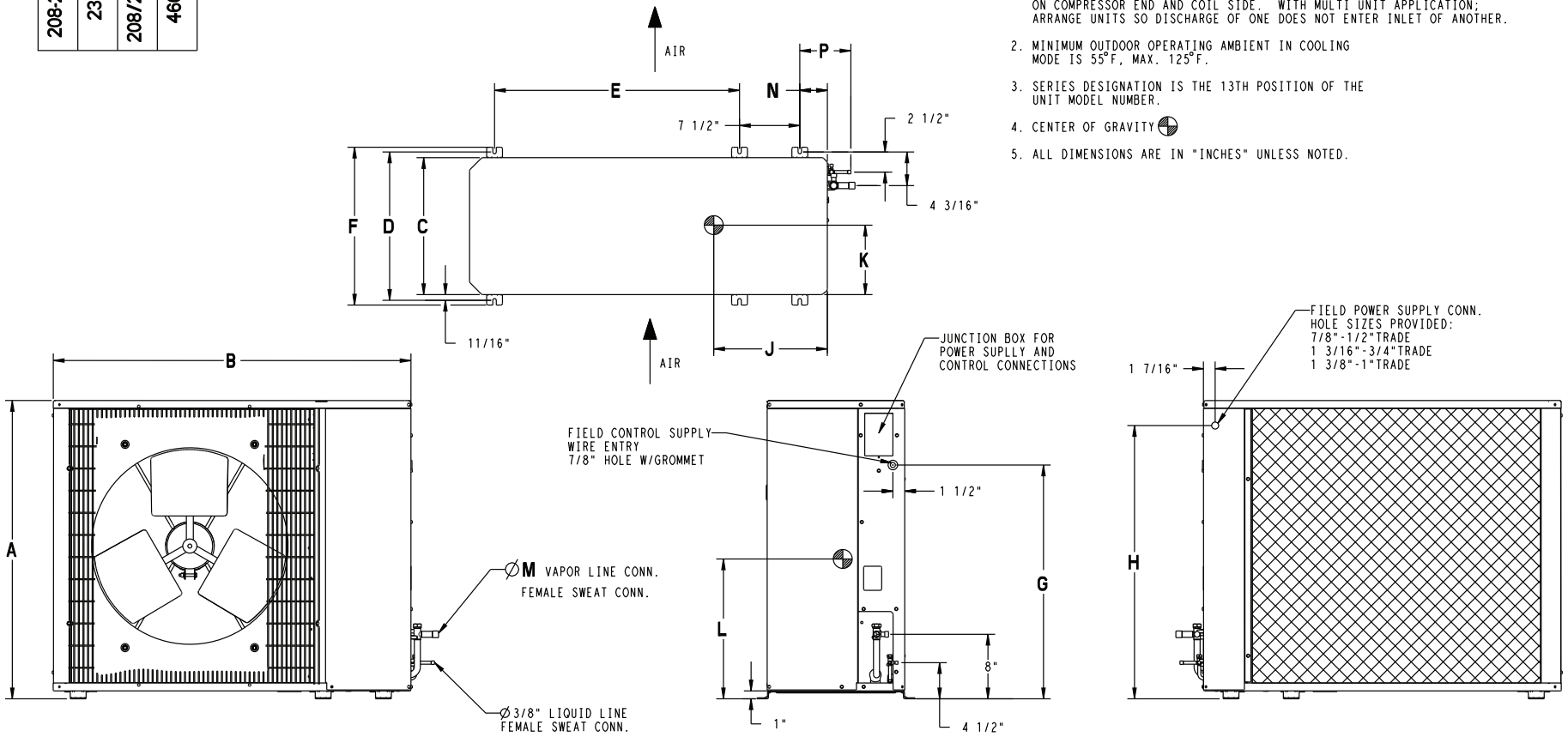
UNIT SIZE–VOLTAGE, SERIES	REQUIRED SUBCOOLING °F (°C)
018–31	12 (6.7)
024–32	12 (6.7)
030–31	12 (6.7)
036–31	12 (6.7)
048–32	12 (6.7)
060–32	12 (6.7)

DIMENSIONS - ENGLISH

UNIT	SERIES	ELECTRICAL CHARACTERISTICS				A	B	C	D	E	F	G	H	J	K	L	M	N	P	OPERATING WEIGHT(lbs)	SHIPPING WEIGHT(lbs)	SHIPPING DIMENSIONS (L x W x H)
38HDR018	1	X	O	O	O	25 1/8"	36 15/16"	14 9/16"	16"	23 7/16"	17 3/16"	17 1/8"	22"	13"	6 5/8"	11 1/4"	5/8"	2 15/16"	6"	155	171	42 9/10" X 18" X 28 1/10"
38HDR024	1,2	X	O	O	O	31 1/8"	36 15/16"	14 9/16"	16"	23 7/16"	17 3/16"	23 1/8"	28"	14"	6 3/4"	11 5/8"	5/8"	2 15/16"	6"	180	198	42 9/10" X 18" X 34 1/10"
38HDR030	1	X	O	O	O	37 3/16"	44 9/16"	17 1/16"	18 7/16"	30 1/2"	19 5/8"	29 3/16"	34 1/16"	13 11/16"	8 1/8"	15 7/8"	3/4"	3 7/16"	6 1/2"	200	223	50 1/2" X 20 1/2" X 40 2/10"
38HDR036	1	X	O	X	X	37 3/16"	44 9/16"	17 1/16"	18 7/16"	30 1/2"	19 5/8"	29 3/16"	34 1/16"	13 11/16"	8 1/8"	15 7/8"	3/4"	3 7/16"	6 1/2"	218	240	50 1/2" X 20 1/2" X 40 2/10"
38HDR048	1,2	X	O	X	X	43 3/16"	44 9/16"	17 1/16"	18 7/16"	30 1/2"	19 5/8"	35 3/16"	40 1/16"	14 1/2"	8 1/2"	18 7/8"	7/8"	3 7/16"	6 1/2"	284	309	50 1/2" X 20 1/2" X 46 2/10"
38HDR060	1,2	X	O	X	X	43 3/16"	44 9/16"	17 1/16"	18 7/16"	30 1/2"	19 5/8"	35 3/16"	40 1/16"	14 1/2"	8 1/2"	18 7/8"	7/8"	3 7/16"	6 1/2"	294	319	50 1/2" X 20 1/2" X 46 2/10"
		208-230-1-60	230-1-60	208/230-3-60	460-3-60																	

X = YES
O = NO

1. REQUIRED CLEARANCES: WITH COIL FACING WALL; ALLOW 6" MIN CLEARANCE ON COIL SIDE AND COIL END AND 36" MIN CLEARANCE ON COMPRESSOR END AND FAN SIDE. WITH FAN FACING WALL; ALLOW 8" MIN CLEARANCE ON FAN SIDE AND COIL END AND 36" MIN CLEARANCE ON COMPRESSOR END AND COIL SIDE. WITH MULTI UNIT APPLICATION; ARRANGE UNITS SO DISCHARGE OF ONE DOES NOT ENTER INLET OF ANOTHER.
2. MINIMUM OUTDOOR OPERATING AMBIENT IN COOLING MODE IS 55°F, MAX. 125°F.
3. SERIES DESIGNATION IS THE 13TH POSITION OF THE UNIT MODEL NUMBER.
4. CENTER OF GRAVITY
5. ALL DIMENSIONS ARE IN "INCHES" UNLESS NOTED.



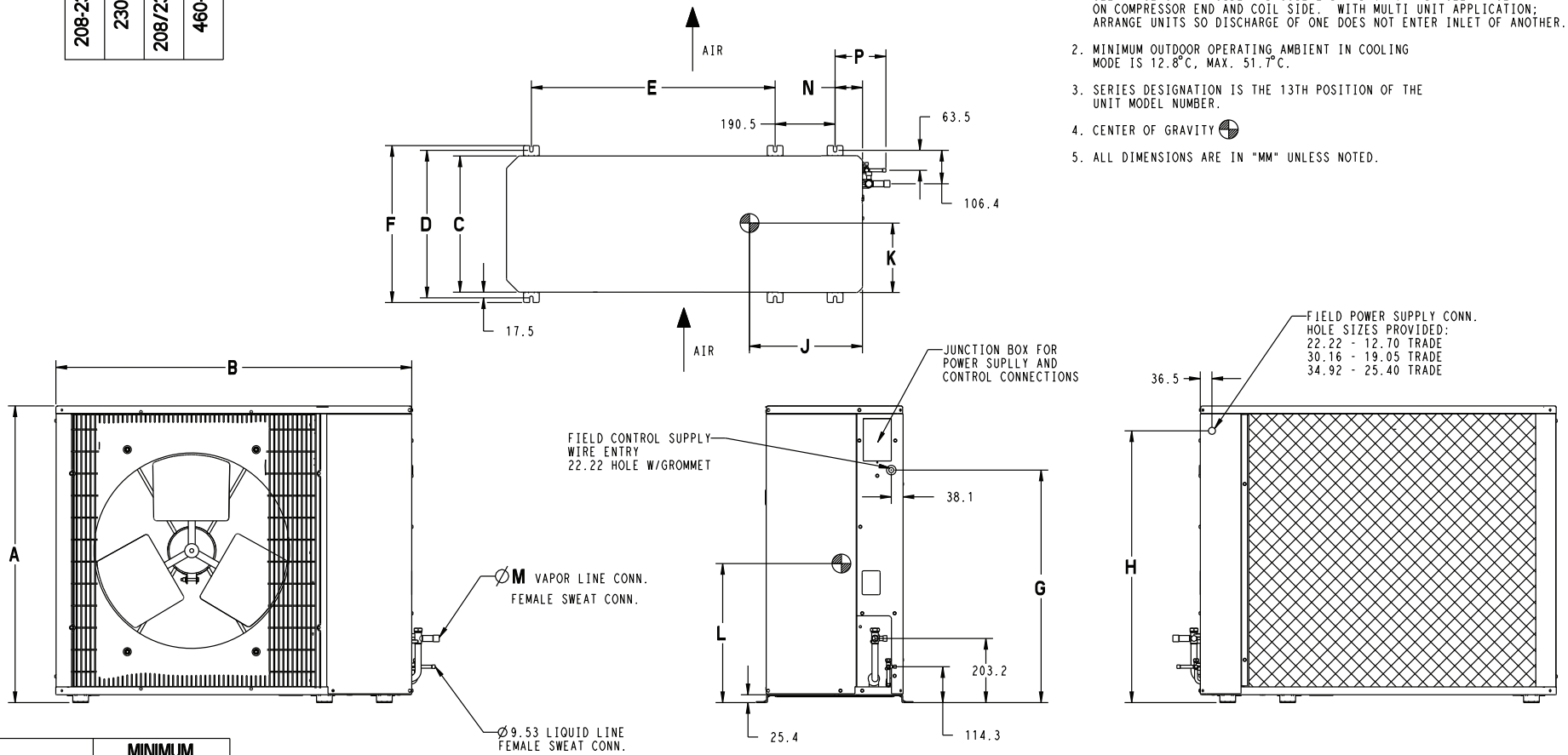
UNIT SIZE	MINIMUM MOUNTING PAD DIMENSIONS
18,24	23" X 42"
30,36,48,60	24" X 50"

DIMENSIONS - SI

UNIT	SERIES	ELECTRICAL CHARACTERISTICS				A	B	C	D	E	F	G	H	J	K	L	M	N	P	OPERATING WEIGHT(KG)	SHIPPING WEIGHT(KG)	SHIPPING DIMENSIONS (L x W x H)
38HDR018	1	X	O	O	O	638.2	938.2	369.9	406.4	595.3	436.6	435.0	558.8	330.2	168.3	285.8	15.9	74.6	152.4	70.4	77.7	1090.2 X 457.7 X 714.3
38HDR024	1,2	X	O	O	O	790.6	938.2	369.9	406.4	595.3	436.6	587.4	711.2	355.6	171.5	295.3	15.9	74.6	152.4	81.8	90.0	1090.2 X 457.7 X 866.7
38HDR030	1	X	O	O	O	944.6	1131.9	433.4	468.3	774.7	498.5	741.4	865.2	347.7	206.4	403.2	19.0	87.3	165.1	90.9	101.4	1282.7 X 520.7 X 1020.7
38HDR036	1	X	O	X	X	944.6	1131.9	433.4	468.3	774.7	498.5	741.4	865.2	347.7	206.4	403.2	19.0	87.3	165.1	99.0	109.0	1282.7 X 520.7 X 1020.7
38HDR048	1,2	X	O	X	X	1097.0	1131.9	433.4	468.3	774.7	498.5	893.8	1017.6	368.3	215.9	479.4	22.2	87.3	165.1	129.0	140.4	1282.7 X 520.7 X 1173.1
38HDR060	1,2	X	O	X	X	1097.0	1131.9	433.4	468.3	774.7	498.5	893.8	1017.6	368.3	215.9	479.4	22.2	87.3	165.1	133.6	145.0	1282.7 X 520.7 X 1173.1
		208-230-1-60	230-1-60	208/230-3-60	460-3-60																	

X = YES
O = NO

1. REQUIRED CLEARANCES: WITH COIL FACING WALL; ALLOW 152.4 MIN CLEARANCE ON COIL SIDE AND COIL END AND 914.4 MIN CLEARANCE ON COMPRESSOR END AND FAN SIDE. WITH FAN FACING WALL; ALLOW 203.2 MIN CLEARANCE ON FAN SIDE AND COIL END AND 914.4 MIN CLEARANCE ON COMPRESSOR END AND COIL SIDE. WITH MULTI UNIT APPLICATION; ARRANGE UNITS SO DISCHARGE OF ONE DOES NOT ENTER INLET OF ANOTHER.
2. MINIMUM OUTDOOR OPERATING AMBIENT IN COOLING MODE IS 12.8°C, MAX. 51.7°C.
3. SERIES DESIGNATION IS THE 13TH POSITION OF THE UNIT MODEL NUMBER.
4. CENTER OF GRAVITY
5. ALL DIMENSIONS ARE IN "MM" UNLESS NOTED.



UNIT SIZE	MINIMUM MOUNTING PAD DIMENSIONS
18,24	584.2 X 1066.8
30,36,48,60	609.6 X 1270.0

TESTED AHRI COMBINATION RATINGS*

NOTE: Ratings contained in this document are subject to change at any time.

For AHRI ratings certificates, please refer to the AHRI directory www.ahridirectory.org
Additional ratings and system combinations can be accessed via the Carrier database at:
http://cactaxcredits.info/carrier-ratings/ac_ratings_srch.php

Equipment performance calculator can be accessed at: http://rpmob.wrightsoft.com/

Model Number	Indoor Model	Furnace Model	Capacity	EER	SEER
38HDR024−32	CNPV*2414A**+TDR		23,400	11.0	13.0
38HDR030−31	CNPV*3014A**+TDR		28,000	11.0	13.0
38HDR036−31	CNPV*4221A**+TDR		33,400	11.0	13.0
38HDR036−51	CNPV*4221A**+TDR		33,400	11.0	13.0
38HDR036−61	CNPV*4221A**+TDR		33,400	11.0	13.0
38HDR048−32	CNPV*4821A**+TDR		47,000	11.0	13.0
38HDR048−52	CNPV*4821A**+TDR		47,000	11.0	13.0
38HDR048−62	CNPV*4821A**+TDR		47,000	11.0	13.0
38HDR060−32	CNPV*6024A**+TDR		57,000	11.0	13.0
38HDR060−52	CNPV*6024A**+TDR		57,000	11.0	13.0
38HDR060−62	CNPV*6024A**+TDR		57,000	11.0	13.0

***** AHRI = Air Conditioning, Heating & Refrigeration Institute
EER — Energy Efficiency Ratio
SEER — Seasonal Energy Efficiency Ratio
TDR — Time−Delay Relay. In most cases, only 1 method should be used to achieve TDR function. Using more than 1 method in a system may cause degradation in performance. Use either the accessory Time−Delay Relay KAATD0101TDR or a furnace equipped with TDR. Most Carrier furnaces are equipped with TDR.

NOTES:
1. Ratings are net values reflecting the effects of circulating fan motor heat. Supplemental electric heat is not included.
2. Tested outdoor/indoor combinations have been tested in accordance with DOE test procedures for central air conditioners. Ratings for other combinations are determined under DOE computer simulation procedures.
3. Determine actual CFM values obtainable for your system by referring to fan performance data in fan coil or furnace coil literature.
4. Do not apply with capillary tube coils as performance and reliability are significantly affected.

