

4.5

NOISE

INTRODUCTION

The Noise section of the EIR discusses the existing noise environment in the immediate project vicinity and identifies potential noise-related impacts and mitigation measures associated with the proposed project. Specifically, this section analyzes potential noise impacts due to and upon development within the project site relative to applicable noise criteria and to the existing ambient noise environment. This section is primarily based on the *Environmental Noise Assessment* prepared by Bollard Acoustical Consultants, Inc.,¹ as well as the City of Davis *General Plan Update*.²

EXISTING ENVIRONMENTAL SETTING

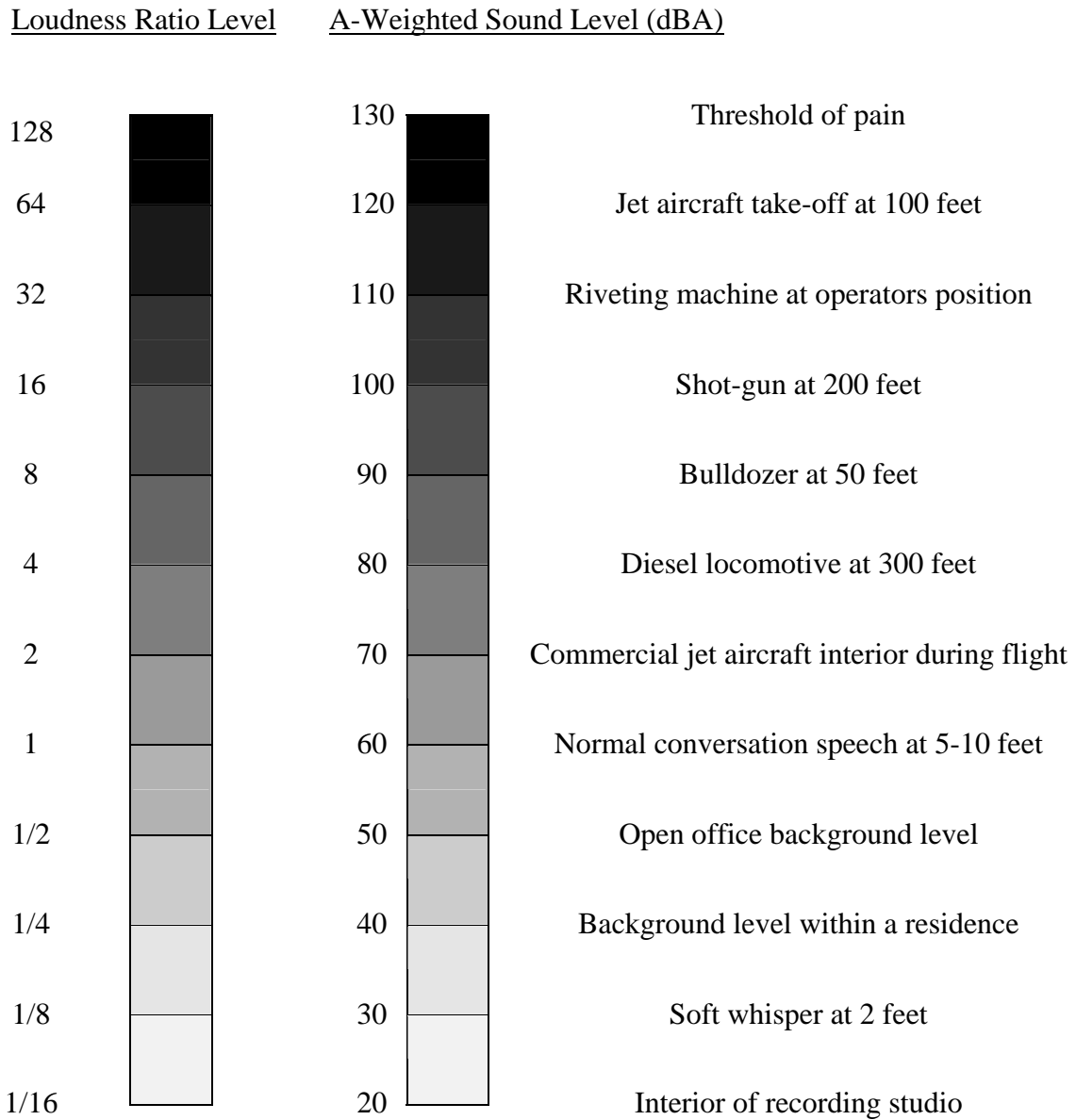
Acoustical Terminology

Sound is defined as any pressure variation in air that the human ear can detect. If the pressure variations occur at least 20 times per second, they can be heard and are called sound. The number of pressure variations per second is called the frequency of sound, and is expressed as cycles per second, called Hertz (Hz).

