3.10 - Noise

3.10.1 - Introduction

This section describes the existing noise setting and potential effects from project implementation on the site and its surrounding area. Descriptions and analysis in this section are based on noise modeling performed by Michael Brandman Associates. The noise modeling output is included in this EIR as Appendix H.

3.10.2 - Concepts/Terms

Noise Fundamentals

Noise is defined as unwanted sound. Sound becomes unwanted when it unreasonably interferes with normal activities, when it causes actual physical harm, or when it has adverse effects on health. Sound is produced by the vibration of sound pressure waves in the air. Sound pressure levels are used to measure the intensity of sound and are described in terms of decibels. The decibel (dB) is a logarithmic unit that expresses the ratio of the sound pressure level being measured to a standard reference level. A-weighted decibels (dBA) approximate the subjective response of the human ear to a broad frequency noise source by discriminating between very low and very high frequencies of the audible spectrum. They are adjusted to reflect only those frequencies that are audible to the human ear. The scale value of zero is the threshold of human hearing. Generally, a change of 3.5 decibels is perceptible to humans.

Noise Descriptors

Noise equivalent sound levels are not measured directly but are calculated from sound pressure levels typically measured in A-weighted decibels (dBA). The equivalent sound level (L_{eq}) represents a steady-state sound level containing the same total energy as a time-varying signal over a given sample period. The peak traffic hour L_{eq} is the noise metric used by California Department of Transportation (Caltrans) for all traffic noise impact analyses.

The Day-Night Average Level (L_{dn}) is the weighted average of the intensity of a sound, with corrections for time of day and averaged over 24 hours. The time of day corrections require the addition of 10 decibels to sound levels at night between 10 p.m. and 7 a.m. While the Community Noise Equivalent Level (CNEL) is similar to the L_{dn}, it has another addition of 4.77 decibels to sound levels during the evening hours between 7 p.m. and 10 p.m. These additions are made to the sound levels at these periods because, compared with daytime hours, there is a decrease in the ambient noise levels during the evening and nighttime hours, which creates an increased sensitivity to sounds. For this reason, the sound seems louder in the evening and nighttime hours and is weighted accordingly. The City of Napa relies on the CNEL noise standard to assess the impact of noise.

Noise Propagation

From the noise source to the receiver, noise changes both in level and frequency spectrum. The most obvious is the decrease in noise as the distance from the source increases. The manner in which noise reduces with distance depends on whether the source is a point or line source, ground absorption, atmospheric effects and refraction, and shielding by natural and man-made features. Sound from point sources such as air conditioning condensers radiate uniformly outward as it travels away from the source in a spherical pattern. The noise drop-off rate associated with this geometric spreading is 6 dBA per each doubling of the distance (dBA/DD). Transportation noise sources such as roadways are typically analyzed as line sources, since at any given moment the receiver may be impacted by noise from multiple vehicles at various locations along the roadway. Because of the geometry of a line source, the noise drop-off rate associated with the geometric spreading of a line source is 3 dBA/DD.

Ground Absorption

The sound drop-off rate is highly dependent on the conditions of the land between the noise source and receiver. To account for this ground-effect attenuation (absorption), two types of site conditions are commonly used in traffic noise models: soft-site and hard-site conditions. Soft-site conditions account for the sound propagation loss over natural surfaces such as normal earth and ground vegetation. For point sources, a drop-off rate of 7.5 dBA/DD is typically observed over soft ground with landscaping, compared with a 6.0 dBA/DD drop-off rate over hard ground such as asphalt, concrete, stone, and very hard, packed earth. For line sources, a 4.5 dBA/DD is typically observed for soft-site conditions compared with the 3.0 dBA/DD drop-off rate for hard-site conditions. Caltrans research has shown that the use of soft-site conditions is more appropriate for the application of the Federal Highway Administration (FHWA) traffic noise prediction model used in this analysis. In addition, since the majority of the roadways in the project vicinity have landscaped buffer areas along the sides of the roads as well as landscaped medians, soft-site conditions were used in this analysis.

Traffic Noise Prediction

The level of traffic noise depends on the three primary factors: (1) the volume of the traffic, (2) the speed of the traffic, and (3) the number of trucks in the flow of traffic. Generally, the loudness of traffic noise is increased by heavier traffic volumes, higher speeds, and greater number of trucks. Vehicle noise is a combination of the noise produced by the engine, exhaust, and tires. Because of the logarithmic nature of traffic noise levels, a doubling of the traffic volume results in a noise level increase of 3 dBA. Based on the FHWA community noise assessment criteria, this change is “barely perceptible,” since a doubling of perceived noise levels would require an increase of approximately 10 dBA. In other words, doubling the traffic volume (assuming that the speed and truck mix do not change) results in a noise increase of 3 dBA. The truck mix on a given roadway also has an effect on community noise levels. As the number of heavy trucks increases and becomes a larger percentage of the vehicle mix, adjacent noise levels increase.

Noise Barrier Attenuation

Effective noise barriers can reduce noise levels by 10 to 15 dBA, cutting the loudness of traffic noise in half. For a noise barrier to work, it must be high enough and long enough to block the view of a road. A noise barrier is most effective when placed close to the noise source or receiver. A noise barrier can achieve a 5-dBA noise level reduction when it is tall enough to break the line of sight. When the noise barrier is a berm instead of a wall, the noise attenuation can be increased by another 3 dBA.

Construction Noise Assumptions

The Federal Highway Administration (FHWA) compiled noise measurement data regarding the noise generating characteristics of several different types of construction equipment used during the Central Artery/Tunnel project in Boston. Table 3.10-1 provides a list of the construction equipment measured along with the associated calculated noise emissions (Spec 721.560), measured noise emissions (Actual Measured), and measured percentages of typical equipment use per day (Acoustical Use Factor). From this acquired data, the FHWA developed the Roadway Construction Noise Model (RCNM), which may be used for the prediction of construction noise. For the purposes of this analysis, the RCNM will be used to calculate the construction equipment noise emissions.

Table 3.10-1: Construction Equipment Noise Emissions and Usage Factors

Equipment	Acoustical Use Factor (percent)	Spec 721.560 L_{max} @ 50 feet (dBA, slow)	Actual Measured L_{max} @ 50 feet (dBA, slow)
Auger Drill Rig	20	85	84
Backhoe	40	80	78
Bar Bender	20	80	N/A
Compactor (ground)	20	80	83
Compressor (air)	40	80	78
Concrete Batch	15	83	N/A
Concrete Mixer Truck	40	85	79
Concrete Pump	20	82	81
Concrete Saw	20	90	90
Crane	16	85	81
Dozer	40	85	82
Dump Truck	40	84	76
Excavator	40	85	81
Flat Bed Truck	40	84	74
Front End Loader	40	80	79
Generator	50	82	81

Table 3.10-1 (Cont.): Construction Equipment Noise Emissions and Usage Factors

Equipment	Acoustical Use Factor (percent)	Spec 721.560 L_{max} @ 50 feet (dBA, slow)	Actual Measured L_{max} @ 50 feet (dBA, slow)
Grader	40	85	N/A
Jackhammer	20	85	89
Paver	50	85	77
Pneumatic Tools	50	85	85
Pumps	50	77	81
Roller	20	85	80
Tractor	40	84	N/A
Vibrating Hopper	50	85	87
Vibratory Concrete Mixer	20	80	80
Welder/Torch	40	73	74
Source: Federal Highway Administration, 2006.			

Groundborne Vibration Fundamentals

Groundborne vibrations consist of rapidly fluctuating motions within the ground that have an average motion of zero. The effects of groundborne vibrations typically only cause a nuisance to people, but at extreme vibration levels, damage to buildings may occur. Although groundborne vibration can be felt outdoors, it is typically only an annoyance to people indoors where the associated effects of the shaking of a building can be notable. Groundborne noise is an effect of groundborne vibration and only exists indoors, since it is produced from noise radiated from the motion of the walls and floors of a room and may consist of the rattling of windows or dishes on shelves.

Vibration Descriptors

Several different methods are used to quantify vibration amplitude, such as the maximum instantaneous peak in the vibrations velocity, which is known as the peak particle velocity (PPV) or the root mean square (rms) amplitude of the vibration velocity. Because of the typically small amplitudes of vibrations, vibration velocity is often expressed in decibels; it is denoted as (L_v) and is based on the rms velocity amplitude. A commonly used abbreviation is "VdB," which in this text, is when L_v is based on the reference quantity of 1 microinch per second.

Vibration Perception

Typically, developed areas are continuously affected by vibration velocities of 50 VdB or lower. These continuous vibrations are not noticeable to humans, whose threshold of perception is around 65 VdB. Offsite sources that may produce perceptible vibrations are usually caused by construction equipment, steel-wheeled trains, and traffic on rough roads, while smooth roads rarely produce perceptible groundborne noise or vibration.

Vibration Propagation

The propagation of groundborne vibration is not as simple to model as airborne noise. This is because noise in the air travels through a relatively uniform medium, while groundborne vibrations travel through the earth, which may contain significant geological differences. There are three main types of vibration propagation: surface, compression, and shear waves. Surface waves, or Rayleigh waves, travel along the ground's surface. These waves carry most of their energy along an expanding circular wave front, similar to ripples produced by throwing a rock into a pool of water. P-waves, or compression waves, are body waves that carry their energy along an expanding spherical wave front. The particle motion in these waves is longitudinal (i.e., in a push-pull fashion). P-waves are analogous to airborne sound waves. S-waves, or shear waves, are also body waves that carry energy along an expanding spherical wave front. However, unlike P-waves, the particle motion is transverse or side-to-side and perpendicular to the direction of propagation.

As vibration waves propagate from a source, the vibration energy decreases in a logarithmic nature and the vibration levels typically decrease by 6 VdB per doubling of the distance from the vibration source. As stated above, this drop-off rate can vary greatly, depending on the soil, but it has been shown to be effective enough for screening purposes, in order to identify potential vibration impacts that may need to be studied through actual field tests.

Construction-Related Vibration Level Prediction

Construction activity can result in varying degrees of ground vibration, depending on the equipment used on the site. Operation of construction equipment causes ground vibrations that spread through the ground and diminish in strength with distance. Buildings in the vicinity of the construction site respond to these vibrations with varying results ranging from no perceptible effects at the low levels to slight damage at the highest levels. Table 3.10-2 gives approximate vibration levels for particular construction activities. The data in the table provides a reasonable estimate for a wide range of soil conditions.

Table 3.10-2: Vibration Source Levels for Construction Equipment

Equipment	Peak Particle Velocity (inches/second)	Approximate Vibration Level (L_v) at 25 feet
Pile driver (impact)	1.518 (upper range) 0.644 (typical)	112 104
Pile driver (sonic)	0.734 (upper range) 0.170 (typical)	105 93
Clam shovel drop (slurry wall)	0.202	94
Hydromill (slurry wall)	0.008 (in soil) 0.017 (in rock)	66 75
Vibratory Roller	0.210	94

Table 3.10-2 (Cont.): Vibration Source Levels for Construction Equipment

Equipment	Peak Particle Velocity (inches/second)	Approximate Vibration Level (L_v) at 25 feet
Hoe Ram	0.089	87
Large bulldozer	0.089	87
Caisson drill	0.089	87
Loaded trucks	0.076	86
Jackhammer	0.035	79
Small bulldozer	0.003	58
Source: Federal Transit Administration, 2006.		

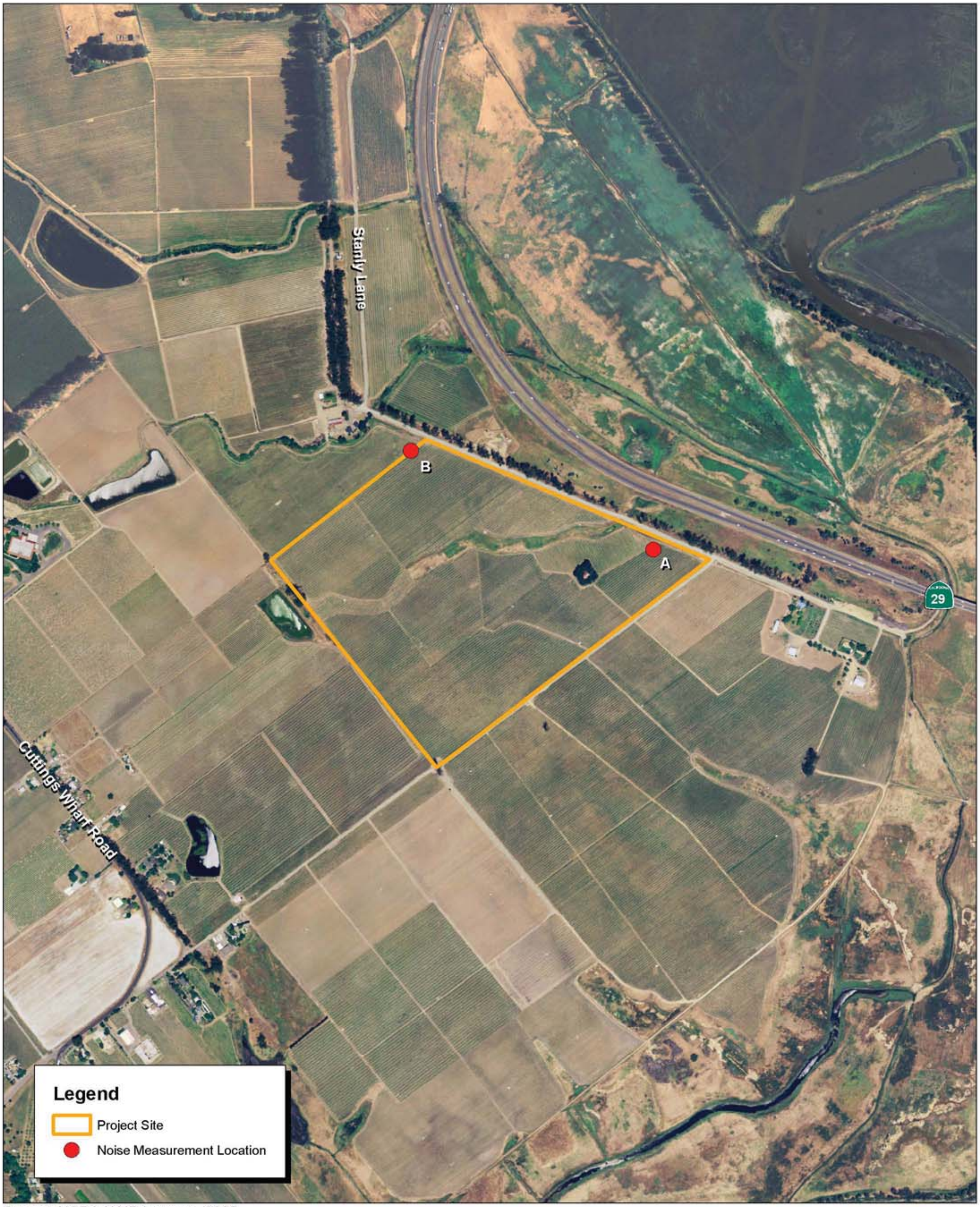
Existing Noise Environment

To determine the existing noise level environment, 24-hour noise measurements were taken at two locations on the project site. Exhibit 3.10-1 depicts the noise measurement locations.

