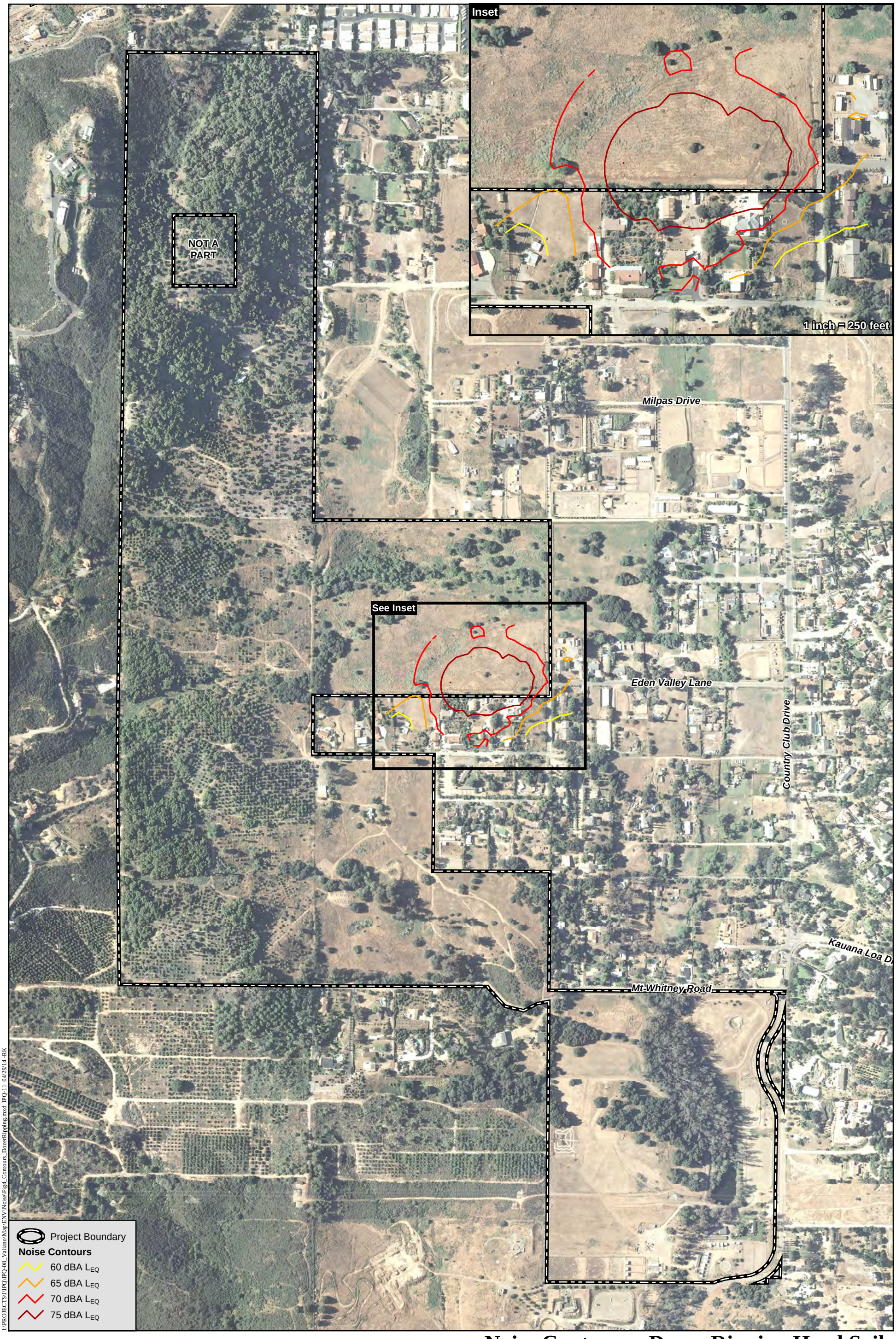

Noise Contours: Dozer Ripping Hard Soils

VALIANO

HELIX Environmental Planning

N 0 500 Feet

Figure 4

Inset

1 inch = 250 feet

NOT A PART

See Inset

Milpas Drive

Eden Valley Lane

Country Club Drive

Kauana Loa D

Mt Whitney Road

Project Boundary

Noise Contours

55 dBA L_{EQ}

60 dBA L_{EQ}

65 dBA L_{EQ}

70 dBA L_{EQ}

75 dBA L_{EQ}

I:\PROJECTS\UPQ\IPQ-08_Valiano\Map\ENV\Noise\Fig5_Contours_DozerRipping_Barrier.mxd IPQ-11 04/29/14 -RK

Noise Contours: Dozer Ripping Hard Soils with 12-foot Noise Control Barrier

VALIANO

Figure 5

HELIX Environmental Planning

N

0 500 Feet

would be controlled with blast mats or other flyrock control techniques, and proper stemming materials for the charge hole would be utilized. No further analysis will be provided.

Vibration: Both air and ground vibrations create waves that disturb the material in which they travel. When these waves encounter a structure, they cause it to shake and may cause structural damage. Ground vibrations enter the house through the foundation.

Airblast: Airblast is a pressure wave that creates a push (positive pressure) and pull (negative pressure) effect; it may be audible (noise) or inaudible (concussion). A blast occurring outside of a residence may be heard inside because of the audible noise; however, noise has little impact on the structure. The concussion wave causes the structure to shake and rattle and can break windows at higher pressure levels.

As with flyrock, control of airblast is dependent on the skill of the Blasting Supervisor, along with many factors including but not limited to: the depth of the charge, the type of rock, the amount of fractures in the rock, and the length of correct stemming materials.

An analysis of airblast is not provided in this report; however, airblast is regulated by the limits from the Code of Federal Regulations (30 CFR 816.61-68), which are provided below under the discussion of Airblast Impacts.

The following analysis is based on a general description of potential impacts that would be incurred by the Project as a result of blasting activities. The information is based on guidance provided by the Office of Surface Mining Reclamation and Enforcement including the document, *Controlling the Adverse Effects of Blasting* (OSM website http://www.osmre.gov/) for calculating the scaled distance in blasting.