Measuring sound directly in terms of pressure would require a very large and awkward range of numbers. To avoid this, the decibel (dB) scale was devised. The decibel scale uses the hearing threshold (20 micropascals), as a point of reference, defined as 0 dB. Other sound pressures are then compared to the reference pressure, and the logarithm is taken to keep the numbers in a practical range. The decibel scale allows a million-fold increase in pressure to be expressed as 120 dB, and changes in levels (dB) correspond closely to human perception of relative loudness.

The perceived loudness of sounds is dependent on many factors, including sound pressure level and frequency content. However, within the usual range of environmental noise levels, perception of loudness is relatively predictable, and can be approximated by the A-weighting network. A strong correlation exists between A-weighted sound levels (expressed as dBA) and the way the human ear perceives noise. For this reason, the A-weighted sound level has become the standard tool of environmental noise assessment. All noise levels reported in this section are in terms of A-weighted levels.

**Figure 4.5-1
 Typical A-Weighted Sound Levels of Common Noise Sources**



Source: Environmental Noise Assessment, Bollard Acoustical Consultants, Inc., January 2009.

Community noise is commonly described in terms of the "ambient" noise level, which is defined as the all-encompassing noise level associated with a given noise environment. A common statistical tool to measure the ambient noise level is the average, or equivalent, sound level (Leq), which corresponds to a steady-state, A-weighted sound level containing the same total energy as a time-varying signal over a given time period (usually one hour). The Leq is the foundation for the Day/Night Average Noise Level (Ldn). See Figure 4.5-1 for typical A-weighted sound levels of common noise sources.

The Ldn is based on the average noise level over a continuous 24-hour period, with a +10 dB weighting applied to noise occurring during nighttime (10 p.m. to 7 a.m.) hours. The nighttime penalty is based on the assumption that people react to nighttime noise exposures as though they were twice as loud as daytime exposures. Because the Ldn represents a 24-hour average, the Ldn tends to disguise short-term variations in the noise environment.

Existing Land Uses in the Project Vicinity

The project site is currently a horse ranch with associated outbuildings located in the north-central portion of the site. The project site is bordered on three sides (north, west, and south) by existing urban/suburban uses, including residences, a park, and a golf course. To the east, the site is bordered by existing habitat/agricultural buffer and agricultural uses. Noise-sensitive land uses in the immediate project vicinity include existing single-family residences to the north, west, and south.

Existing Ambient Noise Environment

The existing ambient noise environment in the immediate project vicinity is defined primarily by traffic on East Covell Boulevard. On September 8, 2007, Bollard Acoustical Consultants, Inc. conducted noise level measurements and concurrent counts of East Covell Boulevard traffic at the project site. The purpose of the short-term traffic noise level measurement and traffic counts is to determine the accuracy of the FHWA model in describing the existing noise environment at the project site, accounting for shielding from local topography, actual travel speeds, and roadway grade. Noise measurement results were compared to the FHWA model results by entering the observed traffic volume, speed, and distance as inputs to the FHWA model.

Instrumentation used for the measurement was a Larson Davis Laboratories (LDL) Model 820 precision integrating sound level meter, which was calibrated in the field before use with an LDL CAL 200 acoustical calibrator.

The results of this calibration process indicate that the FHWA model was found to accurately predict East Covell Boulevard traffic noise levels within 1 dB. Therefore, adjustments were not applied to the model in the prediction of future traffic noise levels at the project site.

To predict existing noise levels due to traffic, the Federal Highway Administration Highway Traffic Noise Prediction Model (FHWA RD-77-108) was used. The Noise Prediction Model is based on the Calveno reference noise factors for automobiles, medium trucks, and heavy trucks, with consideration given to vehicle volume, speed, roadway configuration, distance to the

receiver, and the acoustical characteristics of the project site. The FHWA Model was developed to predict hourly Leq values for free-flowing traffic conditions. A day/night traffic distribution of 85 percent / 15 percent was factored into the calculations to determine Ldn. In addition, a medium/heavy truck split of 2 percent / 1 percent was assumed, along with a traffic speed of 40 miles per hour (mph).