Noise Measurement Results

Two onsite 24-hour noise measurements were taken from 10:08 a.m. on Saturday May 9, 2009 and ran until 10:28 a.m. on Sunday May 10, 2009. Site A was positioned on the project site approximately 100 feet south of the centerline of Stanly Lane, approximately 350 feet south of the centerline of State Route 29 (SR-29), and approximately 350 feet west of the eastern corner of the project site. Site B was positioned on the project site approximately 100 feet south of the centerline of Stanly Lane, approximately 700 feet southwest of the centerline of SR-29, and on the northwest property line of the project site.

Measured sound pressure levels in dBA have been used to calculate the minimum and maximum L_{eq} averaged over 10-minute intervals, and the 24-hour L_{dn} and CNEL, shown in Table 3.10-3 along with the measured L_{eq} averaged over the entire measurement time. In addition, a graph of the calculated L_{eq} averaged over 10-minute intervals for both 24-hour measurements is shown in Exhibit 3.10-2.



Source: USDA NAIP Imagery, 2005.

Michael Brandman Associates

NORTH

1,000 500 0 1,000 Feet

Exhibit 3.10-1
Noise Measurement Locations

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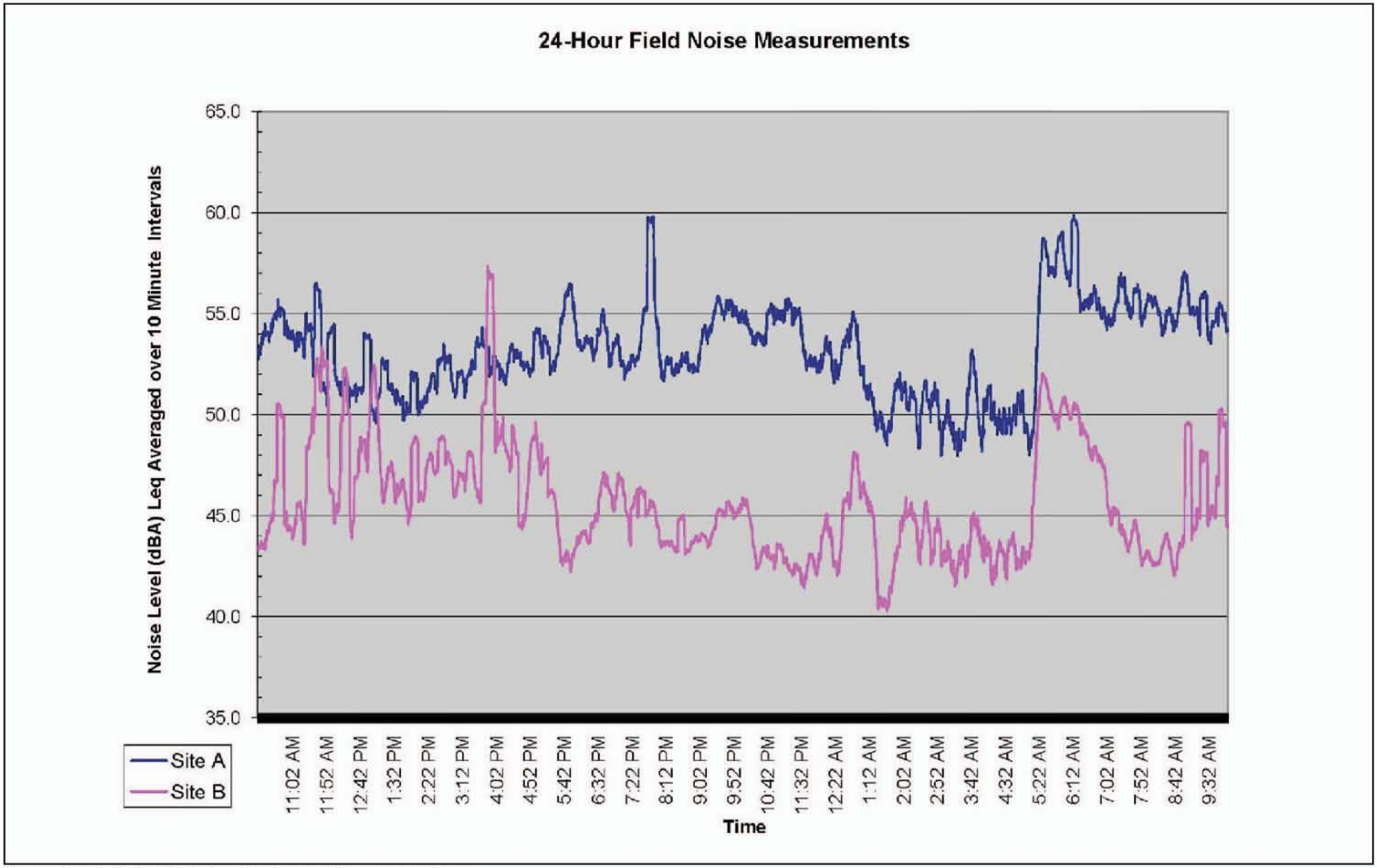

Source: Extech Model 407780 Type 2 Integrating Sound Level Meters.

Michael Brandman Associates

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Exhibit 3.10-2

24-Hour Noise Measurements Graph

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Table 3.10-3: Existing (Ambient) Onsite 24-Hour Noise Level Measurements

Site	Site Description	24-Hour Average (dBA L_{eq})	Minimum 10 Minute Interval (dBA L_{eq}/Time)	Maximum 10 Minute Interval (dBA L_{eq}/Time)	24-Hour Average (dBA L_{dn})	24-Hour Average (dBA CNEL)
A	Located on the project site approximately 100 feet south of the centerline of Stanly Lane, approximately 350 feet south of the centerline of SR-29, and approximately 350 feet west of the eastern corner of the project site.	53.7	47.9/ 3:10 a.m.	59.9/ 6:25 a.m.	60.1	60.3
B	Located on the project site approximately 100 feet south of the centerline of Stanly Lane, approximately 700 feet southwest of the centerline of SR-29, and on the northwest property line of the project site.	46.6	40.3/ 1:50 a.m.	57.4/ 4:02 p.m.	52.4	52.5

Notes:
Noise measurements taken on May 9 and 10, 2009.
Source: Michael Brandman Associates, 2009.

The noise measurement results show that neither Site A nor Site B exceeds the City's exterior noise standards of 60 dBA CNEL for noise-sensitive areas. The 24-hour noise monitoring data printouts are included in Appendix H.

Modeled Existing Noise Levels

The existing weekday and Saturday noise levels at the façades of nearby residences were calculated utilizing the SoundPlan model. The SoundPlan model was also used to produce a noise contour map (Exhibit 3.10-3) showing the existing Saturday dBA CNEL in the project vicinity. Table 3.10-4 and Table 3.10-5 indicate that none of the calculated noise levels at the nearby residences exceeds the City of Napa's 60 dBA CNEL residential standard. The SoundPlan Model printouts for the existing weekday and Saturday conditions are provided in Appendix H.

Table 3.10-4: Existing Weekday Noise Levels at Nearby Land Uses

Receiver[1]	Description	dBA CNEL[2]	dBA L_{eq} Day	dBA L_{eq} Evening	dBA L_{eq} Night
1	Residential to the North	47.7	42.9	39.6	41.2
2	Residential to the Southeast	57.0	52.2	48.6	50.6
3	Residential to the Southwest	37.6	32.9	29.6	31.1
4	Residential to the Southwest	37.3	32.5	29.2	30.8
5	Residential to the Southwest	42.2	37.5	34.3	35.8
6	Residential to the West	39.6	34.7	31.4	33.1

Table 3.10-4 (Cont.): Existing Weekday Noise Levels at Nearby Land Uses

Receiver[1]	Description	dBA CNEL[2]	dBA L_{eq} Day	dBA L_{eq} Evening	dBA L_{eq} Night

Notes:
[1] Receiver noise level based on worst-case noise for either first or second floor.
[2] Noise level includes a 4.77-dBA penalty to account for the noise-sensitive evening hours and a 10-dBA penalty to account for the noise-sensitive nighttime hours.
Source: Michael Brandman Associates, 2009.

Table 3.10-5: Existing Saturday Noise Levels at Nearby Land Uses

Receiver[1]	Description	dBA CNEL[2]	dBA L_{eq} Day	dBA L_{eq} Evening	dBA L_{eq} Night
1	Residential to the North	46.6	41.8	38.5	40.2
2	Residential to the Southeast	56.0	51.2	47.6	49.6
3	Residential to the Southwest	36.3	31.6	28.3	29.9
4	Residential to the Southwest	36.1	31.3	28.0	29.7
5	Residential to the Southwest	41.2	36.5	33.3	34.7
6	Residential to the West	38.5	33.6	30.3	32.1

Notes:
[1] Receiver noise level based on worst-case noise for either first or second floor.
[2] Noise level includes a 4.77-dBA penalty to account for the noise-sensitive evening hours and a 10-dBA penalty to account for the noise-sensitive nighttime hours.
Source: Michael Brandman Associates, 2009.

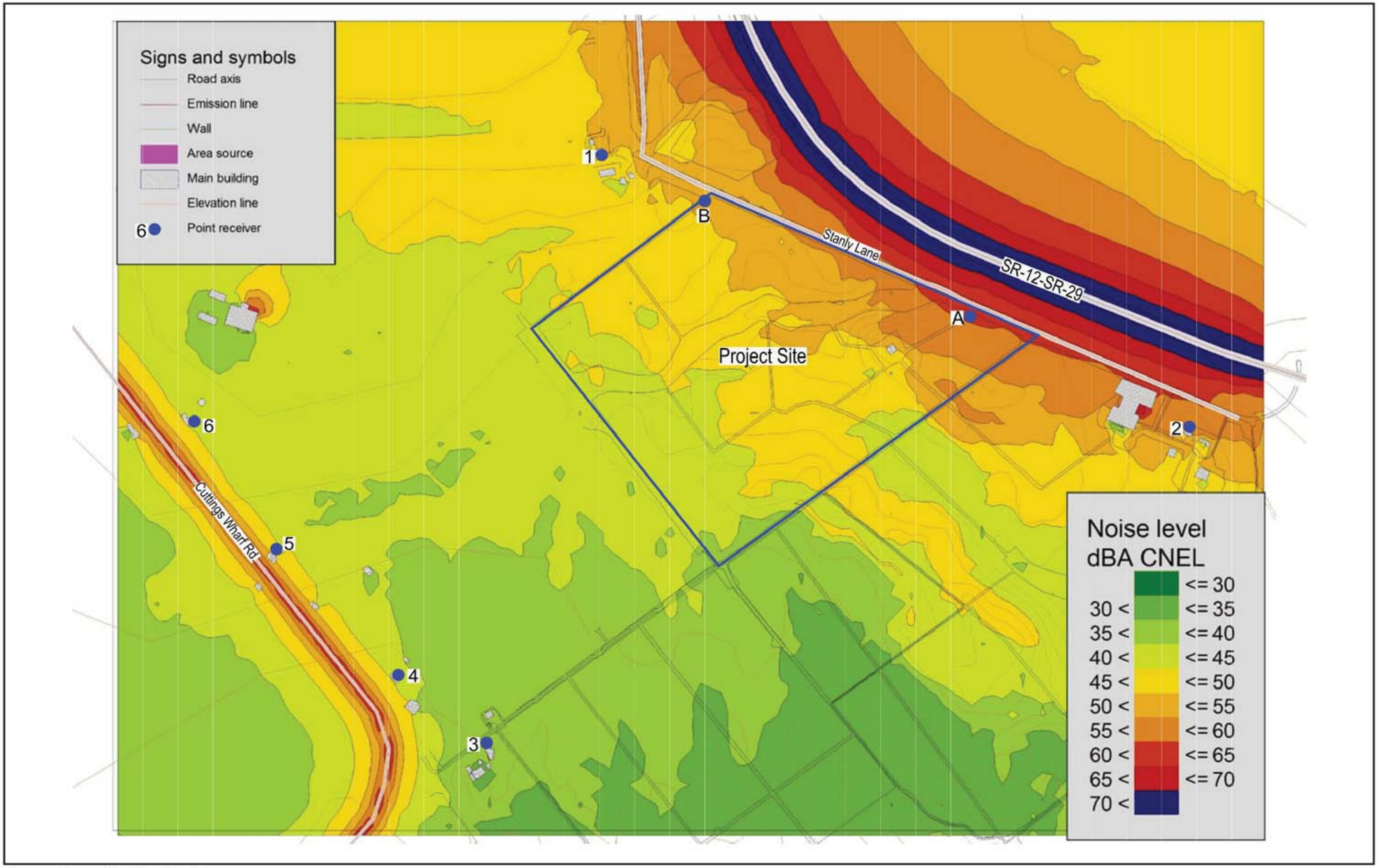
3.10.3 - Regulatory Framework

Federal

The adverse impact of noise was officially recognized by the federal government in the Noise Control Act of 1972, which serves three purposes:

- Promulgating noise emission standards for interstate commerce;
- Assisting state and local abatement efforts; and
- Promoting noise education and research.

