Appendix 12.0

Noise Assessment

NOISE ASSESSMENT

ST. FRANCES OF ROME
21591 LEMON STREET

CITY OF WILDOMAR,
RIVERSIDE COUNTY, CALIFORNIA

Submitted to:

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June 3, 2019

NOISE ASSESSMENT

St Frances of Rome
21591 Lemon Street
City of Wildomar, CA

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GLOSSARY OF COMMON TERMS

Sound Pressure Level (SPL): a ratio of one sound pressure to a reference pressure (L_{ref}) of 20 µPa. Because of the dynamic range of the human ear, the ratio is calculated logarithmically by 20 log (L/L_{ref}).

A-weighted Sound Pressure Level (dBA): Some frequencies of noise are more noticeable than others. To compensate for this fact, different sound frequencies are weighted more.

Minimum Sound Level (L_{min}): Minimum SPL or the lowest SPL measured over the time interval using the A-weighted network and slow time weighting.

Maximum Sound Level (L_{max}): Maximum SPL or the highest SPL measured over the time interval the A-weighted network and slow time weighting.

Equivalent sound level (L_{eq}): the true equivalent sound level measured over the run time. Leq is the A-weighted steady sound level that contains the same total acoustical energy as the actual fluctuating sound level.

Day Night Sound Level (LDN): Representing the Day/Night sound level, this measurement is a 24 –hour average sound level where 10 dB is added to all the readings that occur between 10 pm and 7 am. This is primarily used in community noise regulations where there is a 10 dB "Penalty" for night time noise. Typically, LDN's are measured using A weighting.

Community Noise Exposure Level (CNEL): The accumulated exposure to sound measured in a 24-hour sampling interval and artificially boosted during certain hours. For CNEL, samples taken between 7 pm and 10 pm are boosted by 5 dB; samples taken between 10 pm and 7 am are boosted by 10 dB.

Octave Band: An octave band is defined as a frequency band whose upper band-edge frequency is twice the lower band frequency.

Third-Octave Band: A third-octave band is defined as a frequency band whose upper band-edge frequency is 1.26 times the lower band frequency.

Response Time (F,S,I): The response time is a standardized exponential time weighting of the input signal according to fast (F), slow (S) or impulse (I) time response relationships. Time response can be described with a time constant. The time constants for fast, slow and impulse responses are 1.0 seconds, 0.125 seconds and 0.35 milliseconds, respectively.

EXECUTIVE SUMMARY

This noise study has been completed to determine the noise impacts associated with the development of the proposed project. The applicant proposes to develop the expansion of the existing St Frances of Rome Catholic Church located in the City of Wildomar in Riverside County, CA. The Project site is located at 21591 Lemon Street on the west side of Interstate 15 (I-15).

- On-Site Noise Analysis

  It was determined from the detailed analysis that all NSLU's will comply with the City of Wildomar's 70 dBA CNEL exterior noise standard without mitigation measures. To meet the 45 dBA CNEL interior noise standard at the proposed uses, an interior noise level reduction of minimum 25 dBA CNEL is needed for the proposed project and standard construction practices will achieve this reduction with dual pane windows and mechanical ventilation to allow for the windows to be closed. Therefore, with the incorporation of dual pane windows and mechanical ventilation will achieve the necessary interior noise reductions to meet the City's 45 dBA CNEL standard.

- Off-Site Noise Analysis

  The project does create a direct and results in a cumulative impact of more than 3 dBA CNEL along Almond Street between Waite Street and Bundy Canyon Road but the noise levels are below 60 dBA CNEL at any sensitive uses. Therefore, the proposed project's direct or cumulative contributions to off-site roadway noise increases will not cause any significant impacts to any existing noise sensitive land uses.

- Construction Noise Analysis

  The City's Noise Ordinance indicates that noise sources associated with private construction projects located within one-quarter of a mile from an inhabited dwelling, are permitted between the hours of 6:00 a.m. and 6:00 p.m. during the months of June through September, and between the hours of 7:00 a.m. and 6:00 p.m. during the months of October through May. While the City establishes limits to the hours during which construction activity may take place, neither the City's General Plan or Municipal Code establish numeric maximum acceptable construction source noise levels at potentially affected receivers, which would allow for a quantified determination of what CEQA constitutes a substantial temporary or periodic noise increase. Any activities that occur outside the allowable time according to the City's Municipal Code would be considered significant. All construction activities are anticipated to occur during the permissible hours, therefore, no impacts are expected.

- Operational Analysis

  Based upon the property line noise levels determined above none of the proposed noise sources directly or cumulatively exceeds the property line standards at the shared residential property lines. Therefore, the proposed development related operational noise levels comply with the daytime and nighttime noise standards at the adjacent property lines. No Impacts are anticipated and no mitigation is required.

1.0 INTRODUCTION

1.1 Project Description

This noise study was completed to determine the noise impacts associated with the development of the expansion of the existing St Frances of Rome Catholic Church. The project is located at 21591 Lemon Street on the west side of Interstate 15 (I-15). The Project is located in the City of Wildomar in Riverside County, CA. The general location of the project is shown on the Vicinity Map, Figure 1-A.

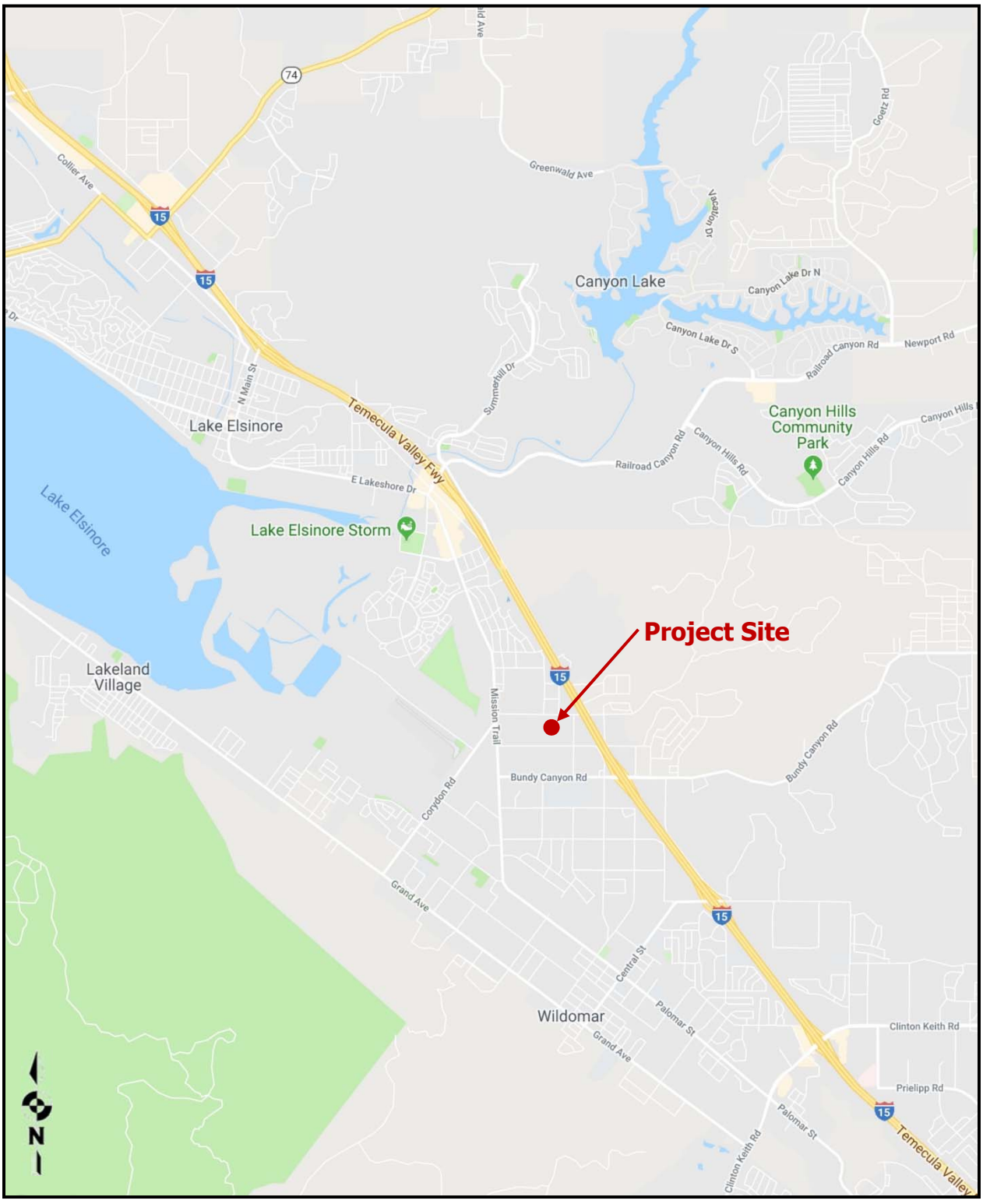
Existing facilities include a one-story Multipurpose Room (9,589 s.f.) to remain, a one-story Office (2,092 s.f.) to become a rectory, and a one-story Classroom (1,443 s.f.) to remain. Two access points are provided to the main parking lot from Lemon Street. Secondary access from Mojonnier Way is provided to the south to the existing secondary parking lot. The existing parking will be increased from 174 spaces to 437 total parking spaces between the main parking lot and the secondary parking lot. The total project site is 10.5 acres. A CUP is required for the proposed improvements which will be constructed in three phases.

