4.4 NOISE

4.4.1 INTRODUCTION

Pursuant to CEQA Guidelines Section 15162, the Noise chapter of the Subsequent Environmental Impact Report (SEIR) assesses whether the proposed project would result in a new significant impact not previously identified in the Wildhorse Ranch Project EIR (2009 EIR) or a substantial increase in the severity of a significant impact previously identified in the 2009 EIR. The City of Davis has prepared the SEIR to analyze new or substantially more severe potential adverse effects that could occur as a result of the changes from the former Wildhorse Ranch Project to the currently proposed project. For further details related to the proposed project, refer to Chapter 3, Project Description, of this SEIR.

This chapter of the SEIR describes the existing noise environment in the project vicinity, and identifies potential impacts and mitigation measures related to noise and vibration associated with construction and operation of the proposed project. The method by which the potential impacts are analyzed is discussed, followed by the identification of potential impacts and the recommended mitigation measures designed to reduce significant noise and vibration impacts to less-than-significant levels, if required. The Noise chapter is primarily based on the Environmental Noise & Vibration Assessment (Noise Assessment) prepared for the proposed project by Bollard Acoustical Consultants, Inc. (BAC) (see Appendix E of this SEIR).[1] Other sources of information used in this chapter include the City of Davis General Plan,[2] the City of Davis General Plan EIR,[3] and the 2009 EIR.

4.4.2 EXISTING ENVIRONMENTAL SETTING

The Existing Environmental Setting section provides background information on noise and vibration, a discussion of acoustical terminology and the effects of noise on people, existing sensitive receptors in the project vicinity, existing sources and noise levels in the project vicinity, and groundborne vibration.

Fundamentals of Noise

Decibels (dB) are logarithmic units that compare the wide range of sound intensities to which the human ear is sensitive. The perceived loudness of sounds is dependent upon many factors, including sound pressure level and frequency content. However, within the typical range of environmental noise levels, perception of loudness is relatively predictable and can be approximated by filtering the frequency response of a sound level meter by means of the standardized A-weighting network. A-weighting of sound levels best reflects the human ear's reduced sensitivity to low frequencies, and the use of A-weighted sound level, expressed as dBA, has become the standard tool of environmental noise assessment. Noise levels associated with common noise sources are provided in Figure 4.4-1.

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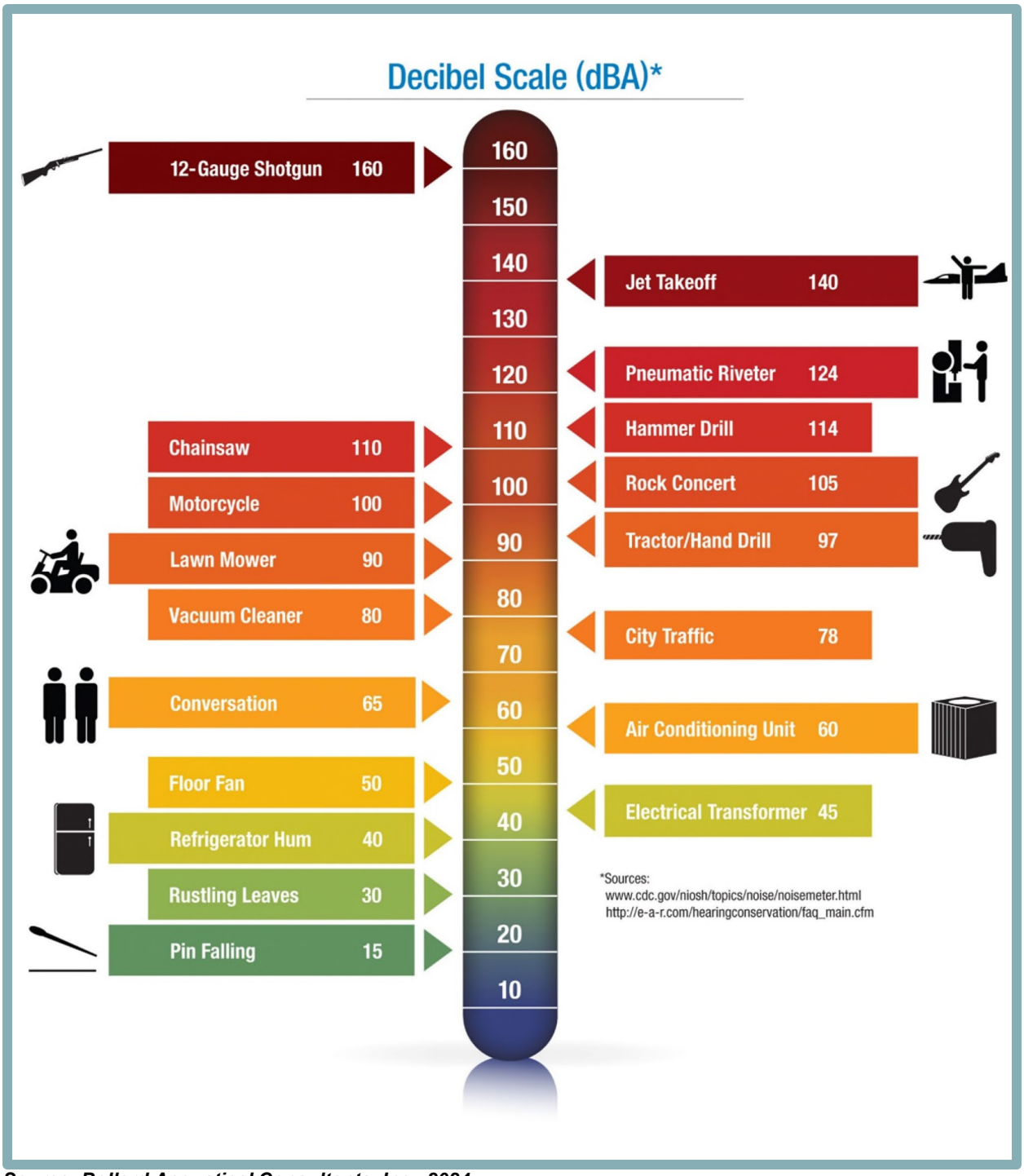
1 Bollard Acoustical Consultants, Inc. *Environmental Noise & Vibration Assessment, Palomino Place Project, Davis, California*. July 26, 2024.
2 City of Davis. *City of Davis General Plan*. Adopted May 2001, Amended January 2007.
3 City of Davis. *Final Program EIR for the City of Davis General Plan Update and Final Project EIR for Establishment of a New Junior High School*. Certified May 2001.

Figure 4.4-1
Noise Levels Associated with Common Noise Sources



Source: Bollard Acoustical Consultants, Inc., 2024.

Several time-averaged scales represent noise environments and consequences of human activities. Community Noise Equivalent Level (CNEL), which can be used to compare the noise level of neighborhoods, is the weighted average noise level over time, presented in dB. Community noise is also commonly described in terms of the ambient noise level, which is defined as the overall noise level associated with a given environment. A common statistical tool to measure the ambient noise level is the average, or equivalent, sound level (L_{eq}). The L_{eq} is the foundation of the day-night average noise descriptor (L_{dn} or DNL), and represents a correlation with community response to noise. DNL is based on the average noise level over a 24-hour day, with a +10-decibel weighting applied to noise occurring during nighttime hours (10:00 PM to 7:00 AM). The nighttime penalty is based on the assumption that people experience nighttime noise exposures twice as loudly as daytime noise exposures. Because DNL represents a 24-hour average, the DNL tends to disguise short-term variations in the noise environment. L_{50} is defined as the median sound level.

The City's General Plan relies on DNL for the assessment of noise generated by traffic noise sources. For non-transportation noise sources, the Davis Municipal Code relies on both L_{eq} and single-event maximum (L_{max}) noise standards.

Stationary "point" sources of noise, including stationary mobile sources such as idling vehicles, attenuate at a rate of approximately 6.0 to 7.5 dBA per doubling of distance from the source, depending upon environmental conditions (i.e., atmospheric conditions and noise barriers, either vegetative or manufactured, etc.). Widely distributed noises, such as a large industrial facility, that spread over many acres or a street with moving vehicles (a "line" or "moving point" source) typically attenuate at a lower rate, approximately 4.0 to 6.0 dBA per doubling distance from the source and are also dependent on environmental conditions. Noise from large construction sites, with heavy equipment moving dirt and trucks entering and exiting the site daily, have characteristics of both "point" and "line" sources, so attenuation generally ranges between 4.5 and 7.5 dBA per doubling of distance. Atmospheric absorption of sound varies depending on temperature and relative humidity, as well as the frequency content of the noise source. In general, "average day" atmospheric conditions result in attenuation at a rate of approximately 1.5 dB per 1,000 feet.