DETAILED COOLING CAPACITIES*

EVAPORATOR AIR		CONDENSER ENTERING AIR TEMPERATURES °F (°C)																	
		75 (23.9)			85 (29.4)			95 (35)			105 (40.6)			115 (46.1)			125 (51.7)		
CFM	EWB °F (°C)	Capacity MBtuh†		Total System KW**	Capacity MBtuh†		Total System KW**	Capacity MBtuh†		Total System KW**	Capacity MBtuh†		Total System KW**	Capacity MBtuh†		Total System KW**	Capacity MBtuh†		Total System KW**
		Total	Sens‡		Total	Sens‡		Total	Sens‡		Total	Sens‡		Total	Sens‡		Total	Sens‡	
38HDR018 Outdoor Section With CNPV*1814A** Indoor Section																			
525	72 (22.2)	20.28	9.40	1.22	19.31	9.07	1.36	18.30	8.73	1.52	17.26	8.38	1.69	16.14	8.01	1.87	14.90	7.61	2.07
	67(19.4)	18.53	11.50	1.22	17.65	11.17	1.36	16.72	10.82	1.52	15.76	10.47	1.69	14.72	10.09	1.87	13.59	9.69	2.07
	62 (16.7)	16.93	13.58	1.23	16.13	13.24	1.37	15.29	12.89	1.52	14.43	12.52	1.69	13.57	13.57	1.87	12.71	12.71	2.07
	57 (13.9)	16.35	16.35	1.23	15.72	15.72	1.37	15.05	15.05	1.52	14.34	14.34	1.69	13.57	13.57	1.87	12.71	12.71	2.07
600	72(22.2)	20.65	9.87	1.25	19.63	9.53	1.39	18.59	9.18	1.54	17.50	8.83	1.71	16.34	8.46	1.90	15.05	8.05	2.10
	67(19.4)	18.90	12.25	1.25	17.97	11.91	1.39	17.00	11.56	1.55	16.00	11.20	1.72	14.93	10.82	1.90	13.75	10.41	2.10
	62 (16.7)	17.33	14.61	1.25	16.51	14.26	1.39	15.67	15.61	1.55	14.91	14.91	1.72	14.08	14.08	1.90	13.16	13.16	2.10
	57 (13.9)	17.07	17.07	1.25	16.39	16.39	1.39	15.67	15.67	1.55	14.91	14.91	1.72	14.08	14.08	1.90	13.16	13.16	2.10
675	72 (22.2)	20.91	10.30	1.27	19.86	9.96	1.41	18.78	9.61	1.57	17.67	9.26	1.74	16.47	8.88	1.93	15.15	8.46	2.13
	67 (19.4)	19.16	12.97	1.27	18.20	12.62	1.42	17.20	12.27	1.57	16.18	11.90	1.74	15.07	11.52	1.93	13.87	11.09	2.13
	62 (16.7)	17.70	17.52	1.28	16.94	16.94	1.42	16.17	16.17	1.57	15.37	15.37	1.74	14.49	14.49	1.93	13.52	13.52	2.13
	57(13.9)	17.67	17.67	1.28	16.94	16.94	1.42	16.17	16.17	1.57	15.37	15.37	1.74	14.49	14.49	1.93	13.52	13.52	2.13

EVAPORATOR AIR		CONDENSER ENTERING AIR TEMPERATURES °F (°C)																	
		75 (23.9)			85 (29.4)			95 (35)			105 (40.6)			115 (46.1)			125 (51.7)		
CFM	EWB °F (°C)	Capacity MBtuh†		Total System KW**	Capacity MBtuh†		Total System KW**	Capacity MBtuh†		Total System KW**	Capacity MBtuh†		Total System KW**	Capacity MBtuh†		Total System KW**	Capacity MBtuh†		Total System KW**
		Total	Sens‡		Total	Sens‡		Total	Sens‡		Total	Sens‡		Total	Sens‡		Total	Sens‡	
38HDR024 Outdoor Section With CNPV*2414A** Indoor Section																			
700	72 (22.2)	28.11	13.59	1.69	26.70	13.09	1.89	25.17	12.55	2.10	23.54	11.98	2.33	21.76	11.38	2.58	19.78	10.71	2.84
	67(19.4)	25.68	16.61	1.68	24.41	16.11	1.87	23.04	15.58	2.09	21.58	15.02	2.32	19.98	14.42	2.57	18.21	13.77	2.83
	62 (16.7)	23.47	19.61	1.67	22.34	19.11	1.86	21.13	18.58	2.08	19.86	18.01	2.31	18.57	18.57	2.55	17.23	17.23	2.82
	57 (13.9)	22.67	22.67	1.67	21.77	21.77	1.86	20.81	20.81	2.07	19.75	19.75	2.31	18.57	18.57	2.55	17.23	17.23	2.82
800	72(22.2)	28.62	14.25	1.73	27.14	13.73	1.93	25.53	13.18	2.14	23.83	12.61	2.37	21.98	11.99	2.62	19.92	11.32	2.88
	67(19.4)	26.18	17.67	1.72	24.84	17.16	1.91	23.40	16.61	2.13	21.88	16.05	2.36	20.22	15.43	2.61	18.38	14.76	2.87
	62 (16.7)	24.02	21.07	1.71	22.85	20.54	1.90	21.63	21.51	2.12	20.48	20.48	2.35	19.20	19.20	2.60	17.75	17.75	2.86
	57 (13.9)	23.64	23.64	1.71	22.68	22.68	1.90	21.62	21.62	2.12	20.48	20.48	2.35	19.20	19.20	2.60	17.75	17.75	2.86
900	72 (22.2)	28.99	14.87	1.77	27.45	14.34	1.96	25.78	13.78	2.18	24.03	13.20	2.41	22.12	12.57	2.66	20.00	11.89	2.92
	67 (19.4)	26.54	18.68	1.76	25.15	18.16	1.95	23.66	17.61	2.17	22.09	17.03	2.40	20.38	16.40	2.65	18.50	15.71	2.91
	62 (16.7)	24.51	22.41	1.75	23.41	23.41	1.94	22.28	22.28	2.16	21.06	21.06	2.39	19.70	19.70	2.64	18.15	18.15	2.91
	57(13.9)	24.45	24.45	1.75	23.41	23.41	1.94	22.28	22.28	2.16	21.06	21.06	2.39	19.70	19.70	2.64	18.15	18.15	2.91

See notes on pg. 13

DETAILED COOLING CAPACITIES* (CONT.)

EVAPORATOR AIR		CONDENSER ENTERING AIR TEMPERATURES °F (°C)																	
		75 (23.9)			85 (29.4)			95 (35)			105 (40.6)			115 (46.1)			125 (51.7)		
CFM	EWB °F (°C)	Capacity MBtuh†		Total System KW**	Capacity MBtuh†		Total System KW**	Capacity MBtuh†		Total System KW**	Capacity MBtuh†		Total System KW**	Capacity MBtuh†		Total System KW**	Capacity MBtuh†		Total System KW**
		Total	Sens‡		Total	Sens‡		Total	Sens‡		Total	Sens‡		Total	Sens‡		Total	Sens‡	
38HDR030 Outdoor Section With CNPV*3014A** Indoor Section																			
875	72 (22.2)	33.74	16.03	2.06	32.29	15.52	2.29	30.76	14.99	2.54	29.12	14.43	2.81	27.36	13.84	3.11	25.42	13.19	3.44
	67(19.4)	30.65	19.58	2.06	29.32	19.06	2.29	27.90	18.51	2.54	26.39	17.94	2.81	24.76	17.34	3.11	22.97	16.69	3.43
	62 (16.7)	28.07	23.01	2.07	26.73	22.59	2.29	25.47	22.03	2.54	24.10	21.45	2.81	22.76	22.72	3.11	21.45	21.45	3.43
	57 (13.9)	27.14	27.14	2.07	26.16	26.16	2.29	25.11	25.11	2.53	24.01	24.01	2.80	22.78	22.78	3.11	21.43	21.43	3.43
1000	72(22.2)	34.29	16.79	2.11	32.87	16.29	2.34	31.28	15.69	2.58	29.58	15.18	2.86	27.57	14.54	3.17	25.64	13.91	3.49
	67(19.4)	31.27	20.81	2.11	29.84	20.29	2.34	28.40	19.75	2.58	26.82	19.17	2.86	24.99	18.52	3.16	23.21	17.87	3.49
	62 (16.7)	28.72	24.92	2.11	27.38	24.26	2.34	26.11	26.11	2.58	24.94	24.94	2.85	23.54	23.54	3.16	22.22	22.22	3.48
	57 (13.9)	28.28	28.28	2.11	27.23	27.23	2.34	26.13	26.13	2.58	24.94	24.94	2.85	23.54	23.54	3.16	22.22	22.22	3.48
1125	72 (22.2)	34.76	17.52	2.16	33.30	17.00	2.39	31.65	16.46	2.63	29.90	15.89	2.91	28.03	15.27	3.21	25.95	14.60	3.53
	67 (19.4)	31.86	21.48	2.16	30.25	21.46	2.38	28.76	20.92	2.63	27.14	20.32	2.90	25.39	19.69	3.21	23.44	18.98	3.54
	62 (16.7)	29.27	29.04	2.16	28.12	28.12	2.38	26.98	26.98	2.63	25.71	25.71	2.90	24.35	24.35	3.20	22.84	22.84	3.53
	57(13.9)	29.23	29.23	2.16	28.13	28.13	2.38	26.99	26.99	2.63	25.71	25.71	2.90	24.23	24.23	3.21	22.85	22.85	3.53

EVAPORATOR AIR		CONDENSER ENTERING AIR TEMPERATURES °F (°C)																	
		75 (23.9)			85 (29.4)			95 (35)			105 (40.6)			115 (46.1)			125 (51.7)		
CFM	EWB °F (°C)	Capacity MBtuh†		Total System KW**	Capacity MBtuh†		Total System KW**	Capacity MBtuh†		Total System KW**	Capacity MBtuh†		Total System KW**	Capacity MBtuh†		Total System KW**	Capacity MBtuh†		Total System KW**
		Total	Sens‡		Total	Sens‡		Total	Sens‡		Total	Sens‡		Total	Sens‡		Total	Sens‡	
38HDR036 Outdoor Section With CNPV*4221A** Indoor Section																			
1050	72 (22.2)	39.85	18.85	2.42	38.03	18.23	2.68	36.08	17.58	2.98	33.99	16.89	3.30	31.72	16.14	3.65	29.20	15.33	4.03
	67(19.4)	36.33	23.19	2.42	34.67	22.57	2.68	32.91	21.91	2.98	31.02	21.23	3.30	28.99	20.49	3.65	26.73	19.69	4.04
	62 (16.7)	33.23	27.51	2.42	31.75	26.88	2.68	30.20	26.20	2.98	28.60	28.45	3.30	27.06	27.06	3.65	25.34	25.34	4.03
	57 (13.9)	32.46	32.46	2.42	31.26	31.26	2.68	29.98	29.98	2.98	28.59	28.59	3.30	27.06	27.06	3.65	25.34	25.34	4.03
1200	72(22.2)	40.51	19.77	2.48	38.61	19.14	2.74	36.57	18.47	3.04	34.40	17.77	3.36	32.04	17.01	3.71	29.42	16.18	4.09
	67(19.4)	36.97	24.67	2.48	35.23	24.04	2.74	33.40	23.38	3.04	31.45	22.68	3.36	29.33	21.93	3.71	27.00	21.10	4.09
	62 (16.7)	34.01	29.52	2.48	32.53	32.23	2.74	31.11	31.11	3.04	29.61	29.61	3.36	27.97	27.97	3.71	26.12	26.12	4.09
	57 (13.9)	33.78	33.78	2.48	32.49	32.49	2.74	31.11	31.11	3.04	29.62	29.62	3.36	27.97	27.97	3.71	26.12	26.12	4.09
1350	72 (22.2)	40.99	20.64	2.54	39.02	19.99	2.80	36.91	19.31	3.09	34.67	18.60	3.42	32.24	17.83	3.77	29.54	16.99	4.15
	67 (19.4)	37.43	26.09	2.54	35.65	25.45	2.80	33.76	24.78	3.10	31.75	24.06	3.42	29.58	23.29	3.77	27.20	22.42	4.15
	62 (16.7)	34.86	34.86	2.54	33.49	33.49	2.80	32.02	32.02	3.10	30.44	30.44	3.42	28.70	28.70	3.77	26.73	26.73	4.15
	57(13.9)	34.86	34.86	2.54	33.49	33.49	2.80	32.03	32.03	3.10	30.44	30.44	3.42	28.70	28.70	3.77	26.73	26.73	4.15

See notes on pg. 13

DETAILED COOLING CAPACITIES* (CONT.)

EVAPORATOR AIR		CONDENSER ENTERING AIR TEMPERATURES °F (°C)																	
		75 (23.9)			85 (29.4)			95 (35)			105 (40.6)			115 (46.1)			125 (51.7)		
CFM	EWB °F (°C)	Capacity MBtuh†		Total System KW**	Capacity MBtuh†		Total System KW**	Capacity MBtuh†		Total System KW**	Capacity MBtuh†		Total System KW**	Capacity MBtuh†		Total System KW**	Capacity MBtuh†		Total System KW**
		Total	Sens‡		Total	Sens‡		Total	Sens‡		Total	Sens‡		Total	Sens‡		Total	Sens‡	
38HDR048 Outdoor Section With CNPV*4821A** Indoor Section																			
1460	72 (22.2)	57.22	27.09	3.31	54.16	26.03	3.74	50.83	24.90	4.20	47.23	23.69	4.69	43.24	22.38	5.21	38.87	20.99	5.76
	67(19.4)	52.21	33.21	3.33	49.49	32.17	3.76	46.57	31.08	4.22	43.40	29.91	4.71	39.95	28.66	5.23	36.03	27.26	5.77
	62 (16.7)	47.74	39.31	3.35	45.37	38.29	3.78	42.88	37.19	4.23	40.25	39.91	4.72	37.64	37.64	5.23	34.63	34.63	5.78
	57 (13.9)	46.44	46.44	3.36	44.53	44.53	3.78	42.48	42.48	4.23	40.21	40.21	4.72	37.65	37.65	5.23	34.63	34.63	5.78
1650	72(22.2)	58.13	28.26	3.37	54.91	27.17	3.81	51.42	26.01	4.27	47.67	24.78	4.76	43.52	23.45	5.28	39.26	22.10	5.84
	67(19.4)	53.07	35.09	3.40	50.21	34.03	3.83	47.16	32.91	4.29	43.87	31.73	4.78	40.28	30.44	5.30	36.23	28.99	5.85
	62 (16.7)	48.75	41.89	3.42	46.32	40.79	3.85	43.85	43.85	4.30	41.42	41.42	4.79	38.64	38.64	5.31	35.37	35.37	5.85
	57 (13.9)	48.17	48.17	3.43	46.11	46.11	3.85	43.88	43.88	4.30	41.42	41.42	4.79	38.64	38.64	5.31	35.37	35.37	5.85
1850	72 (22.2)	58.83	29.41	3.45	55.48	28.31	3.88	51.86	27.12	4.35	47.97	25.87	4.84	43.73	24.52	5.36	39.89	23.26	5.92
	67 (19.4)	53.74	36.97	3.48	50.78	35.90	3.91	47.62	34.76	4.37	44.22	33.55	4.86	40.51	32.22	5.38	36.39	30.70	5.93
	62 (16.7)	49.74	44.35	3.50	47.48	47.48	3.92	45.09	45.09	4.38	42.44	42.44	4.87	39.46	39.46	5.38	35.96	35.96	5.93
	57(13.9)	49.69	49.69	3.50	47.49	47.49	3.92	45.09	45.09	4.38	42.45	42.45	4.87	39.46	39.46	5.38	35.97	35.97	5.93

EVAPORATOR AIR		CONDENSER ENTERING AIR TEMPERATURES °F (°C)																	
		75 (23.9)			85 (29.4)			95 (35)			105 (40.6)			115 (46.1)			125 (51.7)		
CFM	EWB °F (°C)	Capacity MBtuh†		Total System KW**	Capacity MBtuh†		Total System KW**	Capacity MBtuh†		Total System KW**	Capacity MBtuh†		Total System KW**	Capacity MBtuh†		Total System KW**	Capacity MBtuh†		Total System KW**
		Total	Sens‡		Total	Sens‡		Total	Sens‡		Total	Sens‡		Total	Sens‡		Total	Sens‡	
38HDR060 Outdoor Section With CNPV*6024A** Indoor Section																			
1750	72 (22.2)	68.88	33.36	4.20	65.13	32.05	4.64	60.97	30.62	5.12	56.47	29.10	5.64	51.66	27.52	6.20	46.31	25.80	6.80
	67(19.4)	63.28	41.18	4.15	59.98	39.91	4.59	56.34	38.52	5.08	52.38	37.05	5.60	48.00	35.44	6.17	43.23	33.69	6.77
	62 (16.7)	58.24	48.95	4.11	55.37	47.69	4.55	52.27	46.30	5.04	48.91	48.85	5.57	45.63	45.63	6.15	41.69	41.69	6.76
	57 (13.9)	56.77	56.77	4.09	54.45	54.45	4.54	51.86	51.86	5.03	48.95	48.95	5.57	45.63	45.63	6.15	41.69	41.69	6.76
2000	72(22.2)	69.89	34.93	4.31	65.94	33.59	4.75	61.58	32.12	5.23	56.96	30.59	5.74	52.01	29.02	6.31	47.30	27.45	6.92
	67(19.4)	64.28	43.75	4.26	60.81	42.45	4.70	57.00	41.04	5.18	52.88	39.53	5.71	48.32	37.86	6.27	43.82	36.17	6.88
	62 (16.7)	59.48	52.47	4.22	56.55	51.08	4.66	53.58	53.58	5.15	50.40	50.40	5.68	46.78	46.78	6.26	42.62	42.62	6.87
	57 (13.9)	58.96	58.96	4.21	56.42	56.42	4.66	53.58	53.58	5.15	50.40	50.40	5.68	46.78	46.78	6.26	42.60	42.60	6.87
2250	72 (22.2)	70.60	36.41	4.42	66.50	35.04	4.86	61.97	33.55	5.33	57.25	32.02	5.85	52.14	30.44	6.41	48.41	29.01	7.04
	67 (19.4)	65.01	46.21	4.37	61.41	44.89	4.81	57.46	43.44	5.29	53.20	41.88	5.81	48.56	40.17	6.37	44.28	38.42	6.99
	62 (16.7)	60.67	60.67	4.33	58.00	58.00	4.78	54.94	54.94	5.26	51.52	51.52	5.79	47.63	47.63	6.36	43.18	43.18	6.98
	57(13.9)	60.73	60.73	4.33	58.00	58.00	4.78	54.94	54.94	5.26	51.52	51.52	5.79	47.63	47.63	6.36	43.14	43.14	6.98

NOTE: When the required data fall between the published data, interpolation may be performed. Extrapolation is not an acceptable practice.

