
2.5 **Noise**

The assessment of the Project's potential to have an adverse effect related to noise is based on the technical study and addendum prepared for the Project. The results of the analysis presented below are included as an appendix to the DSEIR.

- Appendix J: *Acoustical Analysis Report, Santa Fe Valley Bible Church of San Diego* (Eilar Associates, 2017)

The Santa Fe Valley Specific Plan (SFVSP) EIR (SP95-001) was also reviewed. The SFVSP EIR identified potentially significant impacts related to noise, specifically relating to future commercial uses within the Santa Fe Valley Specific Plan area and also the potential for noise conflicts between a proposed sewer treatment plant and existing residential uses. These impacts and the mitigation identified in the SFVSP EIR are further detailed in Section 2.5.1, below.

Comments received in response to the Notice of Preparation included:

- Noise from church activities and special events;
- Church bell;
- Noise impact to adjacent open space;
- Noise impact to offsite residents;
- Vehicular noise

These concerns are addressed in the attached report and summarized in this section. A copy of the NOP and comment letters received in response to the NOP are included in Appendix A.

2.5.1 **Background**

The SFVSP EIR identified potentially significant impacts related to noise, specifically relating to future commercial uses within the Santa Fe Valley Specific Plan area and also the potential for noise conflicts between a proposed sewer treatment plant and existing residential uses. The following mitigation measures were identified in the certified EIR and impacts were reduced to below a level of significance:

- As part of Major Use Permit approval for the neighborhood commercial site, a site-specific noise analysis will be required for each commercial land use as they are proposed to ensure compliance with the County noise ordinance.
- A site-specific noise analysis would be required for the proposed sewage treatment plant to ensure compliance with the County noise ordinance.

According to the EIR, if the businesses and sewage treatment plant were designed and operated in compliance with the County noise ordinance, noise impacts would be fully mitigated.

While the Project is not a sewage treatment plant or a neighborhood commercial site, an acoustical report was still prepared to consider the existing and future noise environment and identifies potential impacts to the Project site.

Changes Requiring New Analysis

This subchapter describes the existing noise environment within the Project site and vicinity and evaluates potential impacts (including cumulative impacts) and mitigation measures related to implementation of the Project. An Acoustical Analysis Report was prepared for the Project by Jonathan Brothers of Eilar Associates, Inc. (2017). Mr. Brothers is on the County of San Diego CEQA Consultant List for Privately Initiated Project in the Noise subject area. The complete report is included as DSEIR Appendix J.

2.5.2 Existing Conditions

2.5.2.1 Noise Descriptors

Noise has been defined as “unwanted sound.” Sound becomes “unwanted” when it interferes with normal activities, causes actual physical harm, or has adverse effects on health.

Sound level values discussed in this subchapter are expressed in terms of decibels (dB). Sound levels are not measured directly, but are calculated from sound pressure levels typically measured in A-weighted decibels (dBA), which are adjusted to approximate the hearing sensitivity of humans. Time-averaged noise levels are referred to as “equivalent sound level” (L_{EQ}), which represents the average sound level over a given sample period. Unless a different time period is specified, L_{EQ} refers to a period of one hour.

The Community Noise Equivalent Level (CNEL) is the average of the intensity of sound, with corrections made for time of day, and then averaged over 24 hours. The corrections are made to actual sound levels to account for increased human sensitivity to sound during the evening and night hours, when there is a decrease in the overall amount and loudness of noise generated, as compared to daytime hours. During these hours, sounds seem louder and are weighted accordingly. The time of day corrections require the addition of 5 dB to sound levels in the evening from 7:00 PM to 10:00 PM and the additional of 10 dB to sound levels at night from 10:00 PM to 7:00 AM.

2.5.2.2 Existing Noise Sources

The primary noise source in the vicinity of the Project site includes automobile and truck traffic noise from Camino Del Sur/Camino Del Norte, Rancho Bernardo Road and Four Gee Road. Current traffic volumes are based on information from the San Diego Association of Governments (SANDAG) Series 12 Transportation Forecast Information Center. Future traffic volume research was conducted through the San Diego County General Plan Update – Circulation Element Road Network and Framework – San Dieguito Area. Traffic estimates from the traffic study (KOA 2017) were also considered in this analysis.

Camino Del Norte is a four-lane, two-way Prime Arterial running east-west to the south of the Project site. The posted speed limit is 45 MPH. According to SANDAG, the traffic volume as of 2008 was approximately 11,900 Average Daily Traffic (ADT). The current traffic volume is approximately 20,071 (KOA 2017). The 2017 traffic Average Daily Traffic (ADT) was used for this noise analysis.

Beyond Rancho Bernardo Road, Camino Del Norte becomes Camino Del Sur, a County of San Diego maintained road. Camino Del Sur is a four-lane, two-way Major Arterial running east-west to the south of the Project site. The posted speed limit is 45 MPH. According to SANDAG, the traffic volume as of 2008 in the vicinity of the Project site was approximately 16,900 ADT. The current traffic volume is approximately 25,523 ADT (KOA 2017). The 2017 traffic volume was used for this noise analysis.

Rancho Bernardo Road is a four-lane, two-way Major Road running east-west to the east of the Project site. The posted speed limit is 50 MPH. According to SANDAG, the traffic volume as of 2008 was approximately 8,800 ADT. No average daily traffic volumes were provided for Rancho Bernardo Road in the traffic study.

Four Gee Road is a two-lane, two-way non-circulation element roadway in the vicinity of the Project site. The posted speed limit is 25 MPH. No traffic information was listed by SANDAG. The current weekday traffic volume is approximately 3,088 ADT (KOA 2017).

2.5.2.3 Existing Ambient Noise Levels

An on-site inspection and traffic noise measurements were made on November 17, 2011. A "one-hour" equivalent measurement was made approximately 25 feet from the Four Gee Road centerline at the entrance to the Project site. Traffic volumes for Four Gee Road were recorded for automobiles, medium-size trucks, and large trucks during the measurement period. After a continuous 10-minute sound level measurement, no changes in the L_{EQ} were observable and results were recorded. The measured noise level was 61.2 dBA L_{EQ} .

2.5.2.4 Existing Noise-Sensitive Land Uses

The Project site is currently zoned Specific Plan (S88). Properties to the north and west are also zoned S88. Properties to the south are zoned AR-1 in the City of San Diego and properties to the east are zoned RS in the County of San Diego. Residential uses are considered to be noise-sensitive land uses.

2.5.2.5 Regulatory Framework

State Regulations and Standards

California Noise Control Act

The California Health and Safety Code 46000-46080 finds that excessive noise is a serious hazard to the public health and welfare and that exposure to certain levels of noise can result in physiological, psychological, and economic damage. It also finds that there is a continuous and increasing bombardment of noise in the urban, suburban, and

rural areas. The California Noise Control Act declares that the State of California has a responsibility to protect the health and welfare of its citizens by the control, prevention, and abatement of noise. It is the policy of the State to provide an environment for all Californians free from noise that jeopardizes their health or welfare.

Local Regulations and Standards

The County of San Diego addresses two separate types of noise sources, mobile and stationary. In the context of the noise analysis, transportation (mobile) noise levels associated with the Project are regulated by goals and policies in the Noise Element of the County General Plan. County Noise Ordinance Sections 36.404 and 36.409 govern operational (stationary) and construction noise levels, respectively.

