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Subject: Air Quality, Greenhouse Gas, and Noise Study for a School/Church Expansion in North Hollywood, CA

Dear Ms. Medzoyan:

Yorke Engineering, LLC (Yorke) is pleased to provide this Air Quality (AQ), Greenhouse Gas (GHG), and Noise Impacts Letter Report. This report includes CalEEMod emissions estimates, criteria pollutant, GHG, and Noise analyses for the proposed expansion of their school and church facility in the North Hollywood in the City of Los Angeles, California (City). These evaluations will support a CEQA Categorical Exemption, Initial Study (IS), Negative Declaration (ND), or a Mitigated Negative Declaration (MND), as applicable.

PROJECT DESCRIPTION

Holy Trinity Armenian Church (HTAC) is proposing to expansion of the day care/school for the children by adding new classrooms, adding new offices for staff and building a new accessory use gym/banquet hall and a new lobby for the entrance, to be located at 11960 Victory Boulevard in North Hollywood in the City of Los Angeles, CA (the City). The proposed development is located on 48,436.0 square feet of land within the jurisdiction of South Coast Air Quality Management District (SCAQMD). The proposal is for the expansion of the daycare/school for the children by adding new classrooms, adding new offices for staff, and building a new accessory use gym/banquet hall and a new lobby for the entrance. The church will remain as is and all the new buildings proposed and existing will be all accessory to the church uses. The 0.64-acre project size is located on developed land and construction will involve the demolition of two existing buildings (Church and Classroom), the construction of a day care center (5,688 square feet), the construction of a general office building (13,991 square feet), paving of an entryway (4,811 square feet), and additional landscaping (3,377 square feet). The nearest sensitive receptors are homes and a school approximately 82 feet (25 meters) south of the center of the project site.

ASSUMPTIONS

The following lists sources of information used in developing the emission estimates for the proposed Project using the California Emissions Estimator Model® (CalEEMod). Not all CalEEMod defaults are listed, but some defaults which have a particularly important impact on the project are listed.

- The Applicant defined:
  - Basic project design features including size of building features, concrete and asphalt areas, and landscaping, etc.;
  - Low-flow faucets, toilets, showers, and irrigation will be installed consistent with modern building codes;
  - Low VOC paints will be used in compliance with SCAQMD rules;
  - Paved roads will be swept daily during the demolition, site preparation, and grading phases; and
  - During construction and demolition, any exposed soil and unpaved roads will be watered a minimum of three times a day, as required by the SCAQMD, to reduce particulate emissions.
- CalEEMod defaults were used for:
  - Construction equipment count, load factor, and fleet average age;
  - Architectural coating areas;
  - Operational vehicle fleet mixes;
  - Weekend daily trip rates for the operational phase; and
  - Average vehicle trip distances.

LIST OF TABLES

The project analyses and results are summarized in the following tables:

AIR QUALITY AND GREENHOUSE GAS IMPACTS ANALYSES

In order to evaluate the potential for Air Quality and Greenhouse Gas impacts of a proposed project, quantitative significance criteria established by the local air quality agency, such as the SCAQMD, may be relied upon to make significance determinations based on mass emissions of criteria pollutants and GHGs, as presented in this report. As shown below, approval of the project would not result in any significant effects relating to air quality or greenhouse gases.

Project Emissions Estimation

The construction and operation analysis were performed using CalEEMod version 2022.1.1.18, the official statewide land use computer model designed to provide a uniform platform for estimating potential criteria pollutant and GHG emissions associated with both construction and operations of land use projects under CEQA. The model quantifies direct emissions from construction and operations (including vehicle use), as well as indirect emissions, such as GHG emissions from energy use, solid waste disposal, vegetation planting and/or removal, and water use. The mobile source emission factors used in the model – published by the California Air Resources Board (CARB) – include the Pavley standards and Low Carbon Fuel standards. The model also identifies project design features, regulatory measures, and control measures to reduce criteria pollutant and GHG emissions along with calculating the benefits achieved from the selected measures. CalEEMod was developed by the California Air Pollution Control Officers Association (CAPCOA) in collaboration with the SCAQMD, the Bay Area Air Quality Management District (BAAQMD), the San Joaquin Valley Air Pollution Control District (SJVAPCD), and other California air districts. Default land use data (e.g., emission factors, trip lengths, meteorology, source inventory, etc.) were provided by the various California air districts to account for local requirements and conditions. As the official assessment methodology for land use projects in California, CalEEMod is relied upon herein for construction and operational emissions quantification, which forms the basis for the impact analysis.

Based on information received from the Applicant, land use data used for CalEEMod input is presented in Table 1. The SCAQMD quantitative significance thresholds shown in Table 2 were used to evaluate project emissions impacts (SCAQMD 2023).

Table 1: Land Use Data for CalEEMod Input						
Land Use Type	**Land Use Subtype**	**Unit Amount**	**Size Metric**	**Acreage**	**Square Feet**	**Description**
Educational	Day Care Center	5.69	1,000 sq. ft.	0.13	5,688	Classrooms
Commercial	General Office Building	13.99	1,000 sq. ft.	0.32	13,991	Office Area, Lobby, Gym, Kitchen
Parking	Parking Lot	4.81	1,000 sq. ft.	0.11	4,811	Other Concrete and Asphalt Paving
			Landscaping	0.08	3,377	Landscaping Areas
			Project Size	**0.64**	**27,867**	

Sources: Applicant 2023, CalEEMod version 2022.1.1.18

Notes:

