Appendix 10

Cherry Outpost Project Acoustical Analysis Report

Cherry Outpost Project

Acoustical Analysis Report

August 2024 | 03491.00013.001

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ACRONYMS AND ABBREVIATIONS

µPa	micro-Pascals
ADT	average daily trips
ANSI	American National Standards Institute
Caltrans	California Department of Transportation
CBC	California Building Code
CEQA	California Environmental Quality Act
City	City of Wildomar
CNEL	Community Noise Equivalent Level
County	Riverside County
dB	decibel
dBA	A-weighted decibel
FTA	Federal Transit Administration
HVAC	heating, ventilation, and air conditioning
Hz	hertz
I-	Interstate
in/sec	inches per second
kHz	kilohertz
L_{DN}	Day Night sound level
L_{EQ}	time-averaged noise level
NSLU	noise-sensitive land use
PPV	peak particle velocity
project	Cherry Outpost Project
RCNM	Roadway Construction Noise Model
SPL	sound pressure level
STC	Sound Transmission Class
USDOT	U.S. Department of Transportation
VFD	variable frequency drive

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EXECUTIVE SUMMARY

This report presents an assessment of potential noise and vibration impacts associated with the proposed Cherry Outpost Project (project), which proposes the construction of a car wash, a convenience store, a gas station, two drive-through restaurants, and an 72-key hotel in the City of Wildomar (City). Off-site improvements including widening of Bundy Canyon Road, street improvements to Cherry Street, and installation of a storm drain pipe would also be constructed.

Anticipated construction activities would generate temporary elevated noise levels for nearby residences; however, construction activity would occur during the exempt hours and would not result in a substantial temporary increase in the ambient noise level. In addition, the project would not result in groundborne vibration or noise levels exceeding thresholds for building damage or human response. Impacts during construction would be less than significant.

At residences in the project area, noise levels due to project-generated traffic off-site would not increase by a perceptible amount and impacts would be less than significant. On-site stationary noise sources are anticipated to include rooftop heating, ventilation, and air conditioning systems; drive-through speakers, car wash blowers; and car wash vacuums. These sources would generate noise levels that comply with the City's noise limits during the nighttime hours and during daytime hours at the commercial property lines to the east and south as well as the proposed hotel property line.

However, the anticipated noise levels generated by on-site sources would not comply with the City's daytime noise limits at the residential property line north of the project site or the proposed property lines of the car wash parcel, resulting in potentially significant impacts. Mitigation measure NOI-1 would require installation of a 12-foot-high, solid barrier with a roof at the exit of the car wash and a 6-foot-high noise barrier at the northern property line be installed. With implementation of mitigation measure NOI-1, noise levels at the residential property line north of the project site and at the proposed property line of the drive-through restaurant northwest of the car wash would comply with the City's daytime noise limits. The project would require an exception in accordance with Wildomar Municipal Code Section 9.48.070 for noise levels exceeding City noise limits at gas station and quick-serve restaurant property lines; however, as these are commercial land uses, no adverse effects from the noise would occur. With implementation of mitigation measure NOI-1 and approval of a continuous-events exception, impacts would be less than significant.

Persons working or residing in the project area would not be exposed to excessive airport or aircraft noise and would comply with adopted airport land use compatibility plans. Project buildings would be exposed to traffic noise from Interstate 15 and other local roadways. In accordance with the General Plan Noise Element, the proposed commercial land uses would be exposed to noise levels in the conditionally acceptable range and conventional construction is anticipated to provide sufficient attenuation. For the proposed hotel land use, the exterior noise level is anticipated to be in the normally unacceptable range and further analysis of construction materials required to achieve acceptable interior noise levels would be required in accordance with the California Building Code. Mitigation measure NOI-2 specifies the requirement for an exterior-to-interior analysis to be completed to ensure interior noise levels are reduced to the required level. With implementation of this mitigation measure, the project would comply with General Plan and statewide land use compatibility requirements.

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1.0 INTRODUCTION

1.1 PURPOSE OF THE REPORT

This report analyzes potential noise and vibration impacts associated with the proposed Cherry Outpost Project (project). The analysis includes a description of existing conditions in the project vicinity and an assessment of potential impacts associated with project implementation.

1.2 PROJECT LOCATION

The approximately 6.64-acre project site is located in the City of Wildomar (City) in western Riverside County (County), California, and is generally located east of Interstate (I-) 15 and west of I-215 (Figure 1, *Regional Location*). Specifically, the project site is located at the northwest intersection of Bundy Canyon Road and Cherry Street and is bordered to the west by the I-15 northbound onramp (Figure 2, *Aerial Photograph*). The project site comprises two undeveloped parcels with Assessor's Parcel Numbers 366-290-008 and -007. Off-site areas within the existing paved right-of-way along Bundy Canyon Road and Cherry Street would also be altered as part of the project.

1.3 PROJECT DESCRIPTION

The proposed project consists of a commercial development split among four proposed parcels (see Figure 3, *Site Plan*). The first parcel would contain a 5,724-square-foot car wash building in the southern portion of the project site. The second parcel located on the east side of the project site would contain a 14-pump gas station, 4,176-square-foot convenience store, and 2,375-square foot quick-serve restaurant with a drive through. A quick-serve restaurant with a drive-through is also proposed on parcel 3 at the western edge of the site and would comprise approximately 4,425 square feet of building space. The fourth parcel at the northern edge of the project site would contain an 72-key, four story hotel totaling 45,571 square feet of floor area. Access to the site would be provided by two driveways along Cherry Street. Off-site project components include widening of Bundy Canyon Road, street improvements to Cherry Street, and installation of a storm drain pipe. See Figure 4, *Conceptual Grading Plan*.

The project site is currently zoned as Commercial within the Scenic Highway Commercial Zone. The General Plan Land Use Element designates the project site for Commercial Retail use. The proposed project uses are consistent with the existing zoning and land use designations for the site with approval of a Conditional Use Permit and no changes to these designations are proposed. A Continuous-Events Exception in accordance with Section 9.48.070 of the Wildomar Municipal Code would also be required for operation of the proposed car wash.

1.4 NOISE AND VIBRATION DESCRIPTORS AND TERMINOLOGY

1.4.1 Noise Descriptors

All noise level or sound level values presented herein are expressed in terms of decibels (dB), with A-weighting (dBA) to approximate the hearing sensitivity of humans. Time-averaged noise levels are expressed by the symbol L_{EQ}, with a specified duration, while maximum noise levels are represented by the symbol L_{MAX}. The Community Noise Equivalent Level (CNEL) is a 24-hour average, where noise levels

during the evening hours of 7:00 p.m. to 10:00 p.m. have an added 5 dBA weighting, and noise levels during the nighttime hours of 10:00 p.m. to 7:00 a.m. have an added 10 dBA weighting. This is similar to the Day Night sound level (L_{DN}), which is a 24-hour average with an added 10 dBA weighting on the same nighttime hours but no added weighting on the evening hours. Sound levels expressed in CNEL are always based on dBA. These metrics are used to express noise levels for both measurement and municipal regulations, as well as for land use guidelines and enforcement of noise ordinances.

1.4.2 Noise Terminology

1.4.2.1 Sound, Noise, and Acoustics

Sound can be described as the mechanical energy of a vibrating object transmitted by pressure waves through a liquid or gaseous medium (e.g., air) to a hearing organ, such as a human ear. Noise is defined as loud, unexpected, or annoying sound. In the science of acoustics, the fundamental model consists of a sound (or noise) source, a receiver, and the propagation path between the two. The loudness of the noise source and obstructions or atmospheric factors affecting the propagation path to the receiver determines the sound level and characteristics of the noise perceived by the receiver. The field of acoustics deals primarily with the propagation and control of sound.

1.4.2.2 Frequency

Continuous sound can be described by frequency (pitch) and amplitude (loudness). A low-frequency sound is perceived as low in pitch. Frequency is expressed in terms of cycles per second, or Hertz (Hz) (e.g., a frequency of 250 cycles per second is referred to as 250 Hz). High frequencies are sometimes more conveniently expressed in kilohertz (kHz), or thousands of Hertz. The audible frequency range for humans is generally between 20 Hz and 20,000 Hz.

1.4.2.3 Sound Pressure Levels and Decibels

The amplitude of pressure waves generated by a sound source determines the loudness of that source. Sound pressure amplitude is measured in micro-Pascals (µPa). One µPa is approximately one hundred billionth (0.00000000001) of normal atmospheric pressure. Sound pressure amplitudes for different kinds of noise environments can range from less than 100 to 100,000,000 µPa. Because of this wide range of values, sound is rarely expressed in terms of µPa. Instead, a logarithmic scale is used to describe sound pressure level (SPL) in terms of dBA. The threshold of hearing for the human ear is about 0 dBA, which corresponds to 20 µPa.

1.4.2.4 Addition of Decibels

Because decibels are logarithmic units, SPL cannot be added or subtracted through standard arithmetic. Under the decibel scale, a doubling of sound energy corresponds to a 3 dBA increase. In other words, when two identical sources are each producing sound of the same loudness, the resulting sound level at a given distance would be 3 dBA higher than from one source under the same conditions. For example, if one automobile produces an SPL of 70 dB when it passes an observer, two cars passing simultaneously would not produce 140 dBA—rather, they would combine to produce 73 dBA. Under the decibel scale, three sources of equal loudness together produce a sound level 5 dBA louder than one source.

Under controlled conditions in an acoustical laboratory, the trained, healthy human ear is able to discern 1 dBA changes in sound levels, when exposed to steady, single-frequency ("pure-tone") signals in the mid-frequency (1,000 Hz to 8,000 Hz) range. In typical noisy environments, changes in noise of 1 to 2 dBA are generally not perceptible. It is widely accepted, however, that people begin to detect sound level increases of 3 dBA in typical noisy environments. Further, a 5 dBA increase is generally perceived as a distinctly noticeable increase, and a 10 dBA increase is generally perceived as a doubling of loudness.

No known studies have directly correlated the ability of a healthy human ear to discern specific levels of change in traffic noise over a 24-hour period. Many ordinances, however, specify a change of 3 CNEL as the significant impact threshold. This is based on the concept of a doubling in noise energy resulting in a 3 dBA change in noise, which is the amount of change in noise necessary for the increase to be perceptible to the average healthy human ear.

1.4.3 Vibration Descriptors and Terminology

Groundborne vibration consists of rapidly fluctuating motions or waves transmitted through the ground with an average motion of zero. Sources of groundborne vibrations include natural phenomena and anthropogenic causes (e.g., explosions, machinery, traffic, trains, construction equipment). Vibration sources may be continuous (e.g., factory machinery) or transient (e.g., explosions).

Vibration effects can be described by peak and root mean square amplitudes. Building damage is often discussed in terms of peak velocity, or peak particle velocity (PPV). The PPV is defined as the maximum instantaneous positive or negative peak of the vibration signal. PPV is related to the stresses that are experienced by buildings; For the purposes of this analysis, a PPV descriptor with units of inches per second (in/sec) is used to evaluate construction-generated vibration for building damage and human complaints.

1.5 NOISE- AND VIBRATION- SENSITIVE LAND USES

Noise-sensitive land uses (NSLUs) are land uses that may be subject to stress and/or interference from excessive noise, including residences, hospitals, schools, hotels, resorts, libraries, sensitive wildlife habitat, or similar facilities where quiet is an important attribute of the environment. Noise receptors are individual locations that may be affected by noise. NSLUs in the project vicinity include residences located adjacent to the project site to the north and east of the project site across Cherry Street.

People, structures, and equipment are the three primary categories of receivers that are sensitive to groundborne vibration. Thus, land uses sensitive to vibration include residences, hospitals, research laboratories, or similar facilities where people live, old structures are present, or vibration-sensitive equipment is used. Vibration-sensitive land uses in the project vicinity include residences located north and east of the project site. Based on the age of these structures, they may not be constructed in accordance with current building codes and are, therefore, considered more sensitive to vibration than modern residential structures.