Existing Sensitive Receptors

Noise-sensitive land uses are generally defined as locations where people reside or where the presence of unwanted sound could adversely affect the primary intended use of the land. Places where people live, sleep, recreate, worship, and study are generally considered to be sensitive to noise, because intrusive noise can be disruptive to such activities. Sensitivity to ambient noise levels is also related to the amount of noise exposure (in terms of both exposure time and shielding from noise sources). Noise-sensitive land uses typically include residences, schools, child care centers, hospitals, long-term health care facilities, convalescent centers, retirement homes, and recreation areas.

The nearest sensitive receptors to the project site consist primarily of residential uses to the north, west, and south, as shown in Figure 4.4-2. Existing land uses in the vicinity of the project site and sensitive receptors have not changed since the City's certification of the 2009 EIR.

Figure 4.4-2
Ambient Noise and Vibration Survey Locations

Existing Ambient Noise Environment

Similar to the existing ambient noise environment identified in the 2009 EIR, the ambient noise environment in the immediate project vicinity is defined primarily by traffic on East Covell Boulevard. Additionally, to a lesser extent, traffic on neighborhood streets and intermittent agricultural activities on the farmland to the east of the project site contribute to the existing ambient noise environment.

To quantify existing ambient noise levels within the project area, BAC conducted long-term (continuous) ambient noise-level measurements at three locations within the project site from September 7 to 11, 2022. The equipment and approach used to evaluate existing noise levels are discussed in the Method of Analysis section of this chapter. The long-term noise survey locations are shown on Figure 4.4-2. The results of the long-term ambient noise survey are summarized below in Table 4.4-1.

Table 4.4-1
Long-Term Ambient Noise Survey Results[1]

Survey Location[2]	Date	DNL	Average Measured Hourly Noise Levels (dBA)[3]			
			Daytime		Nighttime	
			L_{max}	L_{50}	L_{max}	L_{50}
1	9/7/2022	59	72	54	71	43
	9/8/2022	59	73	53	70	43
	9/9/2022	59	75	54	70	44
	9/10/2022	59	74	54	69	43
	9/11/2022	57	75	52	66	38
	Average	**58**	**74**	**53**	**69**	**42**
2	9/7/2022	48	55	42	53	39
	9/8/2022	57	58	40	54	40
	9/9/2022	49	59	40	54	40
	9/10/2022	50	63	44	55	41
	9/11/2022	47	56	39	53	37
	Average	**50**	**58**	**41**	**54**	**39**
3	9/7/2022	50	56	45	53	41
	9/8/2022	49	55	41	54	41
	9/9/2022	50	59	39	57	41
	9/10/2022	51	60	47	56	43
	9/11/2022	47	58	39	52	39
	Average	**49**	**58**	**42**	**54**	**41**

[1] Detailed summaries of the noise monitoring results are provided in Appendices C and D of the Noise Assessment.
[2] Long-term ambient noise monitoring locations are identified in Figure 4.4-2.
[3] Daytime hours: 7:00 AM to 10:00 PM | Nighttime hours: 10:00 PM to 7:00 AM.

Source: Bollard Acoustical Consultants, Inc., 2024.

As shown above in the table, DNL, L_{50}, and L_{max} noise levels were generally consistent at each individual survey site throughout the monitoring period, with the values at each site fluctuating over a small range during the five days.

The 2009 EIR conducted a continuous ambient noise survey at one location in the central portion of the project site. As shown in Table 4.5-2 of the 2009 EIR, over a period of five days, the continuous DNL noise levels ranged from 51 to 52 dB. The continuous L_{max} noise levels ranged

from 73 dB to 81 dB during daytime hours (7:00 AM to 10:00 PM) and from 62 dB to 70 dB during nighttime hours (10:00 PM to 7:00 AM). As such, the existing ambient noise environment at the project site is generally similar to noise levels measured within the site as part of the 2009 EIR.

Existing Traffic Noise Levels

The Federal Highway Administration (FHWA) Traffic Noise Model (FHWA-RD-77-108) was used to develop existing noise contours, expressed in DNL, for major roadways within the project vicinity. The approach used to evaluate existing traffic noise levels is discussed in the Method of Analysis section of this chapter. The traffic noise level at the nearest sensitive receptor and distances from the centerlines of the selected roadways to the 60 dB DNL, 65 dB DNL, and 70 dB DNL noise contours are summarized below in Table 4.4-2.

Table 4.4-2
Existing Traffic Noise Modeling Results

#	Roadway	Segment	DNL at Nearest Sensitive Receptor	Distance to Contour (feet)		
				70 dB DNL	65 dB DNL	60 dB DNL
1	West Covell Boulevard	West of F Street	67	42	90	194
2	East Covell Boulevard	F Street to J Street	67	47	101	219
3	East Covell Boulevard	J Street to L Street	63	45	98	211
4	East Covell Boulevard	L Street to Pole Line Road	65	44	95	205
5	East Covell Boulevard	Pole Line Road to Birch Lane	60	18	39	85
6	East Covell Boulevard	East of Birch Lane	64	35	76	163
7	East Covell Boulevard	West of Wright Boulevard	60	16	34	73
8	East Covell Boulevard	Wright Boulevard to Monarch Lane	60	16	35	74
9	East Covell Boulevard	Monarch Lane to Alhambra Drive	62	19	42	89
10	East Covell Boulevard	Alhambra Drive to Harper Junior High School	60	17	37	81
11	Mace Boulevard	Harper Junior High School to Alhambra Drive	61	38	83	179
12	Mace Boulevard	Alhambra Drive to 2nd Street	64	46	99	214
13	Mace Boulevard	2nd Street to Chiles Road	66	51	110	236
14	Mace Boulevard	Chiles Road to Cowell Boulevard	63	33	71	152
15	Mace Boulevard	South of Cowell Boulevard	63	22	47	102
16	F Street	North of East Covell Boulevard	62	18	39	84
17	F Street	South of East Covell Boulevard	59	19	40	86

(Continues on next page)

Table 4.4-2
Existing Traffic Noise Modeling Results

#	Roadway	Segment	DNL at Nearest Sensitive Receptor	Distance to Contour (feet)		
				70 dB DNL	65 dB DNL	60 dB DNL
18	Cannery Avenue	North of East Covell Boulevard	53	8	17	37
19	J Street	South of East Covell Boulevard	59	13	27	59
20	Pole Line Road	North of East Covell Boulevard	64	42	91	195
21	Pole Line Road	South of East Covell Boulevard	61	20	43	92
22	Birch Lane	South of East Covell Boulevard	57	6	12	26
23	Wright Boulevard	North of East Covell Boulevard	54	9	20	43
24	Monarch Lane	South of East Covell Boulevard	53	4	9	20
25	Alhambra Drive	South of East Covell Boulevard	54	5	10	21
26	Alhambra Drive	West of Mace Boulevard	56	6	13	29
27	County Road 32A	East of Mace Boulevard	60	22	48	104
28	2nd Street	West of Mace Boulevard	65	30	65	141
29	Chiles Road	East of Mace Boulevard	62	27	59	127
30	Chiles Road	West of Mace Boulevard	64	38	82	177
31	Cowell Boulevard	East of Mace Boulevard	58	11	23	50
32	Cowell Boulevard	West of Mace Boulevard	60	10	22	48

Source: Bollard Acoustical Consultants, Inc., 2024.

As presented above in Table 4.4-2, the currently existing traffic noise levels range from 53 to 67 dB DNL at the nearest sensitive receptor to each evaluated roadway. The 2009 EIR identified existing traffic noise levels at 100 feet from the centerline of segments of the following roadways: East Covell Boulevard, Alhambra Drive, Loyola Drive, Pole Line Road, Mace Boulevard, and Monarch Lane. Pursuant to Table 4.5-4 of the 2009 EIR, the traffic noise levels along the foregoing roadways were as follows:

- East Covell Boulevard: 63 to 65 dB L_{dn};
- Alhambra Drive: 57 to 59 dB L_{dn};
- Loyola Drive: 53 to 57 dB L_{dn};
- Pole Line Road: 61 to 63 dB L_{dn};
- Mace Boulevard: 63 to 66 dB L_{dn}; and
- Monarch Lane: 53 dB L_{dn}.

Although existing traffic L_{dn} noise levels in the 2009 EIR were measured at 100 feet from the centerline of selected roadways (whereas the noise levels shown in Table 4.4-2 of this chapter are at the nearest receptor), as shown above, existing traffic noise levels along project vicinity roadways are generally similar to the noise levels identified in the 2009 EIR along East Covell Boulevard, Alhambra Drive, Loyola Drive, Pole Line Road, Mace Boulevard, and Monarch Lane.

Fundamentals of Vibration

Vibration is similar to noise in that both involve a source, a transmission path, and a receiver. However, while noise is generally considered to be pressure waves transmitted through air, vibration is usually associated with transmission through the ground or structures. As with noise, vibration consists of an amplitude and frequency. A person's response to vibration depends on their individual sensitivity, as well as the amplitude and frequency of the source.