Final blasting calculations are typically done by the blasting company using a commercial calculator using the Ground Transmission Constant "K."

Based on an assumption of 0.5 pounds of explosive material required per ton of material removed and a typical granite weight of 166.5 pounds per cubic foot, or 2.25 tons per cubic yard, a typical shot designed to break up 10 cubic yards of material (typical truck load) would require about 11.25 pounds of explosive charge. The charge would typically consist of a 0.5-pound or less of detonation charge per hole, and the remainder of the charge would be provided by TOVEX or other similar water gel explosive slurry.

The following planning material is based on a maximum charge weight analysis per 8-millisecond (ms) delay (that is a single blast session may use multiple charges if the charges are timed to detonate at greater than 8-ms delays between each successive charge ignition). Given the probable small size of any blasting at this site, it is assumed that a single blasting shot would occur in this time period. Further, this planning is based on the use of small holes of approximately 1.5 inches in diameter or less. This assumes up to 12 holes for the minor explosive activities at each blasting location with up to five blasting operations per day.

If a shock tube or detonating cord is used for the blast ignition, it must be covered with at least 8 inches of sand or soil.

Vibration Impacts

The following scaled distance factors (Table 5-2) are based on the relationship between peak particle velocity and frequency. Analysis of scaled distance for the charge weight is based on the following:

Table 5-2
SCALED DISTANCE FACTORS

Distance from the Blasting Site (feet)	Scaled Distance Factor
0 to 300	50
300 to 5,000	55
5,001 and Beyond	65

The allowable charge weight is calculated by: $W = (D/D_S)^2$

W = Allowable charge weight in pounds
D = Distance to the nearest structure in Feet
D_S = Value from table based on D

If D = 100 Feet the maximum charge weight would be 4 pounds
If D = 150 Feet the maximum charge weight would be 9 pounds
If D = 200 Feet the maximum charge weight would be 16 pounds

Therefore, the minimum distance by this analysis from any blast for this site should be 200 feet for the control of ground borne vibration impacts to the closest residence.

Airblast Impacts

The airblast limits at any man-made structure shall not exceed the levels specified in the Table 5-3, below.

Table 5-3 MAXIMUM ALLOWABLE AIRBLAST LIMITS	
Lower Frequency Limit of Measuring System (in Hz)	**Maximum Level (in ±3 dB)**
0.1 Hz or lower	134 peak
2 Hz or lower	133 peak
6 Hz or lower	128 peak
C-weighted	105 dBC

The previous analysis is based on typical and normal requirements. The basic planning for blasting charge weight limits at distances greater than 200 feet from an off-site structure does not provide final project-specific analysis for allowable blasting charges, nor is it intended to limit the blasting company to this as a minimum distance or maximum or minimum charge weights. This planning analysis is provided as general guidance and is not intended to provide final blasting planning for any specific blast nor does it imply acceptance of any liability for the proper or improper planning of any blasting and/or responsibility for any damages caused by the blaster.

All blasting planning and impacts and/or damages that may occur are the sole responsibility of the owner and blasting planning company.

Because there are residences within 200 feet from blasting, impacts from blasting would be potentially significant. (**Impact Noi-3)**

An additional access option would be provided via Hill Valley Drive. This may result in off-site roadway improvements along this segment connecting to Country Club Drive. Typical roadway improvement activities are temporary in nature, and would not result in a substantial noise generating activity for a long period of time. The road improvement work would be accomplished segment by segment and would not require any impulsive type of construction equipment. Based on the short duration of roadway improvement operations, roadway construction-related improvements would be less than significant.

Mitigation

M-Noi-3 **Blasting Plan and Noise Ordinance Compliance:** Prior to and during construction activities, the applicant shall be required to prepare and implement a blast plan to reduce impacts associated with air blast over-pressure generated by project-related construction activities and to incorporate any required noise reducing measures to comply with County Noise Ordinance regulations. The project applicant shall conform to the blast plan which would be comprised of the following (but not limited to): No blasting shall occur at a distance of less than 600 feet from any off-site structure without specific analysis by the blasting contractor showing less than significant vibration impacts to the structure. All blast planning must be done by a San Diego County Sheriff approved blaster, with

the appropriate San Diego County Sheriff blasting permits, and all other applicable local, state, and federal permits, licenses, and bonding. The blasting contractor or owner must conducts all notifications, inspections, monitoring, major or minor blasting requirements planning, with seismograph reports as necessary.

Construction equipment associated with blasting (i.e. drilling, pre and post blasting work) shall comply with the County Noise Ordinance, Section 36.408, 36.409, and 36.410. The blast plan shall include any necessary noise measures such as (but not limited to) temporary noise barriers and blankets, increased setbacks, limiting construction equipment operations, and any other methods specified within the blasting plan must be implemented to comply with County Noise Ordinance requirements.

Off-site Construction

Some construction activities associated with the Project would take place off site. Project off-site construction includes grading, compacting, paving, and undergrounding of utilities.

Impacts

These light construction activities are routine and do not include the use of large heavy equipment for an extended period of time adjacent to any existing residence, and impacts would therefore be less than significant.

Note that potential construction impacts related to the off-site options to the on-site WTWRF are discussed in Chapter 7 of this report, *Off-site Wastewater Options*.

5.2.3 Construction Vibration Impacts Other than Blasting

The Project is not expected to utilize any pile driving. The most likely source of vibration during the Project construction (excluding blasting discussed above) would be a vibratory roller, which may be used to achieve soil compaction as part of the foundation construction (and possibly for on-site driveways at a later time).

Impacts

A vibratory roller creates approximately 0.210 inches/sec PPV at 25 feet. The County provides for the use of the Caltrans standards (2004) for construction vibration impacts in the footnotes of Table 4 (Guideline for Determining the Significance of Ground-borne Vibration and Noise Impacts) of the County of San Diego Guidelines for Determining Significance, Noise (Table 1-4 in this report). Using the Caltrans criterion of 0.4 inches/sec PPV, the approximately 0.210 inches/sec PPV vibration impact would be less than what is considered to be a "severe" impact. Therefore, although vibration may be perceptible by nearby residences, temporary impacts associated the vibratory roller (and other potential equipment) would be less than significant.

