

2.8 Noise

This section describes the Noise Report for the proposed project prepared by RECON (2014e). The analysis is based on the complete technical report, which is included in this EIR as Appendix M.

2.8.1 Existing Conditions

Ambient noise in the vicinity of the project site is generated by traffic on I-15 to the west of the project site and on local roadways.

2.8.1.1 *Regulatory Framework*

Traffic-generated Noise

Noise standards applicable to traffic-generated noise are expressed in terms of the community noise equivalent level (CNEL). The CNEL is a 24-hour A-weighted average sound level [dB(A) L_{eq}] from midnight to midnight obtained after the addition of 5 decibels to sound levels occurring between 7:00 a.m. and 10:00 p.m. and of 10 decibels to the sound levels occurring between 10:00 p.m. and 7:00 a.m. A-weighting is a frequency correction that often correlates well with the subjective response of humans to noise. Adding 5 decibels and 10 decibels to the evening and nighttime hours, respectively, accounts for the added sensitivity of humans to noise during these time periods.

The GPU was adopted by the County on August 3, 2011. Revisions to the General Plan Noise Element have not been updated in the County's Noise Guidelines at this time; however, the new GPU noise compatibility guidelines and standards as contained in the GPU are applicable to the project.

Table 2.8-1 provides the County's current noise compatibility guidelines and Table 2.8-2 provides the County's noise standards, both of which are from the Noise Element.

Because interior noise levels for mixed-use residences are also regulated by Title 24 of the State Building Code, the County evaluates interior levels for mixed-use residential units as part of the building permit process.

Title 24 of the State Building Code requires that:

Residential structures to be located within an annual CNEL contour of 60 require an acoustical analysis showing that the structure has been designed to limit intruding noise to the prescribed allowable levels.

and that:

Interior CNEL with the windows closed, attributable to exterior sources shall not exceed an annual CNEL of 45 dB(A) in any habitable room.

Construction Noise

The County has a well-defined Noise Ordinance that covers construction noise. Section 36.409 states:

Except for emergency work, it shall be unlawful for any person to operate construction equipment or cause construction equipment to be operated, that exceeds an average sound level of 75 dB(A) L_{eq} for an eight-hour period, between 7:00 a.m. and 7:00 p.m., when measured at the boundary line of the property where the noise source is located or on any occupied property where the noise is being received.

Emergency work is defined as follows in the County's Noise Ordinance:

Emergency Work shall mean work made necessary to restore property to a safe condition following a public calamity or work required to protect persons or property from imminent exposure to danger or damage or work by public or private utilities when restoring utility service (Section 36.402).

Guidelines for the Determination of Significance ~~Vibration~~

The County sets vibration limits for purposes of CEQA analysis in the County's Guidelines for Determining Significance – Noise (County of San Diego 2009c). Based on these guidelines, a significant vibration impact would occur if project implementation would result in the exposure of any on- or off-site residential uses to vibration levels from blasting in excess of 1 in/sec peak particle velocity (PPV), from pile driving in excess 0.1 in/sec PPV, and 0.004 in/sec root mean square (RMS) from general construction. Additional details of the County's vibration standards are provided in subchapter 2.8.2.3.

2.8.1.2 Existing Noise Measurements

Ambient noise conditions were measured in and around the project site. Based on noise measurement guidance published by Caltrans, a noise measurement representing an hourly L_{eq} does not need to last the entire hour. As long as noise levels do not change significantly, a shorter time period is sufficient to represent the entire hour of interest (Caltrans 2013a). The recommended length of measurements depends on how much the noise levels fluctuate and generally range from 10 to 30 minutes. Traffic noise also becomes more constant as the distance from the highway increases because the rate of distance change between a moving vehicle and a receiver diminishes (Caltrans 2013a). As I-15 is the dominant noise source in the project area, observed noise levels in the project area fluctuated little and a measurement duration of 15 minutes was chosen to characterize typical ambient noise levels. Therefore, eight short-term noise measurements, 15 minutes in duration, were made by RECON on July 25, 2012, between 11:00 a.m. and 3:15 p.m. The measurement locations are shown on Figure 2.8-1.

The measurement locations were chosen to represent the general noise environment in the project area and are sufficient to identify major noise sources and to characterize typical noise levels in the project vicinity. While the dominant noise source at the project site is traffic noise from I-15, local roadways also contribute to ambient noise levels. The contribution of the local roadways, however, was minor compared to I-15. Noise measurements in close proximity to the local roadways included traffic counts and were used to validate the traffic noise model. Secondary noise sources included distant aircraft, tractors, tree trimming activities, and other noise sources associated with agricultural activities. Table 2.8-3 presents the results of the noise measurements. As

seen from Table 2.8-3, background noise levels at the project site were measured between 34 and 52 dB(A) L_{90} with the higher ambient noise levels occurring in nearer I-15.

2.8.2 Analysis of Project Impacts and Determination of Significance

For the purposes of this EIR, the basis for the determination of significance is the County's Guidelines for Determining Significance – Noise, adopted January 27, 2009. The project would result in a significant impact if:

1. *Traffic*: The project results in the exposure sensitive land use to exterior or interior noise in excess of standards established in the General Plan.
2. *Stationary and Construction Noise*: The project generates excessive airborne noise.
3. *Vibration*: The project exposes persons to or generates excessive ground borne noise vibration.

2.8.2.1 Issue 1: Traffic Generated Noise

Guidelines for the Determination of Significance

Based on the County's Guidelines for Determining Significance – Noise (County of San Diego 2009c), a noise sensitive land use (NSLU) is defined as any residence, school, hotel, resort, library, or similar facility where quiet is an important attribute of the environment. A significant impact would occur if project implementation would result in the exposure of any on- or off-site, existing or reasonably foreseeable future NSLU to exterior or interior noise (including noise generated from the project, together with noise from roads [existing and planned Circulation Element roadways], railroads, airports, heliports and all other noise sources) in excess of any of the following:

a. Exterior Locations:

- i. 60 CNEL; or
- ii. An increase of 10 decibels over pre-existing noise.

b. Interior Locations:

45 CNEL except for the following cases:

- i. Rooms which are usually occupied only a part of the day (schools, libraries, or similar facilities), the interior one-hour average sound level due to noise outside should not exceed 50 dB(A) L_{eq} .
- ii. Corridors, hallways, stairwells, closets, bathrooms, or any room with a volume less than 490 cubic feet.

Additionally, the County's Report Format and Content Requirements for Noise include a statement that a "doubling of sound energy" is considered a significant impact at a

“documented noisy site.” A doubling of sound energy is equivalent to a 3 dB(A) increase. A documented noisy site is a location with NSLU that currently exceeds 60 dB(A) CNEL.

Analysis

On-site

Future on-site traffic volumes were taken from the project TIS (see Appendix E). Compatibility of the project with the future on-site noise environment was assessed using the peak hourly volumes. Noise levels were modeled at proposed residential lot locations or at various locations within the property boundary 50 feet from proposed primary circulation streets, 5 feet above proposed grade elevation. Traffic data sheets and noise model output and input data sheets are provided in the Noise Report (see Appendix M).

Exterior Locations

The County’s noise compatibility standard for NSLU is 60 CNEL. The predicted exterior noise levels are presented in Table 2.8-4. The traffic-generated 60 CNEL noise level contour is shown in Figures 2.8-2a and 2.8-2b. As indicated in Table 2.8-4 and Figures 2.8-2a and 2.8-2b, there are areas proposed for NSLU development (R-1, R-3, R-14, R-16, R-53, and R-57) in the vicinity of West Lilac Road and Lilac Hills Ranch Road that would be exposed to noise levels in excess of 60 CNEL. The project includes structures and the site has topography that results in separation of NSLU from adjacent roads. Modeling was conducted using the proposed Phase 1 grading contours and sample building configuration on four lots (see Table 10, Appendix M) to account for these details. The results of detailed modeling of receivers for Phase 1 lots demonstrate that exterior noise levels at many of the properties within the noise easement would not exceed 60 CNEL. However, several NSLUs would be exposed to noise levels exceeding 60 CNEL. Impacts would be **significant (Impact N-1)**.

Interior Locations

Typical modern residential construction can provide 20 dB(A) attenuation from exterior to interior locations with the windows in a closed position. Thus, an exterior noise level of 60 CNEL at a building façade would typically be attenuated to 40 CNEL at interior locations. Based on the noise contours presented in Figures 2.8-2a and 2.8-2b, exterior noise levels would not exceed 65 CNEL, beyond the roadway pavement, thus interior noise levels would not be anticipated to exceed 45 CNEL at these locations.

To provide a margin of safety, County standards require an interior noise assessment for residential areas exposed to noise levels greater than 60 CNEL. As identified, exterior noise levels at some locations would exceed 60 CNEL. While barriers would be effective for first-floor locations, noise sensitive second-floor locations may require additional attenuation measures, such as acoustically rated windows and doors, structure setbacks, or limiting openings on walls facing local roads. With consideration of these additional measures, closed windows would typically provide sufficient exterior-to-interior noise reduction to reduce traffic noise levels to comply with County interior noise standards. For residential uses located where exterior noise levels exceed 60 CNEL, interior noise levels could exceed the 45 CNEL standard representing a **significant impact (Impact N-2)**.

Off-site

Off-site noise impacts are identified where the project would increase noise levels by 10 dB(A), or greater over existing noise levels when existing and future noise levels are below the County's 60 CNEL standard, or a 3 dB(A) increase when existing or future noise levels equal or exceed the County's 60 CNEL standard. As shown in Table 2.8-5, upon completion of Phase 5, the project would increase noise levels by 3 dB(A) CNEL or greater over existing conditions along 10 roadway segments. Of these segments, the project would increase noise levels by 10 dB(A) or greater over existing conditions along 3 roadway segments. The affected segments along with the projected noise increase are as follows:

- East Dulin Road: Old Highway 395 to SR-76 - 4 dB(A)
- West Lilac Road: Old Highway 395 to W. Main Street - 11 dB(A)
W. Main Street to E. Main Street - 4 dB(A)
Covey Lane to Circle R Drive - 7 dB(A)
- Old Highway 395: East Dulin Road to West Lilac Road - 3 dB(A)
West Lilac Road to I-15 SB Ramps - 4 dB(A)
I-15 SB Ramps to I-15 NB Ramps - 3 dB(A)
- Covey Lane: Eastern Project Boundary to West Lilac Road - 12 dB(A)
- Mountain Ridge Road: Southern Project Boundary to Circle R Drive - 8 dB(A)
- Lilac Hills Ranch Road: Between Phases 3 and 4 - 18 dB(A)

It is commonly accepted that changes in ambient noise levels of less than 3 dB(A) are generally not perceivable, while changes of 3 dB(A) are just barely perceivable to the average human ear (Caltrans 2013a). Also a change of 5 dB(A) in the ambient noise levels is a readily perceivable change and a change of 10 dB(A) is perceived as a doubling of sound to the average human ear (Caltrans 2013a). Thus, changes in modeled traffic noise levels along East Dulin Road, West Lilac Road between W. Main Street and E. Main Street, and along Old Highway 395 would be barely perceivable. Noise levels changes along West Lilac Road between Covey Lane and Circle R Drive and along Mountain Ridge Road would be readily noticeable, but not a doubling of the noise level. Changes in modeled noise levels along West Lilac Road, between Old Highway 395 and West Main Street, along Covey Lane, and along the future Lilac Hills Ranch Road would more than double the traffic noise levels. The noise impacts to each of these NSLUs are described below.

East Dulin Road: Single-family residences located along East Dulin Road are uniform and set back approximately 20 feet from the roadway edge. At these distances, noise levels would exceed the County's acceptable level for single-family residential uses at the residence front yard. The structures and walls between the houses currently provide some shielding for the exterior use areas (NSLU) in the rear of the property, which are located further from the roadways. While there presently are no continuous acoustical barriers along the road shielding the front yards of these residences, based on modeling of development with similar building spacing (10 to 15 feet) and walls (5-6 feet high) between the structures, a 3 to 5 dB reduction would be provided due to spacing between these structures, ~~and~~ while the walls between buildings would only provide a 2 to 3 dB reduction. Based on predicted noise levels, a 5 to 8 dB(A) reduction would result in future noise levels ranging from 56–59 CNEL at exterior NSLU areas, (i.e., backyards).

Therefore, future noise levels would not exceed the County's "acceptable" level for Category A land uses (60 CNEL). Because future noise levels would not exceed 60 CNEL, the predicted 4 dB increase in traffic noise would be considered a less than substantial increase in ambient noise levels. Therefore, traffic noise impacts along East Dulin Road would be **less than significant**.

West Lilac Road: Based on the traffic noise modeling of individual roadways as presented in Table 2.8-5, with the exception of the segment of West Lilac Road between Highway 395 and West Main Street, predicted future noise levels would not exceed 60 CNEL or result in an increase of 10 dB(A) over existing noise levels. Therefore, no significant direct traffic noise impacts would occur along these segments.

Along West Lilac Road between Old Highway 395 and West Main Street, there are two off-site NSLUs. One is a residence, 8269 West Lilac Road, (R-146), located approximately 650 feet west of I-15 and approximately 250 feet south of West Lilac Road. The second is Kamp Kuper, (R-69). The NSLU area for Kamp Kuper is located approximately 890 feet east of I-15, adjacent to the east of the project site and approximately 340 feet south of West Lilac Road. At these particular locations, noise levels are dominated by traffic noise on I-15 and actual noise levels would range from 67 to 69 CNEL at R-69 and R-146, respectively, while noise levels from West Lilac Road would be 57 to 59 at R-69 and the R-146, respectively. Thus, as the ambient noise level at these locations from I-15 is 10 dB(A) higher than the future noise level from West Lilac Road. Due to properties of decibel addition, the modeled noise level increase along West Lilac Road would be less than 0.5 dB(A) and would not be perceptible at the NSLU. Therefore, the traffic noise generated by the project on West Lilac Road would not affect the ambient noise level at the R-146 or R-69. As the project would not increase traffic noise levels associated with I-15 by a perceptible amount, the predicted noise level increase from West Lilac Road would be **less than significant**.

Old Highway 395: One off-site NSLU is located along Old Highway 395 between West Lilac Road and I-15 southbound on-ramps. The residence is approximately 400 feet from the roadway and at this distance modeled traffic noise levels from Table 2.8-5 would attenuate to approximately 54 CNEL. Thus, while there would be an increase of 4 dB(A) along this portion of Old Highway 395, noise levels would be below the noise threshold of 60 CNEL and therefore a **less than significant impact**.

Covey Lane: Based on the traffic noise modeling presented in Table 2.8-5, existing NSLU along Covey Lane between the project site and West Lilac Road would be exposed to future noise levels of 59 CNEL or less at distances of 100 feet or greater, but would experience a potentially substantial increase in ambient noise levels (12 CNEL). With a few exceptions, existing residences located along Covey Lane are located further than 100 feet from the centerline. The exceptions are 9550 (R-93), 9869 (R-96), 9852 (R-97), and 9877 (R-100) Covey Lane, where portions of the structures are located within 100 feet of the roadway.

Based on the location of the 59 CNEL and assessor parcel data, all of these properties contain sufficient land located in areas with noise levels below 60 CNEL to comply with the compatibility standard of the County General Plan. Therefore, while the NLSU would not be exposed to noise levels in excess of the County's "acceptable" noise level standard, i.e., 60 CNEL, the existing residences would experience a substantial increase

(12 CNEL) in future noise levels, i.e. greater than 10 CNEL, and the increase is considered a **significant impact (Impact N-3)**.

Mountain Ridge Road: Based on traffic noise modeling presented in Table 2.8-5, existing NSLU along Mountain Ridge Road south of the project site would experience a potentially substantial increase in ambient noise levels of 8 CNEL, however, noise levels within 100 feet of the roadway centerline would be 53 CNEL or less. Based on the distance to this noise level, the 56 CNEL would fall about 50 feet from the centerline of Mountain Ridge Road. The nearest residence to the future centerline of Mountain Ridge Road is approximately 45 feet to the east. Based on this distance, the noise level at this NSLU would be 57 CNEL, no off-site NSLU along Mountain Ridge Road would be exposed to noise levels in excess of 60 CNEL. Therefore, while existing residences would experience an increase of 8 CNEL in future noise levels, the increase would not expose off-site NSLU to noise levels in excess of the County noise and land use “acceptable” compatibility standards, i.e., 60 CNEL, and the increase is considered **less than significant**.