* Detailed cooling capacities are based on indoor and outdoor unit at the same elevation per the latest edition of AHRI standard 210/240. If additional tubing length and/or indoor unit is located above outdoor unit, a slight variation in capacity may occur.

† Total and sensible capacities are net capacities. Blower motor heat has been subtracted.

‡ Sensible capacities shown are based on 80° F (27° C) entering air at the indoor coil. For sensible capacities at other than 80° F (27° C), deduct 835 Btuh (245 kW) per 1000 CFM (480 L/S) of indoor coil air for each degree below 80° F (27° C), or add 835 Btuh (245 kW) per 1000 CFM (480 L/S) of indoor coil air per degree above 80° F (27° C). When the required data fall between the published data, interpolation may be performed.

** Total system kW is total of indoor and outdoor unit kilowatts.

CONDENSER ONLY RATINGS*

SST °F (°C)		CONDENSER ENTERING AIR TEMPERATURES °F (°C)							
		55 (12.8)	65 (18.3)	75 (23.9)	85 (29.4)	95 (35)	105 (40.6)	115 (46.1)	125 (51.7)
38HDR018–31									
30 (–1.6)	TCG	16.20	15.30	14.30	13.40	12.40	11.40	10.30	9.20
	SDT	67.40	77.00	86.50	96.00	105.50	114.90	124.40	133.70
	KW	0.86	0.98	1.11	1.26	1.42	1.59	1.77	1.96
35 (1.7)	TCG	17.90	16.90	15.90	14.80	13.80	12.70	11.60	10.40
	SDT	68.50	78.00	87.50	97.00	106.40	115.80	125.20	134.50
	KW	0.86	0.98	1.11	1.26	1.42	1.59	1.78	1.98
40 (4.4)	TCG	19.70	18.60	17.50	16.40	15.20	14.10	12.90	11.60
	SDT	69.70	79.10	88.60	98.00	107.40	116.80	126.10	135.30
	KW	0.85	0.97	1.11	1.26	1.42	1.60	1.79	1.99
45 (7.2)	TCG	21.60	20.40	19.20	18.00	16.80	15.50	14.20	12.80
	SDT	70.90	80.30	89.70	99.00	108.40	117.70	127.00	136.10
	KW	0.85	0.97	1.11	1.26	1.42	1.60	1.79	2.00
50 (10)	TCG	23.60	22.30	21.10	19.70	18.40	17.00	15.60	14.10
	SDT	72.20	81.50	90.80	100.10	109.40	118.60	127.80	136.90
	KW	0.85	0.97	1.11	1.26	1.42	1.60	1.79	2.00
55 (12.8)	TCG	25.70	24.30	22.90	21.50	20.00	18.60	17.00	15.40
	SDT	73.50	82.70	92.00	101.20	110.40	119.60	128.70	137.70
	KW	0.85	0.97	1.10	1.25	1.42	1.60	1.79	2.00
38HDR024–32									
30 (–1.6)	TCG	22.10	20.90	19.60	18.30	16.90	15.50	14.00	12.40
	SDT	69.00	78.50	88.00	97.40	106.80	116.10	125.30	134.50
	KW	1.08	1.24	1.41	1.60	1.80	2.02	2.25	2.48
35 (1.7)	TCG	24.30	23.00	21.70	20.30	18.80	17.20	15.60	13.80
	SDT	70.30	79.80	89.20	98.60	107.90	117.10	126.30	135.40
	KW	1.09	1.24	1.42	1.61	1.82	2.04	2.28	2.52
40 (4.4)	TCG	26.80	25.30	23.90	22.30	20.70	19.00	17.20	15.30
	SDT	71.70	81.10	90.50	99.80	109.10	118.20	127.30	136.30
	KW	1.10	1.26	1.43	1.62	1.83	2.06	2.30	2.55
45 (7.2)	TCG	29.40	27.80	26.20	24.50	22.70	20.90	18.90	16.70
	SDT	73.20	82.60	91.90	101.10	110.20	119.30	128.30	137.10
	KW	1.11	1.27	1.44	1.64	1.85	2.08	2.32	2.57
50 (10)	TCG	32.10	30.40	28.60	26.80	24.80	22.70	20.50	18.10
	SDT	74.80	84.10	93.30	102.40	111.50	120.40	129.20	137.90
	KW	1.12	1.28	1.46	1.65	1.86	2.09	2.33	2.59
55 (12.8)	TCG	35.00	33.10	31.20	29.10	26.90	24.60	22.20	19.50
	SDT	76.40	85.60	94.70	103.80	112.70	121.50	130.20	138.60
	KW	1.13	1.29	1.47	1.66	1.88	2.10	2.35	2.60
38HDR030–31									
30 (–1.6)	TCG	26.20	24.70	23.20	21.70	20.10	18.40	16.80	15.30
	SDT	72.00	82.30	92.90	103.80	115.00	126.90	139.00	148.90
	KW	1.30	1.48	1.69	1.92	2.19	2.50	2.84	3.12
35 (1.7)	TCG	28.80	27.30	25.70	24.10	22.40	20.60	18.90	17.40
	SDT	73.10	83.50	94.00	104.80	116.10	127.70	139.50	149.30
	KW	1.30	1.49	1.69	1.93	2.21	2.52	2.86	3.15
40 (4.4)	TCG	31.70	30.10	28.40	26.60	24.80	23.00	21.20	19.60
	SDT	74.30	84.70	95.20	105.90	117.10	128.60	140.00	149.70
	KW	1.31	1.49	1.70	1.94	2.22	2.53	2.87	3.18
45 (7.2)	TCG	34.80	33.10	31.20	29.40	27.40	25.50	23.60	21.90
	SDT	75.60	85.90	96.40	107.10	118.10	129.40	140.60	150.10
	KW	1.31	1.50	1.71	1.95	2.22	2.54	2.88	3.19
50 (10)	TCG	38.20	36.20	34.30	32.30	30.30	28.20	26.20	24.40
	SDT	76.90	87.20	97.60	108.20	119.20	130.30	141.10	150.50
	KW	1.32	1.50	1.71	1.95	2.23	2.55	2.89	3.20
55 (12.8)	TCG	41.70	39.70	37.60	35.50	33.30	31.10	29.00	27.10
	SDT	78.30	88.50	98.90	109.40	120.20	131.20	141.80	150.90
	KW	1.32	1.51	1.72	1.96	2.24	2.55	2.89	3.20
38HDR036–31									
30 (–1.6)	TCG	30.10	28.50	26.80	25.10	23.30	21.50	19.60	17.60
	SDT	70.90	80.80	90.90	101.00	111.20	121.60	132.30	143.30
	KW	1.50	1.71	1.94	2.20	2.50	2.83	3.19	3.58
35 (1.7)	TCG	33.20	31.50	29.70	27.80	25.90	24.00	21.90	19.90
	SDT	72.00	82.00	92.00	102.10	112.30	122.80	133.30	143.80
	KW	1.50	1.71	1.95	2.21	2.52	2.85	3.21	3.60
40 (4.4)	TCG	36.50	34.60	32.70	30.70	28.70	26.60	24.40	22.30
	SDT	73.30	83.20	93.20	103.20	113.40	123.60	134.10	144.50
	KW	1.51	1.72	1.95	2.22	2.52	2.85	3.23	3.63
45 (7.2)	TCG	40.10	38.10	36.00	33.80	31.70	29.40	27.10	24.80
	SDT	74.60	84.40	94.40	104.50	113.80	124.50	135.20	145.30
	KW	1.51	1.72	1.96	2.23	2.51	2.86	3.26	3.65
50 (10)	TCG	43.90	41.70	39.50	37.10	34.90	32.40	30.00	27.60
	SDT	75.90	85.80	95.70	105.90	115.50	125.90	136.20	146.00
	KW	1.52	1.73	1.97	2.24	2.54	2.89	3.27	3.66
55 (12.8)	TCG	48.00	45.70	43.30	40.70	38.30	35.70	33.10	30.50
	SDT	77.40	87.10	97.00	107.10	116.70	126.80	137.00	146.70
	KW	1.53	1.74	1.98	2.25	2.55	2.89	3.28	3.66

See notes on page 15

CONDENSER ONLY RATINGS* CONTINUED

SST °F (°C)		CONDENSER ENTERING AIR TEMPERATURES °F (°C)							
		55 (12.8)	65 (18.3)	75 (23.9)	85 (29.4)	95 (35)	105 (40.6)	115 (46.1)	125 (51.7)
38HDR048–32									
30 (–1.6)	TCG	48.40	45.50	42.50	39.50	36.20	32.90	30.60	28.10
	SDT	67.90	77.30	86.70	96.00	105.40	114.70	124.30	133.80
	KW	2.05	2.39	2.75	3.15	3.56	4.01	4.49	5.00
35 (1.7)	TCG	53.40	50.20	46.90	43.40	39.60	35.70	34.00	25.50
	SDT	69.10	78.40	87.80	97.00	106.20	115.40	125.10	133.00
	KW	2.02	2.37	2.74	3.14	3.56	4.01	4.51	4.99
40 (4.4)	TCG	58.70	55.10	51.40	47.50	43.10	38.30	33.00	27.10
	SDT	70.40	79.60	88.90	98.00	107.10	116.10	124.80	133.40
	KW	1.99	2.35	2.72	3.13	3.55	4.01	4.49	4.99
45 (7.2)	TCG	64.30	60.30	56.20	51.60	46.90	41.20	35.20	28.90
	SDT	71.80	80.90	90.00	99.10	108.10	116.80	125.40	133.80
	KW	1.96	2.32	2.70	3.11	3.54	4.00	4.48	4.99
50 (10)	TCG	70.30	65.80	61.10	55.80	50.40	44.20	37.30	34.60
	SDT	73.30	82.30	91.20	100.10	108.90	117.50	125.90	135.30
	KW	1.92	2.29	2.68	3.09	3.52	3.98	4.46	5.01
55 (12.8)	TCG	76.50	71.40	66.00	60.30	54.00	47.00	50.70	41.10
	SDT	74.80	83.60	92.50	101.20	109.80	118.20	129.40	137.00
	KW	1.88	2.25	2.64	3.06	3.49	3.95	4.57	5.05
38HDR060–32									
30 (–1.6)	TCG	59.30	55.30	50.90	46.20	40.40	37.90	33.80	30.30
	SDT	70.10	79.30	88.40	97.40	106.20	115.80	124.90	134.20
	KW	2.59	2.93	3.31	3.73	4.19	4.72	5.31	5.90
35 (1.7)	TCG	64.70	60.20	55.50	50.00	43.30	42.40	31.50	33.10
	SDT	71.40	80.50	89.50	98.40	106.90	116.90	124.20	134.90
	KW	2.62	2.97	3.34	3.76	4.21	4.76	5.25	5.93
40 (4.4)	TCG	69.90	65.30	60.10	53.80	55.90	47.40	31.70	35.60
	SDT	72.70	81.70	90.60	99.30	110.10	118.10	124.20	135.50
	KW	2.66	3.00	3.38	3.78	4.34	4.81	5.24	5.96
45 (7.2)	TCG	76.00	70.80	64.80	57.40	56.00	54.60	48.50	47.70
	SDT	74.10	83.00	91.80	100.20	110.00	119.90	128.60	138.80
	KW	2.71	3.04	3.40	3.80	4.32	4.89	5.43	6.08
50 (10)	TCG	82.20	76.70	69.30	70.90	61.80	58.60	30.50	52.10
	SDT	75.60	84.40	92.80	103.40	111.40	120.90	123.80	139.80
	KW	2.75	3.09	3.42	3.99	4.38	4.93	5.16	6.13
55 (12.8)	TCG	95.20	87.70	88.40	74.60	75.40	53.90	46.10	60.30
	SDT	78.80	87.10	97.50	104.30	114.70	119.50	127.70	141.70
	KW	2.85	3.13	3.74	3.95	4.56	4.78	5.33	6.25

* AHRI listing applies only to systems shown in Combination Ratings table.

KW – Outdoor Unit Kilowatts Only.

SDT – Saturated Temperature Leaving Compressor (°F)

SST – Saturated Temperature Entering Compressor (°F/°C)

TCG – Gross Cooling Capacity (1000 Btuh)

GUIDE SPECIFICATIONS
GENERAL

System Description

Outdoor-mounted, air-cooled, split-system air conditioner unit suitable for ground or rooftop installation. Unit consists of a hermetic compressor, an air-cooled coil, propeller-type condenser fan, and a control box. Unit will discharge supply air horizontally as shown on contract drawings. Unit will be used in a refrigeration circuit to match up to a packaged fan coil or coil unit.

Quality Assurance

- — Unit will be rated in accordance with the latest edition of AHRI Standard 210.
- — Unit will be certified for capacity and efficiency, and listed in the latest AHRI directory.
- — Unit construction will comply with latest edition of ANSI/ ASHRAE and with NEC.
- — Unit will be constructed in accordance with UL standards and will carry the UL label of approval. Unit will have c-UL approval.
- — Unit cabinet will be capable of withstanding Federal Test
  Method Standard No. 141 (Method 6061) 500-hr salt spray test.
- — Air-cooled condenser coils will be leak tested and pressure tested
- — Unit constructed in ISO9001 approved facility.

Delivery, Storage, and Handling

- — Unit will be shipped as single package only and is stored and handled per unit manufacturer's recommendations.

Warranty (for inclusion by specifying engineer)

- — U.S. and Canada only.

PRODUCTS

Equipment

- — Factory assembled, single piece, air-cooled air conditioner unit. Contained within the unit enclosure is all factory wiring, piping, controls, compressor, refrigerant charge Puron® (R-410A), and special features required prior to field start-up.

Unit Cabinet

- — Unit cabinet will be constructed of galvanized steel, bonderized, and coated with a powder coat paint.

Fans

- — Condenser fan will be direct-drive propeller type, discharging air horizontally.
- — Condenser fan motors will be totally enclosed, 1-phase type with class B insulation and permanently lubricated bearings. Shafts will be corrosion resistant.
- — Fan blades will be statically and dynamically balanced.
- — Condenser fan openings will be equipped with coated steel wire safety guards.

Compressor

- — Compressor will be hermetically sealed.
- — Compressor will be mounted on rubber vibration isolators.

Condenser Coil

- — Condenser coil will be air cooled.
- — Coil will be constructed of aluminum fins mechanically bonded to copper tubes which are then cleaned, dehydrated, and sealed.

Refrigeration Components

- — Refrigeration circuit components will include liquid-line front-seating shutoff valve with sweat connections, vapor-line front-seating shutoff valve with sweat connections, system charge of Puron® (R-410A) refrigerant, and compressor oil.
- — Unit will be equipped with high-pressure switch, low pressure switch and filter drier for Puron refrigerant.