The proposed development includes a new one-story Church (17,601 s.f.) a new Office and Classroom Addition (9,792 s.f.), and various storm water and surface improvements. The site plan used for this analysis is shown on Figure 1-B.

1.2 Environmental Settings & Existing Conditions

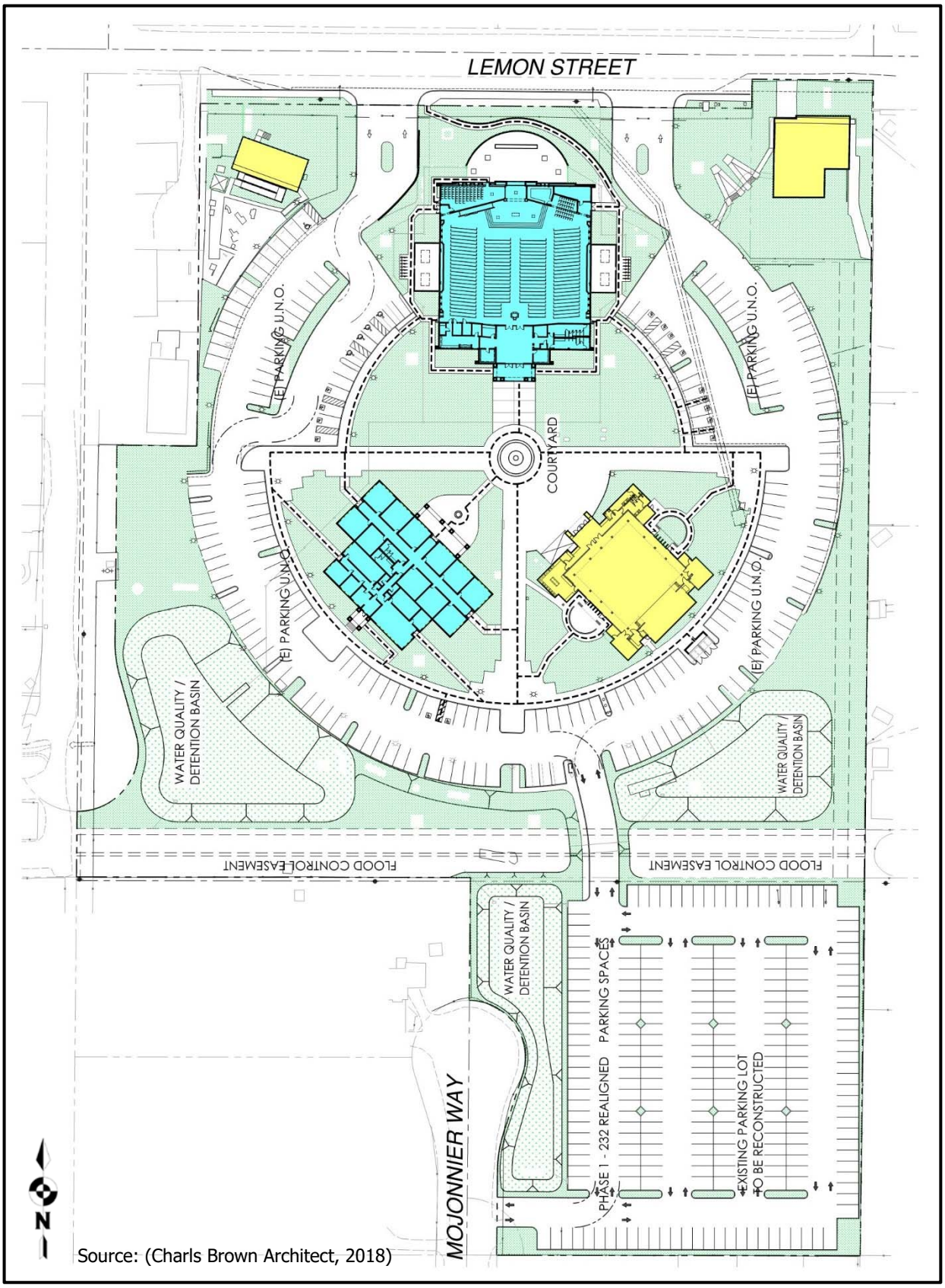
The project is bordered on all sides by existing residential and Lemon Street to the north. Access to the project site is provided by Lemon Street to the north and secondary access from Mojonnier Way to the south. The site is surrounded primarily by single family residential development, which is considered a noise sensitive land use. Existing noise occurs mainly from vehicle traffic along adjacent Lemon Street.

Figure 1-A: Project Vicinity Map



Source: (Google, 2018)

Figure 1-B: Project Site Plan



Source: (Charls Brown Architect, 2018)

1.3 Methodology

a) Noise Measuring Methodology and Procedures

To determine the existing noise environment and to assess potential noise impacts, measurements were taken at a single location on the project having a direct line of site to Lemon Street. No outdoor activities were occurring on-site during the measurement period. The noise measurements were recorded on December 17, 2018 by Ldn Consulting, Inc. between 1:00 p.m. and 1:15 p.m.

Noise measurements were taken using a Larson-Davis Model LxT Type 1 precision sound level meter, programmed, in "slow" mode, to record noise levels in "A" weighted form. The sound level meter and microphone were mounted on a tripod, five feet above the ground and equipped with a windscreen during all measurements. The sound level meter was calibrated before and after the monitoring using a Larson-Davis calibrator, Model CAL 150.

