October 2021

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Subject: All Peoples Church – Noise Technical Memorandum

ECORP Consulting completed a Noise Impact Assessment, dated March 2020, evaluating the land use compatibility of the proposed All Peoples Church Project within the existing noise environment affecting the Project Site, and comparing the predicted Project noise levels to noise standards promulgated by the City of San Diego (City) General Plan Noise Element and Municipal Code. Since the preparation of this Noise Impact Assessment, the local mobility analysis prepared for the Project, which was referenced to calculate Project-related traffic noise, has been updated. The purpose of this memorandum is to present an updated assessment of Project-related traffic noise based on the updated Local Mobility Analysis Report prepared by LOS Engineering, Inc., revised July 6, 2021.

Additionally, since the completion of the Noise Impact Assessment dated March 2020, Best Management Practices for construction noise have been identified by the Project Applicant and City of San Diego. These construction noise-reducing Best Management Practices are identified in this memorandum.

Project Operational Traffic Noise

Existing, future, and cumulative roadway noise levels were calculated for the roadway segments in the Project vicinity. This task was accomplished using the FHWA Highway Traffic Noise Prediction Model (FHWA-RD-77-108) (see Attachment A) and traffic volumes from the Project's Local Mobility Analysis Report (LOS Engineering, Inc. 2021). Due to the nature of the Proposed Project as a church, traffic volumes have been analyzed for weekdays and Sundays. The model calculates the average noise level at specific locations based on traffic volumes, average speeds, roadway geometry, and site environmental conditions. The average vehicle noise rates (energy rates) used in the FHWA model have been modified to reflect average vehicle noise rates identified for California by Caltrans.

As shown in Table 1, a large majority of the roadway segments, for weekdays and Sundays, already experience noise levels that exceed the noise standards in the City's General Plan Land Use Compatibility Guidelines. Outside of the laboratory, a three-dBA change is considered a just-perceivable difference. As such, an increase of three dBA over the existing ambient noise level is considered significant and will be used in this analysis. The average daily noise levels along roadway segments that impact sensitive receptors are presented in Table 1.

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Table 1. Existing Plus Project Conditions - Predicted Traffic Noise Levels

Roadway Segment	Surrounding Uses	CNEL at 100 feet from Centerline of Roadway		Noise Standard (dBA CNEL)	Exceed Standard/ Significant Impact?
		Existing Conditions	Existing + Project Conditions		
Weekday					
College Avenue					
North of Del Cerro Boulevard	Commercial and Residential	58.9	58.9	>*3.0*	**No**
Between Del Cerro Boulevard and 1-8 Westbound Onramp (adjacent to Project site)	Residential	60.8	60.8	>*3.0*	**No**
North of Canyon Crest Drive	Commercial and Residential	Not Analyzed in Weekday	Not Analyzed in Weekday	>*3.0*	**N/A**
South of Canyon Crest Drive	Commercial and Residential	Not Analyzed in Weekday	Not Analyzed in Weekday	>*3.0*	**N/A**
Interstate 8					
I-8 Westbound Offramp (toward College Avenue)	Residential	61.0	61.0	>*3.0*	**No**
I-8 Westbound	Commercial and Residential	63.8	63.8	>*3.0*	**No**
I-8 Eastbound	Commercial and Residential	65.0	65.0	>*3.0*	**No**
I-8 Eastbound Offramp (toward College Avenue)	Residential	Not Analyzed in Weekday	Not Analyzed in Weekday	>*3.0*	**N/A**
Del Cerro Boulevard					
East of College Avenue	Commercial and Residential	52.1	52.1	>*3.0*	**No**
West of College Avenue	Commercial and Residential	48.7	48.7	>*3.0*	**No**
Sunday					
College Avenue					
North of Del Cerro Boulevard	Commercial and Residential	57.5	57.6	>*3.0*	**No**
Between Del Cerro Boulevard and 1-8	Residential	59.2	59.9	>*3.0*	**No**

Table 1. Existing Plus Project Conditions - Predicted Traffic Noise Levels

Roadway Segment	Surrounding Uses	CNEL at 100 feet from Centerline of Roadway		Noise Standard (dBA CNEL)	Exceed Standard/ Significant Impact?
		Existing Conditions	Existing + Project Conditions		
Westbound Onramp (adjacent to Project site)					
North of Canyon Crest Drive	Commercial and Residential	61.5	62.1	*>3.0*	**No**
South of Canyon Crest Drive	Commercial and Residential	60.4	60.6	*>3.0*	**No**
Interstate 8					
I-8 Westbound Offramp (toward College Avenue)	Residential	62.1	62.1	*>3.0*	**No**
I-8 Westbound	Commercial and Residential	62.7	63.8	*>3.0*	**No**
I-8 Eastbound	Commercial and Residential	62.6	63.9	*>3.0*	**No**
I-8 Eastbound Offramp (toward College Avenue)	Residential	58.1	60.5	*>3.0*	**No**
Del Cerro Boulevard					
East of College Avenue	Commercial and Residential	51.8	51.9	*>3.0*	**No**
West of College Avenue	Commercial and Residential	46.2	46.3	*>3.0*	**No**

Source: Traffic noise levels were calculated by ECORP using the FHWA roadway noise prediction model in conjunction with the trip generation rate identified by Los Engineering, Inc. (2021). Refer to Attachment A for traffic noise modeling assumptions and results.

Notes: A total of five intersections were analyzed in the Local Mobility Analysis Report; however, only roadway segments that impact sensitive receptors were included for the purposes of this analysis.

As shown in Table 1, the predicted increase in weekday and Sunday traffic noise levels associated with the Project would not exceed an increase of three dBA over existing conditions. As such, the increase in traffic noise would not be perceivable.

Cumulative traffic noise levels were calculated using the FHWA Highway Traffic Noise Prediction Model and traffic volumes from the Project's Local Mobility Analysis Report (LOS Engineering, Inc. 2021). As with the previous analysis, an increase of three dBA over the existing ambient noise level is considered significant and will be used in this analysis. Cumulative traffic noise levels for the Proposed Project are presented in Table 2.

Table 2. Cumulative Traffic Noise Scenario

Roadway Segment	Surrounding Uses	CNEL at 100 feet from Centerline of Roadway		Noise Standard (dBA CNEL)	Exceed Standard/ Significant Impact?
		Cumulative No Project	Cumulative Plus Project		
Weekday					
College Avenue					
North of Del Cerro Boulevard	Commercial and Residential	59.0	59.0	*>3.0*	**No**
Between Del Cerro Boulevard and 1-8 Westbound Onramp (adjacent to Project site)	Residential	60.9	60.9	*>3.0*	**No**
North of Canyon Crest Drive	Commercial and Residential	Not Analyzed in Weekday	Not Analyzed in Weekday	*>3.0*	**N/A**
South of Canyon Crest Drive	Commercial and Residential	Not Analyzed in Weekday	Not Analyzed in Weekday	*>3.0*	**N/A**
Interstate 8					
I-8 Westbound Offramp (toward College Avenue)	Residential	61.4	61.4	*>3.0*	**No**
I-8 Westbound	Commercial and Residential	63.8	63.8	*>3.0*	**No**
I-8 Eastbound	Commercial and Residential	65.2	65.2	*>3.0*	**No**
I-8 Eastbound Offramp (toward College Avenue)	Residential	Not Analyzed in Weekday	Not Analyzed in Weekday	*>3.0*	**N/A**
Del Cerro Boulevard					
East of College Avenue	Commercial and Residential	52.1	52.1	*>3.0*	**No**
West of College Avenue	Commercial and Residential	48.6	48.9	*>3.0*	**No**
Sunday					
College Avenue					
North of Del Cerro Boulevard	Commercial and Residential	57.5	57.6	*>3.0*	**No**
Between Del Cerro Boulevard and 1-8	Residential	59.3	60.0	*>3.0*	**No**

Table 2. Cumulative Traffic Noise Scenario

Roadway Segment	Surrounding Uses	CNEL at 100 feet from Centerline of Roadway		Noise Standard (dBA CNEL)	Exceed Standard/ Significant Impact?
		Cumulative No Project	Cumulative Plus Project		
Westbound Onramp (adjacent to Project site)					
North of Canyon Crest Drive	Commercial and Residential	61.6	62.2	>*3.0*	**No**
South of Canyon Crest Drive	Commercial and Residential	60.5	60.6	>*3.0*	**No**
Interstate 8					
I-8 Westbound Offramp (toward College Avenue)	Residential	62.2	62.2	>*3.0*	**No**
I-8 Westbound	Commercial and Residential	62.8	63.8	>*3.0*	**No**
I-8 Eastbound	Commercial and Residential	62.7	63.9	>*3.0*	**No**
I-8 Eastbound Offramp (toward College Avenue)	Residential	58.0	60.6	>*3.0*	**No**
Del Cerro Boulevard					
East of College Avenue	Commercial and Residential	51.9	51.9	>*3.0*	**No**
West of College Avenue	Commercial and Residential	45.9	46.3	>*3.0*	**No**

Source: Traffic noise levels were calculated by ECORP using the FHWA roadway noise prediction model in conjunction with the trip generation rate identified by Los Engineering, Inc. (2021). Refer to Attachment A for traffic noise modeling assumptions and results.
Notes: A total of five intersections were analyzed in the Local Mobility Analysis Report; however, only roadway segments that impact sensitive receptors were included for the purposes of this analysis.

As shown in Table 2, the predicted increase in cumulative traffic noise levels associated with the Project would not exceed an increase of three dBA over existing conditions. As such, the increase in cumulative traffic noise would not be perceivable.

Construction Noise

The following construction noise-reducing Best Management Practices have been identified for the Proposed Project:

NOI-1 Best Management Practices. The following Best Management Practices shall be incorporated into the Project drawings and implemented during Project construction to ensure sustained construction noise levels do not exceed 75 decibels over a 12-hour period at the nearest sensitive receivers:

- In order to reduce construction noise, a temporary noise barrier or enclosure shall be used along the property lines of adjacent residences to break the line of sight between the construction equipment and the adjacent residences. The temporary noise barrier shall consist of a solid plywood fence and/or flexible sound curtains attached to chain link fencing.

- Barriers such as flexible sound control curtains shall be erected around stationary heavy equipment to minimize the amount of noise on the surrounding land uses to the maximum extent feasible during construction.

- Equipping of all internal combustion engine-driven equipment with intake and exhaust mufflers that are in good condition and appropriate for the equipment.

- Electrical power shall be used to run air compressors and similar power tools, where feasible.

- Internal combustion engines shall be equipped with a muffler of a type recommended by the manufacture and in good repair.

- All diesel equipment shall be operated with closed engine doors and be equipped with factory recommended mufflers.

- Prohibiting unnecessary idling of internal combustion engines.

- Locating stationary noise-generating equipment, such as air compressors or portable power generators, as far as possible from sensitive receptors. Constructing temporary noise barriers to screen stationary noise-generating equipment when located near adjoining sensitive land uses.

- Utilization of "quiet" air compressors and other stationary noise sources where technology exists.

- Control of noise from construction workers' radios to a point where they are not audible at adjacent residences bordering the Project site.

- Notifying of all adjacent residences of the construction schedule, in writing, and provide a written schedule of "noisy" construction activities to the adjacent and nearby residences at least 24 hours prior to initiation of construction activities that could result in substantial

noise levels at outdoor or indoor living areas. This notification should include the anticipated hours and duration of construction and a description of noise reduction measures being implemented at the project site. The notification should include the telephone number and/or contact information for the on- site noise disturbance coordinator that neighbors can use for inquiries and/or to submit complaints associated with construction noise.

- Designation of a "disturbance coordinator" who shall be responsible for responding to any complaints about construction noise. The disturbance coordinator shall determine the cause of the noise complaint (e.g., bad muffler, etc.) and shall require that reasonable measures be implemented to correct the problem. Conspicuously post a telephone number for the disturbance coordinator at the construction site and include it in the notice sent to neighbors regarding the construction schedule.

REFERENCES

LOS Engineering, Inc. All Peoples Church Local Mobility Analysis Report. 2021

ATTACHMENT A

Federal Highway Administration Highway Noise Prediction Model (FHWA-RD-77-108) Outputs – Project Traffic Noise

TRAFFIC NOISE LEVELS AND NOISE CONTOURS

Project Number: 2020-024
Project Name: All Peoples Church

Background Information

Model Description: FHWA Highway Noise Prediction Model (FHWA-RD-77-108) with California Vehicle Noise (CALVENO) Emission Levels.
Source of Traffic Volumes: Los Engineering, Inc.
Community Noise Descriptor: L_{dn}: _____ CNEL: x

Assumed 24-Hour Traffic Distribution:	Day	Evening	Night
Total ADT Volumes	77.70%	12.70%	9.60%
Medium-Duty Trucks	87.43%	5.05%	7.52%
Heavy-Duty Trucks	89.10%	2.84%	8.06%

Existing Sunday Conditions

Analysis Condition / Roadway, Segment	Lanes	Median Width	ADT Volume	Design Speed (mph)	Alpha Factor	Vehicle Mix: Medium Trucks	Vehicle Mix: Heavy Trucks	CNEL at 100 Feet	Distance from Centerline of Roadway to Contour: 70 CNEL	65 CNEL	60 CNEL	55 CNEL
College Avenue												
North of Del Cerro Boulevard	4	0	5,481	40	0.5	1.8%	0.7%	57.5	-	-	68	147
Between Del Cerro Boulevard and 1-8 Westbound Onramp (adjacent to project site)	4	0	8,145	40	0.5	1.8%	0.7%	59.2	-	-	89	191
North of Canyon Crest Drive	4	0	10,413	45	0.5	1.8%	0.7%	61.5	-	58	126	271
South of Canyon Crest Drive	4	0	8,082	45	0.5	1.8%	0.7%	60.4	-	49	106	229
Interstate 8												
I-8 Westbound Offramp (towards College Avenue)	5	0	4,635	65	0.5	1.8%	0.7%	62.1	-	64	138	298
I-8 Wesbound	5	0	5,310	65	0.5	1.8%	0.7%	62.7	-	70	151	326
I-8 Eastbound	5	0	5,247	65	0.5	1.8%	0.7%	62.6	-	70	150	323
I-8 Eastbound Offramp (Towards College Avenue)	5	0	1,863	65	0.5	1.8%	0.7%	58.1	-	-	75	162
Del Cerro Boulevard												
East of College Avenue	2	0	3,789	25	0.5	1.8%	0.7%	51.8	-	-	-	61
West of College Avenue	2	0	1,026	25	0.5	1.8%	0.7%	46.2	-	-	-	-

TRAFFIC NOISE LEVELS AND NOISE CONTOURS

Project Number: 2020-024
Project Name: All Peoples Church

Background Information

Model Description: FHWA Highway Noise Prediction Model (FHWA-RD-77-108) with California Vehicle Noise (CALVENO) Emission Levels.
Source of Traffic Volumes: Los Engineering, Inc.
Community Noise Descriptor: L_{dn}: _____ CNEL: x

Assumed 24-Hour Traffic Distribution:	Day	Evening	Night
Total ADT Volumes	77.70%	12.70%	9.60%
Medium-Duty Trucks	87.43%	5.05%	7.52%
Heavy-Duty Trucks	89.10%	2.84%	8.06%