Operating Characteristics

- — The capacity of the unit will meet or exceed _____ Btuh at a suction temperature of _____ °F/°C. The power consumption at full load will not exceed _____ kW.
- — Combination of the unit and the evaporator or fan coil unit will have a total net cooling capacity of _____ Btuh or greater at conditions of _____ CFM entering air temperature at the evaporator at _____ °F/°C wet bulb and _____ °F/°C dry bulb, and air entering the unit at _____ °F/°C.
- — The system will have a SEER of _____ Btuh/watt or greater at DOE conditions.

Electrical Requirements

- — Nominal unit electrical characteristics will be _____ v, single phase, 60 hz. The unit will be capable of satisfactory operation within voltage limits of _____ v to _____ v.
- — Nominal unit electrical characteristics will be _____ v, three phase, 60 hz. The unit will be capable of satisfactory operation within voltage limits of _____ v to _____ v.
- — Unit electrical power will be single point connection.
- — Control circuit will be 24v.

Special Features

- — Refer to section of this literature identifying accessories and descriptions for specific features and available enhancements.

SYSTEM DESIGN SUMMARY

1. Intended for outdoor installation with free air inlet and outlet. Outdoor fan external static pressure available is less than 0.01-in. wc.
2. Minimum outdoor operating air temperature without low-ambient operation accessory is 55°F (12.8°C).
3. Maximum outdoor operating air temperature is 125°F (51.7°C).
4. For reliable operation, unit should be level in all horizontal planes.
5. For interconnecting refrigerant tube lengths greater than 80 ft (23.4 m) and/or 35 ft (10.7 m) vertical differential, consult Residential Piping and Longline Guideline and Service Manual available from equipment distributor.
6. If any refrigerant tubing is buried, provide a 6 in. (152.4 mm) vertical rise to the valve connections at the unit. Refrigerant tubing lengths up to 36 in. (914.4 mm) may be buried without further consideration. Do not bury refrigerant lines longer than 36 in. (914.4 mm).
7. Use only copper wire for electric connection at unit. Aluminum and clad aluminum are not acceptable for the type of connector provided.
8. Do not apply capillary tube indoor coils to these units.
9. Factory-supplied filter drier must be installed.

Edition Date: 09/12

Catalog No: 38HDR–6PD

Replaces: 38HDR–3PD

Fan Performance

Table 6. Standard motor & low static drive accessory sheave/fan speed (rpm)

Tons	Unit Model Number	Fan Sheave	6 Turns Open	5 Turns Open	4 Turns Open	3 Turns Open	2 Turns Open	1 Turn Open	Closed
5	WSC060ED	AK44x3/4"	N/A	720	791	861	931	1002	1072
6	WSC072ED	AK56x1"	N/A	558	612	665	718	772	825
7½	WSC090ED	AK57x1"	N/A	688	737	787	837	887	N/A
10	WSC120ED	AK105X1"	N/A	724	776	828	880	932	984

Note: Factory set at 3 turns open.

Table 7. Standard motor & high static drive accessory sheave/fan speed (rpm)

Tons	Unit Model Number	Fan Sheave	6 Turns Open	5 Turns Open	4 Turns Open	3 Turns Open	2 Turns Open	1 Turn Open	Closed
6	WSC072ED	AK56x1"	N/A	968	1018	1068	1118	1169	1219
7½	WSC090ED	AK57x1"	1053	1091	1129	1166	1204	1242	N/A
10	WSC120ED	AK105X1"	1110	1159	1209	1258	1308	1357	N/A

Note: Factory set at 3 turns open.

Table 8. Oversized motor & high static drive accessory sheave/fan speed (rpm)

Tons	Unit Model Number	Fan Sheave	6 Turns Open	5 Turns Open	4 Turns Open	3 Turns Open	2 Turns Open	1 Turn Open	Closed
7½	WSC090ED	AK85x1"	1186	1249	1311	1373	1436	N/A	N/A

Note: Factory set at 3 turns open.

Table 9. Outdoor sound power level—dB (ref. 10—2 W)

Tons	Unit Model Number	Octave Center Frequency								Overall dBA
		63	125	250	500	1000	2000	4000	8000	
5	T/YSC060ED	84	91	79	77	74	71	68	63	80
6	T/YSC072ED	83	90	86	82	79	75	70	63	85
7½	T/YSC090ED	83	90	86	83	80	75	71	64	85
8.5	T/YSC102ED	83	89	84	81	77	72	69	62	83
10	T/YSC120ED	83	86	80	77	73	69	66	60	79

Note: Tests follow ARI270-95.

Table 10. Outdoor sound power level—dB (ref. 10—12 W)

Tons	Unit Model Number	Octave Center Frequency								Overall dBA
		63	125	250	500	1000	2000	4000	8000	
5	WSC060ED	84	91	79	77	74	71	68	63	80
6	WSC072ED	83	90	86	82	79	75	70	63	85
7½	WSC090ED	83	90	86	83	80	75	71	64	85
10	WSC120ED	83	86	80	77	73	69	66	60	79

Note: Tests follow ARI270-95.

ATTACHMENT 3

SoundPLAN Data – Construction Noise

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SoundPLAN Data - Construction

Source name	Reference	Level Leq1 dB(A)	Corrections Cwall dB(A)	CI dB(A)	CT dB(A)
Construction	Lw/unit	114	-	-	-

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SoundPLAN Data - Construction

No.	Coordinates X	Y	Floor	Height	Limit Leq1	Level w/o NP Leq1	Level w NP Leq1	Difference Leq1	Conflict Leq1
	in meter			m	dB(A)	dB(A)	dB(A)	dB	dB
1	488877.05	3605287.69	1.Fl	1.5	-	73.4	0	-73.4	-
2	488873.05	3605315.81	1.Fl	1.5	-	74.9	0	-74.9	-
3	488875.12	3605331.50	1.Fl	1.5	-	74.0	0	-74.0	-
4	488875.12	3605346.30	1.Fl	1.5	-	73.2	0	-73.2	-
5	488872.46	3605358.58	1.Fl	1.5	-	72.6	0	-72.6	-
6	488870.68	3605370.87	1.Fl	1.5	-	71.0	0	-71.0	-
7	488850.70	3605363.17	1.Fl	1.5	-	74.5	0	-74.5	-
8	488829.84	3605363.62	1.Fl	1.5	-	75.0	0	-75.0	-
9	488807.49	3605363.47	1.Fl	1.5	-	74.9	0	-74.9	-
10	488780.85	3605363.47	1.Fl	1.5	-	73.5	0	-73.5	-
11	488733.49	3605330.02	1.Fl	1.5	-	65.5	0	-65.5	-
12	488773.15	3605291.54	1.Fl	1.5	-	67.8	0	-67.8	-
13	488795.20	3605274.37	1.Fl	1.5	-	67.8	0	-67.8	-
14	488822.14	3605256.91	1.Fl	1.5	-	67.3	0	-67.3	-
15	488849.37	3605244.77	1.Fl	1.5	-	66.4	0	-66.4	-

ATTACHMENT 4

SoundPLAN Data – Vehicle Traffic Noise

Stationing km	ADT Veh/24h	Traffic values Vehicles type	Vehicle name	day Veh/h	Speed km/h	Control device	Constr. Speed km/h	Affect. veh. %	Road surface	Gradient Min / Max %
SR-75 Northwest-bound		Traffic direction:	In entry direction							
0+000	101664	Total	-	4236	-	none	-	-	Average (of DGAC and PCC)	0
0+000	101664	Automobiles	-	4034	64	none	-	-	Average (of DGAC and PCC)	0
0+000	101664	Medium trucks	-	76	64	none	-	-	Average (of DGAC and PCC)	0
0+000	101664	Heavy trucks	-	42	64	none	-	-	Average (of DGAC and PCC)	0
0+000	101664	Buses	-	42	64	none	-	-	Average (of DGAC and PCC)	0
0+000	101664	Motorcycles	-	42	64	none	-	-	Average (of DGAC and PCC)	0
0+000	101664	Auxiliary Vehicle	-	-	-	none	-	-	Average (of DGAC and PCC)	0
0+206	83112	Total	-	3463	-	none	-	-	Average (of DGAC and PCC)	0
0+206	83112	Automobiles	-	3296	64	none	-	-	Average (of DGAC and PCC)	0
0+206	83112	Medium trucks	-	62	64	none	-	-	Average (of DGAC and PCC)	0
0+206	83112	Heavy trucks	-	35	64	none	-	-	Average (of DGAC and PCC)	0
0+206	83112	Buses	-	35	64	none	-	-	Average (of DGAC and PCC)	0
0+206	83112	Motorcycles	-	35	64	none	-	-	Average (of DGAC and PCC)	0
0+206	83112	Auxiliary Vehicle	-	-	-	none	-	-	Average (of DGAC and PCC)	0
0+359	63912	Total	-	2701	-	none	-	-	Average (of DGAC and PCC)	0
0+359	63912	Automobiles	-	2571	64	none	-	-	Average (of DGAC and PCC)	0
0+359	63912	Medium trucks	-	49	64	none	-	-	Average (of DGAC and PCC)	0
0+359	63912	Heavy trucks	-	27	64	none	-	-	Average (of DGAC and PCC)	0
0+359	63912	Buses	-	27	64	none	-	-	Average (of DGAC and PCC)	0
0+359	63912	Motorcycles	-	27	64	none	-	-	Average (of DGAC and PCC)	0
0+359	63912	Auxiliary Vehicle	-	-	-	none	-	-	Average (of DGAC and PCC)	0
0+639	76632	Total	-	3193	-	none	-	-	Average (of DGAC and PCC)	0
0+639	76632	Automobiles	-	3040	64	none	-	-	Average (of DGAC and PCC)	0
0+639	76632	Medium trucks	-	57	64	none	-	-	Average (of DGAC and PCC)	0
0+639	76632	Heavy trucks	-	32	64	none	-	-	Average (of DGAC and PCC)	0
0+639	76632	Buses	-	32	64	none	-	-	Average (of DGAC and PCC)	0
0+639	76632	Motorcycles	-	32	64	none	-	-	Average (of DGAC and PCC)	0
0+639	76632	Auxiliary Vehicle	-	-	-	none	-	-	Average (of DGAC and PCC)	0
1+003	-					-	-	-	-	-
SR-75 Southeast-bound		Traffic direction:	In entry direction							
0+000	76632	Total	-	3193	-	none	-	-	Average (of DGAC and PCC)	0
0+000	76632	Automobiles	-	3040	64	none	-	-	Average (of DGAC and PCC)	0
0+000	76632	Medium trucks	-	57	64	none	-	-	Average (of DGAC and PCC)	0
0+000	76632	Heavy trucks	-	32	64	none	-	-	Average (of DGAC and PCC)	0
0+000	76632	Buses	-	32	64	none	-	-	Average (of DGAC and PCC)	0
0+000	76632	Motorcycles	-	32	64	none	-	-	Average (of DGAC and PCC)	0
0+000	76632	Auxiliary Vehicle	-	-	-	none	-	-	Average (of DGAC and PCC)	0
0+380	63912	Total	-	2701	-	none	-	-	Average (of DGAC and PCC)	0
0+380	63912	Automobiles	-	2571	64	none	-	-	Average (of DGAC and PCC)	0
0+380	63912	Medium trucks	-	49	64	none	-	-	Average (of DGAC and PCC)	0
0+380	63912	Heavy trucks	-	27	64	none	-	-	Average (of DGAC and PCC)	0
0+380	63912	Buses	-	27	64	none	-	-	Average (of DGAC and PCC)	0
0+380	63912	Motorcycles	-	27	64	none	-	-	Average (of DGAC and PCC)	0
0+380	63912	Auxiliary Vehicle	-	-	-	none	-	-	Average (of DGAC and PCC)	0
0+653	83112	Total	-	3463	-	none	-	-	Average (of DGAC and PCC)	0
0+653	83112	Automobiles	-	3296	64	none	-	-	Average (of DGAC and PCC)	0
0+653	83112	Medium trucks	-	62	64	none	-	-	Average (of DGAC and PCC)	0
0+653	83112	Heavy trucks	-	35	64	none	-	-	Average (of DGAC and PCC)	0
0+653	83112	Buses	-	35	64	none	-	-	Average (of DGAC and PCC)	0
0+653	83112	Motorcycles	-	35	64	none	-	-	Average (of DGAC and PCC)	0
0+653	83112	Auxiliary Vehicle	-	-	-	none	-	-	Average (of DGAC and PCC)	0
0+840	101664	Total	-	4236	-	none	-	-	Average (of DGAC and PCC)	0
0+840	101664	Automobiles	-	4034	64	none	-	-	Average (of DGAC and PCC)	0
0+840	101664	Medium trucks	-	76	64	none	-	-	Average (of DGAC and PCC)	0
0+840	101664	Heavy trucks	-	42	64	none	-	-	Average (of DGAC and PCC)	0
0+840	101664	Buses	-	42	64	none	-	-	Average (of DGAC and PCC)	0
0+840	101664	Motorcycles	-	42	64	none	-	-	Average (of DGAC and PCC)	0
0+840	101664	Auxiliary Vehicle	-	-	-	none	-	-	Average (of DGAC and PCC)	0
1+020	-					-	-	-	-	-

9010 Blue Wave
SoundPLAN Data - Vehicle Traffic

No.	Coordinates X	Y	Floor	Height	Limit L(Aeq1h)	Level w/o NP L(Aeq1h)	Level w. NP L(Aeq1h)	Difference L(Aeq1h)	Conflict L(Aeq1h)
	in meter			m	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
1	488810.98	3605319.27	1.Fl	2.23	-	70.2	70.2	0.0	-
1	488810.98	3605319.27	2.Fl	7.43	-	71.0	73.0	2.0	-
2	488824.16	3605310.23	1.Fl	2.23	-	70.1	70.1	0.0	-
2	488824.16	3605310.23	2.Fl	7.43	-	72.9	72.9	0.0	-
3	488839.16	3605307.97	1.Fl	2.23	-	66.5	66.5	0.0	-
3	488839.16	3605307.97	2.Fl	7.43	-	69.5	69.5	0.0	-
4	488853.63	3605309.86	1.Fl	2.23	-	65.6	65.6	0.0	-
4	488853.63	3605309.86	2.Fl	4.93	-	67.9	67.9	0.0	-
4	488853.63	3605309.86	3.Fl	7.63	-	68.0	67.9	-0.1	-
4	488853.63	3605309.86	4.Fl	10.33	-	67.3	67.2	-0.1	-
5	488852.77	3605326.29	1.Fl	2.23	-	62.0	61.9	-0.1	-
5	488852.77	3605326.29	2.Fl	4.93	-	64.0	63.9	-0.1	-
5	488852.77	3605326.29	3.Fl	7.63	-	64.4	64.1	-0.3	-
5	488852.77	3605326.29	4.Fl	10.33	-	64.3	64.0	-0.3	-
6	488850.81	3605342.03	1.Fl	2.23	-	60.1	59.6	-0.5	-
6	488850.81	3605342.03	2.Fl	4.93	-	61.6	61.1	-0.5	-
6	488850.81	3605342.03	3.Fl	7.63	-	62.6	62.0	-0.6	-
6	488850.81	3605342.03	4.Fl	10.33	-	62.6	62.1	-0.5	-
7	488823.58	3605342.24	1.Fl	2.23	-	60.5	57.6	-2.9	-
7	488823.58	3605342.24	2.Fl	4.93	-	61.6	59.4	-2.2	-
7	488823.58	3605342.24	3.Fl	7.63	-	62.7	61.4	-1.3	-
7	488823.58	3605342.24	4.Fl	10.33	-	64.5	63.7	-0.8	-
8	488794.40	3605342.18	1.Fl	2.23	-	67.8	60.8	-7.0	-
8	488794.40	3605342.18	2.Fl	4.93	-	69.2	66.6	-2.6	-
8	488794.40	3605342.18	3.Fl	7.63	-	69.7	69.7	0.0	-
8	488794.40	3605342.18	4.Fl	10.33	-	70.6	70.5	-0.1	-
9	488772.90	3605353.74	1.Fl	2.23	-	70.0	70.0	0.0	-
9	488772.90	3605353.74	2.Fl	4.93	-	72.3	72.3	0.0	-
9	488772.90	3605353.74	3.Fl	7.63	-	72.2	72.2	0.0	-
9	488772.90	3605353.74	4.Fl	10.33	-	71.2	71.2	0.0	-
10	488784.04	3605358.28	1.Fl	2.23	-	59.8	59.8	0.0	-
10	488784.04	3605358.28	2.Fl	4.93	-	63.5	63.5	0.0	-
10	488784.04	3605358.28	3.Fl	7.63	-	64.0	64.0	0.0	-
10	488784.04	3605358.28	4.Fl	10.33	-	63.8	63.8	0.0	-
11	488801.65	3605358.60	1.Fl	2.23	-	57.2	57.2	0.0	-
11	488801.65	3605358.60	2.Fl	4.93	-	61.4	61.4	0.0	-
11	488801.65	3605358.60	3.Fl	7.63	-	62.2	62.2	0.0	-
11	488801.65	3605358.60	4.Fl	10.33	-	61.8	61.8	0.0	-
12	488818.62	3605358.50	1.Fl	2.23	-	55.7	55.7	0.0	-
12	488818.62	3605358.50	2.Fl	4.93	-	59.9	59.9	0.0	-
12	488818.62	3605358.50	3.Fl	7.63	-	60.7	60.7	0.0	-
12	488818.62	3605358.50	4.Fl	10.33	-	60.3	60.3	0.0	-
13	488837.42	3605358.50	1.Fl	2.23	-	55.5	55.5	0.0	-
13	488837.42	3605358.50	2.Fl	4.93	-	58.6	58.6	0.0	-
13	488837.42	3605358.50	3.Fl	7.63	-	59.2	59.2	0.0	-
13	488837.42	3605358.50	4.Fl	10.33	-	58.8	58.8	0.0	-
14	488858.06	3605358.82	1.Fl	2.23	-	55.1	55.1	0.0	-
14	488858.06	3605358.82	2.Fl	4.93	-	57.4	57.4	0.0	-
14	488858.06	3605358.82	3.Fl	7.63	-	58.0	58.0	0.0	-
14	488858.06	3605358.82	4.Fl	10.33	-	57.5	57.5	0.0	-
15	488868.11	3605349.20	1.Fl	2.23	-	49.5	49.4	-0.1	-
15	488868.11	3605349.20	2.Fl	4.93	-	51.1	51.1	0.0	-
15	488868.11	3605349.20	3.Fl	7.63	-	51.4	51.6	0.2	-
15	488868.11	3605349.20	4.Fl	10.33	-	52.4	52.7	0.3	-
16	488867.90	3605332.88	1.Fl	2.23	-	48.5	48.4	-0.1	-
16	488867.90	3605332.88	2.Fl	4.93	-	50.0	50.0	0.0	-
16	488867.90	3605332.88	3.Fl	7.63	-	50.3	50.4	0.1	-
16	488867.90	3605332.88	4.Fl	10.33	-	50.8	51.7	0.9	-
17	488867.79	3605317.86	1.Fl	2.23	-	42.4	42.1	-0.3	-
17	488867.79	3605317.86	2.Fl	4.93	-	41.0	40.9	-0.1	-