Lilac Hills Ranch Road: Similarly to Covey Lane, existing receivers along the future Lilac Hills Ranch Road between Phases 3 and 4 of the project site would experience a substantial increase in ambient noise levels. The proposed Lilac Hills Ranch Road is calculated to generate noise levels of 62 CNEL at 100 feet. Based on the modeling of noise levels along Covey Lane, existing noise levels at the nearest residence to Lilac Hills Ranch Road, 9550 Covey Lane, are predicted to be 44 CNEL. This represents a predicted increase in existing noise levels by approximately 18 dB(A) along the proposed Lilac Hills Ranch Road. ~~The combined noise level at the nearest NSLU would be 44 CNEL.~~ The nearest residence to the future centerline of Lilac Hills Ranch Road is approximately 200 feet to the west and 50 feet north of Covey Lane, which would result in a combined noise level of 58 CNEL at the façade. The next nearest residence is approximately 375 feet to the east of Lilac Hills Ranch Road and 200 feet north of Covey Lane; at these distances, the combined noise levels would be approximately 54 CNEL. Therefore, while existing residences would not be exposed to noise levels in excess of the County “acceptable” noise compatibility standards, i.e. 60 CNEL, the substantial increase is considered a **significant impact (Impact N-3)**.

2.8.2.2 Issue 2: Stationary and Construction Noise

Guidelines for the Determination of Significance

Based on the County’s Guidelines for Determining Significance – Noise, a significant noise impact would occur if project implementation would generate airborne noise which, together with noise from all sources, would exceed the non-construction noise, construction noise, or impulsive noise standards in the County Noise Ordinance which are set forth below:

- a. Non-Construction Noise: The limit specified in San Diego County Code Section 36.404, Sound Level Limits, at or beyond the property line. Section 36.404 provides the following limits (Table 2.8-6):

**TABLE 2.8-6
SAN DIEGO COUNTY SOUND LEVEL LIMITS**

Zone	Applicable Hours	Sound Level Limit dB L _{eq} (1 hour)
(1) RS, RD, RR, RMH, A70, A72, S80, S81, S90, S92, RV, and RU with a General Plan Land Use Designation density of less than 10.9 dwelling units per acre.	7 a.m. to 10 p.m.	50
	10 p.m. to 7 a.m.	45
(2) RRO, RC, RM, S86, V5, RV and RU with a General Plan Land Use Designation density of 10.9 or more dwelling units per acre.	7 a.m. to 10 p.m.	55
	10 p.m. to 7 a.m.	50
(3) S-94, V4 and all other commercial zones.	7 a.m. to 10 p.m.	60
	10 p.m. to 7 a.m.	55
(4) V1, V2 V1 V2 V3	7 a.m. to 10 p.m.	55
	10 p.m. to 7 a.m.	55
	10 p.m. to 7 a.m.	50
	7 a.m. to 10 p.m.	70
	10 p.m. to 7 a.m.	65
(5) M-50, M-52, and M-54	Anytime	70
(6) S82, M56 and M58	Anytime	75
(7) S88 (see subsection (c) below)		

SOURCE: County of San Diego Noise Ordinance, Section 36.404

Notes:

(a) Except as provided in section 36.409 of this chapter, it shall be unlawful for any person to cause or allow the creation of any noise, which exceeds the one-hour average sound level limits in Table 36.404, when the one-hour average sound level is measured at the property line of the property on which the noise is produced or at any location on a property that is receiving the noise

(b) Where a noise study has been conducted and the noise mitigation measures recommended by that study have been made conditions of approval of a Major Use Permit, which authorizes the noise-generating use or activity and the decision making body approving the Major Use Permit determined that those mitigation measures reduce

potential noise impacts to a level below significance, implementation and compliance with those noise mitigation measures shall constitute compliance with subsection (a) above.

(c) S88 zones are Specific Planning Areas which allow for different uses. The sound level limits above that apply in an S88 zone depend on the use being made of the property. The limits in subsection (1) apply to property with a residential, agricultural or civic use. The limits in subsection (3) apply to property with a commercial use. The limits in subsection (5) apply to property with an industrial use that would only be allowed in an M50, M52 or M54 zone. The limits in subsection (6) apply to all property with an extractive use or a use that would only be allowed in an M56 or M58 zone.

(d) If the measured ambient noise level exceeds the applicable limit in Table 36.404, the allowable one-hour average sound level shall be the one-hour average ambient noise level, plus three decibels. The ambient noise level shall be measured when the alleged noise violation source is not operating.

(e) The sound level limit at a location on a boundary between two zones is the arithmetic mean of the respective limits for the two zones. The one-hour average sound level limit applicable to extractive industries, however, including but not limited to borrow pits and mines, shall be 75 decibels at the property line regardless of the zone in which the extractive industry is located.

(f) A fixed-location public utility distribution or transmission facility located on or adjacent to a property line shall be subject to the sound level limits of this section, measured at or beyond 6 feet from the boundary of the easement upon which the facility is located.

- b. Construction Noise: Noise generated by construction activities related to the project would exceed the standards listed in San Diego County Code Section 36.409, Sound Level Limitations on Construction Equipment. Except for emergency work, it shall be unlawful for any person to operate construction equipment or cause construction equipment to be operated, that exceeds an average sound level of 75 dB(A) L_{eq} for an eight-hour period, between 7:00 a.m. and 7:00 p.m., when measured at the boundary line of the property where the noise source is located or on any occupied property where the noise is being received.
- c. Impulsive Noise: Noise generated by the project would exceed the standards listed in San Diego Code Section 36.410, Sound Level Limitations on Impulsive Noise. Section 36.410 states that in addition to the general limitations on sound levels in Section 36.404 and the limitations on construction equipment in Section 36.409, the following additional sound level limitations shall apply:
 - (i) Except for emergency work or work on a public road project, no person shall produce or cause to be produced an impulsive noise that exceeds the maximum sound level shown below, when measured at the boundary line of the property where the noise source is located or on any occupied property where the noise is received, for 25 percent of the minutes in the measurement period, as described in subsection (iii) below. The maximum sound level depends on the use being made of the occupied property, Table 2.8-7.

**TABLE 2.8-7
COUNTY OF SAN DIEGO CODE SECTION 36.410, MAXIMUM SOUND LEVEL
(IMPULSIVE) MEASURED AT OCCUPIED PROPERTY IN DECIBELS**

Occupied Property Use	Decibels [dB(A)]
Residential, village zoning or civic use	82
Agricultural, commercial or industrial use	85

- (ii) Except for emergency work, no person working on a public road project shall produce or cause to be produced an impulsive noise that exceeds the maximum sound level shown below, when measured at the boundary line of the property where the noise source is located or on any occupied property where the noise is received, for 25 percent of the minutes in the measurement period, as described in subsection (c) below. The maximum sound level depends on the use being made of the occupied property, Table 2.8-8.

**TABLE 2.8-8
COUNTY OF SAN DIEGO CODE SECTION 36.410, MAXIMUM SOUND LEVEL
(IMPULSIVE) MEASURED AT OCCUPIED PROPERTY IN DECIBELS FOR
PUBLIC ROAD PROJECTS**

Occupied Property Use	Decibels [dB(A)]
Residential, village zoning or civic use	85
Agricultural, commercial or industrial use	90

- (iii) The minimum measurement period for any measurements conducted under this section shall be 1 hour. During the measurement period a measurement shall be conducted every minute from a fixed location on an occupied property. The measurements shall measure the maximum sound level during each minute of the measurement period. If the sound level caused by construction equipment or the producer of the impulsive noise exceeds the maximum sound level for any portion of any minute, it will be deemed that the maximum sound level was exceeded during that minute.

Analysis

Operations

Project operational noise impacts were evaluated through review of the project plans, proposed operations, and noise data. Project implementation would create many instances of on-site residential land uses located adjacent to or sharing a boundary with commercial and mixed-use land uses as well as recreational and institutional uses. All proposed land uses would introduce on-site stationary noise sources, including rooftop heating, ventilation, and air conditioning (HVAC) equipment; mechanical equipment; emergency electrical generators; parking lot activities; loading dock operations; and parks, schools, and recreation activities.

Mechanical HVAC Equipment

HVAC equipment could be a primary noise source associated with commercial or industrial uses. HVAC equipment is often mounted on rooftops, located on the ground, or located within mechanical rooms. The noise sources could take the form of fans, pumps, air compressors, chillers, or cooling towers.

Noise levels from HVAC equipment vary substantially depending on unit efficiency, size, and location, but generally range from 45 to 70 dB(A) L_{eq} at a distance of 50 feet (U.S. EPA 1971). Based on a maximum noise level of 70 dB(A) L_{eq} at 50 feet, noise levels attributed to unshielded HVAC mechanical systems could exceed the County noise limit (50 dB(A) L_{eq}) within 475 feet of the source. As a result, the impact of noise from HVAC equipment under the project could be **significant (Impact N-4)**.

Emergency and Standby Electrical Generators

The assessment of electrical generators considers the following design feature (see Table 1-3):

- All emergency generators within 500 feet of a NSLU shall be located within enclosures, behind barriers, or oriented within the site design to eliminate the line of site between sensitive receptors and generators.

Electrical generators may be used to supply necessary power requirements to vital systems within constructed facilities, such as the WRF. If generators are operated for critical systems and they may be defined as emergency generators; they are exempt from the County's Noise Ordinance. However, if a generator is not for critical systems, it is a stand-by generator and is subject to the County Noise Ordinance. As detailed in the Noise Report (see Appendix M), typical electrical generators located within 3,500 feet of residentially zoned properties could exceed the County noise limit for daytime stationary-source noise (50 dB(A) L_{eq}) and generators located within 6,000 feet of residentially zoned properties could exceed the County noise limit for nighttime stationary-source noise (45 dB(A) L_{eq}). Noise levels associated with the operation and maintenance of emergency generators are exempt from the County Noise Ordinance. The project includes design features (see Table 1-3) to limit noise levels from the maintenance of emergency electrical generators to comply with the Noise Ordinance and, thus, would not represent an impact. However, any non-emergency generators could generate noise levels exceeding applicable standards. Therefore, operation of non-emergency generators is a **significant impact (Impact N-5)**.

Parking Lot Activities

Parking lots would be included in the Town Center and Neighborhood Centers, mixed-use residential developments, the ~~group residential and~~ group care facility, senior center, school, and parks.

Activities making up a single parking event include vehicle arrival, limited idling, occupants exiting the vehicle, door closures, conversations among passengers, occupants entering the vehicle, startup, and departure of the vehicle. A representative parking lot with 200 stalls and 400 parking events per hour would produce a noise level that exceeds the County standard for the daytime (50 dB(A) L_{eq}) at distances up to 200 feet and exceeds the nighttime noise standard (45 dB(A) L_{eq}) at distances up to 350 feet. Because the project includes shared boundary between residential and non-residential land uses, it is possible that parking lots would be located within 350 feet of residential uses. Thus, the impact of noise generated from parking lot activities is a **significant impact (Impact N-6)**.

Loading Dock and Delivery Activity

Noise sources associated with loading dock and delivery activities can include trucks idling, on-site truck circulation, trailer-mounted refrigeration units, pallets dropping, and the operation of forklifts. As discussed in the Noise Report, typical hourly noise levels for loading dock operations range from 55 to 60 dB(A) L_{eq} and from 80 to 84 dB(A) L_{max} (maximum noise level) at a distance of 50 feet (EDAW 2006). The County's daytime stationary noise standard (50 dB(A) L_{eq}) would be exceeded approximately 125 feet from the acoustic center of the loading dock and the nighttime stationary noise standard (45 dB(A) L_{eq}) would be exceeded approximately 200 feet from the acoustic center of the loading dock. Because the project includes shared boundary between residential and non-residential land uses, it is possible that loading docks would be located within 200

feet of residential uses. Therefore, noise generated from loading dock and delivery activities is a **significant impact (Impact N-7)**.

Recreational and Educational Activities

Activities in the proposed parks, open spaces, and schools would be sources of noise. Noise from public or private schools is exempt from the County Noise Ordinance. As described in Chapter 1.0, the project includes recreational areas throughout the project site that would include both indoor and outdoor facilities. Noise associated with outdoor recreation areas would generally take place during daylight hours and at distances at least 50 feet from on-site residences. In addition, the San Diego County Sheriff's Department enforces complaints of excessive noise associated with any activities taking place within parks. It is not anticipated that noise levels would exceed County noise ordinance standards. This impact is considered a **less than significant**.

Special Events

Special events are identified in the Specific Plan and may include public holiday festivals, sports tournaments/ceremonies, parades, marathons, walkathons, or bike races and the Village Green (P-8) is intended to be the primary location for special events within the community. According to the Specific Plan "Special Events will be allowed and the County's normal special events permitting process will be followed for events held on private property." A Community Event Permit is a written approval from the County to operate a community event. The Department of Environmental Health serves as the coordinator for all Community Event permits and coordinates with other County agencies during the permitting and approval process. As part of the permit requirements a noise assessment will be required by the County if noise sources, such as live or amplified music, would be included as part of the event. The noise assessment must determine if an impact would occur and identify mitigation to reduce noise levels to comply with the permit requirements. Thus, since any proposed special event would be subject to the County permit process, noise due to special events would be **less than significant**.

Dog Parks

The project allows dog parks within the public and private parks throughout the project. Conceptual locations have been identified in the Specific Plan. Based on the conceptual layouts, proposed dog parks would generally be located away from local NSLU and would be excluded from small parks adjacent to residential uses. Locations are conceptual and may be refined during the final design.

Principal noise sources from the dog park would be from dogs barking, and owners calling and commanding their pets. Noise associated with dog parks would potentially exceed the property line noise ordinance limit (50 dB(A) L_{eq}) within 225 feet. As the final location of dog parks would not be determined until final mapping, there is the potential for dog park noise to exceed the property line limits. This is a **significant impact (Impact N-8)**.

Potential maintenance activity associated with the dog park would generate similar noise levels to maintenance activities at any park. The proposed dog park would include trash cans for animal waste; however, use of trash cans was not found to be a substantial

source of noise during observations at similar facilities and is not anticipated to be a significant noise source at the proposed dog park. Thus, the proposed dog park would result in a **less than significant** noise impact from on-site maintenance operations.

Water Reclamation Facility

The project includes the construction and operation of a WRF on an approximately 2.4-acre site. Noise associated with operation of the on-site WRF was analyzed to ensure that noise levels would not exceed the applicable County Noise Ordinance standards. South of the WRF would be zoned residential and would have noise limits of 50 dB(A) L_{eq} from 7:00 a.m. to 10:00 p.m. and 45 dB(A) L_{eq} from 10:00 p.m. to 7:00 a.m. The WRF site would be subject to these hourly average noise limits.

A reference noise level of 70 dB(A) L_{eq} at 50 feet from the edge of the nearest noise source was used to assess potential impacts from operation of the WRF (Appendix M). The noise-producing equipment is anticipated to include a blower room, odor scrubbers, screens and augers, mixers, exhaust fans, air compressors, and air conditioners. The majority of the sources associated with the proposed WRF would be located inside structures; however, the reference noise level does not account for noise reduction provided by locating any equipment inside enclosed buildings or orientation of the source. Therefore, the reference level of 70 dB(A) L_{eq} at 50 feet is reduced by 15 dB(A) to account for the proposed WRF.

Based on the MUP site plan, the nearest residential property line would be located approximately 100 feet south of the center of the operations and sludge dewatering buildings. A noise level of 55 dB(A) L_{eq} at 50 feet would attenuate to 49 dB(A) L_{eq} at 100 feet. Therefore, the noise level at the residential property line due to the WRF would be 49 dB(A) L_{eq} without mitigation, exceeding the nighttime noise limit of 45 dB(A) L_{eq} . Therefore, noise generated from WRF is a **significant impact (Impact N-9)**.

Recycling Facility

According to the Specific Plan, “the purpose of the recycling facility “is to provide and encourage recycling among project residents in addition to the weekly collection of green waste.” As envisioned in the Specific Plan, the facility would include office functions as well as storage for any equipment or materials. The facility would also include temporary roll-off bins or storage containers where recyclables and/or green waste generated from local residents can be consolidated for efficient off-site processing. Additionally, the Specific Plan considers a future buy-back center at this location for residents to redeem CRV containers.

The proposed collection of recycling and green waste is initially seen as a simple storage operation with little on-site operation other than the delivery of empty containers and the pick-up of full containers by large trucks, noise associated with vehicles accessing the site and dropping off, and general site maintenance activities. Noise levels associated with these activities are anticipated to be similar to typical commercial loading noises and dumpster use, which are not anticipated to exceed County property line noise level limits.

However, a small-scale neighborhood CRV buy-back facility would include stationary processing equipment and limited mobile equipment. Anticipated stationary processing

equipment would include material conveyors and an aluminum can compactor while mobile equipment would typically be limited to natural gas- or propane-powered forklifts with occasional heavy trucks to haul material to larger facilities.

The proposed RF would be located in the central-western portion of the Specific Plan area. The property would be bound by commercial uses to the north (zoned C-34), with open space to the east, south and west. Residential and other uses would be separated from the RF by open space. The conceptual site plan in the Specific Plan indicates the facility's main building would be located along the western property line. The primary drop-off location would likely to be located immediately east of the building with sorting and minor processing occurring within the facility building. The southern portion of the site would be used primarily for bin storage and processed and classified materials storage until a sufficient quantity is accumulated to be delivered to a processing facility. It is anticipated a facility of this scale would generate an average of approximately 2 two-way heavy truck trips per day.