Existing Sunday Conditions + Project

Analysis Condition / Roadway, Segment	Lanes	Median Width	ADT Volume	Design Speed (mph)	Vehicle Mix: Alpha Factor	Vehicle Mix: Medium Trucks	Vehicle Mix: Heavy Trucks	CNEL at 100 Feet	Distance from Centerline of Roadway to Contour: 70 CNEL	65 CNEL	60 CNEL	55 CNEL
College Avenue												
North of Del Cerro Boulevard	4	0	5,580	40	0.5	1.8%	0.7%	57.6	-	-	69	148
Between Del Cerro Boulevard and 1-8 Westbound Onramp (adjacent to project site)	4	0	9,549	40	0.5	1.8%	0.7%	59.9	-	46	98	212
North of Canyon Crest Drive	4	0	11,952	45	0.5	1.8%	0.7%	62.1	-	64	138	297
South of Canyon Crest Drive	4	0	8,424	45	0.5	1.8%	0.7%	60.6	-	51	109	236
Interstate 8												
I-8 Westbound Offramp (towards College Avenue)	5	0	4,635	65	0.5	1.8%	0.7%	62.1	-	64	138	298
I-8 Wesbound	5	0	6,840	65	0.5	1.8%	0.7%	63.8	-	83	179	386
I-8 Eastbound	5	0	6,948	65	0.5	1.8%	0.7%	63.9	-	84	181	390
I-8 Eastbound Offramp (Towards College Avenue)	5	0	3,222	65	0.5	1.8%	0.7%	60.5	-	50	108	233
Del Cerro Boulevard												
East of College Avenue	2	0	3,825	25	0.5	1.8%	0.7%	51.9	-	-	-	62
West of College Avenue	2	0	1,062	25	0.5	1.8%	0.7%	46.3	-	-	-	-

TRAFFIC NOISE LEVELS AND NOISE CONTOURS

Project Number: 2020-024
Project Name: All Peoples Church

Background Information

Model Description: FHWA Highway Noise Prediction Model (FHWA-RD-77-108) with California Vehicle Noise (CALVENO) Emission Levels.
Source of Traffic Volumes: Los Engineering, Inc.
Community Noise Descriptor: L_{dn}: _____ CNEL: x

Assumed 24-Hour Traffic Distribution:	Day	Evening	Night
Total ADT Volumes	77.70%	12.70%	9.60%
Medium-Duty Trucks	87.43%	5.05%	7.52%
Heavy-Duty Trucks	89.10%	2.84%	8.06%

2022 Sunday Without Project Conditions

Analysis Condition / Roadway, Segment	Lanes	Median Width	ADT Volume	Design Speed (mph)	Alpha Factor	Vehicle Mix: Medium Trucks	Vehicle Mix: Heavy Trucks	CNEL at 100 Feet	Distance from Centerline of Roadway to Contour: 70 CNEL	65 CNEL	60 CNEL	55 CNEL
College Avenue												
North of Del Cerro Boulevard	4	0	5,553	40	0.5	1.8%	0.7%	57.5	-	-	69	148
Between Del Cerro Boulevard and 1-8 Westbound Onramp (adjacent to project site)	4	0	8,266	40	0.5	1.8%	0.7%	59.3	-	-	89	193
North of Canyon Crest Drive	4	0	10,575	45	0.5	1.8%	0.7%	61.6	-	59	127	274
South of Canyon Crest Drive	4	0	8,208	45	0.5	1.8%	0.7%	60.5	-	50	107	231
Interstate 8												
I-8 Westbound Offramp (towards College Avenue)	5	0	4,707	65	0.5	1.8%	0.7%	62.2	-	65	140	301
I-8 Wesbound	5	0	5,391	65	0.5	1.8%	0.7%	62.8	-	71	153	329
I-8 Eastbound	5	0	5,328	65	0.5	1.8%	0.7%	62.7	-	70	152	326
I-8 Eastbound Offramp (Towards College Avenue)	5	0	1,809	65	0.5	1.8%	0.7%	58.0	-	-	74	159
Del Cerro Boulevard												
East of College Avenue	2	0	3,843	25	0.5	1.8%	0.7%	51.9	-	-	-	62
West of College Avenue	2	0	963	25	0.5	1.8%	0.7%	45.9	-	-	-	-

TRAFFIC NOISE LEVELS AND NOISE CONTOURS

Project Number: 2020-024
Project Name: All Peoples Church

Background Information

Model Description: FHWA Highway Noise Prediction Model (FHWA-RD-77-108) with California Vehicle Noise (CALVENO) Emission Levels.
Source of Traffic Volumes: Los Engineering, Inc.
Community Noise Descriptor: L_{dn}: _____ CNEL: x

Assumed 24-Hour Traffic Distribution:	Day	Evening	Night
Total ADT Volumes	77.70%	12.70%	9.60%
Medium-Duty Trucks	87.43%	5.05%	7.52%
Heavy-Duty Trucks	89.10%	2.84%	8.06%

2022 Sunday With Project Conditions

Analysis Condition / Roadway, Segment	Lanes	Median Width	ADT Volume	Design Speed (mph)	Alpha Factor	Vehicle Mix: Medium Trucks	Vehicle Mix: Heavy Trucks	CNEL at 100 Feet	Distance from Centerline of Roadway to Contour: 70 CNEL	65 CNEL	60 CNEL	55 CNEL
College Avenue												
North of Del Cerro Boulevard	4	0	5,652	40	0.5	1.8%	0.7%	57.6	-	-	69	150
Between Del Cerro Boulevard and 1-8 Westbound Onramp (adjacent to project site)	4	0	9,670	40	0.5	1.8%	0.7%	60.0	-	46	99	214
North of Canyon Crest Drive	4	0	12,114	45	0.5	1.8%	0.7%	62.2	-	65	139	300
South of Canyon Crest Drive	4	0	8,550	45	0.5	1.8%	0.7%	60.6	-	51	110	238
Interstate 8												
I-8 Westbound Offramp (towards College Avenue)	5	0	4,707	65	0.5	1.8%	0.7%	62.2	-	65	140	301
I-8 Wesbound	5	0	6,921	65	0.5	1.8%	0.7%	63.8	-	84	180	389
I-8 Eastbound	5	0	7,029	65	0.5	1.8%	0.7%	63.9	-	85	182	393
I-8 Eastbound Offramp (Towards College Avenue)	5	0	3,249	65	0.5	1.8%	0.7%	60.6	-	51	109	235
Del Cerro Boulevard												
East of College Avenue	2	0	3,879	25	0.5	1.8%	0.7%	51.9	-	-	-	62
West of College Avenue	2	0	1,071	25	0.5	1.8%	0.7%	46.3	-	-	-	-

TRAFFIC NOISE LEVELS AND NOISE CONTOURS

Project Number: 2020-024
Project Name: All Peoples Church

Background Information

Model Description: FHWA Highway Noise Prediction Model (FHWA-RD-77-108) with California Vehicle Noise (CALVENO) Emission Levels.
Source of Traffic Volumes: Los Engineering, Inc.
Community Noise Descriptor: L_{dn}: CNEL: x

Assumed 24-Hour Traffic Distribution:	Day	Evening	Night
Total ADT Volumes	77.70%	12.70%	9.60%
Medium-Duty Trucks	87.43%	5.05%	7.52%
Heavy-Duty Trucks	89.10%	2.84%	8.06%

Existing Weekday Conditions

Analysis Condition / Roadway, Segment	Lanes	Median Width	ADT Volume	Design Speed (mph)	Alpha Factor	Vehicle Mix: Medium Trucks	Vehicle Mix: Heavy Trucks	CNEL at 100 Feet	Distance from Centerline of Roadway to Contour: 70 CNEL	65 CNEL	60 CNEL	55 CNEL
College Avenue												
North of Del Cerro Boulevard	4	0	7,632	40	0.5	1.8%	0.7%	58.9	-	-	85	183
Between Del Cerro Boulevard and 1-8 Westbound Onramp (adjacent to project site)	4	0	11,709	40	0.5	1.8%	0.7%	60.8	-	52	113	243
North of Canyon Crest Drive	4	0	Not Analyzed in Weekday	45	0.5	1.8%	0.7%	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
South of Canyon Crest Drive	4	0	Not Analyzed in Weekday	45	0.5	1.8%	0.7%	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
Interstate 8												
I-8 Westbound Offramp (towards College Avenue)	5	0	3,555	65	0.5	1.8%	0.7%	61.0	-	54	117	251
I-8 Wesbound	5	0	6,894	65	0.5	1.8%	0.7%	63.8	-	84	180	388
I-8 Eastbound	5	0	9,099	65	0.5	1.8%	0.7%	65.0	-	100	216	466
I-8 Eastbound Offramp (Towards College Avenue)	5	0	Not Analyzed in Weekday	65	0.5	1.8%	0.7%	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
Del Cerro Boulevard												
East of College Avenue	2	0	3,996	25	0.5	1.8%	0.7%	52.1	-	-	-	64
West of College Avenue	2	0	1,863	25	0.5	1.8%	0.7%	48.7	-	-	-	38

TRAFFIC NOISE LEVELS AND NOISE CONTOURS

Project Number: 2020-024
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Background Information

Model Description: FHWA Highway Noise Prediction Model (FHWA-RD-77-108) with California Vehicle Noise (CALVENO) Emission Levels.
Source of Traffic Volumes: Los Engineering, Inc.
Community Noise Descriptor: L_{dn}: ____ CNEL: x

Assumed 24-Hour Traffic Distribution:	Day	Evening	Night
Total ADT Volumes	77.70%	12.70%	9.60%
Medium-Duty Trucks	87.43%	5.05%	7.52%
Heavy-Duty Trucks	89.10%	2.84%	8.06%

Existing Weekday Conditions + Project

Analysis Condition / Roadway, Segment	Lanes	Median Width	ADT Volume	Design Speed (mph)	Alpha Factor	Vehicle Mix: Medium Trucks	Vehicle Mix: Heavy Trucks	CNEL at 100 Feet	Distance from Centerline of Roadway to Contour: 70 CNEL	65 CNEL	60 CNEL	55 CNEL
College Avenue												
North of Del Cerro Boulevard	4	0	7,632	40	0.5	1.8%	0.7%	58.9	-	-	85	183
Between Del Cerro Boulevard and 1-8 Westbound Onramp (adjacent to project site)	4	0	11,826	40	0.5	1.8%	0.7%	60.8	-	53	114	245
North of Canyon Crest Drive	4	0	Not Analyzed in Weekday	45	0.5	1.8%	0.7%	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
South of Canyon Crest Drive	4	0	Not Analyzed in Weekday	45	0.5	1.8%	0.7%	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
Interstate 8												
I-8 Westbound Offramp (towards College Avenue)	5	0	3,555	65	0.5	1.8%	0.7%	61.0	-	54	116	249
I-8 Wesbound	5	0	6,894	65	0.5	1.8%	0.7%	63.8	-	84	180	388
I-8 Eastbound	5	0	9,099	65	0.5	1.8%	0.7%	65.0	-	100	216	466
I-8 Eastbound Offramp (Towards College Avenue)	5	0	Not Analyzed in Weekday	65	0.5	1.8%	0.7%	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
Del Cerro Boulevard												
East of College Avenue	2	0	3,996	25	0.5	1.8%	0.7%	52.1	-	-	-	64
West of College Avenue	2	0	1,863	25	0.5	1.8%	0.7%	48.7	-	-	-	38

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Model Description: FHWA Highway Noise Prediction Model (FHWA-RD-77-108) with California Vehicle Noise (CALVENO) Emission Levels.
Source of Traffic Volumes: Los Engineering, Inc.
Community Noise Descriptor: L_{dn}: _____ CNEL: x

Assumed 24-Hour Traffic Distribution:	Day	Evening	Night
Total ADT Volumes	77.70%	12.70%	9.60%
Medium-Duty Trucks	87.43%	5.05%	7.52%
Heavy-Duty Trucks	89.10%	2.84%	8.06%

Analysis Condition Roadway, Segment	Lanes	Median Width	ADT Volume	Design Speed (mph)	Alpha Factor	Vehicle Mix: Medium Trucks	Vehicle Mix: Heavy Trucks	CNEL at 100 Feet	Distance from Centerline of Roadway to Contour: 70 CNEL	65 CNEL	60 CNEL	55 CNEL
2022 Weekday Without Project Conditions												
College Avenue												
North of Del Cerro Boulevard	4	0	7,749	40	0.5	1.8%	0.7%	59.0	-	-	86	185
Between Del Cerro Boulevard and 1-8 Westbound Onramp (adjacent to project site)	4	0	11,934	40	0.5	1.8%	0.7%	60.9	-	53	114	246
North of Canyon Crest Drive	4	0	Not Analyzed in Weekday	45	0.5	1.8%	0.7%	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
South of Canyon Crest Drive	4	0	Not Analyzed in Weekday	45	0.5	1.8%	0.7%	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
Interstate 8												
I-8 Westbound Offramp (towards College Avenue)	5	0	3,933	65	0.5	1.8%	0.7%	61.4	-	57	124	267
I-8 Wesbound	5	0	6,930	65	0.5	1.8%	0.7%	63.8	-	84	181	389
I-8 Eastbound	5	0	9,513	65	0.5	1.8%	0.7%	65.2	-	104	223	480
I-8 Eastbound Offramp (Towards College Avenue)	5	0	Not Analyzed in Weekday	65	0.5	1.8%	0.7%	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
Del Cerro Boulevard												
East of College Avenue	2	0	4,005	25	0.5	1.8%	0.7%	52.1	-	-	-	64
West of College Avenue	2	0	1,817	25	0.5	1.8%	0.7%	48.6	-	-	-	38

TRAFFIC NOISE LEVELS AND NOISE CONTOURS

Project Number: 2020-024
Project Name: All Peoples Church

Background Information

Model Description: FHWA Highway Noise Prediction Model (FHWA-RD-77-108) with California Vehicle Noise (CALVENO) Emission Levels.
Source of Traffic Volumes: Los Engineering, Inc.
Community Noise Descriptor: L_{dn}: _____ CNEL: x

Assumed 24-Hour Traffic Distribution:	Day	Evening	Night
Total ADT Volumes	77.70%	12.70%	9.60%
Medium-Duty Trucks	87.43%	5.05%	7.52%
Heavy-Duty Trucks	89.10%	2.84%	8.06%

2022 Weekday With Project Conditions

Analysis Condition / Roadway, Segment	Lanes	Median Width	ADT Volume	Design Speed (mph)	Alpha Factor	Vehicle Mix: Medium Trucks	Vehicle Mix: Heavy Trucks	CNEL at 100 Feet	Distance from Centerline of Roadway to Contour: 70 CNEL	65 CNEL	60 CNEL	55 CNEL
College Avenue												
North of Del Cerro Boulevard	4	0	7,749	40	0.5	1.8%	0.7%	59.0	-	-	86	185
Between Del Cerro Boulevard and 1-8 Westbound Onramp (adjacent to project site)	4	0	12,073	40	0.5	1.8%	0.7%	60.9	-	53	115	248
North of Canyon Crest Drive	4	0	Not Analyzed in Weekday	45	0.5	1.8%	0.7%	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
South of Canyon Crest Drive	4	0	Not Analyzed in Weekday	45	0.5	1.8%	0.7%	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
Interstate 8												
I-8 Westbound Offramp (towards College Avenue)	5	0	3,933	65	0.5	1.8%	0.7%	61.4	-	57	124	267
I-8 Wesbound	5	0	6,930	65	0.5	1.8%	0.7%	63.8	-	84	181	389
I-8 Eastbound	5	0	9,513	65	0.5	1.8%	0.7%	65.2	-	104	223	480
I-8 Eastbound Offramp (Towards College Avenue)	5	0	Not Analyzed in Weekday	65	0.5	1.8%	0.7%	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
Del Cerro Boulevard												
East of College Avenue	2	0	4,005	25	0.5	1.8%	0.7%	52.1	-	-	-	64
West of College Avenue	2	0	1,917	25	0.5	1.8%	0.7%	48.9	-	-	-	39

Noise Impact Assessment

All Peoples Church

San Diego, California

Prepared For:

All Peoples Church
6122 El Cajon Boulevard
El Cajon, CA 92115

March 2020

ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

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LIST OF ACRONYMS AND ABBREVIATIONS

ANSI	American National Standards Institute
Caltrans	California Department of Transportation
City	City of San Diego
CNEL	Community Noise Equivalent Level
dB	Decibel
dBA	A-weighted decibels
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
Hz	Hertz
I-8	Interstate 8

LIST OF ACRONYMS AND ABBREVIATIONS

L_{dn}	Day-night average sound level
L_{eq}	Measure of ambient noise
L_{max}	The maximum A-weighted noise level during the measurement period.
L_{min}	The minimum A-weighted noise level during the measurement period.
OPR	Office of Planning and Research
PPV	Peak particle velocity
Project	All Peoples Church Project
RMS	Root mean square
RS	Residential Single Unit
sf	Square foot
STC	Sound Transmission Class
WEAL	Western Electro-Acoustic Laboratory, Inc.

