

ENVIRONMENTAL NOISE ASSESSMENT

**CHOWCHILLA TRAVEL STATION
CHOWCHILLA, CALIFORNIA**

WJVA Project No. 23-43

PREPARED FOR

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PREPARED BY

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1. INTRODUCTION

Project Description

The Project proposes a truck stop with car and semi-truck fuel canopies, convenience store/market, fast food restaurants with drive-through, 95-room hotel, and a semi-truck maintenance shop, to be located off California State Route 99 (SR 99) in Chowchilla, CA.

The project site consists of five individual parcels. These five parcels would include a variety of proposed uses. These uses are summarized below for each of the five parcels included in the overall project site. The project site plan is provided as Figure 1.

APN 014-020-43: Proposing two quick serve restaurants (2800 sf each) with drive throughs, and a 95-room (4-story) hotel and 150 total parking stalls.

APN 014-020-44 and 014-020-045: Proposing convenience store and restaurant (12,800 sf), car fuel canopy with 28 fuel pumps (10,896 sf), semi-truck fuel canopy with 12 fueling stations (6,.50 sf) with 136 total parking stalls.

APN 014-020-46 and 014-020-045: Proposing a truck maintenance shop (20,640 sf) with 46 on-site parking not inclusive of 17 truck maintenance parking stalls and an additional 77 long term truck parking stalls for 140 total parking stalls.

A total of 426 parking stalls are provided for the Project. All uses are permitted in the existing zone district with a conditional use permit. A general plan amendment and rezone will not be a part of the application.

Environmental Noise Assessment

This environmental noise assessment has been prepared to determine if significant noise impacts would be produced by the project and to describe mitigation measures for noise if significant impacts are determined. The environmental noise assessment, prepared by WJV Acoustics, Inc. (WJVA), is based upon a review of the project site plan prepared by Edmond Jacobs Architect (dated August 3, 2023), traffic data provided by VRPA Technologies, Inc. and the findings of on-site noise level measurements. Revisions to the site plan, project description, project-related traffic data or other project-related information available to WJVA at the time the analysis was prepared may require a reevaluation of the findings and/or recommendations of the report.

Appendix A provides definitions of the acoustical terminology used in this report. Unless otherwise stated, all sound levels reported in this analysis are A-weighted sound pressure levels in decibels (dB). A-weighting de-emphasizes the very low and very high frequencies of sound in a manner similar to the human ear. Most community noise standards utilize A-weighted sound levels, as they correlate well with public reaction to noise. Appendix B provides typical A-weighted sound levels for common noise sources.

In terms of human perception, a 5 dB increase or decrease is considered to be a noticeable change in noise levels. Additionally, a 10 dB increase or decrease is perceived by the human ear as half as loud or twice as loud. In terms of perception, generally speaking the human ear cannot perceive an increase (or decrease) in noise levels less than 3 dB.

2. THRESHOLDS OF SIGNIFICANCE

The CEQA Guidelines apply the following questions for the assessment of significant noise impacts for a project:

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

a. **Noise Level Standards**

City of Chowchilla

For transportation noise sources (e.g., traffic and railway noise), the City of Chowchilla General Plan¹ Noise Element establishes noise level criteria in terms of the Community Noise Equivalent Level (CNEL) metric. The CNEL is the time-weighted energy average noise level for a 24-hour day, with a 4.77 dB penalty added to noise levels occurring during the evening hours (7:00 p.m.-10:00 p.m.) and a 10 dB penalty added to noise levels occurring during the nighttime hours (10:00 p.m.-7:00 a.m.). The CNEL represents cumulative exposure to noise over an extended period of time and is therefore calculated based upon *annual average* conditions.

For residential land uses, the Noise Element establishes a land use compatibility criterion of 60 dB CNEL as “Normally Acceptable” and a noise exposure level of 60-65 dB CNEL as “Conditionally Acceptable”. For some multi-family residential land uses, a noise exposure of up to 70 dB CNEL is considered “Conditionally Acceptable”. While not explicitly stated in the General Plan, outdoor noise level standards are typically applied to outdoor activity areas. Outdoor activity areas generally include backyards of single-family residences, individual patios or decks of multi-family developments and common outdoor recreation areas of multi-family developments (pool areas, picnic areas, playgrounds, etc.). The intent of the exterior noise level requirement is to provide an acceptable noise environment for outdoor activities and recreation.

The Noise Element also requires that interior noise levels attributable to exterior noise sources not exceed 45 dB CNEL. The intent of the interior noise level standard is to provide an acceptable noise environment for indoor communication and sleep.

Table I provides the land use compatibility guidelines (noise level standards) for transportation noise sources. Table II provides the land use compatibility guidelines for non-transportation (stationary) noise sources.

Table I: Transportation Noise / Land Use Compatibility Guidelines for Exterior Noise Levels

Land Use	Exterior Noise Exposure (dBA CNEL)			
	Normally Acceptable ¹	Conditionally Acceptable ²	Normally Unacceptable ³	Clearly Unacceptable ⁴
Single Family Home, Duplex, Triplex, Mobile Home	≤ 60	60 - 65	65 - 70	> 70
Fourplex, Apartment, Condonimum, Townhome	≤ 60	60 - 70	70 - 75	> 75
Mixed Use, Infill Residential	≤ 65	65 - 75	75 - 80	> 80
Commercial – Motel, Hotel, Transient Lodging	≤ 65	65 - 75	75 - 80	> 80
School, Library, Church, Hospital, Nursing Home	≤ 60	60 - 70	70 - 80	> 80
Auditorium, Concert Hall, Amphitheater		≤ 65		> 65
Sports Arena, Outdoor Spectator Sport		≤ 70		> 70
Playgrounds, Park	≤ 70	70 - 75		> 75
Golf Course, Water Recreation, Cemetery	≤ 70		70 - 80	> 80
Office Building, Business, Commercial, Retail	≤ 65	65 - 75	> 75	
Freeway Adjacent Commercial, Office and Industrial Uses	≤ 65	65 - 80	> 80	
Industrial, Manufacturing, Utility, Agriculture	≤ 70	70 - 80	> 80	

Notes:

¹**Normally Acceptable** = Specific land use is satisfactory, based on the assumption that any building is of normal conventional construction, without any special noise insulation requirements.

²**Conditionally Acceptable** = New construction or development should be undertaken only after a detailed analysis of noise reduction requirements is made and needed noise insulation features included in design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning, will normally suffice.

³**Normally Unacceptable** = New construction or development should be generally discouraged. If new construction or development does proceed, a detailed analysis of noise reduction requirements must be made and needed noise insulation features included in the design.

⁴**Clearly Unacceptable** = New construction or development is not to be undertaken, unless it can be demonstrated that noise reduction requirements can be employed to reduce noise impacts to an acceptable level. If new construction or development does proceed, a detailed analysis of noise reduction requirements must be made and needed noise insulation features included in the design.