Noise sources associated with the RF would include trucks idling, on-site truck circulation, material dropping, and the operation of forklifts as well as patron vehicles. Based on samples taken at similar facilities, typical unshielded hourly noise levels from these sources would range from 60 to 75 dB(A) L_{eq} at a distance of 50 feet with occasional higher maximums from materials falling into empty sorting bins, banging of sorting and transport bins, and backup alarms.

Since a site plan has not been developed for the proposed RF, specific facility components have not been identified nor designed and it is possible that the loading or sorting areas or other noise sources could be placed in proximity to residential land uses where noise would exceed County limits. Therefore, noise generated from the RF is a **significant impact (Impact N-10)**.

Construction

The construction analysis included several assumptions, including the following design considerations listed in Table 1-3 and would be included as conditions of approval:

- All construction equipment shall be properly maintained and equipped with noise-reduction intake and exhaust mufflers and engine shrouds, in accordance with manufacturers' recommendations. Equipment engine shrouds shall be closed during equipment operation.
- Whenever feasible, electrical power shall be used to run air compressors and similar power tools.
- Equipment staging areas should be located as far as feasible from occupied residences or schools.
- For all construction activity on the project site, noise attenuation techniques should be employed as needed to ensure that noise remains below 75 dB(A) eight-hour L_{eq} at the boundary line of an occupied residential use.
- No more than one pile driver would be active on any single construction site or within 500 feet of another active pile driver.

All construction would be limited to the hours of 7:00 a.m. to 7:00 p.m. Monday through Saturday as stated in the County of San Diego's Noise Abatement and Control Ordinance. Construction noise typically occurs intermittently and varies depending upon the nature or phase of construction (e.g., demolition/land clearing, grading and excavation, erection). The noisiest equipment types operating at construction sites typically range from 88 dB to 91 dB L_{max} at 50 feet (see Appendix M). Blasting noise levels are anticipated to be 74 dB(A) L_{eq} or less at 50 feet (Federal Highway Administration 2008). The analysis of impulsive blasting noise is addressed under impulsive noise impacts. Average noise levels from the center of construction sites typically range from approximately 65 to 83 dB(A) L_{eq} at 50 feet, depending on the activities performed. Typically, a 12-hour L_{eq} is lower than an hourly L_{eq} due to additional breaks and slowdowns that occur throughout a day.

On-site

The nearest occupied properties would be the properties located within the project boundary, but which are NAP of the project. The actual physical residences are generally located over 100 feet from the project boundary. To determine potential impacts, a sample 10-acre construction project was analyzed. Grading and construction hourly noise levels from a 10-acre construction site would be approximately 75 dB(A) L_{eq} at the edge of construction site, and would, therefore, not exceed the County limit (75 dB(A) L_{eq}) at the occupied property. Typical blasting levels are less than 75 dB(A) L_{eq} at 50 feet and would not exceed the County limit at the nearest occupied property. There is a possibility that on-site residences that are NAP of the project, as shown in Figure 1-4, could be exposed to noise levels in excess of the County's standard. This would potentially happen when construction occurs along more than one boundary of a given property, which would allow for the potential doubling (+3 dB), if construction occurred along two property lines simultaneously, or even quadrupling (+6 dB) of construction noise levels, if construction were to occur along four sides simultaneously. Therefore, if construction were to occur along more than one side of an on-site NAP property, construction noise levels would exceed 75 dB(A) L_{eq} violating the County Noise Ordinance. Impacts would be **significant (Impact N-11)**.

In addition, future on-site residences that would be built prior to the final development of the project site would be exposed to construction noise. While the complete development plan is not available, future on-site residences could be located as close as 50 feet from active construction. At a distance of 50 feet, noise levels could reach as high as 88 dB(A) L_{max} during peak construction activity at site boundaries. Such levels could create a temporary annoyance; however, it should be noted that peak noise levels would occur only sporadically since not all equipment would be operating at all times. Also, most construction activity would actually take place at further distances from the receivers. Assuming construction would occur in increments of approximately 10 acres,¹ hourly noise levels at the edge of construction would be at or below 75 dB(A) L_{eq} . Construction noise impacts to future on-site receivers would be **less than significant**.

¹This is based on a 50,000 cubic yard a day cut, transport, and spread. (50,000 cy/27=X/10 ft=Y/43,560 sq ft =Z acres * 3 activities = ~10 acres, then assume a max of two crews working on site for 20 years.)

Off-Site

Improvement Areas: In addition to on-site construction, off-site construction would also be required for roadway and utility line improvements and possibly for activities associated with expansion of the existing Miller Station. Roadway and utility line improvements would occur along West Lilac Road, Gopher Canyon Road/I-15 Northbound Ramps, Gopher Canyon Road/I-15 Southbound Ramps, Lilac Hills Ranch Road between Phases 3 and Phase 4 boundaries, Mountain Ridge Road to Circle R Drive, Covey Lane to West Lilac Road, and Street "B" to Rodriguez Road. Unlike construction associated with on-site development, utility pipeline or roadway construction is linear and usually extends up to 400 feet along a pipeline/roadway's alignment. Excavation and grading equipment used for pipelines and roadways would generate similar noise levels. To determine potential impacts, a sample construction area of approximately 50 feet by 400 feet was analyzed. The average hourly roadway construction noise levels would be approximately 75 dB(A) L_{eq} at the edge of the roadways and 72 dB(A) L_{eq} or lower at 50 feet from the edge of roadway construction. The nearest occupied residences to off-site construction are located adjacent to several identified roadway segments. During maximum effort with several pieces of equipment operating at the same time in close proximity or during pavement removal, maximum noise levels of 76-80 dB(A) L_{max} may be experienced at local residences; however, these would last for a few seconds at any specific location. Noise levels on this order would not exceed the County's construction noise levels limits and impacts would be less than significant.

Miller Station: Improvements to the CAL FIRE Miller Station would generate noise levels from grading and construction activities. However, the construction activity associated with expanding an operational fire station would be less intense than activity associated with typical construction anticipated on-site as there would be fewer pieces of equipment operating simultaneously. Based on the analysis of simultaneous operations of both a front-end loader and dump truck, the average maximum hourly noise level would be approximately 81 dB(A) L_{eq} at a distance of 50 feet from the center of the construction activity (see Appendix M).

The nearest existing occupied residence that would remain after the construction of Phase 1 is located directly across West Lilac Road approximately 150 feet away from the acoustic center of construction. At this distance, construction noise would attenuate to 71 dB(A) or less. Therefore, the expansion of the CAL FIRE Miller Station would not exceed the County's construction noise level limits at an *existing* residence and impacts would be **less than significant**.

Depending on the timing of the expansion, construction could potentially occur adjacent to future on-site residences. The existing structure is approximately 70 feet from the nearest property line, thus the center of construction would likely be as near as 50 feet from future residential property lines and noise levels would be on the order of 81 dB(A) L_{eq} at the property line. If these properties are occupied, the expansion of the CAL FIRE Miller Station would exceed the County's construction noise levels limits and impacts would be **significant (Impact N-12)**.

Truck Traffic: Project construction would also result in a short-term increase in traffic on the local area roads. It is expected that up to 100 material delivery-truck trips and 260 employee commute trips would occur during the periods of maximum construction

activity. Construction-related traffic would be distributed over the local and regional roadway network and would access the site primarily from I-15, Old Highway 395, and West Lilac Road.

Typically, traffic volumes must double to create an increase in perceptible (3 dB[A]) traffic noise (Caltrans 2013). The addition of construction related trips to the roadway network would result in a maximum daily noise increase of 1 dB(A) CNEL and 2 dB(A) L_{eq} during the existing peak hour. Furthermore, project construction traffic would not result in changes to LOS operations on the affected roadways. Therefore, the additional construction-related traffic would have a **less than significant** temporary increase in overall traffic noise levels.

Rock Crushing: Rock crushing may occur on-site. A rock crusher generates higher noise levels than typical construction equipment as noise is generated by the breaking of rocks as well as the diesel engine operating the crusher. Because this activity does not move and the material stockpiles can be located in close proximity, the work area can be defined for a rock crushing operation. Rock crushing would typically include the use of a dozer and a loader for loading the rock crusher.

The combined noise level from all these pieces of equipment would be approximately 92 dB(A) L_{max} at 50 feet. No potential rock crushing locations have been identified as the location would typically be chosen based on distance to material and accessibility of haul trucks. Based on a conservative attenuation rate of 6 dB(A) per doubling of distance, noise levels from rock crushing activities would attenuate to 75 dB(A) L_{eq} at approximately 350 feet, which would comply with the County's noise level limit for construction noise. However, if rock crushing occurs over longer periods the County could impose stricter limits, such as 60 dB(A) CNEL, which would require a separation of approximately 2,000 feet between the rock crushing activities and the nearest property line. Because locations for rock crushing have been identified, impacts would be **significant (Impact N-13)**.

Impulsive Noise: The operation of the project does not include any known sources of impulsive noise; therefore, the analysis of impulsive noise events is limited to construction activities. Impulsive noise sources associated with construction activities could include rock drilling, blasting, and pile driving. Typical impulsive noise events from these sources are for short periods (e.g., pile driving typically only operates at maximum noise levels 20 percent of an hour, which would not exceed the County's threshold for number of events in an hour).

Blasting involves drilling bore holes and placing small amounts of explosives in each hole. By limiting the amount of explosives in each hole the blasting contractor can limit the fraction of the total energy released at any single time, which can limit noise and vibration levels. Rock drilling generates impulsive noise from the striking of the hammer with the anvil within the drill body, which drives the drill bit into the rock. Rock drilling generates an average noise level of approximately 78 dB(A) L_{max} at 50 feet.

When explosive charges detonate in rock, almost all of the available energy from the explosion is used in breaking and displacing the rock mass. However, some blast energy escapes into the atmosphere as a sequence of airborne sound waves, a phenomenon known as "air blast over-pressure." These sound waves are very low frequency, below the audible range. Very high blast over-pressure levels can rattle or in some cases break

windows. However, air-blast over pressure rarely reaches levels that could cause building damage with modern blasting practices. Conceptual blasting locations are shown in Figure 1-19. Exact blast charge weights and locations are not known at this time, thus air-blast pressures cannot be predicted. Therefore, since it is possible that some damage to nearby structure may occur, impacts would be **significant (Impact N-14)**.

The construction of the larger buildings may require pile driving that could produce impulsive noise. For purposes of analysis, it is assumed no more than one pile driver would be active on any single construction site or within 500 feet of another active pile driver. A single impact pile driver typically produces maximum noise levels of 95 dB(A) L_{max} at a distance of 50 feet (FTA 2006). Assuming a conservative hard site condition, a single unshielded pile driver could exceed the County's impulsive noise level threshold within 1,000 feet. However, a pile driver does not generate maximum impulsive noise levels continuously, rather maximum impulsive noise levels are generated for short periods during peak power buildup and the pile strike. This cyclical pattern is called the equipment usage factor. Based on the FHWA Road Construction Noise Model, a pile driver has a usage factor of 20 percent (FHWA 2008). Thus, while the maximum noise levels from a pile driver could exceed the County's maximum noise level threshold within 1,000 feet of active pile driving, as pile driving would only generate maximum noise levels 20 percent of an hour, and maximum noise levels would not exceed the County impulsive threshold for 25 percent or more of an hour. Based on duration and distances, impulsive noise levels are anticipated to be below the County's 82 dB(A) threshold. Impacts would be **less than significant**.

2.8.2.3 Issue 3: Vibration

Guidelines for the Determination of Significance

Based on the County's Guidelines for Determining Significance – Noise, a significant noise impact would occur if the project would expose the uses to groundborne vibration or noise levels equal to or in excess of the levels shown on Tables 2.8-9 and 2.8-10.

Analysis

Operations

No operational components of the project include significant groundborne noise or vibration sources, and no significant vibration sources currently exist, or are planned, in the project area. Thus, groundborne noise or vibration impacts would be **less than significant**.

Construction

On-site construction equipment that would cause the most noise and vibration would be associated with site grading and driving of piles for foundations. As discussed in the Noise Report, vibration levels would exceed County-recommended Caltrans thresholds (0.004 in/sec RMS) within 150 feet of large bulldozers and 135 feet of loaded trucks, but would be below the County's threshold for a small bulldozer as close as 15 feet from the equipment. For pile driving vibration, levels would exceed County-recommended Caltrans thresholds (0.1 PPV) within 90 feet of impact pile driving (Caltrans 2013b).

NSLUs, consisting of off-site residences (including NAP properties), future medical facilities of later phases, and future residences of later phases, may be located within 90 feet of pile driving and within 150 feet of areas where large bulldozers may be used during grading or construction. Vibration levels may exceed 0.004 in/sec RMS or 0.1 in/sec PPV from general grading and pile driving construction activities on- and off-site at NSLUs.

Thus, the project's use of heavy construction equipment within 150 feet and pile driving within 90 feet of off-site residences (including NAP properties), future medical facilities of later phases, and future residences of later phases is a **significant impact (Impact N-15)**.

Blasting

Due to the geologic character of the project site, explosive blasting and/or on-site rock breaking is anticipated during site preparation activities for the project. Thus, significant vibrations or groundborne noise impacts may be associated with construction of the project. At the current stage of the project design, a blasting study has not been completed and no specific blasting timelines, blast numbers, or locations are—~~or~~ available. Therefore, impacts associated with blasting would be a **significant impact (Impact N-16)**.

When explosive charges detonate in rock, almost all of the available energy from the explosion is used in breaking and displacing the rock mass. However, a small portion of the energy is released in the form of vibration waves that radiate away from the charge location. The strength, or 'amplitude,' of the waves reduces as the distance from the charge increases. The rate of amplitude decay depends on local geological conditions but can be estimated with a reasonable degree of consistency, which allows regulatory agencies to control blasting operations by means of relationships between distance and explosive quantity.

The explosive charges used in mining and mass grading are typically wholly contained in the ground. The nearest residential receptor to the blasting activities, a single-family residence within the overall project site boundaries, is approximately 500 feet from the nearest potential blasting site. At this distance, it is unlikely that blasting vibration or materials handling would generate substantial groundborne vibration or noise impacts. However, as the necessary geotechnical data or blasting and materials handling plans are not available, a noise analysis assessing the proposed blasting and materials handling associated with the project would be required prior to issuance of County grading permits.

2.8.3 Cumulative Impact Analysis

2.8.3.1 Issue 1: Traffic Generated Noise

Cumulative on-site

Based on the project design and noise levels presented in Table 2.8-45, the project would place future on-site NSLUs in areas where the projected cumulative noise levels from road traffic could exceed the County's exterior noise limits. This is a **significant cumulative impact (Impact N-17)**.

Cumulative off-site

Similar to direct off-site traffic noise impacts, a cumulative off-site traffic noise impact occurs when the noise level would exceed the applicable standard and a substantial noise level increase over existing noise occurs. The difference is the impacts are caused by project traffic in combination with traffic from other closely related past, present, and reasonably foreseeable ~~probably~~ future projects rather than only project traffic. The project's contribution to the future noise level is determined by comparing the future with project and no project conditions, and a determination made whether the project's contribution is "cumulatively considerable."

The cumulative assessment area for noise differs by the noise source. While construction noise is limited to areas within 500 feet of active construction and at the adjacent properties for stationary noise sources, traffic noise would affect land uses along all roadways experiencing an increase in traffic. For roadways, this is generally limited to roadways experiencing an increase in ADT of 12 percent or greater as this would result in a measurable change in noise levels, i.e., an increase greater than 0.5 CNEL. A 2.0 dB increase in noise is considered a cumulatively considerable increase by the County, if modeled noise levels at the modeled receivers indicate noise levels in excess of the County's "acceptable" noise levels (see Table 2.8-1). Based on single roadway traffic modeling, shown in Table 2.8-11, at most locations, the project-related traffic would not result in a readily noticeable increase in noise levels over conditions without the project. Additionally, the project's contribution at most locations would be less than cumulatively considerable, defined by the County Guidelines as an increase less than 2 CNEL. Therefore, potential impacts would occur along the following segments:

- East Dulin Road: Old Highway 395 to SR-76
- West Lilac Road: Old Highway 395 to Main Street
Main Street to Street F
Covey Lane to Circle R Drive
- Old Highway 395: East Dulin Road to West Lilac Road
West Lilac Road to I-15 SB Ramps
I-15 SB Ramps to I-15 NB Ramps
- Covey Lane: Eastern Project Boundary to West Lilac Road
- Mountain Ridge Road: Southern Project Boundary to Circle R Drive
- Lilac Hills Ranch Road: Between Phases 3 and 4

Noise level increases attributable to the project along West Lilac Road, Covey Lane, and the future Lilac Hills Ranch Road, where the noise level would increase by 10 CNEL or more, are considered cumulatively considerable. However, ~~where the project contribution to the noise level increases along the~~ as to segments where the noise level increases would range from approximately 3 to 84 CNEL, the increases attributable to the project along these segments would be considered potentially significant, as This is because an increase of this magnitude would not be considered significant, ~~if the future noise level is not predicted to exceed the County's "acceptable" compatibility standard at the NSLU, since the land use would remain ultimately be compatible with the noise environment based on the General Plan.~~

East Dulin Road: Based on traffic noise modeling shown in Table 8.2-11, the noise level increase along East Dulin Road would be 6 CNEL and the project would contribute 3.3 CNEL. While the increase would be greater than 2 CNEL, based on the noise attenuation from existing walls and buildings (5 to 8 dB), the future noise level at the exterior NSLU area would be 60 CNEL or less. Based on the County's Guidelines for Determining Significance which would be compatible with the affected NSLU and the this increase would be considered a **less than significant impact** because the exposure at the affected NSLU would be below 60 CNEL.