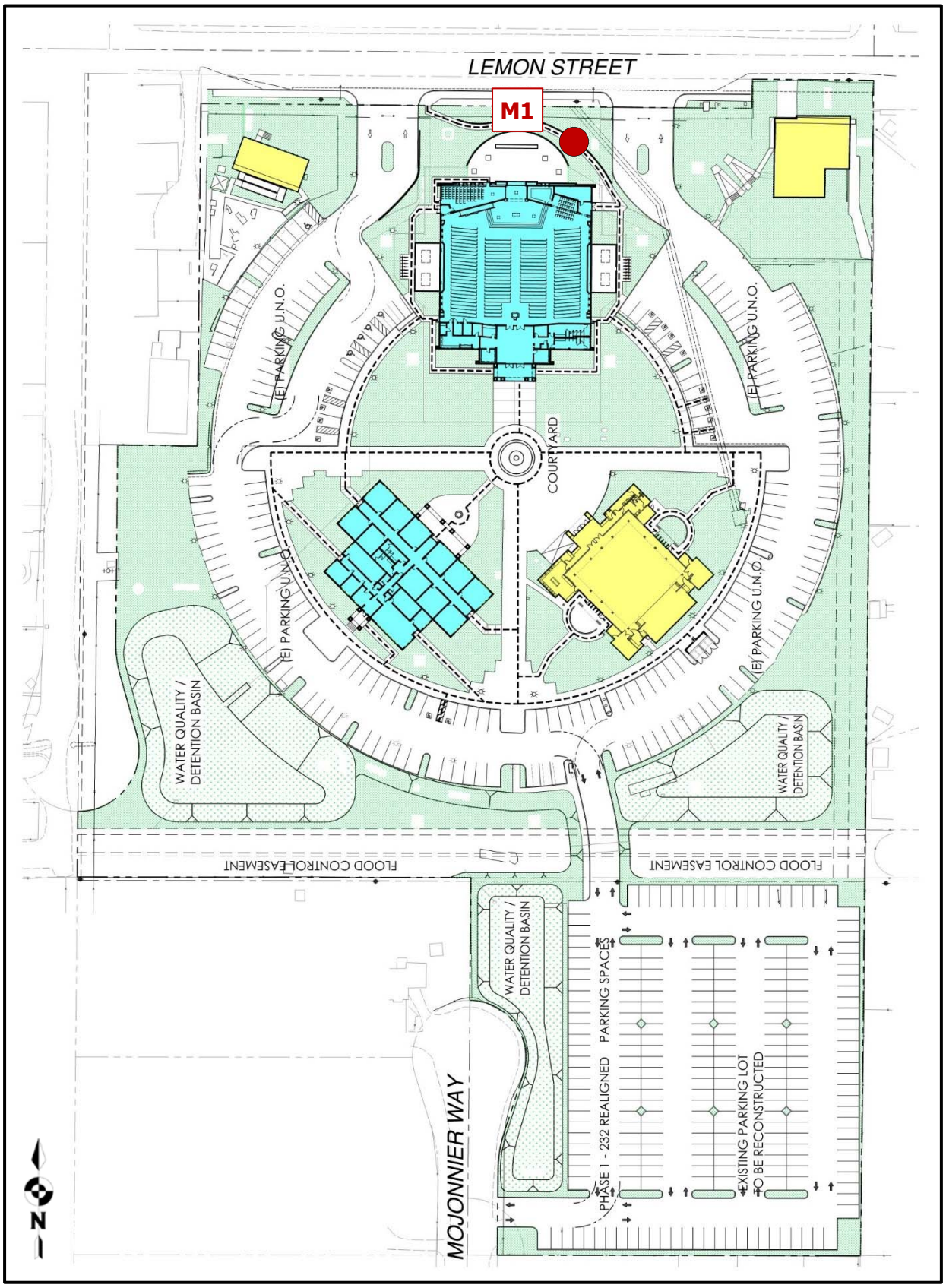
The noise measurement location was determined based on site access and noise impact potential to the project. Monitoring location 1 (M1) was located roughly 100-feet from the center line of Lemon Street between the two driveways. The noise monitoring location is provided graphically in Figure 1-C on the following page.

The results of the noise level measurements are presented in Table 1-1. The noise measurements were monitored for a time period of 15 minutes. The ambient Leq noise levels measured in the area of the project during the afternoon hour was found to be 60.2 dBA Leq. The existing noise levels in the project area consisted primarily of existing traffic along Lemon Street.

Table 1-1: Existing Noise Levels

Location	Time	One Hour Noise Levels (dBA)					
		Leq	Lmin	Lmax	L10	L50	L90
M1	1:00–1:15 p.m.	60.2	54.2	67.5	62.9	57.2	42.5
Source: Ldn Consulting, Inc. December 17, 2018							

Figure 1-C: Existing Noise Measurement Location



b) Noise Modeling Software

The roadway noise impacts from vehicular traffic were projected using a computer program that replicates the FHWA Traffic Noise Prediction Model-FHWA-RD-77-108 (the FHWA Model). The FHWA Model arrives at a predicted noise level through a series of adjustments to the Reference Energy Mean Emission Level (REMEL). Adjustments are then made to the REMEL to account for the roadway classification (e.g., collector, secondary, major, or arterial), the roadway active width (i.e., the distance between the center of the outermost travel lanes on each side of the roadway), the total average daily traffic (ADT), the travel speed, the percentages of automobiles, medium trucks, and heavy trucks in the traffic volume, the roadway grade, the angle of view (e.g., whether the roadway view is blocked), the site conditions ("hard" or "soft" relates to the absorption of the ground, pavement, or landscaping), and the percentage of total ADT which flows each hour throughout a 24-hour period.

c) Noise Calculations and Factors

Noise is defined as unwanted or annoying sound which interferes with or disrupts normal activities. Exposure to high noise levels has been demonstrated to cause hearing loss. The individual human response to environmental noise is based on the sensitivity of that individual, the type of noise that occurs and when the noise occurs.

Sound is measured on a logarithmic scale consisting of sound pressure levels known as a decibel (dB). The sounds heard by humans typically do not consist of a single frequency but of a broadband of frequencies having different sound pressure levels. The method for evaluating all the frequencies of the sound is to apply an A-weighting to reflect how the human ear responds to the different sound levels at different frequencies. The A-weighted sound level adequately describes the instantaneous noise whereas the equivalent sound level depicted as Leq represents a steady sound level containing the same total acoustical energy as the actual fluctuating sound level over a given time interval.

The Community Noise Equivalent Level (CNEL) is the 24 hour A-weighted average for sound, with corrections for evening and nighttime hours. The corrections require an addition of 5 decibels to sound levels in the evening hours between 7 p.m. and 10 p.m. and an addition of 10 decibels to sound levels at nighttime hours between 10 p.m. and 7 a.m. These additions are made to account for the increased sensitivity during the evening and nighttime hours when sound appears louder.

A vehicle's noise level is from a combination of the noise produced by the engine, exhaust and tires. The cumulative traffic noise levels along a roadway segment are based on three primary factors: the amount of traffic, the travel speed of the traffic, and the vehicle mix ratio

or number of medium and heavy trucks. The intensity of traffic noise is increased by higher traffic volumes, greater speeds and increased number of trucks.