Receivers

17	488867.79	3605317.86	3.Fl	7.63	-	44.1	43.4	-0.7	-
17	488867.79	3605317.86	4.Fl	10.33	-	47.1	47.1	0.0	-
18	488867.79	3605305.43	1.Fl	2.23	-	39.6	39.3	-0.3	-
18	488867.79	3605305.43	2.Fl	4.93	-	42.8	42.4	-0.4	-
18	488867.79	3605305.43	3.Fl	7.63	-	43.4	43.2	-0.2	-
18	488867.79	3605305.43	4.Fl	10.33	-	47.3	47.4	0.1	-
19	488881.98	3605306.46	1.Fl	2.23	-	39.4	39.3	-0.1	-
19	488881.98	3605306.46	2.Fl	4.93	-	40.5	39.4	-1.1	-
19	488881.98	3605306.46	3.Fl	7.63	-	43.3	42.5	-0.8	-
19	488881.98	3605306.46	4.Fl	10.33	-	46.3	46.0	-0.3	-
20	488899.35	3605306.48	1.Fl	2.23	-	40.0	40.0	0.0	-
20	488899.35	3605306.48	2.Fl	4.93	-	40.9	40.4	-0.5	-
20	488899.35	3605306.48	3.Fl	7.63	-	41.2	40.5	-0.7	-
20	488899.35	3605306.48	4.Fl	10.33	-	45.3	45.2	-0.1	-
21	488912.64	3605299.92	1.Fl	2.23	-	59.2	59.2	0.0	-
21	488912.64	3605299.92	2.Fl	4.93	-	61.5	61.5	0.0	-
21	488912.64	3605299.92	3.Fl	7.63	-	62.2	62.2	0.0	-
21	488912.64	3605299.92	4.Fl	10.33	-	62.2	62.2	0.0	-
22	488899.89	3605293.87	1.Fl	2.23	-	67.5	62.0	-5.5	-
22	488899.89	3605293.87	2.Fl	4.93	-	69.8	64.2	-5.6	-
22	488899.89	3605293.87	3.Fl	7.63	-	70.1	65.5	-4.6	-
22	488899.89	3605293.87	4.Fl	10.33	-	69.7	66.1	-3.6	-
23	488881.62	3605293.51	1.Fl	2.23	-	68.4	68.4	0.0	-
23	488881.62	3605293.51	2.Fl	4.93	-	70.7	70.7	0.0	-
23	488881.62	3605293.51	3.Fl	7.63	-	71.0	71.0	0.0	-
23	488881.62	3605293.51	4.Fl	10.33	-	70.5	70.5	0.0	-
24	488864.33	3605289.98	1.Fl	2.23	-	68.5	68.5	0.0	-
24	488864.33	3605289.98	2.Fl	4.93	-	71.2	71.2	0.0	-
24	488864.33	3605289.98	3.Fl	7.63	-	71.7	71.7	0.0	-
24	488864.33	3605289.98	4.Fl	10.33	-	71.3	71.3	0.0	-
25	488850.50	3605298.73	1.Fl	2.23	-	69.0	69.0	0.0	-
25	488850.50	3605298.73	2.Fl	4.93	-	71.3	71.3	0.0	-
25	488850.50	3605298.73	3.Fl	7.63	-	71.3	71.3	0.0	-
25	488850.50	3605298.73	4.Fl	10.33	-	70.6	70.6	0.0	-
26	488805.64	3605332.11	1.Fl	2.23	-	66.4	59.6	-6.8	-
27	488798.30	3605336.88	1.Fl	2.23	-	67.3	60.3	-7.0	-
28	488787.77	3605345.57	1.Fl	2.23	-	68.1	60.4	-7.6	-
29	488808.04	3605330.81	1.Fl	6.93	-	66.5	59.2	-7.3	-
30	488810.14	3605322.77	1.Fl	6.93	-	69.6	59.6	-10.0	-
31	488877.73	3605298.95	1.Fl	13.03	-	64.0	59.3	-4.7	-
32	488889.30	3605298.95	1.Fl	13.03	-	62.6	58.3	-4.3	-
33	488903.78	3605299.16	1.Fl	13.03	-	63.4	59.3	-4.1	-

Source name			Lane	Level w/o NP L(Aeq1h) dB(A)	Level w. NP L(Aeq1h) dB(A)
1	1.Fl	70.2	70.2		
SR-75 Northwest-bound				68.5	68.5
SR-75 Southeast-bound				65.1	65.1
1	2.Fl	71.0	73.0		
SR-75 Northwest-bound				69.4	71.4
SR-75 Southeast-bound				65.9	67.9
2	1.Fl	70.1	70.1		
SR-75 Northwest-bound				68.5	68.5
SR-75 Southeast-bound				65.0	65.0
2	2.Fl	72.9	72.9		
SR-75 Northwest-bound				71.3	71.3
SR-75 Southeast-bound				67.8	67.8
3	1.Fl	66.5	66.5		
SR-75 Northwest-bound				64.6	64.6
SR-75 Southeast-bound				62.1	62.1
3	2.Fl	69.5	69.5		
SR-75 Northwest-bound				67.6	67.6
SR-75 Southeast-bound				65.0	65.0
4	1.Fl	65.6	65.6		
SR-75 Northwest-bound				63.5	63.5
SR-75 Southeast-bound				61.5	61.5
4	2.Fl	67.9	67.9		
SR-75 Northwest-bound				65.8	65.8
SR-75 Southeast-bound				63.7	63.7
4	3.Fl	68.0	67.9		
SR-75 Northwest-bound				65.9	65.8
SR-75 Southeast-bound				63.8	63.7
4	4.Fl	67.3	67.2		
SR-75 Northwest-bound				65.0	64.9
SR-75 Southeast-bound				63.4	63.4
5	1.Fl	62.0	61.9		
SR-75 Northwest-bound				59.7	59.5
SR-75 Southeast-bound				58.2	58.1
5	2.Fl	64.0	63.9		
SR-75 Northwest-bound				61.7	61.5
SR-75 Southeast-bound				60.3	60.1
5	3.Fl	64.4	64.1		
SR-75 Northwest-bound				62.0	61.8
SR-75 Southeast-bound				60.6	60.3
5	4.Fl	64.3	64.0		
SR-75 Northwest-bound				61.8	61.6
SR-75 Southeast-bound				60.5	60.3
6	1.Fl	60.1	59.6		
SR-75 Northwest-bound				57.7	57.1
SR-75 Southeast-bound				56.4	55.9
6	2.Fl	61.6	61.1		
SR-75 Northwest-bound				59.2	58.6
SR-75 Southeast-bound				58.0	57.6
6	3.Fl	62.6	62.0		
SR-75 Northwest-bound				60.1	59.4
SR-75 Southeast-bound				59.0	58.5
6	4.Fl	62.6	62.1		

SR-75 Northwest-bound				60.1	59.5
SR-75 Southeast-bound				59.0	58.7
7	1.Fl	60.5	57.6		
SR-75 Northwest-bound				58.2	55.1
SR-75 Southeast-bound				56.6	54.1
7	2.Fl	61.6	59.4		
SR-75 Northwest-bound				59.3	56.9
SR-75 Southeast-bound				57.8	55.8
7	3.Fl	62.7	61.4		
SR-75 Northwest-bound				60.2	58.5
SR-75 Southeast-bound				59.1	58.3
7	4.Fl	64.5	63.7		
SR-75 Northwest-bound				61.9	61.1
SR-75 Southeast-bound				61.0	60.2
8	1.Fl	67.8	60.8		
SR-75 Northwest-bound				65.9	58.8
SR-75 Southeast-bound				63.3	56.5
8	2.Fl	69.2	66.6		
SR-75 Northwest-bound				67.5	64.2
SR-75 Southeast-bound				64.4	62.9
8	3.Fl	69.7	69.7		
SR-75 Northwest-bound				67.6	67.7
SR-75 Southeast-bound				65.5	65.5
8	4.Fl	70.6	70.5		
SR-75 Northwest-bound				68.7	68.6
SR-75 Southeast-bound				66.2	66.0
9	1.Fl	70.0	70.0		
SR-75 Northwest-bound				68.2	68.2
SR-75 Southeast-bound				65.2	65.2
9	2.Fl	72.3	72.3		
SR-75 Northwest-bound				70.7	70.7
SR-75 Southeast-bound				67.2	67.2
9	3.Fl	72.2	72.2		
SR-75 Northwest-bound				70.5	70.5
SR-75 Southeast-bound				67.4	67.4
9	4.Fl	71.2	71.2		
SR-75 Northwest-bound				69.5	69.5
SR-75 Southeast-bound				66.5	66.5
10	1.Fl	59.8	59.8		
SR-75 Northwest-bound				57.7	57.7
SR-75 Southeast-bound				55.6	55.6
10	2.Fl	63.5	63.5		
SR-75 Northwest-bound				61.4	61.4
SR-75 Southeast-bound				59.4	59.4
10	3.Fl	64.0	64.0		
SR-75 Northwest-bound				62.0	62.0
SR-75 Southeast-bound				59.7	59.7
10	4.Fl	63.8	63.8		
SR-75 Northwest-bound				61.8	61.8
SR-75 Southeast-bound				59.3	59.3
11	1.Fl	57.2	57.2		
SR-75 Northwest-bound				54.9	54.9
SR-75 Southeast-bound				53.4	53.4
11	2.Fl	61.4	61.4		
SR-75 Northwest-bound				59.1	59.1

SR-75 Southeast-bound				57.7	57.7
11	3.Fl	62.2	62.2		
SR-75 Northwest-bound				59.8	59.8
SR-75 Southeast-bound				58.4	58.4
11	4.Fl	61.8	61.8		
SR-75 Northwest-bound				59.6	59.6
SR-75 Southeast-bound				57.9	57.9
12	1.Fl	55.7	55.7		
SR-75 Northwest-bound				53.2	53.2
SR-75 Southeast-bound				52.0	52.0
12	2.Fl	59.9	59.9		
SR-75 Northwest-bound				57.5	57.5
SR-75 Southeast-bound				56.3	56.3
12	3.Fl	60.7	60.7		
SR-75 Northwest-bound				58.2	58.2
SR-75 Southeast-bound				57.1	57.1
12	4.Fl	60.3	60.3		
SR-75 Northwest-bound				57.8	57.8
SR-75 Southeast-bound				56.7	56.7
13	1.Fl	55.5	55.5		
SR-75 Northwest-bound				53.0	53.0
SR-75 Southeast-bound				51.9	51.9
13	2.Fl	58.6	58.6		
SR-75 Northwest-bound				56.0	56.0
SR-75 Southeast-bound				55.0	55.0
13	3.Fl	59.2	59.2		
SR-75 Northwest-bound				56.7	56.7
SR-75 Southeast-bound				55.7	55.7
13	4.Fl	58.8	58.8		
SR-75 Northwest-bound				56.2	56.2
SR-75 Southeast-bound				55.4	55.4
14	1.Fl	55.1	55.1		
SR-75 Northwest-bound				52.5	52.5
SR-75 Southeast-bound				51.6	51.6
14	2.Fl	57.4	57.4		
SR-75 Northwest-bound				54.8	54.8
SR-75 Southeast-bound				53.9	53.9
14	3.Fl	58.0	58.0		
SR-75 Northwest-bound				55.4	55.4
SR-75 Southeast-bound				54.5	54.5
14	4.Fl	57.5	57.5		
SR-75 Northwest-bound				54.8	54.8
SR-75 Southeast-bound				54.2	54.2
15	1.Fl	49.5	49.4		
SR-75 Northwest-bound				47.0	46.9
SR-75 Southeast-bound				45.9	45.9
15	2.Fl	51.1	51.1		
SR-75 Northwest-bound				48.6	48.6
SR-75 Southeast-bound				47.5	47.5
15	3.Fl	51.4	51.6		
SR-75 Northwest-bound				49.0	49.2
SR-75 Southeast-bound				47.6	47.8
15	4.Fl	52.4	52.7		
SR-75 Northwest-bound				49.9	50.2
SR-75 Southeast-bound				48.8	49.1

16	1.Fl	48.5	48.4		
SR-75 Northwest-bound				46.1	46.0
SR-75 Southeast-bound				44.7	44.6
16	2.Fl	50.0	50.0		
SR-75 Northwest-bound				47.7	47.7
SR-75 Southeast-bound				46.1	46.2
16	3.Fl	50.3	50.4		
SR-75 Northwest-bound				48.0	48.1
SR-75 Southeast-bound				46.4	46.6
16	4.Fl	50.8	51.7		
SR-75 Northwest-bound				48.4	49.1
SR-75 Southeast-bound				47.2	48.1
17	1.Fl	42.4	42.1		
SR-75 Northwest-bound				39.5	39.2
SR-75 Southeast-bound				39.3	38.9
17	2.Fl	41.0	40.9		
SR-75 Northwest-bound				38.0	38.2
SR-75 Southeast-bound				37.9	37.7
17	3.Fl	44.1	43.4		
SR-75 Northwest-bound				41.1	40.4
SR-75 Southeast-bound				41.0	40.3
17	4.Fl	47.1	47.1		
SR-75 Northwest-bound				44.2	44.2
SR-75 Southeast-bound				43.9	43.9
18	1.Fl	39.6	39.3		
SR-75 Northwest-bound				37.0	36.8
SR-75 Southeast-bound				36.0	35.7
18	2.Fl	42.8	42.4		
SR-75 Northwest-bound				39.8	39.4
SR-75 Southeast-bound				39.9	39.4
18	3.Fl	43.4	43.2		
SR-75 Northwest-bound				40.6	40.4
SR-75 Southeast-bound				40.3	39.9
18	4.Fl	47.3	47.4		
SR-75 Northwest-bound				44.4	44.6
SR-75 Southeast-bound				44.2	44.3
19	1.Fl	39.4	39.3		
SR-75 Northwest-bound				36.6	36.5
SR-75 Southeast-bound				36.3	36.0
19	2.Fl	40.5	39.4		
SR-75 Northwest-bound				37.5	36.5
SR-75 Southeast-bound				37.4	36.3
19	3.Fl	43.3	42.5		
SR-75 Northwest-bound				40.2	39.6
SR-75 Southeast-bound				40.2	39.3
19	4.Fl	46.3	46.0		
SR-75 Northwest-bound				43.5	43.2
SR-75 Southeast-bound				43.1	42.8
20	1.Fl	40.0	40.0		
SR-75 Northwest-bound				37.2	37.3
SR-75 Southeast-bound				36.8	36.7
20	2.Fl	40.9	40.4		
SR-75 Northwest-bound				38.2	37.6
SR-75 Southeast-bound				37.6	37.1
20	3.Fl	41.2	40.5		