1.6 REGULATORY FRAMEWORK

1.6.1 California Noise Control Act

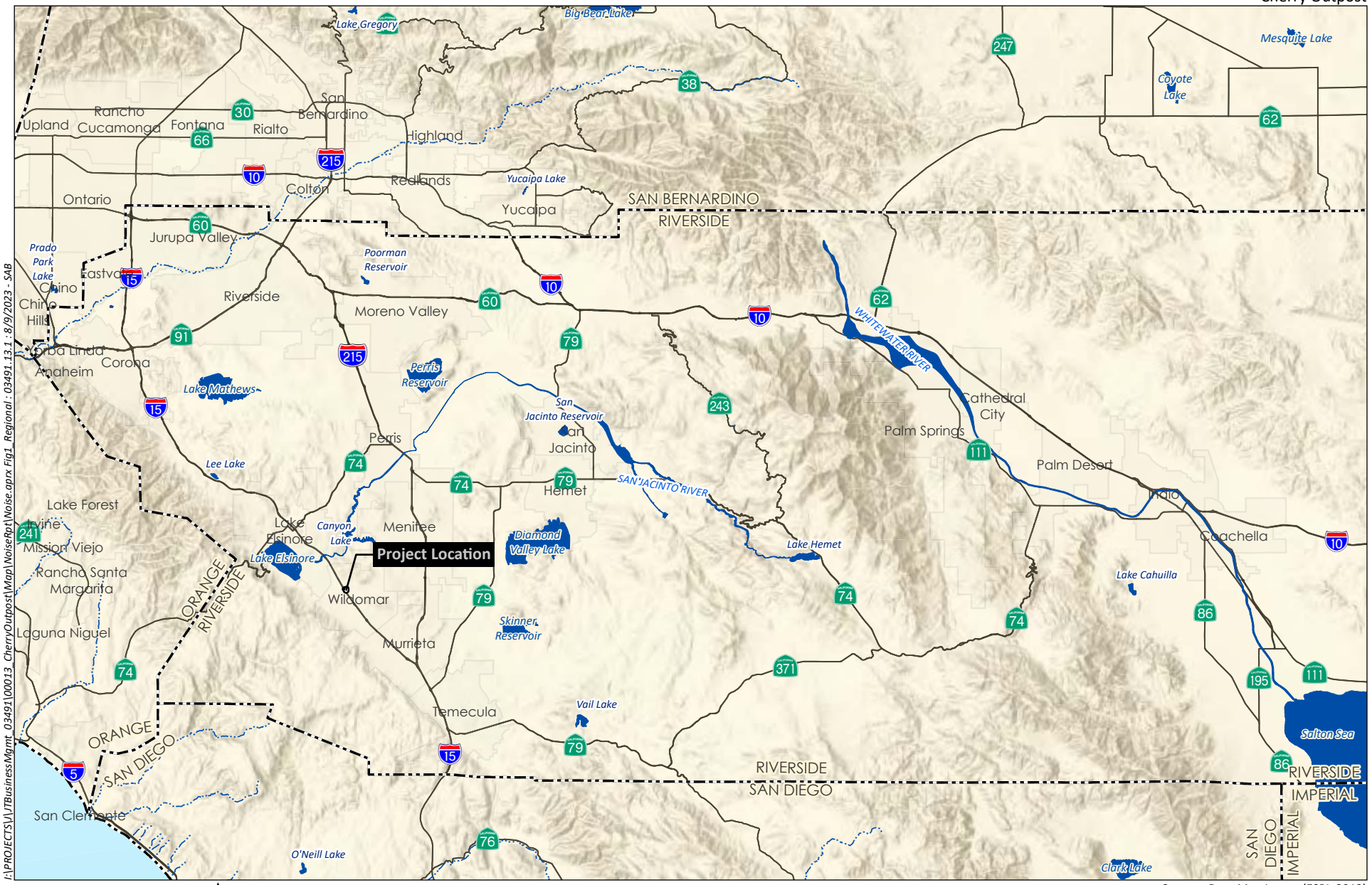
The California Noise Control Act is a section within the California Health and Safety Code that describes excessive noise as a serious hazard to the public health and welfare and that exposure to certain levels of noise can result in physiological, psychological, and economic damage. It also finds that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

1.6.2 California Building Code

The California Building Code (CBC) sets forth building design and construction requirements relating to fire and life safety, structural safety, and access compliance. Title 24, Part 2, Section 1206, Sound Transmission, requires interior noise levels in habitable rooms not to exceed 45 dB. The 45 dB requirement may be measured as either the L_{DN} or CNEL, as used in the applicable general plan noise element.

1.6.3 County of Riverside General Plan Noise Element

The City of Wildomar adopted the County of Riverside's 2003 General Plan, which includes a Noise Element that establishes noise compatibility guidelines for various land uses, as shown in Table 1, *Land Use Noise Compatibility Guidelines*. As shown in Table 1, for the project's hotel land use, the Noise Element specifies exterior noise levels up to 65 CNEL as normally acceptable, between 60 CNEL and 70 CNEL as conditionally acceptable, between 70 CNEL and 80 CNEL as normally unacceptable and over 80 CNEL as clearly unacceptable. For the other commercial land uses, exterior noise levels of up to 70 CNEL are considered normally acceptable, between 67.5 CNEL and 77.5 CNEL are considered conditionally acceptable, and above 75 CNEL are considered clearly unacceptable.



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0 10 Miles

Source: Base Map Layers (ESRI, 2013)

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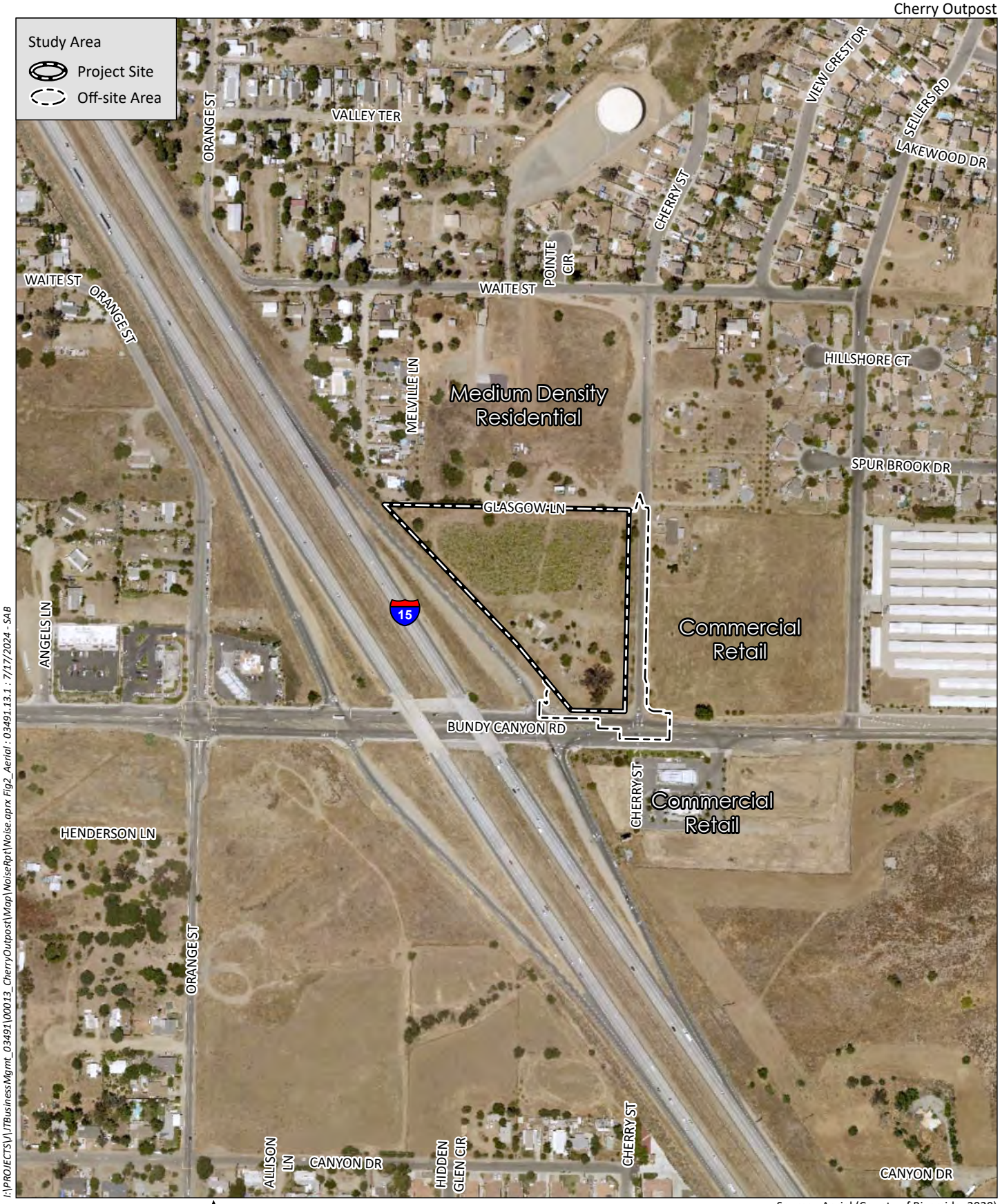
Regional Location

Figure 1



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Source: Aerial (County of Riverside, 2020)

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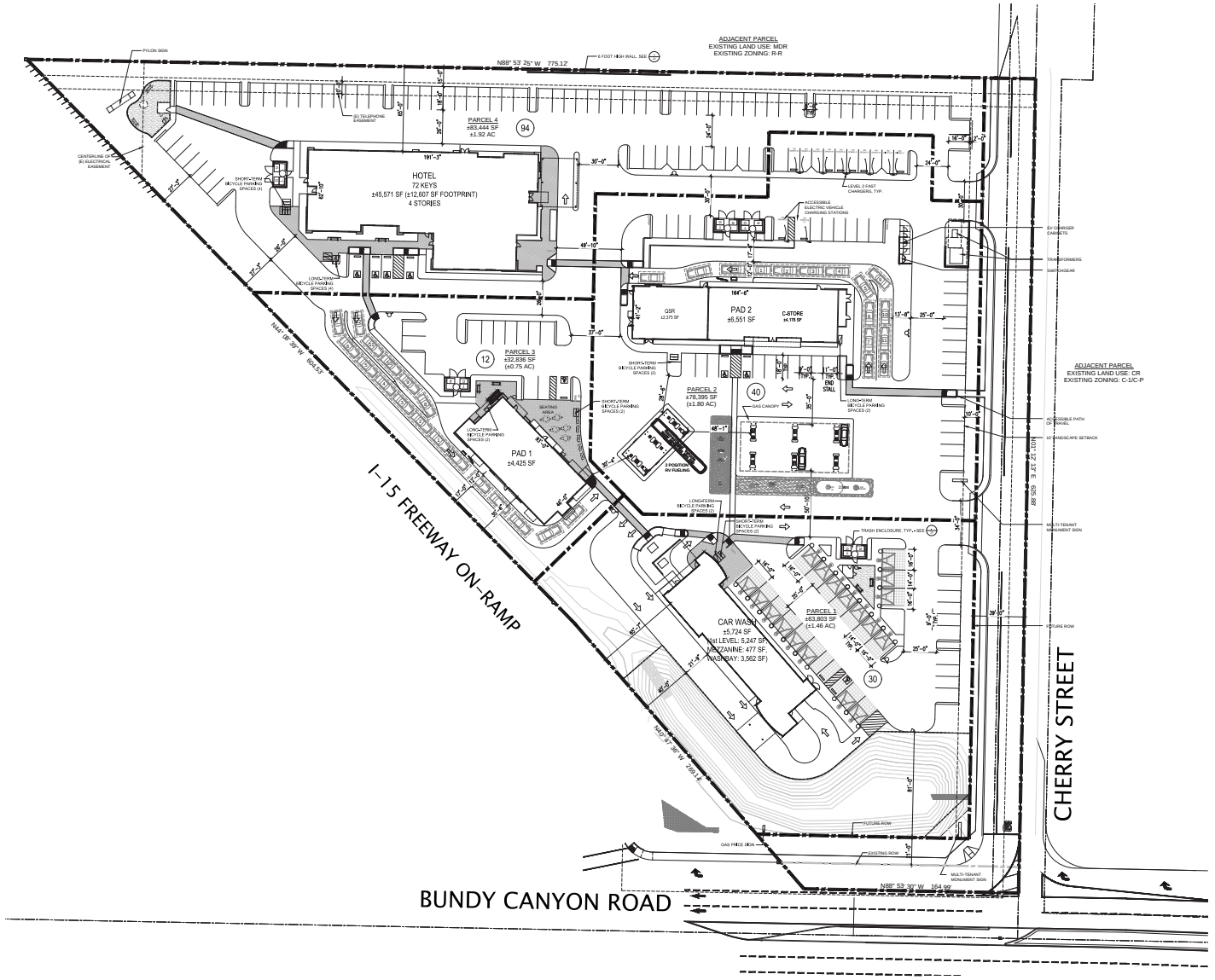
Aerial Photograph