Offsite impacts generally focus on transportation-related noise associated with increases in project-related vehicular activity. Noise level increases and impacts attributable to development of a project are estimated by comparing the “with project” ADT to the “without project” ADT (refer to Section 3.1.6, Traffic, of this DSEIR).

County of San Diego General Plan, Noise Element

The Noise Element of the County of San Diego General Plan establishes limitations on sound levels to be received by noise sensitive land uses (NSLUs). New development may cause an existing NSLU to be affected by noise caused by the new development, or it may create or locate a NSLU in such a place that it is affected by noise. The Noise Element identifies airports and traffic on public roadways as the major sources of noise. The Noise Element states that an acoustical study is required if it appears that a NSLU would be subject to noise levels of CNEL equal to 60 decibels (A) or greater. If that study confirms that greater than 60 dB CNEL would be experienced, modifications that reduce the exterior noise level to less than 60 dB CNEL and the interior noise levels to below 45 dB CNEL must be made to the development. The Noise Element includes special provisions for interior noise levels in rooms that are usually occupied only a part of the day, such as a church.

The following are applicable policies from the Noise Element:

- **N-1.1 Noise Compatibility Guidelines.** Use the Noise Compatibility Guidelines and the Noise Standards presented in the Noise Element as a guide in determining the acceptability of exterior and interior noise for proposed land uses.
- **N-1.2 Noise Management Strategies.** Require the following strategies as higher priorities than construction of conventional noise barriers where noise abatement is necessary:
 - Avoid placement of noise sensitive uses within noisy areas
 - Increase setbacks between noise generators and noise sensitive uses
 - Orient buildings such that the noise sensitive portions of a project are shielded from noise sources
 - Use sound-attenuating architectural design and building features

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- Employ technologies when appropriate that reduce noise generation (i.e., alternative pavement materials on roadways)
 - **N-1.3 Sound Walls.** Discourage the use of noise walls. In areas where the use of noise walls cannot be avoided, evaluate and require where feasible, a combination of walls and earthen berms and require the use of vegetation or other visual screening methods to soften the visual appearance of the wall.
 - **N-1.4 Adjacent Jurisdiction Noise Standards.** Incorporate the noise standards of an adjacent jurisdiction into the evaluation of a proposed project when it has the potential to impact the noise environment of that jurisdiction.
 - **N-2.1 Development Impacts to Noise Sensitive Land Uses.** Require an acoustical study to identify inappropriate noise level where development may directly result in any existing or future noise sensitive land uses being subject to noise levels equal to or greater than 60 CNEL and require mitigation for sensitive uses in compliance with the noise standards listed in the Noise Element.
 - **N-2.2 Balconies and Patios.** Assure that in developments where the exterior noise level on patios or balconies for multi-family residences or mixed-use developments exceed 65 CNEL, a solid noise barrier is incorporated into the building design of the balconies and patios while still maintaining the openness of the patio or balcony.
 - **N-4.1 Traffic Noise.** Require that projects proposing General Plan Amendments (GPAs) that increase the average daily traffic beyond what is anticipated in this General Plan do not increase cumulative traffic noise to off-site noise sensitive land uses beyond acceptable levels.
 - **N-6.4 Hours of Construction.** Require development to limit the hours of operation as appropriate for non-emergency construction and maintenance, trash collection, and parking lot sweeper activity near noise sensitive land uses.

County of San Diego Noise Ordinance

Section 36.404 of the County Noise Ordinance provides performance standards and noise control guidelines for determining and mitigating non-transportation (stationary) noise source impact to residential properties. The purpose of the Noise Ordinance is to protect, create, and maintain an environment free from noise and vibration that may jeopardize the health and welfare, or degrade the quality of life.

According to County stationary source exterior noise standards, no person shall operate any source of sound at any location within the County or allow the creation of any noise on a property that causes the noise level to exceed the exterior noise standards at the property boundary. The Noise Ordinance sets an exterior noise limit for residential uses adjacent to the property of 50 dBA L_{EQ} for daytime hours of 7:00 AM to 10:00 PM and 45 dBA L_{EQ} during the noise-sensitive nighttime hours of 10:00 PM to 7:00 AM.

Section 36.409 of the Noise Ordinance controls construction equipment noise and establishes a 75 dBA L_{EQ} standard between 7:00 AM and 7:00 PM, Monday through Saturday at the boundary line of the property where noise source is being generated or any occupied property where noise is received during construction. Excluding emergency work, the County sets a threshold for construction equipment of 75 dBA averaged over a period of eight hours from 7:00 AM to 7:00 PM.

Section 36.410 controls impulsive noise. Impulsive noise is defined as a single noise event, or a series of single noise events, which causes a high peak noise level of short duration (one second or less), measured at a specific location (e.g., gun shot, explosion, or a noise generated by construction equipment). According to this section, no generation of noise in excess of 82 dBA shall occur at occupied residential properties when measured at the property boundary or any surrounding property boundary. This noise cannot occur for more than 25 percent of the minutes in the measurement period. Measurements shall be made over a minimum of one hour, during which a measurement shall be taken every minute from a fixed location.

Santa Fe Valley Specific Plan

The Santa Fe Valley Specific Plan does not identify any specific objectives, goals or policies related to noise.

City of San Diego Municipal Code

According to the City of San Diego Municipal Code, hourly average noise level at a property with a single-family residential use should not exceed 50 dBA between the hours of 7:00 AM and 7:00 PM, 45 dBA between the hours of 7:00 PM and 10:00 PM, or 40 dBA between the hours of 10:00 PM and 7:00 AM. Properties adjacent to the proposed Project site are located within the City of San Diego and are therefore subject to the City's Municipal Code standards.

2.5.3 Analysis of Project Effects and Determination as to Significance

2.5.3.1 Noise Sensitive Land Uses Affected by Airborne Noise

Guidelines for Determining Significance

A significant direct noise impact would occur if implementation of the Project would:

- Expose exterior on- or off-site, existing or reasonably foreseeable future noise sensitive land uses to noise (including road noise) in excess of 60 dBA CNEL for single-family residential uses, 65 dBA CNEL for multi-family residential uses, or an increase of 10 dBA CNEL or more over existing noise levels (if that noise level is less than 50 CNEL).
- Expose interior on- or off-site existing or reasonably foreseeable future noise sensitive land uses to noise in excess of 45 dBA CNEL. For rooms that are usually occupied only a part of the day, the indoor one-hour average sound level should not exceed 50 dBA CNEL.

Guidelines Source

The above guidelines are based on the *County's Guidelines for Determining Significance – Noise (January 27, 2009)* as amended by the 2011 General Plan.

Methodology

The future (2050) traffic volumes for Camino Del Sur/Camino Del Norte and Four Gee Road were obtained from the traffic noise study prepared by KOA Corporation. The future traffic volume of Camino Del Norte is expected to increase to 25,490 ADT by the year 2050. The future traffic volume of Camino Del Sur is expected to increase to 32,414 ADT by the year 2050. The future traffic volume of Four Gee Road is expected to increase to 3,922 ADT by the year 2050. According to the SANDAG Series 12 Transportation Forecast Information Center the future traffic volume of Rancho Bernardo Road is expected to increase to 20,700 ADT by the year 2050.