Traffic volumes for existing conditions were obtained from the *Traffic Impact Study* prepared for the project by Fehr & Peers Transportation Consultants. Table 4.5-2 shows the existing traffic noise levels, in terms of Ldn, at a reference distance of 100 feet from the centerlines of existing project-area roadways. These are considered to be the baseline conditions. Table 4.5-2 also includes the distances to existing traffic noise contours.

Ambient noise level survey results for the proposed project are presented in Tables 4.5-1 and 4.5-2, below.

Table 4.5-1 Short-Term Ambient Noise Monitoring Results			
Site	Location	Leq	Lmax
1a	Northeast of the project area	37	50
2a	East-Central of the project area	42	49
1b	Northeast of the project area	40	47
2b	East-Central of the project area	42	48
3	Southern site boundary	62	74
Notes:			
1. Noise measurement locations are shown on Figure 4.5-2.			
2. Sites 1 and 2 were monitored on a short-term basis (15-minute sample) along the greenbelt, whereas Site 3 was monitored short-term as a traffic calibration along East Covell Boulevard.			
3. Monitoring for (a) was at noon and for (b) was at mid-afternoon.			
<i>Source: Environmental Noise Assessment, Bollard Acoustical Consultants, Inc., January 2009.</i>			

Table 4.5-2 Continuous Ambient Noise Monitoring Results (Location A)					
Measurement Date	Daytime (7 a.m.-10 p.m.)		Nighttime (10 p.m.-7 a.m.)		Ldn
	Average (Leq)	Maximum (Lmax)	Average (Leq)	Maximum (Lmax)	
September 8	48	79	44	62	51
September 9	50	79	44	70	52
September 10	46	73	44	62	51
September 11	45	75	45	66	51
September 12	50	81	44	67	52
<i>Source: Environmental Noise Assessment, Bollard Acoustical Consultants, Inc., January 2009.</i>					

In addition, active agricultural uses exist adjacent to the project’s eastern boundary (though the agricultural lands are separated from the project site by the existing Davis agricultural/habitat buffer), and agricultural operations will likely continue to occur on adjacent properties into the foreseeable future. As a result, agricultural-related equipment and processes contribute to the existing ambient noise environment in the project area. Due to the wide array of equipment types

and conditions under which the equipment is used in the agriculture industry, noise generated by agricultural processes can vary substantially. Maximum noise levels generated by farm-related tractors typically range from 77 to 85 dB at a distance of 50 feet from the tractor, depending on the horsepower of the tractor and the operating conditions.

Due to the seasonal nature of the agricultural industry, extended periods of time often exist when noise is not generated on properties that are actively being farmed, followed by short-term periods of intensive mechanical equipment usage and corresponding noise generation. Due to the high degree of variability of agricultural activities, reliably quantifying the noise generation of agricultural uses in terms of noise standards commonly utilized to assess impacts of other noise sources is not feasible. However, these uses generate short-term periods of elevated noise during all hours of the day and night and possess the potential to generate adverse public reaction during intensive farm-related activities.

REGULATORY CONTEXT

In order to limit population 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. The City of Davis *General Plan Noise Element* and the California Environmental Quality Act (CEQA) Guidelines provide regulations regarding noise levels for uses relevant to the proposed project. The following provides a general overview of the existing regulations established by the State and the City.

State Regulations

California Environmental Quality Act

The California Environmental Quality Act (CEQA) Guidelines, Appendix G, indicate that a significant noise impact may occur if a project exposes persons to noise levels in excess of local general plans or noise ordinance standards, or cause a substantial permanent or temporary increase in ambient noise levels.

Local Regulations

The following are applicable goals and policies from the Noise Element of the City of Davis General Plan related to noise:

- | | |
|------------------|--|
| 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. |
| 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 [of the Davis General Plan]. See the separate General Plan policy interpretation document titled “Major Arterial Landscaping, Noise Attenuation Design and Greenstreets.”

Policy NOISE 1.3 Develop and implement procedures for the accurate measurement and prediction of noise levels in Davis.

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 [of the Davis General Plan].

City of Davis Noise Ordinance

The City of Davis Noise Ordinance establishes a maximum stationary noise level standard of 55 dB between the hours of 7:00 a.m. and 9:00 p.m., and 50 dB between the hours of 9:00 p.m. and 7:00 a.m. These criteria are interpreted by Bollard Acoustical Consultants, Inc. to be average hourly levels (Leq).