West Lilac Road: Noise level increases along West Lilac Road would range from 0.64 dB(A) to 10.7 dB(A) with the greatest increase occurring between Old Highway 395 and the future Main Street. As indicated in the direct impact assessment, there are two receptors of concern located along this segment. Based on the distances to local roads and I-15, noise levels at these locations are dominated by traffic noise from I-15, which would range from 69 to 67 CNEL at the residence and at Kamp Kuper, respectively, while noise levels from West Lilac Road would be 60 to 58 at the residence and Kamp Kuper, respectively. As the project would not increase traffic noise levels associated with the I-15 by a perceptible amount, the predicted noise level increase from West Lilac Road would not be significant as the traffic noise generated by West Lilac Road would not affect the ambient noise level at the residence or at Kamp Kuper. Thus, the increase at these receivers attributable to the project is considered a **less than significant impact**.

Cumulative increases along West Lilac Road, ~~between E. Main Street to W. Main Street,~~ would be greater than 2 dB(A); however, the noise level at 100 feet from the roadway centerline would be 60 CNEL or less. Based on a review of the properties within this area, there are some residential structures that would be located within 100 feet of the roadway centerline. Thus, portions of these properties would be exposed to noise levels in excess of the "acceptable" level for residential properties. However, due to the intervening structures and/or distance from the roadway, none of the NSLU areas associated with the properties would be exposed to noise levels greater than 60 CNEL. Thus, impacts to NSLU along West Lilac Road, between E. Main Street to W. Main Street, would be **less than significant impact**. Additional modeling of the cumulative off-site locations along West Lilac Road are presented in Table 2.8-12.

Old Highway 395: Cumulative noise levels along Old Highway 395 would increase by approximately 2 dB(A) along East Dulin Road to West Lilac Road and West Lilac Road to I-15 NSB ramps. Only one off-site NSLU is located along Old Highway 395 between West Lilac Road and I-15 southbound on-ramps. The residence is approximately 400 feet from the roadway and at this distance modeled traffic noise levels which would result in a future noise level at this NSLU of 56 to 57 CNEL along these segments. As the future noise level would be considered "acceptable", the 2 dB cumulative increase would be a **less than cumulatively considerable impact**.

Covey Lane: As previously discussed, while noise levels at NSLU along Covey Lane would be compatible with the County standards, based on the modeled noise levels (Tables 2.8-11 and 2.8-12), significant project level impacts would occur along Covey Lane As because NSLU along this roadway segment would experience a substantial increase (+10 CNEL) in ambient noise levels. Thus, impacts to NSLU along Covey Lane would be a **cumulatively considerable significant impact**.

Lilac Hills Ranch Road: The existing NSLU that would be exposed to noise from Lilac Hills Ranch Road in this location would also be, and currently are, exposed to noise from Covey Lane. The combination of Covey Lane and Lilac Hills Ranch Road would result in a combined noise level increase of 16 dB(A) over the existing noise levels in proximity to the intersection of these roads. The nearest NSLU to the future centerline of Lilac Hills Ranch Road is approximately 200 feet to the west and 50 feet north of Covey Lane, which would result in a combined noise level of 61 CNEL at the building facade. The building would provide 10-20 dB reduction at the NSLU location. Thus, noise levels at the NSLU location would be less than 60 CNEL. The next nearest residence is approximately 375 feet to the east of Lilac Hills Ranch Road and 200 feet north of Covey Lane; at these distances, the combined noise levels would be approximately 50 CNEL. Based on the calculated noise levels, no off-site NSLU would be exposed to noise levels in excess of 60 CNEL. However, the increase in the existing noise level is considered **cumulatively significant**.

Mountain Ridge Road: Noise level increases along the Mountain Ridge Road from the Southern Project Boundary to Circle R Drive would be potentially significant at 87.7 dB(A) or greater as a result of the project. However, as shown on Table 2.8-11, noise levels at 100 feet from the roadway would be less than 60 CNEL; therefore, the increase would be a less than cumulatively considerable impact.

Due to potentially cumulatively considerable increase in ambient traffic noise levels along West Lilac Road, Covey Lane, Lilac Hills Ranch Road, and Mountain Ridge Road off-site receivers were included in a more refined model using the Federal Highway Administrations' Traffic Noise Model, version 2.5 (TNM). The model included area roadways (I-15, West Lilac Road, Old Highway 395, Circle R Drive, Mountain Ridge Road, Covey Lane, and all primary project internal roadways). Traffic volumes and speeds were the same as used in all traffic modeling and as presented in the project traffic report. Additionally, the refined modeling included available topographic data taken from the USGS and integrated with project specific topographic data. This more refined modeling is still generally conservative as it does not include structures or barriers that would affect noise propagation. NSLU locations were assumed to be near the rear of the residential structure or a common recreation area. Each offsite receiver location was chosen to represent an exterior NSLU of the residences. Future cumulative noise levels were calculated at each receiver location. Receiver locations are shown in Figures 2.8-3a and 2.8-3b and reported in Table 2.8-12.

For purposes of this noise modeling, if modeled noise levels at the modeled receivers indicate noise levels in excess of the County's "acceptable" noise levels (see Table 2.8-1), a predicted increase of 2 dB(A) would result in a cumulatively considerable increase. If the predicted noise levels are below the County's "acceptable" noise levels, a predicted increase of 10 dB(A) or greater would be a substantial, or cumulatively considerable, increase. The results of the modeling are shown in Table 2.8-12. Based on the noise levels shown in Table 2.8-12, two existing NSLUs, (R-146 and R-147), located at 8269 West Lilac Road and, 32163 Old Highway 395, respectively, would potentially be exposed to noise levels in excess of the County's land use compatibility guidelines "acceptable" level, i.e., 60 CNEL. Therefore, additional detailed modeling, included in Appendix M, was conducted to determine the amount of the increase associated with the project at this location by modeling the existing traffic conditions in TNM along multiple roadways for the Old Highway 395/West Lilac Road interchange. Based on the additional modeling, the existing noise level is ~~would be 61.6~~ 60.1 CNEL at both R-146

and R-147, and the future noise level would be 61.6 CNEL at R-146 and 60.7 CNEL at R-147, which represents an increase of 0.6 to 1.5 dB(A) and is a **less than significant impact**.

Based on the traffic modeling of off-site impacts, the project would not result in a cumulatively considerable increase at an off-site NSLU were the future noise level would exceed the County's compatibility standards. However, the project would result in an increase of 10 dB(A) or greater along Covey Lane and, Lilac Hills Ranch Road, and Mountain Ridge Road. This is a **significant cumulative impact (Impact N-18)**.

2.8.3.2 Issue 2: Stationary and Construction Noise

Project design considerations related to construction noise (see Table 1-3) would reduce the potential for noise impacts to existing and future NSLU. On a project level, construction noise could exceed the County's construction noise level limit of 75 dB(A) $L_{eq(12)}$. If construction activities occurred simultaneously this would result in a **significant cumulative impact (Impact N-19)**.

Project implementation would result in potentially significant project level noise impacts associated with the creation of stationary noise sources adjacent to existing and future NSLU. Stationary sources of concern include mechanical equipment, such as HVAC units and other venting, electrical generators, parking lots, loading docks, recreational and educational facilities, special events, and dog parks. Additionally, the project includes the construction and operation of a WRF and a RF. However, noise associated with stationary sources is a localized occurrence and attenuates rapidly with distance, thus only future on-site development or projects adjacent to the project site would add to stationary source noise generated by the project and result in a cumulative noise impact.

The areas surrounding the project site are developed with low density residential and agricultural land use and thus generate similar levels of noise as the residential portions of the project and a lower level of stationary source noise than the commercial portion of the project. It is unlikely that project implementation would create cumulative impacts due to stationary source noise because the surrounding developments and much of the development proposed at the boundaries of the project site is residential development. Additionally, the commercial development is located at such a distance from existing land uses as to not contribute to cumulative noise levels. Therefore, it is concluded that noise impacts from stationary sources would have a **less than significant impact**.

2.8.3.3 Issue 3: Vibration

There are no substantial vibration sources associated with project operation. Therefore, cumulative vibration impacts associated with project operation would be less than significant.

During project grading and blasting operations, potential impacts associated with the exposure of a noise-sensitive land use to groundborne vibration levels would be significant (**Impacts 15 and 16**). Should multiple construction activities be occurring simultaneously, a **significant cumulative impact** would result (**Impact N-20**).

2.8.4 Significance of Impacts Prior to Mitigation

2.8.4.1 Traffic-generated Noise (Direct)

Impact N-1: Traffic generated noise at identified exterior receivers would be significant.

Impact N-2: Interior noise levels of second floor receivers adjacent to the roadways could exceed allowable interior noise levels and would result in a significant impact.

Impact N-3: Traffic generated noise at off-site receivers adjacent to Covey Lane and future Lilac Hills Ranch Road would increase significantly over existing conditions and would result in a significant impact.

2.8.4.2 Stationary and Construction Noise (Direct)

Operational Impacts

Impact N-4: Noise at exterior receivers due to the location of HVACS would result in a significant impact.

Impact N-5: Noise at exterior receivers due to the location of non-emergency generators would result in a significant impact.

Impact N-6: Noise at exterior receivers due to the location of parking lots would result in a significant impact.

Impact N-7: Noise at exterior receivers due to the location of loading docks would result in a significant impact.

Impact N-8: Noise levels due to dog park activities would be a significant noise impact.

Impact N-9: The project includes the construction and operation of a WRF the location of which would result in a significant impact at exterior noise receiver locations.

Impact N-10: The project includes the construction and operation of a RF the location of which would result in a significant impact at exterior noise receiver locations.

Construction Impacts

Impact N-11: Construction noise if allowed along more than one property line of any existing on-site property identified as NAP would be significant.

Impact N-12: Construction noise associated with the off-site CAL FIRE Miller Station (if selected as the fire option, see subchapter 2.7) property would exceed noise thresholds at adjacent residential properties resulting in a significant impact.

Impact N-13: Rock crushing noise levels at surrounding and onsite property lines could exceed County standards representing a significant impact.

Impact N-14: Blasting associated with construction may result in a significant impact due to impulsive noise.

2.8.4.3 Vibration (Direct)

Impact N-15: During project grading, there would be impacts associated with the exposure of a NSLU to groundborne vibration levels associated with heavy equipment. This would result in a significant impact.

Impact N-16: During project grading and blasting operations, there would be impacts associated with the exposure of a NSLU to groundborne vibration levels associated with blasting. This would result in a significant impact.

2.8.4.4 Cumulative Impacts

Impact N-17: The project would place NSLUs in areas where the projected cumulative noise levels from road traffic could exceed the County's exterior noise limits. This is a significant cumulative impact.

Impact N-18: Traffic generated noise at off-site receivers adjacent to Covey Land Lane and future Lilac Hills Ranch Road would increase significantly over existing conditions and would result in a significant cumulative impact.

Impact N-19: If construction operations occurred on-site and off-site simultaneously, a significant cumulative impact could result.

Impact N-20: Construction noise would result in impulsive noise events from blasting. If multiple blasting operations occurred simultaneously, a significant cumulative impact could result.

2.8.5 Mitigation

2.8.5.1 Traffic-generated Noise

The following mitigation measures are required for **Impacts N-1** through **N-3**.

Individual lots located within the 60 CNEL contour, as shown on Figures 2.8-2a and 2.8-2b, may require individual barriers located within each lot to shield an exterior area of sufficient size in the proper location. Quantifying the area per lot that would require protection shall occur as part of the Site Plan review. These calculations and additional noise attenuation requirements are outlined in the following measure:

M-N-1: Prior to approval of the Master Tentative Map, or subsequent Implementing Tentative Map, as appropriate, the project applicant shall dedicate "noise protection easements" on the master tentative map and each subsequent implementing tentative map for all lots located within the 60 CNEL contour, as shown on Figures 2.8-2a and 2.8-2b.

The noise protection easements shall contain a restriction requiring compliance with the standards for the subject land use as stated in Tables N-1 and N-2 of the County General Plan Noise Element (see Appendix M, Tables 7 and 8). Potential feasible measures to achieve compliance include, but are not limited to, altering lot configurations and building locations, varying grading contours, and construction of solid barriers (i.e., sound walls).

The noise easement shall contain the following language.

- For single-family residential uses: The noise level at exterior use areas associated with single-family detached dwelling units, shall be measured at an outdoor living area that adjoins and is on the same lot as the dwelling and that contains at least the following minimum net lot area:
 - For lots less than 4,000 square feet in area, the exterior area shall include 400 square feet,
 - For lots between 4,000 square feet to 10 acres in area, the exterior area shall include 10 percent of the lot area;
 - For lots over 10 acres in area, the exterior area shall include 1 acre.
- Noise levels within the single-family residential exterior use areas shall not exceed 60 CNEL.
 - For single-family lots along West Lilac Road, west of Main Street and single-family properties fronting Main Street, located between West Lilac Road and C Street, a site specific design for building placement and inclusion of wing walls would be required to reduce noise levels at exterior NSLU areas.
 - For residential lots other than single-family lots: The noise level at exterior use area is defined as areas which are provided for private or group usable open space purposes (as defined in Table N-2 of the County General Plan Noise Element).

Noise levels in the exterior use areas for all other residential uses shall not exceed 65 CNEL. These areas include areas which are provided for private or group usable open space purposes (as defined in Table N-2 of the County General Plan Noise Element).

- For non-residential noise sensitive land uses: The exterior use areas are subject to the noise level as specified in the County Noise Element, Tables N-1 and N-2.
- For all other land uses the exterior noise level standard shall not exceed the limit defined as “Acceptable” in Table N-1 of the County General Plan Noise Element or the equivalent one-hour noise standard.

- The lots with the noise protection easements shall be identified on all Final Maps.

M-N-2: Prior to issuance of any building permit for properties located in noise ~~protection~~~~restriction~~ easements, the building permit applicant shall demonstrate that interior noise levels due to exterior noise sources would not exceed the applicable standards detailed below for the subject land use (see Figures 2.8-2a and 2.8-2b). In these cases, it is anticipated that the typical method of compliance would be to provide the homes with air conditioning or equivalent forced air circulation, dual pane windows and weather stripping for doors, to allow occupancy with closed windows, which, for most residential construction, would provide sufficient exterior-to-interior noise reduction. ~~Additional structural components such dual pane windows, and weather stripping for doors shall be identified.~~

- An acoustical study shall be prepared to demonstrate and verify that interior noise levels are below 45 CNEL in all residential structures, and below 50 CNEL within schools, churches, medical/dental facilities (i.e., hospitals, laboratories, nursing homes) child care facilities, government facilities, and commercial uses (office and retail).

2.8.5.2 Stationary Noise

The following mitigation measures are required for **Impacts N-4** through **N-10**.