The Federal Office of Noise Abatement and Control (ONAC) was initially tasked with implementing the Noise Control Act. However, the ONAC has since been eliminated, leaving the development of federal noise policies and programs to other federal agencies and interagency committees. For example, the Occupational Safety and Health Administration (OSHA) agency prohibits exposure of workers to excessive sound levels. The Department of Transportation (DOT) assumed a significant role in noise control through its various operating agencies. The Federal Aviation Administration (FAA) regulates noise of aircraft and airports. Surface transportation system noise is regulated by a host of agencies, including the Federal Transit Administration (FTA). Transit noise is regulated by



Source: SoundPlan Version 6.5.

Michael Brandman Associates

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Exhibit 3.10-3
Existing Saturday Noise Contour Map (dBA CNEL)

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the Federal Transit Administration, while freeways that are part of the interstate highway system are regulated by the Federal Highway Administration (FHWA). Finally, the federal government actively advocates that local jurisdictions use their land use regulatory authority to arrange new development in such a way that "noise sensitive" uses are either prohibited from being sited adjacent to a highway or, alternately, that the developments are planned and constructed in such a manner that potential noise impacts are minimized.

Since the Federal government has preempted the setting of standards for noise levels that can be emitted by the transportation sources, the City is restricted to regulating the noise generated by the transportation system through nuisance abatement ordinances and land use planning.

State

Established in 1973, the California Department of Health Services Office of Noise Control (ONC) was instrumental in developing regularity tools to control and abate noise for use by local agencies. One significant model is the "Land Use Compatibility for Community Noise Environments Matrix," which allows the local jurisdiction to clearly delineate compatibility of sensitive uses with various incremental levels of noise, shown in Exhibit 3.10-4.

Article 4 of the California Administrative Code (California Noise Insulation Standards, Title 25, Chapter 1) requires noise insulation in new hotels, motels, apartment houses, and dwellings (other than single-family detached housing) that provides an annual average noise level of no more than 45 dBA CNEL. When such structures are located within a 60-dBA CNEL (or greater) noise contour, an acoustical analysis is required to ensure that interior levels do not exceed the 45-dBA CNEL annual threshold.

Government Code Section 65302 mandates that the legislative body of each county and city in California adopt a noise element as part of its comprehensive general plan. The local noise element must recognize the land use compatibility guidelines published by the State Department of Heath Services. The guidelines rank noise land use compatibility in terms of normally acceptable, conditionally acceptable, normally unacceptable, and clearly unacceptable.

Local

City of Napa

General Plan

The General Plan establishes the following goals and policies related to noise that are applicable to the proposed project:

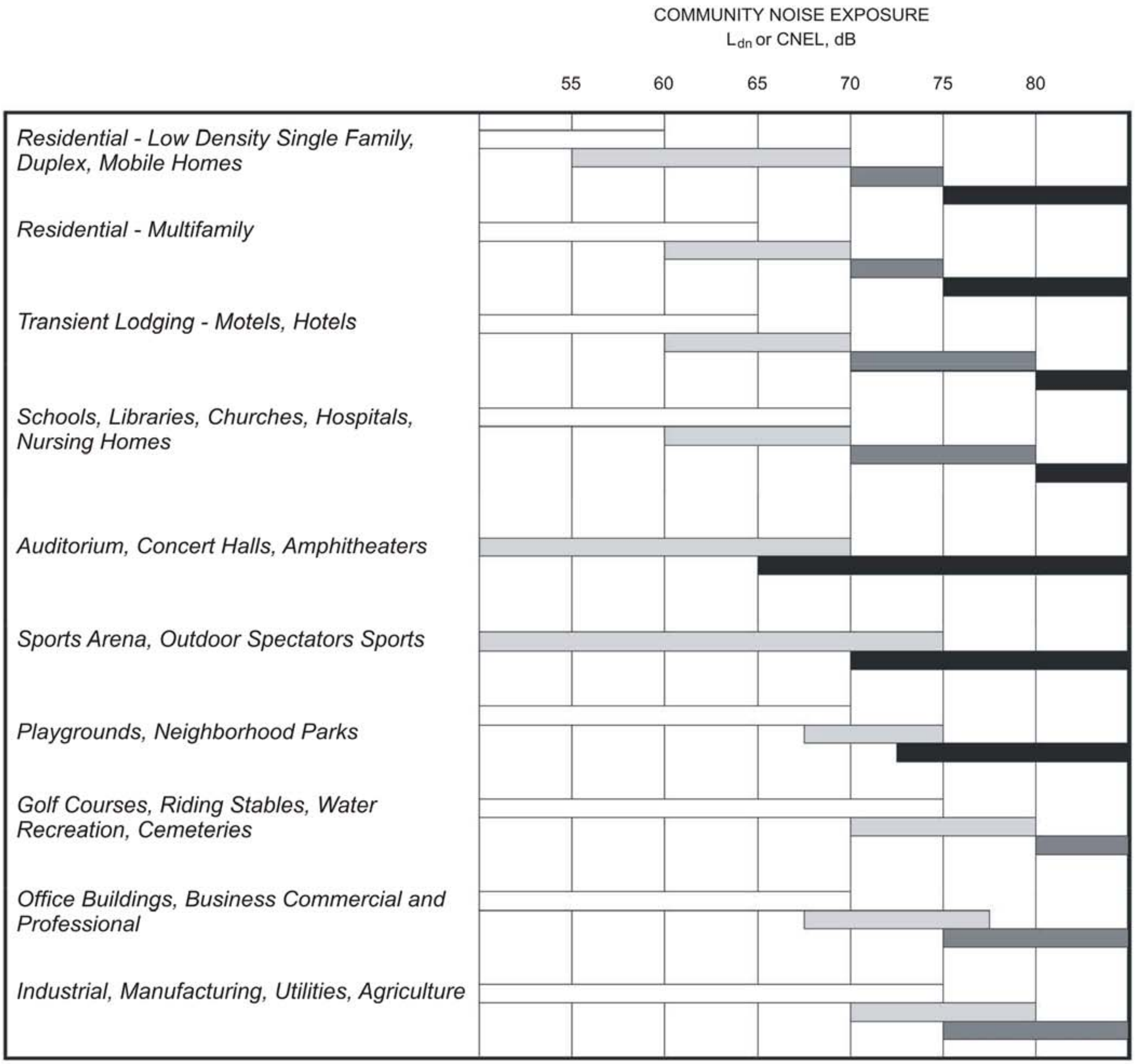
- **Goal HS-9:** To protect Napa's residents, workers and visitors from the deleterious effects of noise.
- **Policy HS-9.1:** The City shall require new development to meet the exterior noise level standards set out in Table 8-1. For residential areas, these exterior noise guidelines apply to

backyards; exceptions may be allowed for front yards where overriding design concerns are identified.

- **Policy HS-9.2:** The City shall use CEQA and the development review processes to ensure that new development does not exceed City standards.
- **Policy HS-9.6:** The City shall use the development and building permit review processes to site new construction in ways that reduce noise levels.
- **Policy HS-9.7:** The City shall encourage the clustering, where appropriate, of residential development in order to provide open space that can be used to distance residences from noise sources.
- **Policy HS-9.9:** When feasible and appropriate, the City shall limit construction activities to that portion of the day when the number of persons occupying a potential noise impact area is lowest.
- **Policy HS-9.10:** The City shall encourage new development to maintain the ambient sound environment as much as possible. The City shall require new transportation-related noise sources that cause the ambient sound levels to exceed the compatibility standards in Table 8-1 to incorporate conditions or design modifications to reduce the potential increase in the noise environment.
- **Policy HS-9.11:** The City shall regulate construction in a manner that allows for efficient construction mobilization and activities, while also protecting noise sensitive land uses.
- **Policy HS-9.13:** The City shall require new residential projects to provide for an interior CNEL of 45 db or less due to exterior noise sources. To accomplish this, the City shall review all residential and other noise sensitive land uses within the 60 dB contours defined in the Table 8-2 and Figure 8-11 to ensure that adequate noise attenuation has been incorporated into the design of the project, or that other measures are implemented to protect future sensitive receptors.
- **Policy HS-9.14:** The City shall encourage new development to identify alternatives to the use of sound walls to attenuate noise impacts. Appropriate techniques include site planning such as incorporating setbacks, revisions to the architectural layout such as changing building orientation to provide noise attenuation for portions of outdoor yards, and construction modifications. In the event that sound walls are the only practicable alternative, such walls should be designed to be as visually pleasing as possible, incorporating landscaping, variations in color and patterns, and/or changes in texture or building materials.

Municipal Code

The Municipal Code establishes the following sections related to noise that are applicable to the proposed project:



LEGEND:

NORMALLY ACCEPTABLE
Specified land use is satisfactory, based upon the assumption that any building involved are of normal conventional construction without any special noise insulation requirements.

NORMALLY UNACCEPTABLE
New construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and needs noise insulation features included in the design.

CONDITIONALLY ACCEPTABLE
New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made. Conventional construction, but with closed windows and fresh air supply systems or air conditioning, will normally suffice.

CLEARLY UNACCEPTABLE
New construction or development should generally not be undertaken.

Source: California Department of Health. Guidelines for the Preparation and Content of Noise Elements of the General Plan. November, 1990.

Source: California Department of Health, Guidelines for the Preparation and Content of Noise Elements of the General Plan., November 1990.

Michael Brandman Associates

Exhibit 3.10-4
Land Use Compatibility Matrix

- **8.08.020 Noise – Commercial Activity:**
  A. Between the hours of 9 p.m. and 7 a.m., no commercial activity shall be conducted upon any privately owned real property within the city, which activity creates noise which can be heard at the property line of any parcel of real property within the city which bears an RP, residential/professional office district, or more restrictive zoning designation, as provided in Title 17 of this code unless a permit shall first have been secured from the city manager pursuant to Section 2.08.050 of this code. The city manager shall grant such permit if it reasonably appears that (1) the activity is otherwise permitted under this code and (2) the benefit to be derived by the applicant from conducting such activity at the time and place specified in the application outweighs the detriment to be suffered by the neighborhood, by neighboring residents, and by the city generally. The collection of garbage and trash pursuant to Chapter 5.60 of this code is expressly exempt from the provisions of this section. To protect Napa's residents, workers and visitors from the deleterious effects of noise.
- **8.08.025 Noise – Construction Activity:**
  Any person engaged in construction activity, other than construction activity on an existing residential unit which such person owns or rents, pursuant to any provision of this code, shall limit said construction activity as follows:
  A. Construction activities throughout the entire duration of the project shall be limited to the hours of 7:00 a.m. to 7:00 p.m., Monday through Friday. There will be no start up of machines nor equipment prior to 8:00 a.m., Monday through Friday; no delivery of materials nor equipment prior to 7:30 a.m. nor past 5:00 p.m., Monday through Friday; no cleaning of machines nor equipment past 6:00 p.m., Monday through Friday; no servicing of equipment past 6:45 p.m., Monday through Friday; and construction on weekends or legal holidays shall be limited to the hours of 8:00 a.m. to 4:00 p.m., unless a permit shall first have been secured from the city manager, or his/her designee, pursuant to Section 8.08.050 of this code. The city manager, or his/her designee, shall grant such permit:
  1. For emergency work;
  2. Other work, if work and equipment will not create noise that may be unreasonably offensive to neighbors as to constitute a nuisance; or
  3. If necessary to protect the public health, safety, and welfare.

  B. All muffler systems on construction equipment shall be properly maintained.
  C. All construction equipment shall not be placed adjacent to developed areas unless said equipment is provided with acoustical shielding
  D. All construction and grading equipment shall be shut down when not actively in use.

3.10.4 - Methodology

Michael Brandman Associates evaluated the proposed project's noise impacts through noise measurements and modeling of project noise impacts. The analysis is described below.

Measurement Procedure and Criteria

To ascertain the existing noise at and adjacent to the project site, field monitoring was conducted on Saturday, May 9, 2009 and Sunday, May 10, 2009. The field survey noted that no significant noise sources impact the project site and that noise within the project vicinity is generally characterized by vehicle traffic on SR-29. During the noise measurements several small aircraft were observed taking off and landing at Napa County Airport, which is located approximately 2.25 miles southeast of the project site. However, the aircraft flight paths were primarily to the east of the project site and aircraft noise impacts to the project site were negligible.