IMPACTS AND MITIGATION MEASURES

Standards of Significance

Generally, a project may have a significant effect on the environment if the project would substantially increase the ambient noise levels at adjoining areas or expose people to severe noise levels. In practice, more specific professional standards have been developed, as discussed below. These standards state that a noise impact may be considered significant if noise that would conflict with local planning criteria is generated, or if noise levels at noise-sensitive land uses are substantially increased.

City of Davis General Plan Noise Thresholds

The City of Davis General Plan Noise Element requires that interior noise exposure from exterior noise sources (traffic) within residential dwellings not exceed 45 dB Ldn (or Community Noise Equivalent Level (CNEL)), regardless of exterior noise exposure. This standard is increased to 55 dB Ldn or less for office/professional uses.

The City of Davis has established an exterior noise level criterion of less than 60 dB Ldn (or CNEL) within outdoor activity areas of residential land uses (i.e. back yards). These are

considered to be the Normally Acceptable criteria, and may be adjusted upward (60-70 dB Ldn for residential) based on compliance with the interior noise criterion and the City’s discretion.

Significance of Changes in Ambient Noise Levels

Table 4.5-3 is based on recommendations made in August 1992 by the Federal Interagency Committee on Noise (FICON) to provide guidance in the assessment of changes in ambient noise levels resulting from aircraft operations. The recommendations are based on studies that relate aircraft noise levels to the percentage of persons highly annoyed by the noise. Although the FICON recommendations were specifically developed to assess aircraft noise impacts, the recommendations are applicable to all sources of noise described in terms of cumulative noise exposure metrics, such as the Ldn.

Table 4.5-3	
Significance of Changes in Cumulative Noise Exposure	
Ambient Noise Level Without Project, Ldn	Increase Required for Significant Impact
<60 dB	+ 5.0 dB or more
60-65 dB	+ 3.0 dB or more
>65 dB	+ 1.5 dB or more

Source: Federal Interagency Committee on Noise (FICON).

According to Table 4.5-3, an increase in the traffic noise level of 1.5 dB or more would be significant where the ambient noise level exceeds 65 dB Ldn. The rationale for the Table 4.5-3 criteria is that, as ambient noise levels increase, a smaller increase in noise resulting from a project is sufficient to cause significant annoyance.

The CEQA Guidelines and the City of Davis *General Plan* state that implementation of the project would result in significant noise impacts if the project would result in any of the following:

- Exposure of persons to or generation of noise levels in excess of standards established in the City of Davis Noise Element, defined as 60 dB Ldn at outdoor activity areas and 45 dB Ldn within residential structures;
- A substantial *permanent* increase in ambient noise levels in the project vicinity above levels existing without the project, as defined in Table 4.5-3; or
- Exceed the City of Davis Noise Ordinance significance thresholds.

Methods of Analysis

A combination of use of existing literature, noise level measurements, and application of accepted noise prediction and sound propagation algorithms, were used to predict changes in ambient noise levels resulting from development within the project area. Specific noise sources evaluated in this section include traffic and future noise sources which will be developed within the project area. Noise impacts of each of these major noise sources are described below.

Existing Ambient Noise Assessment

To quantify the existing ambient noise environment in the project vicinity, short-term and continuous (24-Hr) ambient noise level measurement surveys were conducted. The short-term noise level measurements were taken at three locations in the project vicinity on January 22, 2007. The continuous noise level measurements were taken in the project site in the backyard of an existing home (3027 East Covell Blvd) on September 8-12, 2007. Figure 4.5-2 depicts the three short-term measurement locations, as well as the continuous measurement location.

A Larson-Davis Laboratories (LDL) Model 820 precision integrating sound level meter was used for the noise level measurement surveys. The meter was calibrated before use with a LDL Model CAL200 acoustical calibrator to ensure the accuracy of the measurements. The equipment used meets all pertinent specifications of the American National Standards Institute (ANSI) for Type 1 (precision) sound level meters (ANSI S1.4).

Traffic Noise Impact Assessment Methodology

To assess traffic noise impacts, traffic noise levels are predicted at a representative distance for both existing and future, and with project and without project conditions. Noise impacts are identified at existing noise-sensitive areas if the noise level increases resulting from the project would exceed the significance thresholds shown in Table 4.5-3. Noise impacts at future noise-sensitive land uses located within the project site are identified if the predicted future plus project traffic noise levels would exceed the City's noise standards applicable to new residential uses, as described previously in this section. To assess traffic noise impacts at new noise-sensitive land uses proposed within the project area, the calculated noise contour distances for cumulative plus project conditions are used.