According to the traffic study (KOA 2017), the Project contributes the most amount of traffic on Four Gee Road and Camino Del Norte. Sunday church services will generate the greatest amount of traffic, creating 2,758 additional ADT on Four Gee Road and an additional 2,520 ADT on Camino Del Norte.

In order to determine whether any direct noise impacts would be experienced at off-site receivers, the existing traffic scenario was compared to the increase in volumes shown in the existing plus Project traffic scenario. Sunday church services would generate the greatest amount of traffic, creating 2,775 additional ADT on Sundays, including 925 total trips during the peak hour.

A traffic noise model was generated with the near term traffic estimates, both with and without the Project, to determine the noise impact of the additional trips on Four Gee Road and Camino Del Norte during peak hour conditions.

A traffic noise model was also generated for future (2050) traffic estimates with the Project to compare the existing Sunday traffic impacts to the future Sunday traffic estimates with Project related traffic to determine the noise impact of the additional trips on Four Gee Road and Camino Del Sur. Traffic CNEL impacts were determined for Sunday traffic projections with and without the Project at the same receivers identified previously.

Analysis

On-Site Exterior Analysis

The County of San Diego Noise Element states that planned outdoor useable areas must adhere to an exterior noise limit of 65 CNEL for noise sensitive land uses such as places of worship.

Current traffic CNEL noise levels on the Project site are presented in Figure 2.5-1, Current Traffic CNEL Contours and Noise Measurement Location. As shown in Figure 2.5-1, the Project site is located between the current 50 and 55 CNEL contours. With the addition of future traffic to area roadways from ambient growth, the future CNEL contour is expected to lie along the southeastern corner of the Project site.

Project structures are expected to lie between the 50 and 60 CNEL contours. The CNEL on the Project site will remain below the 60 CNEL level (Figure 2.5-2, Future Traffic CNEL Contours and Noise Measurement Location). Therefore, all facades and outdoor use areas on the Project site would have noise levels below 65 dBA CNEL and impacts would be **less than significant**.

On-Site Interior Analysis

The County of San Diego requires places of worship to be designed in order to attenuate, control, and maintain interior noise levels to below 45 dBA in noise-sensitive spaces. Current exterior building construction, which proposes plastered wall surfaces, is generally expected to achieve at least 15 dB of exterior-to-interior noise attenuation, with windows opened. Therefore, proposed building structures exposed to exterior noise levels greater than 60 CNEL could be subject to interior noise levels exceeding the 45 dBA CNEL noise limits for noise-sensitive spaces.

As shown in Figure 2.5-2, Future Traffic CNEL Contours and Noise Measurement Locations, without mitigation or proposed structures, the future traffic 60 CNEL contour is expected to lie along the southeastern corner of the Project site. Project structures would lie between the 50 and 60 CNEL contours. As no proposed building facades are expected to be exposed to noise levels exceeding 60 CNEL, interior noise levels should not exceed 45 dBA for any buildings in the development including proposed guest quarters. Therefore, impacts would be **less than significant**.

Off-Site Exterior Analysis

As shown in Table 2.5-1, Weekend Traffic Noise Impacts at Worst Case Receivers, the maximum increase in noise levels was found to be approximately 2 dB at Receivers 1 and 2. As a direct noise impact is defined by the County of San Diego Noise Report Format and Content Requirements as a doubling of existing sound energy, or an increase of 3 dB, the Project would not generate direct noise impacts. Exterior noise levels to off-site residences would be **less than significant**.

2.5.3.2 Project-Generated Airborne Noise

Guideline for Determining Significance

A significant direct noise impact would occur if implementation of the Project would:

- Generate non-construction noise that exceeds the standard listed in the San Diego County Code, Section 36.404, Sound Level Limits, at all property lines.

Guideline Source

The above guidelines are based on the *County's Guidelines for Determining Significance – Noise* (January 27, 2009).

Methodology

This Project includes the installation of rooftop mechanical equipment for building heating and cooling. The nearest noise sensitive receivers are residential properties, for which the most restrictive noise limit during hours of operation is 45 dBA in the nighttime hours of 10:00 PM. to 7:00 AM. Residences located to the south of the

property are within the City of San Diego. The most restrictive limit during hours of operation is 40 dBA during this same timeframe. Based upon County standards, noise levels from these units should not exceed 45 dBA at neighboring residential property lines.

Noise modeling was conducted using the manufacturer information for the proposed heating, ventilation, and air conditioning (HVAC) units. Figure 2.5-3, Rooftop Mechanical Equipment and Receiver Locations, shows the proposed HVAC unit locations and the nearest residential receptors.

To approximate noise levels of activities taking place in the outdoor areas, measurements provided in the *Handbook of Acoustical Measurements and Noise Control* for noise levels of speech for males and females in a variety of vocal efforts (i.e., casual, normal, raised, loud, and shouting) were consulted. The noise analysis incorporated measurements of loud voices, which would approximate primarily normal and occasional shouting. The *Handbook* states that, at a distance of 3.28 feet, an average male will generate a noise level of 75 dBA when speaking with a loud voice, and a female will generate a noise level of 71 dBA when speaking with a loud voice. For this analysis, outdoor events were anticipated to include a group of approximately 500 guests (250 loud male voices and 250 loud female voices) divided across the courtyard area.

In order to estimate the noise level of the anticipated church bell, a noise measurement was performed of a church bell in Escondido, California. The measured church bell plays a melody every day at noon for approximately two minutes. The measurement was performed across the street from the church, at a distance of approximately 120 feet. Over a one-minute period during which there were no cars driving near the sound level meter, and the church bell was ringing steadily, an average noise level of 61.8 dBA was measured. As the bell was only ringing for a two-minute period and was creating no noise for the remainder of the hour, the hourly average noise level of the church bell was calculated to be 47.0 dBA.

Analysis

HVAC Equipment Noise

The Project includes the installation of rooftop HVAC units on all five proposed buildings. Building B will have a three-foot high parapet wall around the roof, which was considered in the noise modeling for the HVAC equipment. Table 2.5-2, Calculated Noise Impacts of Rooftop Mechanical Equipment, lists noise levels in dBA at nearby receivers.

As shown in Table 2.5-2, the highest exterior noise level was calculated to be 43.9 dBA at Receiver R-1 located at the site's north property line. Receivers R-3 and R-4 are levels were also calculated to be below 45 dBA. This is below the most restrictive County noise limit of 45 dBA. Receiver R-2 at the site's south property line was calculated to be 39.2 dBA, which is below the most restrictive City noise limit of 40 dBA. Thus noise levels are not expected to exceed the County or City of San Diego nighttime

noise limits of 45 and 40 dBA, respectively, at any surrounding property line. Therefore, impacts would be **less than significant**.

Church Events

When completed, the church would include a maximum of 1,500 seats. The largest group gathering (1,500 maximum) would be the weekly Sunday morning worship, which will take place in the sanctuary. Typical sound transmission loss and distance attenuation is expected to be sufficient to bring noise from indoor church services into compliance with the County of San Diego daytime noise regulations at residential receivers.

The facility will also have a number of outdoor use areas including a courtyard, a tot lot, and other play areas. There are currently no planned major outdoor events or uses; however, any future events would likely take place during the daytime hours. Any future events would be required to comply with the County and City noise limit of 50 dBA, enforced by both the County of San Diego and the City of San Diego, at all surrounding residential property lines.