Figure 2



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Source: KGTY, 2024

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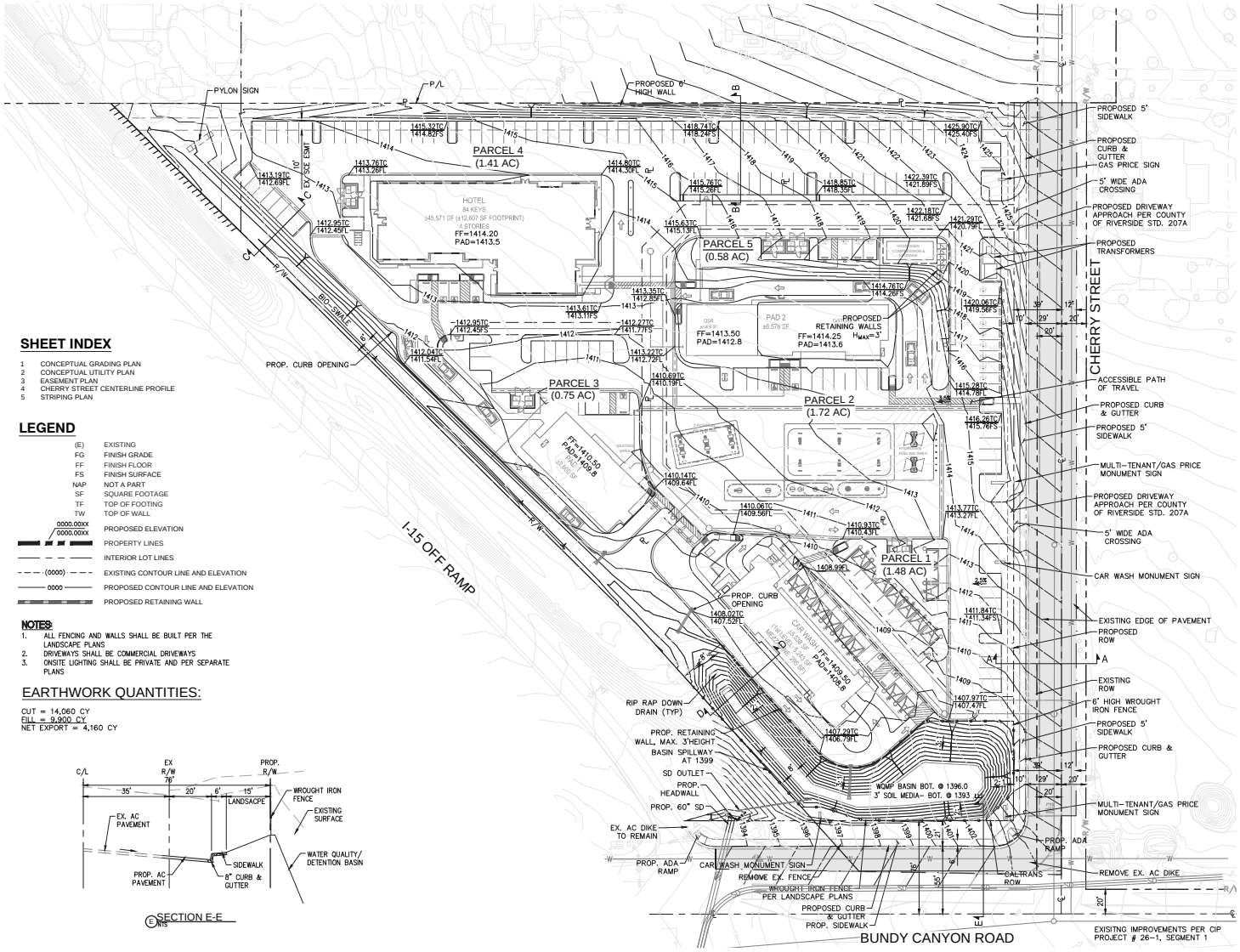
Site Plan

Figure 3



Source: Tait & Associates, 2024

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Conceptual Grading Plan

Figure 4

Table 1
LAND USE NOISE COMPATIBILITY GUIDELINES

Land Use Category	Exterior Noise Exposure (CNEL)						
	50-55	55-60	60-65	65-70	70-75	75-80	80+
Residential – Low Density Single Family, Duplex, Mobile Homes							
Residential – Multiple Family							
Transient Lodging – Motels, Hotels							
Schools, Libraries, Churches, Hospitals, Nursing Homes							
Auditoriums, Concert Halls, Amphitheaters							
Sports Arena, Outdoor Spectator Sports							
Playgrounds, Neighborhood Parks							
Golf Courses, Riding Stables, Water Recreation, Cemeteries							
Office Buildings, Businesses, Commercial, and Professional							
Industrial Manufacturing, Utilities, Agriculture							
Normally Acceptable[1]	**Conditionally Acceptable[2]**		**Normally Unacceptable[3]**		**Clearly Unacceptable[4]**		

Source: County 2003

[1] Normally Acceptable: Specified land use is satisfactory based upon the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements.

[2] Conditionally Acceptable: New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and noise insulation features included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning will normally suffice. Outdoor environment will seem noisy.

[3] Normally Unacceptable: New construction or development should generally be discouraged. If new construction does proceed, a detailed analysis of the noise reduction requirements must be made with needed noise insulation features included in the design. Outdoor areas must be shielded.

[4] Clearly Unacceptable: New construction or development should generally not be undertaken. Construction costs to make the indoor environment acceptable would be prohibitive and the outdoor environment would not be usable.

CNEL = Community Noise Equivalent Level.

1.6.4 City of Wildomar Municipal Code

1.6.4.1 Section 9.48.020 – Exemptions

Sound emanating from the following sources is exempt from the provisions of this chapter:

H. Private construction projects located one-quarter of a mile or more from an inhabited dwelling

I. Private construction projects located within one-quarter of a mile from an inhabited dwelling, provided that:

    1. Construction does not occur between the hours of 6:00 p.m. and 6:00 a.m. during the months of June through September, and

    2. Construction does not occur between the hours of 6:00 p.m. and 7:00 a.m. during the months of October through May

J. Property maintenance, including, but not limited to, the operation of lawnmowers, leaf blowers, etc., provided such maintenance occurs between the hours of 7:00 a.m. and 8:00 p.m.

K. Motor vehicles, other than off-highway vehicles. This exemption does not include sound emanating from motor vehicle sound systems

L. Heating and air conditioning equipment

1.6.4.2 Section 9.48.040 – General Sound Level Standards

No person shall create any sound, or allow the creation of any sound, on any property that causes the exterior sound level on any other occupied property to exceed the sound level standards set forth in Table 2, *Sound Level Standards*.

Table 2
SOUND LEVEL STANDARDS

General Plan Foundation Component	General Plan Land Use Designation (Density)	Maximum Decibel Level 7:00 am – 10:00 pm (dBA L_{MAX})	Maximum Decibel Level 10:00 pm – 7:00 am (dBA L_{MAX})
Community Development	EDR – Estate Density Residential (2 AC)	55	45
	VLDR – Very Low Density Residential (1 AC)	55	45
	LDR –Low Density Residential (1/2 AC)	55	45
	MDR – Medium Density Residential (2-5)	55	45
	MHDR – Medium High Density Residential (5-8)	55	45
	HDR – High Density Residential (8-14)	55	45
	VHDR – Very High Density Residential (14-20)	55	45
	HTDR – Highest Density Residential (20+)	55	45
	CR – Retail Commercial	65	55
	CO – Office Commercial	65	55
	CT – Tourist Commercial	65	55
	CC – Community Center	65	55
	LI – Light Industrial	75	55
	HI – Heavy Industrial	75	75
	BP – Business Park	65	45
	PF – Public Facility	65	45
	SP – Specific Plan Residential	55	45
	SP – Specific Plan Commercial	65	55
	SP – Specific Plan Light Industrial	75	55
	SP – Specific Plan Heavy Industrial	75	75
Rural Community	EDR – Estate Density Residential (2 AC)	55	45
	VLDR – Very Low Density Residential (1 AC)	55	45
	LDR –Low Density Residential (1/2 AC)	55	45
Rural	RR – Rural Residential (5 AC)	45	45
	RM – Rural Mountainous (10 AC)	45	45
	RD – Rural Desert (10 AC)	45	45
Agriculture Open Space	AG – Agriculture (10 AC)	45	45
	C – Conservation	45	45
	CH – Conservation Habitat	45	45
	REC – Recreational	45	45
	RUR – Rural (20 AC)	45	45
	W – Watershed	45	45
	MR – Mineral Resources	75	45

Source: City of Wildomar Municipal Code, Section 9.48.040, Table 1
dBA = A-weighted decibel; L_{MAX} = maximum decibel level

1.6.4.3 Section 9.48.070 – Exceptions

Exceptions may be requested from the standards set forth in Section 9.48.040 or 9.48.060 of this chapter and may be characterized as construction-related, single-event or continuous-events exceptions.

A. Application and Processing.

1. Construction-Related Exceptions. An application for a construction-related exception shall be made to and considered by the Director of Building and Safety on forms provided by the Building and Safety Department and shall be accompanied by the appropriate filing fee. No public hearing is required.

2. Single-Event Exceptions. An application for a single-event exception shall be made to and considered by the Planning Director on forms provided by the Planning Department and shall be accompanied by the appropriate filing fee. No public hearing is required.

3. Continuous-Events Exceptions. An application for a continuous-events exception shall be made to the Planning Director on forms provided by the Planning Department and shall be accompanied by the appropriate filing fee. Upon receipt of an application for a continuous-events exception, the Planning Director shall set the matter for public hearing before the Planning Commission, notice of which shall be given as provided in Title 17. Notwithstanding the above, an application for a continuous-events exception that is associated with an application for a land use permit shall be processed concurrently with the land use permit in the same manner that the land use permit is required to be processed.

B. Requirements for Approval. The appropriate decision-making body or officer shall not approve an exception application unless the applicant demonstrates that the activities described in the application would not be detrimental to the health, safety, or general welfare of the community. In determining whether activities are detrimental to the health, safety or general welfare of the community, the appropriate decision-making body or officer shall consider such factors as the proposed duration of the activities and their location in relation to sensitive receptors. If an exception application is approved, reasonable conditions may be imposed to minimize the public detriment, including, but not limited to, restrictions on sound level, sound duration and operating hours.

C. Appeals. The Director of Building and Safety's decision on an application for a construction-related exception is considered final. The Planning Director's decision on an application for a single-event exception is considered final. After making a decision on an application for a continuous-events exception, the appropriate decision-making body or officer shall mail notice of the decision to the applicant. Within 10 calendar days after the mailing of such notice, the applicant or an interested person may appeal the decision to the City Council. Upon receipt of an appeal and payment of the appropriate appeal fee, the City Clerk shall set the matter for hearing not less than five days nor more than 30 days thereafter and shall give written notice of the hearing in the same manner as notice of the hearing was given by the appropriate hearing officer or body. The City Council shall render its decision within 30 days after the appeal hearing is closed.

D. Effect of a Pending Continuous-Events Exception Application. For a period of 180 days from the effective date of the ordinance codified in this chapter, no person creating any sound prohibited by this chapter shall be considered in violation of this chapter if the sound is related to a use that is operating pursuant to an approved land use permit, if an application for a continuous-events exception has been filed to sanction the sound and if a decision on the application is pending.

2.0 ENVIRONMENTAL SETTING

The project site is currently vacant and contains abandoned palm trees from prior nursery operations. The parcel is currently zoned as Commercial, specifically within the Scenic Highway Commercial Zone, and designated in the General Plan for Commercial Retail use.

2.1 SURROUNDING LAND USES

Adjacent land uses surrounding the project site include residential uses zoned Rural Residential to the north; a non-conforming residential land use on the parcel zoned Commercial across Cherry Street to the east; a gas station with a convenience store and car wash on the parcel zoned Commercial across Bundy Canyon Road to the south; and the northbound on-ramp to I-15 to the west. Parcels north of the project site have General Plan Land Use designations of Medium Density Residential and the parcels east and south of the project site have General Plan Land Use designations of Commercial Retail. See Figure 2.

2.2 EXISTING NOISE ENVIRONMENT

The existing noise environment is dominated by traffic noise from I-15, Bundy Canyon Road, and Cherry Boulevard. There is some more distant noise from aircraft in the project area; however, the project site is not within an airport noise contour where substantial aircraft noise occurs (County 2023).

2.2.1 Noise Survey

Two noise measurements were taken near the project site to document existing conditions in the vicinity. The first noise measurement was recorded along I-15 at the western edge of the gas station south of the project site. The second measurement was taken along Bundy Canyon Road, east of the project site and away from I-15. The measured noise levels are shown in Table 3, *Noise Measurement Results.* Measurement locations are shown on Figure 5, *Measurement and Traffic Receiver Locations*.

Table 3
NOISE MEASUREMENT RESULTS

Measurement 1	
Date:	April 7, 2023
Time:	4:20 p.m. – 4:35 p.m.
Location:	Eastern edge of gas station property. Approximately 180 feet south of Bundy Canyon Road centerline and 325 feet east of eastern edge of I-15.
Measured Noise Level:	70.6 dBA L_{EQ}
Notes:	Predominant noise source is I-15 and associated northbound offramp.
Measurement 2	
Date:	April 7, 2023
Time:	4:39 p.m. – 4:54 p.m.
Location:	Approximately 35 feet north of Bundy Canyon Road centerline.
Measured Noise Level:	67.4 dBA L_{EQ}
Notes:	Primarily Bundy Canyon Road traffic noise, limited traffic on Canyon Ranch Road.

dBA = A-weighted decibel; L_{EQ} = time-averaged noise level

A 15-minute traffic count was conducted during the second measurement (location M2) to estimate the breakdown of heavy trucks (three or more axles), medium trucks (double tires/two axles), and automobiles along Bundy Canyon Road. Traffic counts for the timed measurement and the one-hour equivalent volume are shown in Table 4, *Recorded Traffic Volume and Vehicle Mix*.