Because mobile/traffic noise levels are calculated on a logarithmic scale, a doubling of the traffic noise or acoustical energy results in a noise level increase of 3 dBA. Therefore the doubling of the traffic volume, without changing the vehicle speeds or mix ratio, results in a noise increase of 3 dBA. Mobile noise levels radiate in an almost oblique fashion from the source and drop off at a rate of 3 dBA for each doubling of distance under hard site conditions and at a rate of 4.5 dBA for soft site conditions. Hard site conditions consist of concrete, asphalt and hard pack dirt while soft site conditions exist in areas having slight grade changes, landscaped areas and vegetation. On the other hand, fixed/point sources radiate outward uniformly as sound travels away from the source. Their sound levels attenuate or drop off at a rate of 6 dBA for each doubling of distance.

The most effective noise reduction methods consist of controlling the noise at the source, blocking the noise transmission with barriers or relocating the receiver. Any or all of these methods may be required to reduce noise levels to an acceptable level.

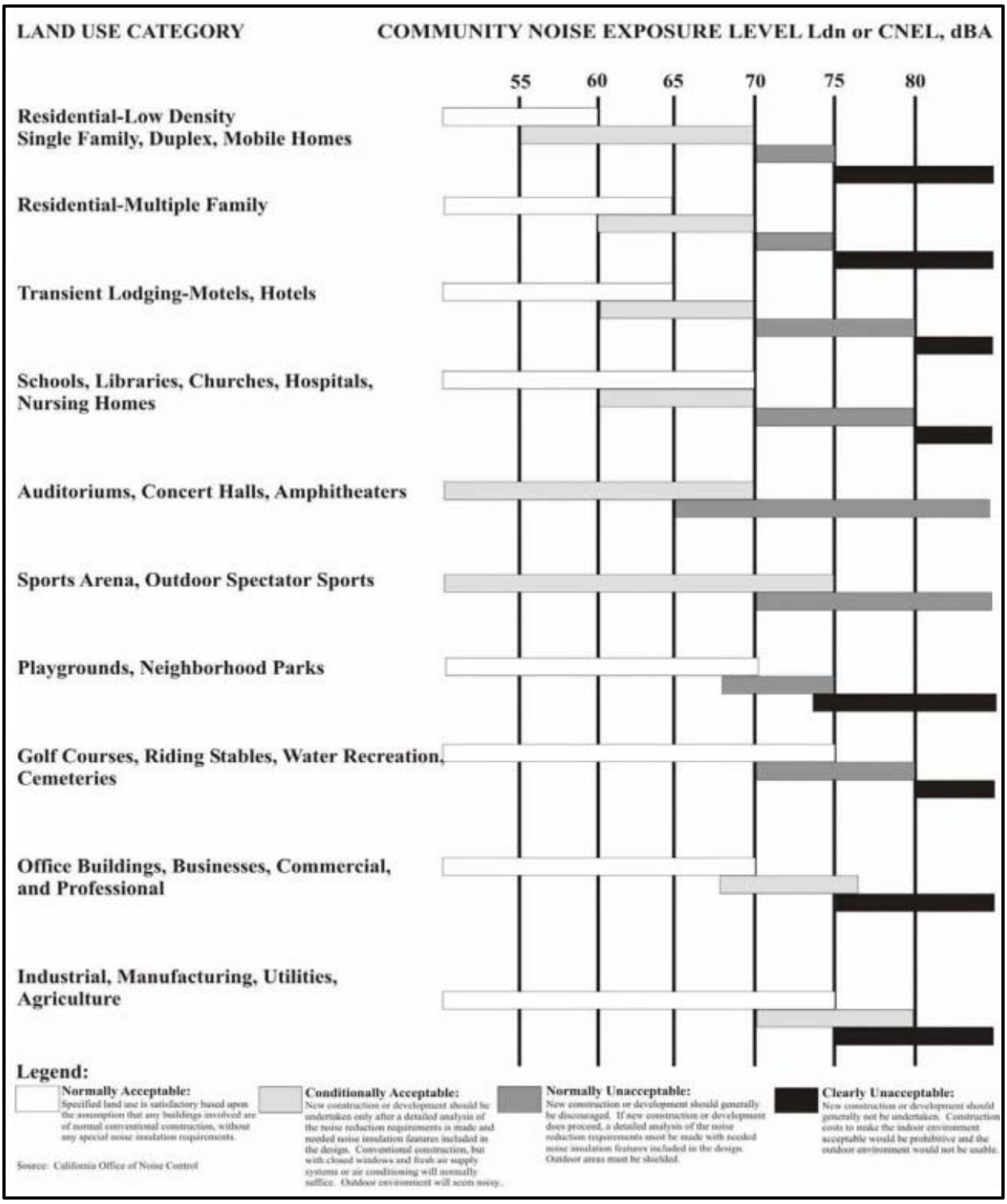
2.0 NOISE SENSITIVE LAND USES (NSLU)

2.1 Guidelines for the Determination of Significance

The City of Wildomar was incorporated as a City in October of 2008. Through the incorporation process, the City adopted the Riverside County General Plan Noise Element to control and abate environmental noise, and to protect the citizens of the City of Wildomar from excessive exposure to noise. The Noise Element specifies the maximum allowable exterior noise levels for new developments impacted by transportation noise sources such as arterial roads, freeways, airports and railroads. The Noise Element includes standards for land use compatibility for community noise exposure in Policy N 1.3 and Policy N 4.1 and characterizes both schools and places of worship as noise-sensitive uses. For noise-sensitive land uses, the exterior noise levels should not exceed 65 dBA CNEL. The Noise Element also includes Table N-1, Land Use Compatibility for Community Noise Exposure, that indicates that exterior noise for "Schools, Libraries, Churches, Hospitals, and Nursing Homes" to be "conditionally acceptable" up to 70 dBA (see Figure 2-A).

A land use located in an area identified as "acceptable" indicates that standard construction methods would attenuate exterior noise to an acceptable indoor noise level and that people can carry out outdoor activities with minimal noise interference. Land uses that fall into the "conditionally acceptable" noise environment should have an acoustical study that considers the type of noise source, the sensitivity of the noise receptor, and the degree to which the noise source may interfere with sleep, speech, or other activities characteristic of the land use. For land uses indicated as "conditionally acceptable," structures must be able to attenuate the exterior noise to an indoor noise level of 45 dBA CNEL as indicated in Policy N 13.1. For land uses where the exterior noise levels fall within the "unacceptable" range, new construction generally should not be undertaken.

Figure 2-A: Land Use Compatibility for Community Noise Exposure



2.2 Potential On-Site Noise Impacts

The primary source of noise impacts to the project site will be from vehicular noise from adjacent Lemon Street and nearby I-15 located approximately 1,000-feet northeast of the project site. The projected roadway noise levels from vehicular traffic were calculated using the methods in the Highway Noise Model published by the Federal Highway Administration Traffic Noise Prediction Model, FHWA-RD-77-108 (FHWA, 1978). The FHWA Model uses the traffic volume, vehicle mix, speed, and roadway geometry to compute the equivalent noise level. A spreadsheet calculation was used which computes equivalent noise levels for each of the time periods used in the calculation of CNEL. Weighting these equivalent noise levels and summing them gives the CNEL for the traffic projections.

Table 2-1 presents the roadway parameters used in the analysis including the average daily traffic volumes, vehicle speeds and the hourly traffic flow distribution (vehicle mix). The future traffic noise model utilizes a typical vehicle mix for the region 97.42% Autos, 1.84% Medium Trucks and 0.74% Heavy Trucks for Lemon Street. A vehicle mix of 91.3% Autos, 3.9% Medium Trucks and 4.8% Heavy Trucks was used for I-15 from data found in the 2015 Caltrans Annual Average Daily Truck Traffic. The vehicle mix provides the hourly distribution percentages of automobile, medium trucks and heavy trucks for input into the FHWA Model.