Events were considered to include a group of guests gathering around the courtyard area. In order to model the noise from many spread out sources, an area source was used, which divides all of the sound power along the surface of a plane. A typical event may include up to 500 guests, and therefore, a Cadna model was created with 250 loud male voices and 250 loud female voices, divided across the courtyard area. Each noise source was calculated as speaking for 40 percent of every hour, which is considered conservative estimate to account for pauses within speech as well as breaks for listening.

The results of the analysis to approximate noise levels of outdoor activities are presented in Table 2.5-3, Calculated Noise Impacts of Church Events. A graphical representation of event noise contours and receiver locations is provided as Figure 2.5-4, Event Noise Contours and Receiver Locations. As shown in Table 2.5-3, the highest calculated exterior noise level was 50.0 dBA at the south property line. This meets the County and City noise limit of 50 dBA. Therefore, impacts would be **less than significant**.

If any outdoor events are proposed to include more than 500 people or extend after the hours of 7:00 PM, there may be a **significant impact (Impact N-1)**. Mitigation is required.

No audio or public address system was included in this analysis, as it is currently unknown if or where such a system would be implemented. According to the Project applicant, if an outdoor audio system is to be used, the church would use updated sound equipment that directs sound to designated areas. The church would also have speakers face exterior buildings to help contain the sound in the areas around the buildings and would not exceed maximum sound levels at the property lines. This would minimize noise impacts. However, noise could exceed County and City of San Diego limits, and there could be a **significant impact (Impact N-1)**. Mitigation is required.

Church Bell

The proposed Sanctuary building is anticipated to include a church bell. The exact specifications and operation schedule of the bell have not yet been determined. It is anticipated that the church bell will only operate during daytime hours, and would therefore be required to meet the County and City single family residential hourly-average noise limit of 50 dBA.

For a worst case analysis, the noise from the proposed church bell can be rounded up to 65.0 dBA, which is more than a doubling of the sound power of the measured church bell. The nearest residential receiver is located approximately 300 feet from the proposed bell location. At this distance, if the bell were to ring for a period of five minutes out of an hour, the hourly average noise level is calculated to be 46.2 dBA. This level is in compliance with the 50 dBA daytime noise limit at residential properties. Therefore, impacts would be **less than significant**.

2.5.3.3 Construction Noise Levels

Guideline for Determining Significance

A significant direct noise impact would occur if project implementation would:

- Generate construction noise that exceeds the standards listed in the San Diego County Code, Section 36.409, Sound Level Limitations on Construction Equipment.

Guideline Source

The above guidelines are based on the *County's Guidelines for Determining Significance – Noise* (January 27, 2009).

Methodology

The noise levels of anticipated construction equipment to be used during construction were reviewed and compared with applicable noise thresholds.

Analysis

Temporary construction noise limits for noise sensitive receivers are designated within the San Diego County Code of Regulatory Ordinance (Noise Ordinance) Sections 36.408 and 36.409 which states that noise from temporary construction activity should not exceed an average sound level of 75 dBA for an 8-hour period between 7:00 AM to 7:00 PM at the property lines of noise sensitive receivers.

Noise sensitive receivers are defined as “any property which is developed and used either in part or in whole for residential purposes.” The property lines to the south are zoned AR-1 in the City of San Diego and properties to the east are zoned RS in the County of San Diego, and include residences, and are therefore considered noise sensitive receivers. The property lines to the north and west are both zoned S-88 and are not developed or used for residential purposes. These areas are preserved in perpetuity as biological open space and would not be developed. Therefore they are excluded from this analysis.

Construction equipment anticipated to be used on the Project site includes a cement mixer, crane, dozer, excavator, forklift, generator, grader, loader/backhoe, paver, roller, water truck and welder. As shown in Table 2.5-4, Typical Construction Equipment Noise Levels, noise levels at 50 feet from this equipment ranges from 65 to 75 dBA, depending on the type of equipment. A graphical representation of the source and receiver locations is shown in Figure 2.5-5, Construction Noise Source and Worst-Case Receiver Locations. Temporary construction noise levels at neighboring properties north and south are shown in Table 2.5-5, Temporary Construction Noise Levels at Neighboring Properties to the North and South.

As a Project design feature, and consistent with the construction equipment section of the Noise Ordinance, construction activities would be limited to hours of 7:00 AM to 7:00 PM, Monday through Saturday (except legal holidays). There will be no construction activity on Sunday. Fences and gates will be installed as a control feature to limit after-hours access to the construction site. In addition, the following best management practices would occur:

1. Turn off equipment when not in use.
2. Equipment used in construction should be maintained in proper operating condition, and all loads should be properly secured, to prevent rattling and banging.
3. Use equipment with effective mufflers.
4. Minimize the use of backup alarms.
5. Equipment staging areas should be placed at locations away from noise-sensitive (occupied) receivers.

These general recommendations, in addition to limiting construction equipment operation to the allowable hours detailed in the County of San Diego Noise Ordinance, will assist in maintaining the comfort of neighboring sensitive receivers during the construction of this site. Impacts will be **less than significant**.

2.5.3.4 Impulsive Noise

Guideline for Determining Significance

A significant direct noise impact would occur if project implementation would:

- Generate impulsive noise that exceeds the standards listed in the San Diego County Code, Section 36.410, Sound Level Limitations on Impulsive Noise.

Guideline Source

The above guideline is based on the County's Guidelines for Determining Significance – Noise (January 27, 2009).

Analysis

Activities that would occur at the Project site are not anticipated to cause a high peak noise level of short duration. In addition, there is no anticipated need for impulsive

construction activity on site. Therefore, this noise source has not been included in this analysis. **No impact** would occur.

2.5.3.5 Ground-Borne Vibration/Noise

Guidelines for Determining Significance

A significant vibration impact would occur if the Project would:

- Subject residences to:
 - Ongoing ground-borne vibration levels of 0.0040 inches per second (in/sec) root mean square (rms) from frequent events, or 0.010 in/sec rms for occasional or infrequent events, and/or
 - Ongoing ground-borne noise level of 35 dBA re micro Pascals for frequent events or 43 dBA re micro Pascals for occasional or infrequent events.
- Subject residences to vibration from isolated events (e.g., blasting) with peak particle velocity (PPV) exceeding one in/sec. Non-transportation vibration sources such as impact pile drivers or hydraulic breakers are significant when their PPV exceeds 0.1 in/sec.

Guidelines Source

The above guidelines are based on the *County's Guidelines for Determining Significance – Noise* (January 27, 2009).

Analysis

Ground-borne vibration and ground-borne noise are typically related to materials handling and blasting or associated with specific types of projects or facilities, such as transportation corridors, railroads, and extractive industries. The Project is a church and would not be characterized as a use that would generate ground-borne vibration or noise. Blasting will not be required for the Project and earthwork activities will be limited. Therefore impacts will be **less than significant**.