Noise Measurement Equipment

The noise measurements were taken using two Extech Model 407780 Type 2 integrating sound level meters programmed in "slow" mode to record the sound pressure level at 3-second intervals for 24 hours in "A" weighted form. In addition, the L_{eq} averaged over the entire measuring time was also recorded. The sound level meter and microphone were mounted on a tripod 5 feet above the ground and was equipped with a windscreen during all measurements. The sound level meter was calibrated before and after the monitoring using an Extech calibrator, Model 407766. All noise level measurement equipment meets American National Standards Institute specifications for sound level meters (S1.4-1983 identified in Chapter 19.68.020.AA).

Noise Measurement Locations

The noise monitoring locations were selected in order to obtain noise measurements of the current noise sources located on the project site and to provide a baseline for any potential noise impacts that may be created by development of the proposed project. The number of noise measurement locations to adequately assess the noise impacts created by the proposed project was determined in the field and was based on the professional experience of the noise consultant. The sites were previously described in Table 3.10-3 and shown in Exhibit 3.10-1. Appendix H includes a photo index of the study area and noise level measurement locations.

Noise Measurement Timing and Climate

The noise measurements were recorded between 10:08 a.m. on Saturday, May 9, 2009 and ran until 10:28 a.m. on Sunday, May 10, 2009. This monitoring was chosen because it overlapped with Saturday afternoon, which would be the busiest operational period for the proposed project. When the noise measurements were started, the sky was clear, temperature was 72 degrees Fahrenheit (°F), barometric pressure was 29.95 inches of mercury (Hg), and the wind was calm. At the conclusion of the noise measurements, the sky was clear, temperature was 64°F, barometric pressure was 29.97 Hg, and the wind was calm.

SoundPlan Noise Modeling Software

Because noise in the project vicinity is created by multiple roadways and stationary sources, the SoundPlan Version 6.5 noise modeling software was used. SoundPlan's road noise, parking lot noise, and stationary noise source algorithms are based on the FHWA Traffic Noise Model (FHWA TNM Model). The SoundPlan Model requires the input of roadways and the locations of the noise measurement receivers. Stationary noise sources with associated frequency spectrums, sound barriers, terrain contour lines, building placement, and specific ground coverage zones may be incorporated as well. The site plan, topographical survey, and aerial photos were used to determine the placement of the roadways, and stationary sources as well as to establish the terrain in the project vicinity. The ground coverage of loose soil was used for all areas in the SoundPlan Model that was not defined by buildings parking lots or roadways. In addition, the default temperature and humidity were used in the analysis.

Roadway Assumptions

The model analyzed the noise impacts from the nearby roadways onto the project vicinity. All roadways were based on a single-lane-equivalent noise source combining both directions of travel. The roadway parameters used for the SoundPlan modeling are presented in Table 3.10-6. The roadway classifications are based on the City of Napa General Plan Circulation Element. The roadway speed is based on posted speed limits. Soft-site conditions were used to develop noise contours and analyze noise impacts to the project site. Soft sites have an absorptive ground surface such as soft dirt, grass, or scattered bushes and trees.

Table 3.10-6: SoundPlan Model Roadway Parameters

Roadway	Segment	Vehicle Speed (miles per hour)	Existing Average Daily Trip Volumes	
			Weekday	Saturday
Stanly Lane	South of SR-12–SR-121	30	500	300
SR-29	South of SR-12–SR-121	55	49,400	39,000
SR-12–SR-121	West of Stanly Lane	55	33,000	26,700
SR-12–SR-121	West of SR-29	55	34,900	26,600
Cuttings Wharf Road	South of SR-12–SR-121	45	2,000[1]	1,200[1]

Notes:
[1] Estimated from field observations during the noise measurements.
Source: California Department of Transportation, 2008; Whitlock and Weinberger Transportation, 2009.

Table 3.10-7 presents the hourly traffic flow distributions (vehicle mixes) used in this analysis. The vehicle mix provides the hourly distribution percentages of automobile, medium trucks, and heavy trucks for input into the FHWA and SoundPlan Models.

Table 3.10-7: Roadway Vehicle Mixes

Roadway Classification	Vehicle Type	Hourly Traffic Flow Distributions (percent)			
		Day (7 a.m. to 7 p.m.)	Evening (7 p.m. to 10 p.m.)	Night (10 p.m. to 7 a.m.)	Overall
SR-12–SR-121	Automobiles	63.7	13.1	15.3	92.1
	Medium Trucks	1.5	0.3	0.7	2.5
	Heavy Trucks	3.0	0.3	2.2	5.5
SR-29	Automobiles	65.1	13.3	15.6	94.0
	Medium Trucks	1.4	0.2	0.7	2.3
	Heavy Trucks	2.0	0.2	1.5	3.7
Minor Collector and Local	Automobiles	73.6	13.6	10.2	97.4
	Medium Trucks	0.9	0.9	0.0	1.8
	Heavy Trucks	0.4	0.0	0.4	0.7

Notes:
Mix obtained from “2007 Annual Average Daily Truck Traffic on the California State Highway System,” issued by Caltrans.
Source: California Department of Transportation, 2008.

In order to determine the height above the road grade from where the noise is being emitted, each type of vehicle has been analyzed independently, with autos at road grade, medium trucks at 2.3 feet above road grade, and heavy trucks at 8 feet above road grade. These elevations were determined through a noise-weighted average of the elevation of the exhaust pipe, tires, and mechanical parts in the engine, which are the primary noise emitters from a vehicle.

Winery Truck Loading Areas

The SoundPlan model also analyzed the noise impacts from the truck loading areas at the nearby existing wineries to the southeast (Starmont) and west (Etude Wines). A previously taken field noise measurement of a truck loading area was used to calibrate the truck loading area noise level. In order to determine noise levels from a truck loading area, field noise measurements were taken 100 feet away from a truck delivery area. The entire truck visit lasted for approximately 30 minutes with a noise level of 56.4 dBA L_{eq}. The truck loading areas were modeled as area sources located 8 feet above ground level and were based on a noise level of 78 dB per meter. Since the proposed winery has been estimated to have five truck deliveries per day, the nearby existing wineries have also been estimated to have three truck deliveries per day. This resulted in the truck loading areas of each winery being active for 25 percent of each hour between 7 a.m. and 5 p.m.

Vineyard Maintenance

During the field noise measurements, workers were observed in the nearby vineyards. However, other than the noise created from the operation of their trucks used to transport them and their equipment to and from the vineyards, the noise created by the workers was negligible. Since the noise created by the trucks was included in the traffic volumes on the nearby roadways, no additional vineyard maintenance noise source was determined to be necessary in modeling the existing noise environment.

Modeling Calibration

Receivers were placed at the location of the noise measurement sites in order to assist in the calibration of the model as well as to verify the accuracy of the SoundPlan Model. Table 3.10-8 provides a summary of the calculated results and a comparison with the measured results shown above in Table 3.10-4.

Table 3.10-8: Model Calibration of Existing Saturday Noise Levels

Site No.	Location	Calculated Noise Level[1] (dBA CNEL)	Measured Noise Level[2] (dBA CNEL)	Difference
A	Located on the project site approximately 100 feet south of the centerline of Stanly Lane, approximately 350 feet south of the centerline of SR-29, and approximately 350 feet west of the eastern corner of the project site.	60.8	60.3	0.5
B	Located on the project site approximately 100 feet south of the centerline of Stanly Lane, approximately 700 feet southwest of the centerline of SR-29, and on the northwest property line of the project site.	51.1	52.5	-1.4

Notes:
[1] Noise Level Calculated from SoundPlan Version 6.5.
[2] Noise measurements taken on May 9 and 10, 2009.
Source: Michael Brandman Associates, 2009.

Table 3.10-8 shows that the SoundPlan Model is within 1.4 dBA of the field noise measurements, which is below the 3.0-dBA threshold of perception. Therefore, based on the field noise measurements, the SoundPlan Model provides an accurate representation of the project area noise levels.

FHWA-ROAD-77-108 Traffic Noise Prediction Model

The projected roadway noise impacts from vehicular traffic were projected using a computer program that replicates the FHWA Traffic Noise Prediction Model FHWA-ROAD-77-108. The FHWA-ROAD-77-108 Model arrives at a predicted noise level through a series of adjustments to the Reference Energy Mean Emission Level (REMEL). Adjustments are then made to the reference energy mean emission level to account for the roadway active width (i.e., the distance between the center of the outermost travel lanes on each side of the roadway); the total average daily traffic (ADT) and the percentage of ADT that flows during the day, evening, and night; the travel speed; the vehicle mix on the roadway, which is a percentage of the volume of automobiles, medium trucks, and heavy trucks; the roadway grade; the angle of view of the observer exposed to the roadway; and the site conditions ("hard" or "soft") as they relate to the absorption of the ground, pavement, or landscaping.

Traffic Noise Prediction Model Inputs

The roadway parameters used for this study are presented below in Table 3.10-9. The roadway classifications are based on the City of Napa General Plan Circulation Element. The roadway speed is based on the posted speed limits. Soft-site conditions were used to develop noise contours and analyze noise impacts to the project site.

Table 3.10-9: FHWA Model Roadway Parameters

Roadway	Segment	General Plan Classification	Vehicle Speed (miles per hour)
Stanly Lane	North of SR-12–SR-121	Collector	30
Stanly Lane	South of SR-12–SR-121	Collector	30
SR-29	North of SR-12–SR-121	State Highway	55
SR-29	South of SR-12–SR-121	State Highway	55
SR-29	North of SR-221	State Highway	55
SR-29	South of SR-221	State Highway	55
SR-12–SR-121	West of Stanly Lane	State Highway	55
SR-12–SR-121	West of SR-29	State Highway	55
Source: City of Napa, 2007; Michael Brandman Associates, 2009.			

In order to determine the offsite project generated traffic noise impacts, the ADT volumes on the study area roadways were obtained from the Traffic Impact Analysis, prepared by Whitlock and Weinberger and Associates, May 5, 2009. The ADT volumes were provided for the existing year, existing year plus project, Year 2030 baseline, and Year 2030 plus project scenarios for both weekday and Saturday traffic scenarios. The ADT volumes were calculated by multiplying the weekday p.m. peak-hour and Saturday peak-hour intersection volumes by 12 and are shown below in Table 3.10-10 and Table 3.10-11, respectively. The multiplier of 12 was determined by comparing the calculated ADT for the existing weekday SR-29 south of SR-12-121 with Caltrans-posted ADT of 50,000 for the same roadway segment.

Table 3.10-10: Weekday Average Daily Traffic

Roadway	Segment	Average Daily Traffic			
		Existing Year	Existing Plus Project	Year 2030 Baseline	Year 2030 Plus Project
Stanly Lane	North of SR-12–SR-121	2,400	2,400	2,400	2,400
Stanly Lane	South of SR-12–SR-121	500	3,200	3,600	6,400
SR-29	North of SR-12–SR-121	55,100	56,200	72,200	73,300
SR-29	South of SR-12–SR-121	49,400	50,100	64,400	65,100
SR-29	North of SR-221	46,700	47,400	63,900	64,600
SR-29	South of SR-221	74,000	74,700	100,800	101,400
State Routes 12-121	West of Stanly Lane	33,000	34,000	45,300	46,300
State Routes 12-121	West of SR-29	34,900	36,700	42,700	44,500
Source: Whitlock and Weinberger Transportation, 2009; Michael Brandman Associates, 2009.					

Table 3.10-11: Saturday Average Daily Traffic

Roadway	Segment	Average Daily Traffic			
		Existing Year	Existing Plus Project	Year 2030 Baseline	Year 2030 Plus Project
Stanly Lane	North of SR-12–SR-121	1,300	1,300	1,300	1,300
Stanly Lane	South of SR-12–SR-121	300	3,300	4,100	7,300
SR-29	North of SR-12–SR-121	48,300	49,500	58,800	60,000
SR-29	South of SR-12–SR-121	39,000	39,700	51,600	52,300
SR-29	North of SR-221	39,500	40,200	54,300	55,100
SR-29	South of SR-221	62,500	63,300	85,400	86,100
SR-12–SR-121	West of Stanly Lane	26,700	27,700	37,200	38,200
SR-12–SR-121	West of SR-29	26,600	28,500	34,000	36,000
Source: Whitlock and Weinberger Transportation, 2009; Michael Brandman Associates, 2009.					

The vehicle mixes used in the FHWA-ROAD-77-108 Model have been provided previously in Table 3.10-7. The vehicle mixes are based on the vehicle mixes provided in the 2007 Annual Average Daily Truck Traffic on the California State Highway System, prepared by Caltrans, September 2008, and on typical vehicle mixes observed in California.

Source Assumptions

To assess the roadway noise generation in a uniform manner, all vehicles were analyzed at the single-lane-equivalent acoustic center of the roadway being analyzed. In order to determine the height above the road grade from where the noise is being emitted, each type of vehicle has been analyzed independently with autos at road grade, medium trucks at 2.3 feet above road grade, and heavy trucks at 8 feet above road grade. These elevations were determined through a noise-weighted average of the elevation of the exhaust pipe, tires, and mechanical parts in the engine, which are the primary noise emitters from a vehicle.

Long-Term Stationary Noise Impacts

Onsite noise impacts have been analyzed separately from the offsite vehicular noise impacts, since onsite noise sources may be directly regulated by local jurisdictions and are typically defined as stationary source noise regulations.

In order to determine the proposed project impacts onto the nearby residences, the proposed project's stationary noise only and near-term without and with project scenarios were analyzed using the SoundPlan model. The scenarios were based on the SoundPlan modeling methodology presented above for the existing conditions. The following describes the input parameters of the SoundPlan model that were modified from the existing scenario for the with project stationary noise scenario.