5.3 Operational Noise Impacts – Stationary Sources

The known or anticipated Project site stationary noise sources include the residential air conditioners, booster pump station, wastewater pump stations, and WTWRF. Potential impacts from these noise sources are discussed below.

5.3.1 Stationary Noise Analysis Assumptions

Residential Air Conditioners (HVAC)

Specific planning data for the future heating, ventilation, and air conditioning (HVAC) systems is not available at this stage of Project design; however, analysis using a typical to larger-sized residential condenser mounted on ground level pads provides a reasonable basis for analysis. A worst-case modeling scenario has been used to provide analysis of the potential impacts. For the purposes of this analysis, it is assumed that a residential building would be set back 10 feet from the property line and the condenser is positioned at the side of the building, at a distance of 7 feet from the property line.

Booster Pump Station for the Water Circulation System

The pump station would include a total of two domestic supply pumps and two emergency fire pumps with a backup power diesel generator. Unlike the pump stations for wastewater treatment, this pump is not assumed to be submersible. It is assumed that the backup generator for this pump would sometimes be operational during nighttime hours (as it will run whenever the power goes out), and potential impacts must be analyzed in the context of the nighttime maximum allowable noise level of 45 dBA.

Wastewater Pump Stations

The Project would utilize three on-site pump stations for the sewer needs of the development. The pump stations would be submersible package sewers. An above-grade motor control center and electrical panel would be required for each. These would be located on a pad not to exceed 10 by 10 feet in size. According to the Project applicant, stations would include backup power generation. It is assumed that this backup pump generator would, at times, be operational during nighttime hours, as it will be running anytime the power has gone out. Thus, potential impacts must be analyzed in the context of the nighttime maximum allowable noise level of 45 dBA.

Wastewater Treatment and Water Reclamation Facility

The Project design includes a 0.7-acre on-site WTWRF and pump station located in the southeastern-most portion of the site (within Neighborhood 5) to provide treatment for all wastewater generated on site. Based on the loading and design criteria used in the 180,000 gpd Harmony Grove plant design, a scaled-down version could be constructed to serve the Proposed Project.

A summary of major plant components includes:

- **Headworks** to provide fine screening of the influent wastewater.

- **Equalization basin** to balance out variations in flow by storing a portion of the peak flows received for treatment in the plant during low-flow periods.

- **Aeration basins and anoxic basins** to perform the activated sludge process along with biological nitrogen removal.

- **Clarifier basins** to settle most of the solids out of the wastewater in order to yield a clarified flow that goes to filters for further turbidity removal.

- **Filters** to further remove turbidity to produce reclaimed water meeting Title 22 standards for effluent clarity.

- **Chlorine contact basins** to disinfect the reclaimed water by chlorine solution.

- **Residual solids processing** to further reduce the settled solids produced by the treatment process; the Aero-Mod process typically includes digester basins. As the Proposed Project's plant would be small, however, it would probably be more efficient to thicken the solids and transfer them by truck to the Harmony Grove WTWRF for further processing.

- **Operations/laboratory building** to provide space for employees to store their personal items, restrooms and showers for employees, some desk space and a small laboratory for use in operational control of the plant. All mechanical equipment would be housed within the building or noise-attenuating covers or walls including air compressors, vacuum pumps, odor control facilities, and the backup power generator.

The typical noise sources in the process area are a pre-screening unit, submersible pumps, and an aerobic mixing system. The loudest noise source is typically the screen, which has been measured at other locations, including the Santa Fe Valley WTWRF, at 50 dBA at 50 feet.[5]

Wastewater treatment facilities, such as the proposed WTWRF, also typically include:

- Air compressor(s)
- Standby diesel generator(s)
- Odor control facility
- Centrifuge(s)
- Pumps and Blowers

[5] Pacific Noise Control, Harmony Grove Village Project, July 24, 2006.

The odor control facility may also be located within the dewatering and equipment building. Excluding the generator set, this group of equipment would generate a noise level of approximately 62 dB at a distance of 25 feet.

The piece of equipment from the above list that would be anticipated to generate the most noise would be the standby diesel generator.

5.3.2 Residential Air Conditioners (HVAC)

Impacts

The unit used in this analysis is a Carrier 38HDR060 split system condenser (see Appendix B). The manufacturer's noise data is provided below in Table 5-4.

Table 5-4
CARRIER HDR060 CONDENSER NOISE

Noise Levels in Decibels[1] (dB) Measured at Octave Frequencies							Overall Noise Level in A-weighted Scale (dBA)[1]
125 Hz	250 Hz	500 Hz	1 KHz	2 KHz	4 KHz	8 KHz	
63.0	61.5	64.0	66.5	66.0	64.5	55.5	72.0

[1] Sound Power Levels (S_{WL})
KHz = kilohertz

As mentioned in the assumptions section, modeling assumed that a residential building would be set back 10 feet from the property line and that the condenser would positioned at the side of the building, at a distance of 7 feet from the property line. As this distance, the condenser would generate a noise level of 56 dBA, which is in excess of the County's nighttime allowable hourly limit of 45 dBA and would therefore create a potentially significant noise impact. (**Impact Noi-4)**

Mitigation

M-Noi-4 **HVAC Noise Barrier:** If a residential air conditioning condenser is installed within 35 feet of a property line, a 5.5 foot-high noise control barrier shall be installed between the residential use areas and the condensers to reduce related noise impacts in the outdoor use areas to less than 45 dBA L_{EQ}. The barrier shall extend in each direction beyond the condenser location so that any location without a barrier at the adjacent property is at least 35 feet from the condenser unit. The applicant must provide proof that the installed condensers have a manufacturer's sound power noise rating of less than 75 dBA. If the condenser is placed beyond a distance of 35 feet from the property line, no mitigation would be required.