1.0 INTRODUCTION

This report documents the results of a Noise Impact Assessment completed for the All Peoples Church Project (Project), which includes the development of a 52,690-square foot (sf) sanctuary/multi-purpose building and a two-story parking garage in the city of San Diego. This assessment was prepared to assess the land use compatibility of the proposed Project within the existing noise environment affecting the Project site, as well as to compare the predicted Project noise levels to noise standards promulgated by the City of San Diego (City) General Plan Noise Element and Municipal Code.

1.1 Project Location and Description

The proposed Project is located on six acres of vacant land on the northeast corner of Interstate 8 (I-8) and College Avenue in the city of San Diego (see Figure 1. *Project Location*). The Project is proposing the development of a 52,690-sf, 900-seat, sanctuary/multi-purpose building along with a two-story, 71,000-sf parking structure. The Project site will be accessible from College Avenue.

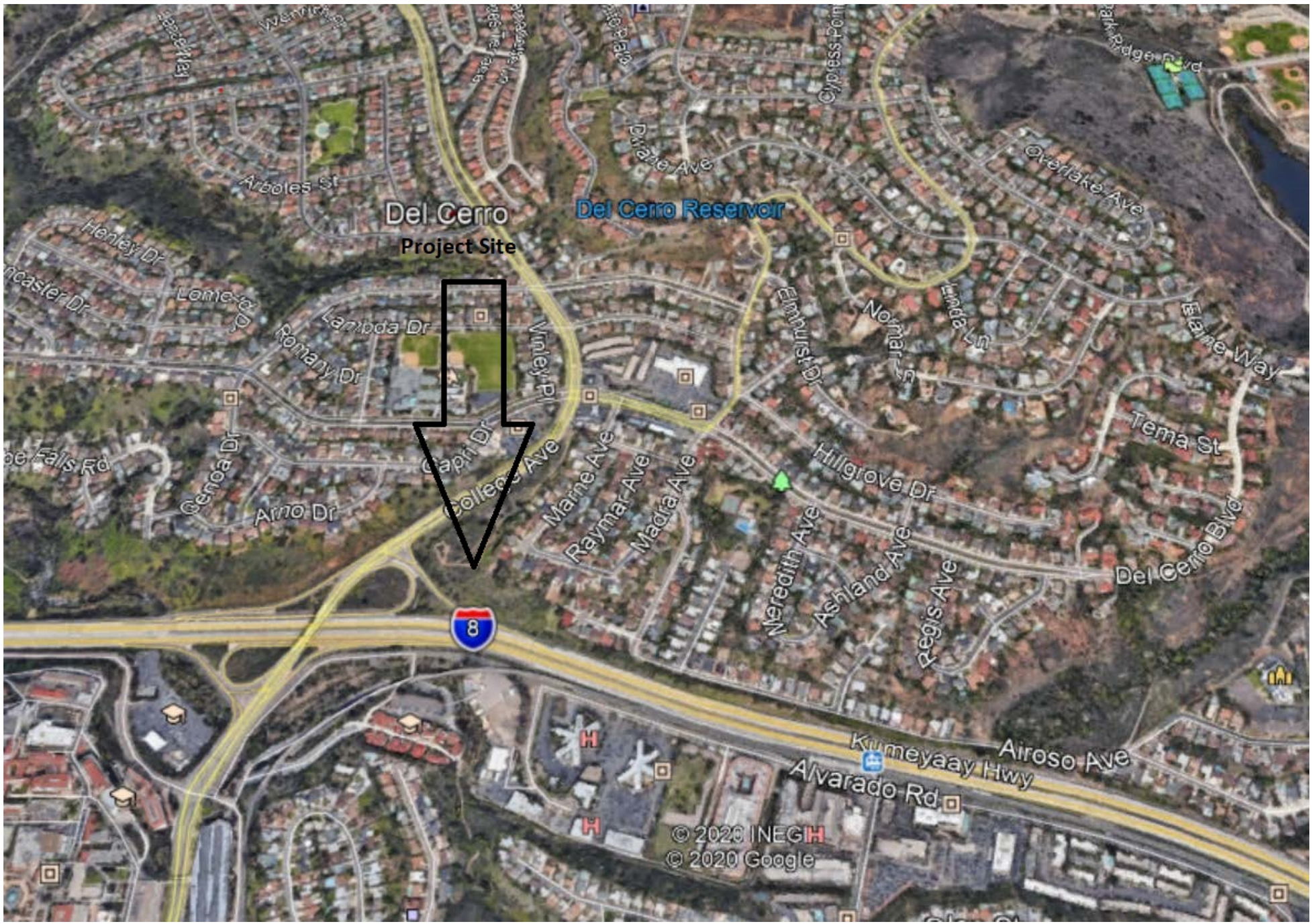
The Project site is designated in the City General Plan as Residential Single Unit (RS). The purpose of the RS zone is to provide appropriate regulations for the development of single-family dwelling units that accommodate a variety of lot sizes and residential dwelling types and that promote neighborhood quality, character, and livability. It is intended that these zones provide for flexibility in development regulations that allow reasonable use of property while minimizing adverse impacts to adjacent properties. The RS zones are differentiated based on the minimum lot size. The proposed Project site is designated as RS-1-7, which requires a minimum of 5,000 sf per lot (City Municipal Code Chapter 13).

2.0 ENVIRONMENTAL NOISE

2.1 Fundamentals of Noise and Environmental Sound

2.1.1 Addition of Decibels

The decibel (dB) scale is logarithmic, not linear, and therefore sound levels cannot be added or subtracted through ordinary arithmetic. Two sound levels 10 dB apart differ in acoustic energy by a factor of 10. When the standard logarithmic decibel is A-weighted (dBA), an increase of 10 dBA is generally perceived as a doubling in loudness. For example, a 70-dBA sound is half as loud as an 80-dBA sound and twice as loud as a 60-dBA sound. When two identical sources are each producing sound of the same loudness, the resulting sound level at a given distance would be three dB higher than one source under the same conditions (Federal Transit Administration [FTA] 2018). For example, a 65-dB source of sound, such as a truck, when joined by another 65 dB source results in a sound amplitude of 68 dB, not 130 dB (i.e., doubling the source strength increases the sound pressure by three dB). Under the decibel scale, three sources of equal loudness together would produce an increase of five dB.



Map Date: *2/24/2020*
Photo (or Base) Source: *Google Earth Pro.*

ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

Figure 1. Project Location

2020-024

Typical noise levels associated with common noise sources are depicted in Figure 2. *Common Noise Levels*.

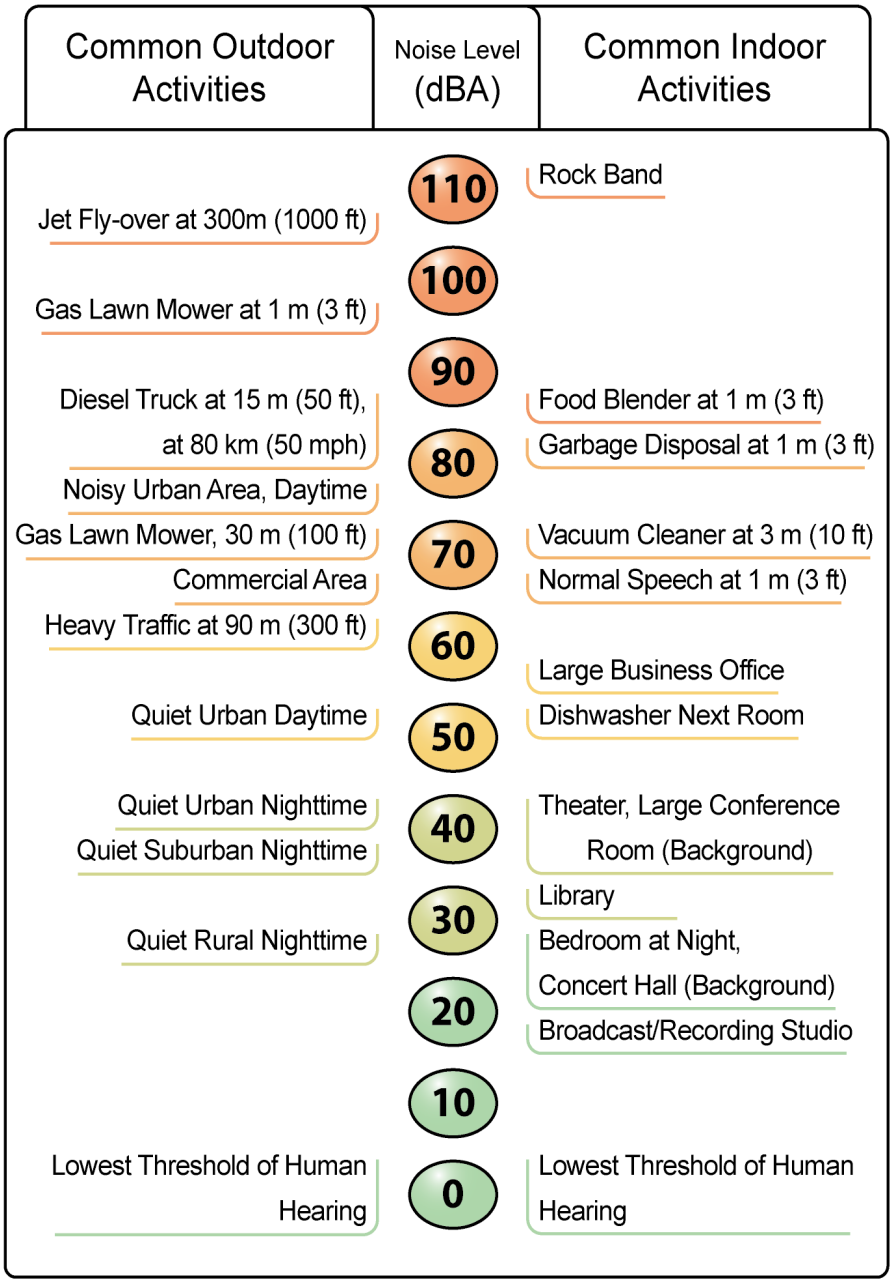


Figure 2. Common Noise Levels

Source: California Department of Transportation (Caltrans 2012)

2.1.2 Sound Propagation and Attenuation

Noise can be generated by a number of sources, including mobile sources such as automobiles, trucks and airplanes, and stationary sources such as construction sites, machinery, and industrial operations. Sound spreads (propagates) uniformly outward in a spherical pattern, and the sound level decreases (attenuates) at a rate of approximately six dB for each doubling of distance from a stationary or point source. Sound from a line source, such as a highway, propagates outward in a cylindrical pattern, often referred to as cylindrical spreading. Sound levels attenuate at a rate of approximately three dB for each doubling of distance from a line source, such as a roadway, depending on ground surface characteristics (Federal Highway Administration [FHWA] 2011). No excess attenuation is assumed for hard surfaces like a parking lot or a body of water. Soft surfaces, such as soft dirt or grass, can absorb sound, so an excess ground-attenuation value of 1.5 dB per doubling of distance is normally assumed. For line sources, an overall attenuation rate of three dB per doubling of distance is assumed (FHWA 2011).

Noise levels may also be reduced by intervening structures; generally, a single row of detached buildings between the receptor and the noise source reduces the noise level by about five dBA (FHWA 2008), while a solid wall or berm generally reduces noise levels by 10 to 20 dBA (FHWA 2011). However, noise barriers or enclosures specifically designed to reduce site-specific construction noise can provide a sound reduction 35 dBA or greater (Western Electro-Acoustic Laboratory, Inc. [WEAL] 2000). To achieve the most potent noise-reducing effect, a noise enclosure/barrier must physically fit in the available space, must completely break the "line of sight" between the noise source and the receptors, must be free of degrading holes or gaps, and must not be flanked by nearby reflective surfaces. Noise barriers must be sizable enough to cover the entire noise source and extend lengthwise and vertically as far as feasibly possible to be most effective. The limiting factor for a noise barrier is not the component of noise transmitted through the material, but rather the amount of noise flanking around and over the barrier. In general, barriers contribute to decreasing noise levels only when the structure breaks the "line of sight" between the source and the receiver.

The manner in which older homes in California were constructed generally provides a reduction of exterior-to-interior noise levels of about 20 to 25 dBA with closed windows (Caltrans 2002). The exterior-to-interior reduction of newer residential units is generally 30 dBA or more (Harris Miller, Miller & Hanson Inc. [HMMH] 2006). Generally, in exterior noise environments ranging from 60 dBA Community Noise Equivalent Level (CNEL) to 65 dBA CNEL, interior noise levels can typically be maintained below 45 dBA, a typically residential interior noise standard, with the incorporation of an adequate forced air mechanical ventilation system in each residential building, and standard thermal-pane residential windows/doors with a minimum rating of Sound Transmission Class (STC) 28. (STC is an integer rating of how well a building partition attenuates airborne sound. In the U.S., it is widely used to rate interior partitions, ceilings, floors, doors, windows, and exterior wall configurations.) In exterior noise environments of 65 dBA CNEL or greater, a combination of forced-air mechanical ventilation and sound-rated construction methods is often required to meet the interior noise level limit. Attaining the necessary noise reduction from exterior to interior spaces is readily achievable in noise environments less than 75 dBA CNEL with proper wall construction techniques following California Building Code methods, the selections of proper windows and doors, and the incorporation of forced-air mechanical ventilation systems.

2.1.3 Noise Descriptors

The dB scale alone does not adequately characterize how humans perceive noise. The dominant frequencies of a sound have a substantial effect on the human response to that sound. Several rating scales have been developed to analyze the adverse effect of community noise on people. Because environmental noise fluctuates over time, these scales consider that the effect of noise on people is largely dependent on the total acoustical energy content of the noise, as well as the time of day when the noise occurs. The L_{eq} is a measure of ambient noise, while the L_{dn} and CNEL are measures of community noise. Each is applicable to this analysis and defined in Table 1.

Table 1. Common Acoustical Descriptors

Descriptor	Definition
Decibel, dB	A unit describing the amplitude of sound, equal to 20 times the logarithm to the base 10 of the ratio of the pressure of the sound measured to the reference pressure. The reference pressure for air is 20.
Sound Pressure Level	Sound pressure is the sound force per unit area, usually expressed in micropascals (or 20 micronewtons per square meter), where one pascal is the pressure resulting from a force of one newton exerted over an area of one square meter. The sound pressure level is expressed in decibels as 20 times the logarithm to the base 10 of the ratio between the pressures exerted by the sound to a reference sound pressure (e.g., 20 micropascals). Sound pressure level is the quantity that is directly measured by a sound level meter.
Frequency, Hertz (Hz)	The number of complete pressure fluctuations per second above and below atmospheric pressure. Normal human hearing is between 20 Hz and 20,000 Hz. Infrasonic sound are below 20 Hz and ultrasonic sounds are above 20,000 Hz.
A-Weighted Sound Level, dBA	The sound pressure level in decibels as measured on a sound level meter using the A weighting filter network. The A-weighting filter de-emphasizes the very low and very high frequency components of the sound in a manner similar to the frequency response of the human ear and correlates well with subjective reactions to noise.
Equivalent Noise Level, L_{eq}	The average acoustic energy content of noise for a stated period of time. Thus, the Leq of a time-varying noise and that of a steady noise are the same if they deliver the same acoustic energy to the ear during exposure. For evaluating community impacts, this rating scale does not vary, regardless of whether the noise occurs during the day or the night.
L_{max}, L_{min}	The maximum and minimum A-weighted noise level during the measurement period.
L_{01}, L_{10}, L_{50}, L_{90}	The A-weighted noise levels that are exceeded one percent, 10 percent, 50 percent, and 90 percent of the time during the measurement period.
Day/Night Noise Level, L_{dn} or DNL	A 24-hour average Leq with a 10 dBA "weighting" added to noise during the hours of 10:00 p.m. to 7:00 a.m. to account for noise sensitivity in the nighttime. The logarithmic effect of these additions is that a 60 dBA 24-hour Leq would result in a measurement of 66.4 dBA Ldn.
Community Noise Equivalent Level, CNEL	A 24-hour average Leq with a five dBA "weighting" during the hours of 7:00 p.m. to 10:00 p.m. and a 10 dBA "weighting" added to noise during the hours of 10:00 p.m. to 7:00 a.m. to account for noise sensitivity in the evening and nighttime, respectively. The logarithmic effect of these additions is that a 60 dBA 24-hour Leq would result in a measurement of 66.7 dBA CNEL.
Ambient Noise Level	The composite of noise from all sources near and far. The normal or existing level of environmental noise at a given location.
Intrusive	That noise that intrudes over and above the existing ambient noise at a given location. The relative intrusiveness of a sound depends on its amplitude, duration, frequency, and time of occurrence and tonal or informational content as well as the prevailing ambient noise level.