2.5.4 Cumulative Impact Analysis

Guideline for Determining Significance

A significant cumulative impact would occur if project implementation would:

- Considerably contribute to a cumulative scenario that would result in the exposure of any on- or off-site, existing or reasonably foreseeable future noise sensitive land use to: (1) an increase of 10 dB (CNEL) over pre-existing noise levels or less than 50 dB CNEL resulting in a combined exterior noise level of 60 dB CNEL or greater, (2) an increase of 3 dB CNEL in existing plus project plus cumulative conditions if that total is above 60 dB CNEL. A “cumulatively considerable” project contribution to an identified significant cumulative noise impact would occur if the project would contribute more than a one dB increase.

Guideline Source

The above guidelines are based on the *County's Guidelines for Determining Significance – Noise* (January 27, 2009).

Methodology

A Traffic Noise Model was generated to compare the existing Sunday traffic impacts to the near term cumulative Sunday traffic estimates with the Project related traffic to determine the noise impact of the additional trips on Four Gee Road and Camino Del Sur.

Analysis

No projects in the Project vicinity are expected to be under construction at the same time as the Project. Therefore, cumulative construction-related impacts would be **less than significant**.

For operational impacts, traffic CNEL impacts were determined for weekend traffic projections with and without the Project at the same receivers evaluated above. The results of this analysis can be seen below in Table 2.5-6, Cumulative Weekend Traffic CNEL Impacts at Worst Case Receivers.

As shown, the maximum increase in traffic noise level was found to be approximately 3 dB at Receivers 1, 2 and 3. A cumulatively significant noise impact is defined by the County of San Diego Noise Report Format and Content Requirements as a doubling of existing sound energy, or an increase of 3 dB; however, as the nearest affected receivers are multi-family properties, and as resulting noise levels are still below the 65 CNEL threshold for multi-family properties contained within the Noise Element to the General Plan, it has been determined that no cumulatively considerable noise impacts will be caused by the Project. No mitigation is deemed necessary to attenuate Project-generated traffic noise. Impacts would be **less than significant**.

2.5.5 Significance of Impacts Prior to Mitigation

The following significant impact related to noise would occur with implementation of the Project:

Impact N-1 If any outdoor events are proposed that include more than 500 people, or extend after the hours of 7:00 PM, the County and City noise limits could be exceeded.

2.5.6 Mitigation

The following mitigation measure shall be implemented as a condition of Project approval. The mitigation measure was modified to clarify the circumstances under which it would apply:

M-N-1 If any outdoor event is proposed that will involve the use of an outdoor audio system and that includes more than 500 people, or if any outdoor event will extend past 7 PM, the noise impacts of the specific event must include design features and mitigation measures to comply with the applicable noise regulations. Such measures would include, but are not limited to:

-
- Locating events to maximize attenuation from intervening buildings and topography
 - Limiting the time of the event and cease all substantial noise generating activities by 10 PM.
 - Limiting the number of attendees not to exceed 500 people to minimize impacts to off-site receptors.
 - Associated outdoor audio equipment shall be directed away from the occupied neighbors. Audio equipment would be directed in designated areas, facing towards the center of the site and/or using intervening structures to screen and shield associated noise sources.
 - The audio system will be tested prior to the event and the system will be adjusted to that noise does not exceed County of San Diego noise limits. Results will be provided to the County of San Diego 30 days prior to the event to allow for review.

2.5.7 Design Features

The following design feature and noise measure shall be implemented as a condition of Project approval:

- **PDF1** Church bell operations shall be limited to operate during daytime hours and shall comply with the one hour average sound level limit of 50 dBA at the project property line.
- **PDF2** Construction activities would be limited to hours of 7:00 AM to 7:00 PM, Monday through Saturday (except legal holidays). There will be no construction activity on Sunday. Fences and gates will be installed as a control feature to limit after-hours access to the construction site. In addition, the following best management practices would occur:
 1. Turn off equipment when not in use.
 2. Equipment used in construction should be maintained in proper operating condition, and all loads should be properly secured, to prevent rattling and banging.
 3. Use equipment with effective mufflers.
 4. Minimize the use of backup alarms.
 5. Equipment staging areas should be placed at locations away from noise-sensitive (occupied) receivers.
- **PDF3** Overflow parking lot will be closed at 6 PM except for special events. Barriers and signage will be used to restrict access. Announcements will be made 30 minutes prior to closing to aid in timely closures.

2.5.8 Conclusion

A noise study was prepared for the Project and considered transportation noise levels, operational noise, and construction noise. As the proposed structures lie outside of the 60 CNEL contour, outdoor use areas will be exposed to noise levels below 65 CNEL, and interior noise levels should not exceed 45 CNEL for any buildings in the Project footprint. Therefore, the analysis concluded that Project-level impacts related to noise sensitive land uses affected by airborne noise for both on- and off-site receptors with exterior and interior spaces would be less than significant.

Project-generated airborne noise was analyzed in terms of proposed mechanical HVAC equipment, church services, and noise generated from a church bell. Due to distance separation of the Project site and off-site sensitive receptors and according to noise calculations, impacts were determined to be less than significant.

If outdoor events are proposed to include more than 500 guests or extend past 7 PM, County and City noise limits could be exceeded. Per M-N-1, the noise impacts of the specific event shall be evaluated and reviewed by the County to determine design features and mitigation measures required to ensure compliance with all applicable noise regulations such that impacts would be less than significant.

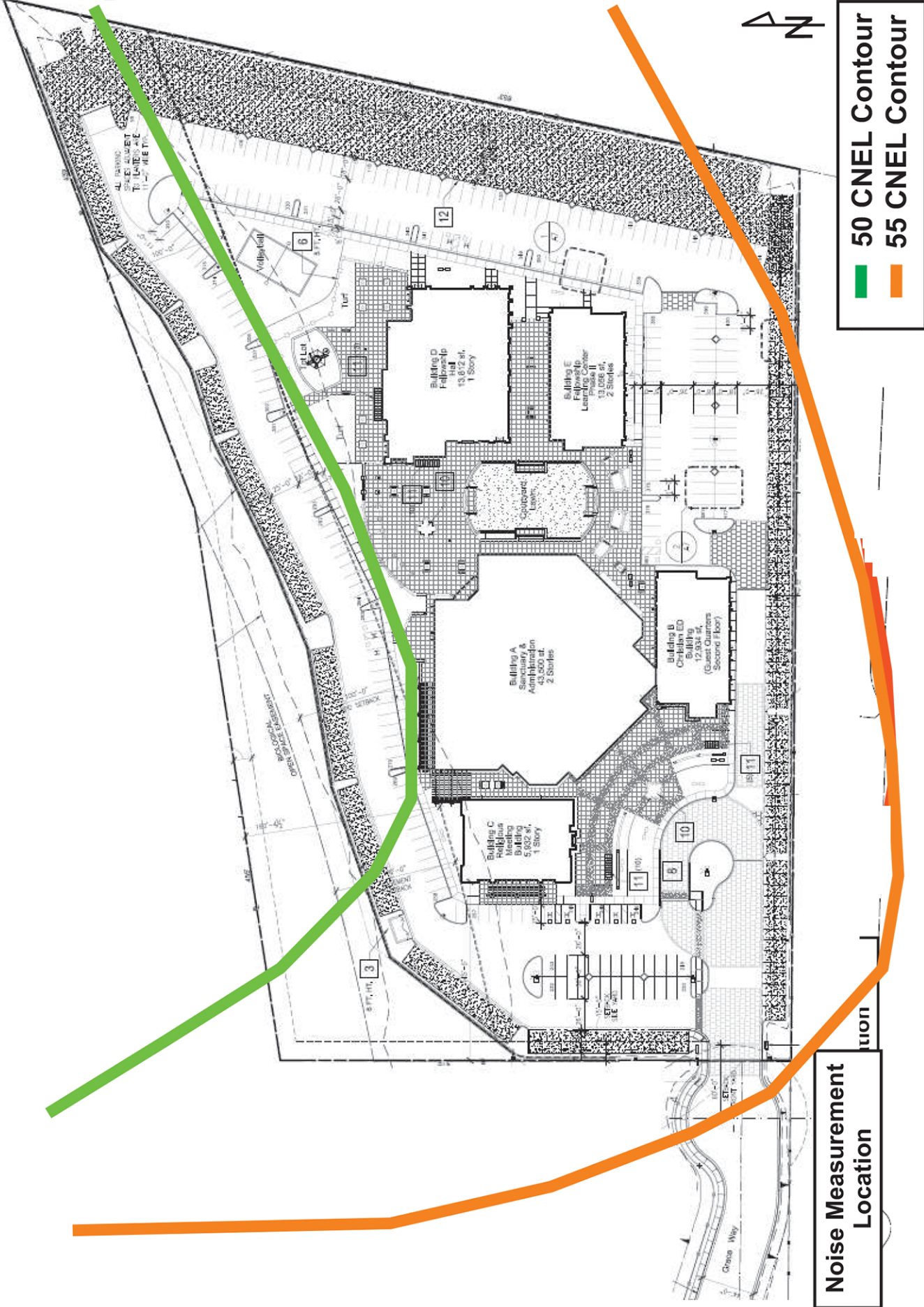
If an outdoor audio system is to be used, the church would use updated sound equipment that directs sound to designated areas. The church would also have speakers face exterior buildings to help contain the sound in the areas around the buildings and would not exceed maximum sound levels at the property lines. Noise levels of the system will be tested and the system adjusted as needed to assure it meets County and City of San Diego requirements. This would minimize noise impacts and ensure that impacts related to use of an outdoor audio system would be less than significant.