Table 4
RECORDED TRAFFIC VOLUME AND VEHICLE MIX

Location	Roadway	Traffic	Autos	MT[1]	HT[2]
M2	Bundy Canyon Road	15-minute count	258	3	1
		One-hour equivalent	1,032	12	4
		Percent	98.5%	1.1%	0.4%

[1] Medium Trucks (double tires/two axles)
[2] Heavy Trucks (three or more axles)

3.0 ANALYSIS, METHODOLOGY, AND ASSUMPTIONS

3.1 METHODOLOGY

3.1.1 Ambient Noise Survey

The following equipment was used to measure existing noise levels at the project site:

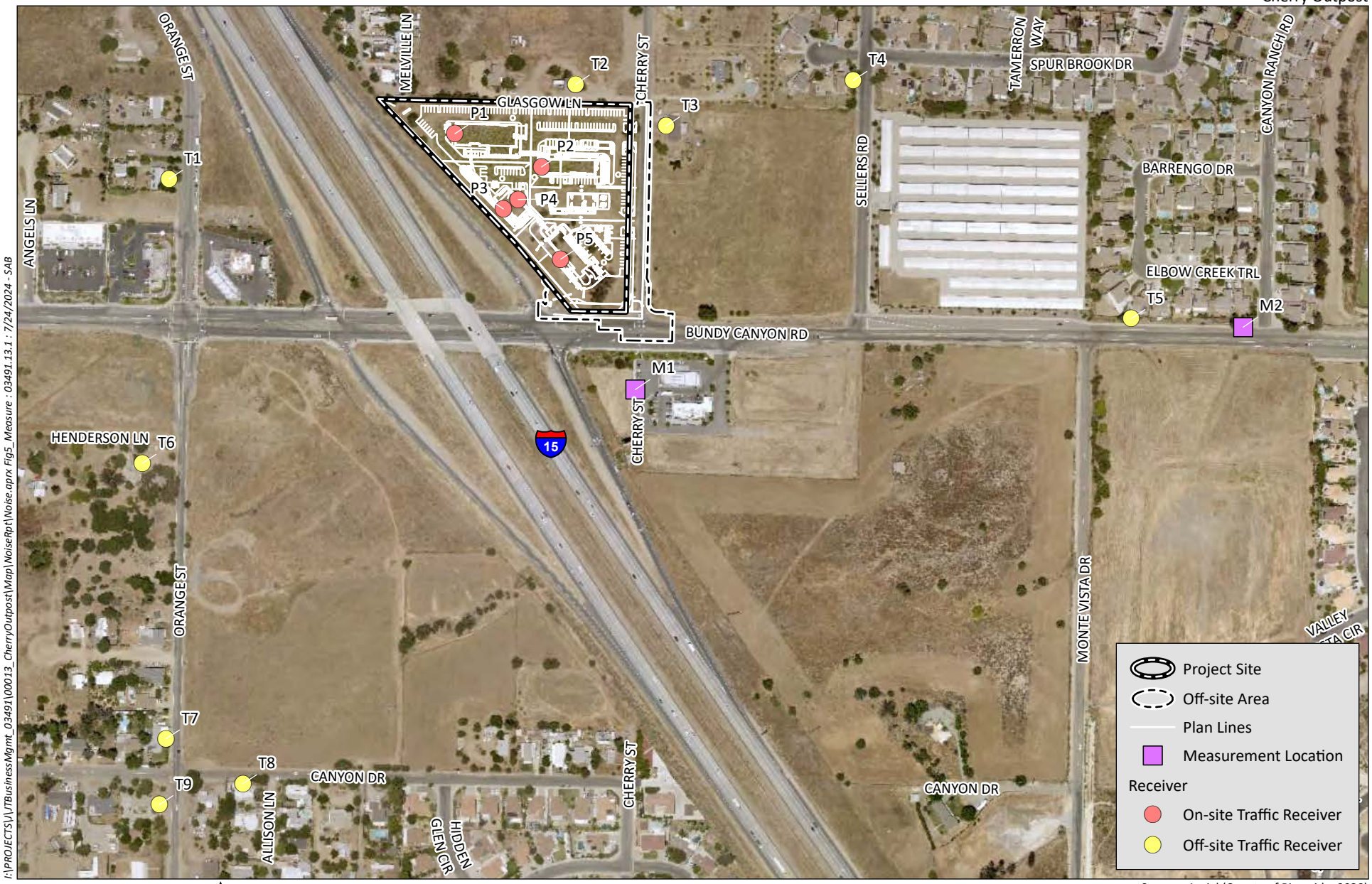
- Piccolo II Noise Meter
- Larson Davis Model CA250 Calibrator
- Windscreen and tripod for the noise meter

The sound level meter was calibrated prior to the noise measurements to ensure accuracy. All sound level measurements conducted and presented in this report were made with a sound level meter that conforms to the American National Standards Institute (ANSI) specifications for sound level meters (ANSI SI.4-1983 R2006). All instruments were maintained with National Institute of Standards and Technology traceable calibration per the manufacturers' standards.

3.1.2 Noise Modeling Software

Modeling of the exterior noise environment for this report was accomplished using Computer Aided Noise Abatement (CadnaA) version 2022. CadnaA is a model-based computer program developed by DataKustik for predicting noise impacts in a wide variety of conditions. CadnaA assists in the calculation, presentation, assessment, and mitigation of noise exposure. It allows for the input of project related information, such as noise source data, barriers, structures, and topography to create a detailed model, and uses the most up-to-date calculation standards to predict outdoor noise impacts. The latest grading plan provided by the project applicant, as shown on Figure 4, was used for on-site topography. CadnaA traffic noise prediction is based on the data and methodology used in the Traffic Noise Model released by the U.S. Department of Transportation (USDOT).

Cherry Outpost



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Source: Aerial (County of Riverside, 2020)

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Measurement and Traffic Receiver Locations

Figure 5

Peak-hour traffic volumes were estimated based on the assumption that approximately 10 percent of the average daily traffic would occur during a peak hour. The one-hour L_{EQ} noise level is calculated utilizing peak-hour traffic. Peak hour L_{EQ} can be converted to CNEL using the following equation, where $L_{EQ}(h)pk$ is the peak hour L_{EQ}, *P* is the peak hour volume percentage of the average daily trips (ADT), *d* and *e* are divisions of the daytime fraction of ADT to account for daytime and evening hours, and *N* is the nighttime fraction of ADT:

$$CNEL = L_{EQ}(h)pk + 10log10\ 4.17/P + 10log10(d + 4.77e + 10N)$$

The model-calculated one-hour L_{EQ} noise output is therefore approximately equal to the CNEL when peak-hour traffic volumes are approximately 10 percent of ADT (California Department of Transportation [Caltrans] 2013). Project construction noise was analyzed using the Roadway Construction Noise Model (RCNM; USDOT 2008), which utilizes estimates of sound levels from standard construction equipment.

3.2 ASSUMPTIONS

3.2.1 Construction

Construction would require the use of equipment throughout the site and off-site improvement areas for the full term of construction. General project construction activities would include site preparation, grading, utility undergrounding, physical building construction, paving, and application of architectural coatings. Since the equipment required for project construction has not been determined at this phase of project planning, this analysis included modeling of construction equipment required for similar projects. According to the project applicant, no blasting would be required.

3.2.2 Operations

The proposed project's operational noise sources are anticipated to include heating, ventilation, and air conditioning (HVAC) systems, drive-through restaurant speakers, car wash equipment, and vehicular traffic. During operations, the project would also be exposed to vehicular traffic noise.

3.2.2.1 Heating, Ventilation, and Air Conditioning Units

Specific planning for future HVAC systems is not available at this point in project design. A typical rooftop commercial HVAC unit was analyzed for the project buildings. The unit used in this analysis is a Carrier Centurion Model 50PG12 with a sound rating of 80 dBA sound power. The manufacturer's noise data is provided below in Table 5, *Carrier 50PG12 Condenser Noise*, and in Appendix A, *HVAC Sound Data*.

Table 5
CARRIER 50PG12 CONDENSER NOISE

Noise Levels in Decibels[1] (dB) Measured at Octave Frequencies								Overall Noise Level (dBA)[1]
63 Hz	125 Hz	250 Hz	500 Hz	1 KHz	2 KHz	4 KHz	8 KHz	
90.4	83.1	80.9	77.8	75.2	70.0	66.1	57.6	80.0

[1] Sound Power Level (S_{WL})
HZ = Hertz; KHz = kilohertz

A single ton of HVAC capacity is commonly required for every 350 square feet of habitable space. Using this calculation, 11 units for the hotel, 1 unit for the stand-alone restaurant building, 2 units for the convenience store and quick-serve restaurant building, and 1 unit for the car wash would be required.

3.2.2.2 Drive-through Speakers

Specific speaker system data is not available at this point in project design. Therefore, a noise level measurement from a speaker at another drive-through restaurant was used as a reference source for this analysis. The reference measurement was made at the In-N-Out Burger restaurant located at 7160 Broadway in Lemon Grove, which is similarly located adjacent to a highway exit, during the 12:00 p.m. lunch hour (HELIX 2016). The sound level meter was set to take data samples at 1-octave band, 20-millisecond intervals and held just outside the car window while an order was placed, approximately four feet from the speaker and at an elevation of approximately four feet. The 20-second summed measurement time period data (the order period) are shown in octave format in Table 6, *Measured Drive-through Speaker Noise Data.* It was assumed that a single automobile would be present when the speaker is operating and that both drive-through restaurants would be open 24 hours per day.

Table 6
MEASURED DRIVE-THROUGH SPEAKER NOISE DATA

Noise Levels in Decibels[1] (dB) Measured at Octave Frequencies								Overall Noise Level (dBA)[1]
63 Hz	125 Hz	250 Hz	500 Hz	1 KHz	2 KHz	4 KHz	8 KHz	
79.9	75.8	72.8	75.4	85.4	80.6	61.7	52.5	86.4

Source: HELIX 2016

[1] Measured at five feet from source.

HZ = Hertz; KHz = kilohertz

3.2.2.3 Car Wash

The major noise sources that would be installed for the car wash include blowers in the car wash tunnel and vacuums in the parking area. The car wash would be open during the daytime hours only. The project applicant provided two noise studies conducted at existing car wash locations designed by the same company as the currently proposed car wash (ABD Engineering & Design 2020; Tommy Car Wash Systems 2021). The first noise study included measurements at various locations throughout the car wash facility that were used to replicate noise levels emanating from vacuums in CadnaA (ABD Engineering & Design 2020). The second noise study provided measurement information at various distances from the exit of the car wash tunnel that was used to model noise levels from the blowers in CadnaA. The blowers in this study were adjusted to operate at different frequencies (60 Hz to 10 Hz) to document the resulting noise levels (Tommy Car Wash Systems 2021). The proposed car wash is anticipated to install a variable frequency drive (VFD) to operate the blowers at a frequency of 50 Hz. See Appendix B, *Car Wash Sound Data*, for more detail.

3.2.2.4 Vehicular Traffic

Information related to the project's trip generation and existing traffic environment was provided by Trames Solutions Inc. (2024). The project is estimated to generate 8,897 ADT; however, 1,171 of these trips are anticipated to result from existing pass-by trips, resulting in net trip generation of 7,726 ADT. Access to the project site would be provided via the two driveways on the eastern edge of the project site off Cherry Street. Traffic volumes analyzed herein consider the Cherry Street/Bundy Canyon Road

intersection to be restricted to right-in/right-out/left-in turning movements as initially proposed (Trames Solutions Inc. 2024). Table 7, *Roadway Segment Traffic Volumes*, summarizes the ADT data for the roadway segments that would carry project-generated traffic. Future traffic information represents existing conditions and anticipated increases in trips due to ambient growth and cumulative projects identified in the area for the year 2025. Based on typical traffic distributions and the traffic counts conducted during the noise survey, a traffic distribution of 96 percent automobiles, 3 percent medium trucks, and 1 percent heavy trucks was used in this analysis for local roadways.