Table II: Stationary Noise / Land Use Compatibility Guidelines for Exterior Noise Levels

Land Use	Exterior Noise Exposure (dBA L _{eq} / L ₅₀)					
	Normally Acceptable ¹		Conditionally Acceptable ²		Unacceptable ³	
	Daytime (10 pm - 7 am)	Nighttime (10 pm - 7 am)	Daytime (10 pm - 7 am)	Nighttime (10 pm - 7 am)	Daytime (10 pm - 7 am)	Nighttime (10 pm - 7 am)
Single Family Home, Duplex, Triplex, Mobile Home	≤ 55	≤ 45	55 - 60	45 - 50	> 60	> 50
Fourplex, Apartment, Condonimum, Townhome	≤ 55	≤ 50	55 - 65	50 - 55	> 65	> 55
Mixed Use, Infill Residential	≤ 60	≤ 50	60 - 70	50 - 60	> 70	> 60
Commercial – Motel, Hotel, Transient Lodging	≤ 65	≤ 50	65 - 70	50 - 60	> 70	> 60
School, Library, Church, Hospital, Nursing Home	≤ 60	≤ 50	60 - 65	50 - 55	> 60	> 55
Auditorium, Concert Hall, Amphitheater			≤ 65	≤ 60		
Sports Arena, Outdoor Spectator Sport			≤ 75	≤ 70		
Playgrounds, Park	≤ 65	≤ 50	65 - 70	≤ 60		
Golf Course, Water Recreation, Cemetery	≤ 55	≤ 50	55 - 60	50 - 55	> 60	> 55
Office Building, Business, Commercial, Retail	≤ 65	≤ 55	65 - 70	55 - 60	> 70	> 60
Freeway Adjacent Commercial, Office and Industrial Uses	≤ 65	≤ 60	65 - 70	60 - 65	> 70	> 65
Industrial, Manufacturing, Utility, Agriculture	≤ 65	≤ 60	65 - 70	60 - 65	> 70	> 65

Notes:

¹**Normally Acceptable** = Specific land use is satisfactory, based on the assumption that any building is of normal conventional construction, without any special noise insulation requirements.

²**Conditionally Acceptable** = New construction or development should be undertaken only after a detailed analysis of noise reduction requirements is made and needed noise insulation features included in design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning, will normally suffice. With the exception of industrial, manufacturing, utility and agricultural uses, the analysis shall identify attenuation required to maintain an indoor level of ≤ 45 dBA.

³**Unacceptable** = New construction or development should not be undertaken, unless it can be demonstrated that noise reduction requirements can be employed to reduce noise impacts to an acceptable level. With the exception of industrial, manufacturing, utility and agricultural uses, the Analysis shall identify attenuation required to maintain an indoor level of ≤ 45 dBA.

State of California

There are no state noise standards that are applicable to the project.

Federal Noise Standards

There are no federal noise standards that are applicable to the project.

b. Construction Noise and Vibration

The City of Chowchilla General Plan provides guidance in regards to noise associated with construction activities and limits allowable hours of construction. The General Plan Noise Element states the following:

- Policy N 4.6: The City of Chowchilla shall limit construction activities to the hours of 7:00 am to 7:00 pm, Monday through Saturday. No construction shall occur on Sundays or national holidays without a permit from the City.
- Implementation Measure N 4.6. A For all temporary construction, demolition or maintenance noise and other necessary short-term noise events, the stationary noise standards in Policy N 4.1 (Table II above), may be exceeded within the receiving land use by:
 1. 5 dBA for a cumulative period of no more than fifteen (15) minutes in any hour.
 2. 10 dBA for a cumulative period of no more than five (5) minutes in any hour.
 3. 15 dBA for a cumulative period of no more than one (1) minute in any given hour.
 4. In order to allow for temporary construction, demolition or maintenance noise and other necessary short-term noise events, the stationary noise standards in Policy N 4.1 above, shall not be exceeded within the receiving land use by more than 15 dBA any period of time.

The City of Chowchilla does not have regulations that define acceptable levels of vibration. One of the most recent references suggesting vibration guidelines is the California Department of Transportation (Caltrans) Transportation and Construction Vibration Guidance Manual². The Manual provides guidance for determining annoyance potential criteria and damage potential threshold criteria. These criteria are provided below in Table II and Table III, and are presented in terms of peak particle velocity (PPV) in inches per second (in/sec).

TABLE II		
GUIDELINE VIBRATION ANNOYANCE POTENTIAL CRITERIA		
Human Response	Maximum PPV (in/sec)	
	Transient Sources	Continuous/Frequent Intermittent Sources
Barely Perceptible	0.04	0.01
Distinctly Perceptible	0.25	0.04
Strongly Perceptible	0.9	0.1
Severe	2.0	0.4

Source: Caltrans

TABLE III		
GUIDELINE VIBRATION DAMAGE POTENTIAL THRESHOLD CRITERIA		
Structure and Condition	Maximum PPV (in/sec)	
	Transient Sources	Continuous/Frequent Intermittent Sources
Extremely fragile, historic buildings, ancient monuments	0.12	0.08
Fragile buildings	0.2	0.1
Historic and some old buildings	0.5	0.25
Older residential structures	0.5	0.3
New residential structures	1.0	0.5
Modern industrial/commercial buildings	2.0	0.5

Source: Caltrans

3. SETTING

The project site is located between California State Route 99 and Montgomery Lake Way (Road 16 ½). The project site is currently undeveloped land. Surrounding land uses include an existing car dealership (Steve’s Chevrolet of Chowchilla) to the northwest, undeveloped land and residential land uses to the northeast, undeveloped land to the southeast, and undeveloped land (including SR 99) to the southwest.

The predominant source of noise exposure at the project site is vehicle traffic on SR 99. Additional sources of noise include traffic on Montgomery Lake Way as well as occasional aircraft overflights.

a. Background Noise Level Measurements / Project Site Noise Exposure

WJVA conducted short-term (15-minute) ambient noise levels measurements at two locations (ST-1 and ST-2) within the project site on November 30, 2023. Site ST-1 was located near Montgomery Lake Way and site ST-2 was located near the project site’s property line adjacent to SR 99. Noise associated with traffic on SR 99 was the predominant source of noise at both ambient noise measurement sites. The project vicinity and noise monitoring site locations are provided as Figure 2. A photograph showing ambient noise measurement site ST-1 is provided as Figure 3 and a photograph showing ambient noise measurement site ST-2 is provided as Figure 4.

Noise monitoring equipment consisted of a Larson-Davis Laboratories Model LDL-820 sound level analyzer equipped with a B&K Type 4176 1/2” microphone. The equipment complies with the specifications of the American National Standards Institute (ANSI) for Type I (Precision) sound level meters. The meter was calibrated with a B&K Type 4230 acoustic calibrator to ensure the accuracy of the measurements.

The short-term site noise measurement data included energy average (L_{eq}) maximum (L_{max}). Table III summarizes short-term noise measurement results at both ambient noise measurement sites.

TABLE II SUMMARY OF SHORT-TERM NOISE MEASUREMENT DATA CHOWCHILLA TRAVEL STATION NOVEMBER 30, 2023			
Site	Time	A-Weighted Decibels, dBA	
		L_{eq}	L_{max}
ST-1	2:15 p.m.	55.3	61.4
ST-1	2:40 p.m.	65.6	76.8

Source: WJV Acoustics, Inc.