Proposed Onsite Roadway Assumptions

All of the proposed onsite roads have been analyzed as stationary noise sources. Since the Traffic Analysis did not analyze any of the onsite roads or intersections, this analysis assumed that all onsite roads would have half of the daily traffic generated by the proposed project. The daily traffic generated by the proposed project was calculated by multiplying the weekend midday peak-hour trip generation of 245 trips by 12. This resulted in each onsite roadway being modeled with 1,470 vehicles per day. Each onsite roadway was also modeled on a vehicle speed of 25 miles per hour, and the hourly traffic flow distributions (vehicle mix) used for the onsite roadways have been based on the local vehicle mix shown above in Table 3.10-7.

In order to determine the height above the road grade from where the noise is being emitted, each type of vehicle has been analyzed independently with autos at road grade, medium trucks at 2.3 feet above road grade, and heavy trucks at 8 feet above road grade. These elevations were determined through a noise-weighted average of the elevation of the exhaust pipe, tires, and mechanical parts in the engine, which are the primary noise emitters from a vehicle.

Proposed Parking Lot Assumptions

The SoundPlan model provides a sound emission source specific to parking lots. The parking lot emission source is based on the different tonal contents typically created in parking lots and is primarily from engine and tire noise, slamming of car doors, pedestrians, and street sweepers. The proposed main parking lot for the hotel and the two parking lots for the winery have been modeled in Sound Plan as stationary noise sources, which require input on the placement of the parking lots, the number of parking spaces in each lot and the average number of car movements per hour that occur per space for both the daytime and nighttime.

The main parking facility for the hotel is proposed to include on grade plus underground parking and only the on grade portion is anticipated to contribute noise to the nearby area. The on grade portion of the main parking lot was modeled on 60 parking spaces and represents for one-sixth of the hotel traffic, which according to the Traffic Analysis is 88 weekend trips per hour. This resulted in an anticipated 0.24 vehicle movement per space per hour during the daytime (7 a.m. to 10 p.m.) and 0.02 vehicle movement per space per hour during the nighttime (10 p.m. to 7 a.m.). The proposed winery south parking lot has been estimated to have 22 parking spaces and the north parking lot has been estimated to have 12 parking spaces. According to the Traffic Analysis, the winery is anticipated to generate 20 trips per hour, which would result in 0.59 vehicle movement per space per hour for both of the winery parking lots during the daytime and no nighttime movements, since the winery's anticipated operating hours would be from 9 a.m. to 5 p.m.

Proposed Truck and Bus Loading Areas

The SoundPlan model also analyzed the noise impacts from the proposed truck and bus loading areas at the resort and the winery. The resort is anticipated to generate five daily truck trips and eight daily bus trips. Since the locations of the truck and bus loading areas for the resort have not yet been identified, they have been analyzed as a single area source located in the resort arrival court. Also, in order to simplify the analysis and account for a worst-case scenario, all eight daily bus trips plus the five daily truck trips have been analyzed as truck trips and have been based on the same truck loading noise levels used for the nearby existing truck loading areas. This resulted in a truck or bus loading or unloading at the resort 35 percent of the time during the daytime (7 a.m. to 10 p.m.) and 14 percent of the time during the nighttime (10 p.m. to 7 a.m.).

The winery is anticipated to generate five daily truck trips and two daily bus trips. Since the locations of the truck and bus loading areas for the winery have not yet been identified, they have been analyzed as a single area source located in the cul-de-sac on the south side of the winery. Also, in order to simplify the analysis and account for a worst-case scenario, the two daily bus trips plus the five daily truck trips have been analyzed as truck trips and have been based on the same truck loading noise levels used for the nearby existing truck loading areas. This resulted in a truck or bus loading or unloading at the winery 35 percent of the time between 7 a.m. and 5 p.m.

Proposed Winery Assumptions

The SoundPlan model also analyzed the noise impacts from the operation of the proposed winery, which is anticipated to produce 25,000 cases of wine per year. In order to calculate the noise created by the proposed winery, a noise measurement was taken approximately 20 feet from the entrance of the Robert Sinskey Winery (located at 6320 Silverado Trail, Napa), which also produces 25,000 cases of wine per year. The noise measurement was taken on Saturday May 9, 2009 at 4 p.m., ran for 20 minutes, and measured a noise level of 50.5 dBA L_{eq}. The measurement occurred near the winery entrance, which was the noisiest location onsite, and noise was primarily from a fountain, people talking, and the closing of doors. The proposed winery has been modeled as an area source covering the patio cover area on the south side of the winery. The area source was based on the above noise measurement where the sound power spectrum was segmented into 1/3 octaves and active between 9 a.m. and 5 p.m., the anticipated hours of operation.

Proposed Event Pavilion and Lawn Assumptions

The SoundPlan model also analyzed the noise impacts from the proposed event pavilion and event lawn. The primary noise impacts anticipated from the proposed event pavilion and lawn would occur during a large organized event such as a wedding reception. In order to calculate the noise created by the event pavilion and lawn, a noise measurement was taken approximately 70 feet from a 200 guest wedding reception with amplified music, held on the Grand Lawn at the St. Regis Monarch Beach Resort in Dana Point. The noise measurement was taken on Sunday, May 30, 2009 at 3:11 p.m.; ran for 11 minutes; and measured a noise level of 74.0 dBA L_{eq}. The proposed event pavilion and event lawn were modeled as an area source that covered the entire event pavilion and lawn area. The area source was based on the above noise measurement, where the sound power spectrum was segmented into 1/3 octaves and active between 11 a.m. and 10 p.m., the time frame when large organized events are anticipated to occur.

Proposed Pool Assumptions

The SoundPlan model also analyzed the noise impacts from the main pool adjacent to the hotel. In order to calculate the noise created by the proposed pool, a noise measurement was taken approximately 30 feet from the large water feature at the main pool the St. Regis Monarch Beach Resort in Dana Point. The noise measurement was taken on Sunday, May 30, 2009 at 3:24 p.m.; ran for 5 minutes; and measured a noise level of 58.2 dBA L_{eq}. The noise was primarily from the large fountain, people talking, and swimming. The area source was based on the above noise measurement where the sound power spectrum was segmented into 1/3 octaves and active between 7 a.m. and 10 p.m., the anticipated hours the pool will be open to guests.

Proposed Sewer Pump Assumptions

The SoundPlan model also analyzed the noise impacts from the proposed sewer pump stations on the project site and on the west bank of the Napa River, approximately 1,900 feet from the nearest residence. Noise measurements of a similar sewer lift station were taken by Urban Crossroads on September 29, 2004 and found that the sewer lift station produced a noise level of 48.8 dBA L_{eq} at 100 feet. The proposed sewer pump station was modeled as an area source based on the above noise measurement and active 24 hours per day.

Long-Term Stationary and Transportation Noise Impacts

In order to determine the combined stationary and transportation noise impacts created by the proposed project, the SoundPlan Model modeling software was utilized. The following section provides a discussion of the modeling input parameters used in this analysis and a discussion of the resultant combined stationary and transportation noise impacts.

Approach

In order to determine the proposed project combined stationary and transportation impacts onto the nearby receptors, an existing with project scenario was analyzed using the SoundPlan model. The combined existing with project scenario was based on the SoundPlan modeling methodology presented above for the stationary-only analysis and the existing scenario. The stationary noise sources were modeled identically to those described above for the stationary-only analysis. The following describes the input parameters of the SoundPlan model for the transportation noise sources that were modified from the existing scenario for the existing with project scenario.

Offsite Roadway Assumptions

The roadways that were not included in the stationary-only noise levels but were included in the existing analysis have been analyzed from the parameters shown in Table 3.10-12 for the existing with project scenario.

Table 3.10-12: SoundPlan Model Existing With Project Offsite Roadway Parameters

Roadway	Segment	Vehicle Speed (miles per hour)	Existing With Project Average Daily Trip Volumes
Stanly Lane	South of SR-12–SR-121	30	3,300
SR-29	South of SR-12–SR-121	55	39,700
SR-12–SR-121	West of Stanly Lane	55	27,700
SR-12–SR-121	West of SR-29	55	28,500
Cuttings Wharf Road	South of SR-12–SR-121	45	1,000[1]

Notes:
[1] Estimated from field observations during the noise measurements.
Source: California Department of Transportation, 2008; Whitlock and Weinberger Transportation, 2009.

The hourly traffic flow distributions (vehicle mixes) used in this analysis have been provided above in Table 3.10-7, and the roadways were assigned the same vehicle mixes used for the existing scenario.

3.10.5 - Thresholds of Significance

According to Appendix G, Environmental Checklist, of the CEQA Guidelines, noise impacts resulting from the implementation of the proposed project would be considered significant if the project would cause:

a.) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

b.) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?

c.) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?

d.) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?

e.) For a project located within 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?

f.) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels? (Refer to Section 7, Effects Found Not To Be Significant.)

The CEQA Guidelines and the City's General Plan provide no definition of what constitutes a substantial noise increase; however, the California Department of Transportation provides guidance that can be used to define substantial changes in noise levels that may be caused by a project. The thresholds below apply to transportation noise that is usually expressed in terms of average noise exposure during a 24-hour period, such as the L_{dn} or CNEL. Project-generated increases in noise levels that exceed those outlined in the thresholds below and that affect existing noise-sensitive land uses (receptors) are considered substantial and, therefore, would constitute a significant noise impact. The project will create a significant noise-related impact if it would:

- Increase noise levels by 5 dB or more where the without project noise level is less than 60 dB.
- Increase noise levels by 3 dB or more where the without project noise level is 60 to 65 dB.
- Increase noise levels by 1.5 dB or more where the without project noise level is greater than 65 dB.

The City of Napa General Plan Policy HS-9.1 requires that the exterior noise level at the location of the new development meet the noise level standards shown in the Land Use Compatibility Matrix in Exhibit 3.10-4 for the associated land use. According to the Land Use Compatibility Matrix, transient lodging development is normally acceptable with exterior noise levels less than 65 dBA CNEL. For development of a site with exterior noise levels in the 60- to 70-dBA CNEL range, transient lodging development is conditionally acceptable upon further analysis through a noise impact analysis and possible mitigation. For exterior noise levels in the 70- to 80-dBA CNEL range, development of a site for transient lodging uses is normally unacceptable unless a detailed noise analysis shows that the project can be designed with enough noise insulation features to reduce the noise level. For exterior noise levels in excess of 80 dBA CNEL, development of a site for transient lodging uses is clearly unacceptable.

The City of Napa General Plan Policy HS-9.10 requires that new noise sources do not cause ambient sound levels to exceed the compatibility standards shown in Exhibit 3.10-4 for nearby land uses.

According to Exhibit 3.10-4, this would result in a noise level threshold of 60 dBA CNEL at the nearby residential uses.

Pursuant to Section 8.08.025 of the City of Napa Municipal Code, construction noise is considered a nuisance, and the Municipal Code places restrictions on the time when construction noise may occur. However, since neither the General Plan nor the Municipal Code provides quantitative construction noise, construction noise impacts have been analyzed according to the same regulations as stated above for stationary noise.

3.10.6 - Project Impacts and Mitigation Measures

This section discusses potential impacts associated with the development of the project and provides mitigation measures where appropriate.

Construction Noise

Impact NOI-1:	**Construction activities associated with the proposed project may expose nearby land uses to excessive noise levels.**

Impact Analysis

Construction noise represents a short-term increase in ambient noise. Noise impacts from construction activities associated with the proposed project would be a function of the noise generated by construction equipment, equipment location, sensitivity of nearby land uses, and the timing and duration of the construction activities. Construction noise for the resort and proposed pipeline has been analyzed separately below.

Resort and Winery

The construction activities for the proposed resort and winery is anticipated to include ground clearing/excavation and grading of approximately 43 acres of land, and construction of a maximum of 499,999 square feet of building space on a 93-acre project site. The rest of the project site will retain its existing use as either vineyards or open space.

Short-term noise impacts could occur during construction activities of the proposed resort and winery from either the noise impacts created by the transport of workers and movement of construction materials to and from the project site, or from the noise generated onsite during ground clearing/excavation, grading, road construction, and building construction activities.

The closest noise-sensitive land uses are rural, single-family residences as close as 700 feet north, 1,600 feet southeast, 1,900 feet southwest, and 2,300 feet west of the areas on the project site that will be disturbed.

Construction noise impacts onto the nearby sensitive receptors have been calculated according to the equipment noise levels listed in Table 3.10-1 and through the use of the RCNM. The greatest noise impacts to the nearby residential homes would be anticipated to occur during the grading of the project site, since grading equipment produces the highest noise levels and would operate closer than the other phases of construction to the nearby homes. Construction noise has been modeled on the equipment assumption used in Section 3.3, Air Quality, which assumed that the simultaneous operation of one dozer, one grader, one loader, one tractor, and one water truck would occur during the grading phase for the resort. The equipment was placed 200 feet apart starting at the edge of the area to be graded, in order to create the worst-case noise levels at the nearby sensitive receptors. A summary of the results of the noise impacts associated with the construction of the proposed project is shown in Table 3.10-13, and the RCNM printouts are provided in Appendix H.

Table 3.10-13: Resort/Winery Construction Noise Impacts at Nearby Receptors

Receptor Description	Distance from Project Site (feet)	Grading Equipment Noise Levels	
		dBA L_{eq}	dBA L_{max}
Residence to the north	700	59.6	59.9
Residence to the southeast	1,600	53.7	53.9
Residence to the southwest	1,900	52.3	52.5
Residence to the west	2,300	50.9	51.0
Source: FHWA Roadway Construction Noise Model, Version 1.0; Michael Brandman Associates, 2009.			