Electric utility: Los Angeles Department of Water & Power

Gas utility: Southern California Gas

Table 2: SCAQMD CEQA Thresholds of Significance		
Pollutant	**Project Construction (lbs/day)**	**Project Operation (lbs/day)**
ROG (VOC)	75	55
NO_X	100	55
CO	550	550
SO_X	150	150
PM_{10}	150	150
$PM_{2.5}$	55	55
24-hour $PM_{2.5}$ Increment	10.4 µg/m^3	2.5 µg/m^3
24-hour PM_{10} Increment	10.4 µg/m^3	2.5 µg/m^3
Annual PM_{10} Increment	1.0 µg/m^3 annual average	
1-hour NO_2 Increment	0.18 ppm (state)	
Annual NO_2 Increment	0.03 ppm (state) & 0.0534 ppm (federal)	
1-hour SO_2 Increment	0.25 ppm (state) & 0.075 ppm (federal – 99th percentile)	
24-hour SO_2 Increment	0.04 ppm (state)	
24-hour Sulfate Increment	25 ug/m^3 (state)	
1-hour CO Increment	20 ppm (state) & 35 ppm (federal)	
8-hour CO Increment	9.0 ppm (state/federal)	
Toxic Air Contaminants (including carcinogens and non-carcinogens)	Maximum Incremental Cancer Risk ≥10 in 1 million	
	Cancer Burden >0.5 excess cancer cases (in areas ≥1 in 1 million)	
	Chronic & Acute Hazard Index ≥1.0 (project increment)	
Odor	Project creates an odor nuisance pursuant to Rule 402	
Greenhouse Gases	10,000 MT/yr CO_2e for industrial facilities	
	3,000 MT/yr CO_2e for land use projects (draft proposal)	

Source: SCAQMD 2023, 2008b

Criteria Pollutants from Project Construction

A project's construction phase produces many types of emissions, generally PM_{10} (including $PM_{2.5}$) in fugitive dust and diesel engine exhaust are the pollutants of greatest concern. Construction-related emissions can cause substantial increases in localized concentrations of PM_{10}, as well as affecting PM_{10} compliance with ambient air quality standards on a regional basis. The use of diesel-powered construction equipment emits ozone precursors oxides of nitrogen (NO_x) and reactive organic gases (ROG), and diesel particulate matter (DPM); however, the use of diesel-powered equipment would be minimal. Use of architectural coatings and other materials associated with finishing buildings may also emit ROG and TACs. CEQA significance thresholds address the impacts of construction activity emissions on local and regional air quality. Thresholds are also provided for other potential impacts related to project construction, such as odors and TACs.

The SCAQMD's approach to CEQA analyses of fugitive dust impacts is to require implementation of effective and comprehensive dust control measures rather than to require detailed quantification of emissions. PM_{10} emitted during construction can vary greatly depending on the level of activity,

the specific operations taking place, the equipment being operated, local soils, weather conditions, and other factors, making quantification difficult. Despite this variability in emissions, experience has shown that there are several feasible control measures that can be reasonably implemented to significantly reduce fugitive dust emissions from construction. For larger projects, the SCAQMD has determined that compliance with an approved fugitive dust control plan comprising Best Management Practices (BMPs), primarily through frequent water application, constitutes sufficient control to reduce PM_{10} impacts to a level considered less than significant.

Criteria Pollutants from Project Operation

The term "project operations" refers to the full range of activities that can or may generate criteria pollutant, GHG, and TAC emissions when the project is functioning in its intended use. For projects, such as office parks, shopping centers, apartment buildings, residential subdivisions, and other indirect sources, motor vehicles traveling to and from the project represents the primary source of air pollutant emissions. For industrial projects and some commercial projects, equipment operation and manufacturing processes, i.e., permitted stationary sources, can be of greatest concern from an emissions standpoint. CEQA significance thresholds address the impacts of operational emission sources on local and regional air quality. Thresholds are also provided for other potential impacts related to project operations, such as odors.

Results of Criteria Emissions Analyses

Table 3 shows unmitigated and mitigated criteria construction emissions and evaluates mitigated emissions against SCAQMD significance thresholds.

Table 4 shows unmitigated and mitigated criteria operational emissions and evaluates mitigated emissions against SCAQMD significance thresholds.

As shown in Tables 3 and 4, mass emissions of criteria pollutants from construction and operation are below applicable SCAQMD significance thresholds.

PROJECTED IMPACT: Less Than Significant (LTS)

Table 3: Daily Construction Emissions Summary and Significance Evaluation				
Criteria Pollutants	**Unmitigated (lbs/day)**	**Mitigated (lbs/day)**	**Threshold**	**Significance**
ROG (VOC)	18.5	1.5	75	LTS
NO_X	14.4	9.4	100	LTS
CO	14.2	14.4	550	LTS
SO_X	0.06	14.20	150	LTS
Total PM_{10}	5.9	2.2	150	LTS
Total $PM_{2.5}$	3.1	0.7	55	LTS

Sources: SCAQMD 2023, CalEEMod version 2022.1.1.18

Notes:

lbs/day are winter or summer maxima for planned land use

Total PM_{10} / $PM_{2.5}$ comprises fugitive dust plus engine exhaust

LTS - Less Than Significant

Table 4: Daily Operational Emissions Summary and Significance Evaluation				
Criteria Pollutants	**Unmitigated (lbs/day)**	**Mitigated (lbs/day)**	**Threshold**	**Significance**
ROG (VOC)	2.0	2.0	55	LTS
NO_X	1.1	1.1	55	LTS
CO	10.4	10.4	550	LTS
SO_X	0.02	0.02	150	LTS
Total PM_{10}	1.6	1.6	150	LTS
Total $PM_{2.5}$	0.41	0.41	55	LTS

Sources: SCAQMD 2023, CalEEMod version 2022.1.1.18

Notes:

lbs/day are winter or summer maxima for planned land use

Total PM_{10} / $PM_{2.5}$ comprises fugitive dust plus engine exhaust

LTS - Less Than Significant

Localized Significance Threshold Analysis

The SCAQMD's Localized Significance Threshold (LST) methodology (2008a) was used to analyze the neighborhood scale impacts of NO_X, CO, PM_{10}, and $PM_{2.5}$ associated with project-specific mass emissions. Introduced in 2003, the LST methodology was revised in 2008 to include the $PM_{2.5}$ significance threshold methodology and update the LST mass rate lookup tables for the new 1-hour NO_2 standard.