Vibration can be described in terms of acceleration, velocity, or displacement. A common practice is to monitor vibration in terms of velocity in inches per second (in/sec) peak particle velocity (PPV) or root-mean-square (VdB, RMS). Standards pertaining to perception, as well as damage to structures, have been developed for vibration in terms of PPV and RMS velocities. In terms of RMS velocities, vibration levels below approximately 65 VdB are typically considered to be below the threshold of perception.

As vibrations travel outward from the source, they excite the particles of rock and soil through which they pass and cause them to oscillate. Differences in subsurface geologic conditions and distance from the source of vibration result in different vibration levels characterized by different frequencies and intensities. In all cases, vibration amplitudes decrease with increasing distance.

According to the California Department of Transportation (Caltrans) Transportation and Construction Vibration Guidance Manual, operation of construction equipment and construction techniques generate ground vibration. Roadway traffic can also be a source of such vibration. At high enough amplitudes, ground vibration has the potential to damage structures and/or cause cosmetic damage. However, traffic rarely generates vibration amplitudes high enough to cause structural or cosmetic damage. Ground vibration can also be a source of annoyance to individuals who live or work close to vibration-generating activities.

Existing Ambient Vibration Environment

During a BAC site visit conducted on September 12, 2022, vibration levels were below the threshold of perception within the project vicinity. Nonetheless, to quantify existing vibration levels in the project area, BAC conducted short-term vibration measurements at the three survey locations identified in Figure 4.4-2. The results are summarized below in Table 4.4-3 and indicate that measured average vibration levels within the project area ranged from 32 to 45 VdB, which are below the 65 VdB threshold of perception. It should be noted that the 2009 EIR did not include an analysis of potential impacts related to groundborne vibration and, therefore, did not quantify existing vibration levels in the project area.

Table 4.4-3
Short-Term Ambient Vibration Survey Results

Site[1]	Time	Average Measured Vibration Level, VdB
1	12:07 PM	45
2	12:35 PM	34
3	1:00 PM	32

[1] Vibration measurement sites are the same sites used for the ambient noise surveys are identified on Figure 4.4-2.

Source: Bollard Acoustical Consultants, Inc., 2024.

4.4.3 REGULATORY CONTEXT

In order to limit exposure to physically and/or psychologically damaging noise levels, the State of California, various county governments, and most municipalities in the State have established standards and ordinances to control noise. Applicable federal laws or regulations pertaining to noise or vibration that would directly apply to the proposed project do not exist. The following provides a general overview of the existing State and local regulations that are relevant to the proposed project.

State Regulations

The following are the State environmental laws and policies relevant to noise and vibration.

California Building Code

The California Building Code (Title 24, Part 2 of the California Code of Regulations [CCR]) establishes uniform minimum noise-insulation performance standards to protect persons within new buildings that house people, including hotels, motels, dormitories, apartment houses, and dwellings other than single-family dwellings.

Title 24 mandates that interior noise levels attributable to exterior sources cannot exceed 45 dB L_{dn} or CNEL in any habitable room. Title 24 also requires that for structures containing noise-sensitive uses that would be located where the L_{dn} or CNEL exceeds 60 dB, an acoustical analysis must be prepared to identify mechanisms for limiting exterior noise to the prescribed allowable interior levels. If the interior allowable noise levels are met by requiring that windows be kept closed, the design for the structure must also specify a ventilation or air conditioning system to provide a habitable interior environment.

Local Regulations

The following are the local environmental goals and policies relevant to noise and vibration.

City of Davis General Plan

The following goals and policies from the City's General Plan related to noise and vibration are applicable to the proposed project.

Noise Chapter

Goal NOISE 1 Maintain community noise levels that meet health guidelines and allow for a high quality of life.

Policy NOISE 1.1 Minimize vehicular and stationary noise sources, and noise emanating from temporary activities.

	Standard a	The City shall strive to achieve the "normally acceptable" exterior noise levels shown in Table 19 (see Table 4.4-4) and the target interior noise levels in Table 20 (see Table 4.4-5) in future development areas and in currently developed areas.
	Standard b	New development shall generally be allowed only in areas where exterior and interior noise levels consistent with Table 19 (see Table 4.4-4) and Table 20 (see Table 4.4-5) can be achieved.
	Standard c	New development and changes in use shall generally be allowed only if they will not adversely impact attainment within the community of the exterior and interior noise standards shown in Table 19 (see Table 4.4-4) and Table 20 (see Table 4.4-5). Cumulative and project specific impacts by new development on existing residential land uses shall be mitigated consistent with the standards in Table 19 (see Table 4.4-4) and Table 20 (see Table 4.4-5).
	Standard d	Required noise mitigation measures for new and existing housing shall be provided with the first stage and prior to completion of new developments or the completion of capacity-enhancing roadway changes wherever noise levels currently exceed or are projected within 5 years to exceed the normally acceptable exterior noise levels in Table 19 (see Table 4.4-4).
Policy NOISE 1.2	Discourage the use of sound walls whenever alternative mitigation measures are feasible, while also facilitating the construction of sound walls where desired by the neighborhood and there is no other way to reduce noise to acceptable exterior levels shown in Table 19 (see Table 4.4-4).	
	Standard c	Review sound walls and other noise mitigations through the design review process.

Table 4.4-4
Standards for Exterior Noise Exposure

Use	Community Noise Exposure L_{dn} or CNEL, dBA			
	Normally Acceptable	**Conditionally Acceptable**	**Normally Unacceptable**	**Clearly Unacceptable**
Residential	Under 60	60-70[1]	70-75	Above 75
Transient Lodging – Motels, Hotels	Under 60	65-75	75-80	Above 80
Schools, Libraries, Churches, Hospitals, Nursing Homes	Under 60	60-70	70-80	Above 80
Auditoriums, Concert Halls, Amphitheaters	Under 50	50-70	N/A	Above 70
Sports Arenas, Outdoor Spectator Sports	N/A	Under 75	N/A	Above 75
Playgrounds, Neighborhood Parks	Under 70	N/A	70-75	Above 75
Golf Courses, Riding Stables, Water Recreation, Cemeteries	Under 70	N/A	70-80	Above 80
Office Buildings, Business Commercial and Professional	Under 65	65-75	Above 75	N/A
Industrial, Manufacturing, Utilities, Agriculture	Under 65	70-80	Above 80	N/A

Normally Acceptable: Specified land use is satisfactory based upon the assumption that all buildings involved are of conventional construction, without special noise insulation requirements.
Conditionally Acceptable: New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is conducted, and needed noise attenuation features are included in the construction or development.
Normally Unacceptable: New construction or development should be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be conducted and needed noise attenuation features shall be included in the construction or development.
Clearly Unacceptable: New construction or development shall not be undertaken.
N/A: Not applicable.

[1] The City Council shall have discretion within the "conditionally acceptable" range for residential use to allow noise levels in outdoor spaces to go up to 65 dBA if cost effective or aesthetically acceptable measures are not available to reduce noise levels in outdoor spaces to the "normally acceptable" levels. Outdoor spaces which are designed for visual use only (for example, streetside landscaping in an apartment project), rather than outdoor use space, may be considered acceptable up to 70 dBA.

Source: City of Davis General Plan, Table 19, January 2007.

Table 4.4-5
Standards for Interior Noise Levels

Use	Noise Level (dBA)
Residences, Schools Through Grade 12, Hospitals and Churches	45
Offices	55

Source: City of Davis General Plan, Table 20, January 2007.

Goal NOISE 2 Provide for indoor noise environments that are conducive to living and working.

Policy NOISE 2.1 Take all technically feasible steps to ensure that interior noise levels can be maintained at the levels shown in Table 20 (see Table 4.4-5).

Standard a New residential development or construction shall include noise attenuation measures necessary to achieve acceptable interior noise levels shown in Table 20 (see Table 4.4-5).

Standard b Existing areas that will be subjected to noise levels greater than the acceptable noise levels shown in Table 20 (see Table 4.4-5) as a result of increased traffic on existing city streets (including streets remaining in existing configurations and streets being widened) shall be mitigated to the acceptable levels in Table 20 (see Table 4.4-5). If traffic increases are caused by specific projects, then the City shall be the lead agency in implementing cumulative noise mitigation projects. Project applicants shall pay their fair share for any mitigation.

City of Davis Noise Ordinance

Davis Municipal Code establishes noise level limits that are applicable to on-site project-generated noise sources that would affect existing or proposed sensitive receptors. According to Section 24.02.020 of the Davis Municipal Code, a person shall not produce, suffer, or allow to be produced on any public or private property, sounds at a level in excess of those shown below in Table 4.4-6, when measured at a property's plane or, if on any street or highway, measured at the property plane of the nearest property.

Davis Municipal Code Section 24.02.030 prohibits the production of a noise level of more than 20 dBA above the limit provided in Table 4.4-6, but not greater than 80 dBA measured at the property plane, which constitutes an absolute noise limitation. Therefore, the City's maximum noise limit is 75 dBA L_{max} for the hours of 7:00 AM to 9:00 PM and 70 dBA L_{max} during the hours of 9:00 PM to 7:00 AM.