SR-75	Northwest-bound			38.2	37.6
SR-75	Southeast-bound			38.2	37.3
20	4.Fl	45.3	45.2		
SR-75	Northwest-bound			42.4	42.3
SR-75	Southeast-bound			42.1	42.0
21	1.Fl	59.2	59.2		
SR-75	Northwest-bound			56.8	56.8
SR-75	Southeast-bound			55.5	55.5
21	2.Fl	61.5	61.5		
SR-75	Northwest-bound			59.0	59.0
SR-75	Southeast-bound			57.9	57.9
21	3.Fl	62.2	62.2		
SR-75	Northwest-bound			59.7	59.7
SR-75	Southeast-bound			58.5	58.5
21	4.Fl	62.2	62.2		
SR-75	Northwest-bound			59.8	59.8
SR-75	Southeast-bound			58.5	58.5
22	1.Fl	67.5	62.0		
SR-75	Northwest-bound			65.2	59.7
SR-75	Southeast-bound			63.6	58.0
22	2.Fl	69.8	64.2		
SR-75	Northwest-bound			67.4	61.9
SR-75	Southeast-bound			65.9	60.4
22	3.Fl	70.1	65.5		
SR-75	Northwest-bound			67.9	63.2
SR-75	Southeast-bound			66.2	61.5
22	4.Fl	69.7	66.1		
SR-75	Northwest-bound			67.5	63.8
SR-75	Southeast-bound			65.8	62.2
23	1.Fl	68.4	68.4		
SR-75	Northwest-bound			66.2	66.2
SR-75	Southeast-bound			64.3	64.3
23	2.Fl	70.7	70.7		
SR-75	Northwest-bound			68.5	68.5
SR-75	Southeast-bound			66.6	66.6
23	3.Fl	71.0	71.0		
SR-75	Northwest-bound			68.9	68.9
SR-75	Southeast-bound			66.8	66.8
23	4.Fl	70.5	70.5		
SR-75	Northwest-bound			68.2	68.2
SR-75	Southeast-bound			66.5	66.5
24	1.Fl	68.5	68.5		
SR-75	Northwest-bound			66.6	66.6
SR-75	Southeast-bound			63.9	63.9
24	2.Fl	71.2	71.2		
SR-75	Northwest-bound			69.4	69.4
SR-75	Southeast-bound			66.5	66.5
24	3.Fl	71.7	71.7		
SR-75	Northwest-bound			69.9	69.9
SR-75	Southeast-bound			67.0	67.0
24	4.Fl	71.3	71.3		
SR-75	Northwest-bound			69.5	69.5
SR-75	Southeast-bound			66.6	66.6
25	1.Fl	69.0	69.0		
SR-75	Northwest-bound			67.1	67.1

SR-75 Southeast-bound				64.4	64.4
25	2.Fl	71.3	71.3		
SR-75 Northwest-bound				69.6	69.6
SR-75 Southeast-bound				66.4	66.4
25	3.Fl	71.3	71.3		
SR-75 Northwest-bound				69.4	69.4
SR-75 Southeast-bound				66.6	66.6
25	4.Fl	70.6	70.6		
SR-75 Northwest-bound				68.8	68.8
SR-75 Southeast-bound				65.9	65.9
26	1.Fl	66.4	59.6		
SR-75 Northwest-bound				64.5	57.5
SR-75 Southeast-bound				62.0	55.4
27	1.Fl	67.3	60.3		
SR-75 Northwest-bound				65.4	58.3
SR-75 Southeast-bound				62.8	55.9
28	1.Fl	68.1	60.5		
SR-75 Northwest-bound				66.2	58.6
SR-75 Southeast-bound				63.5	56.0
29	1.Fl	66.5	59.2		
SR-75 Northwest-bound				64.3	56.7
SR-75 Southeast-bound				62.4	55.6
30	1.Fl	69.6	59.6		
SR-75 Northwest-bound				67.8	57.4
SR-75 Southeast-bound				64.9	55.6
31	1.Fl	64.0	59.3		
SR-75 Northwest-bound				61.2	56.4
SR-75 Southeast-bound				60.7	56.2
32	1.Fl	62.6	58.3		
SR-75 Northwest-bound				59.8	55.5
SR-75 Southeast-bound				59.4	55.1
33	1.Fl	63.4	59.3		
SR-75 Northwest-bound				60.7	56.4
SR-75 Southeast-bound				60.1	56.1

ATTACHMENT 5

FHWA RD-77-108 – Off-Site Traffic Noise

9010 Blue Wave
FHWA RD-77-108 – Off-Site Vehicle Traffic Noise

	Roadway	Segment	Existing	Existing + Project	Difference	2040	2040 + Project	Difference	Increase Over Existing
1	SR-75	North of Rainbow Drive/Project Driveway	71.2	71.2	0.0	73.3	73.4	0.1	2.2
2	SR-75	Rainbow Drive/Project Driveway to 7th Street	70.5	70.7	0.2	72.5	72.6	0.1	2.1
3	SR-75	7th Street to Delaware Street	71.5	71.6	0.1	73.6	73.7	0.1	2.2
4	SR-75	Delaware Street to 9th Street	72.0	72.1	0.1	74.5	74.6	0.1	2.6
5	SR-75	9th Street to Florida Street	73.7	73.8	0.1	75.0	75.1	0.1	1.4
6	Palm Avenue	Rainbow Drive to SR-75	68.4	68.5	0.1	68.8	68.9	0.1	0.5
7	Rainbow Drive	SR-75 to Palm Avenue	63.3	63.3	0.0	63.1	63.1	0.0	-0.2

Sum

FHWA RD-77-108

Traffic Noise Prediction Model

Data Input Sheet

Project Name : Blue Wave
Project Number : 9010
Modeled Condition : Existing, Existing + Project

Surface Refelction: CNEL
Assessment Metric: Hard
Peak ratio to ADT: 10.00
Traffic Desc. (Peak or ADT) : ADT

Segment	Roadway	Segment	Traffic Vol.	Speed (Mph)	Distance to CL	% Autos	%MT	% HT	Day %	Eve %	Night %	K-Factor
EXISTING												
1	SR-75	North of Rainbow Drive/Project Driveway	19,300	45	50	97.20	1.80	1.00	80.00	10.00	10.00	
2	SR-75	Rainbow Drive/Project Driveway to 7th Street	16,400	45	50	97.20	1.80	1.00	80.00	10.00	10.00	
3	SR-75	7th Street to Delaware Street	20,900	45	50	97.20	1.80	1.00	80.00	10.00	10.00	
4	SR-75	Delaware Street to 9th Street	23,400	45	50	97.20	1.80	1.00	80.00	10.00	10.00	
5	SR-75	9th Street to Florida Street	34,500	45	50	97.20	1.80	1.00	80.00	10.00	10.00	
6	Palm Avenue	Rainbow Drive to SR-75	13,640	40	50	97.20	1.80	1.00	80.00	10.00	10.00	
7	Rainbow Drive	SR-75 to Palm Avenue	5,710	35	50	97.20	1.80	1.00	80.00	10.00	10.00	
EXISTING + PROJECT												
1	SR-75	North of Rainbow Drive/Project Driveway	19,600	45	50	97.20	1.80	1.00	80.00	10.00	10.00	
2	SR-75	Rainbow Drive/Project Driveway to 7th Street	17,091	45	50	97.20	1.80	1.00	80.00	10.00	10.00	
3	SR-75	7th Street to Delaware Street	21,513	45	50	97.20	1.80	1.00	80.00	10.00	10.00	
4	SR-75	Delaware Street to 9th Street	23,989	45	50	97.20	1.80	1.00	80.00	10.00	10.00	
5	SR-75	9th Street to Florida Street	35,041	45	50	97.20	1.80	1.00	80.00	10.00	10.00	
6	Palm Avenue	Rainbow Drive to SR-75	13,820	40	50	97.20	1.80	1.00	80.00	10.00	10.00	
7	Rainbow Drive	SR-75 to Palm Avenue	5,710	35	50	97.20	1.80	1.00	80.00	10.00	10.00	

FHWA RD-77-108

Traffic Noise Prediction Model

Predicted Noise Levels

Project Name : Blue Wave
Project Number : 9010
Modeled Condition : Existing, Existing + Project
Assessment Metric: Hard

Segment	Roadway	Segment	Noise Levels, dBA Hard				Distance to Traffic Noise Level Contours, Feet					
			Auto	MT	HT	Total	75 dB	70 dB	65 dB	60 dB	55 dB	50 dB
EXISTING												
1	SR-75	North of Rainbow Drive/Project Driveway	70.0	60.9	62.9	71	21	66	208	659	2,084	6,591
2	SR-75	Rainbow Drive/Project Driveway to 7th Street	69.3	60.2	62.1	71	18	56	177	561	1,774	5,610
3	SR-75	7th Street to Delaware Street	70.3	61.3	63.2	72	22	71	223	706	2,233	7,063
4	SR-75	Delaware Street to 9th Street	70.8	61.7	63.7	72	25	79	251	792	2,506	7,924
5	SR-75	9th Street to Florida Street	72.5	63.4	65.4	74	37	117	371	1,172	3,707	11,721
6	Palm Avenue	Rainbow Drive to SR-75	67.0	58.6	60.9	68	11	35	109	346	1,094	3,459
7	Rainbow Drive	SR-75 to Palm Avenue	61.5	53.9	56.6	63	3	11	34	107	338	1,069
EXISTING + PROJECT												
1	SR-75	North of Rainbow Drive/Project Driveway	70.0	61.0	62.9	71	21	66	208	659	2,084	6,591
2	SR-75	Rainbow Drive/Project Driveway to 7th Street	69.5	60.4	62.3	71	19	59	186	587	1,858	5,874
3	SR-75	7th Street to Delaware Street	70.5	61.4	63.3	72	23	72	229	723	2,285	7,227
4	SR-75	Delaware Street to 9th Street	70.9	61.9	63.8	72	26	81	256	811	2,564	8,109
5	SR-75	9th Street to Florida Street	72.6	63.5	65.4	74	38	120	379	1,199	3,793	11,994
6	Palm Avenue	Rainbow Drive to SR-75	67.1	58.7	60.9	69	11	35	112	354	1,119	3,540
7	Rainbow Drive	SR-75 to Palm Avenue	61.5	53.9	56.6	63	3	11	34	107	338	1,069

FHWA RD-77-108

Traffic Noise Prediction Model

Data Input Sheet

Project Name : Blue Wave
Project Number : 9010
Modeled Condition : 2040, 2040 + Project

Surface Refelction: CNEL
Assessment Metric: Hard
Peak ratio to ADT: 10.00
Traffic Desc. (Peak or ADT) : ADT

Segment	Roadway	Segment	Traffic Vol.	Speed (Mph)	Distance to CL	% Autos	%MT	% HT	Day %	Eve %	Night %	K-Factor
2040												
1	SR-75	North of Rainbow Drive/Project Driveway	31,630	45	50	97.20	1.80	1.00	80.00	10.00	10.00	
2	SR-75	Rainbow Drive/Project Driveway to 7th Street	26,320	45	50	97.20	1.80	1.00	80.00	10.00	10.00	
3	SR-75	7th Street to Delaware Street	34,010	45	50	97.20	1.80	1.00	80.00	10.00	10.00	
4	SR-75	Delaware Street to 9th Street	41,780	45	50	97.20	1.80	1.00	80.00	10.00	10.00	
5	SR-75	9th Street to Florida Street	46,970	45	50	97.20	1.80	1.00	80.00	10.00	10.00	
6	Palm Avenue	Rainbow Drive to SR-75	14,940	40	50	97.20	1.80	1.00	80.00	10.00	10.00	
7	Rainbow Drive	SR-75 to Palm Avenue	5,490	35	50	97.20	1.80	1.00	80.00	10.00	10.00	
2040 + PROJECT												
1	SR-75	North of Rainbow Drive/Project Driveway	31,930	45	50	97.20	1.80	1.00	80.00	10.00	10.00	
2	SR-75	Rainbow Drive/Project Driveway to 7th Street	27,011	45	50	97.20	1.80	1.00	80.00	10.00	10.00	
3	SR-75	7th Street to Delaware Street	34,623	45	50	97.20	1.80	1.00	80.00	10.00	10.00	
4	SR-75	Delaware Street to 9th Street	42,369	45	50	97.20	1.80	1.00	80.00	10.00	10.00	
5	SR-75	9th Street to Florida Street	47,511	45	50	97.20	1.80	1.00	80.00	10.00	10.00	
6	Palm Avenue	Rainbow Drive to SR-75	15,120	40	50	97.20	1.80	1.00	80.00	10.00	10.00	
7	Rainbow Drive	SR-75 to Palm Avenue	5,490	35	50	97.20	1.80	1.00	80.00	10.00	10.00	

FHWA RD-77-108

Traffic Noise Prediction Model

Predicted Noise Levels

Project Name : Blue Wave
Project Number : 9010
Modeled Condition : 2040, 2040 + Project
Assessment Metric: Hard

Segment	Roadway	Segment	Noise Levels, dBA Hard				Distance to Traffic Noise Level Contours, Feet					
			Auto	MT	HT	Total	75 dB	70 dB	65 dB	60 dB	55 dB	50 dB
2040												
1	SR-75	North of Rainbow Drive/Project Driveway	72.1	63.1	65.0	73	34	107	338	1,069	3,380	10,690
2	SR-75	Rainbow Drive/Project Driveway to 7th Street	71.3	62.3	64.2	73	28	89	281	889	2,812	8,891
3	SR-75	7th Street to Delaware Street	72.4	63.4	65.3	74	36	115	362	1,145	3,622	11,454
4	SR-75	Delaware Street to 9th Street	73.3	64.3	66.2	75	45	141	446	1,409	4,456	14,092
5	SR-75	9th Street to Florida Street	73.8	64.8	66.7	75	50	158	500	1,581	5,000	15,811
6	Palm Avenue	Rainbow Drive to SR-75	67.4	59.0	61.3	69	12	38	120	379	1,199	3,793
7	Rainbow Drive	SR-75 to Palm Avenue	61.4	53.7	56.4	63	3	10	32	102	323	1,021
2040 + PROJECT												
1	SR-75	North of Rainbow Drive/Project Driveway	72.2	63.1	65.0	73	35	109	346	1,094	3,459	10,939
2	SR-75	Rainbow Drive/Project Driveway to 7th Street	71.4	62.4	64.3	73	29	91	288	910	2,877	9,099
3	SR-75	7th Street to Delaware Street	72.5	63.4	65.4	74	37	117	371	1,172	3,707	11,721
4	SR-75	Delaware Street to 9th Street	73.4	64.3	66.3	75	46	144	456	1,442	4,560	14,420
5	SR-75	9th Street to Florida Street	73.9	64.8	66.8	75	51	162	512	1,618	5,116	16,180
6	Palm Avenue	Rainbow Drive to SR-75	67.4	59.0	61.3	69	12	39	123	388	1,227	3,881
7	Rainbow Drive	SR-75 to Palm Avenue	61.4	53.7	56.4	63	3	10	32	102	323	1,021