5.3.3 Booster Pump Station for the Water Circulation System

Impacts

This type of booster pump could produce up to 75 dBA at 23 feet and a typical backup power generator required for the pump and control operations may create noise levels ranging from 90 to 105 dBA at 23 feet. A noise source that generates noise levels of 105 dBA at 23 feet would generate noise levels of 45 dBA (nighttime allowable limit) at 23,000 feet (approximately 4.3 miles), without consideration for other factors (such as air and ground plane damping) that could reduce this noise level. A noise source that generates noise levels of 90 dBA at 23 feet would generate noise levels of 45 dBA at 4,090 feet (0.7 mile) without consideration for other factors (such as air and ground plane damping) that could reduce this noise level. Therefore, impacts would be potentially significant. (**Impact Noi-5)**

Mitigation

M-Noi-5 **Booster Pumps Noise Control:** The booster pump and diesel generator noise may be controlled by various methods, including but not limited to: enclosing the diesel generator within a custom designed noise control structure (such as a steel enclosure); placing the pump equipment and diesel generator within a concrete masonry unit (CMU) construction building that includes noise control features, increase property line setbacks of the generator location, locating noise sources such that noise shielding would be provided from on-site intervening structures or topography.

The applicant shall provide a final noise impact analysis for the booster pump station backup power generators prepared by a County-approved noise consultant demonstrating compliance with the County 45 dBA property line requirement completed to the satisfaction of the County PDS.

5.3.4 Wastewater Pump Stations

Impacts

The only components of each wastewater pump station that would potentially produce audible noise are the exhaust piping for the pump (which would be located below grade in a covered pit) and the backup generator. The noise associated with the below-grade exhaust piping is generally experienced as a low humming sound, which is caused by vibration induced in the line by the submersible pump and motor; this noise would not be audible beyond a distance of 10 feet. Potential noise impacts related to the exhaust piping would therefore be less than significant at adjacent locations, as all NSLUs would be located more than 10 feet from the proposed pump stations.

Noise generated by the backup power generator could have the potential to exceed allowable levels, depending upon the proximity to NSLUs. As described for generator associated with the booster pump, typical noise levels from a backup power generator required for the pump and

control operation could range from 90 dBA to 105 dBA at 23 feet. A noise source that generates noise levels of 105 dBA at 23 feet could generate noise levels of 45 dBA (nighttime allowable limit) at distances of up to 23,000 feet (4.3 miles), without consideration for other factors (such as air and ground plane damping) that could reduce this noise level. A noise source that generates noise levels of 90 dBA at 23 feet could generate noise levels of 45 dBA at up to 4,090 feet (0.7 mile) without consideration for other factors (such as air and ground plane damping) that could reduce this noise level. Therefore, impacts would be potentially significant. (**Impact Noi-6)**

Mitigation

M-Noi-6 Diesel generator noise may be controlled by the various methods, including but not limited to: enclosing the diesel generator within a custom designed noise control structure (such as a steel enclosure); placing the pump equipment and diesel generator within a CMU construction building that includes noise control features, increase property line setbacks of the generator location, locating noise sources such that noise shielding would be provided from on-site intervening structures or topography.

The applicant shall be required to provide a final noise impact analysis for the pump station backup power generators prepared by a County-approved noise consultant. The final noise impact analysis shall demonstrate compliance with the County 45 dBA property line requirement completed to the satisfaction of the County PDS.

5.3.5 Wastewater Treatment and Water Reclamation Facility

Impacts

Although WTWRF equipment besides the diesel generator would have the potential to create noise in excess of allowable limits, the piece of equipment that would generate the most noise at the proposed WTWRF would be the standby diesel generator. The generator would generate similar noise levels to those described above for the pump stations backup generators (noise levels ranging from 90 to 105 dBA at 23 feet), and thus noise levels of 45 dBA (the nighttime allowable limit) could be experienced at distances of up to 23,000 feet (without consideration for other factors that could reduce this noise level). Thus, without additional noise control both the WTWRF equipment and generator may create a combined exterior noise level in excess of the allowed exterior one-hour average noise level of 45 dBA at the property line for residential uses, and may therefore have potentially significant impacts. (**Impact Noi-7)**

Mitigation

M-Noi-7 **WTWRF Noise Control:** In order to ensure compliance of the WTWRF with applicable noise regulations, design options shall be employed to reduce noise levels. These design measures could include the following:

1. Stationary equipment noise may be controlled by the following methods:

    a. Providing a tall exterior enclosure wall and gate to control offsite noise impacts for all WTWRF equipment (excluding the diesel generator),

    b. Enclosing the WTWRF equipment inside a noise control CMU structure or specific design enclosures.

    c. Increasing property line setbacks of WTWRF noise sources where feasible.

    d. Locating WTWRF noise sources such that noise shielding would be provided from on-site buildings or structures.

    e. Incorporating noise control measures such as acoustical louvers or paneling into the WTWRF design.

2. Diesel generator noise may be controlled by the following methods:

    a. Enclosing the diesel generator within a custom designed noise control structure (such as a steel enclosure).

    b. Placing the diesel generator within a CMU building that includes noise control features such as (but not limited to) acoustical louvers or paneling, etc.

The applicant shall be required to provide a final noise impact analysis as part of the facilities design submittal package for the WTWRF prepared by a County-approved noise consultant. The final noise impact analysis shall demonstrate compliance with the County 45 dBA L_{EQ} property line nighttime limit completed to the satisfaction of the County PDS. The conditions of approval of the MUP will ensure that the correct equipment/structural noise barriers will be properly installed to reduce noise levels to less than significant levels. The conditions of approval of the MUP will ensure that the correct equipment/structural noise barriers will be properly installed to reduce noise levels to less than significant levels.

5.4 Operational Noise Impacts – Transportation Sources

5.4.1 Transportation Noise Analysis Assumptions

As indicated in Section 2.4, transportation noise in the vicinity of the Project is only from street traffic. Anticipated future traffic noise levels are based on forecasted traffic volumes provided in the TIA, Valiano (2014). Table 5-5, below, summarizes the forecasted Average Daily Traffic (ADT) data for the existing and all potential future traffic conditions as presented in the TIA. These ADT values were utilized to conduct the traffic noise modeling for all conditions of the Project.