Table 4.4-6
City of Davis Municipal Code Exterior Noise Standards

Land Use	Time Period	Maximum Noise Level (dBA)
Residential	9:00 PM to 7:00 AM	50
	7:00 AM to 9:00 PM	55
Commercial/Industrial/Core Commercial	10:00 PM to 7:00 AM	55
	7:00 AM to 10:00 PM	60
High Noise Traffic Corridor	Anytime	65

Source: Davis Municipal Code, 2024.

Additionally, Davis Municipal Code Section 24.02.040 contains special provisions which apply to noise generated by construction-related activities. The pertinent components of the section are provided below.

(a) Power tools. The operation of power tools for noncommercial purposes shall be exempt from the provisions of Sections 24.02.020(a), (b), (c) and 24.02.030, between the hours of 8:00 a.m. and 8:00 p.m.; provided, that such operations shall be subject to the provisions of Section 24.05.010. For purposes of this section, a noncommercial use shall be a use for which a business license is not required pursuant to Chapter 19.

(b) Construction and landscape maintenance equipment. Notwithstanding any other provision of this chapter, between the hours of 7:00 a.m. and 7:00 p.m. on Mondays through Fridays, and between the hours of 8:00 a.m. and 8:00 p.m. on Saturdays and Sundays, construction, alteration, repair or maintenance activities which are authorized by valid city permit or business license, or carried out by employees of contractors of the city shall be allowed if they meet at least one of the following noise limitations:

(1) No individual piece of equipment shall produce a noise level exceeding eighty-three dBA at a distance of twenty-five feet. If the device is housed within a structure on the property, the measurement shall be made outside the structure at a distance as close to twenty feet from the equipment as possible.

(2) The noise level at any point outside of the property plane of the project shall not exceed eighty-six dBA.

(3) The provisions of subdivisions (1) and (2) of this subsection shall not be applicable to impact tools and equipment; provided, that such impact tools and equipment shall have intake and exhaust mufflers recommended by manufacturers thereof and approved by the director of public works as best accomplishing maximum noise attenuation, and that pavement breakers and jack-hammers shall also be equipped with acoustically attenuating shields or shrouds recommended by the manufacturers thereof and approved by the director of public works as best accomplishing maximum noise attenuation. In the absence of manufacturer's recommendations, the director of public works may prescribe such means of accomplishing maximum noise attenuation as he or she may determine to be in the public interest.

Construction projects located more than two hundred feet from existing homes may request a special use permit to begin work at 6:00 a.m. on weekdays from June 15th until September 1st. No percussion type tools (such as ramsets or jackhammers) can be used before 7:00 a.m. The permit shall be revoked if any noise complaint is received by the police department.

4.4.4 IMPACTS AND MITIGATION MEASURES

The following section describes the standards of significance and methodology used to analyze and determine the proposed project's potential impacts related to noise and vibration. In addition,

a discussion of the project's impacts, as well as mitigation measures where necessary, is also presented.

Impacts of the environment on a project (as opposed to impacts of a project on the environment) are beyond the scope of required CEQA review. "[T]he purpose of an EIR is to identify the significant effects of a project on the environment, not the significant effects of the environment on the project." (*Ballona Wetlands Land Trust v. City of Los Angeles,* [2011] 201 Cal.App.4th 455, 473 [*Ballona*]). The California Supreme Court has held that "CEQA does not generally require an agency to consider the effects of existing environmental conditions on a proposed project's future users or residents. What CEQA does mandate is an analysis of how a project might exacerbate existing environmental hazards." (*California Building Industry Assn. v. Bay Area Air Quality Management Dist.* [2015] 62 Cal.4th 369, 392; see also *Mission Bay Alliance v. Office of Community Investment & Infrastructure* [2016] 6 Cal.App.5th 160, 197 ["identifying the effects on the project and its users of locating the project in a particular environmental setting is neither consistent with CEQA's legislative purpose nor required by the CEQA statutes"], quoting *Ballona*, *supra*, 201 Cal.App.4th at p. 474). Therefore, for the purposes of the CEQA analysis, the relevant inquiry is not whether the proposed project's future residents will be exposed to pre-existing environmental noise-related hazards, but instead whether project-generated noise would exacerbate the pre-existing conditions. However, the discussions of potential noise effects on the proposed residences presented in the project-specific Noise Assessment will be used by the City of Davis to develop conditions of approval, to the extent allowed by state law, consistent with the City's General Plan goals and policies related to exterior and interior noise levels.

Standards of Significance

Consistent with Appendix G of the CEQA Guidelines, an impact related to noise is considered significant if the proposed project would result in any of the following:

- 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;
- Generation of excessive groundborne vibration or groundborne noise levels; or
- 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 (see Chapter 4.7, Other Effects).

As noted above, impacts related to exposure of people to airport noise levels are discussed in Chapter 4.7, Other Effects, of this EIR.

Summary of Applicable Noise Standards

Applicable noise and vibration level standards, including standards from the City of Davis General Plan and the Municipal Code are summarized below.

Construction Noise Criteria

Pursuant to Davis Municipal Code Section 24.02.040, sound or noise emanating from construction activities is exempt from the City's noise regulations, provided that construction occurs between the hours of 7:00 AM to 7:00 PM on Monday through Friday and between the hours of 8:00 AM to 8:00 PM on Saturdays and Sundays, as well as meets at least one of the following noise limitations:

- None of the construction equipment generates noise levels exceeding 83 dBA at a distance of 25 feet;
- The noise level at any point outside of the property plane of the construction site does not exceed 86 dBA;
- The construction tools are impact tools and/or equipment that have manufacturer-recommended intake and exhaust mufflers and are approved by the Director of Public Works as having the best-accomplishing noise attenuation. Pavement breakers and jack hammers must also be equipped with acoustically attenuating shields or shrouds recommended by manufacturers and approved by the Director of Public Works as having the best-accomplishing noise attenuation;
- Individual powered blowers do not produce a noise level exceeding 70 dBA measured at a distance of 50 feet;
    - On a single-family residential property, the 70 dBA at 50 feet restriction does not apply, if operated for less than 10 minutes per occurrence; and
- Powered blowers are not simultaneously operated within a 100-foot radius of another powered blower.

In terms of determining the temporary noise increase due to project-related construction activities, an impact would occur if construction activity would substantially increase ambient noise levels above background levels. The threshold of perception of the human ear is approximately 3.0 to 5.0 dB. A 5.0 dB change is considered to be clearly noticeable. Thus, consistent with the Federal Interagency Committee on Noise (FICON) criteria discussed further below, a substantial increase in ambient noise levels is assumed to occur when noise levels increase by 5.0 dB or more over existing ambient noise levels.

Transportation Source Noise Criteria

The City of Davis does not have a specific threshold for evaluating noise increases due to transportation sources. Therefore, similar to the 2009 EIR, BAC relied on the FICON substantial increase criteria, discussed further below, to evaluate impacts related to traffic noise.

The following table was developed by FICON as a means of developing thresholds for identifying project-related noise-level increases. The rationale for the graduated scales is that test subjects' reactions to increases in noise levels varied depending on the starting level of noise. Specifically, with lower ambient noise environments, such as those below 60 dB L_{dn}, a larger increase in noise levels was required to achieve a negative reaction than was necessary in environments where noise levels were already elevated. Therefore, because the City does not have defined thresholds for what would be considered a substantial increase in traffic noise levels, information from Table 4.4-7 is used.

Table 4.4-7
Significance of Changes in Cumulative Noise Exposure (dB DNL)

Ambient Noise Level Without Project	Increase Required for Significant Impact
<60	+5.0 or more
60 to 65	+3.0 or more
>65	+1.5 or more

Source: Federal Interagency Committee on Noise.

The use of the FICON standards is considered conservative relative to thresholds used by other agencies in the State. For example, Caltrans requires a project-related traffic noise-level increase

of 12 dB for a finding of significance, and the California Energy Commission (CEC) considers project-related noise-level increases between 5.0 to 10 dB significant, depending on local factors. Therefore, the use of the FICON standards, which set the threshold for finding of significant noise impacts as low as 1.5 dB, provides a conservative approach to impact assessment for the proposed project.

Non-Transportation Source Noise Criteria

Section 24.02.020 of the Davis Municipal Code establishes exterior noise standards at residential uses of 50 dBA L_{max} between the hours of 9:00 PM to 7:00 AM, and 55 dBA L_{max} between the hours of 7:00 AM to 9:00 PM. Section 24.02.030 establishes that the City's maximum noise limit is 75 dBA L_{max} for the hours of 7:00 AM to 9:00 PM and 70 dBA L_{max} during the hours of 9:00 PM to 7:00 AM. The City of Davis General Plan establishes a day/night average noise-level threshold of 60 dBA L_{dn} within outdoor activity areas of residential land uses.