Noise from use of the overflow parking lot will be controlled by closing the lot by 6 PM except in the case of special events. Barriers, signage, and announcements will be used to enforce this limitation.

Temporary construction noise was calculated to determine the impact this activity will have on surrounding residential properties. Current proposed construction activities are expected to meet County of San Diego noise regulations for temporary construction noise during all phases of construction. General good practice measures should also be followed, including reasonable maintenance of equipment, conservative planning of simultaneous equipment operation, and using equipment with effective mufflers. Equipment operation must also be limited to the allowable hours of operation set by the County of San Diego. With these recommendations, it is expected that construction equipment noise levels will be at or below an average eight-hour equivalent noise level of 75 dBA, in compliance with County of San Diego regulations and impacts would be less than significant.

No cumulative construction or operational impacts are anticipated because no projects in the area are anticipated to be under construction at the same time as the Project.

In summary, noise impacts were determined to be less than significant or mitigated to below a level of significance.



Noise Measurement Location

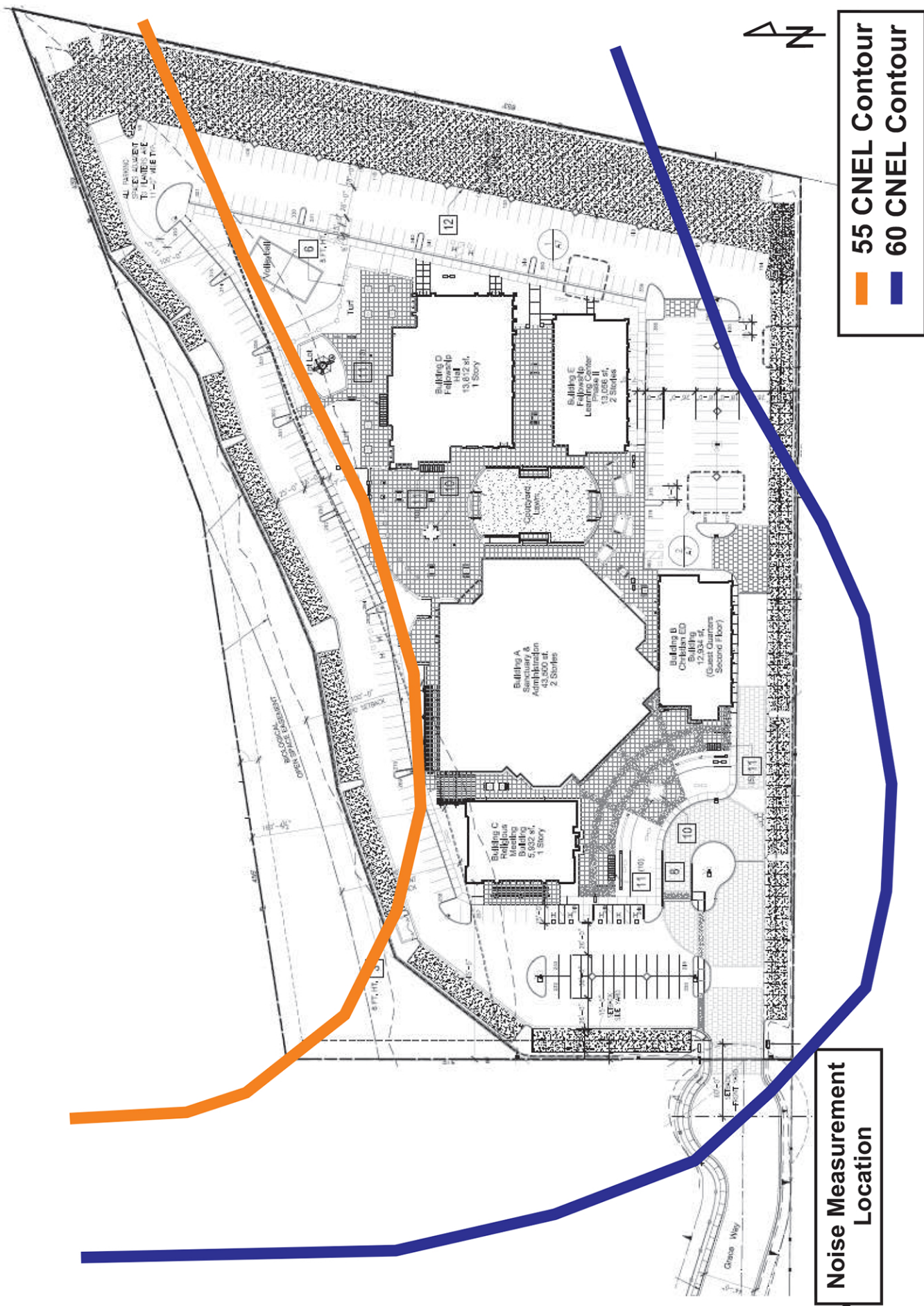
50 CNEL Contour
55 CNEL Contour

Current Traffic CNEL Contours and Noise Measurement Locations

Figure 2.5-1

Eilar Associates, Inc.