Table 7
ROADWAY SEGMENT TRAFFIC VOLUMES

Roadway Segment	Project ADT	Existing (2023) ADT	Future (2025) ADT	Future (2025) + Project ADT
Bundy Canyon Road				
West of Almond Street	400	11,500	13,900	14,300
Almond Street to Orange Street	400	12,600	15,700	16,100
Orange Street to I-15 Southbound Ramps	1,900	19,900	25,200	27,100
I-15 Southbound Ramps to I-15 Northbound Ramps	3,700	21,300	29,300	33,000
I-15 Northbound Ramps to Cherry Street	5,400	21,500	32,200	37,600
Cherry Street to Sellers Road	500	20,500	30,100	30,600
Sellers Road to Monte Vista Drive	1,200	19,200	27,700	28,900
Monte Vista Drive to Canyon Ranch Road	800	20,500	26,100	26,900
East of Canyon Ranch Road	400	19,900	24,900	25,300
Orange Street				
North of Bundy Canyon Road	400	4,400	4,800	5,200
Bundy Canyon Road to Canyon Drive	1,200	6,000	7,700	8,900
South of Canyon Drive	400	4,200	5,000	5,400
Canyon Drive				
West of Orange Street	400	2,100	2,500	2,900
East of Orange Street	400	700	1,300	1,700
Cherry Street				
North of Project Site	1,800	2,000	2,300	4,100
North Project Driveway to South Project Driveway	4,400	1,700	1,800	6,200
South Project Driveway to Bundy Canyon Road	7,000	1,700	1,800	8,800
Sellers Road				
North of Bundy Canyon Road	1,000	3,000	4,000	5,000
Waite Street				
West of Cherry Street	800	2,500	2,800	3,600
Monte Vista Drive				
South of Bundy Canyon Road	400	2,400	10,100	10,500
Canyon Ranch Road				
North of Bundy Canyon Road	400	1,300	1,900	2,300

Source: Trames Solutions Inc. 2024
ADT = average daily traffic

The project traffic study did not provide information related to I-15 traffic volumes. Therefore, modeling of the existing noise environment on-site was achieved using data provided by Caltrans for daily traffic and traffic breakdowns. According to the 2021 traffic census, I-15 adjacent to the project site carries

approximately 118,000 ADT during the peak month, consisting of approximately 4 percent medium trucks and 5 percent heavy trucks (Caltrans 2021).

3.3 GUIDELINES FOR THE DETERMINATION OF SIGNIFICANCE

Thresholds used to evaluate potential noise impacts are based on applicable criteria in the State's California Environmental Quality Act (CEQA) Guidelines Appendix G Noise (Thresholds 1-3) and Land Use sections (Threshold 4). A significant noise impact could occur if the project would result in:

Threshold 1: *Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.*

In accordance with the Wildomar Municipal Code, construction noise is exempt from typical noise level limits provided construction activities do not occur between 6:00 p.m. and 6:00 a.m. during the months of June through September or between 6:00 p.m. and 7:00 a.m. during the months of October through May. Construction noise impacts would be considered significant if project construction would result in a 10 dB increase in ambient noise levels, which is perceived as a doubling of loudness (Caltrans 2013).

A significant impact related to proposed stationary noise sources would occur if the sources would generate noise levels at the property line that exceed the limits contained in the City's Noise Ordinance (provided in Table 2 of this report). For the project site, the applicable limits at the northern property are 55 dBA L_{MAX} from 7:00 a.m. to 10:00 p.m. and 45 dBA L_{MAX} from 10:00 p.m. to 7:00 a.m. At the properties to the east and south of the project site, across Cherry Street and Bundy Canyon Road, respectively, the applicable limits are 65 dBA L_{MAX} from 7:00 a.m. to 10:00 p.m. and 55 dBA L_{MAX} from 10:00 p.m. to 7:00 a.m.

For traffic-related noise, in the absence of a City-adopted threshold, impacts would be considered significant if the project would result in a perceptible (3 dBA) increase in noise levels at nearby NSLUs.

Threshold 2: *Generation of excessive groundborne vibration or groundborne noise levels.*

Excessive ground-borne vibration would occur if construction-related ground-borne vibration exceeds the "severe" vibration annoyance potential criteria for human receptors of 0.4 in/sec PPV specified by Caltrans (2020) or the damage potential criteria to non-engineered timber and masonry buildings of 0.2 inch per second PPV established by the Federal Transit Administration (FTA; 2018).

Threshold 3: *For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, exposure of people residing or working in the project area to excessive noise levels.*

Excessive noise exposure from airport activity is defined as noise levels that exceed the standards in the City General Plan Noise Element or applicable airport land use compatibility plan for the associated land use.

Threshold 4: *Conflicts with land use compatibility criteria for new land uses.*

The City's General Plan Noise Element specifies exterior noise levels up to 65 CNEL as normally acceptable, between 60 CNEL and 70 CNEL as conditionally acceptable, between 70 CNEL and 80 CNEL as normally unacceptable and over 80 CNEL as clearly unacceptable for hotel land uses.

For commercial land uses, exterior noise levels of up to 70 CNEL are considered normally acceptable, between 67.5 CNEL and 77.5 CNEL are considered conditionally acceptable, and above 75 CNEL are considered clearly unacceptable.

In accordance with the CBC, habitable interior spaces, including hotel rooms must have noise levels of 45 CNEL or less.

4.0 IMPACT ANALYSIS

4.1 THRESHOLD 1: INCREASE IN AMBIENT NOISE LEVELS

Would the project result in generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

4.1.1 Impact Analysis

4.1.1.1 Construction Noise Generation

The project site is located within one-quarter mile of occupied residential dwellings; therefore, in accordance with Wildomar Municipal Code Section 9.48.020.H, construction noise is exempt from noise level limits provided construction activities do not occur between 6:00 p.m. and 6:00 a.m. during the months of June through September or between 6:00 p.m. and 7:00 a.m. during the months of October through May. The project is anticipated to be constructed during these hours and would require an exception from the City Director of Building and Safety if construction is proposed outside of these hours. Therefore, project construction is not anticipated to result in conflicts with local noise standards. As the City does not have a quantitative construction noise limit, estimated noise levels for project construction activities are evaluated for a potential increase in ambient noise levels rather than a standard established by the City.

The magnitude of construction noise would depend on the type of construction activity, equipment, duration of each construction phase, distance between the noise source and receiver, and any intervening structures. Construction could occur as close as 50 feet from residences north and east of the project site. However, the vast majority of construction would occur well over 100 feet from these residences and may occur up to 800 feet from the residences. Typical construction equipment for the proposed development type was modeled in RCNM at a distance of 100 feet and the results are provided in Table 8, *Construction Equipment Noise Levels*. The full modeling results can be found in Appendix C, *Construction Noise Model Output.*

Table 8
CONSTRUCTION EQUIPMENT NOISE LEVELS

Unit	Percent Operating Time	L_{MAX} at 100 feet	dBA L_{EQ} at 100 feet
Backhoe	40	71.5	67.6
Compactor (Ground)	20	77.2	70.2
Compressor (Air)	40	71.6	67.7
Concrete Mixer Truck	40	72.8	68.8
Crane	16	74.5	66.6
Dozer	40	75.6	71.7
Dump Truck	40	70.4	66.5
Excavator	40	74.7	70.7
Front End Loader	40	73.1	69.1
Generator	50	74.6	71.6
Grader	40	79.0	75.0
Paver	50	71.2	68.2
Pumps	50	74.9	71.9
Roller	20	74.0	67.0
Scraper	40	77.6	73.6
Tractor	40	78.0	74.0
Welder	40	68.0	64.0

Source: RCNM; Appendix C
L_{MAX} = maximum noise level; dBA = A-weighted decibel; L_{EQ} = time-averaged (1-hour) sound level

A grader and dozer were modeled together as two of the loudest pieces of equipment and the possibility of them working concurrently in close proximity. Together a grader and dozer would generate a noise level of 76.7 dBA L_{EQ} at 100 feet. Existing noise levels from I-15 and roadways in the project vicinity were calculated to be between 69.0 dBA L_{EQ} and 74.8 dBA L_{EQ} at the residences north and east of the project site. Therefore, construction noise levels would not increase ambient noise levels at these residences by 10 dBA and a substantial increase in noise levels would not occur.

Construction of the project is proposed during the hours exempt per Wildomar Municipal Code Section 9.48.020.H. Therefore, the project would not conflict with City noise limits during construction. In addition, construction would not result in substantial increases in ambient noise levels at sensitive receptors and would occur temporarily during the approximately nine-month construction period. Impacts would be less than significant.

4.1.1.2 Operational On-site Noise Generation

The properties east and south of the project site have General Plan Land Use designations of Commercial Retail with noise level limits of 65 dBA L_{MAX} from 7:00 a.m. to 10:00 p.m. and 55 dBA L_{MAX} 10:00 p.m. to 7:00 a.m. After approval of the proposed parcel split, on-site property lines would also be subject to the Commercial Retail noise limits. The properties north of the project site have General Plan Land Use designations of Medium Density Residential, which have noise level limits of 55 dBA L_{MAX} from 7:00 a.m. to 10:00 p.m. and 45 dBA L_{MAX} 10:00 p.m. to 7:00 a.m.

The project's primary on-site operational noise sources would include rooftop HVAC units, drive-through speakers, and car wash equipment. Since model specifications for these units were not available, noise sources were modeled as described in Section 3.2.2. in CadnaA. In order to identify the maximum noise

level for comparison with the City noise limits, all sources were modeled in constant operation with the exception of vacuums, half of which would be able to be in use at one time. As previously described, the car wash would only be open during the daytime hours while HVAC and drive-through speakers were assumed to be in use throughout the night. Noise receivers were placed at on-site and neighboring property lines at a height of five feet. Specific receiver locations are depicted on Figure 6, *On-site Operation Noise Receiver Locations*, and the calculated noise levels are shown in Table 9, *Unmitigated Operational Noise Levels at Surrounding Land Uses*.

Table 9
UNMITIGATED OPERATIONAL NOISE LEVELS AT SURROUNDING LAND USES

Receiver	Land Use	City Exterior Noise Limit (Day/Night) (dBA L_{MAX})	Maximum Daytime Noise Level (dBA L_{MAX})	Maximum Nighttime Noise Level (dBA L_{MAX})	Direct Impact?[1]
R1	Medium Density Residential	55/45	**58.0**	41.4	**Yes**
R2	Medium Density Residential	55/45	53.8	41.0	No
C1	Retail Commercial	65/55	55.8	35.5	No
C2	Retail Commercial	65/55	58.5	24.5	No
C3	Retail Commercial	65/55	51.3	31.2	No
PL1	Retail Commercial	65/55	51.9	48.8	No
PL2	Retail Commercial	65/55	63.0	35.8	No
PL3	Retail Commercial	65/55	**67.9**	34.2	**Yes**
PL4	Retail Commercial	65/55	**73.2**	34.7	**Yes**

Source: CadnaA

[1] A direct impact would occur if the project would conflict with the property line noise level limits. Exceedances are indicated by bold font.

dBA = A-weighted decibel; L_{MAX} = maximum noise level

As shown in Table 9, the project would not conflict with any nighttime noise limits. The project would exceed the City's daytime noise limit at the residential property line north of the site and at the proposed on-site property lines north of the car wash parcel (quick-serve restaurant and gas station parcels). The daytime noise limit would not be exceeded at off-site commercial land uses or at the proposed hotel property line.

4.1.1.3 Operational Off-site Transportation Noise

The project would generate vehicular traffic in the area and have the potential to increase traffic noise levels at NSLUs. The City does not specify a threshold related to off-site traffic noise generation. A 3 dBA increase is typically considered perceptible. Therefore, the following analysis considers whether project-generated traffic would result in traffic noise increases of more than 3 CNEL at a NSLU in the vicinity.

The project is expected to generate a net increase of 7,726 ADT and the distribution of these trips is detailed in Table 7. CadnaA was used to model the expected traffic environment for the project's opening year (2025) with and without project-generated traffic (Trames Solutions Inc. 2024). Noise receivers were placed at NSLUs in the project area at a height of 5 feet. Specific receiver locations are shown on Figure 5. The traffic noise modeling did not include noise generated by I-15 or consider shielding provided by existing structures. The resulting noise levels at NSLUs under the with and without project scenarios are provided in Table 10, *Off-site Traffic Noise* Levels.

Table 10
OFF-SITE TRAFFIC NOISE LEVELS

Receiver	2025 Scenario (CNEL)	2025 with Project Scenario (CNEL)	Change with Project (CNEL)	Direct Impact?[1]
T1	61.7	62.0	+0.3	No
T2	58.9	60.2	+1.3	No
T3	61.8	63.8	+2.0	No
T4	63.6	64.5	+0.9	No
T5	71.6	71.8	+0.2	No
T6	62.1	62.6	+0.5	No
T7	66.0	66.6	+0.6	No
T8	59.6	60.4	+0.8	No
T9	63.2	63.6	+0.4	No

Source: CadnaA; Trames Solutions Inc. 2024
[1] A direct impact to off-site uses would occur if the project would increase noise levels by 3 CNEL or more.
CNEL = Community Noise Equivalent Level

As shown in Table 10, traffic noise levels at NSLUs in the project area would increase by up to 2.0 CNEL. With this increase in traffic noise levels, NSLUs would not be subject to perceptible increases in traffic noise with the addition of project traffic. Therefore, the project would not result in a substantial increase in ambient noise levels in the project vicinity and impacts would be less than significant.