For determining localized air quality impacts from small projects in a defined geographic source-receptor area (SRA), the LST methodology provides mass emission rate lookup tables for 1-acre, 2-acre, and 5-acre parcels by SRA. The tabulated LSTs represent the maximum mass emissions from a project that will not cause or contribute to an exceedance of state or national ambient air quality standards (CAAQS or NAAQS) for the above pollutants and were developed based on ambient concentrations of these pollutants for each SRA in the South Coast Air Basin. (SCAQMD 2008a)

For most land use projects, the highest daily emission rates occur during the site preparation and grading phases of construction; where applicable, these maximum daily emissions are used in the LST analysis.

Since land use operational emissions – mainly from associated traffic – are dispersed over a wide area, localized impacts from project operation are substantially lower than during project construction. However, an Operational LST analysis was also performed. Localized mobile source emissions for project operation were calculated for a one mile radius of the project site.

The proposed Project size is 0.64 acres in source-receptor area Zone 2 – Northwest Coastal LA County. The 1-acre screening lookup tables were used to evaluate NO_x, CO, PM_{10}, and $PM_{2.5}$ impacts on nearby receptors. The nearest receptor is approximately 25 meters (82 feet) away from the site. Therefore, the impact evaluation was performed using the closest distance within SCAQMD LST tables of 25 meters for construction and operations. (SCAQMD 2008a)

Results of Localized Significance Threshold Analysis

The LST results provided in Tables 5 and 6 show that on-site emissions from construction and operations would meet the LST passing criteria at the nearest receptors (25 meters). Thus, impacts would be less than significant.

PROJECTED IMPACT: Less Than Significant (LTS)

Table 5: Construction Localized Significance Threshold Evaluation				
Criteria Pollutants	Mitigated lbs/day	Threshold lbs/day	Percent of Threshold	Result
NO_X	9.4	103	9%	Pass
CO	14.4	562	3%	Pass
PM_{10}	2.2	4	55%	Pass
$PM_{2.5}$	0.7	3	23%	Pass

Sources: SCAQMD 2023, CalEEMod version 2022.1.1.18

Notes:

Source-receptor area Zone 2 – Northwest Coastal LA County

1-acre area, 25 meters to receptor

Table 6: Operations Localized Significance Threshold Evaluation				
Criteria Pollutants	Mitigated lbs/day	Threshold lbs/day	Percent of Threshold	Result
NO_X	1.1	103	1%	Pass
CO	10.4	562	2%	Pass
PM_{10}	0.14	1	14%	Pass
$PM_{2.5}$	0.04	1	4%	Pass

Sources: SCAQMD 2023, CalEEMod version 2022.1.1.18

Notes:

Source-receptor area Zone 2 – Northwest Coastal LA County

1-acre area, 25 meters to receptor

Operational PM_{10}/$PM_{2.5}$ includes 1 mile around project site for mobile source fugitive dust plus engine exhaust

Greenhouse Gas Emissions from Construction and Operation

Greenhouse gases – primarily carbon dioxide (CO_2), methane (CH_4), and nitrous (N_2O) oxide, collectively reported as carbon dioxide equivalents (CO_2e) – are directly emitted from stationary source combustion of natural gas in equipment such as water heaters, boilers, process heaters, and furnaces. GHGs are also emitted from mobile sources such as on-road vehicles and off-road construction equipment burning fuels such as gasoline, diesel, biodiesel, propane, or natural gas (compressed or liquefied). Indirect GHG emissions result from electric power generated elsewhere (i.e., power plants) used to operate process equipment, lighting, and utilities at a facility. Also, included in GHG quantification is electric power used to pump the water supply (e.g., aqueducts, wells, pipelines) and disposal and decomposition of municipal waste in landfills. (CARB 2017)

California's Building Energy Efficiency Standards are updated on an approximately three-year cycle. The 2022 standards improved upon the 2019 standards for new construction of, and additions and alterations to, residential, commercial, and industrial buildings. The 2022 standards went into effect on January 1, 2022 (CEC 2022).

Since the Title 24 standards require energy conservation features in new construction (e.g., high-efficiency lighting, high-efficiency heating, ventilating, and air-conditioning (HVAC) systems,

thermal insulation, double-glazed windows, water conserving plumbing fixtures, etc.), they indirectly regulate and reduce GHG emissions.

Using CalEEMod, direct onsite and offsite GHG emissions were estimated for construction and operation, and indirect offsite GHG emissions were estimated to account for electric power used by the proposed Project, water conveyance, and solid waste disposal.

Results of Greenhouse Gas Emissions Analyses

The SCAQMD officially adopted an industrial facility mass emissions threshold of 10,000 metric tons (MT) CO_2e per year (SCAQMD 2023) and has proposed a residential/commercial mass emissions threshold of 3,000 metric tons (MT) CO_2e per year. (SCAQMD 2008b)

Table 7 shows unmitigated and mitigated GHG emissions and evaluates mitigated emissions against SCAQMD significance thresholds. Operational efficiency measures incorporate typical code-required energy and water conservation features. Off-site traffic impacts are included in these emissions estimates, along with construction emissions amortized over 30 years.