M-N-3: Best engineering practices shall be used ~~and considered~~ in the placement of noise generating equipment and shielding when installing stationary noise sources associated with HVAC systems and standby generators. Prior to the issuance of any building permit for stationary noise generating equipment such as HVAC systems or standby generators, the applicant, or its designee, shall prepare an acoustical study(s) of the proposed stationary noise sources associated with HVAC systems and standby generators for submittal to the County for review and approval. The acoustical study shall identify all noise-generating equipment and ~~predict~~ identify noise levels at the applicable property lines from all identified equipment. Where ~~predicted~~ noise levels would exceed those levels established by County Noise Ordinance Section 36.404, the acoustical study shall identify mitigation measures shown to be effective in reducing noise levels (e.g., structural components such as enclosures, barriers, and building site-orientation on site), to be implemented as necessary, to comply with the County Noise Ordinance Section 36.404, and such mitigation measures shall be implemented by the applicant or its designee prior to issuance of any building permit. ~~Implementation of this measure shall also require best engineering practices to be used, including consideration of the noise rating of selected equipment, equipment orientation and placement within a site, and site design, such as building placement enclosures and the use of terrain to shield adjacent properties from on-site noise generator.~~

M-N-4: Best engineering practices shall be used in the placement of noise generating equipment when developing site plans for commercial land uses containing loading docks, delivery areas, and parking lots such that noise levels at the

property line comply with County standards. Development plans shall be accompanied by an acoustical analysis demonstrating compliance with County standards for approval prior to issuance of building permits. Prior to the issuance of any building permit for commercial land uses containing loading docks, delivery areas, and/or parking lots, the applicant, or its designee, shall prepare an acoustical study(s) of the proposed commercial land use site plans for submittal to the County for review and approval. The acoustical study shall identify all noise-generating areas and associated equipment and shall calculate ~~predicted~~ noise levels at the applicable property lines from all identified sources. Where predicted noise levels would exceed those established by County Noise Ordinance Section 36.404, the acoustical study shall identify mitigation measures (e.g., enclosures, barriers, site orientation, reduction of parking stalls), to be implemented as necessary, to comply with the property line noise level limits established by County Noise Ordinance Section 36.404, and such measures shall be implemented by the applicant or its designee prior to the issuance of a building permit. Implementation of this measure shall also require best engineering practices to be used, including consideration of the noise rating of selected equipment, equipment orientation and placement within a site, and site design, such as building placement enclosures and the use of terrain to shield adjacent properties from on-site noise generator.

M-N-5: Best engineering practices shall be used ~~and considered~~ in the placement and design of dog parks, such that noise levels at surrounding property lines comply with County standards for the applicable zone. The building plans shall be accompanied by an acoustical analysis demonstrating compliance with County standards for approval prior to issuance of building permits. Prior to the issuance of any building permit associated with the dog park, the applicant, or its designee, shall prepare an acoustical study(s) of the proposed dog parks for submittal to the County for review and approval. The acoustical study shall calculate ~~predicted~~ noise levels at potentially affected property lines from all potential sources. Where predicted noise levels would exceed those established by County Noise Ordinance Section 36.404, the acoustical study shall identify mitigation measures shown to be effective in reducing noise levels (e.g., barriers, site location, etc.) to be implemented as necessary to comply with the property line noise levels established by County Noise Ordinance Section 36.404, and such measures shall be implemented by the applicant or its designee prior to the issuance of any building permit. Implementation of this measure shall also require best engineering practices to be used, including consideration of the noise rating of selected equipment, equipment orientation and placement within a site, and site design, such as building placement enclosures and the use of terrain to shield adjacent properties from on-site noise generator.

M-N-6: Best engineering practices shall be used ~~and considered~~ in the placement of noise generating equipment when developing site plans for the WRF such that noise levels at the property line comply with County standards. Development plans shall be accompanied by an acoustical analysis demonstrating compliance with County standards for approval prior to issuance of building permits. Prior to the issuance of a building permit for the WRF, the applicant, or its designee, shall prepare an acoustical study(s) of

the proposed WRF for submittal to the County for review and approval. The acoustical study shall identify all noise-generating sources and associated equipment and calculate ~~predicted~~ noise levels at potentially affected property lines from all identified sources. Where predicted noise levels would exceed those established by County Noise Ordinance Section 36.404, the acoustical study shall identify mitigation measures shown to be effective in reducing noise levels (e.g., enclosures, barriers, site orientation, etc.) to be implemented, as necessary, to comply with the property line noise levels limits established by County Noise Ordinance Section 36.404, and such measures shall be implemented by the applicant or its designee prior to issuance of a building permit. Implementation of this measure shall also require best engineering practices to be used, including consideration of the noise rating of selected equipment, equipment orientation and placement within a site, and site design, such as building placement enclosures and the use of terrain to shield adjacent properties from on-site noise generator.

- M-N-7:** Best engineering practices shall be used ~~and considered~~ in the placement of noise generating equipment when developing site plans for the recycling and green waste collection facility such that noise levels at the property line comply with County standards. Development plans shall be accompanied by an acoustical analysis demonstrating compliance with County standards for approval prior to issuance of building permits. Prior to the issuance of a building permit for the Recycling Facility, the applicant, or its designee, shall prepare an acoustical study(s) of the proposed recycling/green waste collection facility for submittal to the County for review and approval. The acoustical study shall identify all noise-generating sources and associated equipment and calculate ~~predicted~~ noise levels at potentially affected property lines from all identified sources. Where predicted noise levels would exceed those established by the County Noise Ordinance Section 36.404, the acoustical study shall identify mitigation measures shown to be effective in reducing noise levels (e.g., enclosures, barriers, site orientation) to be implemented to comply with the property line noise level limits of County Noise Ordinance Section 36.404, and such measures shall be implemented by the applicant or its designee prior to issuance of a building permit. Implementation of this measure shall also require best engineering practices to be used, including consideration of the noise rating of selected equipment, equipment orientation and placement within a site, and site design, such as building placement enclosures and the use of terrain to shield adjacent properties from on-site noise generator.

2.8.5.3 Construction Noise

The following mitigation measures are required for **Impacts N-11** through **N-14**.

- M-N-8:** During all phases of project-related construction activities, the project applicant or designated contractor shall ensure that construction does not occur along more than one property line of any single existing on-site property that is identified as NAP on the implementing map.

- M-N-9:** Prior to and during project-related construction activities for the expansion of the CAL FIRE Miller Station, the project applicant(s) and primary contractor(s)

shall erect a temporary 12-foot-high noise barrier sufficient to block the line of sight from the adjacent properties to the construction activities along the eastern and western property lines of CAL FIRE Miller Station. The noise barrier shall be constructed of material with a minimum weight of two pounds per square foot with no gaps or perforations. Noise barriers may be constructed of, but are not limited to, 5/8-inch plywood, 5/8-inch oriented strand board, or hay bales.

M-N-10: Prior to and during all project-related rock crushing activities, the project applicant(s) and primary contractor(s) of all project phases involving rock crushing shall ensure that all rock crushing activities are located a minimum distance of 350 feet from the nearest property line where an occupied structure is located and shall comply with County noise standards pursuant to County Noise Ordinance, Section 36.409. The 350-foot setback distance may be reduced if a noise study is conducted for rock processing activities and such activities' noise levels are within acceptable County limits (Noise Ordinance Section 36.409) at modified distances determined by the noise study.

M-N-11: Prior to approval of the grading permit for any implementing tentative map, the project applicant or the designated contractor shall have a blast and monitoring plan prepared with an estimate of noise and vibration levels of each blast at NSLU within 1,000 feet of each blast. Where potential exceedance of the County Noise Ordinance are identified, the blast-drilling and monitoring plan shall identify mitigation measures shown to be effective in reducing noise and vibration levels (e.g., altering orientation of blast progression, increased delay between charge detonations, presplitting), to be implemented to comply with the noise level limits of County Noise Ordinance Sections 36.409 and 36.410 and the vibration level limits of 1.0 in/sec PPV, and such measures shall be implemented by the applicant or its designee prior to the issuance of the grading permit. Additionally, all project phases involving blasting shall conform to the following requirements:

- All blasting shall be performed by a blast contractor and blasting personnel licensed to operate in the County.
- Each blast shall be monitored and recorded with an air blast over-pressure monitor and groundborne vibration accelerometer approved by the County that is located outside the closest residence to the blast.
- A blasting plan, including estimates of the air blast over-pressure level and groundborne vibration at the residence closest to the blast, shall be submitted to the County for review prior to the first blast. Blasting shall not commence until the County has approved the blast plan.
- Blasting shall not exceed 1 in/sec PPV at the nearest occupied residence in accordance with County of San Diego Noise Guidelines Section 4.3.
- Blasting shall not be conducted within 1,000 feet of on- or off-site sensitive receptors unless the Blasting Study concludes that a distance

less than 1,000 feet would not exceed County construction and impulsive noise standards.

2.8.5.4 Vibration

In addition to M-N-11 above, the following mitigation measure is required for **Impacts N-15** and **N-16**.

M-N-12: Prior to beginning construction of any project component within 150 feet of an existing or future occupied residence or medical facility, a vibration monitoring plan shall be submitted to the County Noise Control Officer for review and approval. At a minimum, the vibration monitoring plan shall require data be sent to the County Noise Control Officer or designee on a weekly basis or more frequently as determined by the Noise Control Officer. The data shall include vibration level measurements taken during the previous work period. In the event that the County Noise Control Officer determines there is reasonable probability that future measured vibration levels would exceed allowable limits (vibration levels from blasting or pile driving in excess of 1 in/sec PPV or vibration levels from general construction in excess of 0.004 in/sec RMS), the County Noise Control Officer or designee shall take those steps necessary to ensure that future vibration levels do not exceed such limits and would be below the allowable limits, including, but not limited to suspending those further construction activities that would result in excessive vibration levels until either alternative equipment or alternative construction procedures can be used that generate vibration levels that do not exceed 0.004 RMS at the nearest residential structure. Construction activities not associated with vibration generation could continue.

The vibration monitoring plan shall be prepared and administered by a County-approved noise consultant. In addition to the data described above, the vibration monitoring plan shall at a minimum also include the location of vibration monitors, the vibration instrumentation utilized, a data acquisition and retention plan, and exceedance notification and reporting procedures. A description of these plan components is provided below.

Location of Vibration Monitors: The vibration monitoring plan shall include a scaled plan indicating monitoring locations, including the location of measurements to be taken at construction site boundaries and at nearby residential properties.

Vibration Instrumentation: Vibration monitors shall be capable of measuring maximum unweighted RMS and PPV levels triaxially (in three directions) over a frequency range of 1 to 100 hertz. The vibration monitor will be set to automatically record daily events during working hours and to record peak triaxial PPV values in 5-minute interval histogram plots. The method of coupling the geophones to the ground will be described and included in the report. The vibration monitors shall be calibrated within one year of the measurement and the certified laboratory conformance report will be included in the report.

Data Acquisition: The information to be provided in the data reports shall include at a minimum daily histogram plots of PPV vs. time of day for three triaxial directions and maximum peak vector sum PPV and maximum frequency for each direction. The reports will also identify the construction equipment operating during the monitoring period and their locations and distances to all vibration measurement locations.

Exceedance Notification and Reporting Procedures: A description of the notification of exceedance and reporting procedures will be included and the follow-up procedures taken to reduce vibration levels to below the allowable limits.

2.8.6 Conclusion

2.8.6.1 Issue 1: Traffic-generated Noise

Traffic-generated noise at exterior project receivers would exceed County thresholds at certain locations and would therefore be significant (Impact N-1). M-N-1 requires the dedication of noise easements that require an analysis of noise compatibility at the time sufficient detail is available to determine site specific mitigation, such as noise walls or site design. To demonstrate the effectiveness of these measures, refined modeling was conducted which incorporated the proposed grading. Based on the results of the refined modeling, grading along West Lilac Road would provide sufficient attenuation to properties east of Main Street without additional mitigation. Properties west of Main Street ~~and would require a 6 foot high sound wall to comply with the County exterior NSLU standards.~~ For the properties fronting Main Street, between West Lilac Road and C Street, require site specific design for building placement and inclusion of wing walls ~~would be required~~ to reduce noise levels at exterior NSLU areas. As demonstrated, this mitigation measure would effectively reduce impacts as it would identify specifications and require installation of noise barriers sufficient to reduce exterior noise levels in accordance with design specifications that meet County standards at the time of construction.

Interior noise levels of second floor receivers adjacent to the roadways could exceed allowable interior noise levels (Impact N-2). M-N-2 requires an interior analysis of those receivers to be conducted when specific building plans are available to determine whether interior noise levels will exceed 45 CNEL. This mitigation measure would be effective in identifying those units where additional noise reduction measures would reduce interior noise to a level that is less than significant. This mitigation measure would effectively reduce impacts because it will require the specifications for structural components such as air conditioning, dual pane windows, weather stripping for doors, etc., and other noise mitigation at the time of construction. Therefore, it is concluded that with mitigation, interior noise impacts to NSLU would be less than significant.

Significant noise increase would occur along Covey ~~Land Lane~~ and future Lilac Hills Ranch Road, impacting existing off-site NSLUs (Impact N-3). Several methods are available to attenuate traffic noise, such as noise barriers, road surface improvements, regulatory measures (such as lower speed limits), and traffic calming devices (such as speed bumps). However, none of these measures are considered to be feasible for a variety of reasons. As an example, a continuous barrier on private property would be effective. However, the need to provide openings in the wall for driveway access would

make a continuous, solid barrier infeasible. In addition, some measures may not be desired by the local residents due to visual or traffic safety impacts. Other measures, such as reduced speed limits or traffic calming devices may negatively affect traffic circulation and emergency response times. Due to these reasons, mitigation of off-site impacts along Covey Lane and the future Lilac Hills Ranch Road are considered significant and unavoidable direct and cumulatively considerable impacts of the project.

In accordance with CEQA Guidelines Section 15126.6(a), Chapter 4.0 of the EIR includes an analysis of alternatives to the proposed project that would reduce or avoid significant impacts. Table 4-2 shows those alternatives that would reduce significant and unavoidable noise impacts associated with the project. Refer to Chapter 4.0 for a detailed analysis of the alternatives.

2.8.6.2 Issue 2: Stationary and Construction Noise

Non-Construction

Noise at exterior project receivers due to the stationary sources would be potentially significant impacts (Impacts N-4 through N-8) because they could generate unacceptable noise levels to NSLUs. Stationary sources of concern include mechanical equipment, such as HVAC units and other venting, non-emergency generators, parking lots, loading docks, and dog parks. Additionally, the project includes the construction and operation of a WRF and a RF (Impacts N-9 and N-10). Thus, mitigation measures M-N-3 through M-N-7 would be required to reduce airborne noise impacts to less than significant levels because best engineering practices would be implemented, which would include consideration of the noise rating of selected equipment, equipment orientation and placement within a site, and site design, such as building placement enclosures and the use of terrain to shield adjacent properties from on-site noise generator. Site-specific analysis is not possible at this stage of the project because specific models of mechanical equipment, specific locations, placement, and distances to NSLUs are not known to the degree of accuracy required to estimate noise levels.

Construction

As discussed above, with the consideration of project design considerations, construction noise levels would not exceed County construction noise level limit of 75 dB(A) L_{eq} at adjacent property lines with the exception of properties within the boundary of the project. As these properties are located within the project boundary there is a possibility that on-site residences that are NAP of the project could have construction occur along more than one property line, which would potentially create a doubling (+3 dB) or even quadrupling (+6 dB) of construction noise levels over those calculated if construction were to occur along two or more sides simultaneously. Therefore, if construction were to occur along more than one side of an on-site NAP property construction noise levels would exceed 75 dB(A) L_{eq} (Impact N-11). M-N-8 provides restrictions that would limit on-site construction activities and reduce these impacts to less than significant because construction on multiple sides of the NAP would not be permitted to occur.

Construction on the Miller Station site could be included as part of the project after development of Phase 1. As a result of the expansion or construction of a new facility on the Miller Station site, there is a potential to exceed the County construction noise limit at

future occupied residential properties, which is a significant impact. However, potential impacts associated with the expansion of Miller Station would be mitigated with the incorporation of M-N-9. This mitigation measure requires a temporary 12-foot-high noise barrier sufficient to block the line of sight from the adjacent properties to the construction activities along the eastern and western property lines of Miller Station.

As the location of rock crushing activities has not been identified, rock crushing activities could exceed the County construction noise level limits and is considered a significant impact (Impact N-13). Based on an analysis of rock-crushing activities, noise levels would attenuate to 75 dB(A) L_{eq} or less at distances of 350 feet or more. Therefore, impacts associated with rock crushing activities would be mitigated with the incorporation of M-N-10. This mitigation measure requires all rock crushing activities to be located a minimum distance of 350 feet from the nearest property line where an occupied structure is located. The 350-foot setback distance may be reduced if a noise study is conducted for rock processing activities and such activities' noise levels are within acceptable County limits (Noise Ordinance Section 36.409).

Potential impulsive noise impacts due to blasting (Impact N-14) would be mitigated with the incorporation of M-N-11. M-N-11 would require a blasting and monitoring plan to be prepared along with conformance to the specified requirements.

2.8.6.3 Issue 3: Vibration

During project grading and blasting operations, potential impacts associated with the exposure of a noise-sensitive land use to groundborne vibration levels would be significant (Impacts N-15 and N-16). A blasting plan (M-N-11) will be required that will provide the estimated maximum drill noise levels, air blast over-pressure levels, and groundborne vibration levels at each residence within 1,000 feet of the blasting location and demonstrate how these levels will comply with County standards, as well as define a monitoring plan to verify compliance. The vibration monitoring plan would provide for notification procedures to ensure steps are taken to keep vibration levels to below allowable limits. In addition to a blast and monitoring plan, operation of heavy equipment would not be permitted within 100 feet of any inhabited residence (M-N-12). At distances of 100 feet or more, vibrations associated with heavy construction equipment would attenuate to less than 0.4 in/sec PPV. Therefore, it is concluded that with mitigation groundborne vibration impacts would be less than significant.