FHWA Traffic Noise Model-

WJVA utilized the Federal Highway Administration (FHWA) Highway Traffic Noise Prediction Model³ (FHWA-RD-77-108) to quantify overall project site traffic noise exposure, associated with vehicles on SR 99. The FHWA Model is a standard analytical method used for roadway traffic noise calculations. The model is based upon reference energy emission levels for automobiles, medium trucks (2 axles) and heavy trucks (3 or more axles), 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 L_{eq} values for free-flowing traffic conditions, and is generally considered to be accurate within ± 1.5 dB. To predict L_{dn} values, it is necessary to determine the hourly distribution of traffic for a typical day and adjust the traffic volume input data to yield an equivalent hourly traffic volume.

Noise level measurements and concurrent traffic counts were conducted by WJVA staff within the project site at two locations on November 30, 2023. The purpose of the measurements was to evaluate the accuracy of the FHWA Model in describing traffic noise exposure within the project site. The above-described short-term ambient noise measurement sites were also utilized as traffic noise measurement calibration sites. ST-1 was located at a setback distance of approximately 485 feet from the centerline of SR 99 and ST-2 was located at a setback distance of approximately 190 feet from the centerline of SR 99. The speed limit was assumed to be 65 mph (miles per hour).

Noise monitoring equipment consisted of Larson-Davis Laboratories Model LDL-820 sound level analyzer equipped with a B&K Type 4176 1/2" microphone. The equipment complies with the specifications of the American National Standards Institute (ANSI) for Type I (Precision) sound level meters. The meter was calibrated in the field prior to use with a B&K Type 4230 acoustic calibrator to ensure the accuracy of the measurements. The microphone was located on a tripod at 5 feet above the ground. The project site presently consists of undeveloped land and a portion is currently used for industrial purposes.

Noise measurements were conducted in terms of the equivalent energy sound level (L_{eq}). Measured L_{eq} values were compared to L_{eq} values calculated (predicted) by the FHWA Model using as inputs the traffic volumes, truck mix and vehicle speed observed during the noise measurements. The results of the comparison are shown in Table IV.

TABLE IV COMPARISON OF MEASURED AND PREDICTED (FHWA MODEL) NOISE LEVELS CHOWCHILLA TRAVEL STATION		
	CA STATE ROUTE 99	
	ST-1	ST-2
Measurement Start Time	2:15 p.m.	2:40 p.m.
Observed # Autos/Hr.	1,968	2,148
Observed # Medium Trucks/Hr.	240	276
Observed # Heavy Trucks/Hr.	708	540
Observed Speed (MPH)	65	65
Distance, ft. (from center of roadway)	485	190
L _{eq} , dBA (Measured)	55.3	65.6
L _{eq} , dBA (Predicted)	65.8	71.3
Difference between Predicted and Measured L_{eq}, dBA	10.5	5.5

Note: FHWA "soft" site assumed for calculations.
Source: WJV Acoustics, Inc.

From Table IV it may be determined that the traffic noise levels predicted by the FHWA Model were approximately 11 dB lower at site ST-1 and approximately 6 dB lower at site ST-2, for the conditions observed at the time of the noise measurements for SR 99. The overprediction of the model is a result of ground and atmospheric absorption that occurs at higher setback distances such as those at the two measurement sites. An offset to the noise model based upon these calibration measurements is warranted for the project site.

Annual Average Daily Traffic (AADT) data and the percentages of trucks for SR 99 in the project vicinity was obtained from Caltrans. The day/night distribution of traffic was estimated by WJVA, based upon previous studies conducted in the project vicinity since project-specific data were not available from government sources. A speed limit of 65 mph was assumed for the roadway. Table V summarizes annual average traffic data used to model noise exposure within the project site.

TABLE V TRAFFIC NOISE MODELING ASSUMPTIONS CHOWCHILLA TRAVEL STATION	
Annual Avenue Daily Traffic (AADT)	49,000
Day/Evening/Night Split (%)	78/7/15
Assumed Vehicle Speed (mph)	65
% Medium Trucks (% AADT)	5
% Heavy Trucks (% AADT)	19

Sources: MCTC
WJV Acoustics, Inc.

Using data from Table V, the FHWA Model, annual average traffic noise exposure was calculated within the project site. Table VI provides the noise exposure levels for Washington Road for future 2046 traffic conditions, at the closest proposed residential setbacks from the roadway.

TABLE VI	
MODELED TRAFFIC NOISE LEVELS, WASHINGTON ROAD, dB, CNEL CHOWCHILLA TRAVEL STATION	
ST-1	57 dB CNEL
ST-2	68 dB CNEL

Source: WJV Acoustics
Caltrans

Reference to Table VI indicates that overall project site noise exposure would likely be in the range of approximately 55 to 70 dB CNEL, depending on proximity to SR 99. The project would include a noise-sensitive land use (hotel) located approximately 210 feet from the centerline of SR 99. At this location project site traffic noise exposure would be approximately 68 dB CNEL.

4. PROJECT IMPACTS AND MITIGATION MEASURES

a. Project Traffic Noise Impacts on Existing Noise-Sensitive Land Uses Outside Project Site (Less Than Significant)

WJVA utilized the FHWA Traffic Noise Model to quantify expected project-related increases in traffic noise exposure at representative noise-sensitive receptor locations in the project vicinity. Traffic noise exposure levels for Existing, Existing Plus Project, 2046 Cumulative and 2046 Cumulative Plus Project traffic conditions were calculated based upon the FHWA Model and traffic volumes provided by VRPA Technologies, Inc. The day/evening/night distribution of traffic and the percentages of trucks on the roadways used for modeling were obtained from previous studies WJVA has conducted along similar roadways. The Noise modeling assumptions used to calculate project traffic noise are provided as Appendix C.

Project-related significant impacts would occur if an increase in traffic noise associated with the project would result in noise levels exceeding the City's applicable noise level standards at the location(s) of sensitive receptors. For the purpose of this analysis a significant impact is also assumed to occur if traffic noise levels were to increase by 3 dB at sensitive receptor locations where noise levels already exceed the City's applicable noise level standards (without the project), as 3 dB generally represents the threshold of perception in change for the human ear. This analysis of project traffic noise focuses on residential land uses, as they represent the most restrictive noise level criteria by land use type provided in the General Plan.

This analysis of project traffic noise focuses on potential impacts to residential land uses, as they represent the most restrictive noise level criteria by land use type provided in the General Plan. The City's exterior noise level standard for residential land uses is 60 dB CNEL. The majority of roadway segments analyzed in the project traffic assessment did not include any noise-sensitive land uses.

Traffic noise was modeled at two (2) receptor locations (R-1 and R-2). The two modeled receptors are located at roadway setback distances representative of the sensitive receptors (residences) along each analyzed roadway segment. The residential land uses along these roadways include existing 6-foot CMU block sound walls, which would provide a minimum of 5 dB noise attenuation from traffic sources. The receptor locations are described below and provided graphically on Figure 5.