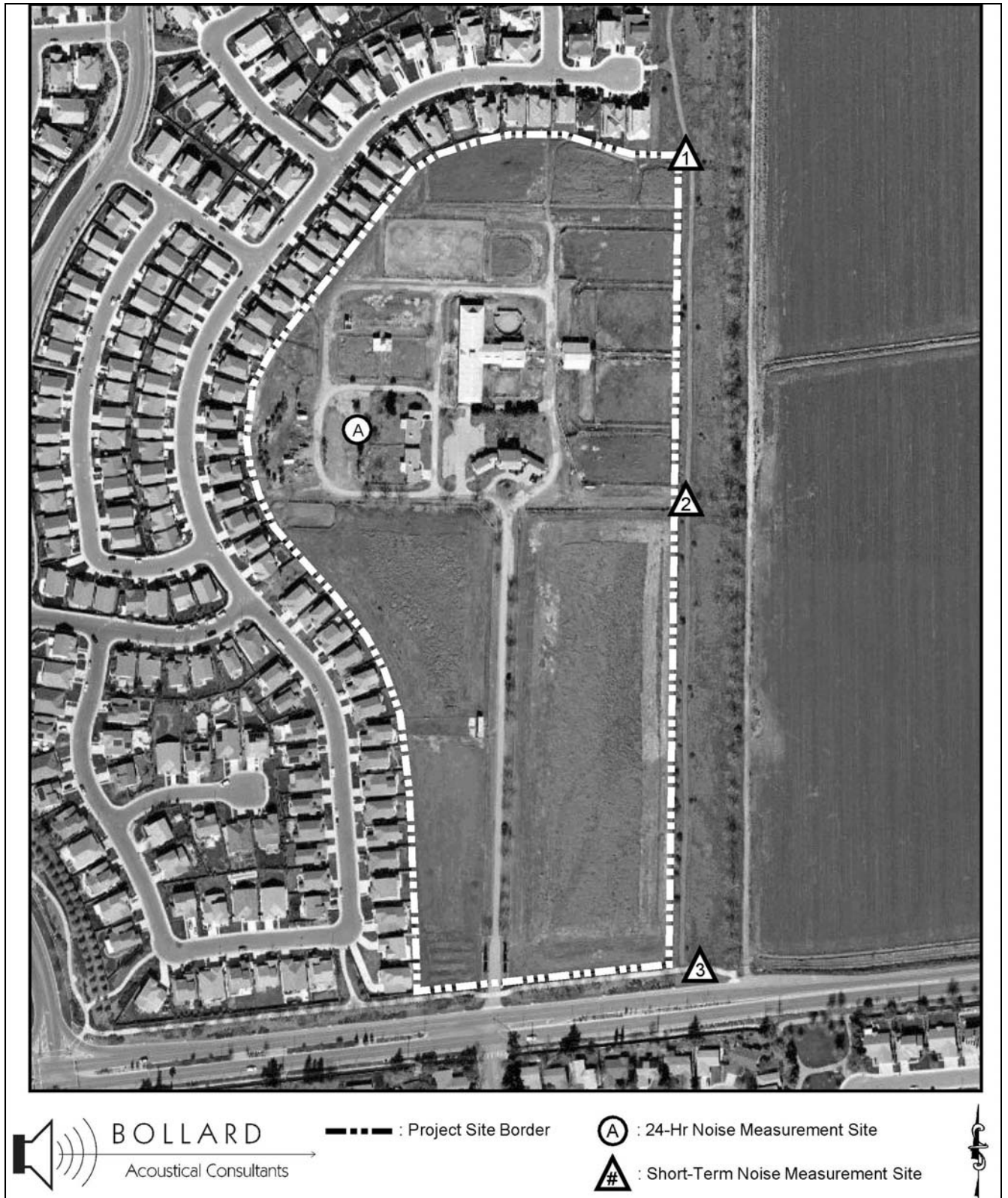
To describe existing and projected noise levels due to traffic, the FHWA Traffic Noise Prediction Model (FHWA RD-77-108) was used. The model is based upon the Calveno reference noise factors for automobiles, medium trucks and heavy trucks, with consideration given to vehicle volume, speed, roadway configuration, distance to the receiver, and the acoustical characteristics of the site. The FHWA model was developed to predict hourly Leq values for free-flowing traffic conditions. To predict traffic noise levels in terms of Ldn, the input volume must be adjusted to account for the day/night distribution of traffic. Traffic volumes for future conditions and scenarios are contained in the Transportation and Circulation section of this Draft EIR, Section 4.3.