PROJECTED IMPACT: Less Than Significant (LTS)

Table 7: Greenhouse Gas Emissions Summary and Significance Evaluation

Greenhouse Gases	Unmitigated (MT/yr)	Mitigated (MT/yr)	Threshold (MT/yr)	Significance
CO_2	344.3	343.7	—	—
CH_4	0.29	4.59	—	—
N_2O	0.01	0.01	—	—
CO_2e	356.5	351.2	3,000	LTS

Sources: SCAQMD 2023, 2008b, CalEEMod version 2022.1.1.18

Notes:

Comprises annual operational emissions plus construction emissions amortized over 30 years

NOISE IMPACTS ANALYSES

Noise Analysis Methodology

The screening-level noise analysis for project construction and operation was completed based on methodology developed by the U.S. Department of Transportation Federal Highway Administration (DOT FHWA) at the John A. Volpe National Transportation Systems Center and other technical references consistent with the California Emissions Estimation Model® (CalEEMod) outputs (equipment utilization).

CalEEMod is the official statewide land use computer model designed to provide a uniform platform for estimating potential criteria pollutant and GHG emissions associated with both construction and operations of land use projects under CEQA. CalEEMod was developed by the California Air Pollution Control Officers Association (CAPCOA) in collaboration with the SCAQMD, the Bay Area Air Quality Management District (BAAQMD), the San Joaquin Valley Air Pollution Control District (SJVAPCD), and other California air districts. Default land use data (e.g., emission factors, trip lengths, meteorology, source inventory, etc.) were provided by the

various California air districts to account for local requirements and conditions. As the official assessment methodology for land use projects in California, CalEEMod is relied upon herein for the generation of the construction equipment list, which forms the basis for the construction noise impact analysis.

The DOT FHWA methodology uses actual noise measurement data collected during the Boston "Big Dig" project (1991-2006) as reference levels for a wide variety of construction equipment in common use, such as on the proposed project. This noise analysis did not include field measurements of ambient noise in the vicinity of the project site.

The FHWA noise model provides relatively conservative predictions because it does not account for site-specific geometry, dimensions of nearby structures, and local environmental conditions that can affect sound transmission, reflection, and attenuation. As a result, actual measured sound levels at receptors may vary somewhat from predictions, typically lower. Additionally, the impacts of noise upon receptors (persons) are subjective because of differences in individual sensitivities and perceptions.

Noise impacts are evaluated against community noise standards contained in the City or County General Plan or other state or federal agency as applicable to the vicinity of the project site. For this project, the City of Los Angeles General Plan, Noise Element, and Municipal Code (LAMC), Chapter XI, Noise Regulation, Sections 112.02, 112.03, 112.05, and 41.40 contain the applicable evaluation criteria. Screening-level project-generated noise is evaluated in relation to established thresholds of significance. Additionally, the same methods are used to determine noise impacts on the nearest receptor. Neighborhood-level noise evaluation criteria are contained in the Noise Element of the Los Angeles City General Plan (City 1999).

During construction activities, the project would generate noise due to operation of minimal off-road equipment, portable equipment, and vehicles at or near the project site. No significant increase in traffic is expected due to this relatively small project. No strong sources of vibrations are planned to be used during construction activities.

Since the project is near urban streets, the incremental effect of project operations (possible slightly increased traffic) would not be quantifiable against existing traffic noise (background) in the project vicinity (i.e., less than significant impact). Also, since no airport is closer than two miles from the project site, evaluation of aircraft noise upon the project is not required.

Environmental Setting

Noise Descriptors

Noise is typically described as any dissonant, unwanted, or objectionable sound. Sound is technically described in terms of the loudness (amplitude) and frequency (pitch) of the sound. The standard unit of measurement of the loudness of sound is the decibel (dB). Because the human ear is not equally sensitive to sound at all frequencies, a special frequency-dependent rating scale has been devised to relate noise to human sensitivity, the A-weighted decibel scale (dBA). Table 8 lists common sources of sound and their intensities in dBA.

Table 8: Typical Sound Level Characteristics		
Pressure (N/m^2)	**Level (dB)**	**Sound Level Characteristic**
2000	160	Rocket Launch
600	150	Military Jet Plane Takeoff
200	140	Threshold of Pain
60	130	Commercial Jet Plane Takeoff
20	120	Industrial Chipper or Punch Press
6	110	Loud Automobile Horn
2	100	Passing Diesel Truck – Curb Line
0.6	90	Factory - Heavy Manufacturing
0.2	80	Factory - Light Manufacturing
0.06	70	Open Floor Office - Cubicles
0.02	60	Conversational Speech
0.006	50	Private Office - Walled
0.002	40	Residence in Daytime
0.0006	30	Bedroom at Night
0.0002	20	Recording or Broadcasting Studio
0.00006	10	Threshold of Good Hearing - Adult
0.00002	0	Threshold of Excellent Hearing - Child

Sources: Broch 1971, Plog 1988
Notes:
Reference Level P_O = 0.00002 N/m^2 = 0.0002 µbar

N/m^2 = Newtons per square meter (the Newton is the unit of force derived in the metric system); it is equal to the amount of net force required to accelerate one kilogram of mass at a rate of one meter per second squared (1 kg • 1 m/s^2) in the direction of the applied force.

In most situations, a 3-dBA change in sound pressure is considered a "just-detectable" difference. A 5-dBA change (either louder or quieter) is readily noticeable, and 10-dBA change is a doubling (if louder) or halving (if quieter) of the subjective loudness. Sound from a small, localized source (a "point" source) radiates uniformly outward as it travels away from the source in a spherical pattern. The sound level attenuates (drops off) at a rate of 6 dBA for each doubling of the distance.