Vibration

The City of Davis does not have specific policies or standards pertaining to groundborne vibration. Therefore, the vibration impact criteria for damage to structures and annoyance to receptors developed by the Federal Transit Administration (FTA) is applied for the purposes of analysis. The criteria for damage to structures are presented in Table 4.4-8. The criteria related to annoyance are focused on sleep disturbance when evaluating residential receptors. Pursuant to Davis Municipal Code Section 24.02.040, construction activities would not occur during nighttime hours. Thus, the vibration analysis will focus only on damage to structures criteria.

Table 4.4-8
Federal Transit Administration Criteria for Assessing Vibration Damage to Structures

Building Category	Level, VdB[1]
I. Reinforced-Concrete, Steel or Timber (No Plaster)	102
II. Engineered Concrete and Masonry (No Plaster)	98
III. Non-Engineered Timber and Masonry Buildings	94
IV. Buildings Extremely Susceptible to Vibration Damage	90

[1] RMS velocity in decibels (VdB) re 1 micro-inch/second.

Source: Federal Transit Authority Noise and Vibration Manual, Table 12-3.

The surrounding uses include newer engineered residences, which are not highly susceptible to damage by construction. The applicable building category would be Category II, Engineered Concrete and Masonry (No Plaster), and the applicable threshold for assessing vibration damage would be 98 VdB.

Method of Analysis

The analysis in this SEIR is focused generally on the changes to the proposed project and changes in circumstances following the City's certification of the 2009 EIR, pursuant to CEQA Guidelines Section 15162. The analysis of this chapter is based on the 2009 EIR and the Noise Assessment prepared for the currently proposed project by BAC.

As discussed throughout this SEIR, the environmental baseline is appropriately considered to be the Wildhorse Ranch Project, which included up to 191 residential units, comprised of 73 detached single-family residences and 78 two- and three-story single-family townhomes on 11.95

acres, as well as 40 attached affordable housing units to be developed on the project site. As such, noise associated with the Wildhorse Ranch Project would have occurred as a result of construction activities and operations of such uses.

Below are descriptions of the methodologies used in the Noise Assessment (see Appendix E of this SEIR) to estimate construction noise and vibration associated with the currently proposed project, future traffic noise, and noise associated with the proposed pool complex. Further modeling details and calculations are provided in Appendix E of this SEIR. The results of the noise and vibration impact analyses were compared to the standards of significance discussed above in order to determine the associated level of impact.

On-Site Existing Ambient Noise Levels

To quantify existing ambient noise levels within the project site, BAC conducted long-term (continuous) ambient noise-level measurements at three locations (see Figure 4.4-2) from September 7 to September 11, 2022. Larson Davis Laboratories (LDL) precision (Type 1) integrating sound level meters were used to complete the long-term noise-level survey. The meters were calibrated immediately before and after use with an LDL Model CA200 acoustical calibrator to ensure the accuracy of the measurements. The equipment used meets all specifications of the American National Standards Institute requirements for Type 1 sound level meters (ANSI S1.4). The results of the long-term ambient noise survey are shown numerically and graphically in Appendices C and B of the Noise Assessment, respectively, and are summarized in Table 4.4-1 above.

Project Traffic Noise-Level Increases

The FHWA-RD-77-108 traffic noise model was used to quantify existing traffic noise levels at the existing sensitive land uses nearest to the project vicinity roadway network. The model was also used to quantify the distances to the 60, 65 and 70 dB DNL traffic noise contours for the roadways. The FHWA Model predicts hourly L_{eq} values for free-flowing traffic conditions. Estimates of the hourly distribution of traffic for a typical 24-hour period were used to develop DNL values from L_{eq} values. Existing traffic data in the form of peak hour intersection turning movements were obtained from the transportation consultant for the proposed project. The data was converted to average daily traffic (ADT) segment volumes by multiplying the average of the AM and PM movements by a factor of 10. Other inputs were obtained from BAC observations and noise measurement data.

Using such data and the FHWA Model, existing traffic noise levels at the nearest sensitive receptors were calculated. The traffic noise level at sensitive receptors and distances from the centerlines of selected roadways to the 60 dB DNL, 65 dB DNL, and 70 dB DNL contours are summarized in Table 4.4-2. A complete listing of the FWHA Model inputs for existing conditions are provided in Appendix E of the Noise Assessment. The FHWA Model was used with traffic input data to predict project traffic noise-level increases relative to existing and cumulative conditions, both with and without the proposed project.

Project Construction Noise and Vibration Levels

Construction noise was analyzed using data compiled for various pieces of construction equipment at a representative distance of 50 feet. BAC estimated average noise levels at the nearest residences to the project site using the FHWA Roadway Construction Noise Model (RCNM). Construction noise is discussed relative to the applicable City of Davis policies and standards.

BAC conducted short-term vibration measurements at the three survey locations identified in Figure 4.4-2 on September 12, 2022. An LDL Model LxT precision integrating sound level meter equipped with a vibration transducer was used to complete the measurements. The results are summarized in Table 4.4-3. The Noise Assessment analyzed construction-related vibration using data compiled for various pieces of construction equipment at a representative distance of 25 feet.

Pool Complex Noise Levels

Based on the limited parking proposed at the community-serving facilities (55 spaces), significant crowd sizes at the pool complex are not anticipated. Thus, BAC conservatively assumed a crowd size of 60 persons speaking and cheering at varying vocal levels (casual to loud). Based on the foregoing assumption, BAC concluded that the predicted average and maximum noise levels during swimming events at a distance of 400 to 500 feet from the nearest residences would be less than 40 dB L_{eq} and less than 50 dB L_{max} (after consideration of noise attenuation provided by intervening buildings to the west and the existing sound wall located on the south side of East Covell Boulevard).

Project-Specific Impacts and Mitigation Measures

The following discussion of impacts related to noise and vibration is based on implementation of the proposed project in comparison with the baseline and standards of significance presented above.

4.4-1 Generation of a substantial temporary increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies. Based on the analysis below and even with the implementation of mitigation, the currently proposed project would result in a new significant impact beyond what was previously identified in the 2009 EIR.

During project construction, heavy equipment would be used for grading excavation, paving, and building construction, which would increase ambient noise levels when in use. Noise levels would vary depending on the type of equipment used, how the equipment is operated, and how well the equipment is maintained. Noise exposure would also vary depending on the proximity of equipment activities to any point outside of the project site.

The 2009 EIR evaluated potential impacts related to construction noise under Impact 4.5-3 and found that a significant impact could occur. As noted therein, construction activities would have been temporary and anticipated to occur during typical daytime working hours, with activities associated with construction assumed to generate maximum noise levels ranging from 85 to 90 dB at a distance of 50 feet. Although construction noise would have been temporary and would have likely occurred during normal daytime working hours, the 2009 EIR concluded that construction activities would have resulted in periods of elevated noise levels. However, Mitigation Measure 4.5-3 from the 2009 EIR would have required short-term elevated noise levels to be reduced through compliance with standard best management practices (BMPs) that

serve to minimize construction-related noise and requiring that construction be limited to normal daytime hours. With implementation of Mitigation Measure 4.5-3, the 2009 EIR concluded the potential impact would have been reduced to a less-than-significant level.

With respect to the currently proposed project, Table 4.4-9 below includes the range of maximum noise levels for equipment commonly used in general construction projects at full-power operation at a distance of 50 feet, which are generally similar to the noise levels anticipated in the 2009 EIR for the same type of construction equipment being used. It should be noted that not all of the listed construction equipment would be required or used as part of construction activities for the proposed project. Table 4.4-9 also includes predicted maximum equipment noise levels at the boundary of the nearest sensitive use, which is located approximately 25 feet away, and assumes a standard spherical spreading loss of 6.0 dB per doubling of distance from the noise source.

Table 4.4-9
Construction Equipment Reference Noise Levels and Predicted Noise Levels at 25 Feet

Equipment	Maximum Noise Level at 50 feet (dBA)	Predicted Maximum Noise Level at 25 feet (dBA)
Air Compressor	80	86
Backhoe	80	86
Ballast Equalizer	82	88
Ballast Tamper	83	89
Compacter	82	88
Concrete Mixer	85	91
Concrete Pump	82	88
Concrete Vibrator	76	82
Crane, Mobile	83	89
Dozer	85	91
Generator	82	91
Grader	85	88
Impact Wrench	85	91
Loader	80	91
Paver	85	86
Pneumatic Tool	85	91
Pump	77	91
Saw	76	83
Scarifier	83	82
Scraper	85	89
Shovel	82	91
Spike Driver	77	88
Tie Cutter	84	83
Tie Handler	80	90
Tie Inserter	85	86
Truck	84	91

Source: Bollard Acoustical Consultants, Inc., 2024.

Based on the equipment noise levels in Table 4.4-9, worst-case on-site project construction equipment maximum noise levels at the nearest existing residential uses located 25 feet away are expected to range from approximately 82 to 91 dB L_{max}. Based on such levels and using the FHWA Roadway RCNM, average noise levels at the nearest residences to the project site are anticipated to be 85 dBA L_{eq} or less. Average noise levels would be satisfactory relative to Davis Municipal Code Section 24.02.040(B)(2), as project construction would not exceed 86 dBA beyond the project site boundaries. However, worst-case maximum noise levels generated during project construction could exceed 5.0 dB or more above baseline ambient conditions at the nearest existing residences.