- R-1: Approximately 75 feet from the centerline of Genoa Lake Way.
- R-2: Approximately 75 feet from the centerline of Montgomery Lake Way.

Table VII provides a comparison of traffic noise levels at the two modeled receptor locations for Existing, Existing Plus Project, 2046 Cumulative and 2046 Cumulative Plus Project traffic conditions. As described in Table VII, project-related traffic is not expected to result in noise levels at any sensitive receptors to exceed the City's noise level standard. Therefore, project-related increases in traffic noise exposure are considered to be less than significant.

TABLE VII
PROJECT-RELATED INCREASES IN TRAFFIC NOISE, dB, CNEL
CHOWCHILLA TRAVEL STATION

Modeled Receptor	Existing	Existing Plus Project	2046 Cumulative	2046 Cumulative Plus Project	Change (Maximum)	Significant Impact?
R-1	47	47	49	49	0	No
R-2	53	53	55	58	+3	No

Source: WJV Acoustics, Inc.
 VRPA Technologies, Inc.

b. Noise Impacts from On-Site Noise Sources (Less Than Significant With Mitigation)

The project would include a variety of commercial retail land uses, including hotel, convenience store, restaurants (including drive-thru quick service), fuel service retail, truck maintenance shop and truck parking. The exact tenants of the multi-use retail development were not known at the time this analysis was prepared. A wide variety of noise sources can be associated with commercial retail land uses. The noise levels produced by such sources can also be highly variable and could potentially impact existing off-site and proposed on-site sensitive receptors. Typical examples of stationary noise sources associated with such land uses include:

- HVAC/Mechanical equipment
- Truck deliveries
- Parking lot activities (closing of car doors and trunks, stereos, alarms etc.)
- Drive Thru operations
- Pneumatic Tools (Truck Maintenance Shop)

Mechanical Equipment

It is assumed that the project would include roof-mounted HVAC units on the proposed buildings. The heating, ventilating, and air conditioning (HVAC) requirements for the buildings would likely require the use of multiple packaged roof-top units. For the purpose of noise and aesthetics, roof-mounted HVAC units are typically shielded by means of a roof parapet. WJVA has conducted reference noise level measurements at numerous commercial and retail buildings with roof-mounted HVAC units, and associated noise levels typically range between approximately 45-50 dB at a distance of 50 feet from the building façade.

For this project, the closest residential land uses to any potential roof-mounted HVAC equipment would be located at a minimum setback distance of 250 feet. Taking into account the standard rate of noise attenuation with increased distance from a point source (-6 dB/doubling of distance), noise levels associated with the operation of roof-mounted HVAC units would be

approximately 31-36 dB at the closest sensitive receptor property line. Such levels do not exceed any City of Chowchilla noise level standard or exceed existing (without project) ambient noise levels.

Truck Movements

At the time of this analysis, a specific truck access route (or routes) had not been designated. However, trucks would access the project site via access points along Montgomery Lake Way. It is assumed that truck deliveries would occur at various times and locations throughout the overall project area. Precise details on truck deliveries were not known at the time of this analysis.

WJVA has conducted measurements of the noise levels produced by slowly moving trucks for a number of studies. Such truck movements would be expected to produce noise levels in the range of 65 to 71 dBA at a distance of 100 feet. The range in measured truck noise levels is due to differences in the size of trucks, their speed of movement and whether they have refrigeration units in operation during the pass-by.

Truck movements within the project site would be located at distances of 150 feet or greater from existing noise-sensitive land uses (residences adjacent to Montgomery Lake Way). At such distances, noise levels associated with truck movements would produce maximum noise levels in the range of approximately 62 to 68 dB or less. The City of Chowchilla does not provide maximum (L_{max}) noise level standards applicable for stationary (non-transportation) noise sources, but rather provides stationary noise standards in terms of the hourly energy average (L_{eq}/L_{50}). Because truck deliveries are periodic and transient, noise associated with on-site truck deliveries would not be expected to exceed the City of Chowchilla exterior noise standards for non-transportation sources. It should be noted, truck and vehicle movements not occurring on public roadway are considered to be stationary noise sources.

Parking Lot Activities

Noise due to traffic in parking lots is typically limited by low speeds and is not usually considered to be significant. Human activity in parking lots that can produce noise includes voices, stereo systems and the opening and closing of car doors and trunk lids. Such activities can occur at any time. The noise levels associated with these activities cannot be precisely defined due to variables such as the number of parking movements, time of day and other factors. It is typical for a passing car in a parking lot to produce a maximum noise level of 60 to 65 dBA at a distance of 50 feet, which is comparable to the level of a raised voice.

For this project, parking would be dispersed throughout the overall project area. The closest proposed parking areas would be located at least 150 feet from the closest existing residential property lines. At this distance, maximum (L_{max}) parking lot vehicle movements would be expected to be approximately 50 to 55 dB. Such levels would not exceed any of the City's applicable noise levels standards or exceed existing ambient noise levels at the closest residential land uses. Due to existing elevated ambient noise levels at the closest sensitive receptor locations (residential land uses north of the project site), noise levels associated with parking lot activities would generally not be audible over existing (without project) noise levels.

Drive Through Retail

The proposed project would include two retail areas that would likely include drive-through operations. While the exact tenants and type of retail stores were not known at this time, it is assumed that amplified speech would be incorporated into drive-through operations.

In order to assess potential project noise levels associated with drive-thru operations, WJVA utilized reference noise levels measured at a Wendy's drive-through restaurant located on South Mooney Boulevard in Visalia. Measurements were conducted during the early afternoon of July 11, 2011 between 12:45 p.m. and 1:45 p.m. using the previously-described noise monitoring equipment.

The microphone used by customers to order food and the loudspeaker used by employees to confirm orders are both integrated into a menu board that is located a few feet from the drive-through lane at the approximate height of a typical car window. Vehicles would enter the drive-through lane from the west and then turn to the north along the east side of the restaurant.

Reference noise measurements were obtained at a distance of approximately 40 feet from the menu board containing the microphone/loudspeaker system at an angle of about 45° toward the rear of the vehicle being served. This provided a worst-case exposure to sound from the loudspeaker system since the vehicle was not located directly between the loudspeaker and measurement location. Cars were lined up in the access lane during the noise measurement period indicating that the drive-through lane was operating at or near a peak level of activity.

Each ordering cycle was observed to take approximately 60 seconds including vehicle movements. A typical ordering cycle included 5-10 seconds of loudspeaker use with typical maximum noise levels in the range of 60-62 dBA at the 40 foot-reference location. Vehicles moving through the drive-thru lane produced noise levels in the range of 55-60 dBA at the same distance. Vehicles parked at the ordering position (between the menu board and measurement site) were observed to provide significant acoustic shielding during the ordering sequence. The effects of such shielding are reflected by the noise measurement data. Noise levels were measured to approximately 60 dB L_{eq}/L_{50} at the measurement site, and included noise from all sources, including the loudspeaker, vehicle movements and HVAC equipment.