ATTACHMENT 6

SoundPLAN Data – On-Site Noise Sources

9010 Blue Wave
SoundPLAN Data - On-Site Noise Sources

Source name	Reference	Level		Corrections		
		Leq1 dB(A)	Leq2 dB(A)	Kwall dB(A)	CI dB(A)	CT dB(A)
HVAC1	Unit	81	81	-	-	-
HVAC2	Unit	72	72	-	-	-
HVAC3	Unit	72	72	-	-	-
HVAC4	Unit	72	72	-	-	-
HVAC5	Unit	72	72	-	-	-
HVAC6	Unit	72	72	-	-	-
HVAC7	Unit	72	72	-	-	-
HVAC8	Unit	72	72	-	-	-
HVAC9	Unit	72	72	-	-	-
HVAC10	Unit	72	72	-	-	-
HVAC11	Unit	72	72	-	-	-
HVAC12	Unit	72	72	-	-	-
HVAC13	Unit	72	72	-	-	-
HVAC14	Unit	72	72	-	-	-
HVAC15	Unit	72	72	-	-	-
HVAC16	Unit	72	72	-	-	-
HVAC17	Unit	72	72	-	-	-
HVAC18	Unit	72	72	-	-	-
HVAC19	Unit	72	72	-	-	-
HVAC20	Unit	72	72	-	-	-
HVAC21	Unit	72	72	-	-	-
HVAC22	Unit	72	72	-	-	-
HVAC23	Unit	72	72	-	-	-
HVAC24	Unit	72	72	-	-	-
HVAC25	Unit	72	72	-	-	-
HVAC26	Unit	72	72	-	-	-
HVAC27	Unit	72	72	-	-	-
HVAC28	Unit	72	72	-	-	-
HVAC29	Unit	72	72	-	-	-
HVAC30	Unit	72	72	-	-	-
HVAC31	Unit	72	72	-	-	-
HVAC32	Unit	72	72	-	-	-
HVAC33	Unit	72	72	-	-	-
HVAC34	Unit	72	72	-	-	-
HVAC35	Unit	72	72	-	-	-
HVAC36	Unit	72	72	-	-	-
HVAC37	Unit	72	72	-	-	-
HVAC38	Unit	72	72	-	-	-
HVAC39	Unit	72	72	-	-	-
HVAC40	Unit	72	72	-	-	-
HVAC41	Unit	72	72	-	-	-
Brewery Terrace	Unit	80	-	-	-	-
Pool Deck	Unit	75	-	-	-	-

9010 Blue Wave
SoundPLAN Data - On-Site Noise Sources

No.	Coordinates X	Coordinates Y	Floor	Height	Limit Leq1	Limit Leq2	Level w/o NP Leq1	Level w/o NP Leq2	Level w. NP Leq1	Level w. NP Leq2	Difference Leq1	Difference Leq2	Conflict Leq1	Conflict Leq2
	in meter			m	dB(A)		dB(A)		dB(A)		dB(A)		dB(A)	
1	488877.05	3605287.69	1.Fl	2.23	-	-	35.6	32.4	0	0	-35.6	-32.4	-	-
2	488873.05	3605315.81	1.Fl	2.23	-	-	43.6	43.0	0	0	-43.6	-43.0	-	-
3	488875.12	3605331.50	1.Fl	2.23	-	-	44.3	43.9	0	0	-44.3	-43.9	-	-
4	488875.12	3605346.30	1.Fl	2.23	-	-	43.0	42.5	0	0	-43.0	-42.5	-	-
5	488872.46	3605358.58	1.Fl	2.23	-	-	41.4	41.0	0	0	-41.4	-41.0	-	-
6	488870.68	3605370.87	1.Fl	2.23	-	-	40.7	40.5	0	0	-40.7	-40.5	-	-
7	488850.70	3605363.17	1.Fl	2.23	-	-	38.5	38.4	0	0	-38.5	-38.4	-	-
8	488829.84	3605363.62	1.Fl	2.23	-	-	40.5	40.5	0	0	-40.5	-40.5	-	-
9	488807.49	3605363.47	1.Fl	2.23	-	-	41.3	41.3	0	0	-41.3	-41.3	-	-
10	488780.85	3605363.47	1.Fl	2.23	-	-	40.3	40.3	0	0	-40.3	-40.3	-	-
11	488733.49	3605330.02	1.Fl	2.23	-	-	37.7	36.1	0	0	-37.7	-36.1	-	-
12	488773.15	3605291.54	1.Fl	2.23	-	-	41.8	39.9	0	0	-41.8	-39.9	-	-
13	488795.20	3605274.37	1.Fl	2.23	-	-	41.2	39.4	0	0	-41.2	-39.4	-	-
14	488822.14	3605256.91	1.Fl	2.23	-	-	39.9	38.9	0	0	-39.9	-38.9	-	-
15	488849.37	3605244.77	1.Fl	2.23	-	-	38.5	37.8	0	0	-38.5	-37.8	-	-

Receivers

9010 Blue Wave
SoundPLAN Data - On-Site Noise Sources

Source name						Level w/o NP Leq1 dB(A)	Level w/o NP Leq2 dB(A)	Level w. NP Leq1 dB(A)	Level w. NP Leq2 dB(A)
1	1.Fl	35.6	32.4	0.0	0.0				
Brewery Terrace						12.9	0.0	0	0
HVAC1						22.2	22.2	0	0
HVAC2						14.2	14.2	0	0
HVAC3						14.5	14.5	0	0
HVAC4						14.9	14.9	0	0
HVAC5						15.3	15.3	0	0
HVAC6						11.5	11.5	0	0
HVAC7						11.3	11.3	0	0
HVAC8						10.9	10.9	0	0
HVAC9						10.6	10.6	0	0
HVAC10						7.1	7.1	0	0
HVAC11						7.3	7.3	0	0
HVAC12						7.4	7.4	0	0
HVAC13						7.7	7.7	0	0
HVAC14						6.0	6.0	0	0
HVAC15						6.0	6.0	0	0
HVAC16						6.1	6.1	0	0
HVAC17						6.1	6.1	0	0
HVAC18						5.0	5.0	0	0
HVAC19						5.1	5.1	0	0
HVAC20						5.1	5.1	0	0
HVAC21						5.1	5.1	0	0
HVAC22						3.8	3.8	0	0
HVAC23						3.8	3.8	0	0
HVAC24						3.9	3.9	0	0
HVAC25						4.0	4.0	0	0
HVAC26						3.3	3.3	0	0
HVAC27						3.3	3.3	0	0
HVAC28						3.4	3.4	0	0
HVAC29						3.5	3.5	0	0
HVAC30						18.1	18.1	0	0
HVAC31						18.5	18.5	0	0
HVAC32						18.9	18.9	0	0
HVAC33						19.7	19.7	0	0
HVAC34						22.3	22.3	0	0
HVAC35						23.9	23.9	0	0
HVAC36						24.4	24.4	0	0
HVAC37						24.6	24.6	0	0
HVAC38						10.2	10.2	0	0
HVAC39						10.5	10.5	0	0
HVAC40						10.7	10.7	0	0
HVAC41						11.0	11.0	0	0
Pool Deck						32.7	0.0	0	0
2	1.Fl	43.6	43.0	0.0	0.0				
Brewery Terrace						13.2	0.0	0	0
HVAC1						19.3	19.3	0	0
HVAC2						29.3	29.3	0	0
HVAC3						29.3	29.3	0	0
HVAC4						29.5	29.5	0	0
HVAC5						29.7	29.7	0	0
HVAC6						34.6	34.6	0	0

HVAC7							34.2	34.2	0	0
HVAC8							33.8	33.8	0	0
HVAC9							33.3	33.3	0	0
HVAC10							23.0	23.0	0	0
HVAC11							24.7	24.7	0	0
HVAC12							23.8	23.8	0	0
HVAC13							23.6	23.6	0	0
HVAC14							10.4	10.4	0	0
HVAC15							10.7	10.7	0	0
HVAC16							11.0	11.0	0	0
HVAC17							11.2	11.2	0	0
HVAC18							7.2	7.2	0	0
HVAC19							7.3	7.3	0	0
HVAC20							7.5	7.5	0	0
HVAC21							7.7	7.7	0	0
HVAC22							5.1	5.1	0	0
HVAC23							5.3	5.3	0	0
HVAC24							5.4	5.4	0	0
HVAC25							5.5	5.5	0	0
HVAC26							3.9	3.9	0	0
HVAC27							4.0	4.0	0	0
HVAC28							4.1	4.1	0	0
HVAC29							4.2	4.2	0	0
HVAC30							18.9	18.9	0	0
HVAC31							18.7	18.7	0	0
HVAC32							18.5	18.5	0	0
HVAC33							18.3	18.3	0	0
HVAC34							33.2	33.2	0	0
HVAC35							29.3	29.3	0	0
HVAC36							28.6	28.6	0	0
HVAC37							28.8	28.8	0	0
HVAC38							20.0	20.0	0	0
HVAC39							20.2	20.2	0	0
HVAC40							20.4	20.4	0	0
HVAC41							20.5	20.5	0	0
Pool Deck							34.5	0.0	0	0
3	1.Fl	44.3	43.9	0.0	0.0					
Brewery Terrace							13.9	0.0	0	0
HVAC1							17.3	17.3	0	0
HVAC2							27.9	27.9	0	0
HVAC3							27.7	27.7	0	0
HVAC4							27.6	27.6	0	0
HVAC5							27.6	27.6	0	0
HVAC6							35.1	35.1	0	0
HVAC7							35.6	35.6	0	0
HVAC8							35.7	35.7	0	0
HVAC9							35.7	35.7	0	0
HVAC10							29.0	29.0	0	0
HVAC11							29.7	29.7	0	0
HVAC12							30.9	30.9	0	0
HVAC13							30.7	30.7	0	0
HVAC14							12.1	12.1	0	0
HVAC15							12.4	12.4	0	0
HVAC16							12.7	12.7	0	0
HVAC17							13.0	13.0	0	0

HVAC18						8.4	8.4	0	0
HVAC19						8.6	8.6	0	0
HVAC20						8.8	8.8	0	0
HVAC21						9.0	9.0	0	0
HVAC22						6.1	6.1	0	0
HVAC23						6.3	6.3	0	0
HVAC24						6.4	6.4	0	0
HVAC25						6.6	6.6	0	0
HVAC26						4.9	4.9	0	0
HVAC27						5.0	5.0	0	0
HVAC28						5.1	5.1	0	0
HVAC29						5.2	5.2	0	0
HVAC30						17.9	17.9	0	0
HVAC31						17.6	17.6	0	0
HVAC32						17.4	17.4	0	0
HVAC33						17.3	17.3	0	0
HVAC34						29.9	29.9	0	0
HVAC35						28.6	28.6	0	0
HVAC36						26.9	26.9	0	0
HVAC37						26.5	26.5	0	0
HVAC38						21.9	21.9	0	0
HVAC39						21.8	21.8	0	0
HVAC40						21.8	21.8	0	0
HVAC41						21.8	21.8	0	0
Pool Deck						34.4	0.0	0	0
4	1.Fl	43.0	42.5	0.0	0.0				
Brewery Terrace						11.8	0.0	0	0
HVAC1						16.2	16.2	0	0
HVAC2						25.4	25.4	0	0
HVAC3						25.2	25.2	0	0
HVAC4						25.2	25.2	0	0
HVAC5						25.1	25.1	0	0
HVAC6						31.6	31.6	0	0
HVAC7						32.0	32.0	0	0
HVAC8						32.4	32.4	0	0
HVAC9						32.8	32.8	0	0
HVAC10						31.6	31.6	0	0
HVAC11						31.9	31.9	0	0
HVAC12						32.9	32.9	0	0
HVAC13						33.3	33.3	0	0
HVAC14						14.0	14.0	0	0
HVAC15						14.2	14.2	0	0
HVAC16						14.5	14.5	0	0
HVAC17						14.8	14.8	0	0
HVAC18						9.7	9.7	0	0
HVAC19						9.8	9.8	0	0
HVAC20						10.0	10.0	0	0
HVAC21						10.3	10.3	0	0
HVAC22						7.1	7.1	0	0
HVAC23						7.3	7.3	0	0
HVAC24						7.5	7.5	0	0
HVAC25						7.7	7.7	0	0
HVAC26						5.9	5.9	0	0
HVAC27						6.0	6.0	0	0
HVAC28						6.1	6.1	0	0

HVAC29						6.2	6.2	0	0
HVAC30						16.6	16.6	0	0
HVAC31						16.5	16.5	0	0
HVAC32						16.3	16.3	0	0
HVAC33						16.0	16.0	0	0
HVAC34						29.9	29.9	0	0
HVAC35						25.5	25.5	0	0
HVAC36						25.2	25.2	0	0
HVAC37						24.8	24.8	0	0
HVAC38						20.7	20.7	0	0
HVAC39						20.6	20.6	0	0
HVAC40						20.5	20.5	0	0
HVAC41						20.3	20.3	0	0
Pool Deck						33.3	0.0	0	0
5	1.Fl	41.4	41.0	0.0	0.0				
Brewery Terrace						11.0	0.0	0	0
HVAC1						15.6	15.6	0	0
HVAC2						22.4	22.4	0	0
HVAC3						22.2	22.2	0	0
HVAC4						22.2	22.2	0	0
HVAC5						22.3	22.3	0	0
HVAC6						28.6	28.6	0	0
HVAC7						28.9	28.9	0	0
HVAC8						29.3	29.3	0	0
HVAC9						29.7	29.7	0	0
HVAC10						31.7	31.7	0	0
HVAC11						32.0	32.0	0	0
HVAC12						32.0	32.0	0	0
HVAC13						31.9	31.9	0	0
HVAC14						19.3	19.3	0	0
HVAC15						18.7	18.7	0	0
HVAC16						18.6	18.6	0	0
HVAC17						18.7	18.7	0	0
HVAC18						17.1	17.1	0	0
HVAC19						17.2	17.2	0	0
HVAC20						17.3	17.3	0	0
HVAC21						17.7	17.7	0	0
HVAC22						15.2	15.2	0	0
HVAC23						15.3	15.3	0	0
HVAC24						15.2	15.2	0	0
HVAC25						15.2	15.2	0	0
HVAC26						13.8	13.8	0	0
HVAC27						13.8	13.8	0	0
HVAC28						13.8	13.8	0	0
HVAC29						13.9	13.9	0	0
HVAC30						14.5	14.5	0	0
HVAC31						14.4	14.4	0	0
HVAC32						14.3	14.3	0	0
HVAC33						14.2	14.2	0	0
HVAC34						28.5	28.5	0	0
HVAC35						24.1	24.1	0	0
HVAC36						23.3	23.3	0	0
HVAC37						23.3	23.3	0	0
HVAC38						19.2	19.2	0	0
HVAC39						18.6	18.6	0	0

HVAC40						18.0	18.0	0	0
HVAC41						17.6	17.6	0	0
Pool Deck						30.5	0.0	0	0
6	1.Fl	40.7	40.5	0.0	0.0				
Brewery Terrace						13.0	0.0	0	0
HVAC1						14.7	14.7	0	0
HVAC2						19.9	19.9	0	0
HVAC3						19.8	19.8	0	0
HVAC4						19.8	19.8	0	0
HVAC5						19.8	19.8	0	0
HVAC6						25.9	25.9	0	0
HVAC7						26.2	26.2	0	0
HVAC8						26.4	26.4	0	0
HVAC9						26.8	26.8	0	0
HVAC10						31.7	31.7	0	0
HVAC11						28.8	28.8	0	0
HVAC12						28.4	28.4	0	0
HVAC13						29.2	29.2	0	0
HVAC14						26.5	26.5	0	0
HVAC15						26.6	26.6	0	0
HVAC16						26.8	26.8	0	0
HVAC17						27.0	27.0	0	0
HVAC18						23.4	23.4	0	0
HVAC19						23.6	23.6	0	0
HVAC20						23.8	23.8	0	0
HVAC21						24.0	24.0	0	0
HVAC22						21.1	21.1	0	0
HVAC23						21.3	21.3	0	0
HVAC24						21.4	21.4	0	0
HVAC25						21.5	21.5	0	0
HVAC26						19.9	19.9	0	0
HVAC27						20.0	20.0	0	0
HVAC28						20.1	20.1	0	0
HVAC29						20.2	20.2	0	0
HVAC30						13.0	13.0	0	0
HVAC31						12.9	12.9	0	0
HVAC32						12.4	12.4	0	0
HVAC33						12.3	12.3	0	0
HVAC34						28.5	28.5	0	0
HVAC35						25.5	25.5	0	0
HVAC36						21.8	21.8	0	0
HVAC37						21.8	21.8	0	0
HVAC38						18.0	18.0	0	0
HVAC39						17.9	17.9	0	0
HVAC40						17.8	17.8	0	0
HVAC41						17.7	17.7	0	0
Pool Deck						27.0	0.0	0	0
7	1.Fl	38.5	38.4	0.0	0.0				
Brewery Terrace						12.9	0.0	0	0
HVAC1						13.9	13.9	0	0
HVAC2						10.3	10.3	0	0
HVAC3						10.1	10.1	0	0
HVAC4						9.9	9.9	0	0
HVAC5						9.7	9.7	0	0
HVAC6						12.1	12.1	0	0