Noise Measurement Location

— 55 CNEL Contour
— 60 CNEL Contour

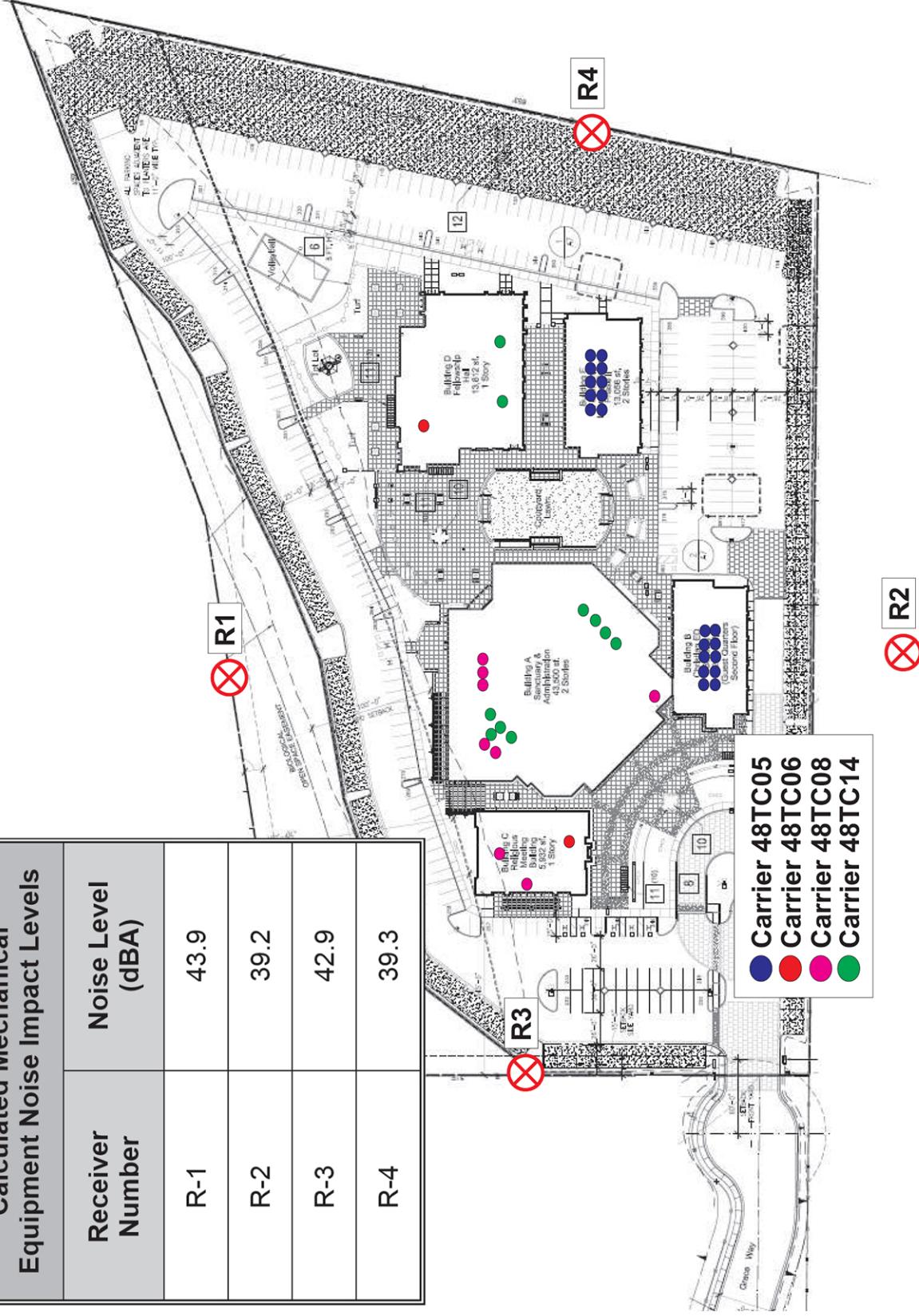
Future Traffic CNEL Contours and Noise Measurement Locations

Figure 2.5-2

Eilar Associates, Inc.



Calculated Mechanical Equipment Noise Impact Levels	
Receiver Number	Noise Level (dBA)
R-1	43.9
R-2	39.2
R-3	42.9
R-4	39.3

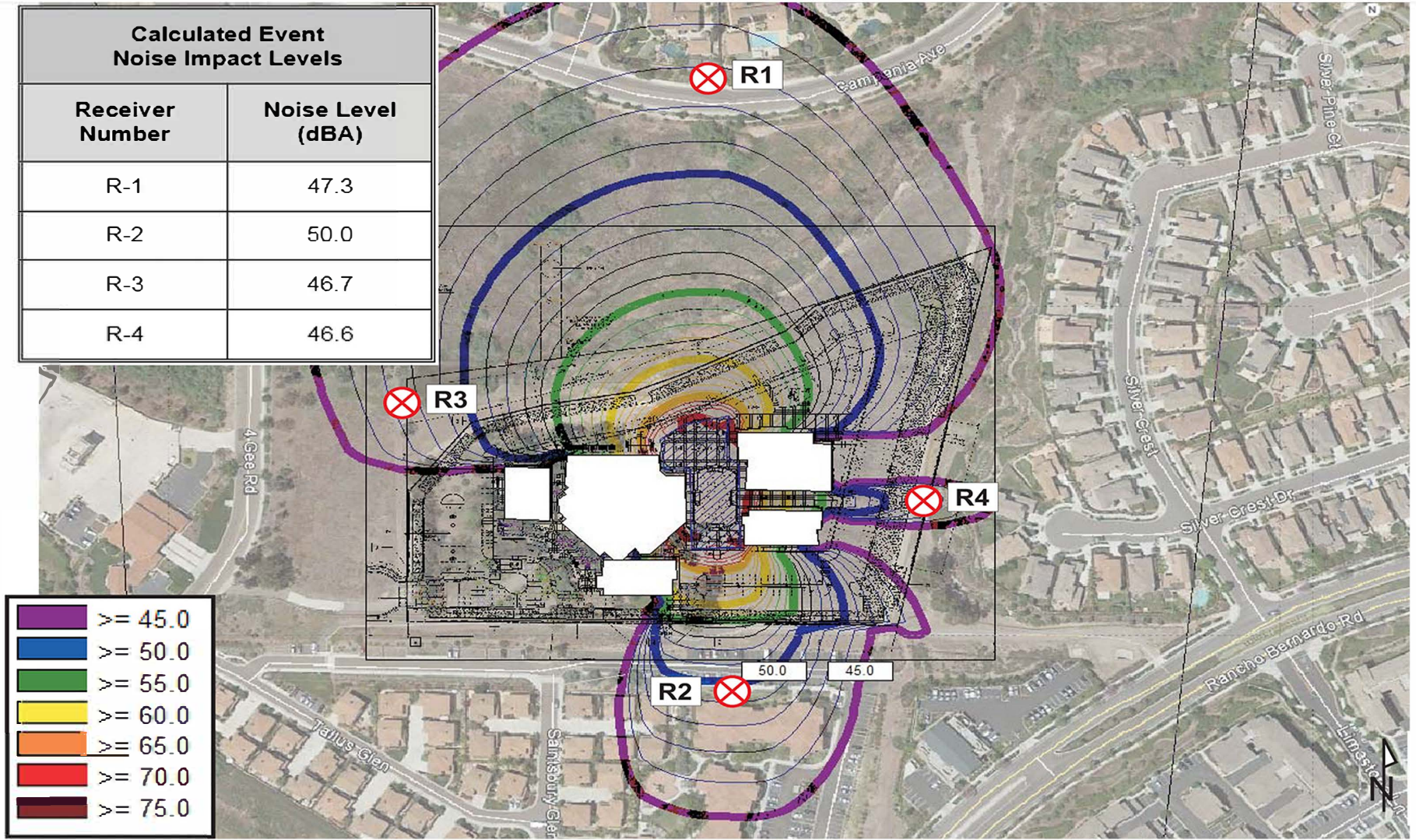


Eilar Associates, Inc.