Project Impacts and Mitigation Measures

4.5-1 Impacts associated with an increase of existing traffic noise levels on surrounding roadways.

The development of the proposed project would result in the addition of residential uses to the project site, which currently contains three residences and two barns. Very few trips are generated by the current on-site uses. Development of the proposed project would generate increased traffic levels on some roads within the existing local roadway network.

Figure 4.5-2
Noise Measurement Locations



As shown in Table 4.5-4, project-related traffic noise increases on local area roadways would range from 0 to 3 dB Ldn. Pursuant to the project significance criteria, a substantial increase in traffic noise levels is defined as 1.5 to 5 dB, depending on the pre-project traffic noise level.

Table 4.5-4							
Predicted Traffic Noise Levels and Project-Related Traffic Noise Level Increases							
Roadway	Segment Description	Ldn @ 100 Feet					
		Exist	Exist + Project	Change	Cumulative	Cumulative + Project	Change
East Covell Blvd.	West of L Street	65	65	0	67	67	0
	L Street to Pole Line Road	65	65	0	67	67	0
	Pole Line Road to Monarch Lane	64	64	0	67	67	0
	Monarch Lane to Project Entrance	64	64	0	67	67	0
	Project Entrance to Alhambra Drive	64	64	0	67	67	0
	East of Alhambra Drive	63	63	0	66	66	0
Alhambra Drive	East Covell Blvd. To Loyola Drive	57	58	1	59	59	0
	Loyola Drive to 5 th Street/Oceano Way	59	59	0	62	62	0
	5 th Street/Oceano Way to Mace Blvd.	59	59	0	63	63	0
Loyola Drive	West of Monarch Lane	56	57	1	60	60	0
	Monarch Lane to Alhambra Drive	57	57	0	61	61	0
	East of Alhambra Drive	53	53	0	56	56	0
Pole Line Road	North of East Covell Blvd.	63	63	0	66	66	0
	East Covell Blvd. To East 8 th Street	61	61	0	63	63	0
	South of East 8 th Street	63	63	0	64	64	0
Mace Blvd.	North of Alhambra Drive	63	63	0	67	67	0
	Alhambra Drive to 2 nd Street	65	65	0	68	68	0
	South of 2 nd Street	66	66	0	68	68	0
Monarch Lane	East Covell Blvd. To Loyola Drive	53	56	3	56	57	1

Source: FHWA-RD-77-108 with inputs from Bollard Acoustical Consultants, Inc.

In the existing plus project scenario, noise levels would exceed the 60 dB Ldn threshold at 100 feet from the centerline of several of the roadway segments listed in Table 4.5-4. However, it should be noted that existing noise levels at these roadway segments already exceed the 60 dB Ldn threshold and the project would not create an increase in these levels; therefore, this impact would not be considered significant.

Existing noise levels on roadways affected by the proposed project are under 60 dB Ldn; therefore, in order for a significant impact to result, an increase of 5 dB must occur. Because the highest predicted change in noise levels is 3 dB, a *less-than-significant* impact would result.

Mitigation Measure(s)

None required.

4.5-2 Noise impacts associated with existing agricultural activities.

Open agricultural lands currently exist near the eastern boundary of the proposed project site. Noise-producing activities at the adjacent agricultural lands will likely continue to be intermittent, with brief periods of increased noise generation during various aspects of the planting and harvesting seasons, including potential late night and early morning activities. The project would include the dedication of 65 additional feet of greenbelt to the existing 135-foot greenbelt, creating a 200-foot greenbelt, to provide a buffer between such activities and noise-sensitive uses within the project site. Noise attenuation from setbacks is limited by the characteristics of the noise source, but is generally approximately 4 to 6 dB per doubling of distance from the source. Therefore, if a tractor generates 77 to 85 dB at 50 feet, the 200-foot greenbelt can be expected to reduce the noise level by 8 to 12 dB. This would result in an instantaneous noise level of 65 to 77 dB at the residential edge of the greenbelt. However, as shown in Table 4.5-1 the Lmax measured adjacent to the existing greenbelt is substantially lower than the maximum noise level estimate shown above. In addition, the estimate identified a instantaneous noise level that would not occur on a frequent basis. Furthermore, the above estimate conservatively assumes that the tractor is located on the property line; therefore, tractor noise would not exceed the City of Davis ambient noise standards. However, should agricultural activities not be disclosed to future residents of the project site, adverse reactions related to agricultural noise could result. Therefore, Mitigation Measure 4.1-4 of the Land Use and Agricultural Resources section of this EIR requires that prospective buyers within 1,000 feet of agricultural land be notified in writing of existing agricultural operations in the immediate area. As a result, a *less-than-significant* impact related to agricultural noise would result.