The closest noise-sensitive receptors (residential land uses) to the proposed retail drive through operations are located approximately 700 feet from the drive-through restaurants. Potential drive-through noise levels at the locations of the closest residential land uses was calculated based upon the above-described reference noise measurement data and the normal rate of sound attenuation over distance for a "point" noise source (6 dB/doubling of distance). At the setback distance of the closest residential land uses to any proposed drive-thru operations, noise levels associated with drive thru retail operations would be expected to produce noise levels of approximately 35-37 dB L_{max} and approximately 37 dB L_{eq}/L_{50} . Such levels would not exceed any daytime or nighttime City of Chowchilla noise level standards.

Truck Maintenance Shop-

The project would include a truck repair and maintenance facility, to be located within the project site, approximately 250 feet from the closest sensitive receptor (residential land use). The hours of operation for the truck maintenance shop were not known at the time this analysis was prepared. In order to assess potential noise levels associated with the truck repair facility, WJVA reviewed noise levels measured at an existing truck repair facility, obtained during a previous project.

WJVA previously conducted noise level measurements at an existing truck repair facility, located at 2120 S. Union Avenue, in Bakersfield. The reference noise level measurements were conducted on June 14, 2017. Sources of noise associated with truck repair operations are generally limited to air compressors and pneumatic tools. WJVA conducted noise level measurements of multiple pneumatic tools, while in operation. The loudest tool measured was a pneumatic impact wrench, used to remove and replace lug nuts for tire removal. Noise levels associated with the impact wrench were measured to be approximately 80 dB at a distance of 25 feet. Additionally, noise levels associated with a shop air compressor were measured to be approximately 72 dB at a distance of 20 feet.

These measured noise levels would be in the range of approximately 50-58 dB at the closest residential land uses to the truck maintenance shop. It is assumed that the majority of truck repairs would occur indoors, within the shop bays, which would result in significantly lower noise levels at the closest residential land uses. Additionally, the residential land uses have an existing sound wall which would reduce noise levels within individual backyards. As such, noise levels associated with the truck maintenance shop would not be expected to exceed any City of Chowchilla noise level standards at any nearby residential land uses.

c. Noise From Construction (Less Than Significant)

Construction noise would occur at various locations within and near the project site through the build-out period. The distance from the closest residences to the project site is approximately 150 feet. Table VIII provides typical construction-related noise levels at distances of 100 feet, 200 feet, and 300 feet.

TABLE VIII
TYPICAL CONSTRUCTION EQUIPMENT
MAXIMUM NOISE LEVELS, dBA

Type of Equipment	100 Ft.	200 Ft.	300 Ft.
Concrete Saw	84	78	74
Crane	75	69	65
Excavator	75	69	65
Front End Loader	73	67	63
Jackhammer	83	77	73
Paver	71	65	61
Pneumatic Tools	79	73	69
Dozer	76	70	66
Rollers	74	68	64
Trucks	80	72	70
Pumps	74	68	64
Scrapers	81	75	71
Portable Generators	74	68	64
Backhoe	80	74	70
Grader	80	74	70

Source: FHWA

Noise Control for Buildings and Manufacturing Plants, Bolt, Beranek & Newman, 1987

Construction noise is not considered to be a significant impact if construction is limited to the daytime hours and construction equipment is adequately maintained and muffled. Extraordinary noise-producing activities (e.g., pile driving) are not anticipated. The City of Chowchilla states that construction activities must be limited to the hours of 7:00 a.m. to 7:00 p.m., Monday through Saturday. Construction noise impacts could result in annoyance or sleep disruption for nearby residents if nighttime operations were to occur or if equipment is not properly muffled or maintained.

d. Vibration Impacts (Less Than Significant)

The dominant sources of man-made vibration are sonic booms, blasting, pile driving, pavement breaking, demolition, diesel locomotives, and rail-car coupling. None of these activities are anticipated to occur with construction or operation of the proposed project. Typical vibration levels at distances of 100 feet and 300 feet are summarized by Table VII. These levels would not be expected to exceed any significant threshold levels for annoyance or damage, as provided above in Table II and Table III.

TABLE VII
TYPICAL VIBRATION LEVELS DURING CONSTRUCTION

Equipment	PPV (in/sec)	
	@ 100´	@ 300´
Bulldozer (Large)	0.011	0.006
Bulldozer (Small)	0.0004	0.00019
Loaded Truck	0.01	0.005
Jackhammer	0.005	0.002
Vibratory Roller	.03	0.013
Caisson Drilling	.01	0.006

Source: *Caltrans*

After full project build out, it is not expected that ongoing operational activities will result in any vibration impacts at nearby sensitive uses. Activities involved in trash bin collection could result in minor on-site vibrations as the bin is placed back onto the ground. Such vibrations would not be expected to be felt at the closest off-site sensitive uses. Additional mitigation is not required.

e. Noise Impacts from Nearby Airports or Airstrips (No Impact)

The proposed project site is located within two miles of the Chowchilla Municipal Airport (approximately 0.5 miles). WJVA staff reviewed the Madera Countywide Airport Land Use Compatibility Plan⁴. The project site does not lie within the 65 dB CNEL or 60 dB CNEL noise contour. As such, there would be no noise-compatibility concerns for the project. The Chowchilla Municipal Airport noise contours are provided as Figure 6.

f. Noise Impacts on Proposed On-Site (Project) Noise-Sensitive Land Uses (Less Than Significant)

The proposed project would include a 95-room, four-story hotel, to be located in the northern portion of the project site. Transient lodging (hotels and motels) is considered to be a noise-sensitive land use as defined by the City’s General Plan Noise Element. The Noise Element establishes an exterior noise level standard of 65 dB CNEL as “normally acceptable” and an exterior noise level of up to 75 dB CNEL as “conditionally acceptable”. The exterior noise level standards for transient lodging are typically applied to outdoor common use areas, such as pools, common courtyards and designated picnic or BBQ areas.

An interior noise level standard 45 dB CNEL is assumed for the proposed hotel. This is consistent with Title 24 of the California Code of Regulations. The intent of the interior noise level guideline is to provide an acceptable noise environment for indoor communication and sleep.

Exterior Noise Compliance

Based upon the project site noise exposure calculated and described above, the exterior noise exposure in the vicinity of the proposed hotel location would be approximately 68 dB CNEL. The project site plan does not currently indicate the location(s) of any outdoor activity areas such as an outdoor pool or other outdoor common use area. The exterior noise exposure at the hotel location is considered “conditionally acceptable” by the City of Chowchilla.

Interior Noise Compliance

The City of Chowchilla interior noise level standard applicable to the project is 45 dB CNEL. The worst-case noise exposure at the exterior facades of the hotel would be approximately 68 dB CNEL. This means that the proposed residential construction must be capable of providing a minimum outdoor-to-indoor noise level reduction (NLR) of approximately 23 dB ($68-45=23$).

A specific analysis of interior noise levels was not performed. However, it may be assumed that construction methods complying with current building code requirements will reduce exterior noise levels by at least 25 dB if windows and doors are closed. This will be sufficient for compliance with the assumed 45 dB CNEL interior standard at all proposed hotel units.