4.1.2 Significance of Impacts

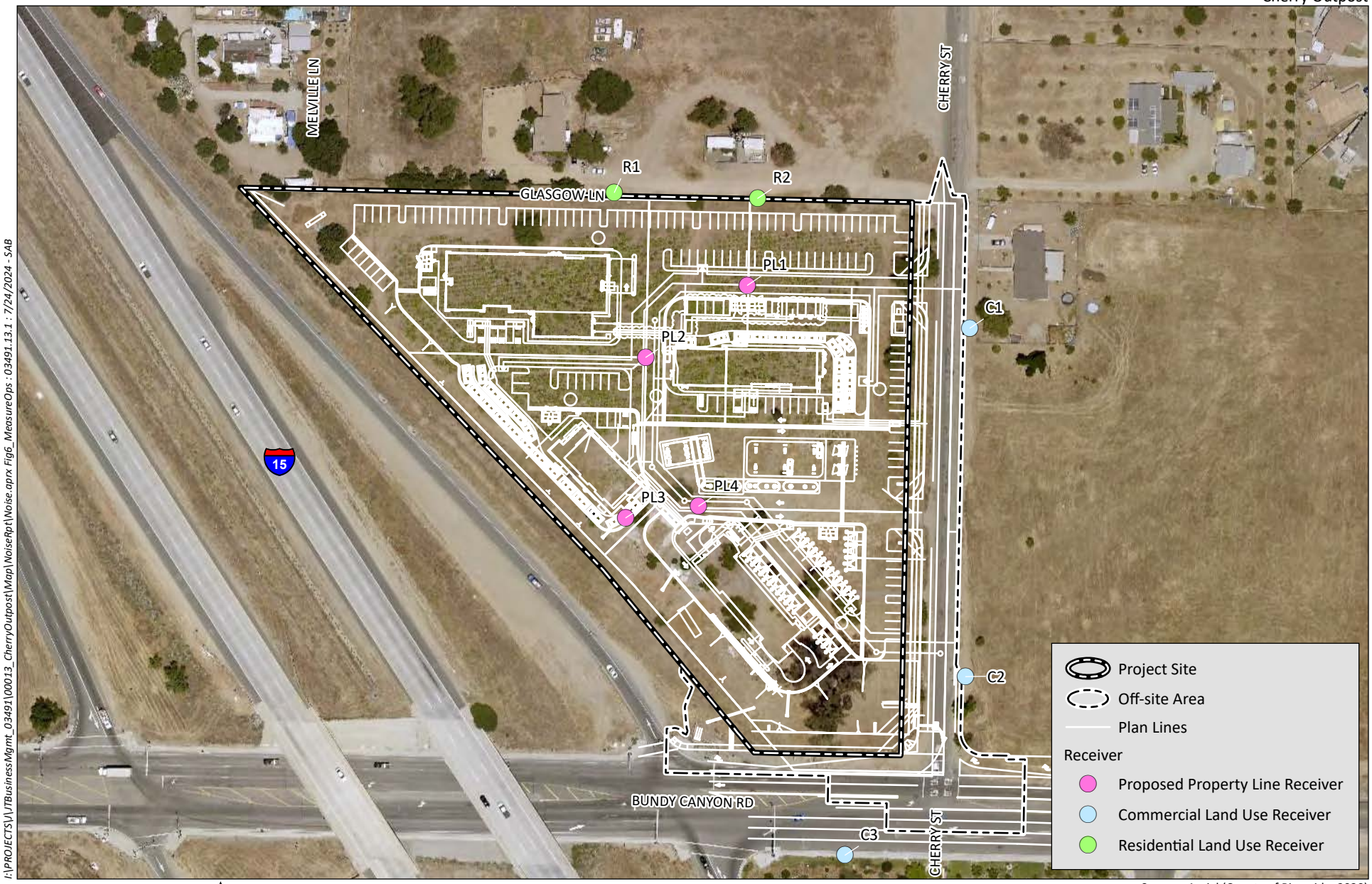
As described above, impacts associated with construction noise, operational traffic generation, and nighttime operational noise would be less than significant. On-site operational noise would comply with the Wildomar Municipal Code noise level limits at off-site commercial land uses and the proposed hotel property line during the daytime hours, and impacts would be less than significant.

Operation of the car wash would result in noise levels exceeding the daytime Wildomar Municipal Code limits at the internal gas station and quick-serve restaurant property lines (PL4); however, a continuous-events exception would be required as part of the project and would excuse the project from this limit at these internal property lines. In accordance with Section 9.48.070.B, approval of an exception to the City's noise limits must not be detrimental to the health, safety, or general welfare of the community. Given the proposed land uses at these property lines are a gas station and quick-serve restaurant which are not NSLUs, the project would not result in adverse effects related to noise. With approval of a continuous-events exception by the City Planning Commission, impacts would be less than significant.

During the daytime hours at the proposed car wash property line abutting the proposed drive-through restaurant (PL3) and the off-site residential property line (R1), project operation would result in conflicts with the City's noise limits and impacts would be potentially significant.

4.1.3 Mitigation Framework

To comply with the daytime noise limits at residential land uses and the proposed property line between the car wash and drive-through restaurant, mitigation measure NOI-1 would require the project to include an enclosure at the exit of the car wash and a six-foot-tall wall along the residential property line



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Source: Aerial (County of Riverside, 2020)

HELIX Environmental Planning

On-site Operation Noise Receiver Locations

Figure 6

north of the project site. The locations of the proposed barriers are shown in Figure 7, *Noise Barrier Locations*.

NOI-1 **Noise Reduction Features**. Noise reduction at the residentially zoned property line north of the project site shall demonstrate compliance with the Wildomar Municipal Code daytime exterior noise limit of 55 dB L_{MAX}. Noise reduction at the drive-through restaurant's commercial property line shall demonstrate compliance with the Wildomar Municipal Code daytime exterior noise limit of 65 dB L_{MAX}. The following measures shall be included as part of the final project design plans submitted to the City:

1. Construction of an enclosure at the car wash exit and an on-site sound barrier (wall) at the northern property line. The enclosure at the exit of the car wash shall consist of a 12-foot-tall sound wall parallel to the car wash exit and 28 feet in length at 25 feet from the exit of the car wash. At the southern side of the 28-foot-long wall, a 12-foot-long wall shall extend perpendicularly towards the car wash exit. A roof shall cover the 25-foot by 28-foot area between the car wash exit tunnel and these walls.

   A second noise wall shall be constructed at the northern property line of the project site. This noise wall shall be 6 feet in height and extend approximately 100 feet, breaking the line-of-sight between the car wash and the residential property line.

   All noise barriers (wall and roof) must be solid. They can be constructed of any combination of standard building materials, including masonry, wood, plastic, fiberglass, or steel, so long as there are no cracks or gaps through or below the wall. Any seams or cracks must be filled or caulked. All noise barriers shall have a Sound Transmission Class (STC) rating of at least 22.

2. The addition of a layer noise absorption material with a minimum Noise Reduction Coefficient of 0.80 shall be mounted along the interior surface of the car wash tunnel from the approximate centerline of the blow dryers in the tunnel to the tunnel exit continuing to the tunnel exit ceiling and support walls. The material shall provide a minimum of 80 percent coverage vertically and cover the wall from 1 foot above the floor to 1 foot below the ceiling. Horizontally (on the ceiling), the material shall be mounted from the ceiling to within 1-foot of the walls.

3. Installation of a variable frequency drive (VFD) that would operate car wash blowers at a frequency of 50 Hz.

4. The project applicant shall demonstrate to the City that the features described in this measure are shown on construction plans and will be implemented prior to issuance of a building permit. Substitution of any measures may be used if demonstrated to achieve adequate noise reduction to meet City standards. A final inspection of the described features shall be conducted by the City to confirm installation of such features prior to operation of the car wash.

4.1.4 Significance After Mitigation

With implementation of mitigation measure NOI-1, daytime noise levels at receivers R1 and PL3 would be reduced to 53.4 and 62.3 dBA L_{MAX}, respectively. Daytime noise levels at these locations would

comply with the Wildomar Municipal Code noise level limits and impacts would be less than significant with mitigation incorporated.

4.2 THRESHOLD 2: GROUNDBORNE VIBRATION

Would the project result in generation of excessive groundborne vibration or groundborne noise levels?

4.2.1 Construction Vibration

The nearest vibration-sensitive land uses to the project site are residences located north and east of the project site. Construction of the project, including improvements to Cherry Street, could occur approximately 50 feet from these residential structures. While the majority of project construction would occur more than 50 feet from nearby residences, vibration impacts are assessed at 50 feet. Ground-borne vibration levels resulting from construction activities within the project area were estimated using data provided by Caltrans and compared to applicable Caltrans and FTA thresholds.

As the structural integrity of the nearby residences is unknown, this analysis considers the structural damage threshold for non-engineered timber and masonry buildings of (FTA 2018). Significant vibration impacts to structures would occur if vibration levels at residential structures exceed 0.2 in/sec PPV (FTA 2018) and a significant impact to human receptors would occur if vibration levels would exceed the severe human response threshold of 0.4 in/sec PPV from a continuous/frequent intermittent source (Caltrans 2020).

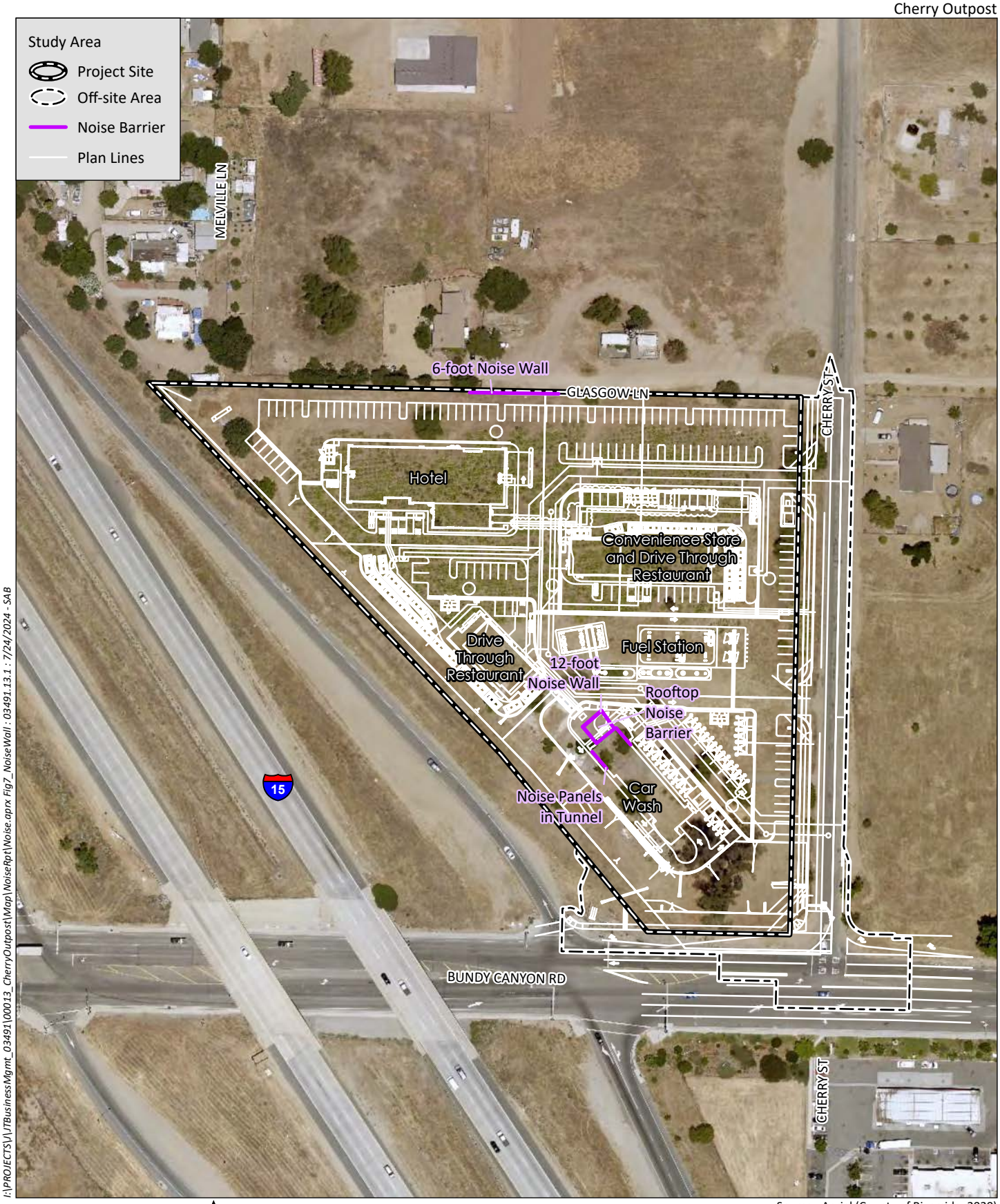
Vibration from construction equipment can be estimated using the equation $PPV_{Equipment} = PPV_{Ref} (25/D)^n$ where PPV_{REF} is the PPV generated at 25 feet, D is the distance from the equipment to the receiver in feet, and n is 1.1 (Caltrans 2020). A vibratory roller is anticipated to be the piece of construction equipment with the highest vibration potential required for project construction and has a reference PPV of 0.210 in/sec at 25 feet. At 50 feet, the distance from the nearest residences, the use of a vibratory roller is estimated to generate vibration levels of 0.098 in/sec PPV. This is far below both the structural damage threshold of 0.2 in/sec PPV and severe human response threshold of 0.4 in/sec PPV. Therefore, the project would not result in excessive temporary groundborne vibration or noise levels and impacts would be less than significant.