Rooftop Mechanical Equipment and Receiver Locations

Figure 2.5-3

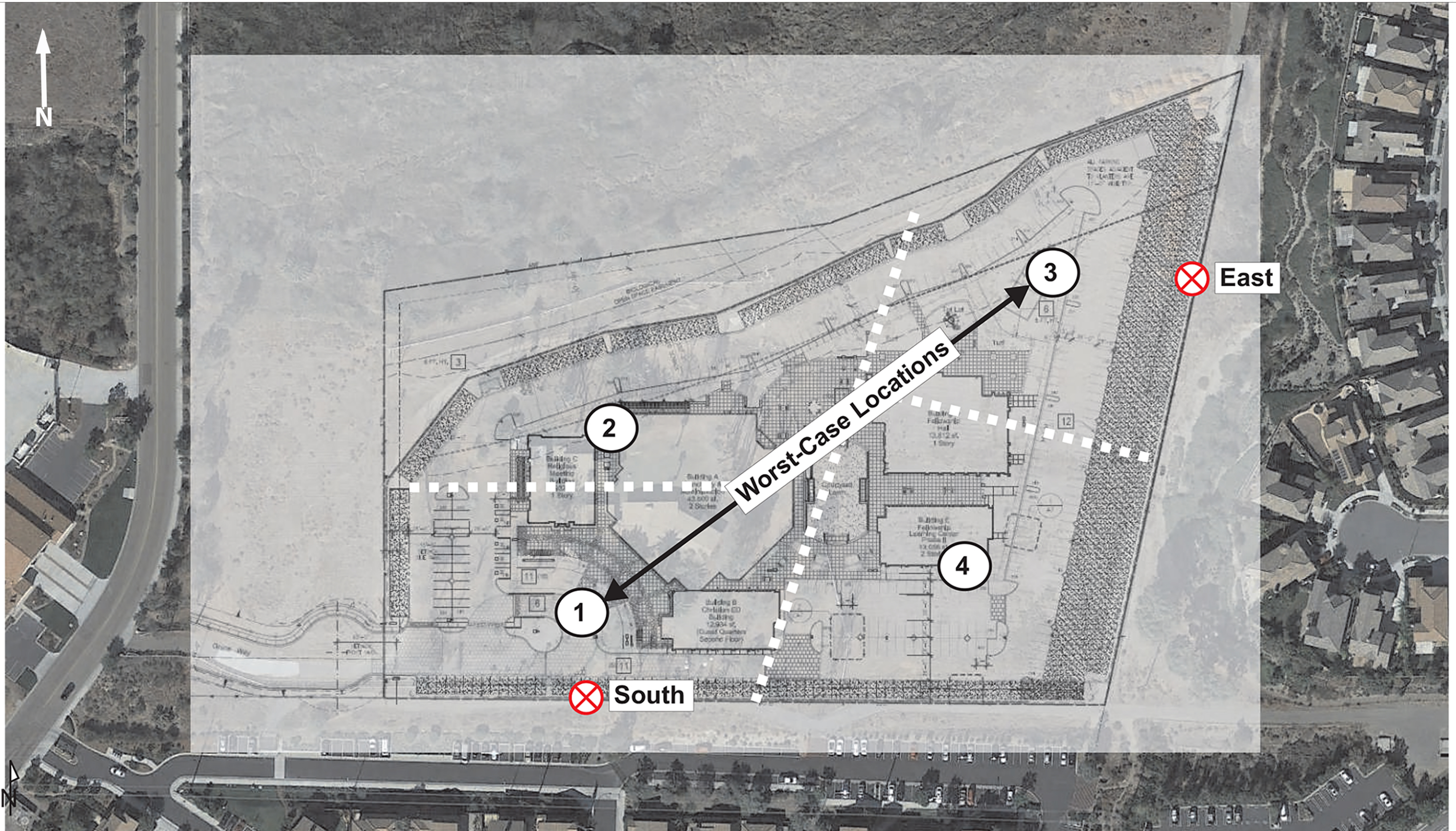


Eilar Associates, Inc.



Event Noise Contours and Receiver Locations

Figure 2.5-4



Eilar Associates, Inc.



Construction Noise Sources and Worst-Case Receiver Locations

Figure 2.5-5

Receiver	Weekend Hour Traffic Noise Level (CNEL)		Increase of Traffic Noise Level (dB)
	Without Proposed Project	With Proposed Project	
Receiver 1	60	62	2
Receiver 2	59	61	2
Receiver 3	60	61	1

Source: Eilar Associates 2017

Receiver Number - Location	Approximate Distance to Nearest Equipment (feet)	Noise Limit (dBA)	Exterior Noise Impact (dBA)
R-1 - North Property Line	200	45	43.9
R-2 - South Property Line	200	40	39.2
R-3 - East Property Line	225	45	42.9
R-4 - West Property Line	175	45	39.3

Source: Eilar Associates 2017

Receiver Number - Location	Approximate Distance to Courtyard (feet)	Noise Limit (dBA)	Exterior Noise Impact (dBA)
R-1 - North Property Line	600	50	47.3
R-2 - South Property Line)	250	50	50.0
R-3 - East Property Line	250	50	46.7
R-4 - West Property Line	250	50	46.6

Source: Eilar Associates 2017

Equipment Description	Duty Cycle (%)	Noise Level at 50 feet (dBA)
Grader	40	70
Dozer	40	71
Backhoe/Loader	40	65
Water Truck	40	77
Excavator	40	69
Generator	50	57
Concrete Mixer	40	75
Paver	50	71
Roller	20	69
Crane	16	73
Forklift	40	74
Welder	40	69

¹ Unless noted otherwise, noise levels from DEFRA Construction Noise Level Database (see reference).

² Eilar Associates, Inc. noise measurement data.

Phase	Equipment Used	8-Hour Average Noise Level (dBA)	
		South Property Line	East Property Line
Grading	Grader, Dozer, Backhoe/Loader, Water Truck	69.7	65.6
Trenching	Excavator, Backhoe/Loader, Other General Industrial Equipment ¹	62.6	58.5
Paving	Backhoe/Loader, Concrete Mixer, Paver, Roller	68.3	64.1
Building Construction	Crane, Generator, Backhoe/Loader, Forklift, Welder	67.4	63.3

¹ Noise levels generated by “Other General Industrial Equipment” were approximated through the inclusion of an additional backhoe and a generator in calculations.

Source: Eilar Associates 2017



Receiver	Sunday Traffic Impacts (CNEL)		Increase of Traffic Noise Level (dB)
	Existing	Existing + Cumulative + Proposed Project	
Receiver 1	60	63	3
Receiver 2	59	62	3
Receiver 3	60	63	3

Source: Eilar Associates 2017