Because short-term noise-level increases associated with project construction could result in substantial noise-level increases above baseline levels, similar to the 2009 EIR, mitigation would be required. While the construction noise levels attributable to the proposed project would be similar to the approved Wildhorse Ranch Project and a new significant impact or substantial increase in the severity of a previously identified significant impact would not be expected to occur, this impact analysis employs a more robust and conservative methodology that, unlike the 2009 EIR, suggests construction noise could be significant and unavoidable at the nearest residences.

For example, unlike this SEIR, the 2009 EIR did not clearly articulate an ambient noise level increase threshold to determine construction noise impact significance. Rather, the 2009 EIR generally concluded that elevated construction noise levels due to the project would be significant.

The 2009 EIR included Mitigation Measure 4.5-3, which included standard construction noise BMPs, and concluded that implementation of said BMPs would reduce the impact to a less-than-significant level. In contrast, based on recent CEQA case law, this SEIR uses an ambient increase construction noise threshold of 5.0 dB, and thus, implementation of mitigation must be shown to be capable of reducing ambient noise level increases attributable to construction below 5.0 dB over ambient levels. As discussed further below, implementation of Mitigation Measure 4.5-3 from the 2009 EIR (as modified below) would ensure compliance with the Davis Municipal Code but cannot conclusively be shown to reduce increases in ambient noise levels due to project construction to at or below 5.0 dB at the nearest sensitive receptors. Therefore, based on the robust construction noise analysis methodology employed in this SEIR, the proposed project would result in a substantial increase in the severity of a significant impact previously identified in the 2009 EIR.

Applicable Mitigation Measure(s) from the 2009 EIR

None applicable.

Modified Mitigation Measure(s)

Mitigation Measure 4.5-3 from the 2009 EIR has been modified to include additional construction noise performance standards set forth by the Noise Assessment prepared for the currently proposed project. Modifications are shown in ~~strikethrough~~ and <u>double-underline</u> below.

Although the modified mitigation measure below would decrease the potential for substantial temporary increases in ambient noise levels in the project vicinity to occur, certainty that the mitigation measure would reduce construction-related noise levels to both a state of compliance with Davis Municipal Code requirements and to levels which do not exceed 5.0 dB above baseline ambient conditions cannot be determined. As a result, whereas the 2009 EIR determined that Mitigation Measure 4.5-3 would reduce the potential impact to a less-than-significant level, with respect to the currently proposed project, even with implementation of the measure, the potential impact, while temporary, is conservatively assumed to be *significant and unavoidable*.

4.5-3 *Compliance with the following measures shall be incorporated within the ~~Final Planned Development~~ construction documents prior to issuance of building permits with specific criteria and standards to be reviewed and approved by the ~~Planning Commission~~ City of Davis Community Development and Sustainability Department and Public Works Department:*

- *Construction activities shall be scheduled to occur during normal daytime working hours (i.e., 7:00 AM to 7:00 PM Monday through Friday and 8:00 AM to 8:00 PM Saturday and Sunday). These criteria shall be included in the Improvement Plans prior to initiation of construction. Exceptions to allow expanded construction activity hours shall be reviewed on a case-by-case basis as determined by the Community Development Director;*
- *Nearby residences shall be notified of construction schedules as part of a Notification Program subject to review and approval by the City of Davis, so that arrangements can be made, if desired, to limit their exposure to short-term increases in ambient noise levels;*
- *All mobile or fixed noise-producing equipment used on the project site shall comply with applicable federal, State, or local agency regulations while in the course of project activity;*
- *Electrically powered equipment shall be used instead of pneumatic or internal-combustion-powered equipment, where feasible;*
- *All heavy construction equipment and all stationary noise sources (such as diesel generators) shall be fitted with factory-specified mufflers and be maintained in good working condition; and*
- *Equipment warm up areas, water tanks, material stockpiles, mobile equipment staging, parking, maintenance areas, and equipment storage areas shall be located in an area as far away from existing residences as feasible.*

New Mitigation Measure(s)

None required.

4.4-2 Generation of a substantial permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies. Based on the analysis below and with implementation of mitigation, the currently proposed project would not result in a new significant impact or substantially more severe significant impact beyond what was previously identified in the 2009 EIR.

Noise sources associated with operation of the proposed project would consist of traffic noise and noise associated with the pool complex. The noise generated by the aforementioned components could result in impacts to existing noise-sensitive receptors in the project vicinity. Each of the foregoing noise sources is discussed in further detail below.

This chapter does not consider exposure of future residents of the currently proposed project to potential noise or vibration effects associated with the existing and post-construction noise environment, given that such an analysis is not required pursuant to CEQA. CEQA is focused on the proposed project's effects on the surrounding physical environment. Thus, although the 2009 EIR evaluated potential noise impacts related to existing agricultural activity, occurring to the east of the project site, upon the proposed residents of the Wildhorse Ranch Project, such analysis is not included herein. The potential noise effects upon future residents of the proposed project, which could result from future traffic noise levels and the proposed non-residential uses, will be addressed separately by the City during their planning review of the proposed project to ensure that the noise levels experienced at the future residences are in compliance with the City's General Plan noise-level standards.

Traffic Noise at Existing Noise-Sensitive Receptors

The 2009 EIR evaluated the increase in traffic noise levels that could occur as a result of the Wildhorse Ranch Project on surrounding roadways under Impact 4.5-1 and determined that noise levels would have exceeded the Davis General Plan's 60 dB L_{dn} exterior threshold at 100 feet from the centerline of several of the evaluated roadway segments. However, as shown in Table 4.5-4 of the 2009 EIR, existing noise levels at such roadway segments already exceeded the 60 dB L_{dn} threshold, and the project would have resulted in noise-level increases of 0.0 to 3.0 dB L_{dn}, which would have been below the 5.0 dB noise-level-increase threshold. As such, the 2009 EIR concluded that a less-than-significant impact would occur.

With respect to the currently proposed project, using the methodology described above in the Method of Analysis section, traffic noise levels under Existing and Existing Plus Project conditions were estimated as part of the Noise Assessment and are shown in Table 4.4-10. The estimated noise levels are provided in terms of DNL at the nearest sensitive receptors to the roadways. In addition, the table includes an assessment of predicted traffic noise levels relative to the FICON noise-level-increase significance criteria presented in Table 4.4-7.

As shown below in Table 4.4-10, the increase in traffic noise levels attributable to the proposed project under Existing Plus Project conditions would be below the FICON increase significance criteria shown in Table 4.4-7. Additionally, noise-level increases attributable to project-generated traffic would all be less than 1.0 dB DNL, which is either generally similar to or, in the case of noise levels along Monarch Lane, less than the levels identified for traffic noise-level increases identified in Table 4.5-4 of the 2009 EIR for the Wildhorse Ranch Project. Therefore, similar to the Wildhorse Ranch Project, the increase in traffic noise levels at existing sensitive receptors due to the proposed project would be less than significant.

Pool Complex and Obstacle Course Noise at Existing Noise-Sensitive Receptors

Given the residential nature of the proposed project, the primary source of noise associated with the proposed development would be project-generated traffic noise on local roadways. However, the currently proposed project includes dedication of land for future development of a USA Pentathlon Training Facility, pool complex, and obstacle course, which were not included in the Wildhorse Ranch Project, and accordingly, were not evaluated in the 2009 EIR. Noise generated by activities occurring within the USA Pentathlon Training Facility (fencing, laser pistol training, locker rooms, etc.) would be contained within the building. Use of the outdoor obstacle course would be limited to the hours of 7:00 AM to 9:00 PM. Noise generated by operation of the pool complex and obstacle course is discussed further below.

Pool Complex Noise

The pool complex would include one pool and associated equipment. The center of the pool complex would be set back approximately 400 feet from the nearest existing residences, located south of East Covell Boulevard, and approximately 500 feet from the nearest existing residences to the west of the project site.

According to the Noise Assessment, swimming activities (lap swimming, training, water aerobics, etc.) do not, by themselves, generate appreciable noise levels. Noise at the pool complex would be primarily generated by spectators during swim events and by the proposed public address (PA) system. Given the limited parking proposed at the proposed community-serving facilities (55 spaces), significant crowd sizes at the pool complex are not anticipated.

Conservatively assuming a crowd size of 60 people speaking and cheering at varying vocal levels (casual to loud) during swimming events, the predicted average and maximum noise levels at a distance of 400 to 500 feet from the nearest residences would be less than 40 dBA L_{eq} and 50 dBA L_{max}, when considering noise attenuation provided by intervening buildings to the west and the existing sound wall located south of East Covell Boulevard. The predicted noise levels associated with the pool complex would comply with the standards established by Chapter 24 of the Davis Municipal Code. In terms of General Plan compliance, pool-generated noise levels would be below 50 dBA DNL at the nearest noise-sensitive receptors to the project site, which is below the General Plan's 60 dB DNL exterior noise standard applicable at residential uses.