The dBA sound level scale gives greater weight to the frequencies of sound to which the human ear is most sensitive. Because sound levels can vary markedly over a short period of time, a method for describing either the average character of the sound or the statistical behavior of the variations must be utilized. Most commonly, environmental sounds are described in terms of an average level that has the same acoustical energy as the summation of all the time-varying events.

The scientific instrument used to measure noise is the sound level meter. Sound level meters can accurately measure environmental noise levels to within about ±one dBA. Various computer models are used to predict environmental noise levels from sources, such as roadways and airports. The accuracy of the predicted models depends on the distance between the receptor and the noise source. Close to the noise source, the models are accurate to within about ±one to two dBA.

2.1.4 Human Response to Noise

The human response to environmental noise is subjective and varies considerably from individual to individual. Noise in the community has often been cited as a health problem, not in terms of actual physiological damage, such as hearing impairment, but in terms of inhibiting general well-being and contributing to undue stress and annoyance. The health effects of noise in the community arise from interference with human activities, including sleep, speech, recreation, and tasks that demand concentration or coordination. Hearing loss can occur at the highest noise intensity levels.

Noise environments and consequences of human activities are usually well represented by median noise levels during the day or night or over a 24-hour period. Environmental noise levels are generally considered low when the CNEL is below 60 dBA, moderate in the 60- to 70-dBA range, and high, above 70 dBA. Examples of low daytime levels are isolated, natural settings with noise levels as low as 20 dBA and quiet, suburban, residential streets with noise levels around 40 dBA. Noise levels above 45 dBA at night can disrupt sleep. Examples of moderate-level noise environments are urban residential or semi-commercial areas (typically 55 to 60 dBA) and commercial locations (typically 60 dBA). People may consider louder environments adverse, but most will accept the higher levels associated with noisier urban residential or residential-commercial areas (60 to 75 dBA) or dense urban or industrial areas (65 to 80 dBA). Regarding increases in dBA, the following relationships should be noted in understanding this analysis:

- Except in carefully controlled laboratory experiments, a change of one dBA cannot be perceived by humans.
- Outside of the laboratory, a three-dBA change is considered a just-perceivable difference.
- A change in level of at least five dBA is required before any noticeable change in community response would be expected. An increase of five dBA is typically considered substantial.
- A 10-dBA change is subjectively heard as an approximate doubling in loudness and would almost certainly cause an adverse change in community response.

2.1.5 Effects of Noise on People

Hearing Loss

While physical damage to the ear from an intense noise impulse is rare, a degradation of auditory acuity can occur even within a community noise environment. Hearing loss occurs mainly due to chronic exposure to excessive noise but may be due to a single event such as an explosion. Natural hearing loss associated with aging may also be accelerated from chronic exposure to loud noise.

The Occupational Safety and Health Administration has a noise exposure standard that is set at the noise threshold where hearing loss may occur from long-term exposures. The maximum allowable level is 90 dBA averaged over eight hours. If the noise is above 90 dBA, the allowable exposure time is correspondingly shorter.

Annoyance

Attitude surveys are used for measuring the annoyance felt in a community for noises intruding into homes or affecting outdoor activity areas. In these surveys, it was determined that causes for annoyance include interference with speech, radio and television, house vibrations, and interference with sleep and rest. The L_{dn} as a measure of noise has been found to provide a valid correlation of noise level and the percentage of people annoyed. People have been asked to judge the annoyance caused by aircraft noise and ground transportation noise. There continues to be disagreement about the relative annoyance of these different sources. For ground vehicles, a noise level of about 55 dBA L_{dn} is the threshold at which a substantial percentage of people begin to report annoyance.

2.2 Fundamentals of Environmental Groundborne Vibration

2.2.1 Vibration Sources and Characteristics

Sources of earthborne vibrations include natural phenomena (e.g., earthquakes, volcanic eruptions, sea waves, landslides) or manmade causes (e.g., explosions, machinery, traffic, trains, construction equipment). Vibration sources may be continuous (e.g., factory machinery) or transient (e.g., explosions).

Ground vibration consists of rapidly fluctuating motions or waves with an average motion of zero. Several different methods are typically used to quantify vibration amplitude. One is the peak particle velocity (PPV); another is the root mean square (RMS) velocity. The PPV is defined as the maximum instantaneous positive or negative peak of the vibration wave. The RMS velocity is defined as the average of the squared amplitude of the signal. The PPV and RMS vibration velocity amplitudes are used to evaluate human response to vibration.

2.2.2 Vibration Sources and Characteristics

Table 2 displays the reactions of people and the effects on buildings produced by continuous vibration levels. The annoyance levels shown in the table should be interpreted with care as vibration may be found to be annoying at much lower levels than those listed, depending on the level of activity or the sensitivity of the individual. To sensitive individuals, vibrations approaching the threshold of perception can be

annoying. Low-level vibrations frequently cause irritating secondary vibration, such as a slight rattling of windows, doors, or stacked dishes. The rattling sound can give rise to exaggerated vibration complaints, even though there is very little risk of actual structural damage. In high noise environments, which are more prevalent where groundborne vibration approaches perceptible levels, this rattling phenomenon may also be produced by loud airborne environmental noise causing induced vibration in exterior doors and windows.

For the purposes of this analysis, the PPV descriptor with units of inches per second is used to evaluate construction-generated vibration for building damage and human complaints.

Table 2. Human Reaction and Damage to Buildings for Continuous or Frequent Intermittent Vibration Levels

Peak Particle Velocity (inches/ second)	Approximate Vibration Velocity Level (VdB)	Human Reaction	Effect on Buildings
0.006–0.019	64–74	Range of threshold of perception	Vibrations unlikely to cause damage of any type
0.08	87	Vibrations readily perceptible	Recommended upper level to which ruins and ancient monuments should be subjected
0.1	92	Level at which continuous vibrations may begin to annoy people, particularly those involved in vibration sensitive activities	Virtually no risk of architectural damage to normal buildings, yet threshold at which there is a risk of architectural damage to fragile buildings
0.2	94	Vibrations may begin to annoy people	Threshold at which there is a risk of architectural damage to normal dwellings
0.4–0.6	98–104	Vibrations considered unpleasant by people subjected to continuous vibrations	Architectural damage and possibly minor structural damage

Source: Caltrans 2013

Ground vibration can be a concern in instances where buildings shake and substantial rumblings occur. However, it is unusual for vibration from typical urban sources such as buses and heavy trucks to be perceptible. For instance, heavy-duty trucks generally generate groundborne vibration velocity levels of 0.006 PPV at 50 feet under typical circumstances, which as identified in Table 2 is considered very unlikely to cause damage to buildings of any type. Common sources for groundborne vibration are planes, trains, and construction activities such as earthmoving that requires the use of heavy-duty earthmoving equipment.

3.0 EXISTING ENVIRONMENTAL NOISE SETTING

3.1 Noise-Sensitive Land Uses

Noise-sensitive land uses are generally considered to include those uses where noise exposure could result in health-related risks to individuals, as well as places where quiet is an essential element of their intended purpose. Residential dwellings are of primary concern because of the potential for increased and prolonged exposure of individuals to both interior and exterior noise levels. Additional land uses such as

parks, historic sites, cemeteries, and recreation areas are considered sensitive to increases in exterior noise levels. Schools, churches, hotels, libraries, and other places where low interior noise levels are essential are also considered noise-sensitive land uses.

The Project site is surrounded by residences on the eastern site boundary with the closest one being approximately 30 feet away.

3.2 Existing Ambient Noise Environment

San Diego is impacted by various noise sources. It is subject to typical urban noise such as noise generated by traffic, heavy machinery, and day-to-day outdoor activities. Mobile sources of noise, especially cars and trucks, are the most common source of noise in the community. Aircraft noise is also present in many areas of the city as well as rail traffic. Other sources of noise are the various land uses (i.e., residential, commercial, institutional, and recreational and parks activities) throughout San Diego that generate stationary source noise. The Montgomery-Gibbs Executive Airport is located approximately five miles northwest of the Project site. The Project is located more than two miles from any airport and is located outside of any airport land use plan.

3.2.1 Existing Ambient Noise Measurements

The Project site is vacant and relatively flat. It is surrounded by residences to the north, east, and west with I-8 to the south and residences beyond. In order to quantify existing ambient noise levels on the Project site, ECORP Consulting, Inc. conducted a 24-hour noise measurement starting on February 19, 2020 and extending into February 20, 2020. Additionally, ECORP conducted three short-term noise measurements on the afternoon of February 19, 2020. The noise measurements are representative of the typical existing noise experienced within and immediately adjacent to the Project site and are depicted in Table 3. See Attachment A for Noise Measurement Locations.

As shown in Table 3, the ambient recorded noise levels on the Project site is 68.7 dBA CNEL. The ambient recorded noise levels adjacent to the Project site ranged from 65.0 to 72.9 dBA. The noise source most commonly affecting the Project site and vicinity is produced by automotive vehicles, mainly that on I-8 and College Avenue (e.g., cars, trucks, buses, motorcycles). Traffic moving along streets produces a sound level that remains relatively constant and is part of the Project area's minimum ambient noise level. Vehicular noise varies with the volume, speed, and type of traffic. Slower traffic produces less noise than fast-moving traffic. Trucks typically generate more noise than cars. Infrequent or intermittent noise also is associated with vehicles, including sirens, vehicle alarms, slamming of doors, trains, garbage and construction vehicle activity, and honking of horns. These noises add to urban noise and are regulated by a variety of agencies.

Table 3. Existing (Baseline) Noise Measurements

Short-Term Noise Measurements (February 19, 2020)						
Location Number	**Location**	**Duration**	**L_{eq} dBA**	**L_{min} dBA**	**L_{max} dBA**	**Time**
1	At the intersection of Glenmont Street and Marne Avenue.	15 min.	**54.7**	50.3	65.0	10:32 a.m.- 10:47 a.m.
2	At the intersection of Capri Drive and Arno Drive.	15 min.	**55.1**	44.6	72.9	10:54 a.m. – 11:09 a.m.
3	At the intersection of Raydel Courte and Marne Avenue.	15 min.	**54.2**	47.8	68.8	10:05 a.m. – 10:20 a.m.
Long-Term Noise Measurements (February 19 – February 20, 2020)						
Location Number	**Location**	**Duration**	**L_{eq} dBA**	**Peak**	**CNEL dBA**	**Time**
4	On the project site southwest of Glenmont Street and Marne Avenue.	24 hours	61.3	103.0	**68.7**	12:53 p.m. - 12:53 p.m.

Source: Measurements were taken by ECORP with a Larson Davis SoundExpert LxT precision sound level meter, which satisfies the American National Standards Institute (ANSI) for general environmental noise measurement instrumentation. Prior to the measurements, the SoundExpert LxT sound level meter was calibrated according to manufacturer specifications with a Larson Davis CAL200 Class I Calibrator. See Attachment A for noise measurement outputs.

Note: L_{max} = The maximum A-weighted noise level during the measurement period.
L_{min} = The minimum A-weighted noise level during the measurement period.

3.2.2 Existing Traffic Noise

Existing roadway noise levels were calculated for the roadway segments in the Project vicinity. This task was accomplished using the FHWA Highway Traffic Noise Prediction Model (FHWA-RD-77-108) (see Attachment B) and traffic volumes from the Project's Traffic Impact Analysis (LOS Engineering, Inc. 2019). Due to the nature of the proposed Project as a church, traffic volumes have been analyzed for weekdays and Sundays. The model calculates the average noise level at specific locations based on traffic volumes, average speeds, roadway geometry, and site environmental conditions. The average vehicle noise rates (energy rates) used in the FHWA model have been modified to reflect average vehicle noise rates identified for California by Caltrans. The Caltrans data shows that California automobile noise is 0.8 to 1.0 dBA higher than national levels and that medium and heavy truck noise is 0.3 to 3.0 dBA lower than national levels. The average daily noise levels along these roadway segments are presented in Table 4.

Table 4. Existing (Baseline) Traffic Noise Levels

Roadway Segment	Surrounding Uses	CNEL at 100 feet from Centerline of Roadway	
		Weekday	Sunday
College Avenue			
North of Del Cerro Boulevard	Commercial and Residential	58.3	57.5
Between Del Cerro Boulevard and 1-8 Westbound Onramp (adjacent to Project site)	Residential	60.1	59.2
North of Canyon Crest Drive	Commercial and Residential	63.6	61.5
South of Canyon Crest Drive	Commercial and Residential	62.2	60.4
Interstate 8			
I-8 Westbound Offramp (toward College Avenue)	Residential	65.2	62.1
I-8 Westbound	Commercial and Residential	65.1	62.6
I-8 Eastbound	Commercial and Residential	63.2	58.4
I-8 Eastbound Offramp (toward College Avenue)	Residential	59.6	58.1
Del Cerro Boulevard			
East of College Avenue	Commercial and Residential	52.7	51.8
West of College Avenue	Commercial and Residential	48.0	46.2

Source: Traffic noise levels were calculated by ECORP using the FHWA roadway noise prediction model in conjunction with the trip generation rate identified by LOS Engineering, Inc. (2019). Refer to Attachment B for traffic noise modeling assumptions and results.

Note: A total of five intersections were analyzed in the Traffic Impact Study; however, only roadway segments that impact sensitive receptors were included for the purposes of this analysis.

As shown, the existing traffic-generated noise level on Project-vicinity roadways during the weekday currently ranges from 48.0 to 65.2 dBA CNEL and 46.2 to 62.6 dBA CNEL on Sundays. As previously described, CNEL is 24-hour average noise level with a five dBA "weighting" during the hours of 7:00 p.m. to 10:00 p.m. and a 10-dBA weighting added to noise during the hours of 10:00 p.m. to 7:00 a.m. to account for noise sensitivity in the evening and nighttime, respectively. It should be noted that the modeled noise levels depicted in Table 4 may differ from measured levels in Table 3 because the measurements represent noise levels at different locations around the Project site. Also, the short-term measurements in Table 3 are reported in different noise metrics (e.g., noise measurements are the L_{eq} values and traffic noise levels are reported in CNEL).

4.0 REGULATORY FRAMEWORK

4.1 State

4.1.1 State of California General Plan Guidelines

The State of California regulates vehicular and freeway noise affecting noise-sensitive land uses, sets standards for sound transmission and occupational noise control, and identifies noise insulation standards and airport noise/land-use compatibility criteria. The State of California General Plan Guidelines, published by the Office of Planning and Research (OPR 2003), also provides guidance for the acceptability of projects within specific CNEL/L_{dn} contours. The guidelines also present adjustment factors that may be used in order to arrive at noise acceptability standards that reflect the noise control goals of the community, the particular community's sensitivity to noise, and the community's assessment of the relative importance of noise pollution.