The duration of noise and the time period at which it occurs are important factors in determining the impact of noise on receptors. A single number called the equivalent continuous noise level (L_{eq}) may be used to describe sound that is changing in level. It is also used to describe the acoustic range of the noise source being measured, which is accomplished through the maximum L_{eq} (L_{max}) and minimum L_{eq} (L_{min}) indicators.

In determining the daily measure of community noise, it is important to account for the difference in human response to daytime and nighttime noise. Noise is more disturbing at night than during the day, and noise indices have been developed to account for the varying duration of noise events over time, as well as community response to them. The Community Noise Equivalent Level (CNEL) adds a 5-dB penalty to the "nighttime" hourly noise levels (HNLs) (i.e., 7:00 p.m. to 10:00

p.m.) and the Day-Night Average Level (L_{dn}) adds a 10-dB penalty to the evening HNLs (Caltrans 2020, FTA 2006).

Vibration Descriptors

Vibration is a unique form of noise because its energy is carried through structures and the earth, whereas noise is carried through the air. Thus, vibration is generally felt rather than heard. Typically, ground borne vibration generated by construction activities attenuates rapidly as distance from the source of the vibration increases. Actual human and structural response to different vibration levels is influenced by a combination of factors, including soil type, distance between the source and receptor, duration, and the number of perceived events.

While not a direct health hazard, the energy transmitted through the ground as vibration may result in structural damage, which may be costly to repair and dangerous in the event of structural failure. To assess the potential for structural damage associated with vibration, the vibratory ground motion in the vicinity of the affected structure is measured in terms of point peak velocity/peak particle velocity (PPV) in the vertical and horizontal directions (vector sum). A freight train passing at 100 feet may cause PPVs of 0.1 inch per second, while a strong earthquake may produce PPVs in the range of 10 inches per second. Minor cosmetic damage to buildings may begin in the range of 0.5 inch per second (Caltrans 2020, FTA 2006).

Existing Noise Environment - Cumulative

The project site is in the City of Los Angeles, Los Angeles County, in a characteristically urban and densely populated area subject to noise from local traffic on public streets, buses, trains, construction, and small power equipment (e.g., lawn mowers, edger, etc.). The estimated daytime ambient noise from known sources is about 50 dBA at the nearest receptors to the proposed project. This is based on the cumulative traffic noise from Victory Boulevard and Railroad Avenue as well as a general 40 dBA urban background noise.

Sensitive Receptors

Some land uses are generally regarded as being more sensitive to noise than others due to the types of population groups or activities involved. Sensitive population groups include children and the elderly. The City of Los Angeles General Plan Noise Element (City 1999) also includes residential areas as noise-sensitive land uses. Other sensitive land uses generally include hospitals, schools, childcare facilities, senior facilities, libraries, churches, and parks.

The nearest resident to the project site is the, immediately to the south of the project site, approximately 25 meters from the central construction zones. The nearest school to the project site is Victory Boulevard Elementary approximately 82 feet (25 meters), southeast of the center of the project site. The long attenuation distances and interceding shielding used during construction (insertion losses) would substantially shield all these schools from construction noise.

All construction activities would be short-term and temporary. All construction work is planned to be conducted during daytime within the permissible construction hours set by the City; no nighttime work is planned to be performed, and construction is prohibited on Sundays. Upon completion of construction, construction generated noise would permanently cease. Since the proposed project is located in a dense urban area and not within 500 feet (150 meters) of a major

freeway, no significant additional long-term traffic is expected, and therefore no additional project-related noise is expected over the long term.

Regulatory Setting

California

The State of California does not promulgate statewide standards for environmental noise but requires each city and county to include a noise element in its general plan [California Government Code Section 65302(f)]. In addition, Title 4 of the CCR has guidelines for evaluating the compatibility of various land uses as a function of community noise exposure. In general, the guidelines require that community noise standards:

- Protect residents from the harmful and annoying effects of exposure to excessive noise;
- Prevent incompatible land uses from encroaching upon existing or programmed land uses likely to create significant noise impacts; and
- Encourage the application of state-of-the-art land use planning methodologies in the area of managing and minimizing potential noise conflicts.

Construction vibration is regulated at the state level in accordance with standards established by the *Transportation and Construction-Induced Vibration Guidance Manual* issued by Caltrans in 2004. Continuous sources include the use of vibratory compaction equipment and other construction equipment that creates vibration other than in single events. Transient sources create a single isolated vibration event, such as blasting. Thresholds for continuous sources are 0.5 and 0.1 inch per second PPV for structural damage and annoyance, respectively. Thresholds for transient sources are 1.0 and 0.9 PPV for structural damage and annoyance, respectively (Caltrans 2020).

City of Los Angeles General Plan –Noise Element

The Noise Element of the Los Angeles City General Plan contains *Exhibit I: Guidelines for Noise Compatible Land Use*, to help guide determination of appropriate land use and mitigation measures visa-vis existing or anticipated ambient noise levels. As shown in Table 9, for the land use category of "School, Library, Church, Hospital, Nursing Home" a CNEL of up to 55 dBA is "Normally acceptable" and a CNEL of 55-65 dBA is "Conditionally Acceptable" (City 1999).