Table 4.4-10
Predicted Traffic Noise-Level Increases at Existing Sensitive Receptors – Existing Versus Existing Plus Project Conditions

#	Roadway	Segment	Predicted DNL, dBA			Significance Threshold	Threshold Exceeded?	Sensitive Receptors Present?[1]	Significant Impact Identified?[2]
			Existing	Existing Plus Project	Increase				
1	West Covell Boulevard	West of F Street	66.6	66.8	0.2	1.5	No	Yes	No
2	East Covell Boulevard	F Street to J Street	66.5	66.7	0.2	1.5	No	Yes	No
3	East Covell Boulevard	J Street to L Street	62.7	62.9	0.2	3.0	No	Yes	No
4	East Covell Boulevard	L Street to Pole Line Road	64.7	65.0	0.3	3.0	No	No	No
5	East Covell Boulevard	Pole Line Road to Birch Lane	60.0	60.5	0.5	3.0	No	Yes	No
6	East Covell Boulevard	East of Birch Lane	64.2	64.7	0.5	3.0	No	Yes	No
7	East Covell Boulevard	West of Wright Boulevard	60.3	60.8	0.5	3.0	No	Yes	No
8	East Covell Boulevard	Wright Boulevard to Monarch Lane	60.4	60.9	0.5	3.0	No	Yes	No
9	East Covell Boulevard	Monarch Lane to Alhambra Drive	61.6	61.9	0.3	3.0	No	Yes	No
10	East Covell Boulevard	Alhambra Drive to Harper Junior High School	60.5	60.8	0.3	3.0	No	Yes	No
11	Mace Boulevard	Harper Junior High School to Alhambra Drive	61.1	61.4	0.3	3.0	No	Yes	No
12	Mace Boulevard	Alhambra Drive to 2nd Street	63.8	64.0	0.2	3.0	No	Yes	No
13	Mace Boulevard	2nd Street to Chiles Road	65.6	65.7	0.1	1.5	No	Yes	No
14	Mace Boulevard	Chiles Road to Cowell Boulevard	62.7	62.8	0.1	3.0	No	No	No
15	Mace Boulevard	South of Cowell Boulevard	62.9	62.9	0.0	3.0	No	Yes	No
16	F Street	North of East Covell Boulevard	61.7	61.7	0.0	3.0	No	Yes	No
17	F Street	South of East Covell Boulevard	59.0	59.1	0.1	5.0	No	Yes	No
18	Cannery Avenue	North of East Covell Boulevard	53.5	53.5	0.0	5.0	No	No	No
19	J Street	South of East Covell Boulevard	59.4	59.5	0.1	5.0	No	Yes	No
20	Pole Line Road	North of East Covell Boulevard	64.4	64.4	0.0	3.0	No	Yes	No
21	Pole Line Road	South of East Covell Boulevard	60.5	60.7	0.2	3.0	No	Yes	No
22	Birch Lane	South of East Covell Boulevard	57.3	57.3	0.0	5.0	No	Yes	No
23	Wright Boulevard	North of East Covell Boulevard	53.8	53.9	0.1	5.0	No	Yes	No
24	Monarch Lane	South of East Covell Boulevard	52.9	53.2	0.3	5.0	No	Yes	No
25	Alhambra Drive	South of East Covell Boulevard	54.4	54.5	0.1	5.0	No	Yes	No
26	Alhambra Drive	West of Mace Boulevard	55.7	55.7	0.0	5.0	No	Yes	No
27	County Road 32A	East of Mace Boulevard	60.3	60.3	0.0	3.0	No	No	No
28	2nd Street	West of Mace Boulevard	65.0	65.1	0.1	3.0	No	No	No
29	Chiles Road	East of Mace Boulevard	61.6	61.6	0.0	3.0	No	No	No
30	Chiles Road	West of Mace Boulevard	63.7	63.8	0.1	3.0	No	No	No
31	Cowell Boulevard	East of Mace Boulevard	58.3	58.3	0.0	5.0	No	Yes	No
32	Cowell Boulevard	West of Mace Boulevard	59.7	59.9	0.2	5.0	No	Yes	No

[1] Sensitive receptors were considered to be residences of all densities, schools, and transient lodging facilities.
[2] A significant impact is identified only along segments where the project-related traffic noise level increase would exceed the significance threshold and where sensitive receptors are present along the roadway segment.

Source: Bollard Acoustical Consultants, Inc., 2024.

According to the project applicant, outdoor speaker usage is not anticipated, except potentially during national or world cup events, which would occur, at a maximum, once per year. The noise generation of PA systems is highly variable, depending on the location, number, orientation, and power settings of the speakers. Because the specific design of the PA system has not yet been completed, precisely predicting the noise generation of the PA system at the nearest existing residences to the north and northwest of the project site is not currently possible. Thus, noise exposure from the proposed pool complex at the nearest existing residences could be significant, due to PA system usage.

Obstacle Course Noise

Obstacle course activities would include running, jumping, climbing, and maneuvering through a series of obstacles focused on strength and endurance. The obstacle course would be located in the southeast corner of the project site, adjacent to East Covell Boulevard and existing agricultural land to the east. The noise generation of the proposed obstacle course activities is expected to be comparable to noise generated by equipment found in neighborhood parks and gyms and is not anticipated to result in appreciable noise levels beyond the immediate obstacle course area.

Activities at the obstacle course would consist primarily of training, but infrequent competitions may be held at the site. Noise would be generated at the obstacle course primarily by athletes and spectators during training and competition events, and a small PA system, which may be used during competitions. Given the limited parking proposed at the community-serving area of the project site, significant crowd sizes at the obstacle course are not anticipated. Conservatively assuming a crowd size of 60 persons speaking and cheering at varying vocal levels (casual to loud), during obstacle course events (similar to swimming events), the predicted average and maximum noise levels at a distance of 300 feet from the effective noise center of the obstacle course to the nearest residences to the south would be less than 40 dBA L_{eq} and 45 dBA L_{max} (after consideration of noise attenuation provided by the existing sound wall located on the south side of East Covell Boulevard). Such noise levels would be satisfactory relative to the Davis Municipal Code daytime and nighttime noise level standards. In terms of General Plan compliance, noise levels generated by the obstacle course would be well below 50 dBA DNL at the nearest noise-sensitive receptors to the project site, which would be well below the City's General Plan 60 dB DNL exterior noise standard applicable at residential uses.

However, similar to the PA system of the pool complex, because the specific design of the PA system has not yet been finalized, precisely predicting the noise generation of the PA system at the nearest existing residences to the south of the obstacle course is not currently possible. Thus, noise exposure from the obstacle course at the nearest existing residences could be significant, due to PA system usage.

Conclusion

Based on the above, without implementation of the new mitigation measure included below, the currently proposed project could result in a new significant impact related to the generation of a substantial permanent increase in ambient noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies beyond what was previously identified in the 2009 EIR.

Applicable Mitigation Measure(s) from the 2009 EIR

As discussed above, this chapter does not consider the effects of existing environmental noise on future project residents, given that such an analysis is not required pursuant to CEQA. CEQA is focused on the proposed project's effects on the surrounding physical environment, not the effects of the environment on the project. Therefore, Mitigation Measure 4.5-4 included in the 2009 EIR, which requires disclosure statements advising future project residents of nearby orchard and greenbelt maintenance noise, would no longer be applicable to the proposed project.

Modified Mitigation Measure(s)

None required.

New Mitigation Measure(s)

Implementation of the following mitigation measure would reduce the above potential impact to a *less-than-significant* level.

SEIR 4.4-2 *In conjunction with submittal of a site plan for the USA Pentathlon Training Facility, pool complex, and obstacle course, the project applicant shall submit an acoustical noise study, which shall document the predicted average (L_{eq}) and maximum (L_{max}) noise levels associated with the facilities' public address (PA) system at the nearest sensitive receptors to the pool complex and obstacle course. The acoustical noise study shall include recommendations for reducing noise levels projected to exceed the City's applicable noise standards set forth in Davis Municipal Code Article 24.02 and the Davis General Plan's day/night average noise-level threshold of 60 dBA L_{dn} within outdoor activity areas of residential land uses. Such recommendations could include, but not necessarily be limited to, the following:*

- *Acoustic noise barriers;*
- *Monitoring of PA noise levels during national, world cup, and other organized swimming events to ensure such activities do not exceed standards contained in the City of Davis Noise Ordinance;*
- *Limitations on the hours during which the PA system may be used; and*
- *Disclosure statements provided to neighboring residences of the potential for elevated noise levels during organized events held at the pool complex.*

The acoustic noise study shall be submitted for review and approval to the City of Davis Community Development and Sustainability Department prior to issuance of building permits.

4.4-3 Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels. Based on the analysis below, the currently proposed project would not result in a new significant impact or substantially more severe significant impact beyond what was previously identified in the 2009 EIR.