State OPR Noise Element Guidelines

The State OPR Noise Element Guidelines include recommended exterior and interior noise level standards for local jurisdictions to identify and prevent the creation of incompatible land uses due to noise. The Noise Element Guidelines contain a land use compatibility table that describes the compatibility of various land uses with a range of environmental noise levels in terms of the CNEL.

4.2 Local

4.2.1 City of San Diego General Plan

The Noise Element of the City General Plan provides policy direction for minimizing noise impacts on the community and for coordinating with surrounding jurisdictions and other entities regarding noise control. By identifying noise-sensitive land uses and establishing compatibility guidelines for land use and noise, noise considerations will influence the general distribution, location, and intensity of future land use. The result is that effective land use planning and mitigation can alleviate the majority of noise problems.

The most basic planning strategy to minimize adverse impacts on new land uses due to noise is to avoid designating certain land uses at locations within San Diego that would negatively affect noise-sensitive land uses. Uses such as schools, hospitals, child care, senior care, congregate care, churches, and all types of residential uses should be located outside of any area anticipated to exceed acceptable noise levels as defined by the Noise and Land Use Compatibility Guidelines, or should be protected from noise through sound attenuation measures such as site and architectural design and sound walls. The City has adopted land use noise compatibility guidelines as a basis for planning decisions based on noise considerations. The City Compatibility Guidelines are shown in Table 5. In the case that the noise levels identified at a proposed land use do not surpass the maximum allowable levels presented, the proposed land use type is considered compatible with the existing noise environment.

Table 5. Land Use Noise Compatibility Guidelines

Land Use Category	Exterior Noises Exposure (dBA CNEL)		
	Compatible	Conditionally Compatible	Incompatible
Parks and Recreational			
Parks, Active and Passive Recreation	<69	70-75	76<
Outdoor Spectator Sports, Golf Courses; Water Recreational Facilities; Indoor Recreational Facilities	<69	-	76<
Agricultural			
Crop Raising and Farming; Community Gardens, Aquaculture, Dairies; Horticulture Nurseries and Greenhouses; Animal Raising, Maintaining, and Keeping; Commercial Stables	<69	-	76<
Residential			
Single Dwelling Units; Mobile Homes	<60	61-65[45]	66<
Multiple Dwelling Units *For uses affected by aircraft noise, refer to Policies NE-D.2. and NE-D.3.	<60	61-70[45*]	71<
Institutional			
Hospitals; Nursing Facilities; Intermediate Care Facilities; Kindergarten through Grade 12 Educational Facilities; Libraries; Museums; Child Care Facilities	<60	61-65[45]	66<
Other Educational Facilities including Vocational/Trade Schools and Colleges and Universities	<60	61-70[45*]	71<
Cemeteries	<65	-	76<
Retail Sales			
Building Supplies/Equipment; Food, Beverages and Groceries; Pets and Pet Supplies; Sundries, Pharmaceutical, and Convenience Sales; Wearing Apparel and Accessories	<65	66-75[50]	76<
Commercial Services			
Building Services; Business Support; Eating and Drinking; Financial Institutions; Maintenance and Repair; Personal Services; Assembly and Entertainment (includes public and religious assembly); Radio and Television Studios; Golf Course Support	<65	66-75[50]	76<
Visitor Accommodations	<60	61-75[45]	76<
Offices			
Business and Professional; Government; Medical, Dental & Health Practitioner; Regional and Corporate Headquarters	<65	66-75[50]	76<
Vehicle and Vehicular Equipment Sales and Services			
Commercial or Personal Vehicle Repair and Maintenance; Commercial or Personal Vehicle Sales and Rentals; Vehicle Equipment & Supplies Sales and Rentals; Vehicle Parking	<65	-	76<
Wholesale, Distribution, Storage Use Category			
Equipment and Materials Storage Yards; Moving and Storage Facilities; Warehouse; Wholesale Distribution	<65	-	76<

Table 5. Land Use Noise Compatibility Guidelines

Land Use Category	Exterior Noises Exposure (dBA CNEL)		
	Compatible	Conditionally Compatible	Incompatible
Industrial			
Heavy Manufacturing; Light Manufacturing; Marine Industry; Trucking and Transportation Terminals; Mining and Extractive Industries	<65	-	76<
Research and Development	<65	66-75[50]	76<

Source: City General Plan Noise Element 2015

Notes: **Compatible**- Indoor Use (Standard construction methods should attenuate exterior noise to an acceptable indoor noise leave. Refer to Section I.) Outdoor Use (Activities associated with the land use may be carried out).
Conditionally Compatible- Indoor Use (Building structures must attenuate exterior noise to the indoor noise level indicated by the number [45 or 50] for occupied areas. Refer to Section I.) Outdoor Uses (Feasible noise mitigation techniques should be analyzed and incorporated to make the outdoor activities acceptable. Refer to Section I.)
Incompatible- Indoor Use (New construction should not be undertaken.) Outdoor Use (Severe noise interferences make outdoor activities unacceptable.)

Additionally, the City General Plan Noise Element contains goals and policies to preserve the existing community noise environment, while minimizing the exposure of San Diego residences to potentially harmful noise levels. The following goals and policies presented in the General Plan are applicable to the proposed Project:

Goal: *Consider existing and future noise levels when making land use planning decisions to minimize people's exposure to excessive noise.*

Policy NE-A.1: Separate excessive noise-generating uses from residential and other noise-sensitive land uses with a sufficient spatial buffer of less sensitive uses.

Policy NE-A.2: Assure the appropriateness of proposed development relative to existing and future noise levels by consulting the guidelines for noise-compatible land uses to minimize the effects on noise-sensitive land uses.

Policy NE-A.3: Limit future residential and other noise-sensitive land uses in areas exposed to high levels of noise.

Goal: *Minimal excessive motor vehicle traffic noise on residential and other noise-sensitive land uses.*

Policy NE-B1: Encourage noise-compatibility land use and site planning adjoining existing and future highways and freeways.

Policy NE-B2: Consider traffic calming design, traffic control measures, and low-noise pavement surfaces that minimize motor vehicle traffic noise.

Policy NE-B3: Require noise reducing site design, and/or traffic control measures for new development in areas of high noise to ensure that the mitigated levels meet acceptable decibel limits.

Policy NE-B7: Promote the use of berms, landscaping, setback, and architectural design where appropriate and effective, rather than conventional wall barriers to enhance aesthetics.

4.2.2 City of San Diego Municipal Code

The City's Municipal Code regulations with respect to noise are included in Chapter 5 Public Safety, Morals and Welfare. Section 59.5.0404, *Construction Noise*, of the City's Municipal Code states that it is unlawful for any person, between the hours of 7:00 p.m. of any day and 7:00 a.m. of the following day, or on legal holidays, or on Sundays, to erect, construct, demolish, excavate for, alter or repair any building or structure in such a manner as to create disturbing, excessive or offensive noise unless a permit has been applied for and granted beforehand by the Noise Abatement and Control Administrator. Additionally, per Section 59.5.0404 it is unlawful for any person to conduct any construction activity so as to cause, at or beyond the property lines of any property zoned residential, an average sound level greater than 75 dBA L_{eq} during the 12–hour period from 7:00 a.m. to 7:00 p.m.

5.0 IMPACT ASSESSMENT

5.1 Thresholds of Significance

The impact analysis provided below is based on the following California Environmental Quality Act Guidelines Appendix G thresholds of significance. The Project would result in a significant noise-related impact if it would meet any of the following criteria:

1) 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.

2) Generation of excessive groundborne vibration or groundborne noise levels.

3) 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 expose people residing or working in the project area to excessive noise levels.

For purposes of this analysis and where applicable, the City noise standards were used for evaluation of Project-related noise impacts.

5.2 Methodology

This analysis of the existing and future noise environments is based on noise-prediction modeling and empirical observations. In order to estimate the worst-case construction noise levels that may occur at the nearest noise-sensitive receptors in the Project vicinity, predicted construction noise levels were calculated

utilizing the FHWA's Roadway Construction Model (2008). Groundborne vibration levels associated with construction-related activities for the Project were evaluated utilizing typical groundborne vibration levels associated with construction equipment, obtained from the Caltrans guidelines set forth above. Potential groundborne vibration impacts related to structural damage and human annoyance were evaluated, taking into account the distance from construction activities to nearby land uses.

Onsite stationary source noise levels have been calculated with the SoundPLAN 3D noise model (see Figure 3), which predicts noise propagation from a noise source based on the location, noise level, and frequency spectra of the noise sources as well as the geometry and reflective properties of the local terrain, buildings, and barriers. Transportation-source noise levels in the Project vicinity were calculated using the FHWA Highway Noise Prediction Model (FHWA-RD-77-108). For Project operations, trip generation was updated to reflect that generated by the Project, as supplied by LOS Engineering, Inc. (2019).

An assessment of the land use compatibility of the Project's proposal to locate sensitive noise receptors within the existing noise environment affecting the Project site was completed by conducting existing ambient baseline noise measurements on and around the Project site with the use of a Larson Davis SoundExpert LxT precision sound level meter, which satisfies the ANSI standard for general environmental noise measurement instrumentation. Prior to the measurements, the SoundExpert LxT sound level meter was calibrated according to manufacturer specifications with a Larson Davis CAL200 Class I Calibrator. In order to quantify existing ambient noise levels on the Project site, ECORP conducted three short-term noise measurements on February 19, 2020 as well as a 24-hour noise measurement that started on February 19 and extended into the next day.

5.2.1 Impact Analysis

Would the Project Result in Short-Term Construction-Generated Noise in Excess of Noise Standards?

Construction noise associated with the proposed Project would be temporary and would vary depending on the nature of the activities being performed. Noise generated would primarily be associated with the operation of off-road equipment for onsite construction activities as well as construction vehicle traffic on area roadways. Construction noise typically occurs intermittently and varies depending on the nature or phase of construction (e.g., building construction, paving). Noise generated by construction equipment, including earthmovers, material handlers, and portable generators, can reach high levels. Typical operating cycles for these types of construction equipment may involve one or two minutes of full-power operation followed by three to four minutes at lower power settings. Other primary sources of acoustical disturbance would be random incidents, which would last less than one minute (such as dropping large pieces of equipment or the hydraulic movement of machinery lifts). During construction, exterior noise levels could negatively affect sensitive receptors in the vicinity of the construction site.

Nearby noise-sensitive land uses consist of single-family residences to the north, east and west. As described in Section 59.5.0404, *Construction Noise*, of the City's Municipal Code states that it is unlawful for any person, between the hours of 7:00 p.m. of any day and 7:00 a.m. of the following day, or on legal

holidays, or on Sundays, to erect, construct, demolish, excavate for, alter or repair any building or structure in such a manner as to create disturbing, excessive or offensive noise unless a permit has been applied for and granted beforehand by the Noise Abatement and Control Administrator. Additionally, per Section 59.5.0404 of the City Municipal Code, it is unlawful for any person to conduct any construction activity so as to cause, at or beyond the property lines of any property zoned residential, an average sound level greater than 75 dBA L_{eq} during the 12– hour period from 7:00 a.m. to 7:00 p.m.

In order to estimate the worst-case construction noise levels that may occur at the nearest noise-sensitive receptors in the Project vicinity, the combined construction equipment noise levels were calculated using the Roadway Noise Construction Model for the demolition, site preparation, grading, paving, building, and coating phases. The anticipated short-term construction noise levels generated during demolition, grading, paving, building, and coating activities are presented in Table 6.

Table 6. Construction Average (dBA) Noise Levels by Receptor Distance and Construction Phase – Unmitigated

Description	Estimated Exterior Construction Noise Level @ Adjacent Residences	Construction Noise Standards (dBA L_{eq})	Exceeds Standards?
Site Preparation	76.1	75.0	**Yes**
Grading	76.8		**Yes**
Building Construction	77.9		**Yes**
Paving	77.4		**Yes**
Painting	64.6		**No**

Source: Traffic noise levels were calculated by ECORP Consulting using the FHWA Roadway Noise Construction Model (FHWA 2008). Refer to Attachment B for noise modeling assumptions and results.

Notes: Construction equipment used during each phase derived from the California Emissions Estimator Model (CalEEMod), version 2016.3.2. CalEEMod is designed to calculate air pollutant emissions from construction activity and contains default construction equipment and usage parameters for typical construction projects based on several construction surveys conducted in order to identify such parameters.

Construction would occur throughout the Project site and would not be concentrated at one point. Therefore, the distance between proposed construction activities and receptors is measured from the center of the Project site.

L_{eq} = the equivalent energy noise level, is the average acoustic energy content of noise for a stated period of time. Thus, the L_{eq} of a time-varying noise and that of a steady noise are the same if they deliver the same acoustic energy to the ear during exposure. For evaluating community impacts, this rating scale does not vary, regardless of whether the noise occurs during the day or the night.

As shown, noise construction standards for several construction phases would be exceeded. Noise source control is the most effective method of controlling construction noise. Source controls, which limit noise, are the easiest to oversee on a construction project. Mitigation at the source reduces the problem everywhere, not just along one single path or for one receiver. Noise path controls are the second method in controlling noise. Barriers or enclosures can provide a substantial reduction in the nuisance effect in some cases. Path control measures include moving equipment farther away from the receiver; enclosing especially noisy activities or stationary equipment; erecting noise enclosures, barriers, or curtains; and using landscaping as a shield and dissipater.

As such, the following mitigation is recommended:

NOI-1: The following best management practices shall be incorporated during Project construction:

- In order to reduce construction noise, a temporary noise barrier or enclosure shall be used along the property lines of adjacent residences to break the line of sight between the construction equipment and the adjacent residences. The temporary noise barrier shall consist of a solid plywood fence and/or flexible sound curtains attached to chain link fencing.
- Barriers such as flexible sound control curtains shall be erected around stationary heavy equipment to minimize the amount of noise on the surrounding land uses to the maximum extent feasible during construction.
- Construction activities shall be restricted to the hours of 7:00 a.m. to 7:00 p.m. Monday through Saturday and prohibited at any time on Sunday or a federal holiday. The Project's improvement and building plans shall specify this requirement.
- Equipping of all internal combustion engine-driven equipment with intake and exhaust mufflers that are in good condition and appropriate for the equipment.
- Prohibiting unnecessary idling of internal combustion engines.
- Locating stationary noise-generating equipment such as air compressors or portable power generators as far as possible from sensitive receptors. Constructing temporary noise barriers to screen stationary noise-generating equipment when located near adjoining sensitive land uses.
- Utilization of "quiet" air compressors and other stationary noise sources where technology exists.
- Control of noise from construction workers' radios to a point where they are not audible at existing residences bordering the Project site.
- Notification of all adjacent residences of the construction schedule, in writing, and provide a written schedule of "noisy" construction activities to the adjacent and nearby residences.
- Designation of a "disturbance coordinator" who shall be responsible for responding to any complaints about construction noise. The disturbance coordinator shall determine the cause of the noise complaint (e.g., bad muffler, etc.) and shall require that reasonable measures be implemented to correct the problem. Conspicuously post a telephone number for the disturbance coordinator at the construction site and include it in the notice sent to neighbors regarding the construction schedule.

Implementation of mitigation measure **NOI-1** would reduce construction-generated noise levels. According to the Federal Highway Administration, a solid wall or berm generally reduces noise levels by 10 to 20 dBA (FHWA 2011). However, noise barriers or enclosures specifically designed to reduce site-specific construction noise, such as can be accomplished when erecting flexible sound control curtains around stationary heavy equipment, can provide a sound reduction 35 dBA or greater (WEAL 2000). Noise barriers or enclosures such as that required by mitigation measure **NOI-1** can provide a sound reduction robust enough to reduce construction noise to levels below the 75-dBA residential standard at the adjacent property lines.

Would the Project Result in a Substantial Permanent Increase in Ambient Noise Levels in Excess of City Standards During Operations?