Table 5-5
TRAFFIC VOLUMES FOR ALL ANALYZED CONDITIONS

Roadway Segment	ADT						
	Existing	Project Traffic	Existing + Project	Existing + Cumulative projects	Existing + Cumulative + Project	2035 No Project	2035 + Project
Eden Valley Lane							
West of Country Club Drive	400	1,462	1,862	400	1,862	1,255	1,862
Country Club Drive							
Auto Park Way to Hill Valley Drive	5,710	2,711	8,421	7,983	10,694	7,500	8,423
Hill Valley Drive to Kauana Loa Drive	4,930	2,711	7,641	7,983	10,694	6,300	7,223
Kauana Loa to Mt. Whitney Road	3,150	2,096	5,246	6,367	8,463	3,600	4,319
Mt. Whitney Road to Future Street 5A(N)	3,150	1,043	4,193	6,367	7,410	3,600	3,964
Street 5A(N) to Street 5A (S)	3,150	719	3,869	6,367	7,086	3,600	3,852
Future Street 5A(S) to Harmony Grove Road	3,150	403	3,553	6,367	6,770	3,600	3,736
Kauana Loa Drive							
Citracado Parkway to Country Club Drive	1,480	849	2,329	4,036	4,885	3,700	3,988
Mt. Whitney Road							
Project Access to Country Club Drive	200	1,462	1,662	200	1,662	1,255	1,662
Street 5A (N)							
On-site Segment	DNE	426	426	DNE	426	DNE	426
Street 5A (S)							
On-site Segment	DNE	436	436	DNE	436	DNE	436

Note: DNE = does not exist

For general planning purposes, TNM software was utilized to calculate the distances to noise contour lines for four scenarios. Note that Year 2035 traffic volumes are lower than near-term traffic volumes due to traffic network changes; these expected network changes would result in a shift of traffic within the area from Country Club Drive to other surrounding streets. For this reason, the near-term conditions were modeled to provide a worst-case analysis.

It is currently anticipated that Project traffic would be distributed along the street segments listed above as described in Table 5-5, but an additional access option is also being assessed where Project access would be provided via Hill Valley Drive in addition to Eden Valley Lane, Mt. Whitney Road and the two future access driveways south or Mt. Whitney Road; all of these roadways connect to Country Club Drive. This portion of Hill Valley Drive is an existing dirt road that is proposed to be improved to a paved road approximately 24 feet wide, for a majority of the road length as part of the Proposed Project. One section of this road (approximately 185 to 195 feet) can only be improved to 20 feet wide due to easement access issues. In order for this roadway to meet private road standards set by the County, the entire road would need to be improved to a paved width of 24 feet with a corresponding speed limit of 30 miles per hour. Potential traffic noise levels along Hill Valley Drive were also separately modeled. With the additional access option, the traffic volumes at the following study roadway segments would be affected by the addition of Hill Valley Drive as an access point:

- Hill Valley Drive between Project access and Country Club Drive
- Eden Valley Lane between Project access and County Club Drive
- Country Club Drive between Hill Valley Drive and Eden Valley Lane

The traffic volumes at the remaining study locations would not change. Refer to Table 5-6 the ADT volumes for the additional access option along these roadway segments.

Table 5-6
ADDITIONAL ACCESS OPTION ROADWAY VOLUMES (ADT)

Roadway Segment	Existing	Project (additional access)	Existing + Project (additional access)
Hill Valley Drive			
Project access to Country Club Drive	270	877	1,147
Eden Valley Lane			
Project access to Country Club Drive	400	585	985
Country Club Drive			
Hill Valley Drive to Eden Valley Lane	4,930	2,067	6,997

Source: LLG, 2015. ADT= average daily trips

5.4.2 Off-site Transportation Noise

Proposed Project

Impacts

Modeling was conducted for the relevant street segments associated with the Project (Kauana Loa Drive, Mt. Whitney Road, various segments along Country Club Drive, among others). A comparison of near-term noise levels generated in the Existing, the Existing plus Project, the Existing plus Cumulative Projects (not including Project), and the Existing plus Cumulative plus Project conditions are shown below in Table 5-7.

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Table 5-7
TRAFFIC NOISE LEVELS AND CONTOURS FOR ALL ANALYZED CONDITIONS

Roadway/Segment	Existing Conditions (E)				Existing + Project (E+P)				Existing + Cumulative Projects (E+C) (Near-term)				Existing + Cumulative + Project (E+C+P) (Near-term)			
	CNEL @ 100 ft. (dBA)	70 CNEL (ft.)	65 CNEL (ft.)	60 CNEL (ft.)	CNEL @ 100 ft. (dBA)	70 CNEL (ft.)	65 CNEL (ft.)	60 CNEL (ft.)	CNEL @ 100 ft. (dBA)	70 CNEL (ft.)	65 CNEL (ft.)	60 CNEL (ft.)	CNEL @ 100 ft. (dBA)	70 CNEL (ft.)	65 CNEL (ft.)	60 CNEL (ft.)
Eden Valley Lane																
West of Country Club Drive	41.8	IRW	IRW	IRW	50.8	IRW	IRW	13	41.8	IRW	IRW	IRW	50.8	IRW	IRW	13
Country Club Drive																
Auto Park Way to Hill Valley Drive	62.2	20	58	150	63.9	30	81	204	63.7	29	79	194	64.9	37	98	240
Hill Valley Drive to Kauana Loa Drive	61.6	17	53	135	63.5	28	76	187	63.7	29	79	194	64.9	37	98	240
Kauana Loa Drive to Mt. Whitney Road	59.6	9	35	92	61.8	18	55	140	62.7	23	63	164	63.9	30	82	202
Mt. Whitney Road to Street 5A (N)	59.6	9	35	92	60.9	14	45	118	62.7	23	63	164	63.4	27	74	183
Street 5A (N) to Street 5A (S)	59.6	9	35	92	60.5	13	43	111	62.7	23	63	164	63.1	25	70	176
Street 5A (S) to Harmony Grove Road	59.6	9	35	92	60.1	11	39	102	62.7	23	63	164	63.0	25	68	171
Kauana Loa Drive																
Citracado Parkway to Country Club Drive	47.5	IRW	IRW	IRW	51.6	IRW	IRW	16	54.0	IRW	8	29	54.9	IRW	10	35
Mt. Whitney Road																
Mt. Whitney Road	40.8	IRW	IRW	IRW	50.3	IRW	IRW	12	38.8	IRW	IRW	IRW	50.3	12	IRW	IRW
Street 5A (N)																
On-site Segment	-	-	-	-	43.2	IRW	IRW	IRW	-	-	-	-	43.2	IRW	IRW	IRW
Street 5A (S)																
On-site Segment	-	-	-	-	43.3	IRW	IRW	IRW	-	-	-	-	43.3	IRW	IRW	IRW