Table 3.10-13 shows that the residence to the north of the project site would experience the greatest construction noise impact from the proposed project, with an average construction-related noise level of 59.6 dBA L_{eq} and a maximum noise level of 59.9 dBA L_{max}. With compliance of the limitation in construction hours detailed in Section 8.08.025 of the Municipal Code, the construction-related noise impacts at the nearby sensitive receptors would not exceed the City residential noise standard of 60 dBA CNEL. Therefore, resort construction noise impacts would be less than significant.

Offsite Improvements

The proposed project would involve offsite wastewater and recycled water improvements. As part of the construction of a sewer line, a recycled water line would be co-located in the sewer line alignment. The proposed sewer line and recycled water line would run between the project site and the Napa Sanitation District Soscol Water Recycling Facility on the east bank of the Napa River. The line would begin at a pump station on the project site and extend down Stanly Lane, before veering south towards the Napa River. Near the river, the line would enter a submersible pump station and force main under the Napa River. The line is expected to be located between 10 and 50 feet below the river bottom. The line would be laid underneath the river via horizontal directional drilling. The line would terminate at a manhole near the Soscol Water Recycling Facility.

Short-term noise impacts could occur during construction activities of the proposed sewer and recycled water lines either from the noise impacts created by the transport of workers and movement of construction materials to and from the project site, or from the noise generated during ground clearing/excavation, trenching, installation of drainage and utilities systems, and horizontal drilling activities.

The closest noise-sensitive land uses is a rural, single-family residence located on the southwest side of Stanly Lane, adjacent to Starmont Winery and as close as 175 feet from the area that will be disturbed. No other sensitive receptors are located in the vicinity of the proposed sewer and recycled water lines.

Construction noise impacts onto the nearby single-family residence have been calculated according to the equipment noise levels listed in Table 3.10-1 and through the use of the RCNM. The greatest noise impacts to the nearby residential home would be anticipated to occur during the trenching and excavation for the proposed pipes, since the trenching and excavation equipment produces the highest noise levels and the equipment would operate closer than the other phases of construction to the nearby home. Construction noise has been modeled on the equipment assumption used in Section 3.3, Air Quality, which assumed that the simultaneous operation of one excavator, one grader, one loader, and one scraper would occur during the trenching and excavation phase for the pipelines. The equipment was placed 100 feet apart starting at the nearest edge of the area to be disturbed in order to create the worst-case noise levels at the nearby residence.

The RCNM found that construction of the pipeline would create noise levels of 71.0 dBA L_{eq} and 72.7 dBA L_{max} at the nearest residence located on the southwest side of Stanly Lane. The RCNM printout is provided in Appendix H. The construction-related noise impacts of the pipeline at the nearby residence would exceed the City residential noise standard of 60 dBA CNEL. Therefore, construction of the sewer and recycled lines would create a significant noise impact.

Accordingly, mitigation is proposed requiring the implementation of construction noise attenuation measures. With the implementation of these measures, construction noise levels at the nearby receptor would be minimized to the maximum extent practicable. Construction noise is temporary and would be limited to daytime hours. No construction would occur during nighttime hours when noise impacts are considered most intrusive and disruptive. Furthermore, only a single residence would be affected by construction noise, and that dwelling unit is occupied by a Starmont Winery employee, who would likely be at work during times when construction activities occur. For these reasons, it is reasonable to conclude that construction noise impacts would be reduced to a level of less than significant.

Combined Effects

The above analysis found that the greatest construction noise impacts are anticipated to occur at the nearby existing home located southeast of the project site and approximately 175 feet southwest of Stanly Lane and adjacent to Starmont Winery. The resort and winery construction noise level at this residence was calculated at 53.7 dBA L_{eq} and 53.9 dBA L_{max}, and the sewer and recycled lines construction noise level at this residence was calculated at 71.0 dBA L_{eq} and 72.7 dBA L_{max}. If resort, winery, and pipeline construction were to occur simultaneously, the noise level at this residence would be 71.1 dBA L_{eq} and 72.8 dBA L_{max}. The noise increase of 0.1 dBA created by both the simultaneous construction of the pipeline and resort would be a negligible increase over just the pipeline construction noise impacts. As such, it would not alter the conclusion that construction noise impacts would be less than significant after the implementation of mitigation.

Level of Significance Before Mitigation

Potentially significant impact.

Mitigation Measures

MM NOI-1 The project applicant shall require construction contractors to adhere to the following noise attenuation requirements:

- Construction activities shall be limited to the hours of 7 a.m. to 10 p.m., Monday through Saturday. Construction activities shall be prohibited on Sunday.
- All construction equipment shall use noise-reduction features (e.g., mufflers and engine shrouds) that are no less effective than those originally installed by the manufacturer.
- Construction staging and heavy equipment maintenance activities shall be performed a minimum distance of 300 feet from the Starmont Winery residence, unless safety or technical factors take precedence.
- Stationary combustion equipment such as pumps or generators operating within 300 feet of the Starmont Winery residence shall be shielded with a noise protection barrier.

Level of Significance After Mitigation

Less than significant impact.

Construction and Operational Vibration

Impact NOI-2:	Construction and operational activities associated with the proposed project would not generate substantial groundborne vibration.

Impact Analysis

This impact addresses construction and operational vibration associated the proposed project. The construction and operational vibration impacts from the resort and proposed pipeline have been analyzed separately below.

Resort and Winery

Construction Vibration

Construction activities can produce vibration that may be felt by adjacent uses. The primary sources of vibration during construction of the resort would be from bulldozers and excavators. From Table

3.10-2, a large bulldozer would be the piece of equipment that would produce the largest amount of vibration on the project site: 0.089 PPV at 25 feet.

The closest vibration-sensitive land uses is the residence to the north, which is located approximately 700 feet from the nearest area on the project site that will be disturbed. It is anticipated that the vibration levels caused by a large bulldozer operating on the nearest edge of the area to be disturbed during construction of the proposed project at the nearest structure will be around 0.0008 inch per second. This vibration level would not exceed the 0.2-inch-per-second threshold. Therefore, resort construction-related vibration impacts would be less than significant.

Operational Vibration

The proposed project would result in the ongoing operations of 245 resort units, recreation and event space, restaurants, a spa, outdoor venues, public space, offices, maintenance, staff support facilities, and a winery. The only anticipated source of operational vibration would be from the anticipated daily truck trips to the resort and winery.

The closest vibration-sensitive receiver would be an onsite resort unit, which may be located as near as 6 feet from the proposed onsite roads. From Table 3.10-2, a loaded truck would typically produce a vibration level of 0.076 inch per second PPV at 25 feet. This would result in a vibration level of 0.083 inch per second PPV at the nearest sensitive receptor to the truck route. This vibration level would not exceed the 0.2-inch-per-second threshold. Therefore, vibration impacts from the ongoing operations of the proposed resort would be less than significant.

Offsite Improvements

Construction Vibration

Construction activities can produce vibration that may be felt by adjacent uses. The primary sources of vibration during construction of the sewer and recycled lines would be from bulldozers and excavators. From Table 3.10-2, a large bulldozer would be the piece of equipment that would produce the largest amount of vibration on the project site: 0.089 PPV at 25 feet.

The closest vibration-sensitive land uses is a rural single-family residence located on the southwest side of Stanly Lane, adjacent to Starmont Winery and as close as 175 feet from the area that will be disturbed. It is anticipated that the vibration levels caused by a large bulldozer operating on the nearest edge of the area to be disturbed during construction of the proposed sewer and recycled lines at the nearest structure will be around 0.003 inch per second. This vibration level would not exceed the 0.2-inch-per-second threshold. Therefore, sewer and recycled lines construction-related vibration impacts would be less than significant.

Operational Vibration

No sources of vibration are anticipated with the ongoing operations of the proposed sewer and recycled lines. Therefore, no sewer and recycled lines operational vibration impacts are anticipated.

Combined Effects

Construction Vibration

The vibration analysis above for the resort and offsite improvement shows that during construction, the anticipated vibration levels are well below the threshold of significance. Therefore, a less than significant vibrant impact is anticipated from the simultaneous construction of the pipeline and resort.

Operational Vibration

The vibration analysis above for the resort found that the vibration impacts created by the ongoing operations would be less than significant and found no anticipated sources of vibration from the ongoing operation of the sewer and recycled lines. Therefore, a less than significant vibrant impact is anticipated from the simultaneous operation of the pipeline and resort.

Level of Significance Before Mitigation

Less than significant impact.

Mitigation Measures

No mitigation is necessary.

Level of Significance After Mitigation

Less than significant impact.

Roadway Noise

Impact NOI-3:	The proposed project's vehicular trips would not cause a substantial permanent increase in ambient noise levels.

Impact Analysis

The proposed resort would generate additional vehicular trips on roadways in the project vicinity. Noise from motor vehicles is generated by engine vibrations, the interaction between tires and the road, and the exhaust system.

The potential offsite noise impacts caused by the increase in vehicular traffic from the ongoing operations from the proposed resort onto the project study area roadways have been analyzed for the following four traffic scenarios:

- **Existing Condition:** This scenario refers to the existing traffic noise conditions, without construction of the proposed project.
- **Existing Plus Project Condition:** This scenario refers to the existing traffic noise conditions, with construction of the proposed project.
- **Year 2030 Without Project Condition:** This scenario refers to the future year 2030 traffic noise conditions consisting of existing plus traffic growth associated with future projects at Stanly Ranch, without construction of the proposed project.

- **Year 2030 Plus Project Condition:** This scenario refers to the future year 2030 traffic noise conditions consisting of existing plus traffic growth associated with future projects at Stanly Ranch, with construction of the proposed project.

In order to quantify the traffic noise impacts along the analyzed roadways, the roadway noise contours were calculated. Noise contours represent the distance to noise levels of a constant value and are measured from the center of the roadway. For analysis comparison purposes, the L_{dn} and CNEL noise levels are calculated at 100 feet from the centerline. In addition, the distance from the centerline to the 55-, 60-, 65-, and 70-dBA noise levels are calculated for both L_{dn} and CNEL standards.

Existing Conditions

The existing condition noise contours have been calculated for both weekday and Saturday traffic conditions and are shown below in Table 3.10-14 and Table 3.10-15, respectively.

Table 3.10-14: Existing Weekday Offsite Traffic Noise Contours

Roadway	Segment	CNEL at 100 feet (dBA)	Distance to Contour (feet)			
			70 dBA CNEL	65 dBA CNEL	60 dBA CNEL	55 dBA CNEL
Stanly Lane	North of SR-12-121	50.0	RW	RW	RW	46
Stanly Lane	South of SR-12-121	43.2	RW	RW	RW	RW
SR-29	North of SR-12-121	72.4	144	311	669	1,442
SR-29	South of -SR-12-121	71.9	134	289	622	1,341
SR-29	North of SR-221	71.7	129	278	599	1,291
SR-29	South of SR-221	73.7	176	378	815	1,755
SR-12-121	West of Stanly Lane	70.2	102	221	475	1,024
SR-12-121	West of SR-29	70.4	106	229	493	1,063
Notes: RW = Noise contour is located within right-of-way of roadway. Source: Michael Brandman Associates, 2009.						

The calculated noise measurements in Table 3.10-14 show that currently during the weekday, all analyzed roadway segments of SR-29 and SR-12-121 would exceed the City's 60-dBA CNEL residential standard. The noise levels from all analyzed roadway segments range from 43.2 to 73.7 dBA CNEL.

Table 3.10-15: Existing Saturday Offsite Traffic Noise Contours

Roadway	Segment	CNEL at 100 feet (dBA)	Distance to Contour (feet)			
			70 dBA CNEL	65 dBA CNEL	60 dBA CNEL	55 dBA CNEL
Stanly Lane	North of SR-12-121	47.3	RW	RW	RW	RW
Stanly Lane	South of SR-12-121	40.9	RW	RW	RW	RW
SR-29	North of SR-12-121	71.4	124	268	578	1,245
SR-29	South of SR-12-121	70.9	115	247	532	1,145
SR-29	North of SR-221	70.9	115	249	536	1,155
SR-29	South of SR-221	72.9	157	338	728	1,568
SR-12-121	West of Stanly Lane	69.2	89	192	413	889
SR-12-121	West of SR-29	69.2	89	191	412	887

Notes:
RW = Noise contour is located within right-of-way of roadway.
Source: Michael Brandman Associates, 2009.

The calculated noise measurements in Table 3.10-15 shows that currently during Saturday, all analyzed roadway segments of SR-29 and SR-12-121 would exceed the City's 60-dBA CNEL residential standard. The noise levels from all analyzed roadway segments range from 40.9 to 72.9 dBA CNEL.

Existing Plus Project Conditions

The existing plus project noise contours have been calculated for both weekday and Saturday traffic conditions and are shown below in Table 3.10-16 and Table 3.10-17, respectively.

Table 3.10-16: Existing Plus Project Weekday Offsite Traffic Noise Contours

Roadway	Segment	CNEL at 100 feet (dBA)	Distance to Contour (feet)			
			70 dBA CNEL	65 dBA CNEL	60 dBA CNEL	55 dBA CNEL
Stanly Lane	North of SR-12-121	50.0	RW	RW	RW	46
Stanly Lane	South of SR-12-121	51.2	RW	RW	RW	56
SR-29	North of SR-12-121	72.5	146	315	678	1,461
SR-29	South of SR-12-121	72.0	135	292	628	1,353
SR-29	North of SR-221	71.7	130	281	605	1,304
SR-29	South of SR-221	73.7	177	381	820	1,766
SR-12-121	West of Stanly Lane	70.3	104	225	485	1,045
SR-12-121	West of SR-29	70.6	110	237	510	1,099

Notes:
RW = Noise contour is located within right-of-way of roadway.
Source: Michael Brandman Associates, 2009.