Project Land Use Compatibility

The City's land use compatibility table provides the City with a tool to gauge the compatibility of new land users relative to existing noise levels. This table, presented as Table 5, identifies compatible, conditionally compatible, and incompatible noise levels for various land uses, including community services uses, specifically religious assembly, such as that proposed by the Project. In the case that the noise levels identified at the Project site fall within levels considered acceptable, the Project is considered compatible with the existing noise environment. As shown in Table 5, a compatible noise level for locating religious assembly buildings is anything under 65 dBA CNEL. In order to quantify existing ambient noise levels on the Project site, ECORP conducted a 24-hour noise measurement starting on February 19, 2020 and spanning into the next day. The noise measurement is considered representative of the typical existing noise environment experienced at the Project site. As shown in Table 3, the ambient noise level recorded on the Project site is 68.7 dBA CNEL, which is 3.7 dB over what is considered a compatible noise level for this land use. However, this noise level falls within the range that is considered conditionally compatible noise exposure (66-75 dBA CNEL). In order for the Project to be considered compatible with the existing noise environment, as specified in the Land Use Noise Compatibility Guidelines of the General Plan, the occupied areas of Project buildings must attenuate exterior noise (measured at 68.7 dBA CNEL) to indoor noise levels ranging between 45 dBA to 50 dBA CNEL, and feasible techniques should be considered that make the outdoor activities acceptable. As such, the Project must reduce the interior noise levels to between 45 and 50 dBA CNEL. As previously described, the exterior-to-interior reduction of newer buildings is generally 30 dBA or more. Thus, the recorded noise level on the Project site of 68.7 CNEL would fall below the required 45 - 50 dBA CNEL interior noise level with the implementation of standard building techniques [68.7 dBA – 30 dBA = 38.7 dBA]. This rate of exterior-to-interior sound attenuation is ensured during City's building permit review, when Project compliance with City building standards are enforced. In the instance that enhanced interior noise-reducing features are deemed necessary, such features could potentially include, but are not limited to, the installation of double-paned glass, the use of solid core doors with weather stripping and seals, and/or the use of stucco or brick veneer exterior walls or wood siding with one-half inch thick fiberboard underlays. Additionally, window assemblies, doors, wall construction materials, and insulation can be required to have a laboratory tested STC rating of 30 or greater.

Additionally, it is noted that the Project site will not be hosting outdoor activities that could be negatively affected by the ambient noise environment. Furthermore, in efforts to reduce the noise on the Project site, the main building has been oriented in a way that will reduce noise from I-8, a predominate source of noise in the Project area.

For these reasons, interior noise levels associated with the Project would be below 45 – 50 dBA CNEL.

Project Operations

As previously described, noise-sensitive land uses are locations where people reside or where the presence of unwanted sound could adversely affect the use of the land. Residences, schools, hospitals, guest lodging, libraries, and some passive recreation areas would each be considered noise sensitive and may warrant unique measures for protection from intruding noise. The nearest noise-sensitive land uses consist of residences located on the eastern site boundary with the closest one being approximately 30 feet away.

Project Operational Offsite Traffic Noise

Future traffic noise levels throughout the Project vicinity (i.e., vicinity roadway segments that traverse noise-sensitive residential land uses) were modeled based on the traffic volumes identified by LOS Engineering, Inc. (2019) to determine the noise levels along Project-vicinity roadways. Table 7 shows the calculated offsite roadway noise levels under existing traffic levels compared to existing traffic levels plus the Project's for weekdays and Sundays.

As shown in Table 7, a large majority of the roadway's segments, for weekdays and Sundays, already experience noise levels that exceed the noise standards in the City General Plan (see Table 5). As previously stated, outside of the laboratory, a three-dBA change is considered a just-perceivable difference. As such, an increase of three dBA over the existing ambient noise level is considered significant and will be used in this analysis. Predicted traffic noise as a result of the proposed Project is shown in Table 7.

Table 7. Existing Plus Project Conditions - Predicted Traffic Noise Levels

Roadway Segment	Surrounding Uses	CNEL at 100 feet from Centerline of Roadway		Noise Standard (dBA CNEL)	Exceed Standard/ Significant Impact?
		Existing Conditions	Existing + Project Conditions		
Weekday					
College Avenue					
North of Del Cerro Boulevard	Commercial and Residential	58.3	58.3	*>3.0*	**No**
Between Del Cerro Boulevard and 1-8 Westbound Onramp (adjacent to Project site)	Residential	60.1	60.3	*>3.0*	**No**

Table 7. Existing Plus Project Conditions - Predicted Traffic Noise Levels

Roadway Segment	Surrounding Uses	CNEL at 100 feet from Centerline of Roadway		Noise Standard (dBA CNEL)	Exceed Standard/ Significant Impact?
		Existing Conditions	Existing + Project Conditions		
North of Canyon Crest Drive	Commercial and Residential	63.6	63.7	>*3.0*	**No**
South of Canyon Crest Drive	Commercial and Residential	62.2	62.3	>*3.0*	**No**
Interstate 8					
I-8 Westbound Offramp (toward College Avenue)	Residential	65.2	65.2	>*3.0*	**No**
I-8 Westbound	Commercial and Residential	65.1	65.2	>*3.0*	**No**
I-8 Eastbound	Commercial and Residential	63.2	63.2	>*3.0*	**No**
I-8 Eastbound Offramp (toward College Avenue)	Residential	59.6	59.8	>*3.0*	**No**
Del Cerro Boulevard					
East of College Avenue	Commercial and Residential	52.7	52.7	>*3.0*	**No**
West of College Avenue	Commercial and Residential	48.0	48.0	>*3.0*	**No**
Sunday					
College Avenue					
North of Del Cerro Boulevard	Commercial and Residential	57.5	57.5	>*3.0*	**No**
Between Del Cerro Boulevard and 1-8 Westbound Onramp (adjacent to Project site)	Residential	59.2	59.9	>*3.0*	**No**
North of Canyon Crest Drive	Commercial and Residential	61.5	62.1	>*3.0*	**No**
South of Canyon Crest Drive	Commercial and Residential	60.4	60.6	>*3.0*	**No**
Interstate 8					
I-8 Westbound Offramp (toward College Avenue)	Residential	62.1	62.1	>*3.0*	**No**
I-8 Westbound	Commercial and Residential	62.6	63.9	>*3.0*	**No**

Table 7. Existing Plus Project Conditions - Predicted Traffic Noise Levels

Roadway Segment	Surrounding Uses	CNEL at 100 feet from Centerline of Roadway		Noise Standard (dBA CNEL)	Exceed Standard/ Significant Impact?
		Existing Conditions	Existing + Project Conditions		
I-8 Eastbound	Commercial and Residential	58.4	58.4	*>3.0*	**No**
I-8 Eastbound Offramp (toward College Avenue)	Residential	58.1	60.5	*>3.0*	**No**
Del Cerro Boulevard					
East of College Avenue	Commercial and Residential	51.8	51.9	*>3.0*	**No**
West of College Avenue	Commercial and Residential	46.2	46.3	*>3.0*	**No**

Source: Traffic noise levels were calculated by ECORP using the FHWA roadway noise prediction model in conjunction with the trip generation rate identified by Los Engineering, Inc. (2019). Refer to Attachment C for traffic noise modeling assumptions and results.
Notes: A total of five intersections were analyzed in the Traffic Impact Study; however, only roadway segments that impact sensitive receptors were included for the purposes of this analysis.

As shown in Table 7, predicted increase in weekday and Sunday traffic noise levels associated with the Project would not exceed an increase of three dBA over existing conditions. As such, the increase in traffic noise would not be perceivable.

Operational Stationary Noise

The main onsite operational noise associated with the Project would be events occurring on the Project site, in the sanctuary/multi-purpose building, that would result in parking lot activity/circulation. Table 8 summarizes representative operational onsite noise sources.

Table 8. Summary of Onsite Stationary Sources

Stationary Sources	Noise Level (dBA L_{eq}) at the Source	Estimated Time of Use
Parking Lot Activities	61.1 dBA	Anytime

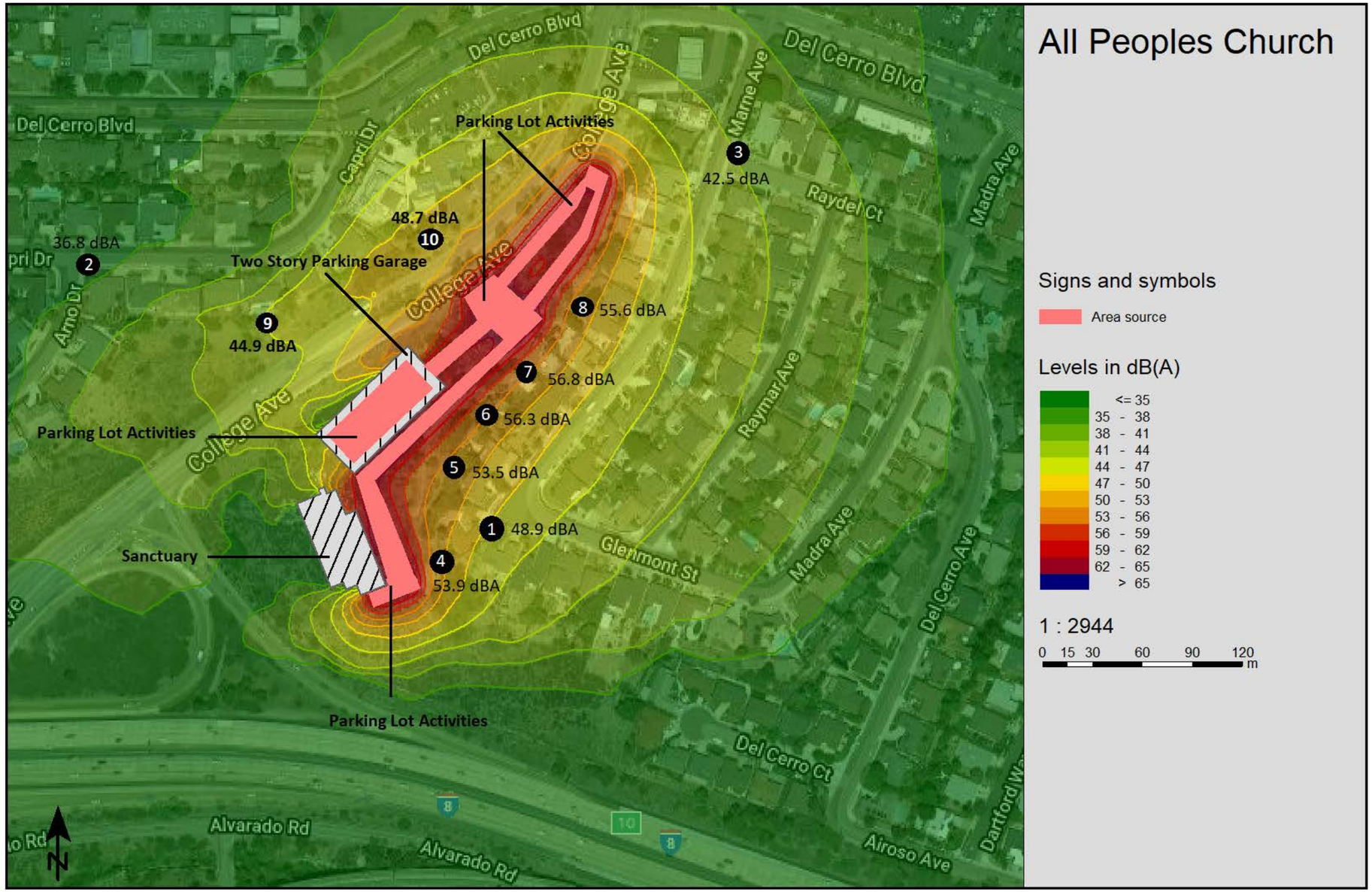
Table 9 shows the predicted noise propagation associated with full operation of the proposed Project, as predicted by the SoundPLAN 3D noise model. This includes the three offsite locations where baseline noise measurements were taken as well as seven additional locations at residences adjacent to the Project site. Additionally, a noise contour graphic (Figure 3) has been prepared to depict the predicted noise levels in the vicinity on a worst-case scenario basis.

Table 9. Modeled Operational Noise Levels

Site Location	Location	Modeled Operational Noise Attributable to Project (L_{eq} dBA)	Affected Land Use	City Standards dBA	Exceed Standard?
1	At the intersection of Glenmont Street and Marne Avenue.	48.9	Residential	60	**No**
2	At the intersection of Capri Drive and Arno Drive.	36.8	Residential	60	**No**
3	At the intersection of Raydel Courte and Marne Avenue.	42.5	Residential	60	**No**
4	Residence east of the Project site adjacent to sanctuary.	53.9	Residential	60	**No**
5	Residence east of the Project site adjacent parking garage.	53.5	Residential	60	**No**
6	Residence east of the Project site adjacent parking garage.	56.3	Residential	60	**No**
7	Residence east of the Project site.	56.8	Residential	60	**No**
8	Residence east of the Project site.	55.6	Residential	60	**No**
9	Residence north of the Project site.	44.9	Residential	60	**No**
10	Residence west of the Project site.	48.7	Residential	60	**No**

Source: Stationary source noise levels were modeled by ECORP using SoundPLAN 3D noise model. Refer to Attachment D for noise modeling assumptions and results

As shown in Table 9, Project noise levels would reach between 56.8 and 36.8 dBA at the nearby noise-sensitive residences. These numbers fall below the City's single-family residential noise standards. Additionally, as previously stated the interior-to-exterior noise reduction attributable to newer structures is generally 30 dBA or more. This reduction would reduce the depicted noise levels further, as they are experienced within the vicinity residences. Furthermore, Project noise modeling represents a worst-case scenario in which all parking lot activity is being generated at full intensity at the same moment. It is very unlikely that noise levels on the Project site would reach that of those predicted in Table 9. Finally, it should be noted that the existing ambient noise level where baseline noise measurements were taken (Locations 1 - 3) already exceed noise levels predicted by that of the proposed Project under existing conditions.



Map Date: *2/24/2020*
Photo (or Base) Source: *SoundPLAN 5.0*

ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

Figure 3. Onsite Project Noise Propagation

2020-024

Would the Project Expose Structures to Substantial Groundborne Vibration During Construction?

Excessive groundborne vibration impacts result from continuously occurring vibration levels. Once operational, the Project would not be a source of groundborne vibration. Increases in groundborne vibration levels attributable to the proposed Project would be primarily associated with short-term, construction-related activities. Construction on the Project site would have the potential to result in varying degrees of temporary groundborne vibration, depending on the specific construction equipment used and the operations involved. Ground vibration generated by construction equipment spreads through the ground and diminishes in magnitude with increases in distance.

Construction-related ground vibration is normally associated with impact equipment such as pile drivers, jackhammers, and the operation of some heavy-duty construction equipment, such as dozers and trucks. Vibration decreases rapidly with distance and it is acknowledged that construction activities would occur throughout the Project site and would not be concentrated at the point closest to sensitive receptors. Groundborne vibration levels associated with typical construction equipment are summarized in Table 10.

Table 10. Representative Vibration Source Levels for Construction Equipment

Equipment Type	Peak Particle Velocity at 20 Feet (inches per second)
Large Bulldozer	0.124
Caisson Drilling	0.124
Loaded Trucks	0.106
Rock Breaker	0.115
Jackhammer	0.049
Small Bulldozer/Tractor	0.004

Source: FTA 2018; Caltrans 2013

The City does not regulate vibration associated with construction. However, a discussion of construction vibration is included for full disclosure purposes. For comparison purposes, the Caltrans (2013) recommended standard of 0.2 inch per second PPV with respect to the prevention of structural damage for normal buildings is used as a threshold. This is also the level at which vibrations may begin to annoy people in buildings.

It is acknowledged that construction activities would occur throughout the Project site and would not be concentrated at the point closest to the nearest structure. The nearest structures of concern to the construction site are residences with the closest being approximately 30 feet away. Based on the vibration levels presented in Table 10, ground vibration generated by heavy-duty equipment would not be anticipated to exceed approximately 0.124 inch per second PPV at 20 feet. Thus, the structures located at 30 feet would not be negatively affected.