- = Roadway does not exist at present
IRW = The CNEL contour indicated exists within the width of the roadway.
Note: Distances represent the distance to noise contour lines from the centerlines of roadways (with no topographical consideration)

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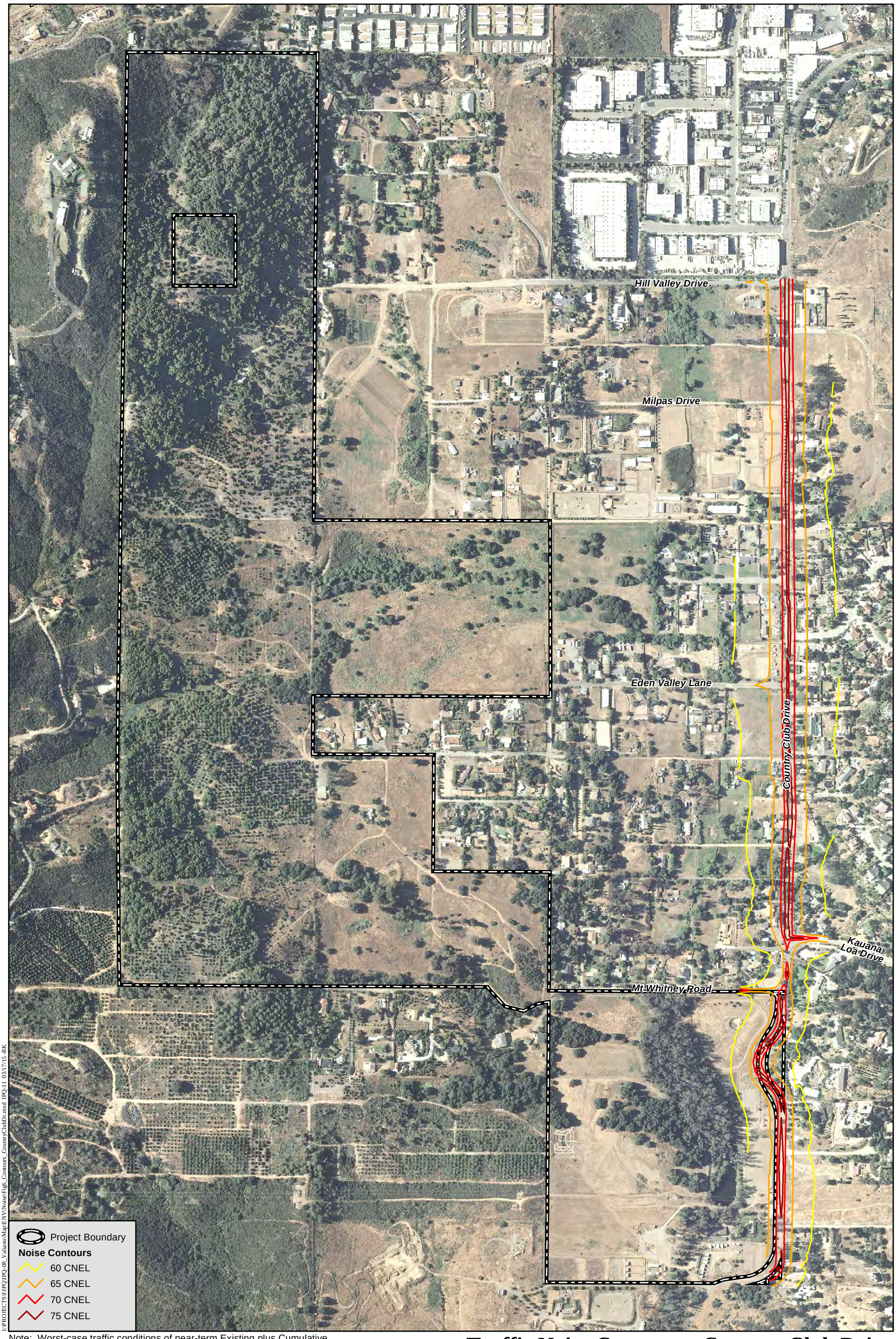
The Existing plus Project plus Cumulative traffic noise contours for Country Club Drive are provided in Figure 6. Modeling was also conducted to determine the off-site receiver noise levels for all nearby off-site NSLUs (predominantly single-family residential houses). The existing and proposed receiver locations are provided in Figure 7. The Existing, Existing plus Project, Existing plus Cumulative, and Existing plus Cumulative plus Project (worst-case near-term conditions, as 2035 traffic volumes are lower) CNEL values are presented below in Table 5-8. Additionally, when the predicted Existing plus Cumulative noise level is greater than 60 CNEL according to the modeling, the change between the Existing plus Cumulative condition to the Existing plus Cumulative plus Project condition is presented.