The calculated noise measurements in Table 3.10-17 show that when the existing plus project weekday traffic conditions are compared with the existing weekday conditions, no additional roadway segments would exceed the City's 60-dBA CNEL residential standard. The noise levels from all analyzed roadway segments range from 50.0 to 73.7 dBA CNEL.

Table 3.10-17: Existing Plus Project Saturday Offsite Traffic Noise Contours

Roadway	Segment	CNEL at 100 feet (dBA)	Distance to Contour (feet)			
			70 dBA CNEL	65 dBA CNEL	60 dBA CNEL	55 dBA CNEL
Stanly Lane	North of SR-12-121	47.3	RW	RW	RW	RW
Stanly Lane	South of SR-12-121	40.9	RW	RW	RW	RW
SR-29	North of SR-12-121	71.4	124	268	578	1,245
SR-29	South of SR-12-121	70.9	115	247	532	1,145
SR-29	North of SR-221	70.9	115	249	536	1,155
SR-29	South of SR-221	72.9	157	338	728	1,568
SR-12-121	West of Stanly Lane	69.2	89	192	413	889
SR-12-121	West of SR-29	69.2	89	191	412	887
Notes: RW = Noise contour is located within right-of-way of roadway. Source: Michael Brandman Associates, 2009.						

The calculated noise measurements in Table 3.10-17 shows that when the existing plus project Saturday traffic conditions are compared with the existing Saturday conditions, no additional roadway segments would exceed the City's 60-dBA CNEL residential standard. The noise levels from all analyzed roadway segments range from 47.3 to 73.0 dBA CNEL.

Year 2030 Without Project Conditions

The Year 2030 without project noise contours have been calculated for both weekday and Saturday traffic conditions and are shown below in Table 3.10-18 and Table 3.10-19, respectively.

Table 3.10-18: Year 2030 Without Project Weekday Offsite Traffic Noise Contours

Roadway	Segment	CNEL at 100 feet (dBA)	Distance to Contour (feet)			
			70 dBA CNEL	65 dBA CNEL	60 dBA CNEL	55 dBA CNEL
Stanly Lane	North of SR-12-121	50.0	RW	RW	RW	46
Stanly Lane	South of SR-12-121	51.7	RW	RW	RW	61
SR-29	North of SR-12-121	73.6	173	372	801	1,727
SR-29	South of SR-12-121	73.1	160	345	743	1,600

Table 3.10-18 (Cont.): Year 2030 Without Project Weekday Offsite Traffic Noise Contours

Roadway	Segment	CNEL at 100 feet (dBA)	Distance to Contour (feet)			
			70 dBA CNEL	65 dBA CNEL	60 dBA CNEL	55 dBA CNEL
SR-29	North of SR-221	73.0	159	343	739	1,592
SR-29	South of SR-221	75.0	216	465	1,001	2,157
SR-12-121	West of Stanly Lane	71.5	126	273	587	1,265
SR-12-121	West of SR-29	71.3	122	262	564	1,216

Notes:
RW = Noise contour is located within right-of-way of roadway.
Source: Michael Brandman Associates, 2009.

The calculated noise measurements in Table 3.10-18 show that for the year 2030 without project and during the weekday, all analyzed roadway segments of SR-29 and SR-12-121 would exceed the City's 60-dBA CNEL residential standard. The noise levels from all analyzed roadway segments range from 50.0 to 75.0 dBA CNEL.

Table 3.10-19: Year 2030 Without Project Saturday Offsite Traffic Noise Contours

Roadway	Segment	CNEL at 100 feet (dBA)	Distance to Contour (feet)			
			70 dBA CNEL	65 dBA CNEL	60 dBA CNEL	55 dBA CNEL
Stanly Lane	North of SR-12-121	47.3	RW	RW	RW	RW
Stanly Lane	South of SR-12-121	52.3	RW	RW	RW	66
SR-29	North of SR-12-121	72.7	151	324	699	1,506
SR-29	South of SR-12-121	72.1	138	297	641	1,380
SR-29	North of SR-221	72.3	143	308	663	1,428
SR-29	South of SR-221	74.3	193	416	896	1,931
SR-12-121	West of Stanly Lane	70.7	111	239	515	1,109
SR-12-121	West of SR-29	70.3	104	225	485	1,045

Notes:
RW = Noise contour is located within right-of-way of roadway.
Source: Michael Brandman Associates, 2009.

The calculated noise measurements in Table 3.10-19 show that for the year 2030 without project and during Saturday, all analyzed roadway segments of SR-29 and SR-12-121 would exceed the City's 60-dBA CNEL residential standard. The noise levels from all analyzed roadway segments range from 47.3 to 74.3 dBA CNEL.

Year 2030 Plus Project Conditions

The year 2030 plus project noise contours have been calculated for both weekday and Saturday traffic conditions and are shown below in Table 3.10-20 and Table 3.10-21, respectively.

Table 3.10-20: Year 2030 Plus Project Weekday Offsite Traffic Noise Contours

Roadway	Segment	CNEL at 100 feet (dBA)	Distance to Contour (feet)			
			70 dBA CNEL	65 dBA CNEL	60 dBA CNEL	55 dBA CNEL
Stanly Lane	North of SR-12-121	50.0	RW	RW	RW	46
Stanly Lane	South of SR-12-121	54.2	RW	RW	41	89
SR-29	North of SR-12-121	73.6	174	376	810	1,744
SR-29	South of SR-12-121	73.1	161	347	748	1,611
SR-29	North of SR-221	73.1	160	345	744	1,603
SR-29	South of SR-221	75.0	217	467	1,005	2,165
SR-12-121	West of Stanly Lane	71.6	128	277	596	1,284
SR-12-121	West of SR-29	71.5	125	269	580	1,250
Notes: RW = Noise contour is located within right-of-way of roadway. Source: Michael Brandman Associates, 2009.						

The calculated noise measurements in Table 3.10-20 show that when the year 2030 plus project weekday traffic conditions are compared with the year 2030 without project weekday conditions, no additional roadway segments would exceed the City's 60-dBA CNEL residential standard. The noise levels from all analyzed roadway segments range from 50.0 to 73.7 dBA CNEL.

Table 3.10-21: Year 2030 Plus Project Saturday Offsite Traffic Noise Contours

Roadway	Segment	CNEL at 100 feet (dBA)	Distance to Contour (feet)			
			70 dBA CNEL	65 dBA CNEL	60 dBA CNEL	55 dBA CNEL
Stanly Lane	North of SR-12-121	47.3	RW	RW	RW	RW
Stanly Lane	South of SR-12-121	54.8	RW	RW	45	97
SR-29	North of SR-12-121	72.8	153	329	708	1,526
SR-29	South of SR-12-121	72.2	139	300	646	1,393
SR-29	North of SR-221	72.4	144	311	669	1,442
SR-29	South of SR-221	74.3	194	418	901	1,942
SR-12-121	West of Stanly Lane	70.8	113	243	524	1,129
SR-12-121	West of SR-29	70.5	109	234	504	1,085
Notes: RW = Noise contour is located within right-of-way of roadway. Source: Michael Brandman Associates, 2009.						

The calculated noise measurements in Table 3.10-21 show that when the year 2030 plus project Saturday traffic conditions are compared with the year 2030 without project Saturday conditions, no additional roadway segments would exceed the City's 60-dBA CNEL residential standard. The noise levels from all analyzed roadway segments range from 47.3 to 74.3 dBA CNEL.

Summary of Project Impacts

Existing Conditions

The proposed project's potential offsite noise impacts have been calculated through a comparison of the existing scenario with the existing with project scenario. The results of this comparison for both weekday and Saturday are shown below in Table 3.10-22 and Table 3.10-23, respectively.

Table 3.10-22: Existing Weekday Offsite Traffic Noise Contributions

Roadway	Segment	CNEL at 100 feet			
		No Project	With Project	Project Contribution	Potential Significant Impact?
Stanly Lane	North of SR-12-121	50.0	50.0	0.0	No
Stanly Lane	South of SR-12-121	43.2	51.2	8.0	Yes
SR-29	North of SR-12-121	72.4	72.5	0.1	No
SR-29	South of SR-12-121	71.9	72.0	0.1	No
SR-29	North of SR-221	71.7	71.7	0.0	No
SR-29	South of SR-221	73.7	73.7	0.0	No
SR-12-121	West of Stanly Lane	70.2	70.3	0.1	No
SR-12-121	West of SR-29	70.4	70.6	0.2	No
Stanly Lane	North of SR-12-121	50.0	50.0	0.0	No
Source: Michael Brandman Associates, 2009.					

Table 3.10-22 above indicates that for the existing weekday conditions, noise level contributions from the proposed project to the study area roadways would range from 0.0 to 8.0 dBA CNEL. The greatest contribution of 8.0 dBA would occur on Stanly Lane south of SR-12-121. The only sensitive receptor along this section of roadway is a rural, single-family home located approximately 240 feet west of Stanly Lane. Based on a 4.5-dBA-per-doubling-of-distance drop-off rate, this would result in a noise level of 45.5 dBA CNEL at this residence for the existing weekday with project condition. Since this is below the existing weekday noise level calculated for this residence in Table 3.10-4 and well below the City's 60 dBA CNEL residential noise threshold, no significant noise impact is anticipated from this roadway segment. All other roadway segments would be below the thresholds of significance discussed above. Therefore, for the existing weekday conditions, no significant long-term noise impacts from project-related vehicle noise would occur along the study area roadways segments.

Table 3.10-23: Existing Saturday Offsite Traffic Noise Contributions

Roadway	Segment	CNEL at 100 feet			
		No Project	With Project	Project Contribution	Potential Significant Impact?
Stanly Lane	North of SR-12-121	47.3	47.3	0.0	No
Stanly Lane	South of SR-12-121	40.9	51.4	10.5	Yes
SR-29	North of SR-12-121	71.4	71.5	0.1	No
SR-29	South of SR-12-121	70.9	71.0	0.1	No
SR-29	North of SR-221	70.9	71.0	0.1	No
SR-29	South of SR-221	72.9	73.0	0.1	No
SR-12-121	West of Stanly Lane	69.2	69.4	0.2	No
SR-12-121	West of SR-29	69.2	69.5	0.3	No
Stanly Lane	North of SR-12-121	47.3	47.3	0.0	No
Source: Michael Brandman Associates, 2009.					

Table 3.10-23 above indicates that for the existing Saturday conditions, noise level contributions from the proposed project to the study area roadways would range from 0.0 to 10.5 dBA CNEL. The greatest contribution of 10.5 dBA would occur on Stanly Lane south of SR-12-121. The only sensitive receptor along this section of roadway is a rural, single-family home located approximately 240 feet west of Stanly Lane. Based on a 4.5-dBA-per-doubling-of-distance drop-off rate, this would result in a noise level of 45.6 dBA CNEL at this residence for the existing weekday with project condition. Since this is below the existing Saturday noise level calculated for this residence in Table 3.10-25 and well below the City's 60 dBA CNEL residential noise threshold, no significant noise impact is anticipated from this roadway segment. All other roadway segments would be below the thresholds of significance discussed above. Therefore, for the existing Saturday conditions, no significant long-term noise impacts from project-related vehicle noise would occur along the study area roadways segments.

Year 2030 Conditions

The proposed project's potential offsite noise impacts have been calculated through a comparison of the year 2030 scenario with the year 2030 with project scenario. The results of this comparison for both weekday and Saturday are shown in Table 3.10-24 and Table 3.10-25, respectively.

Table 3.10-24: Year 2030 Weekday Offsite Traffic Noise Contributions

Roadway	Segment	CNEL at 100 feet			
		No Project	With Project	Project Contribution	Potential Significant Impact?
Stanly Lane	North of SR-12-121	50.0	50.0	0.0	No
Stanly Lane	South of SR-12-121	51.7	54.2	2.5	No
SR-29	North of SR-12-121	73.6	73.6	0.0	No
SR-29	South of SR-12-121	73.1	73.1	0.0	No
SR-29	North of SR-221	73.0	73.1	0.1	No
SR-29	South of SR-221	75.0	75.0	0.0	No
SR-12-121	West of Stanly Lane	71.5	71.6	0.1	No
SR-12-121	West of SR-29	71.3	71.5	0.2	No
Stanly Lane	North of SR-12-121	50.0	50.0	0.0	No
Source: Michael Brandman Associates, 2009.					

Table 3.10-24 above indicates that for the year 2030 weekday conditions, noise level contributions from the proposed project to the study area roadways would range from 0.0 to 2.5 dBA CNEL. The greatest contribution of 2.5 dBA would occur on Stanly Lane south of SR-12-121. A 2.5-dBA CNEL increase would be below the thresholds of significance discussed above. Therefore, for the year 2030 weekday conditions, no significant long-term noise impacts from project-related vehicle noise would occur along the study area roadways segments.