Would the Project Expose Structures to Substantial Groundborne Vibration During Operations?

Project operations would not include the use of any stationary equipment that would result in excessive groundborne vibration levels.

Would the Project Expose People Residing or Working in the Project area to Excessive Airport Noise?

The Project site is located approximately five miles northwest of the Montgomery-Gibbs Executive Airport and located outside of any airport land use plan. Since the site is outside the land use plan boundaries it is beyond the noise contours generated by airport operations. The proposed Project will not expose people residing or working in the Project area to excess airport noise levels.

5.2.2 Cumulative Noise Impacts?

Cumulative Construction Noise

Construction activities associated with the proposed Project and other construction projects in the area may overlap, resulting in construction noise in the area. However, construction noise impacts primarily affect the areas immediately adjacent to the construction site. Construction noise for the proposed Project was determined to be less than significant following compliance with the presented construction hours. Cumulative development in the vicinity of the Project site could result in elevated construction noise levels at sensitive receptors in the Project area. However, each project would be required to comply with the applicable City's Municipal Code limitations on construction. Therefore, the Project would not contribute to cumulative impacts during construction.

Cumulative Stationary Source Noise

Long-term stationary noise sources associated with the development at the Project site, combined with other cumulative projects, could cause local noise level increases. Noise levels associated with the proposed Project and related cumulative projects together could result in higher noise levels than considered separately. As previously described, onsite noise sources associated with the proposed Project are not anticipated to not exceed City noise standards. Therefore, the Project would not contribute to cumulative impacts during operations.

Cumulative Traffic Source Noise Impacts

Cumulative noise impacts represent the "combined" and "incremental" effects of human activities that accumulate over time. A significant impact would result only if *both* the combined and incremental effects criteria have been exceeded. For instance, although there may be a significant noise increase due to the Project in combination with other related projects (Combined effects), it must also be demonstrated that the Project, considered on its own, has an Incremental effect. In other words, a significant portion of the noise increase must be due to the proposed Project.

Cumulative noise impacts would occur primarily as a result of increased traffic on local roadways due to construction of the Project and other projects in the vicinity. A project's contribution to a cumulative

traffic noise increase could be considered substantial when the Combined effect exceeds the perception level (i.e., auditory level increase) threshold, which as previously described is 3.0 dBA. The Combined effect compares the "Cumulative Plus Project" condition to the "Existing without Project" condition. This comparison accounts for the traffic noise increase generated by a project combined with the traffic noise increase generated by other projects in the area. The Incremental effect compares the Cumulative Plus Project condition to the "Cumulative No Project" condition. This comparison accounts for the effect of future traffic noise as a result of the Project only.

The following Combined effect and Incremental effect criteria have been utilized to evaluate the overall effect of the cumulative noise increase.

- **Combined Effect**. Does the Cumulative Plus Project noise level generate an increase of 3.0 dB (the perception level) over Existing without Project conditions, resulting in noise levels exceeding the applicable exterior standard at a sensitive use?

  and

- **Incremental Effects**. Does the Cumulative Plus Project noise level cause a 1.0 dBA increase in noise over the Cumulative without Project noise level?

Although there may be a significant noise increase due to the Project in combination with other related projects (Combined effects), it must also be demonstrated that the Project has an Incremental effect. In other words, a significant portion of the noise increase must be due to the Project.

Thus, a significant impact would result only if *both* the Combined and Incremental effects criteria have been exceeded at a single roadway segment, resulting in noise levels exceeding the applicable exterior standard at a sensitive use. This would indicate that there is a significant noise increase due to the Project in combination with other related projects *and* a significant portion of the noise increase is due to the Project. Noise by definition is a localized phenomenon and reduces as distance from the source increases. Consequently, only the Project and growth due to occur in the Project's general vicinity would contribute to cumulative noise impacts. Table 11 lists the traffic noise effects along roadway segments in the Project vicinity for Existing without Project, Cumulative without Project, and Cumulative Plus Project conditions.

Table 11. Cumulative Traffic Noise Scenario

Roadway Segment	Existing	Cumulative No Project	Cumulative Plus Project	Combined Effects	Incremental Effects	Cumulatively Significant Impact?
	CNEL @ 100 Feet from Roadway Centerline	CNEL @ 100 Feet from Roadway Centerline	CNEL @ 100 Feet from Roadway Centerline	Difference in CNEL Between Existing and Cumulative + Project	Difference in CNEL Between Cumulative No Project and Cumulative + Project	
Weekday						
College Avenue						
North of Del Cerro Boulevard	58.3	58.7	58.7	**0.4**	**0.0**	**No**
Between Del Cerro Boulevard and 1-8 Westbound Onramp (adjacent to Project site)	60.1	60.5	60.7	**0.6**	**0.2**	**No**
North of Canyon Crest Drive	63.6	64.2	64.6	**1.0**	**0.4**	**No**
South of Canyon Crest Drive	62.2	63.1	63.1	**0.9**	**0.0**	**No**
Interstate 8						
I-8 Westbound Offramp (toward College Avenue)	65.2	65.7	65.7	**0.5**	**0.0**	**No**
I-8 Westbound	65.1	65.8	65.9	**0.8**	**0.1**	**No**
I-8 Eastbound	63.2	63.6	63.6	**0.4**	**0.0**	**No**
I-8 Eastbound Offramp (toward College Avenue)	59.6	59.8	60.0	**0.4**	**0.2**	**No**
Del Cerro Boulevard						
East of College Avenue	52.7	52.9	52.9	**0.2**	**0.0**	**No**
West of College Avenue	48.0	48.8	48.8	**0.8**	**0.0**	**No**
Sunday						
College Avenue						
North of Del Cerro Boulevard	57.5	57.6	57.6	**0.1**	**0.0**	**No**
Between Del Cerro Boulevard and 1-8 Westbound Onramp (adjacent to Project site)	59.2	59.3	60.0	**3.8**	**0.7**	**No**

Table 11. Cumulative Traffic Noise Scenario

Roadway Segment	Existing	Cumulative No Project	Cumulative Plus Project	Combined Effects	Incremental Effects	Cumulatively Significant Impact?
	CNEL @ 100 Feet from Roadway Centerline	CNEL @ 100 Feet from Roadway Centerline	CNEL @ 100 Feet from Roadway Centerline	Difference in CNEL Between Existing and Cumulative + Project	Difference in CNEL Between Cumulative No Project and Cumulative + Project	
North of Canyon Crest Drive	61.5	62.1	62.2	**0.7**	**0.1**	**No**
South of Canyon Crest Drive	60.4	60.6	60.6	**0.2**	**0.0**	**No**
Interstate 8						
I-8 Westbound Offramp (toward College Avenue)	62.1	62.2	62.2	**0.1**	**0.0**	**No**
I-8 Westbound	62.6	62.7	63.9	**1.3**	**1.2**	**No**
I-8 Eastbound	58.4	58.5	58.5	**0.1**	**0.0**	**No**
I-8 Eastbound Offramp (toward College Avenue)	58.1	61.3	61.4	**3.2**	**0.1**	**No**
Del Cerro Boulevard						
East of College Avenue	51.8	51.9	51.9	**0.1**	**0.0**	**No**
West of College Avenue	46.2	46.4	46.4	**0.2**	**0.0**	**No**

Source: Traffic noise levels were calculated by ECORP using the FHWA roadway noise prediction model in conjunction with the trip generation rate identified by Los Engineering, Inc 2019. Refer to Attachment C for traffic noise modeling assumptions and results.

As shown in Table 11, no significant cumulative traffic noise impact would result on any of the Project vicinity roadway segments traversing noise sensitive residential land uses. In neither case would Project-generated traffic noise surpass the Incremental effect threshold of a 1.0-dBA increase over the Cumulative No Project scenario, AND the Combined effect threshold of a 3.0-dBA increase over Existing Conditions. Therefore, no perceptible increase of traffic noise would occur as a result of the Cumulative Plus Project scenario.

6.0 REFERENCES

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LIST OF ATTACHMENTS

ATTACHMENT A

Baseline (Existing) Noise Measurements – Project Site and Vicinity

Map Date: *2/28/2020*
Photo (or Base) Source: *Google Earth 2020*

ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

Baseline Noise Measurement Locations

2020-024

Site Number: On site- 24 hour	
Recorded By: Jessie Beckman	
Job Number: 2020-024	
Date: 2/19/2020-2/20/2020	
Time: 12:53 p.m. - 12:53 p.m.	
Location: On the project site southwest of Glenmont Street and Marne Avenue.	
Source of Peak Noise: Vehicles movement on I-8, College Avenue and other adjacent roadways.	

Noise Data			
Leq (dB)	**Lmin (dB)**	**Peak (dB)**	**CNEL**
61.3	41.1	103.0	68.7

Equipment						
Category	**Type**	**Vendor**	**Model**	**Serial No.**	**Cert. Date**	**Note**
Sound	Sound Level Meter	**Larson Davis**	**LxT SE**	**0005120**	**8/05/2019**	
	Microphone	**Larson Davis**	**377B02**	**315201**	**9/23/2019**	
	Preamp	**Larson Davis**	**PRMLxT1L**	**099947**	**10/10/2019**	
	Calibrator	**Larson Davis**	**CAL200**	**17325**	**10/18/2019**	

Weather Data			
Est.	**Duration:** 24 hours	**Sky:** Clear (at start)	
	Note: dBA Offset = 0.00	**Sensor Height (ft):** 4 feet	
	Wind Ave Speed (mph)	**Temperature (degrees Fahrenheit)**	**Barometer Pressure (hPa)**
	2-3	63	30.07

Photo of Measurement Location

Measurement Report

Report Summary

Meter's File Name	LxT_Data.198	Computer's File Name	SLM_0005120_LxT_Data_198.00.ldbin
Meter	LxT SE		
Firmware	2.302		
User		Location	
Description			
Note			
Start Time	2020-02-10 01:04:01	Duration	24:02:20.5
End Time	2020-02-11 03:37:25	Run Time	24:00:07.1
		Pause Time	0:02:13.4

Results

Overall Metrics

LA_{eq}	61.3 dB		
LAE	110.7 dB	SEA	--- dB
EA	13.0 mPa²h		
LZ_{peak}	103.0 dB	2020-02-10 01:04:04	
LAS_{max}	81.9 dB	2020-02-10 22:48:16	
LAS_{min}	41.1 dB	2020-02-10 14:52:44	
LA_{eq}	61.3 dB		
LC_{eq}	68.5 dB	LC_{eq} - LA_{eq}	7.2 dB
LAI_{eq}	62.3 dB	LAI_{eq} - LA_{eq}	1.0 dB

Exceedances	Count	Duration
LAS > 85.0 dB	0	0:00:00.0
LAS > 115.0 dB	0	0:00:00.0
LZpeak > 135.0 dB	0	0:00:00.0
LZpeak > 137.0 dB	0	0:00:00.0
LZpeak > 140.0 dB	0	0:00:00.0

Community Noise	LDN	LDay	LNight
	68.7 dB	60.3 dB	0.0 dB

	LDEN	LDay	LEve	LNight
	68.9 dB	60.1 dB	61.0 dB	62.6 dB

Any Data	A		C		Z	
	Level	Time Stamp	Level	Time Stamp	Level	Time Stamp
L_{eq}	61.3 dB		68.5 dB		--- dB	
$LS_{(max)}$	81.9 dB	2020-02-10 22:48:16	--- dB		--- dB	
$LS_{(min)}$	41.1 dB	2020-02-10 14:52:44	--- dB		--- dB	
$L_{Peak(max)}$	--- dB		--- dB		103.0 dB	2020-02-10 01:04:04

Overloads	Count	Duration	OBA Count	OBA Duration
	0	0:00:00.0	146	0:06:59.4

Statistics

LAS 5.0	64.7 dB
LAS 10.0	63.9 dB
LAS 33.3	61.8 dB
LAS 50.0	60.6 dB
LAS 66.6	59.2 dB
LAS 90.0	53.8 dB

Time History

Site Number: Location 1			
Recorded By: Jessie Beckman			
Job Number: 2020-024			
Date: 2/19/2020			
Time: 10:32 a.m.- 10:47 a.m.			
Location: At the intersection of Glenmont Street and Marne Avenue.			
Source of Peak Noise: Vehicles movement on I-8, College Avenue and other adjacent roadways.			
Noise Data			
Leq (dB)	**Lmin (dB)**	**Lmax (dB)**	**Peak (dB)**
54.7	50.3	65.0	98.9

Equipment						
Category	**Type**	**Vendor**	**Model**	**Serial No.**	**Cert. Date**	**Note**
Sound	Sound Level Meter	**Larson Davis**	**LxT SE**	**0005120**	**8/05/2019**	
	Microphone	**Larson Davis**	**377B02**	**315201**	**9/23/2019**	
	Preamp	**Larson Davis**	**PRMLxT1L**	**099947**	**10/10/2019**	
	Calibrator	**Larson Davis**	**CAL200**	**17325**	**10/18/2019**	

Weather Data			
Est.	**Duration:** 15 minutes		**Sky:** Clear
	Note: dBA Offset = 0.01		**Sensor Height (ft):** 4 feet
	Wind Ave Speed (mph)	**Temperature (degrees Fahrenheit)**	**Barometer Pressure (hPa)**
	2-3	63	30.07

Photo of Measurement Location

Measurement Report

Report Summary

Meter's File Name	LxT_Data.196	Computer's File Name	SLM_0005120_LxT_Data_196.01.ldbin
Meter	LxT SE		
Firmware	2.302		
User		Location	
Description			
Note			
Start Time	2020-02-09 22:43:00	Duration	0:15:00.0
End Time	2020-02-09 22:58:00	Run Time	0:15:00.0
		Pause Time	0:00:00.0

Results

Overall Metrics

LA_{eq}	54.7 dB		
LAE	84.2 dB	SEA	--- dB
EA	29.4 µPa²h		
LZ_{peak}	98.9 dB	2020-02-09 22:56:39	
LAS_{max}	65.0 dB	2020-02-09 22:55:36	
LAS_{min}	50.3 dB	2020-02-09 22:43:55	
LA_{eq}	54.7 dB		
LC_{eq}	64.5 dB	LC_{eq} - LA_{eq}	9.8 dB
LAI_{eq}	56.3 dB	LAI_{eq} - LA_{eq}	1.6 dB

Exceedances	Count	Duration
LAS > 85.0 dB	0	0:00:00.0
LAS > 115.0 dB	0	0:00:00.0
LZpeak > 135.0 dB	0	0:00:00.0
LZpeak > 137.0 dB	0	0:00:00.0
LZpeak > 140.0 dB	0	0:00:00.0

Community Noise	LDN	LDay	LNight
	64.7 dB	--- dB	0.0 dB

	LDEN	LDay	LEve	LNight
	64.7 dB	--- dB	--- dB	54.7 dB

Any Data	A		C		Z	
	Level	Time Stamp	Level	Time Stamp	Level	Time Stamp
L_{eq}	54.7 dB		64.5 dB		--- dB	
$LS_{(max)}$	65.0 dB	2020-02-09 22:55:36	--- dB		--- dB	
$LS_{(min)}$	50.3 dB	2020-02-09 22:43:55	--- dB		--- dB	
$L_{Peak(max)}$	--- dB		--- dB		98.9 dB	2020-02-09 22:56:39

Overloads	Count	Duration	OBA Count	OBA Duration
	0	0:00:00.0	2	0:00:04.1

Statistics

LAS 5.0	60.2 dB
LAS 10.0	56.8 dB
LAS 33.3	53.5 dB
LAS 50.0	53.0 dB
LAS 66.6	52.6 dB
LAS 90.0	51.8 dB

Site Number: Location 2			
Recorded By: Jessie Beckman			
Job Number: 2020-024			
Date: 2/19/2020			
Time: 10:54 a.m. – 11:09 a.m.			
Location: At the intersection of Capri Drive and Arno Drive.			
Source of Peak Noise: Vehicle movement on adjacent roadways			
Noise Data			
Leq (dB)	**Lmin (dB)**	**Lmax (dB)**	**Peak (dB)**
55.1	44.6	72.9	97.5