4.2.2 Operational Vibration

The project does not propose equipment that is anticipated to generate substantial groundborne vibration. Given the distance between operational equipment and nearby residential land uses, perceptible vibration levels are not anticipated to occur at residences surrounding the project site. Therefore, a less than significant impact related to vibration during project operation would occur.

4.3 THRESHOLD 3: AIRCRAFT NOISE

For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?



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0 150 Feet

Source: Aerial (County of Riverside, 2020)

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Noise Barrier Locations

Figure 7

4.3.1 Aircraft Noise

The Skylark Airport located approximately 1.3 miles west of the project site is a private airstrip used primarily for skydiving. The project site is outside of the airport influence area for this airport (County 2023). The Skylark Airport does not have an adopted land use compatibility plan; however, as it is not a commercial airport, the project site would not be subject to substantial air traffic that would result in excessive noise levels for people residing or working in the project area. In addition, the project is outside of the noise contours and airport influence areas for larger airports in the region (County 2023). Therefore, the project would not be subject to excessive aircraft noise and the impact would be less than significant.

4.4 THRESHOLD 4: LAND USE COMPATIBILITY

Would the project result in conflicts with land use compatibility criteria for new land uses?

Section XI, Land Use, of Appendix G of the State CEQA Guidelines includes a threshold regarding whether a project would cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect. The Noise Element of the General Plan establishes policies and limits of acceptable exterior and interior noise exposure for placement of new land uses. CBC Title 24, Part 2, Section 1206, requires interior noise levels in habitable rooms not to exceed 45 dB CNEL. Therefore, the following analysis is provided for planning purposes and analysis of compliance with General Plan and state standards.

4.4.1 Impact Analysis

4.4.1.1 Exterior Noise Levels

As shown in Table 1, for the project's hotel land use, the Noise Element specifies exterior noise levels up to 65 CNEL as normally acceptable, between 60 CNEL and 70 CNEL as conditionally acceptable, between 70 CNEL and 80 CNEL as normally unacceptable and over 80 CNEL as clearly unacceptable. For the other commercial land uses, exterior noise levels of up to 70 CNEL are considered normally acceptable, between 67.5 CNEL and 77.5 CNEL are considered conditionally acceptable, and above 75 CNEL are considered clearly unacceptable.

CadnaA was used to model the anticipated traffic noise environment on the project site post-construction. Future traffic volumes with project traffic from the project traffic study were used to model local roadway noise and traffic volumes from Caltrans were used to model noise from I-15 (Trames Solutions Inc. 2024; Caltrans 2021). Receivers were placed at the facades facing I-15 for each of the proposed structures and a receiver was placed in the proposed outdoor seating area associated with one of the restaurants. All receivers were placed at a height of 5 feet and their specific locations are shown on Figure 5. The calculated traffic noise levels at these receivers are provided in Table 11, *Calculated Exterior Noise Levels*.

Table 11
CALCULATED EXTERIOR NOISE LEVELS

Receiver	Description	Noise Level (CNEL)
P1	Hotel	72.5
P2	Quick-Serve Restaurant and Convenience Store	68.2
P3	Quick-Serve Restaurant	73.9
P4	Restaurant Outdoor Seating	60.5
P5	Car Wash	73.2

Source: CadnaA
CNEL = Community Noise Equivalent Level

As shown in Table 11, traffic noise levels at the hotel land use would be within the normally unacceptable range. The General Plan specifies that if new construction does proceed where a "normally unacceptable" noise level is identified, a detailed analysis of the noise reduction requirements must be made with needed noise insulation features included in the design. The project would be required to comply with statewide requirements related to interior noise attenuation, as described in more detail below.

For the proposed commercial land uses, traffic noise levels were calculated to be between 60.5 CNEL and 73.9 CNEL. At the outdoor seating area, where noise levels were modeled to be 60.5 CNEL, exterior noise levels would be considered normally acceptable for commercial uses. At the building façades facing I-15, noise levels would be within the conditionally acceptable range.

The General Plan specifies that where noise levels in the conditionally acceptable range are identified, new construction should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features included in the design. The General Plan further states that conventional construction, with closed windows and fresh air supply systems or air conditioning, would normally suffice in this noise environment. The proposed commercial uses of quick-serve restaurants, a gas station, a convenience store, and a car wash are not noise-sensitive. Therefore, conventional construction is anticipated to achieve acceptable noise levels for the proposed commercial uses.

4.4.1.2 Interior Noise Levels

No interior noise standard applies to the proposed commercial land uses; however, as described above, the interior environment is anticipated to be acceptable for commercial uses. Hotels are subject to statewide standards for interior noise, which require habitable rooms to achieve interior noise levels of no greater than 45 CNEL.

Traditional architectural materials can be conservatively assumed to reduce interior noise levels by 15 dBA; therefore, as noise levels at the hotel façade exceed 60 CNEL, more detailed modeling of the interior noise environment is required to ensure the project is designed to reduce interior noise levels below 45 CNEL. In accordance with CBC regulations related to interior noise, an exterior-to-interior acoustical analysis would be required when further building plans are available to demonstrate how interior noise levels of 45 CNEL will be achieved by project construction. The building materials required by an exterior-to-interior analysis may include enhanced window and wall constructions, which can attenuate noise to the level required by the CBC.

4.4.2 Significance of Impacts

With the installation of traditional architectural materials, interior noise levels may exceed 45 CNEL and conflict with the CBC regulations for interior noise levels in habitable spaces.

4.4.3 Mitigation Framework

NOI-2 **Demonstration of Interior Noise Standard**. Once specific building plan information is available, an exterior-to-interior analysis shall be performed for habitable hotel rooms. The exterior-to-interior analysis shall demonstrate that interior noise levels do not exceed 45 CNEL.

The information in the analysis shall include wall heights and lengths, room volumes, window and door tables typical for a building plan, as well as information on any other openings in the building shell. With this specific building plan information, the analysis shall determine the predicted interior noise levels for the planned hotel rooms. If predicted noise levels are found to exceed 45 CNEL, the analysis shall identify architectural materials or techniques that could be included to reduce noise levels to 45 CNEL in hotel rooms. Standard measures such as windows with glazing and appropriate STC ratings, as well as walls with appropriate STC ratings, should be considered. Final plans shall demonstrate that interior noise levels do not exceed 45 CNEL for proposed hotel rooms.

4.4.4 Significance After Mitigation

With implementation of mitigation measure NOI-2, interior noise levels would comply with CBC regulations for habitable spaces.

5.0 LIST OF PREPARERS

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Appendix A

HVAC Sound Data

50PG03–28
Ultra High Efficiency Single Package Electric Cooling with Optional Electric Heat Commercial Rooftop Units with PURON® (R–410A) Refrigerant, Optional EnergyX™ (Energy Recovery Ventilator)

Carrier®
Turn to the Experts.℠

Product Data

CENTURION

EnergyX model shown

DEALER DESIGN AWARDS
theNEWS | GOLD

BUILDINGS magazine
Editors' Choice
TOP 100 PRODUCTS
2005

Puron
the environmentally sound refrigerant

Operation Air Quantity Limits

50PG03-16 Units

UNIT 50PG	COOLING (cfm)		HEATING (cfm) ELECTRIC HEAT	
	Min	Max	Min	Max
03	600	1000	600	1000
04	900	1500	900	1500
05	1200	2000	1200	2000
06	1500	2500	1500	2500
07	1800	3000	1800	3000
08	2250	3750	2250	3750
09	2550	4250	2550	4250
12	3000	5000	3000	5000
14	3750	6250	3750	6250
16	4500	7500	4500	7500

50PG20-28 Units

50PG	COOLING		ELECTRIC HEAT	ELECTRIC HEAT (Vertical)	ELECTRIC HEAT (Horizontal)
	Minimum Cfm	Maximum Cfm		Minimum Cfm	Minimum Cfm
20	5000	9,000	High Heat (75 kW)	4,500	5,400
			Medium Heat (50 kW)	3,750	4,800
			Low Heat (25 kW)	3,750	3,750
24	5500	10,000	High Heat (75 kW)	4,500	5,400
			Medium Heat (50 kW)	3,750	4,800
			Low Heat (25 kW)	3,750	3,750
28	6500	12,000	High Heat (75 kW)	4,500	5,400
			Medium Heat (50 kW)	3,750	4,800
			Low Heat (25 kW)	3,750	3,750

Outdoor Sound Power (Total Unit)

UNIT 50PG	A-WEIGHTED* (dB)	OCTAVE BAND LEVELS dB							
		63	125	250	500	1000	2000	4000	8000
03	75.0	82.6	79.9	75.7	73.3	70.0	64.3	58.4	50.5
04	73.2	79.8	77.2	74.1	70.1	68.0	63.6	58.4	51.9
05	71.9	79.7	79.6	72.6	69.6	66.0	61.4	56.4	48.5
06	78.5	82.2	82.6	79.5	75.7	73.9	68.6	64.0	56.3
07	78.5	87.5	83.0	78.5	76.3	73.8	68.4	63.8	56.5
08	80.0	91.7	83.6	81.0	77.9	75.0	69.9	66.0	59.3
09	79.9	89.1	82.7	80.0	77.7	75.0	70.2	66.3	57.8
12	80.0	90.4	83.1	80.9	77.8	75.2	70.0	66.1	57.6
14	83.3	86.4	85.9	85.3	81.8	78.2	72.2	67.9	59.9
16	84.0	90.3	85.2	83.5	81.1	79.0	73.7	70.5	65.4
20	81.7	90.2	84.8	80.7	79.0	77.6	71.4	66.7	60.7
24	84.9	90.0	86.3	83.6	82.9	80.3	74.9	71.4	66.5
28	84.9	90.0	86.3	83.6	82.9	80.3	74.9	71.4	66.5

LEGEND

db – Decibel

*Sound Rating ARI or Tone Adjusted, A–Weighted Sound Power Level in dB. For sizes 03–12, the sound rating is in accordance with ARI Standard 270–1995. For sizes 14–28, the sound rating is in accordance with ARI 370–2001.

Outdoor Sound Power (Total Unit)
with High CFM EnergyX

UNIT 50PG w/ERV	A–WEIGHTED* (dB)	OCTAVE BAND LEVELS dB							
		63	125	250	500	1000	2000	4000	8000
03	83.0	82.8	81.4	79.7	78.1	77.9	76.5	72.5	70.1
04	82.7	80.2	79.6	79.1	77.3	77.6	76.5	72.5	70.1
05	82.6	80.1	81.1	78.8	77.2	77.4	76.4	72.4	70.0
06	83.8	82.4	83.4	81.6	79.1	78.8	76.9	72.9	70.2
07	83.8	87.6	83.8	81.1	79.3	78.8	76.9	72.9	70.2
08	87.3	92.0	86.8	84.5	82.4	81.8	80.5	78.0	74.2
09	87.2	89.6	86.4	84.1	82.4	81.8	80.5	78.1	74.2
12	87.3	90.8	86.5	84.5	82.4	81.8	80.5	78.0	74.2
14	88.2	87.2	88.0	87.0	84.2	82.7	80.8	78.2	74.3
16	91.4	93.2	92.8	88.2	86.3	85.5	84.4	83.4	78.4
20	91.2	93.1	92.7	87.4	85.8	85.2	84.2	83.3	78.3
24	91.7	93.0	93.0	88.2	86.9	85.8	84.5	83.5	78.5
28	91.7	93.0	93.0	88.2	86.9	85.8	84.5	83.5	78.5

LEGEND
dB – Decibel
***** Sound Rating ARI or tone Adjusted, A–Weighted Sound Power Level in dB. For sizes 03–12, the sound rating is in accordance with ARI Standard 270–1995. For sizes 14–28, the sound rating is in accordance with ARI 370–2001.