Table 9: City of Los Angeles Guidelines for Noise Compatible Land Use

Land Use Category	Day-Night Average Exterior Sound Level (CNEL dB) 50	55	60	65	70	75	80
Residential Single Family, Duplex, Mobile Home	A	C	C	C	N	U	U
Residential Multi-Family	A	A	C	C	N	U	U
Transient Lodging, Motel, Hotel	A	A	C	C	N	U	U
School, Library, Church, Hospital, Nursing Home	A	A	C	C	N	N	U
Auditorium, Concert Hall, Ampitheater	C	C	C	C/N	U	U	U
Sports Arena, Outdoor Spectator Sports	C	C	C	C	C/U	U	U
Playground, Neighborhood Park	A	A	A	A/N	N	N/U	U
Golf Course, Riding Stable, Water Recreation, Cemetery	A	A	A	A	N	A/N	U
Office Building, Business, Commercial, Professional	A	A	A	A/C	C	C/N	N
Agriculture, Industrial, Manufacturing, Utilities	A	A	A	A	A/C	C/N	N

A = Normally acceptable. Specified land use is satisfactory, based upon assumption buildings involved are conventional construction, without any special noise insulation.

C = Conditionally acceptable. New construction or development only after a detailed analysis of noise mitigation is made and needed noise insulation features are included in project design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning normally will suffice.

N = Normally unacceptable. New construction or development generally should be discouraged. A detailed analysis of noise reduction requirements must be made and noise insulation features included in the design of a project.

U = Clearly unacceptable. New construction or development generally should not be undertaken.

City of Los Angeles Municipal Code – Chapter XI, Noise Regulation

For this project, the City of Los Angeles Municipal Code (LAMC), Chapter XI, Noise Regulation, Sections 112.02, 112.03, 112.05, and 41.40 contain the applicable evaluation criteria.

Operational on-site stationary sources of mechanical noise are required to comply with the LAMC Section 112.02, which prohibits noise from air conditioning, refrigeration, heating, pumping, and filtering equipment from exceeding the ambient noise level on the premises of other occupied properties, e.g., nearby residential buildings, by more than 5 dBA. Modern roof-mounted mechanical equipment is designed to meet this standard.

LAMC Section 112.03 references Section 41.40 which regulates noise from construction activities. Outdoor construction activities that generate noise are prohibited between the nighttime hours of 9:00 pm and 7:00 am Monday through Friday, and between 6:00 pm and 8:00 am on Saturdays and national holidays. Construction activities are prohibited on Sundays. The construction activities associated with the proposed project would comply with these LAMC requirements.

Per Section 112.05, construction noise impacts would be significant if noise from powered equipment or powered hand tools used for construction within 500 feet (150 meters) of a residential zone exceeds 75 dBA at a distance of 50 feet (15 meters) from the noise source between the hours of 7:00 am and 10:00 pm. However, this noise limitation does not apply where compliance is technically infeasible. Technically infeasible means that the 75 dBA limitation cannot be complied with despite the use of mufflers, shields, sound barriers and/or any other noise reduction device or techniques during the operation of the equipment. However, the burden of proof of technical infeasibility is placed upon the person or persons generating the noise, i.e., the contractor and owner or owner's agent.

Cumulative Screening Noise Analysis

To assess cumulative noise impacts, nearby street traffic noise and urban background noise was logarithmically added to construction and operational noise.

Construction Noise – LAMC Sections 112.03 and 112.05

The proposed project can be characterized as in-fill development of the development of an educational day care center and commercial general office building with a parking lot. Most noise would occur during the demolition, grading, site preparation, and building construction phases when heavy equipment would typically be operating outside.

During each of the six construction phases there would be a different mix of equipment operating and cumulative noise levels would vary based on the amount of equipment in operation and the location of each activity at the project site. In general, use of off-road equipment and portable equipment would generate noise due to engine mechanicals, engine exhaust, driveline mechanicals, shaft-driven devices and accessories, hydraulics operation, ground friction and displacement, and gravity drops (dumping, unloading).

Since no intense percussive actions (e.g., hard rock-breaking, large pile-driving) are planned to occur during the site work, no strong groundborne vibrations are expected to be generated that could affect nearby structures or be noticeable to their occupants.

Types of equipment (FHWA 2006) to be used during the project and noise-emitting characteristics (i.e., usage factors, reference dBA, and percussive source) are shown in Table 10 consistent with CalEEMod outputs (Attachment 1).

The project is expected to require approximately seven months of planned work activities (i.e., from mobilization to substantial completion) comprising six construction phases (CalEEMod defaults):

1) Demolition;
2) Site Preparation;
3) Grading;
4) Building construction;
5) Paving; and
6) Architectural coating.

Deviations from this schedule would not affect the noise analysis because noise does not persist or accumulate in the environment over time.

Table 10: FHWA Noise Reference Levels and Usage Factors							
CalEEMod Construction Detail			FHWA Equipment Type	Ref.	Usage Factor	Ref. Level	Percussive Source
Phase Name	Equipment Description	Qty.			percent	dBA	Yes/No
Demolition (1)	Tractors/Loaders/Backhoes	2	Backhoe (with loader)	1	40%	80	No
	Rubber Tired Dozers	1	Dozer (crawler tractor)	1	40%	85	No
	Concrete/Industrial Saws	1	Concrete Saw	1	20%	90	No
Site Preparation (2)	Graders	1	Grader	1	40%	85	No
	Tractors/Loaders/Backhoes	1	Backhoe (with loader)	1	40%	80	No
Grading (3)	Graders	1	Grader	1	40%	85	No
	Tractors/Loaders/Backhoes	1	Backhoe (with loader)	1	40%	80	No
	Rubber Tired Dozers	1	Dozer (crawler tractor)	1	40%	85	No
Building Construction (4)	Cranes	1	Crane	1	16%	85	No
	Forklifts	2	Forklift	1	40%	80	No
	Tractors/Loaders/Backhoes	2	Backhoe (with loader)	1	40%	80	No
Paving (5)	Tractors/Loaders/Backhoes	1	Backhoe (with loader)	1	40%	80	No
	Pavers	1	Paver (asphalt)	1	50%	85	No
	Rollers	1	Roller	1	20%	85	No
	Cement and Mortar Mixers	4	Drum Mixer	1	50%	80	No
Architectural Coating (6)	Air Compressors	1	Compressor (air)	1	40%	80	No

Source: CalEEMod version 2022.1.1.18, FHWA 2006

Table 11 shows a comparison of: screening-level estimated daytime exterior noise impacts for peak construction activities at designated receptors, and the thresholds outlined in LAMC Chapter XI and Noise Element, using FHWA attenuation algorithms. If the threshold is not exceeded, then the project should be considered acceptable.