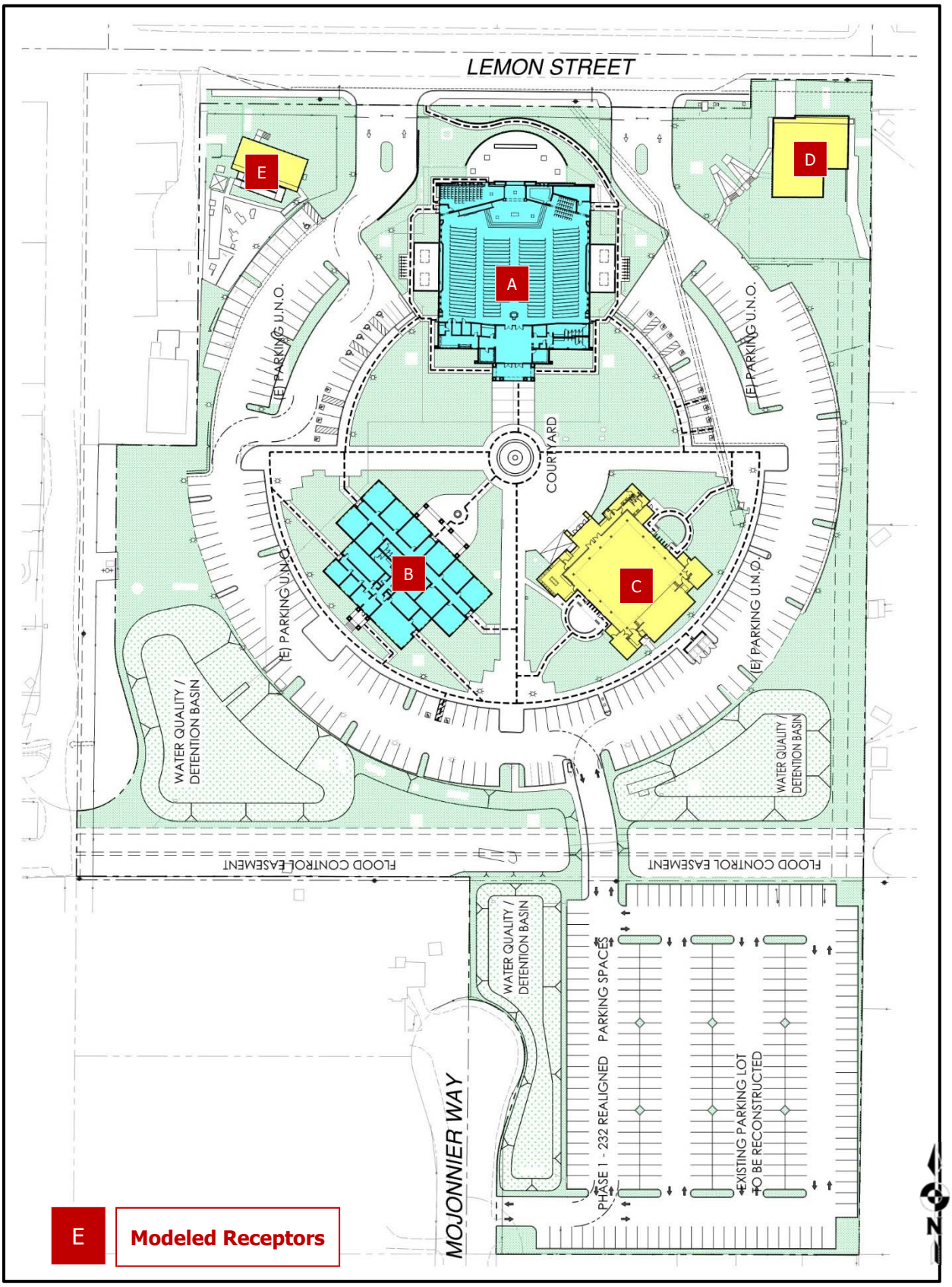
Based on the County of Riverside General Plan Circulation Element, Lemon Street is classified as a 2-lane Collector roadway. For the purposes of this analysis and to account for the worst-case traffic noise condition, traffic was modeled at level of service (LOS) C conditions with an Average Daily Traffic (ADT) volume of 10,400 at 40 miles per hour for Lemon Street based on the County of Riverside requirements. A future ADT volume of 124,000 and speed of 65 miles per hour was used to describe the future I-15 traffic noise levels based on the 2017 Caltrans Traffic Volumes. The modeled observer locations for the sampled buildings of the proposed project are presented in Figure 2-B on the following page.

Table 2-1: Future Traffic Parameters

Roadway	Average Daily Traffic (ADT)	Peak Hour Volume[2]	Modeled Speeds (MPH)	Vehicle Mix %[3]		
				Auto	Medium Trucks	Heavy Trucks
Lemon Street	10,400[1]	1,040	40	97.42	1.84	0.74
Interstate 15	124,000	12,400	65	91.3	3.9	4.8

[1] County of Riverside General Plan Circulation Element
[2] 10% of the ADT.
[3] Based on the County of Riverside Level of Service "C" Roadway Design Capacity.

Figure 2-B: Modeled Receptor Locations



The Buildout analysis was modeled utilizing the roadway parameters described above for the future conditions. The modeling results are quantitatively shown in Table 2-2 below. As can been seen in Table 2-2, all the buildings will comply with the City's 70 dBA standard with no mitigation. The models input parameters and output files for the future conditions are also provided in ***Attachment A***.

Table 2-2: Future Exterior Noise Levels

Location	Building	Unmitigated Outdoor Noise Levels (dBA CNEL)*
A	Church	67.2
B	Office	64.4
C	Multi-Purpose Room	64.9
D	Rectory	69.6
E	Classroom	67.7
* Interior Noise Assessment required if façade noise level is above 60 dBA CNEL.		

Basic calculations show that a windows open condition will only reduce the interior noise levels 12-15 dBA CNEL and not provide adequate interior noise mitigation. A windows closed condition with the incorporation of conventional building construction methods that include dual pane windows and mechanical ventilation will typically reduce the interior noise levels 20-25 dBA CNEL if the windows are dual pane and have a minimum sound transmission class (STC) rating of 26. Therefore, the necessary interior noise reductions will be achieved to meet the City's 45 dBA CNEL standard.

2.3 Potential Off-Site Noise Impacts

The off-site project related roadway segment noise levels projected in this report were calculated using the methods in the Highway Noise Model published by the Federal Highway Administration (FHWA Highway Traffic Noise Prediction Model, FHWA-RD-77-108, December, 1978). The FHWA Model uses the traffic volume, vehicle mix, speed, and roadway geometry to compute the equivalent noise level. A spreadsheet calculation was used which computes equivalent noise levels for each of the time periods used in the calculation of CNEL. Weighting these equivalent noise levels and summing them gives the CNEL for the traffic projections. The noise contours are then established by iterating the equivalent noise level over many distances until the distance to the desired noise contour(s) are found. For this project the 60 dBA CNEL contour was calculated based upon the City thresholds for the single family uses adjacent to the site.

Soft site conditions were used along all roadway segments to develop the worst-case noise

contours and to analyze noise impacts. The future traffic noise model utilizes a typical County of Riverside vehicle mix of 97.42% Autos, 1.84% Medium Trucks and 0.74% Heavy Trucks for all analyzed roadway segments. The vehicle mix provides the hourly distribution percentages of automobile, medium trucks and heavy trucks for input into the FHWA Model.