Appendix B

Car Wash Sound Data

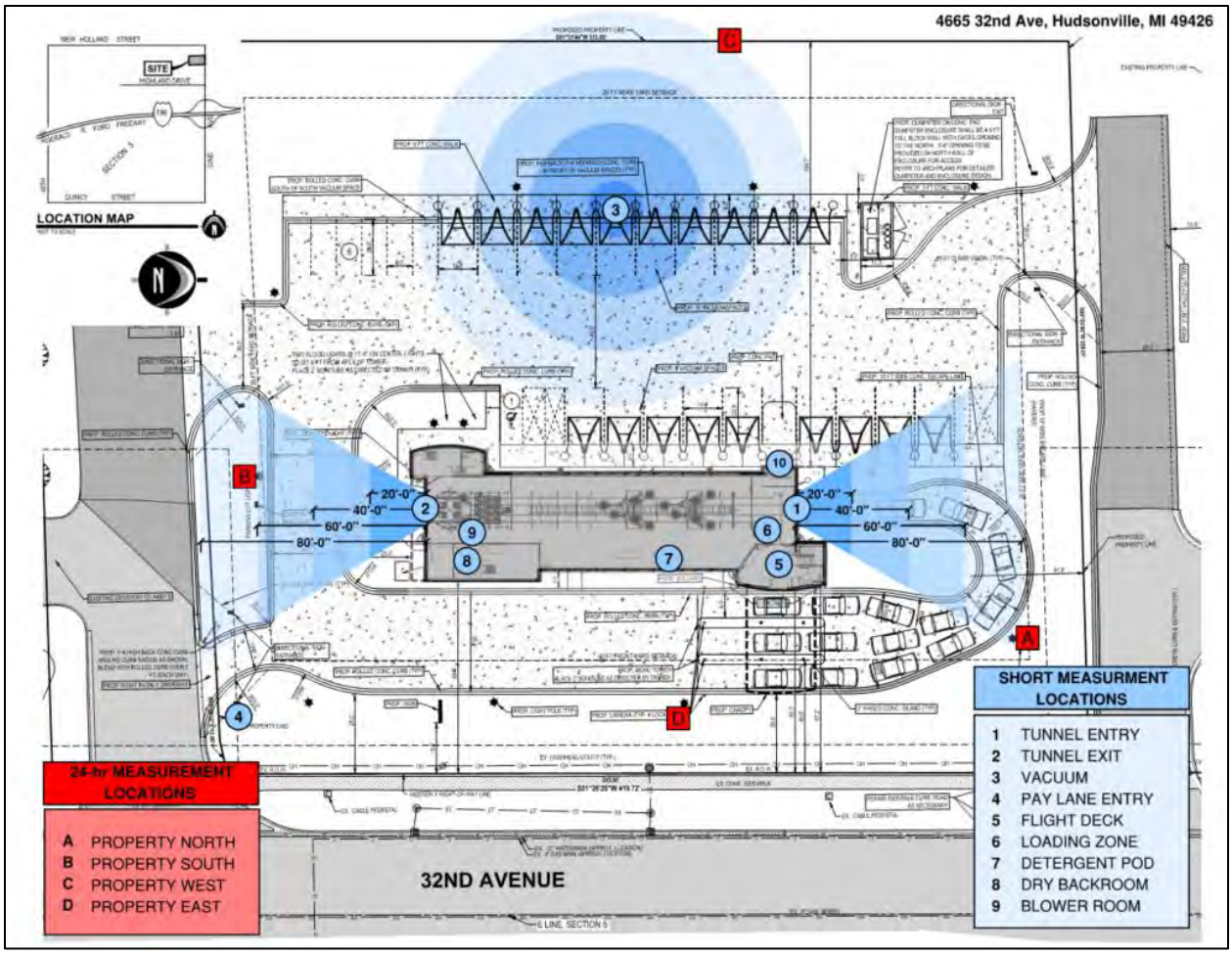

Figure 1: Site Plan with Measurement Locations

Short-Term Measurements

A description of each measurement location is provided for clarity. The short-term measurements (1-10) were taken with the Larson Davis Model 831 hand-held meter.

1) Tunnel Entry: This position is the vehicular entry location to the car-wash structure. Measurements were also taken at the vehicle entry to the building and at 20', 40' and 60' from the entrance towards the north of the building. All measurements were in-line with the vehicle path as it moves through the car-wash process.

2) Tunnel Exit: This position is the vehicular exit location to the car-wash structure. Measurements were also taken at the vehicle's exit location at distances of 20', 40', 60', and 80' from the exit towards the south of the building. All measurements were in-line with the vehicle path as it exits the car-wash process.

3) Vacuum: This position is intended to capture the operational noise of a single vacuum unit for which Vacuum #12 was selected. It was observed that on this unit with both hose nozzles stowed, there was a significant whistling noise being generated by the air-flow

leakage at the storage pocket. Since typical use would involve using at least one of the hoses, one hose was removed from its pocket and placed on the ground during measurements.

Measurements were also taken relative to this vacuum station at distances of 20', 40', 60', and 80' to the west of the vacuum bay. These measurements of vacuum operational noise at these distances to the west were completed with all vacuum units within this bay operating simultaneously. This was in order to capture the loudest operating condition.

4) Pay Lane Entry: This location is the vehicle entry point to the property, for users who proceed through the car wash process.
5) Flight Deck: This location was to capture the noise within the enclosed office area where employees interact with customers through the drive-through window.
6) Loading Zone: This is the position where vehicles are transitioned onto the conveyer system for shuttling the car through the car-wash mechanism.
7) Detergent Pod: This position is located behind the bank of car-wash detergent chemical storage and delivery tanks.
8) Dry Backroom: This position is located within a separate closed room behind the blower bay of the car-wash facility. Chemical pumping equipment was observed within this room.
9) Blower Room: This space is the area where the air-blowers are used to dry the vehicles after being washed and rinsed, it is near the vehicular exit of the car-wash structure.
10) Mat Washer: This position is the location of two separate, self-service car mat-washer machines. Three measurements were taken at this position with one (1) of the mat washers on and operating, but no floor mat was being conveyed into the machine. The specific measurement locations are as follows: 3 ft. in front of door with the door closed, 6' in front of the door with the door closed, and 3' in front of the door with the door open.

It should be noted that noise measurements on the interior of the car wash were collected at these various locations, and during multiple operating conditions for the car wash. This was done to provide a general understanding of the noise generated within the car wash, as requested by Tommy Car Wash. It should be understood that the noise measurements that were collected are strictly informational. To understand regulations for OSHA's allowable noise exposure, please refer to the OSHA standard. For compliance to this standard, noise dosimetry testing should be performed on individual employees that spend significant amounts of time in high noise areas that are identified in the following results. Listed in Table 3 are the results of these short-term measurements. Reported here are the loudest measured levels at each measurement location over the various operating conditions evaluated.

Table 3: Short-term Measurement Results

Short-term Measurement Locations	Measured Sound Pressure Level dB(A)[1]
(1) Tunnel Entry	86
(2) Tunnel Exit	95
(3) Vacuum	90
(4) Pay Lane Entry	67
(5) Flight Deck	66
(6) Loading Zone	91
(7) Detergent Pod	93
(8) Dry Backroom	92
(9) Blower Room	104
(10) Mat Washer	86

Utilizing the short-term measurement results, we have projected how noise generated by Tommy Car Wash will propagate over the property; these results are shown in Figure 2. Please note that our measurements at distances away from the vacuum include the noise levels with all vacuums in operation (worst case scenario). This "all-vacuums on" condition was projected onto the entire property for the sound map. It should be noted that noise contribution from the vacuums dominated the noise levels at the entrance, so the results shown at the entrance on the sound map exceed the short term measurements taken in these locations with no vacuum in operation.

[1] Reported values are for the loudest operating condition captured during the measurement session.

Figure 2: Sound Map of Tommy's Car Wash Property

Tommy Car Wash Systems | 581 Ottawa Ave. | Holland, MI 49423 | tommycarwash.com.com

Sound Level Testing – Hudsonville 5/18/21

Introduction

Measurements of sound levels were collected on site to record noise levels generated by the standard 18 blower motor configuration at the wash exit. Measurements were taken between 10:00pm and 12:00am on May 18th at the Hudsonville Location.

Instrumentation & Procedure

Measurements were recorded using an Extech Instruments Model 407730 Sound Level Meter. This meter is calibrated and meets the standards of the National Institute of Standards and Technology and conforms with ISO 10012 and ANSI Z540-1-1994. Sound levels were recorded both at ground level as well as at a height of 5 feet off the surface. Measurements were recorded as an average of a 5 second period at each point. Samples were recorded with minimum possible ambient noise pollution when applicable and with the standard blower motor configuration. Procedure was repeated with blower motor frequency adjusted in 10Hz increments from 60Hz to 10Hz.

Atmospheric & Ambient Conditions

Atmospheric data is taken from the weather station at Gerald R. Ford International Airport and is shown in Table 1. Ambient sound levels were recorded at the maximum distance from the tunnel exit with all wash functions turned off. Ambient sound levels ranged from a minimum of 50dB to a maximum of 60dB. It should be noted that while efforts were made to prevent contamination of data from ambient conditions, some noise pollution from the environment was unavoidable.

Table 1: Environmental Conditions During Test Period

Time & Date	Average Temp (F)	Avg. Relative Humidity	Wind Direction	Avg. Wind Speed (MPH)	Precipitation (in)	Ambient Sound Level (dB)
10:00pm-12:00am May 18th, 2021	67	64.5%	E	4.6mph	0	50-60dB

Table 2: Measured Sound Levels at Ground Height						
Distance (ft)	**60hz**	**50hz**	**40hz**	**30hz**	**20hz**	**10hz**
0	104.8	99.1	94.5	86.9	77.4	64.1
5	102.8	97.2	91.2	84.6	75.1	60.7
10	98.9	93.3	87.6	80.7	71.9	60.4
15	97.0	91.6	85.7	78.4	70.8	59.1
20	95.6	89.6	84.1	76.3	68.3	58.2
25	92.9	88.3	81.9	75.9	65.7	54.2
30	92.3	87.1	80.8	73.6	65.1	55.9
35	89.9	86.4	78.9	72.6	63.2	54.2
40	88.4	84.0	77.8	71.5	62.0	52.6
45	86.2	83.2	76.7	70.5	60.5	54.5
50	86.0	82.1	75.4	69.2	59.3	55.9
55	85.1	81.4	74.5	67.7	58.6	53.3
60	82.6	78.2	72.4	66.6	55.6	50.5
65	78.4	73.9	69.3	62.8	54.5	50.9
70	77.6	74.8	68.5	61.9	54.2	52.2
75	77.6	73.3	67.4	61.0	53.6	53.3
80	76.4	72.5	67.2	59.9	52.8	53.6
85	73.6	70.5	64.2	60.8	52.3	53.6

Table 3: Measured Sound Levels at 5ft Height						
Distance (ft)	**60hz**	**50hz**	**40hz**	**30hz**	**20hz**	**10hz**
0	103.4	98	92.7	85.4	76.8	62.7
5	99.9	94.5	88.5	82	73.6	60.5
10	96.1	91.2	85.2	78.8	70.2	57.8
15	94.2	88.6	82.7	75.6	68.8	58.8
20	92.3	86.8	81.2	74.2	65.5	54.8
25	91.1	85.6	79.1	72.7	63.3	52.9
30	89	83.8	77.6	71.1	62.9	53.9
35	87.4	83.5	76.6	70.7	60.4	53
40	87.2	82.6	75.9	70.1	59.8	52.9
45	86.5	81.2	75.1	69.7	59.5	56.1
50	85.7	80.5	73.6	67.6	58.1	56.1
55	84.9	79.4	72.8	67.1	57	52.9
60	83.5	78.2	71.9	64.7	56.3	52.6
65	80.8	75.6	70	62.1	55.1	50.7
70	80.4	75.9	69.1	62.3	54.2	53.9
75	79.3	74.5	69.1	61.5	53.3	52.5
80	77.8	73.8	67.5	59.8	53.3	52.1
85	75.6	71	64.8	59.1	54.5	51.7

Appendix C

Construction Noise Model Output

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 7/31/2024
Case Description: Cherry Outpost

		---- Receptor #1 ----		
		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Residences	Residential	70	70	70

Equipment

Description	Impact Device	Usage(%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Backhoe	No	40		77.6	100	0
Compactor (ground)	No	20		83.2	100	0
Compressor (air)	No	40		77.7	100	0
Concrete Mixer Truck	No	40		78.8	100	0
Crane	No	16		80.6	100	0
Dozer	No	40		81.7	100	0
Dump Truck	No	40		76.5	100	0
Excavator	No	40		80.7	100	0
Front End Loader	No	40		79.1	100	0
Generator	No	50		80.6	100	0
Grader	No	40	85		100	0
Paver	No	50		77.2	100	0
Pumps	No	50		80.9	100	0
Roller	No	20		80	100	0
Scraper	No	40		83.6	100	0
Tractor	No	40	84		100	0
Welder / Torch	No	40		74	100	0

Results
Calculated (dBA)

Equipment	*Lmax	Leq
Backhoe	71.5	67.6
Compactor (ground)	77.2	70.2
Compressor (air)	71.6	67.7
Concrete Mixer Truck	72.8	68.8
Crane	74.5	66.6
Dozer	75.6	71.7
Dump Truck	70.4	66.5
Excavator	74.7	70.7

Front End Loader		73.1	69.1
Generator		74.6	71.6
Grader		79	75
Paver		71.2	68.2
Pumps		74.9	71.9
Roller		74	67
Scraper		77.6	73.6
Tractor		78	74
Welder / Torch		68	64
	Total	79	82.9

*Calculated Lmax is the Loudest value.