Table 11: Estimated Peak Activity Daytime Noise Impacts - Sensitive Receptors (mitigated)[c, d]				
Construction Phases	Normal Acceptance Criteria – LAMC 112.05 & Land Use Guidelines			
	Modeled Noise Level (Leq dBA)[a]	CalEEMod Duration (days)	Significance Threshold (CNEL dBA)[b]	Exceeds Threshold (Yes/No)?
Background	50.0	-	-	No
Demolition	73.7	20	75	No
Site Preparation	69.8	2	75	No
Grading	72.3	4	75	No
Building Construction	70.8	150	75	No
Paving	74.2	10	75	No
Architectural Coating	71.6	10	75	No
Long Term Impact	50.0	-	55	No

Sources: CalEEMod version 2022.1.1.18, FHWA 2006, FTA 2006, Broch 1971, Plog 1988, LAMC 112.05, City 1999
Notes:
[a] Includes existing street traffic and urban ambient noise sources (cumulative impacts)
[b] Refer to applicable City or County General Plan Noise Element and Municipal Code Noise Ordinance for thresholds
[c] Modeled sensitive receptors are 25 meters from the center of the construction zone
[d] Control comprises noise barriers on site perimeter (see Discussion)

Construction noise impacts would be significant if, as defined by Los Angeles Municipal Code (LAMC) Section 112.05, noise from powered equipment or powered hand tools used for construction within 500 feet (150 meters) of a residential zone exceeds 75 dBA at a distance of 50 feet (15 meters) from the noise source between the hours of 7:00 am and 10:00 pm. However, this noise limitation does not apply where compliance is technically infeasible. Technically infeasible means that the 75 dBA limitation cannot be complied with despite the use of mufflers, shields, sound barriers and/or any other noise reduction device or techniques during the operation of the equipment. However, the burden of proof of technical infeasibility is placed upon the person or persons generating the noise, i.e., the contractor and owner or owner's agent.

LAMC Section 112.03 references Section 41.40 which regulates noise from construction activities. Outdoor construction activities that generate noise are prohibited between the nighttime hours of 9:00 pm and 7:00 am Monday through Friday, and between 6:00 pm and 8:00 am on Saturdays and national holidays. Construction activities are prohibited on Sundays. The construction activities associated with the proposed project would comply with these LAMC requirements.

Although the estimated construction-related exterior noise levels associated with the proposed project are modeled to normally be below the 75 dBA threshold, there may be times when the construction activities could intermittently and marginally exceed the 75 dBA threshold at 50 feet from the noise source. To minimize impacts, the project will implement technically feasible control measures in compliance with the standards set forth in LAMC Section 112.05. Specifically, the use of deflectors/barriers such as plywood construction fencing (½-inch thickness), flexible sound-absorbing curtains, or existing intervening buildings, can reduce line-of-sight exterior noise levels by approximately 5 to 15 dBA, depending on the applied physical configuration (FHWA 2006). The estimated noise impacts shown in Table 11 incorporate these control measures.

With the application of construction noise control measures exterior noise levels would be reduced by approximately 10 to 15 dBA. Therefore, based on the provisions set forth in LAMC 112.05, implementation of the LAMC-required noise control measures described below would enable the proposed project to comply with the LAMC, and construction noise impacts would be less than significant.

The construction noise control measures required by LAMC 112.05 would include the following:

1) The project shall comply with the City of Los Angeles Noise Ordinance No. 161,574 (see LAMC Section 112.05), and any subsequent ordinances (et seq), which prohibit the emission or creation of noise beyond certain levels.
2) Construction shall be restricted to the hours of 7:00 am to 9:00 pm Monday through Friday, and 8:00 am to 6:00 pm on Saturdays or national holidays. No construction work shall be performed at any time on Sundays.
3) Construction activities shall be scheduled to avoid operating several pieces of large equipment simultaneously, which can cumulatively cause higher noise levels.
4) Noise-generating equipment operated at the project site shall be equipped with the most effective and technologically feasible noise control devices, such as mufflers, lagging (enclosures for exhaust pipes), and/or motor enclosures. All equipment shall be properly maintained to ensure that no additional noise, due to worn or improperly maintained parts, would be generated.
5) Noise-generating equipment, where its location on the site may be flexible (e.g., air compressors, generators, cement and mortar mixers, and materials deliveries), shall be placed as far as practical from the nearest noise sensitive land uses. Natural and/or fabricated barriers (e.g., trees, fencing, curtains) shall be used to screen propagation of noise from such activities toward these land uses to the maximum extent possible.
6) For outside work BMPs, the project shall implement noise barriers comprising plywood construction fencing and/or flexible sound-absorbing curtains as practicable. The noise barriers shall be erected around the perimeter of the construction site to minimize the transmission of construction noise toward nearby noise-sensitive land uses. The noise barriers shall be at least 8 feet in height and constructed of materials achieving an Insertion Loss (IL) coefficient of at least 5 dBA for flexible curtains, 8 dBA for rigid plywood fencing, or 10 dBA in combination (FHWA 2006).
7) The project shall comply with the City of Los Angeles Building Regulations Ordinance No. 178,048 (see LAMC Section 91.106.4.8), which requires a construction site notice to be provided that includes the following information: job site address, permit number, name and phone number of the contractor and owner or owner's agent, hours of construction allowed by code or any discretionary approval for the site, and City telephone numbers where violations can be reported. The notice shall be posted and maintained at the construction site prior to the start of construction and displayed in a location that is readily visible to the public, i.e., in plain sight.