Future noise levels would exceed 60 CNEL at both structural façades and exterior use locations for off-site residences in the Existing plus Cumulative condition and the Existing plus Project plus Cumulative condition. The CNEL Value for the Existing plus Cumulative plus Project condition is never higher than 60 CNEL unless the Existing plus Cumulative only condition also exceeds 60 CNEL. In the instances where both of these conditions exceed 60 CNEL, the change from the Existing plus Cumulative condition to the Existing plus Project plus Cumulative condition does not exceed 1 dBA. Therefore, a "cumulatively considerable" project contribution (a greater than 1-dB increase due to Project-added noise to conditions that already exceed 60 CNEL) does not occur, and the cumulative impacts to off-site NSLUs would be less than significant.

Table 5-8
PREDICTED NOISE LEVELS FOR OFF-SITE RECEIVERS

Receiver	Location	CNEL					
		E	E+P	E vs E+P[1]	E+C	E+C+P	E+C vs E+C+P[1]
R 01	2869 Hill Valley Drive	48.0	49.5	N/A	49.5	50.6	N/A
R 02	2843 Hill Valley Drive	49.8	51.3	N/A	51.3	52.3	N/A
R 03	2805 Hill Valley Drive	50.6	52.0	N/A	52.0	53.1	N/A
R 04	809 Country Club Drive	60.7	62.5	1	62.6	63.9	1
R 05	820 Country Club Drive	62.8	64.6	1	64.8	66.0	1
R 06	825 Country Club Drive	63.1	65.0	1	65.1	66.4	1
R 07	916 Country Club Drive	59.7	61.6	1	61.8	63.1	1
R 08	932 Country Club Drive	61.2	63.1	1	63.3	64.6	1
R 09	1008 Country Club Drive	58.7	60.6	1	60.8	62.1	1
R 10	1012 Country Club Drive	59.4	61.3	1	61.5	62.8	1
R 11	1009 Country Club drive	60.6	62.5	1	62.7	63.9	1
R 12	2710 Surrey Lane	63.3	65.2	1	65.3	66.6	1
R 13		63.1	65.0	1	65.2	66.5	1
R 14	1040 Country Club Drive	61.2	63.1	1	63.3	64.6	1
R 15	1044 Country Club Drive	59.7	61.6	1	61.8	63.0	1
R 16	1110 Country Club Drive	60.1	62.0	1	62.2	63.5	1
R 18		64.8	66.7	1	66.8	68.1	1



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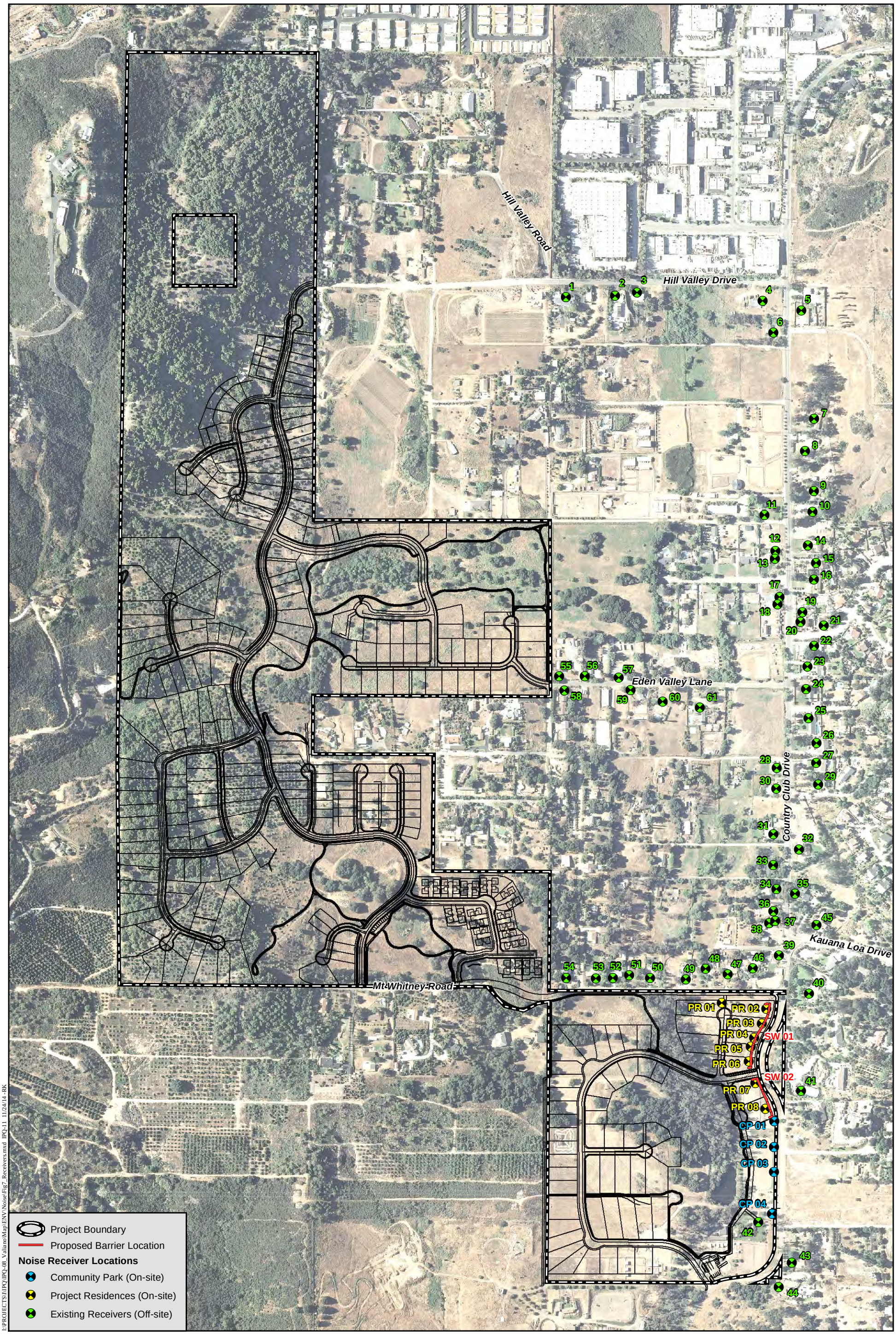
Note: Worst-case traffic conditions of near-term Existing plus Cumulative plus Project were analyzed (2035 conditions involve lower traffic volumes).