2.8.6.4 Cumulative Impacts

The project could result in a cumulatively considerable noise impacts associated with cumulative traffic (Impact N-17 and N-18), construction operations (Impact N-19) and blasting activities (Impact N-20). Implementation of mitigation measures M-N-1, 2, 11, and 12 would reduce cumulatively considerable noise impacts associated with construction and blasting to less than significant by limiting project construction noise to the County's noise level limits such that it would not combine with other projects to expose any local occupied property to excessive construction noise. However, impacts associated with traffic increase would remain significant and unmitigated.

~~No other mitigation is required for noise control. Implementation of the above mitigation measures would assure that all significant project-related noise impacts would be reduced less than significant.~~

**TABLE 2.8-1
NOISE COMPATIBILITY GUIDELINES**

Land Use Category		Exterior Noise Levels					
		55	60	65	70	75	80
A	Residential—single family residences, mobile homes, senior housing, convalescent homes						
B	Residential—multi-family residences, mixed-use (commercial/residential)						
C	Transient lodging—motels, hotels, resorts						
D	Schools, churches, hospitals, nursing homes, child care facilities						
E	Passive recreational parks, nature preserves, contemplative spaces, cemeteries						
F	Active parks, golf courses, athletic fields, outdoor spectator sports, water recreation						
G	Office\professional, government, medical\dental, commercial, retail, laboratories						
H	Industrial, manufacturing, utilities, agriculture, mining, stables, ranching, warehouse, maintenance/repair						
		ACCEPTABLE—Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal construction, without any special noise insulation requirements.					
		CONDITIONALLY ACCEPTABLE—New construction or development should be undertaken only after a detailed noise analysis is conducted to determine if noise reduction measures are necessary to achieve acceptable levels for land use. Criteria for determining exterior and interior noise levels are listed in Table 2.8-2, Noise Standards. If a project cannot mitigate noise to a level deemed Acceptable, the appropriate county decision-maker must determine that mitigation has been provided to the greatest extent practicable or that extraordinary circumstances exist.					
		UNACCEPTABLE—New construction or development shall not be undertaken.					

*Denotes facilities used for part of the day; therefore, an hourly standard would be used rather than CNEL, refer to Table 2.8-2.

**TABLE 2.8-2
NOISE STANDARDS**

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1. The exterior noise level (as defined in Item 3) standard for Category A shall be 60 CNEL, and the interior noise level standard for indoor habitable rooms shall be 45 CNEL.
 2. The exterior noise level standard for Categories B and C shall be 65 CNEL, and the interior noise level standard for indoor habitable rooms shall be 45 CNEL.
 3. The exterior noise level standard for Categories D and G shall be 65 CNEL and the interior noise level standard shall be 50 dB(A) L_{eq} (one hour average).
 4. For single-family detached dwelling units, "exterior noise level" is defined as the noise level measured at an outdoor living area which adjoins and is on the same lot as the dwelling, and which contains at least the following minimum net lot area:
 - (i) for lots less than 4,000 square feet in area, the exterior area shall include 400 square feet,
 - (ii) for lots between 4,000 square feet to 10 acres in area, the exterior area shall include 10 percent of the lot area;
 - (iii) for lots over 10 acres in area, the exterior area shall include 1 acre.
 5. For all other residential land uses, "exterior noise level" is defined as noise measured at exterior areas which are provided for private or group usable open space purposes. "Private Usable Open Space" is defined as usable open space intended for use of occupants of one dwelling unit, normally including yards, decks, and balconies. When the noise limit for Private Usable Open Space cannot be met, then a Group Usable Open Space that meets the exterior noise level standard shall be provided. "Group Usable Open Space" is defined as usable open space intended for common use by occupants of a development, either privately owned and maintained or dedicated to a public agency, normally including swimming pools, recreation courts, patios, open landscaped areas, and greenbelts with pedestrian walkways and equestrian and bicycle trails, but not including off-street parking and loading areas or driveways.
 6. For non-residential noise sensitive land uses, exterior noise level is defined as noise measured at the exterior area provided for public use.
 7. For noise sensitive land uses where people normally do not sleep at night, the exterior and interior noise standard may be measured using either CNEL or the one-hour average noise level determined at the loudest hour during the period when the facility is normally occupied.
 8. The exterior noise standard does not apply for land uses where no exterior use area is proposed or necessary, such as a library.
 9. For Categories E and F the exterior noise level standard shall not exceed the limit defined as "Acceptable" in Table N-1 or an equivalent one-hour noise standard.
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**TABLE 2.8-3
NOISE MEASUREMENT SUMMARY**

ID	Description	Start Time	Noise Level dB(A)				Notes
			L _{eq}	L _{Max}	L _{min}	L ₉₀	
1	30 feet East of Shirley Road	11:02 a.m.	45.1	66.7	34.5	37.7	Traffic on I-15 dominant source, Lilac Road traffic minor, as well as aircraft and animal vocalizations
2	30 feet east of Birdsong Road	11:26 a.m.	41.9	61.7	32.1	35.4	Traffic on I-15 aircraft were minor sources
3	20 feet south of Lilac Walk	11:51 a.m.	40.7	55.9	31.9	35.8	Traffic on I-15 aircraft and animal vocalizations were minor sources
4	50 feet south of Old West Lilac Road	3:38 p.m.	58.8	80.4	36.9	41.4	Traffic on I-15 dominant source, aircraft and animal vocalizations were minor sources
5	50 feet North of Old West Lilac Road	12:17 p.m.	52.7	79.0	31.1	34.3	Traffic on I-15 aircraft and animal vocalizations were minor sources
6	50 feet north of Covey Lane	12:40 p.m.	43.9	67.0	33.8	36.4	Traffic on I-15 aircraft and animal vocalizations were minor sources
7	30 feet north of Nelson Way	2:23 p.m.	40.1	61.3	34.9	37.4	Traffic on I-15 aircraft and animal vocalizations were minor sources
8	30 feet east of Rocking Horse Road	3:09 p.m.	54.1	61.2	49.0	52.3	Traffic on I-15 dominant source, Lilac Road traffic secondary, aircraft and animal vocalizations were minor sources

*The Site ID corresponds to locations shown in Figure 2.8-1.

L_{eq} – Average noise level for the measurement period; L_{max} – Maximum noise level for the measurement period;

L_{min} – Minimum noise level for the measurement period; L₉₀ – Noise level exceeded 90 percent of the time during the measurement period.

**TABLE 2.8-4
ON-SITE FUTURE NOISE LEVELS**

Modeled Point	Land Use/ Acceptable CNEL	Noise Level CNEL	Lot Number	Modeled Point	Land Use/ Acceptable CNEL	Noise Level CNEL	Lot Number
R-1	A/60	63	10	R-34	A/60	53	294
R-2	A/60	53	14	R-35	A/60	59	342
R-3	A/60	61	3	R-36	A/60	57	339
R-4	A/60	56	176	R-37	A/60	54	331
R-5	B/65	61	HOA CC	R-38	E/65	54	Park QQ
R-6	A/60	57	120	R-39	A/60	54	227
R-7	A/60	55	116	R-40	A/60	55	289
R-8	A/60	55	110	R-41	A/60	56	333
R-9	E/65	52	OS	R-42	NA	59	NA
R-10	A/60	54	70	R-43	A/60	56	282
R-11	A/60	52	64	R-44	A/60	57	285
R-12	A/60	51	57	R-45	A/60	57	NA
R-13	A/60	57	190	R-46	A/60	55	NA
R-14	A/60	60	193	R-47	P	58	NA
R-15	A/60	59	186	R-48	A/60	57	NA
R-16	A/60	60	179	R-49	E/65	55	NA
R-17	A/60	55	208	R-50	E/65	57	NA
R-18	A/60	55	210	R-51	A/60	54	NA
R-19	A/60	55	211	R-52	A/60	58	NA
R-20	A/60	57	213	R-53	A/60	60	NA
R-21	A/60	54	248	R-54	A/60	55	NA
R-22	A/60	52	237	R-55	A/60	55	NA
R-23	A/60	56	215	R-56	A/60	55	NA
R-24	A/60	54	218	R-57	A/60	61	NA
R-25	A/60	52	244	R-58	A/60	55	NA
R-26	A/60	53	221	R-59	A/60	52	NA
R-27	A/60	53	222	R-60	A/60	55	NA
R-28	A/60	57	351	R-61	A/60	54	NA
R-29	A/60	55	311	R-62	A/60	55	NA
R-30	A/60	59	348	R-63	A/60	53	NA
R-31	A/60	55	319	R-64	A/60	56	NA
R-32	A/60	58	344	R-65	A/60	51	NA
R-33	A/60	55	301				

NOTE: Bold numbers and receivers indicate potential traffic noise impacts based on the County's noise compatibility standard of 60 CNEL.

**TABLE 2.8-5
CHANGES IN OFF-SITE TRAFFIC CNEL AT 100 FEET FROM CENTERLINE**

Street	Segment		Existing	Phase 1	Delta	Phases 1-5	Delta
	Start	End					
E. Dulin Road	Old Highway 395	SR-76	61	62	1	65	3
	Camino Del Rey	Camino Del Cielo	62	63	0	64	1
	Camino Del Cielo	Old Highway 395	59	59	1	61	2
W. Lilac Road	Old Highway 395	West Main Street	56	62	6	67	11
	West Main Street	East Main Street	56	57	1	60	4
	East Main Street	Covey Lane	56	57	1	58	2
	Covey Lane	Circle R Drive	53	56	3	60	7
	Circle R Drive	Lilac Road	59	59	0	60	1
Camino Del Cielo	Camino Del Rey	W. Lilac Road	65	65	0	65	0
Olive Hill Road	Shamrock Road	SR-76	62	62	0	62	0
Camino Del Rey	SR-76	Old River Road	66	66	0	66	0
	Old River Road	W. Lilac Road	66	66	0	66	0
	W. Lilac Road	Camino Del Cielo	65	65	0	65	0
	Camino Del Cielo	Old Highway 395	63	63	0	64	0
Gopher Canyon Road	E. Vista Way	I-15 SB Ramps	68	68	0	69	0
	I-15 SB Ramps	I-15 NB Ramps	68	68	0	68	0
	I-15 NB Ramps	Old Highway 395	65	65	0	65	0
Circle R Drive	Old Highway 395	Mountain Ridge Road	63	63	0	63	0
	Mountain Ridge Road	W. Lilac Road	59	59	0	60	1
Old Castle Road	Old Highway 395	Lilac Road	65	65	0	65	0
E. Vista Way	SR-76	Gopher Canyon Road	68	68	0	68	0
	Gopher Canyon Road	Osborne Street	70	70	0	70	0
Old River Road	SR-76	Camino Del Rey	62	62	0	62	1
Old Highway 395	Pala Mesa Drive	SR-76	65	65	0	66	0
	SR-76	E. Dulin Road	63	64	0	65	1
	E. Dulin Road	W. Lilac Road	63	64	1	66	3
	W. Lilac Road	I-15 SB Ramps	61	62	2	65	4
	I-15 SB Ramps	I-15 NB Ramps	61	62	1	64	3
	I-15 NB Ramps	Camino Del Rey	59	60	1	61	1
	Camino Del Rey	Circle R Drive	63	63	0	64	1
	Circle R Drive	Gopher Canyon Road	66	66	0	66	1
	Gopher Canyon Road	Old Castle Road	65	65	0	65	0

**TABLE 2.8-5
CHANGES IN OFF-SITE TRAFFIC CNEL AT 100 FEET FROM CENTERLINE
(continued)**

Street	Segment		Existing	Phase 1	Delta	Phases	
	Start	End				1-5	Delta
Champagne Boulevard	Old Castle Road	Lawrence Welk Drive	62	62	0	62	0
Pankey Road	Pala Mesa Drive	SR-76	44	44	0	44	0
Lilac Road	Couser Canyon Road	W. Lilac Road	56	56	0	57	1
	W. Lilac Road	Old Castle Road	60	60	0	61	2
	Old Castle Road	Anthony Road	65	65	0	65	0
	Anthony Road	Betsworth Road	65	65	0	65	0
	Betsworth Road	Valley Center Road	65	65	0	66	0
Valley Center Road	Woods Valley Road	Lilac Road	69	69	0	69	0
	Lilac Road	Miller Road	69	69	0	69	0
	Miller Road	Cole Grade Road	69	69	0	69	0
	Cole Grade Road	Vesper Road	66	66	0	66	0
Miller Road	Misty Oak Road	Valley Center Road	57	57	0	57	0
Cole Grade Road	Fruitvale Road	Valley Center Road	66	66	0	66	0
Covey Lane	Project Eastern Boundary	W. Lilac Road	44	44	0	56	12
Mountain Ridge Road	Project Southern Boundary	Circle R Drive	45	45	0	53	8
Lilac Hills Ranch Road	Phase 3 Southern Boundary	Phase 4 Northern Boundary	DNE	DNE	0	62	62
I-15	Riverside County Boundary	Old Highway 395	82	82	0	82	0
	Old Highway 395	SR-76	82	82	0	82	0
	SR-76	Old Highway 395	81	81	0	81	0
	Old Highway 395	Gopher Canyon Road	81	81	0	81	0
	Gopher Canyon Road	Deer Springs Road	81	81	0	81	0
	Deer Springs Road	Centre City Parkway	84	84	0	84	0
	Centre City Parkway	El Norte Parkway	83	83	0	83	0
	El Norte Parkway	SR-78	84	84	0	84	0
	SR-78	W Valley Parkway	86	86	0	86	0
	W Valley Parkway	Auto Parkway	85	85	0	85	0
	Auto Parkway	W Citracado Parkway	85	85	0	85	0
	W Citracado Parkway	Via Rancho Parkway	86	86	0	86	0
	Via Rancho Parkway	Bernardo Drive	86	86	0	86	0
	Bernardo Drive	Rancho Bernardo Road	86	86	0	86	0
	Rancho Bernardo Road	Bernardo Center Drive	86	86	0	86	0
Bernardo Center Drive	Camino Del Norte	86	86	0	86	0	

NOTE: DNE = Does not exist; **Bold** numbers and receivers indicate potential traffic noise impacts.

**TABLE 2.8-9
GUIDELINES FOR DETERMINING THE SIGNIFICANCE OF GROUNDBORNE
VIBRATION AND NOISE IMPACTS**

Land Use Category	Groundborne Vibration Impact Levels (inches/sec RMS)		Groundborne Noise Impact Levels (dB re 20 micro Pascals)	
	Frequent Events ¹	Occasional or Infrequent Events ²	Frequent Events ¹	Occasional or Infrequent Events ²
Category 1: Buildings where low ambient vibration is essential for interior operations (research & manufacturing facilities with special vibration constraints) ⁶	0.0018 ³	0.0018 ³	Not applicable _{4,5}	Not applicable ^{4,5}
Category 2: Residences and buildings where people normally sleep (hotels, hospitals, residences, & other sleeping facilities) ⁶	0.0040	0.010	35 dB(A)	43 dB(A)
Category 3: Institutional land uses with primarily daytime use (schools, churches, libraries, other institutions, & quiet offices) ⁶	0.0056	0.014	40 dB(A)	48 dB(A)

RMS = root mean square; re = relative

¹“Frequent Events” is defined as more than 70 vibration events per day. Most rapid transit projects fall into this category.

²“Infrequent Events” is defined as fewer than 70 vibration events per day. This category includes most commuter rail systems.

³This criterion limit is based on levels that are acceptable for most moderately sensitive equipment such as optical microscopes. Vibration-sensitive manufacturing or research will require detailed evaluation to define acceptable vibration levels. Ensuring lower vibration levels in a building often requires special design of the HVAC systems and stiffened floors.

⁴Vibration-sensitive equipment is not sensitive to groundborne noise.

⁵There are some buildings, such as concert halls, TV and recording studios, and theaters that can be very sensitive to vibration and noise but do not fit into any of the three categories. The County of San Diego Noise Ordinance table, above, gives criteria for acceptable levels of groundborne vibration and noise for these various types of special uses.

⁶For Categories 2 and 3 with occupied facilities, isolated events such as blasting are significant when the peak particle velocity (PPV) exceeds 1 inch per second. Nontransportation vibration sources such as impact pile drivers or hydraulic breakers are significant when their PPV exceeds 0.1 inch per second. More specific criteria for structures and potential annoyance were developed by Caltrans (2004) and will be used to evaluate these continuous or transient sources in the County of San Diego.

SOURCE: FTA 2006.