Mitigation Measure(s)

None required.

4.5-3 Short-term noise impacts from construction activities.

Activities associated with construction of the proposed project would result in elevated noise levels and could generate noise levels in excess of the City of Davis *General Plan* and *Noise Ordinance* standards, thereby exposing future residents within the project area to substantial short-term increases in ambient noise levels. Activities associated with construction typically generate maximum noise levels ranging from 85 to 90 dB at a distance of 50 feet, as shown in Table 4.5-5.

Table 4.5-5 Construction Equipment Noise	
Type of Equipment	Maximum Level, dB at 50 Feet
Bulldozers	87
Heavy Trucks	88
Backhoe	85
Pneumatic Tools	85

Source: Environmental Noise Pollution, Patrick R. Cunniff, 1977.

During the construction phases of the Wildhorse Ranch project, noise from construction activities would add to the noise environment in the immediate project vicinity. Activities involved in construction would generate maximum noise levels, as indicated in Table 4.5-5, ranging from 85 to 90 dB at a distance of 50 feet. Construction activities would be temporary in nature and are anticipated to occur during normal daytime working hours.

Noise would also be generated during the construction phase by increased truck traffic on area roadways. A significant project-generated noise source would be truck traffic associated with transport of heavy materials and equipment to and from construction sites. These noise levels would be audible at the nearest existing residences; however, the levels would be temporary in nature and would likely occur during normal daytime working hours. Nonetheless, because construction activities would result in periods of elevated noise levels, the impact is considered to be *significant*.

Mitigation Measure(s)

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

4.5-3 Compliance with the following measures shall be incorporated within the Final Planned Development with specific criteria and standards to be reviewed and approved by the Planning Commission:

- *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;

- *All heavy construction equipment and all stationary noise sources (such as diesel generators) shall be fitted with factory-specified mufflers; and*
- *Equipment warm up areas, water tanks, and equipment storage areas shall be located in an area as far away from existing residences as feasible.*

4.5-4 Noise impacts associated with greenbelt and orchard maintenance activities.

Activities associated with the proposed project's 65-foot internal greenbelt and orchard areas are not anticipated to be noise-generating, but maintenance of the greenbelt and orchard areas could result in intermittent periods of elevated noise levels. In addition, periodic maintenance of the existing Davis agricultural/habitat buffer to the east may result in elevated noise levels. The duration required to maintain the portion of the greenbelt that would be in close proximity to future residences is expected to be brief; therefore, City thresholds are not expected to be exceeded. Maximum noise levels generated by maintenance equipment could, however, be considered a nuisance if residents living adjacent to the greenbelt were unaware that such activities occur on a regular basis. Therefore, noise associated with greenbelt maintenance would be considered a *significant* impact.

Mitigation Measure(s)

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

4.5-4 Prior to recordation of final map, disclosure statements advising that periods of orchard and greenbelt maintenance could result in elevated noise levels, shall be prepared and submitted for the review and approval of the Community Development Director. A copy of the approved disclosure statements shall be provided to all prospective buyers of property within the Wildhorse Ranch Subdivision. Language shall be included on the Final Map to ensure that the disclosure of elevated noise levels are provided at the time of all future sales.

Cumulative Impacts and Mitigation Measures

4.5-5 Cumulative impact of traffic noise levels.

Cumulative plus project conditions within the project area would include the generation of increased traffic on roads within the local roadway network, which would result in changes of traffic noise levels between 0 and 1 dB, relative to cumulative no-project conditions (See Table 4.5-4). Pursuant to the project significance criteria, a substantial increase in traffic noise levels is defined as 1.5 to 5 dB, depending on the pre-project traffic noise level.