Operational Noise – LAMC Section 112.02 and General Plan Noise Element

Upon completion of construction and occupancy of the proposed project, on-site operational noise would be generated mainly by HVAC equipment installed on the roof of the new building. However, the overall noise levels generated by the new HVAC equipment are not expected to be substantially greater than generated by older HVAC equipment installed on existing buildings at or near the project site. As such, the new HVAC equipment associated with the proposed project would not represent a substantially new type or source of noise in the general vicinity. In addition, the operation of this and any other on-site stationary sources of mechanical noise would be required to comply with the LAMC Section 112.02, which prohibits noise from air conditioning, refrigeration, heating, pumping, and filtering equipment from exceeding the ambient noise level on the premises of other occupied properties, e.g., nearby residential buildings, by more than 5 dBA. Such equipment is designed to meet this standard.

As defined in the Noise Element of the Los Angeles City General Plan for "School, Library, Church, Hospital, Nursing Home" a CNEL of up to 55 dBA is "Normally acceptable". Thus, the proposed project will be in compliance with the noise limits set by the City.

No adverse impacts are expected from, and no noise control measures would be required for, the operation of the proposed project. Therefore, the operational noise impacts of the proposed project would be less than significant.

Interior areas of the completed project would not be adversely impacted by ambient (outdoor) urban noise because the project would be constructed to meet applicable California Code of Regulations (CCR) Title 24 Parts 6 and 11 building energy efficiency standards (CEC 2022). Thermal insulation, e.g., fiberglass batting in exterior walls and double-pane windows, also attenuates sound transmission and thus would provide an acceptable interior noise environment, which is particularly important for sensitive land uses. Specifically, the proposed project would be designed and constructed to maintain interior noise levels at or below a CNEL of 45 dBA in any normally occupied space of the project with no other sources of interior noise operating, such as HVAC, appliances, power tools, or office equipment. As such, interior noise impacts of the proposed project would be less than significant.

Overall Project

This study predicts a less than significant impact in accordance with the LAMC and the Land Use Guidelines. As described above, temporary noise barriers would need to be installed as a control measure during the initial stages of construction.

PROJECTED IMPACT: Less Than Significant (LTS)

Cumulative Effects

As shown in Table 11, noise impacts of the proposed in-fill development project are below LAMC and Land Use Guidelines significance thresholds. These impacts characterize the incremental impacts of other comparable past, present, and reasonably foreseeable future in-fill development actions in the vicinity of the proposed project site per state CEQA Guidelines Section 15355(b).

The FHWA noise model puts the expected daytime ambient noise from known sources at about 50 dBA at the nearest receptors to the proposed project. This cumulative model is based on traffic from Ben Avenue and Victory Boulevard as well as a general cumulative 40 dBA urban background noise. Although noise does not persist or accumulate in the environment over time, this accounts for any cumulative effects of comparable in-fill development projects.

CEQA Guidelines

Because the cumulative noise impacts shown in Table 11 would not be expected to exceed any of the LAMC or Land Use Guidelines significance thresholds, cumulative noise impacts from comparable in-fill development projects would also be expected to be less than significant. Therefore, potential adverse impacts from implementing the proposed project would not be "cumulatively considerable" as defined by state CEQA Guidelines Section 15064(h)(1) for noise impacts. Per state CEQA Guidelines Section 15064(h)(4), the mere existence of significant cumulative impacts caused by other projects alone shall not constitute substantial evidence that the proposed project's incremental effects are cumulatively considerable.

PROJECTED IMPACT: Less Than Significant (LTS)

CEQA Appendix G Section XIII Noise - Analysis of Noise Significance Criteria

This study predicts a less than significant impact in accordance with applicable noise ordinances and General Plans, including the City of Los Angeles Municipal Code. Would the project result in:

a) *Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?*

   No. As shown in the above analysis, temporary construction noise would be limited to daylight hours and would permanently cease upon completion of construction. Aggregated average construction noise with installation of temporary noise barriers as a control measure is not expected to exceed 75 dBA at nearby receptors, which is below the significant threshold set by the City. Therefore, temporary impacts on ambient noise levels during construction would be less than significant.

   Operational noise sources for the Project, such as new HVAC equipment, are of quiet design per commercial standards. The interior noise levels will be maintained at current noise levels at nearby receptors. Therefore, long-term operational impacts on ambient noise levels would also be less than significant and no mitigation is required.

   PROJECTED IMPACT: Less Than Significant (LTS)

b) Generation of excessive groundborne vibration or groundborne noise levels?

No. Construction plans do not include intense percussive actions (e.g., hard rock-breaking, large pile-driving). Therefore, no strong ground-borne vibrations are expected to be generated that could affect nearby structures or be noticeable to their occupants and impacts would be less than significant.

PROJECTED IMPACT: Less Than Significant (LTS)

c) For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

There is no public or private use airport within two miles of the project site; therefore, no impact would be expected.

PROJECTED IMPACT: No impact

CLOSING

Thank you very much for the opportunity to be of assistance. Should you have any questions, please contact me at (415) 248-8490 (mobile) or Tina Darjazanie at (949) 324-9041 (mobile).

Sincerely,

Thom Maslowski

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Enclosures/Attachments:
1. CalEEMod Outputs

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ATTACHMENT 1 – CALEEMOD OUTPUTS