Direct and cumulative roadway noise impacts would be considered significant if the project increases noise levels for a noise sensitive land use by 3 dBA CNEL and if: (1) the existing noise levels already exceed the 60 dBA CNEL residential standard, or (2) the project increases noise levels from below the 60 dBA CNEL standard to above 60 dBA CNEL in the area adjacent to the roadway segment. Utilizing the project's traffic assessment (RK Engineering Group, Inc., 2018), peak hour traffic volumes were calculated based on the intersection turning movements and then multiplied by ten to determine the worst case ADT. Noise contours were developed for the following traffic scenarios:

Existing: Current day noise conditions without the proposed project.
Existing Plus Project: Current day noise conditions plus the proposed project.
Existing vs. Existing Plus Project: Comparison of the direct project related noise level increases in the vicinity of the proposed project site.

The noise levels and the distances to the 60 dBA CNEL contours for the roadways in the vicinity of the Project site are given in Table 2-3 for the Existing Scenario and in Table 2-4 for the Existing plus Project Scenario. Note that the values given do not take into account the effect of any noise barriers or topography that may affect ambient noise levels.

Table 2-3: Existing Roadway Noise Levels

Roadway and Roadway Segment	ADT[1]	Noise Level @ 50-Feet (dBA CNEL)	60 dBA CNEL Contour Distance (Feet)
Lemon Street - Project to Mission Trail	3,010	62.0	68
Lemon Street - Project to Almond Street	3,350	62.5	73
Almond Street - Lemon Street to Waite street	2,100	60.4	53
Mojonnier Way - Project to Waite Street	340	52.5	16
Waite Street - Mojonnier Way to Mission Trail	1,380	58.6	40
Waite Street - Mojonnier Way to Almond Street	1,720	59.6	47
Almond Street - Waite Street to Bundy Canyon	620	55.1	24
Bundy Canyon - Almond Street to Orange Street	8,230	66.4	133
Bundy Canyon - Orange Street to Freeway	12,720	68.2	177
[1] Source: Project Traffic study prepared by Source: RK Engineering Group, 2018			

Table 2-4: Existing + Project Noise Levels

Roadway and Roadway Segment	ADT[1]	Noise Level @ 50-Feet (dBA CNEL)	60 dBA CNEL Contour Distance (Feet)
Lemon Street - Project to Mission Trail	3,480	62.6	75
Lemon Street - Project to Almond Street	4,020	63.2	82
Almond Street - Lemon Street to Waite street	2,700	61.5	63
Mojonnier Way - Project to Waite Street	540	54.5	22
Waite Street - Mojonnier Way to Mission Trail	1,380	58.6	40
Waite Street - Mojonnier Way to Almond Street	1,920	60.0	50
Almond Street - Waite Street to Bundy Canyon	1,420	58.7	41
Bundy Canyon - Almond Street to Orange Street	8,980	66.7	141
Bundy Canyon - Orange Street to Freeway	13,390	68.5	183
[1] Source: Project Traffic study prepared by Source: RK Engineering Group, 2018			

Table 2-5 presents the comparison of the Existing Year with and without project related noise levels. The roadway segment along Almond Street between Waite Street and Bundy Canyon Road noise levels will increase 3.6 dBA CNEL with the development of the proposed project. The project does create a direct noise level increase of more than 3 dBA CNEL but as can be seen in Table 2-5, the noise levels are below 60 dBA CNEL at any sensitive uses. Therefore, the proposed project's direct contributions to off-site roadway noise increases will not cause any direct significant impacts to any existing noise sensitive land uses.

Table 2-5: Existing vs. Existing + Project Noise Levels

Roadway and Roadway Segment	Existing Noise Level @ 50-Feet (dBA CNEL)	Existing + Project Noise Level @ 50-Feet (dBA CNEL)	Project Related Direct Noise Level Increase (dBA CNEL)
Lemon Street - Project to Mission Trail	62.0	62.6	0.6
Lemon Street - Project to Almond Street	62.5	63.2	0.7
Almond Street - Lemon Street to Waite street	60.4	61.5	1.1
Mojonnier Way - Project to Waite Street	52.5	54.5	2.0
Waite Street - Mojonnier Way to Mission Trail	58.6	58.6	0.0
Waite Street - Mojonnier Way to Almond Street	59.6	60.0	0.4
Almond Street - Waite Street to Bundy Canyon	55.1	58.7	3.6
Bundy Canyon - Almond Street to Orange Street	66.4	66.7	0.3
Bundy Canyon - Orange Street to Freeway	68.2	68.5	0.3
Sound Levels provided are worst-case and do not take into account topography or shielding from barriers.			

a) Cumulative Noise Impacts

To determine if cumulative off-site noise level increases associated with the development of the proposed project and other planned or permitted projects in the vicinity will create noise impacts, the noise levels for the near-term project Buildout and other planned and permitted projects were compared with the existing conditions. Utilizing the project's traffic assessment, noise contours were developed for the following traffic scenarios:

Existing Plus Cumulative Projects Plus Project: Current noise conditions plus the completion of the project and the completion of other permitted, planned projects or approved ambient growth factors.
Existing vs. Existing Plus Cumulative Plus Project: Comparison of the existing noise levels and the related noise level increases from the combination of the proposed project and all other planned or permitted projects in the vicinity of the site.

The existing noise levels and the distances to the 60 dBA CNEL contours for the roadways in the vicinity of the Project site are given in Table 2-3 above for the Existing Scenario. The cumulative with Project noise conditions are provided in Table 2-6 below. No noise barriers or topography that may affect noise levels were incorporated in the calculations. Table 2-7 presents the comparison of the Existing Year and the Cumulative noise levels. The roadway segment along Almond Street between Waite Street and Bundy Canyon Road noise levels will increase 3.7 dBA CNEL with the development of the proposed project and cumulative projects. The cumulative noise level increases more than 3 dBA CNEL but as can be seen in Table 2-5, the noise levels are below 60 dBA CNEL at any sensitive uses.

Table 2-6: Existing + Project + Cumulative Noise Levels

Roadway and Roadway Segment	ADT[1]	Noise Level @ 50-Feet (dBA CNEL)	60 dBA CNEL Contour Distance (Feet)
Lemon Street - Project to Mission Trail	3,600	62.8	76
Lemon Street - Project to Almond Street	5,340	64.5	99
Almond Street - Lemon Street to Waite street	2,790	61.7	64
Mojonnier Way - Project to Waite Street	550	54.6	22
Waite Street - Mojonnier Way to Mission Trail	1,430	58.8	41
Waite Street - Mojonnier Way to Almond Street	1,980	60.2	51
Almond Street - Waite Street to Bundy Canyon	1,440	58.8	41
Bundy Canyon - Almond Street to Orange Street	15,510	69.1	202
Bundy Canyon - Orange Street to Freeway	20,170	70.2	241
[1] Source: Project Traffic study prepared by Source: RK Engineering Group, 2018			

Table 2-7: Existing vs. Existing + Project + Cumulative Noise Levels

Roadway and Roadway Segment	Existing Noise Level @ 50-Feet (dBA CNEL)	Existing + Project + Cumulative Noise Level @ 50-Feet (dBA CNEL)	Project Related Direct Noise Level Increase (dBA CNEL)
Lemon Street - Project to Mission Trail	62.0	62.8	0.8
Lemon Street - Project to Almond Street	62.5	64.5	2.0
Almond Street - Lemon Street to Waite street	60.4	61.7	1.3
Mojonnier Way - Project to Waite Street	52.5	54.6	2.1
Waite Street - Mojonnier Way to Mission Trail	58.6	58.8	0.2
Waite Street - Mojonnier Way to Almond Street	59.6	60.2	0.6
Almond Street - Waite Street to Bundy Canyon	55.1	58.8	3.7
Bundy Canyon - Almond Street to Orange Street	66.4	69.1	2.7
Bundy Canyon - Orange Street to Freeway	68.2	70.2	2.0
Sound Levels provided are worst-case and do not take into account topography or shielding from barriers.			