**TABLE 2.8-10
GUIDELINES FOR DETERMINING THE SIGNIFICANCE OF GROUNDBORNE
VIBRATION AND NOISE IMPACTS FOR SPECIAL BUILDINGS**

Type of Building or Room	Groundborne Vibration Impact Levels (inches/sec rms)		Groundborne Noise Impact Levels (dB re 20 micro Pascals)	
	Frequent Events ¹	Occasional or Infrequent Events ²	Frequent Events ¹	Occasional or Infrequent Events ²
Concert Halls, TV Studios, and Recording Studios	0.0018	0.0018	25 dB(A)	25 dB(A)
Auditoriums	0.0040	0.010	30 dB(A)	38 dB(A)
Theaters	0.0040	0.010	35 dB(A)	43 dB(A)

RMS = root mean square; re = relative

¹“Frequent Events” is defined as more than 70 vibration events per day. Most rapid transit projects fall into this category.

²“Infrequent Events” is defined as fewer than 70 vibration events per day. This category includes most commuter rail systems.

SOURCE: FTA 2006.

**TABLE 2.8-11
CUMULATIVE OFF-SITE TRAFFIC CNEL AT 100 FEET FROM CENTERLINE**

Street/Freeway	Segment		Existing	Phases E, Buildout	Cumulative	Total Increase	Project Contribution
	Start	End					
E. Dulin Road	Old Highway 395	SR-76	61.2	64.5	67.2	6.0	3.3
	Camino Del Rey	Camino Del Cielo	62.1	63.5	63.8	1.7	1.4
	Camino Del Cielo	Old Highway 395	58.7	60.6	60.9	2.2	1.9
W. Lilac Road	Old Highway 395	West Main Street	56.0	66.4	66.7	10.7	10.4
	West Main Street	East Main Street	56.0	60.1	60.3	4.3	4.1
	East Main Street	Covey Lane	56.0	58.0	58.1	2.1	2.0
	Covey Lane	Circle R Drive	53.3	60.3	60.5	7.2	7.0
	Circle R Drive	Lilac Road	59.0	59.3	59.6	0.6	0.3
Camino Del Cielo	Camino Del Rey	W. Lilac Road	64.9	65.0	66.7	1.8	0.1
Olive Hill Road	Shamrock Road	SR-76	61.8	61.9	63.0	1.2	0.1
	SR-76	Old River Road	66.2	66.4	66.7	0.5	0.2
Camino Del Rey	Old River Road	W. Lilac Road	65.9	66.3	67.3	1.4	0.4
	W. Lilac Road	Camino Del Cielo	64.8	64.9	66.3	1.5	0.1
	Camino Del Cielo	Old Highway 395	63.4	63.5	64.0	0.6	0.1
Gopher Canyon Road	E. Vista Way	I-15 SB Ramps	68.4	68.5	68.6	0.2	0.1
	I-15 SB Ramps	I-15 NB Ramps	67.5	67.8	69.2	1.7	0.3
	I-15 NB Ramps	Old Highway 395	65.0	65.4	66.8	1.8	0.4
Circle R Drive	Old Highway 395	Mountain Ridge Road	62.6	62.6	63.7	1.1	0.0
	Mountain Ridge Road	W. Lilac Road	59.0	60.3	60.5	1.5	0.3
Old Castle Road	Old Highway 395	Lilac Road	64.9	65.0	66.7	1.8	0.1
E. Vista Way	SR-76	Gopher Canyon Road	68.3	68.4	69.7	1.4	0.1
	Gopher Canyon Road	Osborne Street	69.8	69.8	70.8	1.0	0.0
Old River Road	SR-76	Camino Del Rey	61.5	62.1	62.2	0.7	0.6
	Pala Mesa Drive	SR-76	65.3	65.7	69.0	3.7	0.4
	SR-76	E. Dulin Road	63.3	64.5	66.5	3.2	1.2
	E. Dulin Road	W. Lilac Road	62.9	65.6	67.6	4.7	2.7
Old Highway 395	W. Lilac Road	I-15 SB Ramps	60.7	64.8	65.7	5.0	4.1
	I-15 SB Ramps	I-15 NB Ramps	61.0	64.1	65.9	4.9	3.1
	I-15 NB Ramps	Camino Del Rey	59.3	61.0	63.8	4.5	1.7
	Camino Del Rey	Circle R Drive	63.1	63.9	65.2	2.1	0.8
	Circle R Drive	Gopher Canyon Road	65.7	66.3	67.3	1.6	0.6
	Gopher Canyon Road	Old Castle Road	64.8	65.0	65.4	0.6	0.2
Champagne Boulevard	Old Castle Road	Lawrence Welk Drive	61.6	61.9	64.3	2.7	0.3
Pankey Road	Pala Mesa Drive	SR-76	43.9	43.9	67.6	23.7	0.0

**TABLE 2.8-11
CUMULATIVE OFF-SITE TRAFFIC CNEL AT 100 FEET FROM CENTERLINE
(continued)**

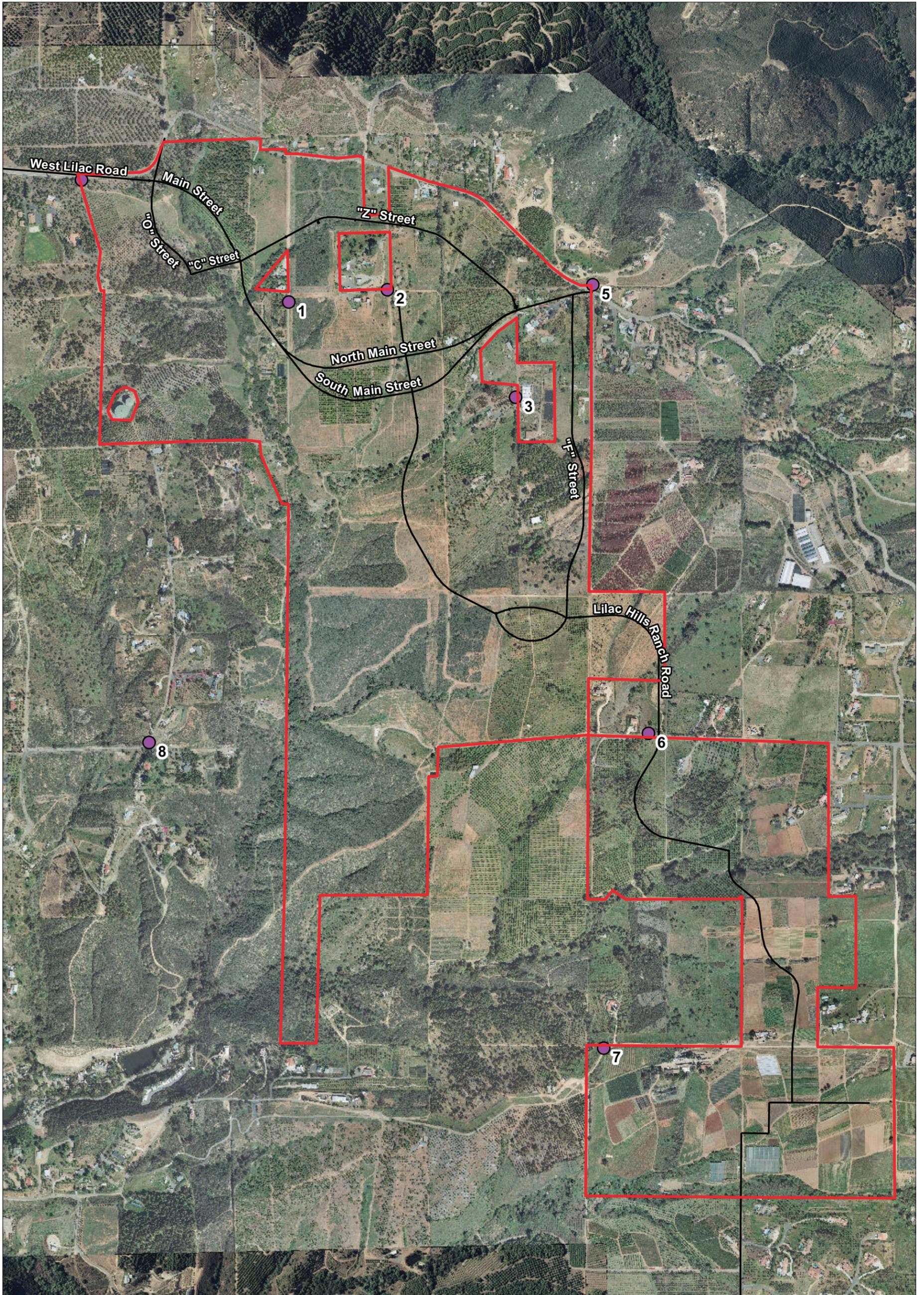
Street/Freeway	Segment		Existing	Phases E, Buildout	Cumulative	Total Increase	Project Contribution
	Start	End					
Lilac Road	Couser Canyon Road	W. Lilac Road	56.0	56.8	58.4	2.4	0.8
	W. Lilac Road	Old Castle Road	59.6	61.1	61.2	1.6	1.5
	Old Castle Road	Anthony Road	65.0	65.4	66.1	1.1	0.4
	Anthony Road	Betsworth Road	64.8	65.1	65.7	0.9	0.3
	Betsworth Road	Valley Center Road	65.2	65.5	66.2	1.0	0.3
Valley Center Road	Woods Valley Road	Lilac Road	68.7	68.7	69.3	0.6	0.0
	Lilac Road	Miller Road	69.3	69.3	69.7	0.4	0.0
	Miller Road	Cole Grade Road	68.9	69.0	69.4	0.5	0.1
	Cole Grade Road	Vesper Road	66.0	66.1	66.5	0.5	0.1
Miller Road	Misty Oak Road	Valley Center Road	57.1	57.1	59.0	1.9	0.0
Cole Grade Road	Fruitvale Road	Valley Center Road	65.7	65.7	67.6	1.9	0.0
Covey Lane	Project Eastern Boundary	W. Lilac Road	44.2	55.7	55.7	11.2	11.2
Mountain Ridge Road	Project Southern Boundary	Circle R Drive	45.0	52.7	52.7	7.7	7.7
Lilac Hills Ranch Road	Phase 3 Southern Boundary	Phase 4 Northern Boundary	DNE	57.3	57.7	57.7	57.7
I-15	Riverside County Boundary	Old Highway 395	81.6	81.7	83.4	1.8	0.1
	Old Highway 395	SR-76	81.6	81.7	84.1	2.5	0.1
	SR-76	Old Highway 395	80.8	80.9	82.6	1.8	0.1
	Old Highway 395	Gopher Canyon Road	80.7	80.9	82.5	1.8	0.2
	Gopher Canyon Road	Deer Springs Road	81.0	81.2	82.5	1.5	0.2
	Deer Springs Road	Centre City Parkway	83.5	83.7	85.1	1.6	0.2
	Centre City Parkway	El Norte Parkway	83.3	83.4	84.8	1.5	0.1
	El Norte Parkway	SR-78	83.9	84.0	85.2	1.3	0.1
	SR-78	W. Valley Parkway	85.7	85.7	86.2	0.5	0.0
	W Valley Parkway	Auto Parkway	85.4	85.4	85.9	0.5	0.0
	Auto Parkway	W Citracado Parkway	85.2	85.3	85.7	0.5	0.1
	W Citracado Parkway	Via Rancho Parkway	85.8	85.8	86.1	0.3	0.0
	Via Rancho Parkway	Bernardo Drive	85.8	85.9	86.6	0.8	0.1
	Bernardo Drive	Rancho Bernardo Road	85.9	85.9	86.2	0.3	0.0
	Rancho Bernardo Road	Bernardo Center Drive	86.1	86.1	86.2	0.1	0.0
Bernardo Center Drive	Camino Del Norte	86.2	86.2	86.2	0.0	0.0	

NOTE: DNE= Does not exist; **Bold** numbers and receivers indicate potential traffic noise impacts.

**TABLE 2.8-12
FUTURE OFF-SITE NOISE LEVELS AT SPECIFIC LOCAL RECEIVER LOCATIONS**

Modeled Point	Land Use/ Acceptable CNEL	Noise Level CNEL	APN	Modeled Point	Land Use/ Acceptable CNEL	Noise Level CNEL	APN
R-66	A/60	57	128-280-4400	R-114	A/60	43	129-430-0600
R-67	A/60	50	128-280-5600	R-115	A/60	43	129-430-0200
R-68	A/60	51	128-440-1100	R-116	A/60	44	129-430-0500
R-69	A/60	56	127-072-2800	R-117	A/60	47	129-430-0300
R-70	A/60	53	125-232-3100	R-118	A/60	47	129-430-0400
R-71	A/60	56	128-280-5300	R-119	A/60	45	129-430-1100
R-72	A/60	55	128-280-5200	R-120	A/60	48	129-430-1200
R-73	A/60	54	128-280-2300	R-121	A/60	45	129-300-4600
R-74	A/60	51	128-280-2800	R-122	A/60	45	129-011-2300
R-75	A/60	52	128-280-0700	R-123	A/60	47	129-010-6100
R-76	A/60	50	128-280-3200	R-124	A/60	47	129-300-0400
R-77	A/60	54	128-280-3300	R-125	A/60	47	129-010-7800
R-78	A/60	51	128-280-3400	R-126	A/60	47	129-300-3700
R-79	A/60	50	128-280-5100	R-127	A/60	47	129-300-3600
R-80	A/60	48	128-280-3800	R-128	A/60	47	129-300-2600
R-81	A/60	48	128-280-6100	R-129	A/60	47	129-300-0500
R-82	A/60	48	128-280-6200	R-130	A/60	48	129-300-2100
R-83	A/60	56	128-280-3900	R-131	A/60	48	129-300-3000
R-84	A/60	52	128-310-5000	R-132	A/60	49	128-290-5300
R-85	A/60	53	128-310-3100	R-133	A/60	51	127-450-0400
R-86	A/60	49	128-310-4600	R-134	A/60	50	128-290-5200
R-87	A/60	52	128-310-3800	R-135	A/60	51	127-060-3300
R-88	A/60	47	128-310-4700	R-136	A/60	51	127-061-1000
R-89	A/60	51	128-310-3600	R-137	A/60	52	127-061-0900
R-90	A/60	47	128-310-4500	R-138	A/60	50	128-290-4300
R-91	A/60	47	128-310-4400	R-139	A/60	50	128-290-7300
R-92	A/60	49	128-290-7600	R-140	A/60	51	127-061-0800
R-93	A/60	55	128-290-7700	R-141	A/60	51	127-061-0700
R-94	A/60	51	128-290-3600	R-142	A/60	52	127-061-0600
R-95	A/60	50	128-290-3700	R-143	A/60	54	127-061-0500
R-96	A/60	57	128-290-6700	R-144	A/60	57	127-061-0300
R-97	A/60	54	128-290-6500	R-145	A/60	55	127-072-4800
R-98	A/60	47	128-290-6400	R-146	A/60	62	125-231-3300
R-99	A/60	51	129-010-8300	R-147	A/60	61	127-071-4500
R-100	A/60	53	129-010-8400	R-148	A/60	56	127-071-1600
R-101	A/60	46	129-010-8500	R-149	A/60	47	129-430-1400
R-102	A/60	45	129-010-8600	R-150	A/60	52	129-430-1300
R-103	A/60	46	129-010-6400	R-151	A/60	46	129-390-3800
R-104	A/60	45	129-090-0100	R-152	A/60	49	129-390-1800
R-105	A/60	44	129-010-6600	R-153	A/60	44	129-390-3800
R-106	A/60	44	129-380-0100	R-154	A/60	44	129-390-4000
R-107	A/60	49	129-011-1800	R-155	A/60	47	128-290-4000
R-108	A/60	45	129-011-1900	R-156	A/60	48	128-290-3400
R-109	A/60	47	129-011-2100	R-157	A/60	50	128-310-5200
R-110	A/60	43	129-211-0100	R-158	A/60	52	128-310-5100
R-111	A/60	43	129-211-1100	R-159	A/60	49	128-310-4000
R-112	A/60	43	129-430-0100	R-160	A/60	47	128-310-3900
R-113	A/60	43	129-430-0700				

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-  Project Boundary
-  Noise Measurements
-  Proposed Roadways