Table 3.10-25: Year 2030 Saturday Offsite Traffic Noise Contributions

Roadway	Segment	CNEL at 100 feet			
		No Project	With Project	Project Contribution	Potential Significant Impact?
Stanly Lane	North of SR-12-121	47.3	47.3	0.0	No
Stanly Lane	South of SR-12-121	52.3	54.8	2.5	No
SR-29	North of SR-12-121	72.7	72.8	0.1	No
SR-29	South of SR-12-121	72.1	72.2	0.1	No
SR-29	North of SR-221	72.3	72.4	0.1	No
SR-29	South of SR-221	74.3	74.3	0.0	No
SR-12-121	West of Stanly Lane	70.7	70.8	0.1	No
SR-12-121	West of SR-29	70.3	70.5	0.2	No
Stanly Lane	North of SR-12-121	47.3	47.3	0.0	No
Source: Michael Brandman Associates, 2009.					

Table 3.10-25 indicates that for the year 2030 Saturday conditions, noise level contributions from the proposed project to the study area roadways would range from 0.0 to 2.5 dBA CNEL. The greatest contribution of 2.5 dBA would occur on Stanly Lane south of SR-12-121. A 2.5-dBA CNEL increase would be below the thresholds of significance discussed above. Therefore, for the year 2030 Saturday conditions, no significant long-term noise impacts from project-related vehicle noise would occur along the study area roadways segments.

Level of Significance Before Mitigation

Less than significant impact.

Mitigation Measures

No mitigation is necessary.

Level of Significance After Mitigation

Less than significant impact.

Long-Term Stationary Noise

Impact NOI-4: The proposed project would not generate long-term stationary noise levels that cause significant impacts at nearby receptors.

Impact Analysis

The City of Napa General Plan Policy HS-9.10 requires that new noise sources do not cause ambient sound levels to exceed the compatibility standards shown in Exhibit 3.10-4 for nearby land uses. According to Exhibit 3.10-4, this would result in a noise level threshold of 60 dBA CNEL at the nearby residential uses.

Resort and Winery

The proposed resort and winery would have potential stationary noise impacts on the nearby residences from the proposed parking lot areas, the truck and bus loading areas, winery, event pavilion and lawn, pool area, and onsite vehicular traffic. In order to assess the proposed project's stationary noise impacts onto the nearby residences, the SoundPlan modeling software was utilized.

The stationary only noise levels created by the proposed resort were calculated for the façades of the same nearby existing homes that were analyzed under existing conditions. The results are summarized below in Table 3.10-26. The SoundPlan Model printouts for the stationary only noise levels are provided in Appendix H.

Table 3.10-26: Stationary Only Noise Impacts at Nearby Land Uses

Receiver[1]	Description	dBA CNEL[2]	dBA L_{eq} Day	dBA L_{eq} Evening	dBA L_{eq} Night
1	Residential to the North	36.3	35.9	35.7	21.8
2	Residential to the Southeast	21.3	19.5	19.2	11.7
3	Residential to the Southwest	26.3	24.4	23.6	17.2
4	Residential to the Southwest	25.5	24.1	23.5	15.2
5	Residential to the Southwest	27.6	26.0	25.3	18.1
6	Residential to the West	26.8	25.5	25.0	16.3

Notes:
[1] Receiver noise level based on worst-case noise for either first or second floor.
[2] Noise level includes a 4.77-dBA penalty to account for the noise-sensitive evening hours and a 10-dBA penalty to account for the noise-sensitive nighttime hours.
Source: Michael Brandman Associates, 2009.

Table 3.10-26 shows that for the stationary only scenario, all receivers would be within the City's exterior stationary noise standards of 60 dBA CNEL. Therefore, the proposed project would not be anticipated to create a significant stationary noise impact at any of the nearby sensitive receptors.

Vineyard maintenance and harvesting equipment may also create noise on the project site. However, the onsite vineyards are an existing use, and the proposed resort will reduce the size of the vineyards, which should reduce the amount of noise currently created from the vineyards.

Offsite Improvements

The proposed project would involve offsite wastewater and recycled water line improvements. The only anticipated stationary noise source associated with the ongoing operations of these improvements would be from the sewer lift stations. The onsite sewer lift stations have been analyzed above with resort stationary noise impacts. However, the sewer pump station located on the west side of the Napa River would be a source of offsite noise. The sewer pump station at this location is a submersible pump and is anticipated to produce lower noise emissions than the onsite sewer pump station; however, in order to calculate a worst case, the same noise emission level of 48.8 dBA L_{eq} at 100 feet has been used. The nearest residence to the sewer lift station is located approximately 1,900 feet northwest of the pump station and adjacent to Starmont Winery. Based on a drop-off rate of 7.5 dB per doubling of distance, the noise from the pump station at the nearest residence would be 16.8 dBA. The pump station noise level at the nearest residence would be within the City's exterior stationary noise standard of 60 dBA CNEL. Therefore, no significant long-term stationary noise impacts are anticipated from the ongoing operations of the offsite improvements.

Combined Effects

The stationary noise analysis above found that the only sensitive receptor that would potentially be impacted by both the resort and offsite improvements would be the single-family residence adjacent to Starmont Winery. The resort and winery stationary noise impacts at this residence were calculated to be 21.3 dBA CNEL, and the noise impacts from the offsite improvements were calculated to be 16.8 dBA. The combined impacts of the two noise sources would produce a noise level of 22.6 dBA CNEL, which would be within the City's exterior stationary noise standard of 60 dBA CNEL. Therefore, the combined operational stationary noise impacts would also be less than significant.

Level of Significance Before Mitigation

Less than significant impact.

Mitigation Measures

No mitigation is necessary.

Level of Significance After Mitigation

Less than significant impact.

Combined Long-Term Stationary and Transportation Noise

Impact NOI-5: **The proposed project would not generate combined, long-term, stationary and transportation noise levels that cause significant impacts at nearby receptors**

Impact Analysis

This impact evaluates the proposed project's potential to cause a substantial permanent increase in ambient noise levels because of combined stationary and transportation noise.

In order for combined stationary and transportation-related noise impacts created by the proposed project's operations to be considered significant, the proposed project would need to exceed 60 dBA CNEL or a 3-dBA CNEL increase for areas adjacent to roadways with the no project noise levels greater than 60 dBA CNEL.

Resort and Winery

The combined stationary and transportation noise levels created by the existing Saturday and existing Saturday with project scenarios were calculated for the façades of the same nearby receptors that were analyzed for the existing conditions. The results are summarized below in Table 3.10-27, and the SoundPlan Model printouts for the combined stationary and transportation noise levels are provided in Appendix H. Exhibit 3.10-5 shows the existing Saturday with project combined noise contours.

Table 3.10-27: Combined Stationary and Transportation Noise Impacts at Nearby Receptors

Receiver[2]	Description	dBA CNEL[1]		
		Saturday Existing	Saturday Existing With Project	Change
1	Residential to the north	46.6	48.5	1.9
2	Residential to the southeast	56.0	56.4	0.4
3	Residential to the southwest	36.3	37.1	0.8
4	Residential to the southwest	36.1	37.0	0.9
5	Residential to the southwest	41.2	41.0	-0.2
6	Residential to the west	38.5	38.9	0.4

Notes:
1 Noise level includes a 4.77-dBA penalty to account for the noise-sensitive evening hours and a 10-dBA penalty to account for the noise-sensitive nighttime hours.
2 Receiver noise levels are based on worst-case noise for either the first or second floor.
Source: SoundPlan Version 6.5 and Michael Brandman Associates, 2009.

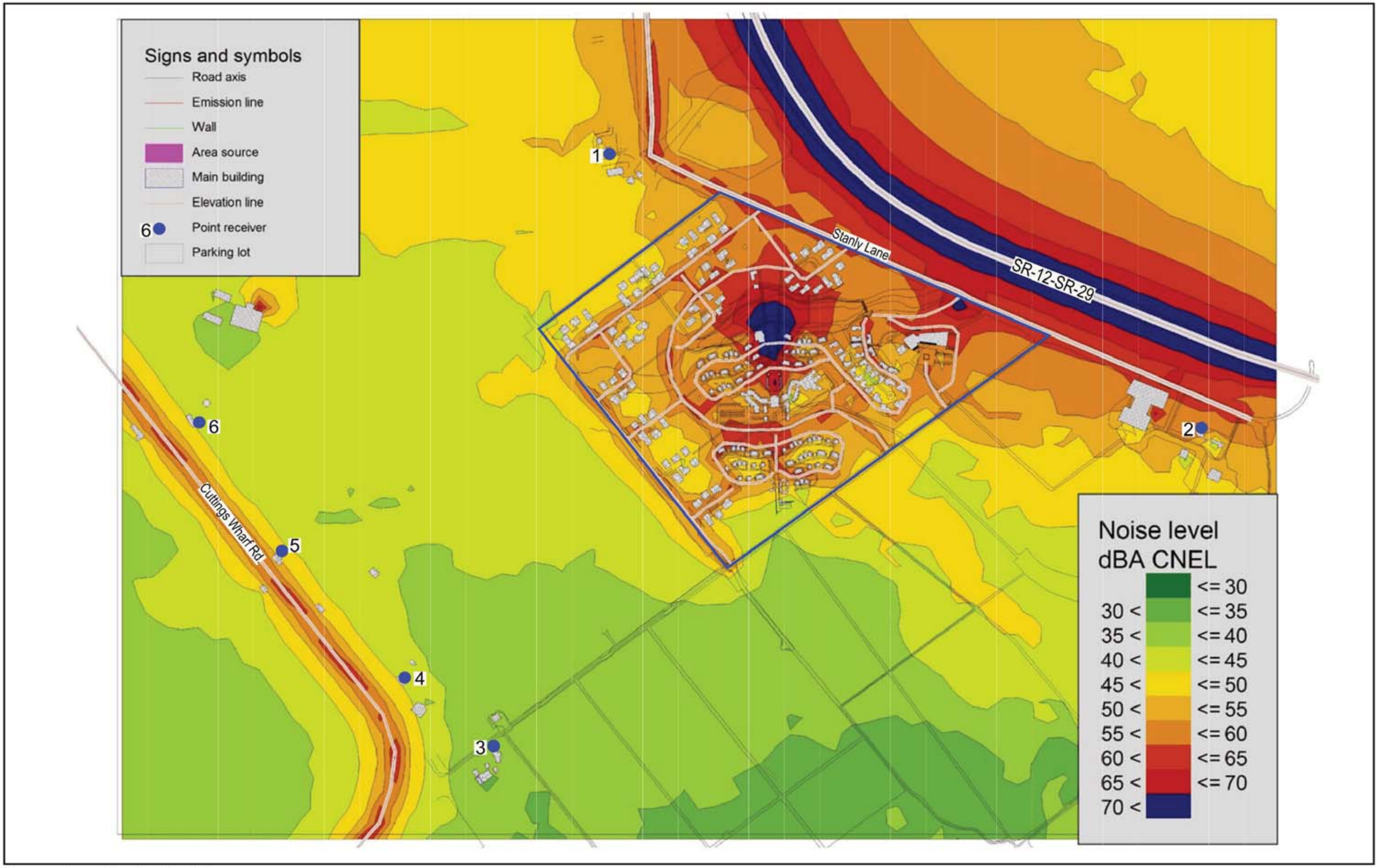
Table 3.10-27 shows that the proposed project's combined transportation and stationary noise impacts would not exceed the City's 60-dBA CNEL residential standard. The combined with project noise level at Receiver 5 was found to decrease by 0.3 dBA over existing noise levels. This is because of the additional noise shielding the proposed resort would provide from SR-29, which is the primary noise source in the project vicinity. Therefore, no significant combined stationary- and transportation-related offsite noise impact would occur.

Offsite Improvements

The proposed project would involve offsite wastewater and recycled water line improvements. The only anticipated combined stationary and transportation noise source associated with the ongoing operations of these improvements would be from the sewer lift stations. The stationary only analysis above found that the offsite sewer lift station would produce a noise level of 16.8 dBA at the single-family home located adjacent to Starmont Winery. The offsite improvements are not anticipated to generate vehicular traffic on a daily basis and are not anticipated to contribute to the traffic noise environment. Therefore, no significant long-term combined stationary and transportation noise impacts are anticipated from the ongoing operations of the offsite improvements.

Combined Effects

The combined stationary and transportation noise analysis above found that the only sensitive receptor that would potentially be impacted by both the resort and offsite improvements would be the single-family residence adjacent to Starmont Winery. The resort and winery combined noise impacts at this residence were calculated to be 56.4 dBA CNEL, and the noise impacts from the offsite improvements were calculated to be 16.8 dBA. The combined impacts of the two noise sources would produce a noise level of 56.4 dBA CNEL, which would be within the City's exterior stationary noise standard of 60 dBA CNEL.



Source: SoundPlan Version 6.5.

Exhibit 3.10-5
Existing With Project Saturday Noise Contour Map (dBA CNEL)

Michael Brandman Associates

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Therefore, the combined resort and offsite improvements stationary and transportation noise impacts would also be less than significant.

Level of Significance Before Mitigation

Less than significant impact.

Mitigation Measures

No mitigation is necessary.

Level of Significance After Mitigation

Less than significant impact.

Aviation Noise

Impact NOI-6:	**The proposed project would not expose persons residing or working in the project vicinity to excessive aviation noise levels.**

Impact Analysis

The project site is located within the Napa County Airport Influence Area, as established by the Napa County Airport Land Use Compatibility Plan. Figure CC-1 of the Napa County General Plan indicates that the project site is outside of the 55-dBA CNEL aviation noise contour of the Napa County Airport. The City of Napa General Plan establishes 60 dBA CNEL as the maximum exterior noise level for residential uses; therefore, aviation noise levels would not exceed acceptable standards at the project site. Impacts would be less than significant.

Level of Significance Before Mitigation

Less than significant impact.

Mitigation Measures

No mitigation is necessary.

Level of Significance After Mitigation

Less than significant impact.