2.4 Conclusions

It was determined from the detailed analysis that all NSLU's will comply with the City of Wildomar's 70 dBA CNEL exterior noise standard without mitigation measures. To meet the 45 dBA CNEL interior noise standard at the proposed uses, an interior noise level reduction of minimum 25 dBA CNEL is needed for the proposed project and standard construction practices will achieve this reduction with dual pane windows and mechanical ventilation to allow for the windows to be closed. Therefore, with the incorporation of dual pane windows and mechanical ventilation will achieve the necessary interior noise reductions to meet the City's 45 dBA CNEL standard.

The project does create a direct and results in a cumulative impact of more than 3 dBA CNEL along Almond Street between Waite Street and Bundy Canyon Road but the noise levels are below 60 dBA CNEL at any sensitive uses. Therefore, the proposed project's direct or cumulative contributions to off-site roadway noise increases will not cause any significant impacts to any existing noise sensitive land uses.

3.0 CONSTRUCTION ACTIVITIES

3.1 Guidelines for the Determination of Significance

The General Plan EIR identifies construction noise as a potentially significant impact resulting in noise levels approaching 91 dBA Lmax at off-site locations 50 feet from the Project site boundary. In accordance with the City's Noise Ordinance, adopted from the County of Riverside Code of Ordinances, the General Plan EIR states that: compliance with the County's noise ordinance construction hours would be required to reduce construction-related noise impacts to a less than significant level. To minimize the impacts of construction noise, the Noise Element identifies the following policies:

N12.1 Minimize the impacts of construction noise on adjacent uses within acceptable standards.

N12.2 Ensure that construction activities are regulated to establish hours of operation in order to prevent and/or mitigate the generation of excessive or adverse impacts on surrounding areas.

N12.3 Condition subdivision approval adjacent to developed/occupied noise-sensitive land uses (see policy N1.3) by requiring the developer to submit a construction-related noise mitigation plan to the City for review and approval prior to issuance of a grading permit. The plan must depict the location of construction equipment and how the noise from this equipment will be mitigated during construction of this project, through the use of such methods as:

i. Temporary noise attenuation fences;
ii. Preferential location and equipment; and
iii. Use of current noise suppression technology and equipment.

In addition to the policies of the Noise Element, the following mitigation measures are required by the General Plan EIR to reduce the impacts of construction noise:

4.13.1A Prior to the issuance of any grading plans, the County shall condition approval of subdivisions adjacent to any developed/occupied noise-sensitive land uses by requiring applicants to submit a construction-related noise mitigation plan to the County for review and approval. The plan should depict the location of construction equipment and how the noise from this equipment will be mitigated during construction of the project through the use of such methods as:

- *The construction contractor shall use temporary noise attenuation fences where feasible, to reduce construction noise impacts on adjacent noise-sensitive land uses.*
- *During all project site excavation and grading on site, the construction*

contractors shall equip all construction equipment, fixed or mobile, with properly operating and maintained mufflers, consistent with manufacturers' standards. The construction contractor shall place all stationary construction equipment so that emitted noise is directed away from sensitive receptors nearest the project site.

- *The construction contractor shall locate equipment staging in areas that will create the greatest distance between construction-related noise sources and noise sensitive receptors nearest the project site during all project construction.*
- *The construction contractor shall limit all construction-related activities that would result in high noise levels to between the hours of 7:00 a.m. and 7:00 p.m. Monday through Saturday. No construction shall be allowed on Sundays and public holidays.*

4.13.1B The construction-related noise mitigation plan required shall also specify that haul truck deliveries be subject to the same hours specified for construction equipment. Additionally, the plan shall denote any construction traffic haul routes where heavy trucks would exceed 100 daily trips (counting those both to and from the construction site). To the extent feasible, the plan shall denote haul routes that do not pass sensitive land uses or residential dwellings. Lastly, the construction-related noise mitigation plan shall incorporate any other restrictions imposed by County staff.

3.2 Construction Noise Standards

To control noise impacts associated with the construction of the proposed Project, the City has established limits to the hours of operation. Section 9.48.020 (I) of the City's Noise Ordinance indicates that noise sources associated with private construction projects located within one-quarter of a mile from an inhabited dwelling, are permitted between the hours of 6:00 a.m. and 6:00 p.m. during the months of June through September, and between the hours of 7:00 a.m. and 6:00 p.m. during the months of October through May. While the City establishes limits to the hours during which construction activity may take place, neither the City's General Plan or Municipal Code establish numeric maximum acceptable construction source noise levels at potentially affected receivers, which would allow for a quantified determination of what CEQA constitutes a substantial temporary or periodic noise increase.

3.3 Construction Noise Level Threshold

To evaluate whether the Project will generate a substantial periodic increase in short-term noise levels at off-site sensitive receiver locations, a construction-related noise level threshold is adopted from the Criteria for Recommended Standard: Occupational Noise Exposure

prepared by the National Institute for Occupational Safety and Health (NIOSH). A division of the U.S. Department of Health and Human Services, NIOSH identifies a noise level threshold based on the duration of exposure to the source. The construction related noise level threshold starts at 85 dBA for more than eight hours per day, and for every 3 dBA increase, the exposure time is cut in half. This results in noise level thresholds of 88 dBA for more than four hours per day, 92 dBA for more than one hour per day, 96 dBA for more than 30 minutes per day, and up to 100 dBA for more than 15 minutes per day.

For the purposes of this analysis, the lowest, more conservative construction noise level threshold of 85 dBA Leq is used as an acceptable threshold for construction noise at the nearby sensitive receiver locations. Since this construction-related noise level threshold represents the energy average of the noise source over a given time period, they are expressed as Leq noise levels. Therefore, the noise level threshold of 85 dBA Leq over a period of eight hours or more is used to evaluate the potential Project-related construction noise level impacts at the nearby sensitive receiver locations.

3.4 Potential Property Line Noise Impacts

a) Potential Build Out Noise Conditions

Construction noise represents a short-term impact on the ambient noise levels. Noise generated by construction equipment includes haul trucks, water trucks, graders, dozers, loaders and scrapers can reach relatively high levels. Grading activities typically represent one of the highest potential sources for noise impacts. The most effective method of controlling construction noise is through local control of construction hours and by limiting the hours of construction to normal weekday working hours.

The U.S. Environmental Protection Agency (U.S. EPA) has compiled data regarding the noise generating characteristics of specific types of construction equipment. Noise levels generated by heavy construction equipment can range from 60 dBA to in excess of 100 dBA when measured at 50 feet. However, these noise levels diminish rapidly with distance from the construction site at a rate of approximately 6 dBA per doubling of distance. For example, a noise level of 75 dBA measured at 50 feet from the noise source to the receptor would be reduced to 69 dBA at 100 feet from the source to the receptor, and reduced to 63 dBA at 200 feet from the source.

b) Potential Noise Impact Identification

Based on empirical data and the amount of equipment needed, worst case noise impacts from this construction equipment would occur during the grading operations. Table 3-1 summarizes the expected grading equipment to be used and their associated noise level at 50-feet.