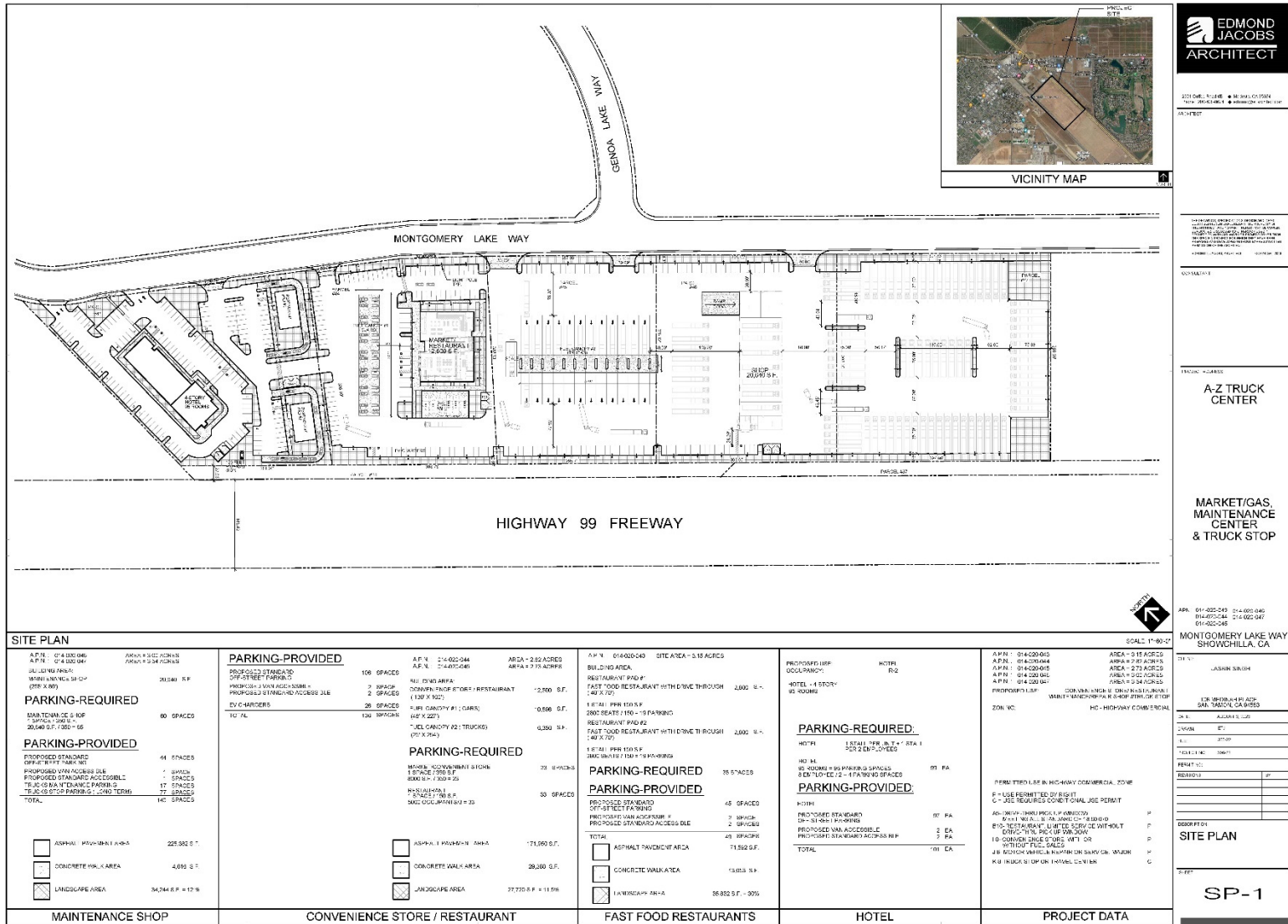
5. **IMPACT SUMMARY**

- The proposed Chowchilla Travel Station development project is not expected to produce noise levels that would exceed any City of Chowchilla exterior or interior noise level standards at any off-site noise-sensitive land uses (residential land uses).
- Project-related increases in traffic noise exposure would not result in noise exposure levels to exceed any City of Chowchilla noise level standards at any off-site noise-sensitive land uses.
- The project is located within 2 miles of an airport. However, the project site is not located within the Chowchilla Municipal Airport 65 dB CNEL or 60 dB CNEL noise exposure contours. There are no noise project compatibility issues related to the proximity to the Chowchilla Municipal Airport.
- Exterior noise exposure levels in the vicinity of the proposed hotel were calculated to be approximately 68 dB CNEL. Such noise levels are considered to be “conditionally acceptable” by the City of Chowchilla. The current site plan does not provide the location(s) of any outdoor common use areas (outdoor pool, BBQ areas, picnic areas, etc.) at the proposed hotel.
- Interior noise exposure levels within the proposed hotel would not be expected to exceed 45 dB CNEL.

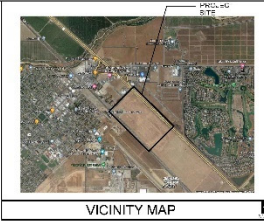
6. SOURCES CONSULTED

1. City of Chowchilla, *2040 General Plan, 2020*.
2. California Department of Transportation, *Transportation and Construction Vibration Guidance Manual*, September 2013.
3. Federal Highway Administration, *Traffic Noise Model, Version 2.5*, April 14, 2004
4. Mead & Hunt, *Madera Countywide Airport Land Use Compatibility Plan*, September 29, 2015