The 2009 EIR did not evaluate potential impacts related to groundborne vibration. Nonetheless, during project construction, heavy equipment would be used for grading, excavation, paving, and building construction, which would generate localized vibration in the immediate vicinity of the construction. The nearest identified existing structures (newer engineered residences, which are not highly susceptible to damage by vibration) are located approximately 25 feet from where construction activities would occur within the project site.

Table 4.4-11 includes the range of vibration levels for equipment commonly used in general construction projects at a distance of 25 feet. Table 4.4-11 also includes predicted equipment vibration levels at a distance of 100 feet from proposed construction activities.

Table 4.4-11
Vibration Source Amplitudes for Construction Equipment

Equipment	Maximum Vibration Level at 25 feet, VdB (RMS)
Vibratory Roller	94
Hoe Ram	87
Large Bulldozer	87
Loaded Trucks	86
Jackhammer	79
Small Bulldozer	58

Source: Bollard Acoustical Consultants, Inc., 2024.

As shown in Table 4.4-11, vibration levels generated from construction activities are predicted to be below thresholds for damage to engineered residential structures (98 VdB) at a distance of 25 feet from such activities.

With respect to project operation, the currently proposed project would consist of a mixed-use community containing residential uses and community-serving facilities. Such uses do not typically have equipment that generates appreciable off-site vibration. Therefore, project operation would not result in potential vibration impacts.

Based on the above, the currently proposed project would not result in a new significant impact or substantially more severe impact related to the generation of excessive groundborne vibration or groundborne noise levels beyond what was identified in the 2009 EIR.

Applicable Mitigation Measure(s) from the 2009 EIR

None applicable.

Modified Mitigation Measure(s)
None required.

New Mitigation Measure(s)
None required.

Cumulative Impacts and Mitigation Measures

As defined in Section 15355 of the CEQA Guidelines, "cumulative impacts" refers to two or more individual effects which, when considered together, are considerable, compound, or increase other environmental impacts. The individual effects may be changes resulting from a single project or a number of separate projects. The cumulative impact from several projects is the change in the environment that results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable probable future projects.

For further detail related to the cumulative setting of the proposed project, refer to Chapter 5, Statutorily Required Sections, of this EIR.

4.4-4 Generation of a substantial permanent increase in ambient noise levels associated with cumulative development of the proposed project in combination with future buildout of the City of Davis. Based on the analysis below, the currently proposed project would not result in a new significant impact or substantially more severe significant impact beyond was previously identified in the 2009 EIR.

Future development projects within the City of Davis, including the proposed project, would incrementally affect the future cumulative ambient noise environment. Given the primarily residential nature of the proposed project, the primary project component that could combine with noise impacts from surrounding development in the project region would be associated with vehicle traffic generated by the project and other planned development projects, which together, could potentially result in a significant cumulative impact related to transportation noise.

The 2009 EIR evaluated potential cumulative impacts associated with traffic noise level increases under Impact 4.5-5. As detailed therein, Cumulative Plus Project conditions within the project area would have included the generation of increased traffic on roads along the local roadway network. As shown in Table 4.5-4 of the 2009 EIR, Cumulative Plus Project conditions would not have resulted in increases to the cumulative noise levels, with the exception of the 1.0 dB L_{dn} increase along Monarch Lane. Pursuant to the project significance criteria, a substantial increase in cumulative traffic noise levels was defined in the 2009 EIR as 1.5 to 5.0 dB, depending on the pre-project traffic noise level. Thus, cumulative traffic noise level increases along project vicinity roadways would not have exceeded the applicable noise-level-increase thresholds, and the 2009 EIR concluded a less-than-significant cumulative impact would occur.

With respect to the currently proposed project, to assess the potential noise impacts due to traffic increases from the proposed project on the local roadway network under

Cumulative conditions, noise levels have been calculated for the Cumulative and Cumulative Plus Project conditions at the nearest existing sensitive land uses to the project area roadway network using the methodology described in the Method of Analysis section.

Table 4.4-12 compares Cumulative Plus Project against Cumulative conditions to determine if the proposed project's contribution to the cumulative noise environment is considerable. As shown in the table below, noise-level increases under Cumulative Plus Project conditions would not be above the applicable threshold.

Based on the above, under Cumulative Plus Project conditions, the currently proposed project would not result in a new significant impact or substantially more severe significant impact related to a substantial 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 beyond what was previously identified in the 2009 EIR.

Applicable Mitigation Measure(s) from the 2009 EIR

None applicable.

Modified Mitigation Measure(s)

None required.

New Mitigation Measure(s)

None required.

Table 4.4-12
Predicted Traffic Noise-Level Increases at Existing Sensitive Receptors – Cumulative Versus Cumulative Plus Project Conditions

#	Roadway	Segment	Predicted DNL, dBA			Significance Threshold	Threshold Exceeded?	Sensitive Receptors Present?[1]	Significant Cumulative Impact Identified?[2]
			Cumulative	Cumulative Plus Project	Increase				
1	West Covell Boulevard	West of F Street	67.2	67.4	0.2	1.5	No	Yes	No
2	East Covell Boulevard	F Street to J Street	67.1	67.2	0.1	1.5	No	Yes	No
3	East Covell Boulevard	J Street to L Street	63.2	63.5	0.3	3.0	No	Yes	No
4	East Covell Boulevard	L Street to Pole Line Road	65.1	65.4	0.3	1.5	No	No	No
5	East Covell Boulevard	Pole Line Road to Birch Lane	60.4	60.8	0.4	3.0	No	Yes	No
6	East Covell Boulevard	East of Birch Lane	64.6	65.0	0.4	3.0	No	Yes	No
7	East Covell Boulevard	West of Wright Boulevard	60.6	61.1	0.5	3.0	No	Yes	No
8	East Covell Boulevard	Wright Boulevard to Monarch Lane	60.8	61.3	0.5	3.0	No	Yes	No
9	East Covell Boulevard	Monarch Lane to Alhambra Drive	62.0	62.2	0.2	3.0	No	Yes	No
10	East Covell Boulevard	Alhambra Drive to Harper Junior High School	60.9	61.2	0.3	3.0	No	Yes	No
11	Mace Boulevard	Harper Junior High School to Alhambra Drive	61.5	61.8	0.3	3.0	No	Yes	No
12	Mace Boulevard	Alhambra Drive to 2nd Street	64.6	64.8	0.2	3.0	No	Yes	No
13	Mace Boulevard	2nd Street to Chiles Road	66.7	66.8	0.1	1.5	No	Yes	No
14	Mace Boulevard	Chiles Road to Cowell Boulevard	63.6	63.7	0.1	3.0	No	No	No
15	Mace Boulevard	South of Cowell Boulevard	63.4	63.4	0.0	3.0	No	Yes	No
16	F Street	North of East Covell Boulevard	62.2	62.2	0.0	3.0	No	Yes	No
17	F Street	South of East Covell Boulevard	59.5	59.6	0.1	5.0	No	Yes	No
18	Cannery Avenue	North of East Covell Boulevard	56.4	56.4	0.0	5.0	No	No	No
19	J Street	South of East Covell Boulevard	60.7	60.8	0.1	3.0	No	Yes	No
20	Pole Line Road	North of East Covell Boulevard	64.6	64.6	0.0	3.0	No	Yes	No
21	Pole Line Road	South of East Covell Boulevard	60.7	60.8	0.1	3.0	No	Yes	No
22	Birch Lane	South of East Covell Boulevard	58.0	58.1	0.1	5.0	No	Yes	No
23	Wright Boulevard	North of East Covell Boulevard	54.3	54.4	0.1	5.0	No	Yes	No
24	Monarch Lane	South of East Covell Boulevard	53.9	54.1	0.2	5.0	No	Yes	No
25	Alhambra Drive	South of East Covell Boulevard	54.8	54.9	0.1	5.0	No	Yes	No
26	Alhambra Drive	West of Mace Boulevard	57.6	57.6	0.0	5.0	No	Yes	No
27	Route 32A	East of Mace Boulevard	60.8	60.9	0.1	3.0	No	No	No
28	2nd Street	West of Mace Boulevard	66.3	66.4	0.1	1.5	No	No	No
29	Chiles Road	East of Mace Boulevard	62.9	62.9	0.0	3.0	No	No	No
30	Chiles Road	West of Mace Boulevard	64.7	64.7	0.0	3.0	No	No	No
31	Cowell Boulevard	East of Mace Boulevard	58.8	58.8	0.0	5.0	No	Yes	No
32	Cowell Boulevard	West of Mace Boulevard	61.9	62.0	0.1	3.0	No	Yes	No

[1] Sensitive receptors were considered to be residences of all densities, schools, and transient lodging facilities.
[2] A significant impact is identified only along segments where the project-related traffic noise level increase would exceed the significance threshold and where sensitive receptors are present along the roadway segment.

Source: Bollard Acoustical Consultants, Inc., 2024.