Traffic Noise Contours: Country Club Drive

VALIANO

HELIX Environmental Planning

Figure 6



Receiver and Proposed Sound Wall Locations

VALIANO

HELIX Environmental Planning

N 0 450 Feet

Figure 7

Table 5-8 (cont.)
PREDICTED NOISE LEVELS FOR OFF-SITE RECEIVERS

Receiver	Location	CNEL					
		E	E+P	E vs E+P[1]	E+C	E+C+P	E+C vs E+C+P[1]
R 17	2709 Surrey Lane	63.9	65.8	1	66.0	67.2	1
R 19	2482 Live Oak Road	62.9	64.8	1	65.0	66.3	1
R 20		63.4	65.3	1	65.4	66.7	1
R 21	2472 Live Oak Road	58.6	60.6	2	60.7	62.0	1
R 22	1142 Country Club Drive	60.2	62.1	1	62.3	63.6	1
R 23	1206 Country Club Drive	61.4	63.4	2	63.5	64.8	1
R 24	1220 Country Club Drive	61.8	63.7	1	63.8	65.2	1
R 25	1230 Country Club Drive	61.0	62.9	1	63.1	64.4	1
R 26	1302 Country Club Drive	59.0	60.9	1	61.1	62.4	1
R 27	1318 Country Club Drive	59.7	61.6	1	61.8	63.0	1
R 28	1311 Country Club Drive	63.4	65.4	2	65.5	66.8	1
R 29	1322 Country Club Drive	58.7	60.6	1	60.8	62.1	1
R 30	1321 Country Club Drive	62.3	64.2	1	64.4	65.6	1
R 31	1345 Country Club Drive	62.0	63.9	1	64.1	65.3	1
R 32	1410 Country Club Drive	63.7	65.6	1	65.8	67.1	1
R 33	1417 Country Club Drive	62.1	64.0	1	64.2	65.5	1
R 34	1433 Country Club Drive	63.8	65.7	1	65.9	67.2	1
R 35	1498 Country Club Drive	64.7	66.6	1	66.8	68.1	1
R 36	1437 Country Club Drive	62.7	64.6	1	64.8	66.1	1
R 37	1449 Country Club Drive	60.9	62.9	2	63.2	64.4	1
R 38		63.1	65.0	1	65.2	66.5	1
R 39	1517 Country Club Drive	58.6	60.6	2	61.4	62.5	1
R 40	1534 Country Club Drive	56.2	57.8	N/A	59.1	60.0	N/A
R 41	1678 Country Club Drive	57.4	58.3	N/A	60.5	61.0	0
R 42	1805 Country Club Drive	58.8	59.7	N/A	61.9	62.4	0
R 43	2774 Harmony Heights Road	61.1	62.0	0	64.2	64.7	0
R 44	1776 Country Club Drive	59.9	60.8	0	62.9	63.4	0
R 45	2782 Kauana Loa Drive	58.1	60.0	N/A	60.7	61.9	1
R 46	2820 Mt. Whitney Road	54.4	56.5	N/A	57.2	58.5	N/A
R 47	2836 Mt. Whitney Road	51.6	54.5	N/A	54.5	56.2	N/A
R 48	2844 Mt. Whitney Road	50.7	53.6	N/A	53.4	55.2	N/A
R 49	2910 Mt. Whitney Road	50.6	54.4	N/A	53.2	55.8	N/A
R 50	2918 Mt. Whitney Road	49.2	53.5	N/A	51.6	54.6	N/A
R 51	2926 Mt. Whitney Road	48.6	53.0	N/A	50.9	54.0	N/A
R 52	2942 Mt. Whitney Road	48.4	53.4	N/A	50.5	54.2	N/A
R 53	2958 Mt. Whitney Road	47.9	53.2	N/A	49.9	54.0	N/A
R 54	1557 Calico Lane	46.3	51.1	N/A	48.4	51.9	N/A
R 55	2895 Eden Valley Lane	49.1	53.3	N/A	50.6	53.9	N/A
R56	2928 Eden Valley Lane	50.4	54.9	N/A	51.8	55.4	N/A
R 57	2890 Eden Valley Lane	51.4	55.8	N/A	52.8	56.3	N/A

Table 5-8 (cont.)
PREDICTED NOISE LEVELS FOR OFF-SITE RECEIVERS

Receiver	Location	CNEL					
		E	E+P	E vs E+P[1]	E+C	E+C+P	E+C vs E+C+P[1]
R 58	2919 Eden Valley Lane	49.1	53.5	N/A	50.6	54.1	N/A
R 59	2867 Eden Valley Lane	51.9	56.2	N/A	53.4	56.8	N/A
R 60	2811 Eden Valley Lane	51.8	55.0	N/A	53.5	55.9	N/A
R 61	2835 Eden Valley Lane	53.7	56.2	N/A	55.6	57.4	N/A

[1] Results have been rounded down to nearest whole number per County standard practice.
E = Existing, E+P = Existing + Project, E+C = Existing + Cumulative, E+C+P = Existing + Cumulative + Project
N/A =Noise levels are below 60 CNEL; impacts are less than significant.

Additional Access Option

Impacts

The additional access option, where Project access would be provided via Hill Valley Drive in addition to Eden Valley Lane, Mt. Whitney Road and the two future access driveways south or Mt. Whitney Road, would increase traffic noise levels along Hill Valley Drive as compared to the currently proposed Project. Based on the Project traffic distribution, the traffic volumes at the following study roadway segments would be affected by the addition of Hill Valley Drive as an access point:

- Hill Valley Drive between Project access and Country Club Drive
- Eden Valley Lane between Project access and County Club Drive
- Country Club Drive between Hill Valley Drive and Eden Valley Lane

The traffic volumes at the remaining study locations would not change.

Modeling was conducted for these street segments under the additional access option. A comparison of near-term noise levels generated in the Existing, the Existing plus Project, the Existing plus Cumulative Projects (not including Project), and the Existing plus Cumulative plus Project conditions are shown below in Table 5-9.

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