FIGURE 1: PROJECT SITE PLAN



3211 DATE: 01/16/2024
 014-002-046
 014-002-046



014-002-046
 014-002-046
 014-002-046

A-Z TRUCK CENTER

MARKET/GAS, MAINTENANCE CENTER & TRUCK SHOP

APN: 014-002-046
 014-002-046
 014-002-046

MONTGOMERY LAKE WAY SHOWHILLA, CA

DATE: 01/16/2024
 014-002-046
 014-002-046

PERMITTED USE IN HIGHWAY CORRIDOR ZONE

SITE PLAN
 SP-1

FIGURE 2: PROJECT VICINITY AND AMBIENT NOISE MONITORING SITES



FIGURE 3: AMBIENT NOISE MEASUREMENT SITE ST-1



FIGURE 4: AMBIENT NOISE MEASUREMENT SITE ST-2



FIGURE 5: LOCATIONS OF MODELED TRAFFIC NOISE RECEPTORS

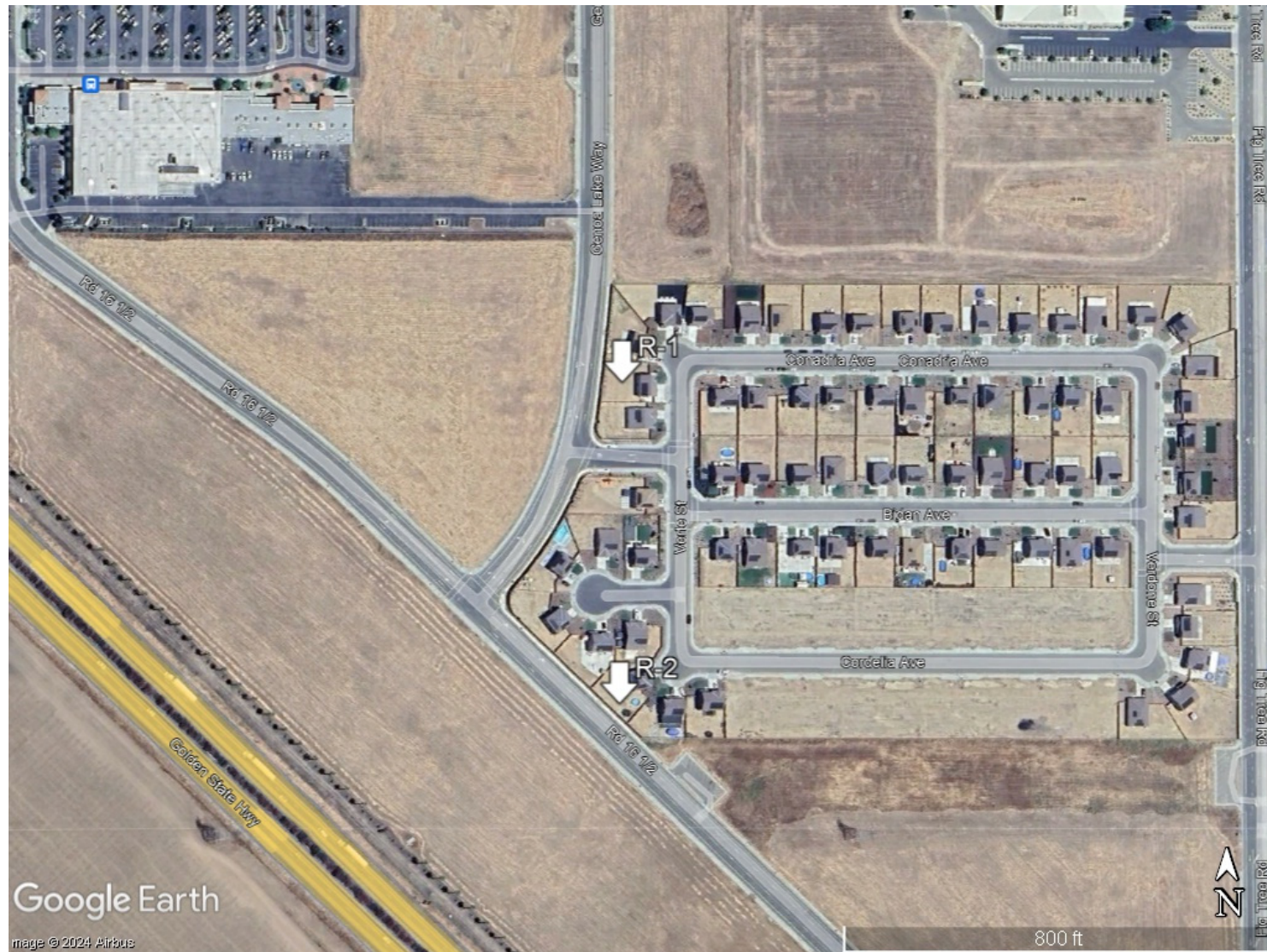
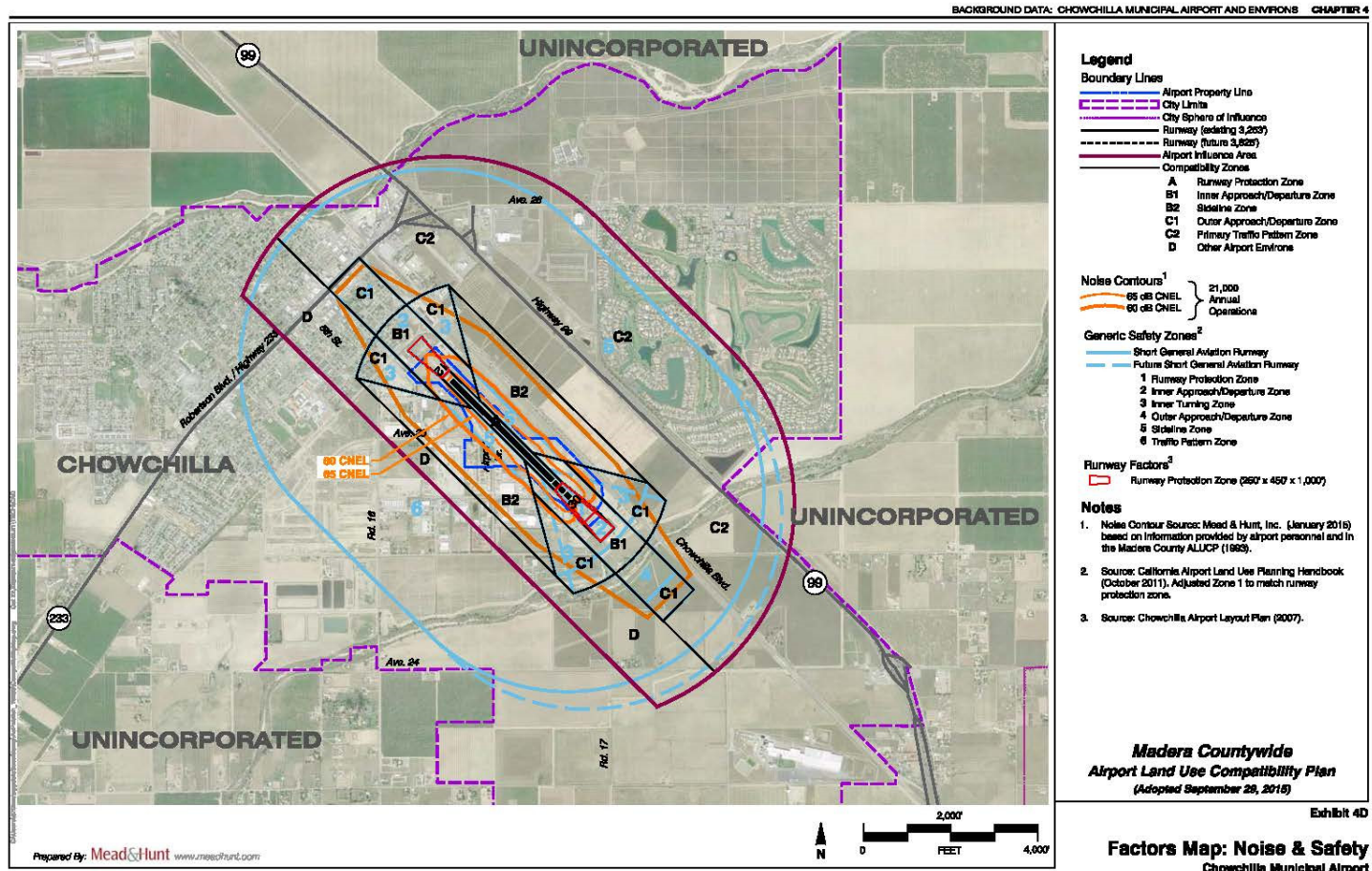