Table 3-1: Construction Noise Reference Levels

Construction Equipment	Quantity	Source Level @ 50-Feet (dBA)[1]	Duty Cycle (Hours/Day)	Cumulative Noise Level @ 50-Feet (dBA)
Scraper	1	75	8	75.0
Blade	1	75	8	75.0
Skip Loader	1	73	8	73.0
Roller	1	74	8	74.0
Water Truck	1	70	8	70.0
			Cumulative Noise Level	80.7

[1] Source: U.S. Environmental Protection Agency (U.S. EPA) and Empirical Data

3.5 Conclusions

The City's Noise Ordinance indicates that noise sources associated with private construction projects located within one-quarter of a mile from an inhabited dwelling, are permitted between the hours of 6:00 a.m. and 6:00 p.m. during the months of June through September, and between the hours of 7:00 a.m. and 6:00 p.m. during the months of October through May. While the City establishes limits to the hours during which construction activity may take place, neither the City's General Plan or Municipal Code establish numeric maximum acceptable construction source noise levels at potentially affected receivers, which would allow for a quantified determination of what CEQA constitutes a substantial temporary or periodic noise increase. Any activities that occur outside the allowable time according to the City's Municipal Code would be considered significant. All construction activities are anticipated to occur during the permissible hours, therefore, no impacts are expected.

4.0 OPERATIONAL ACTIVITIES

4.1 Noise Standards for Stationary Noise Sources

The City of Wildomar Noise Ordinance included in the Municipal Code Chapter 9.48 (Wildomar, 2008) establishes the permissible noise level that may intrude into a neighbor's property. The Noise Ordinance (Section 9.48.040) establishes the exterior noise level criteria for residential properties affected by stationary noise sources. For residential properties, the exterior noise level shall not exceed 55 dBA during daytime hours (7:00 a.m. to 10:00 p.m.) and shall not exceed 45 dBA during the nighttime hours (10:00 p.m. to 7:00 a.m.).

Section 9.48.020 of the City Municipal Code provides exempts to the noise standards. Noise from heating and air conditioning equipment are exempt from the noise level standards.

4.2 Potential Noise Impacts

According to the information provided by the Project Proponent, anticipated on-site operational noise sources for this proposed project will primarily be church services and pad mounted HVAC units. No other on-site activities such as truck deliveries, loading docks, or special events are expected. The typical locations of the HVAC units are shown in Figure 4-A. The Project operations will only occur during the daytime hours. City Municipal Code 9.48.020 exempts noise from heating and air conditioning equipment from its sound level standards.

4.3 Conclusions

Therefore, the proposed commercial development related operational noise levels comply with the daytime and nighttime noise standards at the residences. No Impacts are anticipated and no mitigation is required.

5.0 REFERENCES

Charls Brown Architect. (2018). *ST. FRANCES OF ROME CATHOLIC CHURCH.*

FHWA. (1978). *Highway Traffic Noise Prediction Model.* FHWA-RD-77-108.

Google. (2018). Retrieved from www.maps.google.com

RK Engineering Group, Inc. (2018). *St. Francis of Rome - Traffic Impact Analysis.*

Wildomar. (2008). *City of Wildomar Municipal Code, Chapter 9.48.*

ATTACHMENT A

FUTURE NOISE MODEL INPUT AND
OUTPUT FILES

Attachment: Combined Roadway Noise Levels

Project Name:	St Frances of Rome	Date:	4-Jan-19
Project Number:	18-53	Location:	Wildomar

Traffic Volumes, Mix and Speeds

	Autos	Med. Trucks	Heavy Trucks
Mix Ratio by Percent	97.42	1.84	0.74
	91.30	3.90	4.80

Propagation Rule Soft

Roadway	ADT	Speed MPH	CNEL @ 50 Feet	60 CNEL (Feet)
Lemon Street	10,400	40	67.4	155
I-15	124,000	65	84.9	2,285

Noise Reduction due to Distance

	Distance	Reduction	Resultant Level
Lemon Street	110	-3.42	63.9
I-15	1,175	-20.57	64.3

Cumulative Noise Level **67.2** **dBA CNEL**

Attachment: Combined Roadway Noise Levels

Project Name:	St Frances of Rome	Date:	4-Jan-19
Project Number:	18-53	Location:	Wildomar

Traffic Volumes, Mix and Speeds

	Autos	Med. Trucks	Heavy Trucks
Mix Ratio by Percent	97.42	1.84	0.74
	91.30	3.90	4.80

Propagation Rule Soft

Roadway	ADT	Speed MPH	CNEL @ 50 Feet	60 CNEL (Feet)
Lemon Street	10,400	40	67.4	155
I-15	124,000	65	84.9	2,285

Noise Reduction due to Distance

	Distance	Reduction	Resultant Level
Lemon Street	350	-8.45	58.9
I-15	1,450	-21.94	63.0

Cumulative Noise Level **64.4** **dBA CNEL**

Attachment: Combined Roadway Noise Levels

Project Name:	St Frances of Rome	Date:	4-Jan-19
Project Number:	18-53	Location:	Wildomar

Traffic Volumes, Mix and Speeds

	Autos	Med. Trucks	Heavy Trucks
Mix Ratio by Percent	97.42	1.84	0.74
	91.30	3.90	4.80

Propagation Rule Soft

Roadway	ADT	Speed MPH	CNEL @ 50 Feet	60 CNEL (Feet)
Lemon Street	10,400	40	67.4	155
I-15	124,000	65	84.9	2,285

Noise Reduction due to Distance

	Distance	Reduction	Resultant Level
Lemon Street	355	-8.51	58.9
I-15	1,290	-21.17	63.7

Cumulative Noise Level **64.9** **dBA CNEL**

Attachment: Combined Roadway Noise Levels

Project Name:	St Frances of Rome	Date:	4-Jan-19
Project Number:	18-53	Location:	Wildomar

Traffic Volumes, Mix and Speeds

	Autos	Med. Trucks	Heavy Trucks
Mix Ratio by Percent	97.42	1.84	0.74
	91.30	3.90	4.80

Propagation Rule Soft

Roadway	ADT	Speed MPH	CNEL @ 50 Feet	60 CNEL (Feet)
Lemon Street	10,400	40	67.4	155
I-15	124,000	65	84.9	2,285

Noise Reduction due to Distance

	Distance	Reduction	Resultant Level
Lemon Street	50	0.00	67.4
I-15	965	-19.28	65.6

Cumulative Noise Level **69.6** **dBA CNEL**

Attachment: Combined Roadway Noise Levels

Project Name:	St Frances of Rome	Date:	4-Jan-19
Project Number:	18-53	Location:	Wildomar

Traffic Volumes, Mix and Speeds

	Autos	Med. Trucks	Heavy Trucks
Mix Ratio by Percent	97.42	1.84	0.74
	91.30	3.90	4.80

Propagation Rule Soft

Roadway	ADT	Speed MPH	CNEL @ 50 Feet	60 CNEL (Feet)
Lemon Street	10,400	40	67.4	155
I-15	124,000	65	84.9	2,285

Noise Reduction due to Distance

	Distance	Reduction	Resultant Level
Lemon Street	72	-1.58	65.8
I-15	1,385	-21.64	63.3

Cumulative Noise Level **67.7** **dBA CNEL**