Table 4.5-4 shows the predicted traffic noise levels for existing and cumulative conditions, and the changes in traffic noise levels that would result from implementation of the proposed project. The levels are provided in terms of Ldn at a standard distance of 100 feet from the centerline of the project-area roadways for existing and future, with project and without project conditions.

Due to the relatively small number of trips that are predicted to be generated by the project as compared to existing and future trips without the project, traffic noise level increases are not predicted to be significant on any of the roadway segments evaluated. Therefore, the cumulative impact of increased traffic-related noise associated with the proposed project would be *less-than-significant*.

Mitigation Measure(s)

None required.

4.5-6 Cumulative impact of traffic noise levels at outdoor activity areas proposed within the 60 dB Ldn contours.

Future cumulative plus project traffic noise levels would exceed the City's 60 dB Ldn exterior noise level standard at proposed uses within the 60 dB Ldn contours shown in Table 4.5-6. The future cumulative plus project traffic noise level at the project site, at a distance of 100 feet from Covell Boulevard, would be 67 dB Ldn (See Table 4.5-4). Table 4.5-6 indicates that the distance from the Covell Boulevard centerline to the cumulative plus project 60 dB Ldn contour is 284 feet. However, primary outdoor activity areas are not proposed between the southernmost multi-family residential uses and East Covell Boulevard. All proposed common outdoor activity areas would be partially shielded by the multi-family residences and would be located a considerable distance from East Covell Boulevard. As a result, the proposed outdoor activity areas would not be exposed to future traffic noise levels above 60 dB Ldn exterior noise level standard of the City of Davis. Therefore, cumulative impacts related to traffic noise levels at outdoor activity areas would be considered *less-than-significant*.

Mitigation Measure(s)

None required.

**Table 4.5-6
Predicted Distances to Cumulative Plus Project Noise Contours**

Roadway	Segment Description	Distance from Centerline to Noise Contour (in feet)		
		70 dB	65 dB	60 dB
East Covell Blvd.	West of L Street	65	140	302
	L Street to Pole Line Road	64	139	299
	Pole Line Road to Monarch Lane	62	133	286
	Monarch Lane to Project Entrance	61	132	285
	Project Entrance to Alhambra Drive	61	132	284
	East of Alhambra Drive	57	123	266
Alhambra Drive	East Covell Blvd. To Loyola Drive	20	42	91
	Loyola Drive to 5 th Street/Oceano Way	29	62	133
	5 th Street/Oceano Way to Mace Blvd.	36	78	168
Loyola Drive	West of Monarch Lane	22	48	104
	Monarch Lane to Alhambra Drive	24	51	111
	East of Alhambra Drive	11	25	53
Pole Line Road	North of East Covell Blvd.	51	111	239
	East Covell Blvd. To East 8 th Street	34	73	156
	South of East 8 th Street	38	82	176
Mace Blvd.	North of Alhambra Drive	60	129	278
	Alhambra Drive to 2 nd Street	74	160	344
	South of 2 nd Street	78	168	362
Monarch Lane	East Covell Blvd. To Loyola Drive	14	30	64

Note: Distances to traffic noise contours are measured in feet from the centerlines of the roadways.

Source: FHWA-RD-77-108 with inputs from Bollard Acoustical Consultants, Inc.

4.5-7 Cumulative impact of traffic noise levels at interior residential areas proposed within the 60 dB Ldn contours.

Table 4.5-4 indicates that the cumulative plus project traffic noise, at a distance of 100 feet from Covell Boulevard, would be 67 dB Ldn. The nearest proposed residential building would be approximately 120 feet from the roadway centerline, where first floor building façade exposure would be approximately 66 dB Ldn. Because upper-floor noise exposure is typically two dB higher than first-floor exposure due to reduced ground absorption, upper-floor façades of the proposed residences could be exposed to future traffic noise levels of approximately 68 dB Ldn. Given this exterior exposure, a building façade traffic noise level reduction of 23 dB would be required to ensure compliance with the City of Davis interior noise level standard of 45 dB Ldn or less.

However, new residential development typically provides a building façade noise level reduction of 25 to 30 dB; therefore, future traffic noise levels at the interior spaces of these residential uses are predicted to be 45 dB Ldn or less, and the impact would be considered *less-than-significant*.

Mitigation Measure(s)
None required.

Endnotes

¹ Bollard Acoustical Consultants, Inc., *Environmental Noise Assessment*, January 7, 2009.

² City of Davis, *General Plan Update*, May 2001.