FIGURE 2.8-1

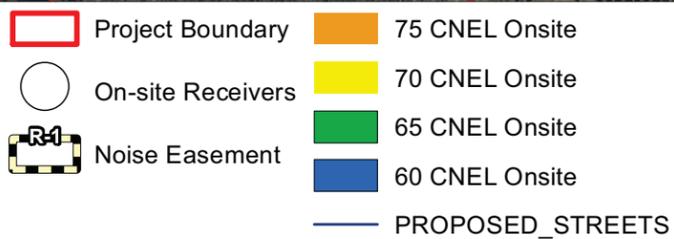
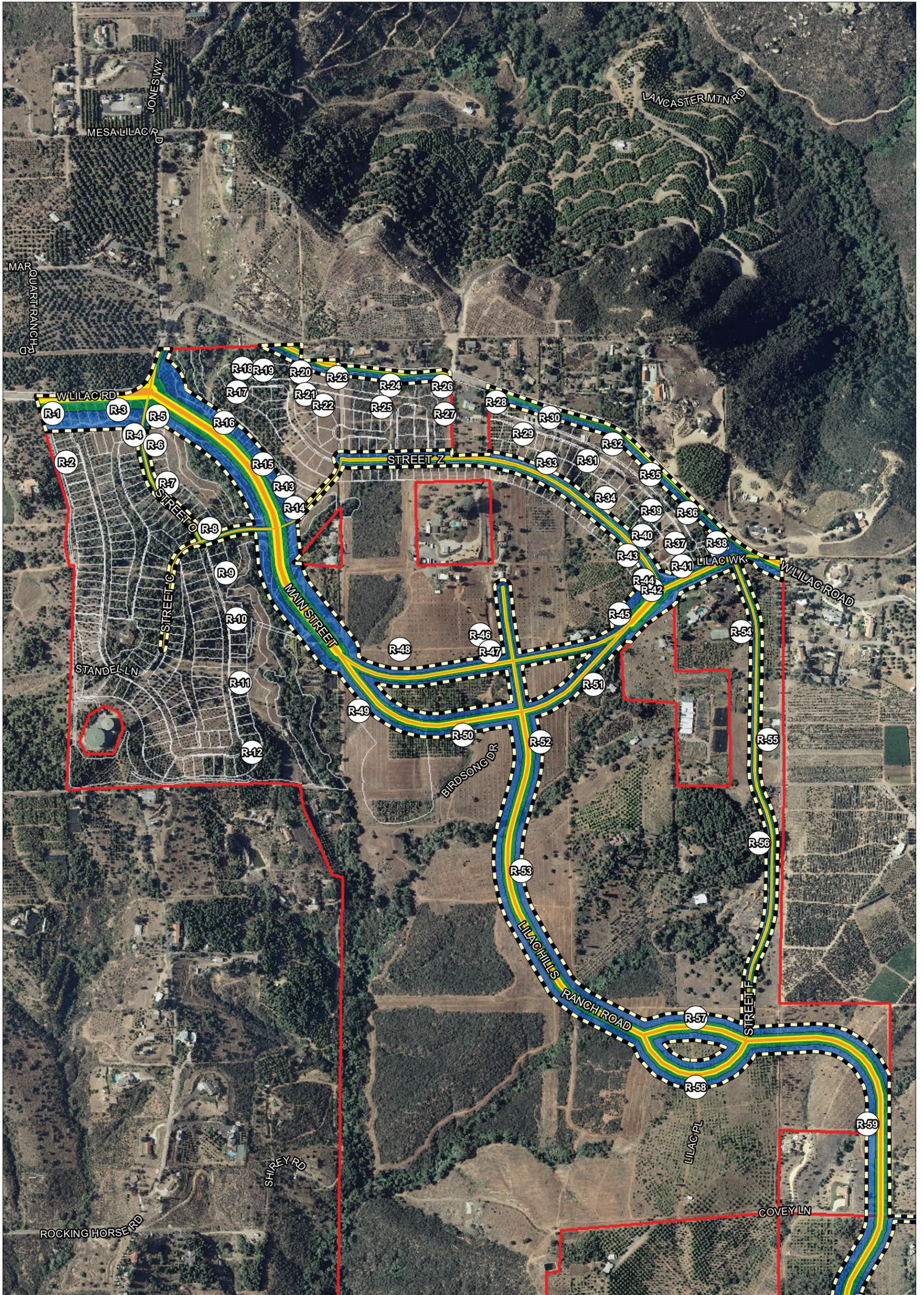


FIGURE 2.8-2a

On-site Noise Level Contours

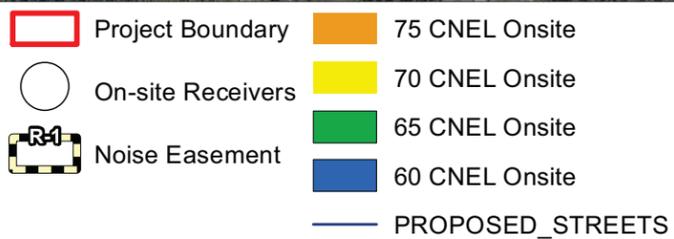
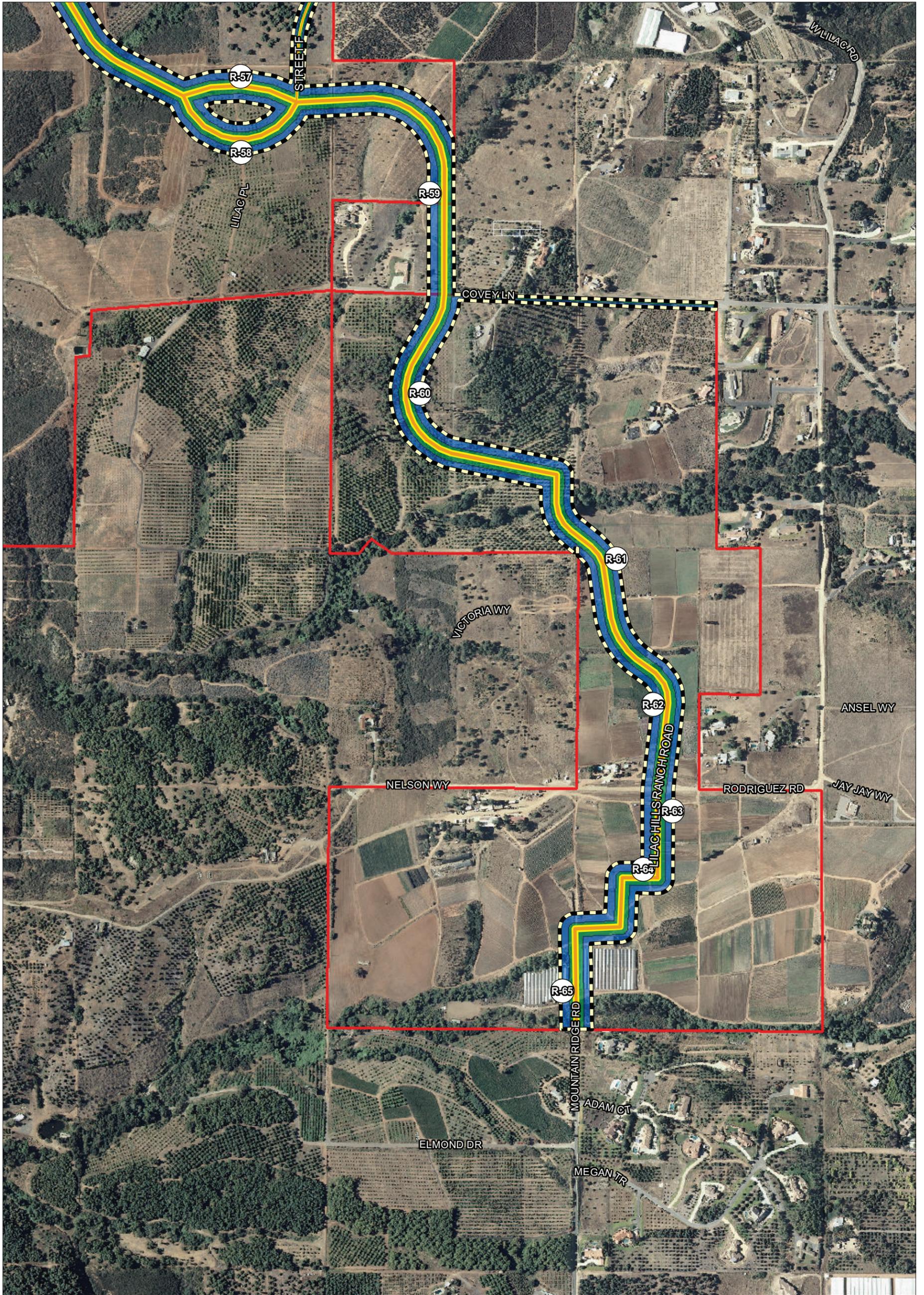


FIGURE 2.8-2b

On-site Noise Level Contours

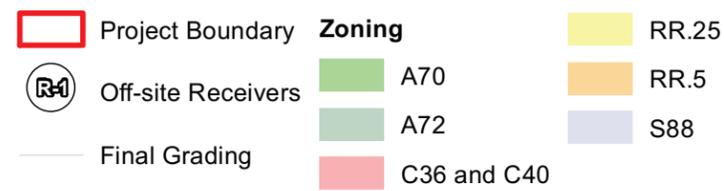
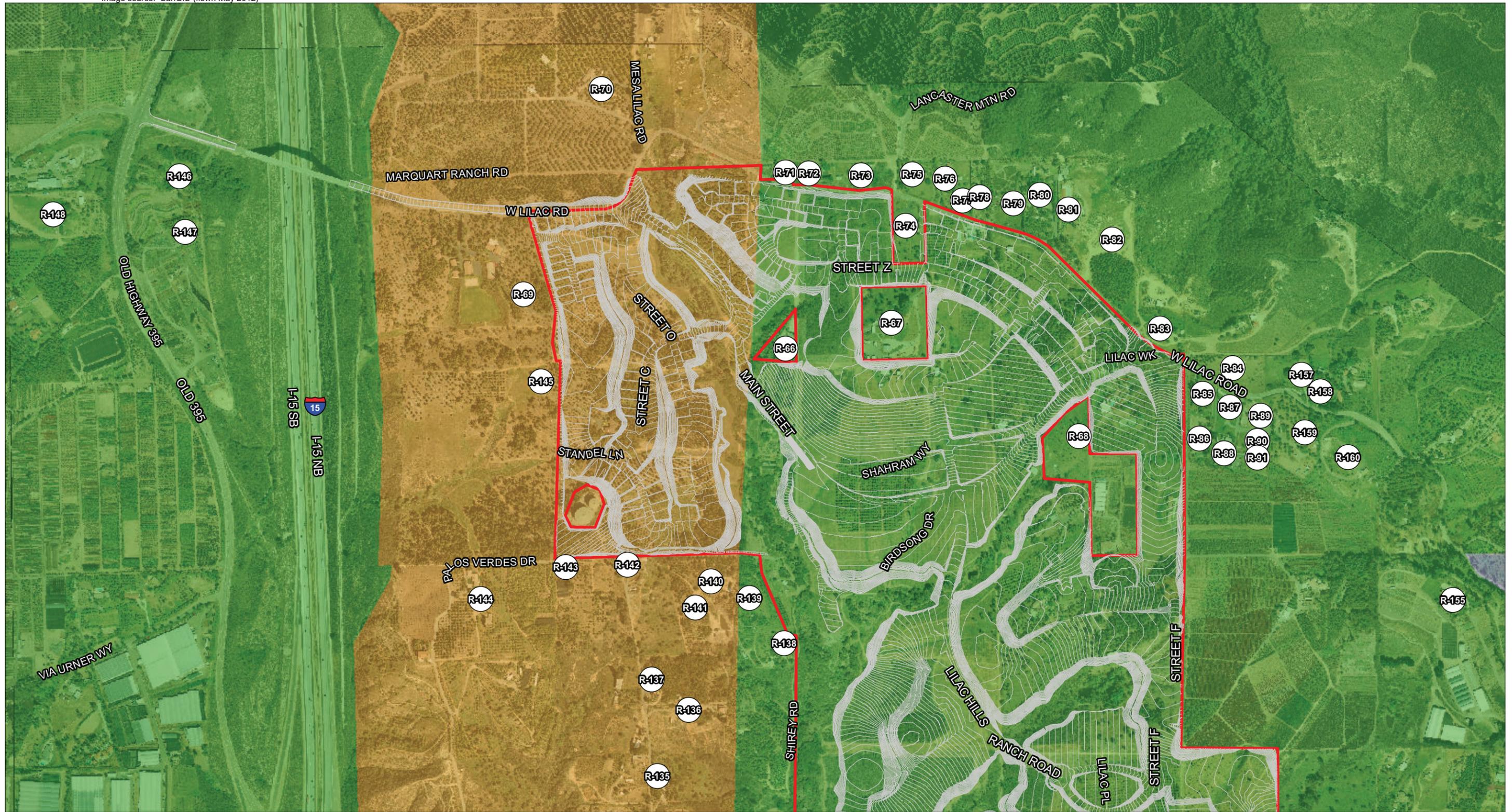


FIGURE 2.8-3a
Off-site NSLU (North)

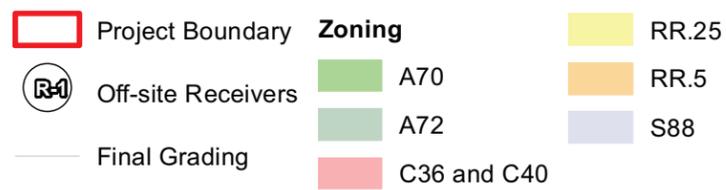
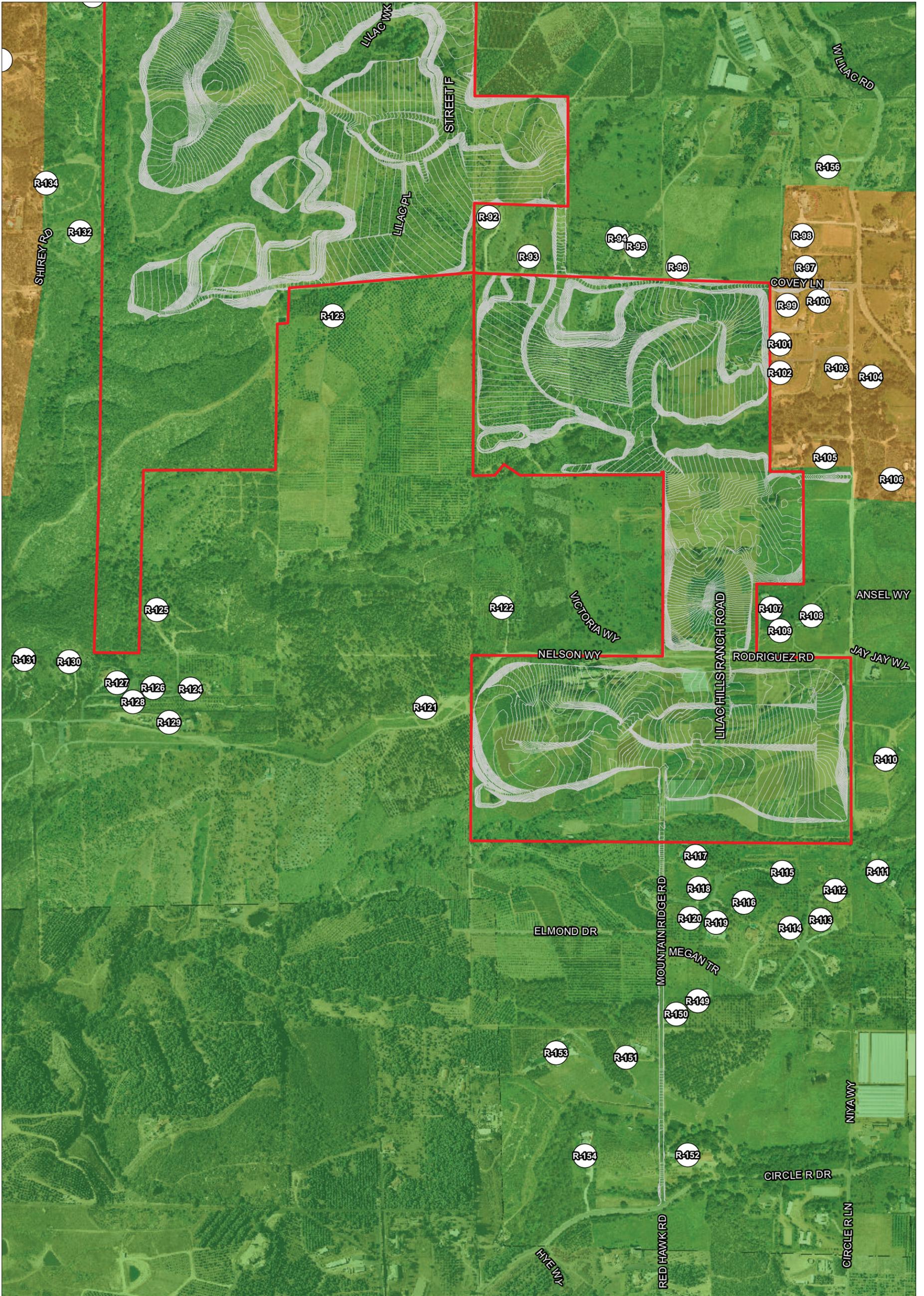


FIGURE 2.8-3b

Off-site NSLU (South)