HVAC7							12.4	12.4	0	0
HVAC8							12.8	12.8	0	0
HVAC9							13.2	13.2	0	0
HVAC10							29.5	29.5	0	0
HVAC11							26.7	26.7	0	0
HVAC12							24.3	24.3	0	0
HVAC13							23.2	23.2	0	0
HVAC14							28.0	28.0	0	0
HVAC15							27.8	27.8	0	0
HVAC16							28.0	28.0	0	0
HVAC17							28.3	28.3	0	0
HVAC18							24.8	24.8	0	0
HVAC19							25.0	25.0	0	0
HVAC20							25.2	25.2	0	0
HVAC21							25.7	25.7	0	0
HVAC22							21.8	21.8	0	0
HVAC23							22.0	22.0	0	0
HVAC24							21.9	21.9	0	0
HVAC25							22.1	22.1	0	0
HVAC26							19.9	19.9	0	0
HVAC27							20.0	20.0	0	0
HVAC28							20.1	20.1	0	0
HVAC29							20.2	20.2	0	0
HVAC30							8.1	8.1	0	0
HVAC31							7.9	7.9	0	0
HVAC32							7.7	7.7	0	0
HVAC33							7.4	7.4	0	0
HVAC34							8.7	8.7	0	0
HVAC35							8.4	8.4	0	0
HVAC36							8.2	8.2	0	0
HVAC37							7.6	7.6	0	0
HVAC38							13.7	13.7	0	0
HVAC39							13.3	13.3	0	0
HVAC40							13.0	13.0	0	0
HVAC41							12.7	12.7	0	0
Pool Deck							9.8	0.0	0	0
8	1.Fl	40.5	40.5	0.0	0.0					
Brewery Terrace							15.2	0.0	0	0
HVAC1							16.0	16.0	0	0
HVAC2							9.0	9.0	0	0
HVAC3							8.8	8.8	0	0
HVAC4							8.6	8.6	0	0
HVAC5							8.4	8.4	0	0
HVAC6							10.7	10.7	0	0
HVAC7							11.0	11.0	0	0
HVAC8							11.3	11.3	0	0
HVAC9							11.6	11.6	0	0
HVAC10							25.4	25.4	0	0
HVAC11							22.6	22.6	0	0
HVAC12							20.9	20.9	0	0
HVAC13							19.8	19.8	0	0
HVAC14							31.0	31.0	0	0
HVAC15							30.6	30.6	0	0
HVAC16							30.3	30.3	0	0
HVAC17							29.9	29.9	0	0

HVAC18						29.3	29.3	0	0
HVAC19						29.6	29.6	0	0
HVAC20						29.9	29.9	0	0
HVAC21						30.6	30.6	0	0
HVAC22						24.8	24.8	0	0
HVAC23						25.1	25.1	0	0
HVAC24						25.1	25.1	0	0
HVAC25						25.3	25.3	0	0
HVAC26						22.3	22.3	0	0
HVAC27						22.4	22.4	0	0
HVAC28						22.5	22.5	0	0
HVAC29						22.7	22.7	0	0
HVAC30						7.3	7.3	0	0
HVAC31						7.2	7.2	0	0
HVAC32						7.0	7.0	0	0
HVAC33						6.8	6.8	0	0
HVAC34						7.0	7.0	0	0
HVAC35						6.8	6.8	0	0
HVAC36						6.6	6.6	0	0
HVAC37						6.4	6.4	0	0
HVAC38						12.5	12.5	0	0
HVAC39						12.2	12.2	0	0
HVAC40						11.8	11.8	0	0
HVAC41						11.5	11.5	0	0
Pool Deck						8.6	0.0	0	0
9	1.Fl	41.3	41.3	0.0	0.0				
Brewery Terrace						16.7	0.0	0	0
HVAC1						14.9	14.9	0	0
HVAC2						7.6	7.6	0	0
HVAC3						7.4	7.4	0	0
HVAC4						7.2	7.2	0	0
HVAC5						7.1	7.1	0	0
HVAC6						9.0	9.0	0	0
HVAC7						9.3	9.3	0	0
HVAC8						9.5	9.5	0	0
HVAC9						10.0	10.0	0	0
HVAC10						22.1	22.1	0	0
HVAC11						19.8	19.8	0	0
HVAC12						18.3	18.3	0	0
HVAC13						17.3	17.3	0	0
HVAC14						26.8	26.8	0	0
HVAC15						25.6	25.6	0	0
HVAC16						25.3	25.3	0	0
HVAC17						25.0	25.0	0	0
HVAC18						32.4	32.4	0	0
HVAC19						32.1	32.1	0	0
HVAC20						31.8	31.8	0	0
HVAC21						31.8	31.8	0	0
HVAC22						29.1	29.1	0	0
HVAC23						29.6	29.6	0	0
HVAC24						29.6	29.6	0	0
HVAC25						29.9	29.9	0	0
HVAC26						25.4	25.4	0	0
HVAC27						25.5	25.5	0	0
HVAC28						25.7	25.7	0	0

HVAC29						25.9	25.9	0	0
HVAC30						6.0	6.0	0	0
HVAC31						5.9	5.9	0	0
HVAC32						5.8	5.8	0	0
HVAC33						5.6	5.6	0	0
HVAC34						5.6	5.6	0	0
HVAC35						5.4	5.4	0	0
HVAC36						5.3	5.3	0	0
HVAC37						5.1	5.1	0	0
HVAC38						10.6	10.6	0	0
HVAC39						10.3	10.3	0	0
HVAC40						10.1	10.1	0	0
HVAC41						9.8	9.8	0	0
Pool Deck						7.5	0.0	0	0
10	1.Fl	40.3	40.3	0.0	0.0				
Brewery Terrace						15.6	0.0	0	0
HVAC1						13.4	13.4	0	0
HVAC2						6.2	6.2	0	0
HVAC3						6.3	6.3	0	0
HVAC4						6.1	6.1	0	0
HVAC5						6.0	6.0	0	0
HVAC6						7.7	7.7	0	0
HVAC7						7.9	7.9	0	0
HVAC8						8.1	8.1	0	0
HVAC9						8.6	8.6	0	0
HVAC10						19.6	19.6	0	0
HVAC11						17.8	17.8	0	0
HVAC12						16.4	16.4	0	0
HVAC13						15.4	15.4	0	0
HVAC14						22.7	22.7	0	0
HVAC15						23.2	23.2	0	0
HVAC16						23.8	23.8	0	0
HVAC17						21.6	21.6	0	0
HVAC18						26.2	26.2	0	0
HVAC19						26.0	26.0	0	0
HVAC20						25.8	25.8	0	0
HVAC21						25.8	25.8	0	0
HVAC22						29.6	29.6	0	0
HVAC23						29.2	29.2	0	0
HVAC24						28.5	28.5	0	0
HVAC25						28.2	28.2	0	0
HVAC26						30.9	30.9	0	0
HVAC27						30.8	30.8	0	0
HVAC28						31.1	31.1	0	0
HVAC29						30.7	30.7	0	0
HVAC30						5.0	5.0	0	0
HVAC31						4.9	4.9	0	0
HVAC32						4.8	4.8	0	0
HVAC33						4.6	4.6	0	0
HVAC34						4.6	4.6	0	0
HVAC35						4.5	4.5	0	0
HVAC36						4.3	4.3	0	0
HVAC37						4.2	4.2	0	0
HVAC38						8.9	8.9	0	0
HVAC39						8.8	8.8	0	0

HVAC40						8.5	8.5	0	0
HVAC41						8.3	8.3	0	0
Pool Deck						6.6	0.0	0	0
11	1.Fl	36.7	36.1	0.0	0.0				
Brewery Terrace						32.3	0.0	0	0
HVAC1						29.0	29.0	0	0
HVAC2						16.7	16.7	0	0
HVAC3						16.7	16.7	0	0
HVAC4						16.7	16.7	0	0
HVAC5						16.7	16.7	0	0
HVAC6						20.6	20.6	0	0
HVAC7						20.6	20.6	0	0
HVAC8						16.6	16.6	0	0
HVAC9						16.6	16.6	0	0
HVAC10						14.9	14.9	0	0
HVAC11						15.5	15.5	0	0
HVAC12						15.9	15.9	0	0
HVAC13						16.3	16.3	0	0
HVAC14						16.1	16.1	0	0
HVAC15						16.0	16.0	0	0
HVAC16						15.9	15.9	0	0
HVAC17						15.9	15.9	0	0
HVAC18						17.8	17.8	0	0
HVAC19						17.5	17.5	0	0
HVAC20						17.3	17.3	0	0
HVAC21						17.0	17.0	0	0
HVAC22						20.3	20.3	0	0
HVAC23						20.2	20.2	0	0
HVAC24						20.1	20.1	0	0
HVAC25						19.8	19.8	0	0
HVAC26						24.0	24.0	0	0
HVAC27						23.4	23.4	0	0
HVAC28						22.7	22.7	0	0
HVAC29						22.0	22.0	0	0
HVAC30						19.0	19.0	0	0
HVAC31						19.0	19.0	0	0
HVAC32						19.0	19.0	0	0
HVAC33						18.9	18.9	0	0
HVAC34						16.3	16.3	0	0
HVAC35						16.4	16.4	0	0
HVAC36						16.4	16.4	0	0
HVAC37						16.4	16.4	0	0
HVAC38						22.3	22.3	0	0
HVAC39						22.3	22.3	0	0
HVAC40						22.2	22.2	0	0
HVAC41						19.2	19.2	0	0
Pool Deck						17.4	0.0	0	0
12	1.Fl	40.6	39.9	0.0	0.0				
Brewery Terrace						37.2	0.0	0	0
HVAC1						35.5	35.5	0	0
HVAC2						21.2	21.2	0	0
HVAC3						22.4	22.4	0	0
HVAC4						22.3	22.3	0	0
HVAC5						22.3	22.3	0	0
HVAC6						20.6	20.6	0	0

HVAC7						20.6	20.6	0	0
HVAC8						20.5	20.5	0	0
HVAC9						20.4	20.4	0	0
HVAC10						15.3	15.3	0	0
HVAC11						17.4	17.4	0	0
HVAC12						17.4	17.4	0	0
HVAC13						17.4	17.4	0	0
HVAC14						19.9	19.9	0	0
HVAC15						19.8	19.8	0	0
HVAC16						19.7	19.7	0	0
HVAC17						19.8	19.8	0	0
HVAC18						21.6	21.6	0	0
HVAC19						21.6	21.6	0	0
HVAC20						21.5	21.5	0	0
HVAC21						21.4	21.4	0	0
HVAC22						22.3	22.3	0	0
HVAC23						22.3	22.3	0	0
HVAC24						22.3	22.3	0	0
HVAC25						22.2	22.2	0	0
HVAC26						23.4	23.4	0	0
HVAC27						23.3	23.3	0	0
HVAC28						23.4	23.4	0	0
HVAC29						23.5	23.5	0	0
HVAC30						25.4	25.4	0	0
HVAC31						25.4	25.4	0	0
HVAC32						25.3	25.3	0	0
HVAC33						25.3	25.3	0	0
HVAC34						21.8	21.8	0	0
HVAC35						21.8	21.8	0	0
HVAC36						19.6	19.6	0	0
HVAC37						19.7	19.7	0	0
HVAC38						21.3	21.3	0	0
HVAC39						21.4	21.4	0	0
HVAC40						21.4	21.4	0	0
HVAC41						21.4	21.4	0	0
Pool Deck						21.7	0.0	0	0
13	1.Fl	40.1	39.4	0.0	0.0				
Brewery Terrace						36.3	0.0	0	0
HVAC1						33.3	33.3	0	0
HVAC2						21.6	21.6	0	0
HVAC3						21.6	21.6	0	0
HVAC4						21.6	21.6	0	0
HVAC5						21.6	21.6	0	0
HVAC6						20.9	20.9	0	0
HVAC7						20.8	20.8	0	0
HVAC8						18.8	18.8	0	0
HVAC9						18.7	18.7	0	0
HVAC10						16.4	16.4	0	0
HVAC11						16.5	16.5	0	0
HVAC12						16.7	16.7	0	0
HVAC13						16.9	16.9	0	0
HVAC14						21.1	21.1	0	0
HVAC15						20.1	20.1	0	0
HVAC16						20.0	20.0	0	0
HVAC17						19.9	19.9	0	0

HVAC18						22.8	22.8	0	0
HVAC19						21.2	21.2	0	0
HVAC20						21.3	21.3	0	0
HVAC21						21.3	21.3	0	0
HVAC22						22.5	22.5	0	0
HVAC23						22.6	22.6	0	0
HVAC24						22.6	22.6	0	0
HVAC25						22.6	22.6	0	0
HVAC26						22.3	22.3	0	0
HVAC27						22.3	22.3	0	0
HVAC28						22.4	22.4	0	0
HVAC29						22.4	22.4	0	0
HVAC30						26.9	26.9	0	0
HVAC31						26.5	26.5	0	0
HVAC32						26.6	26.6	0	0
HVAC33						26.6	26.6	0	0
HVAC34						21.1	21.1	0	0
HVAC35						23.7	23.7	0	0
HVAC36						21.6	21.6	0	0
HVAC37						22.6	22.6	0	0
HVAC38						21.0	21.0	0	0
HVAC39						21.1	21.1	0	0
HVAC40						21.2	21.2	0	0
HVAC41						21.3	21.3	0	0
Pool Deck						21.8	0.0	0	0
14	1.Fl	39.3	38.9	0.0	0.0				
Brewery Terrace						32.1	0.0	0	0
HVAC1						33.1	33.1	0	0
HVAC2						21.6	21.6	0	0
HVAC3						21.0	21.0	0	0
HVAC4						21.0	21.0	0	0
HVAC5						21.0	21.0	0	0
HVAC6						20.9	20.9	0	0
HVAC7						18.9	18.9	0	0
HVAC8						18.8	18.8	0	0
HVAC9						18.7	18.7	0	0
HVAC10						18.1	18.1	0	0
HVAC11						18.2	18.2	0	0
HVAC12						18.2	18.2	0	0
HVAC13						18.3	18.3	0	0
HVAC14						22.1	22.1	0	0
HVAC15						22.1	22.1	0	0
HVAC16						22.1	22.1	0	0
HVAC17						20.5	20.5	0	0
HVAC18						18.9	18.9	0	0
HVAC19						18.9	18.9	0	0
HVAC20						18.8	18.8	0	0
HVAC21						18.8	18.8	0	0
HVAC22						18.9	18.9	0	0
HVAC23						18.9	18.9	0	0
HVAC24						19.0	19.0	0	0
HVAC25						19.0	19.0	0	0
HVAC26						18.5	18.5	0	0
HVAC27						18.6	18.6	0	0
HVAC28						18.6	18.6	0	0

HVAC29						19.2	19.2	0	0
HVAC30						25.0	25.0	0	0
HVAC31						25.1	25.1	0	0
HVAC32						25.3	25.3	0	0
HVAC33						25.4	25.4	0	0
HVAC34						22.9	22.9	0	0
HVAC35						23.4	23.4	0	0
HVAC36						23.9	23.9	0	0
HVAC37						23.8	23.8	0	0
HVAC38						23.2	23.2	0	0
HVAC39						23.3	23.3	0	0
HVAC40						23.2	23.2	0	0
HVAC41						23.3	23.3	0	0
Pool Deck						24.7	0.0	0	0
15	1.Fl	38.2	37.8	0.0	0.0				
Brewery Terrace						27.3	0.0	0	0
HVAC1						33.1	33.1	0	0
HVAC2						17.9	17.9	0	0
HVAC3						18.2	18.2	0	0
HVAC4						18.5	18.5	0	0
HVAC5						18.8	18.8	0	0
HVAC6						15.7	15.7	0	0
HVAC7						15.5	15.5	0	0
HVAC8						15.2	15.2	0	0
HVAC9						15.0	15.0	0	0
HVAC10						12.1	12.1	0	0
HVAC11						12.3	12.3	0	0
HVAC12						12.4	12.4	0	0
HVAC13						13.1	13.1	0	0
HVAC14						17.9	17.9	0	0
HVAC15						18.0	18.0	0	0
HVAC16						18.1	18.1	0	0
HVAC17						18.1	18.1	0	0
HVAC18						17.4	17.4	0	0
HVAC19						17.4	17.4	0	0
HVAC20						17.4	17.4	0	0
HVAC21						17.4	17.4	0	0
HVAC22						17.3	17.3	0	0
HVAC23						17.3	17.3	0	0
HVAC24						17.3	17.3	0	0
HVAC25						17.3	17.3	0	0
HVAC26						16.8	16.8	0	0
HVAC27						16.9	16.9	0	0
HVAC28						17.2	17.2	0	0
HVAC29						18.5	18.5	0	0
HVAC30						24.5	24.5	0	0
HVAC31						24.9	24.9	0	0
HVAC32						25.0	25.0	0	0
HVAC33						26.4	26.4	0	0
HVAC34						23.4	23.4	0	0
HVAC35						23.9	23.9	0	0
HVAC36						24.1	24.1	0	0
HVAC37						24.7	24.7	0	0
HVAC38						15.0	15.0	0	0
HVAC39						18.9	18.9	0	0

HVAC40	19.0	19.0	0	0
HVAC41	19.0	19.0	0	0
Pool Deck	26.8	0.0	0	0