FIGURE 6: CHOWCHILLA MUNICIPAL AIRPORT NOISE EXPOSURE CONTOURS



APPENDIX A-1

ACOUSTICAL TERMINOLOGY

AMBIENT NOISE LEVEL:	The composite of noise from all sources near and far. In this context, the ambient noise level constitutes the normal or existing level of environmental noise at a given location.
CNEL:	Community Noise Equivalent Level. The average equivalent sound level during a 24-hour day, obtained after addition of approximately five decibels to sound levels in the evening from 7:00 p.m. to 10:00 p.m. and ten decibels to sound levels in the night before 7:00 a.m. and after 10:00 p.m.
DECIBEL, dB:	A unit for describing the amplitude of sound, equal to 20 times the logarithm to the base 10 of the ratio of the pressure of the sound measured to the reference pressure, which is 20 micropascals (20 micronewtons per square meter).
DNL/L_{dn}:	Day/Night Average Sound Level. The average equivalent sound level during a 24-hour day, obtained after addition of ten decibels to sound levels in the night after 10:00 p.m. and before 7:00 a.m.
L_{eq}:	Equivalent Sound Level. The sound level containing the same total energy as a time varying signal over a given sample period. L _{eq} is typically computed over 1, 8 and 24-hour sample periods.
NOTE:	The CNEL and DNL represent daily levels of noise exposure averaged on an annual basis, while L _{eq} represents the average noise exposure for a shorter time period, typically one hour.
L_{max}:	The maximum noise level recorded during a noise event.
L_n:	The sound level exceeded "n" percent of the time during a sample interval (L ₉₀ , L ₅₀ , L ₁₀ , etc.). For example, L ₁₀ equals the level exceeded 10 percent of the time.

A-2

ACOUSTICAL TERMINOLOGY

NOISE EXPOSURE CONTOURS:

Lines drawn about a noise source indicating constant levels of noise exposure. CNEL and DNL contours are frequently utilized to describe community exposure to noise.

NOISE LEVEL REDUCTION (NLR):

The noise reduction between indoor and outdoor environments or between two rooms that is the numerical difference, in decibels, of the average sound pressure levels in those areas or rooms. A measurement of "noise level reduction" combines the effect of the transmission loss performance of the structure plus the effect of acoustic absorption present in the receiving room.

SEL or SENEL:

Sound Exposure Level or Single Event Noise Exposure Level. The level of noise accumulated during a single noise event, such as an aircraft overflight, with reference to a duration of one second. More specifically, it is the time-integrated A-weighted squared sound pressure for a stated time interval or event, based on a reference pressure of 20 micropascals and a reference duration of one second.

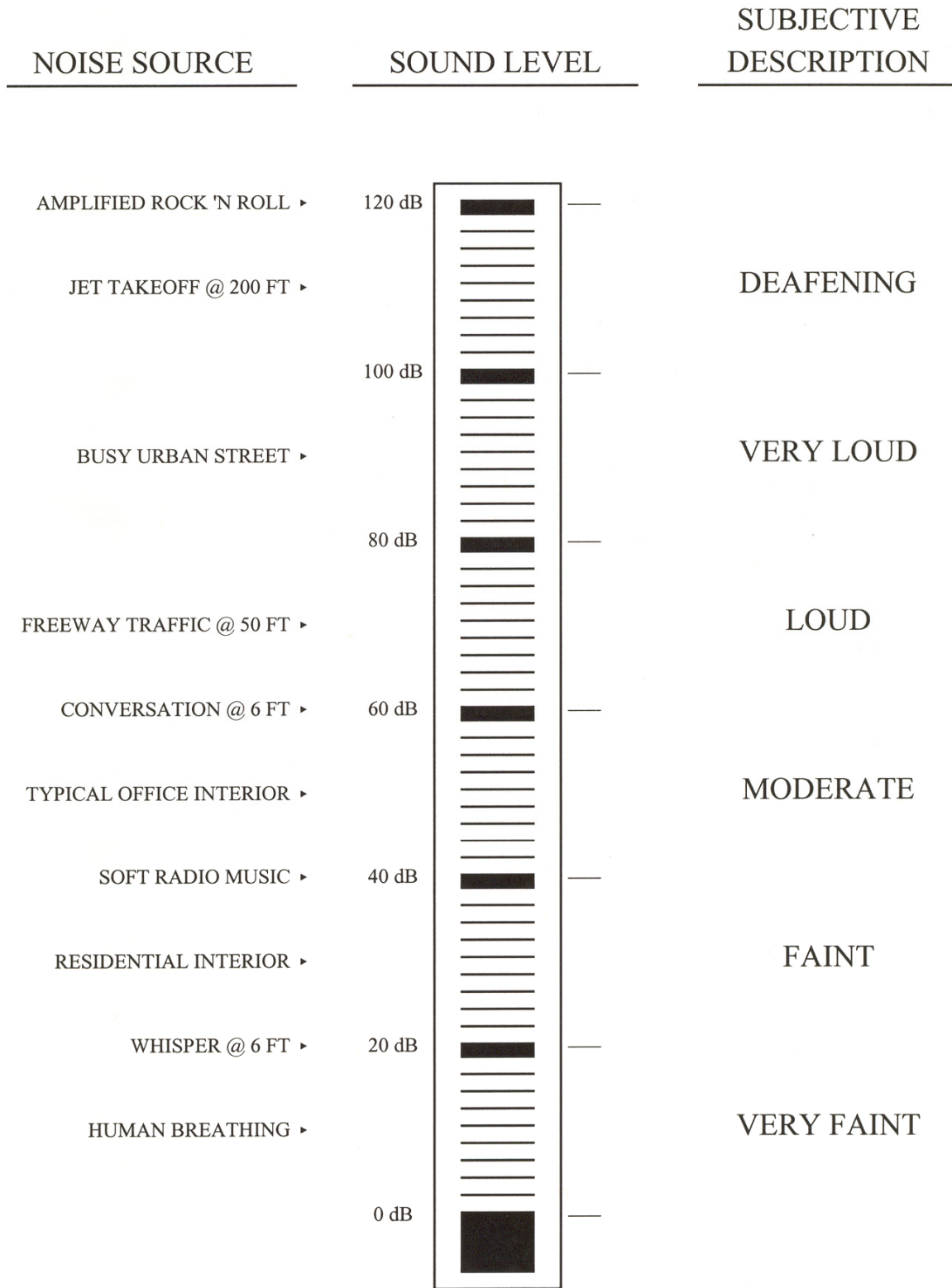
SOUND LEVEL:

The sound pressure level in decibels as measured on a sound level meter using the A-weighting filter network. The A-weighting filter de-emphasizes the very low and very high frequency components of the sound in a manner similar to the response of the human ear and gives good correlation with subjective reactions to noise.

SOUND TRANSMISSION CLASS (STC):

The single-number rating of sound transmission loss for a construction element (window, door, etc.) over a frequency range where speech intelligibility largely occurs.

APPENDIX B
EXAMPLES OF SOUND LEVELS



APPENDIX C

TRAFFIC NOISE MODELING CALCULATIONS