Equipment						
Category	**Type**	**Vendor**	**Model**	**Serial No.**	**Cert. Date**	**Note**
Sound	Sound Level Meter	**Larson Davis**	**LxT SE**	**0005120**	**8/05/2019**	
	Microphone	**Larson Davis**	**377B02**	**315201**	**9/23/2019**	
	Preamp	**Larson Davis**	**PRMLxT1L**	**099947**	**10/10/2019**	
	Calibrator	**Larson Davis**	**CAL200**	**17325**	**10/18/2019**	

Weather Data			
Est.	**Duration:** 15 minutes		**Sky:** Clear
	Note: dBA Offset = 0.01		**Sensor Height (ft):** 4 feet
	Wind Ave Speed (mph)	**Temperature (degrees Fahrenheit)**	**Barometer Pressure (hPa)**
	2-3	63	30.07

Photo of Measurement Location

Measurement Report

Report Summary

Meter's File Name	LxT_Data.197	Computer's File Name	SLM_0005120_LxT_Data_197.00.ldbin
Meter	LxT SE		
Firmware	2.302		
User		Location	
Description			
Note			
Start Time	2020-02-09 23:05:19	Duration	0:15:00.0
End Time	2020-02-09 23:20:19	Run Time	0:15:00.0
		Pause Time	0:00:00.0

Results

Overall Metrics

LA_{eq}	55.1 dB		
LAE	84.7 dB	SEA	--- dB
EA	32.4 µPa²h		
LZ_{peak}	97.5 dB	2020-02-09 23:14:57	
LAS_{max}	72.9 dB	2020-02-09 23:18:46	
LAS_{min}	44.6 dB	2020-02-09 23:16:30	
LA_{eq}	55.1 dB		
LC_{eq}	65.1 dB	LC_{eq} - LA_{eq}	10.0 dB
LAI_{eq}	57.0 dB	LAI_{eq} - LA_{eq}	1.8 dB

Exceedances	Count	Duration
LAS > 85.0 dB	0	0:00:00.0
LAS > 115.0 dB	0	0:00:00.0
LZpeak > 135.0 dB	0	0:00:00.0
LZpeak > 137.0 dB	0	0:00:00.0
LZpeak > 140.0 dB	0	0:00:00.0

Community Noise	LDN	LDay	LNight
	65.1 dB	--- dB	0.0 dB

	LDEN	LDay	LEve	LNight
	65.1 dB	--- dB	--- dB	55.1 dB

Any Data	A		C		Z	
	Level	Time Stamp	Level	Time Stamp	Level	Time Stamp
L_{eq}	55.1 dB		65.1 dB		--- dB	
$LS_{(max)}$	72.9 dB	2020-02-09 23:18:46	--- dB		--- dB	
$LS_{(min)}$	44.6 dB	2020-02-09 23:16:30	--- dB		--- dB	
$L_{Peak(max)}$	--- dB		--- dB		97.5 dB	2020-02-09 23:14:57

Overloads	Count	Duration	OBA Count	OBA Duration
	0	0:00:00.0	3	0:00:06.10

Statistics

LAS 5.0	60.7 dB
LAS 10.0	58.4 dB
LAS 33.3	51.4 dB
LAS 50.0	48.6 dB
LAS 66.6	47.0 dB
LAS 90.0	45.8 dB

Site Number: Location 3			
Recorded By: Jessie Beckman			
Job Number: 2020-024			
Date: 2/19/2020			
Time: 10:05 a.m. – 10:20 a.m.			
Location: At the intersection of Raydel Courte and Marne Avenue.			
Source of Peak Noise: Vehicle movement on adjacent roadways			
Noise Data			
Leq (dB)	**Lmin (dB)**	**Lmax (dB)**	**Peak (dB)**
54.2	47.8	68.8	92.3

Equipment						
Category	**Type**	**Vendor**	**Model**	**Serial No.**	**Cert. Date**	**Note**
Sound	Sound Level Meter	**Larson Davis**	**LxT SE**	**0005120**	**8/05/2019**	
	Microphone	**Larson Davis**	**377B02**	**315201**	**9/23/2019**	
	Preamp	**Larson Davis**	**PRMLxT1L**	**099947**	**10/10/2019**	
	Calibrator	**Larson Davis**	**CAL200**	**17325**	**10/18/2019**	

Weather Data			
Est.	**Duration:** 15 minutes		**Sky:** Clear
	Note: dBA Offset = 0.01		**Sensor Height (ft):** 4 feet
	Wind Ave Speed (mph)	**Temperature (degrees Fahrenheit)**	**Barometer Pressure (hPa)**
	2-3	63	30.07

Photo of Measurement Location

Measurement Report

Report Summary

Meter's File Name	LxT_Data.195	Computer's File Name	SLM_0005120_LxT_Data_195.00.ldbin
Meter	LxT SE		
Firmware	2.302		
User		Location	
Description			
Note			
Start Time	2020-02-09 22:16:20	Duration	0:15:00.0
End Time	2020-02-09 22:31:20	Run Time	0:15:00.0
		Pause Time	0:00:00.0

Results

Overall Metrics

LA_{eq}	54.2 dB		
LAE	83.7 dB	SEA	--- dB
EA	26.2 µPa²h		
LZ_{peak}	92.3 dB	2020-02-09 22:16:59	
LAS_{max}	68.8 dB	2020-02-09 22:16:53	
LAS_{min}	47.8 dB	2020-02-09 22:28:01	
LA_{eq}	54.2 dB		
LC_{eq}	66.6 dB	LC_{eq} - LA_{eq}	12.5 dB
LAI_{eq}	55.4 dB	LAI_{eq} - LA_{eq}	1.3 dB

Exceedances	Count	Duration
LAS > 85.0 dB	0	0:00:00.0
LAS > 115.0 dB	0	0:00:00.0
LZpeak > 135.0 dB	0	0:00:00.0
LZpeak > 137.0 dB	0	0:00:00.0
LZpeak > 140.0 dB	0	0:00:00.0

Community Noise	LDN	LDay	LNight
	64.2 dB	--- dB	0.0 dB

	LDEN	LDay	LEve	LNight
	64.2 dB	--- dB	--- dB	54.2 dB

Any Data	A		C		Z	
	Level	Time Stamp	Level	Time Stamp	Level	Time Stamp
L_{eq}	54.2 dB		66.6 dB		--- dB	
$LS_{(max)}$	68.8 dB	2020-02-09 22:16:53	--- dB		--- dB	
$LS_{(min)}$	47.8 dB	2020-02-09 22:28:01	--- dB		--- dB	
$L_{Peak(max)}$	--- dB		--- dB		92.3 dB	2020-02-09 22:16:59

Overloads	Count	Duration	OBA Count	OBA Duration
	0	0:00:00.0	2	0:00:04.1

Statistics

LAS 5.0	58.6 dB
LAS 10.0	56.3 dB
LAS 33.3	52.8 dB
LAS 50.0	51.6 dB
LAS 66.6	50.9 dB
LAS 90.0	49.8 dB

ATTACHMENT B

Roadway Construction Noise Model Output Files

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 3/6/2020
Case Description: Site Preparation

---- Receptor #1 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Existing Residences	Residential	61.3	1	1

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Dozer	No	40		81.7	143	0
Dozer	No	40		81.7	143	0
Dozer	No	40		81.7	143	0
Front End Loader	No	40		79.1	143	0
Tractor	No	40	84		143	0
Backhoe	No	40		77.6	143	0

Results

Calculated (dBA)

Equipment		*Lmax	Leq
Dozer		72.5	**68.6**
Dozer		72.5	**68.6**
Dozer		72.5	**68.6**
Front End Loader		70	**66**
Tractor		74.9	**70.9**
Backhoe		68.4	**64.5**
	Total	74.9	**76.1**

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 3/6/2020
Case Description: Grading

---- Receptor #1 ----

		Baselines (dBA)		
Description	**Land Use**	**Daytime**	**Evening**	**Night**
Existing Residences	Residential	61.3	1	1

			Equipment Spec	Actual	Receptor	Estimated
	Impact		Lmax	Lmax	Distance	Shielding
Description	**Device**	**Usage(%)**	**(dBA)**	**(dBA)**	**(feet)**	**(dBA)**
Excavator	No	40		80.7	143	0
Grader	No	40	85		143	0
Dozer	No	40		81.7	143	0
Backhoe	No	40		77.6	143	0
Front End Loader	No	40		79.1	143	0
Tractor	No	40	84		143	0

Results

Calculated (dBA)

Equipment		***Lmax**	**Leq**
Excavator		71.6	**67.6**
Grader		75.9	**71.9**
Dozer		72.5	**68.6**
Backhoe		68.4	**64.5**
Front End Loader		70	**66**
Tractor		74.9	**70.9**
	Total	75.9	**76.8**

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 3/6/2020
Case Description: Building Construction

---- Receptor #1 ----

		Baselines (dBA)		
Description	**Land Use**	**Daytime**	**Evening**	**Night**
Existing Residences	Residential	61.3	1	1

Description	**Impact Device**	**Usage(%)**	**Equipment Spec Lmax (dBA)**	**Actual Lmax (dBA)**	**Receptor Distance (feet)**	**Estimated Shielding (dBA)**
Crane	No	16		80.6	143	0
Gradall	No	40		83.4	143	0
Gradall	No	40		83.4	143	0
Gradall	No	40		83.4	143	0
Generator	No	50		80.6	143	0
Backhoe	No	40		77.6	143	0
Front End Loader	No	40		79.1	143	0
Tractor	No	40	84		143	0
Welder / Torch	No	40		74	143	0

Results

Calculated (dBA)

Equipment		***Lmax**	**Leq**
Crane		71.4	**63.5**
Gradall		74.3	**70.3**
Gradall		74.3	**70.3**
Gradall		74.3	**70.3**
Generator		71.5	**68.5**
Backhoe		68.4	**64.5**
Front End Loader		70	**66**
Tractor		74.9	**70.9**
Welder / Torch		64.9	**60.9**
	Total	74.9	**77.9**

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 3/6/2020
Case Description: Paving

---- Receptor #1 ----

		Baselines (dBA)		
Description	**Land Use**	**Daytime**	**Evening**	**Night**
Existing Residences	Residential	61.3	1	1

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Paver	No	50		77.2	143	0
Paver	No	50		77.2	143	0
Pavement Scarafier	No	20		89.5	143	0
Pavement Scarafier	No	20		89.5	143	0
Roller	No	20		80	143	0
Roller	No	20		80	143	0

Results

Calculated (dBA)

Equipment		*Lmax	Leq
Paver		68.1	**65.1**
Paver		68.1	**65.1**
Pavement Scarafier		80.4	**73.4**
Pavement Scarafier		80.4	**73.4**
Roller		70.9	**63.9**
Roller		70.9	**63.9**
	Total	80.4	**77.4**

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 3/6/2020
Case Description: Painting

---- Receptor #1 ----

		Baselines (dBA)		
Description	**Land Use**	**Daytime**	**Evening**	**Night**
Existing Residences	Residential	61.3	1	1

Description	**Impact Device**	**Usage(%)**	**Equipment Spec Lmax (dBA)**	**Actual Lmax (dBA)**	**Receptor Distance (feet)**	**Estimated Shielding (dBA)**
Compressor (air)	No	40		77.7	143	0

Results

Calculated (dBA)

Equipment		*Lmax	**Leq**
Compressor (air)		68.5	**64.6**
	Total	68.5	**64.6**

*Calculated Lmax is the Loudest value.

ATTACHMENT C

Federal Highway Administration Highway Noise Prediction Model (FHWA-RD-77-108) Outputs – Project Traffic Noise

TRAFFIC NOISE LEVELS AND NOISE CONTOURS

Project Number: 2020-024
Project Name: All Peoples Church

Background Information

Model Description: FHWA Highway Noise Prediction Model (FHWA-RD-77-108) with California Vehicle Noise (CALVENO) Emission Levels.
Source of Traffic Volumes: Los Engineering, Inc.
Community Noise Descriptor: L_{dn}: _____ CNEL: x

Assumed 24-Hour Traffic Distribution:	Day	Evening	Night
Total ADT Volumes	77.70%	12.70%	9.60%
Medium-Duty Trucks	87.43%	5.05%	7.52%
Heavy-Duty Trucks	89.10%	2.84%	8.06%

Analysis Condition				Design		Vehicle Mix		Distance from Centerline of Roadway					Traffic Volumes			
Roadway, Segment	Lanes	Median Width	ADT Volume	Speed (mph)	Alpha Factor	Medium Trucks	Heavy Trucks	CNEL at 100 Feet	70 CNEL	65 CNEL	60 CNEL	55 CNEL	Calc Dist	Day	Eve	Night
Existing Sunday Conditions																
College Avenue																
North of Del Cerro Boulevard	4	0	5,481	40	0.5	1.8%	0.7%	57.5	-	-	68	147	100	4,259	696	526
Between Del Cerro Boulevard and 1-8 Westbound Onramp (adjacent to	4	0	8,145	40	0.5	1.8%	0.7%	59.2	-	-	89	191	100	6,329	1,034	782
North of Canyon Crest Drive	4	0	10,413	45	0.5	1.8%	0.7%	61.5	-	58	126	271	100	8,091	1,322	1,000
South of Canyon Crest Drive	4	0	8,082	45	0.5	1.8%	0.7%	60.4	-	49	106	229	100	6,280	1,026	776
Interstate 8																
I-8 Westbound Offramp (towards College Avenue)	5	0	4,635	65	0.5	1.8%	0.7%	62.1	-	64	138	298	100	3,601	589	445
I-8 Wesbound	5	0	5,247	65	0.5	1.8%	0.7%	62.6	-	70	150	323	100	4,077	666	504
I-8 Eastbound	5	0	1,998	65	0.5	1.8%	0.7%	58.4	-	-	79	170	100	1,552	254	192
I-8 Eastbound Offramp (Towards College Avenue)	5	0	1,863	65	0.5	1.8%	0.7%	58.1	-	-	75	162	100	1,448	237	179
Del Cerro Boulevard																
East of College Avenue	2	0	3,789	25	0.5	1.8%	0.7%	51.8	-	-	-	61	100	2,944	481	364
West of College Avenue	2	0	1,026	25	0.5	1.8%	0.7%	46.2	-	-	-	-	100	797	130	98

Background Information

Model Description: FHWA Highway Noise Prediction Model (FHWA-RD-77-108) with California Vehicle Noise (CALVENO) Emission Levels.
Source of Traffic Volumes: Los Engineering, Inc.
Community Noise Descriptor: L_{dn}: _____ CNEL: x

Assumed 24-Hour Traffic Distribution:	Day	Evening	Night
Total ADT Volumes	77.70%	12.70%	9.60%
Medium-Duty Trucks	87.43%	5.05%	7.52%
Heavy-Duty Trucks	89.10%	2.84%	8.06%

Analysis Condition / Roadway, Segment	Lanes	Median Width	ADT Volume	Design Speed (mph)	Alpha Factor	Vehicle Mix: Medium Trucks	Vehicle Mix: Heavy Trucks	Distance from Centerline of Roadway: CNEL at 100 Feet	Distance to Contour: 70 CNEL	Distance to Contour: 65 CNEL	Distance to Contour: 60 CNEL	Distance to Contour: 55 CNEL	Traffic Volumes: Calc Dist	Traffic Volumes: Day	Traffic Volumes: Eve	Traffic Volumes: Night
Existing Sunday Conditions + Project																
College Avenue																
North of Del Cerro Boulevard	4	0	5,553	40	0.5	1.8%	0.7%	57.5	-	-	69	148	100	4,315	705	533
Between Del Cerro Boulevard and 1-8 Westbound Onramp (adjacent to	4	0	9,549	40	0.5	1.8%	0.7%	59.9	-	46	98	212	100	7,420	1,213	917
North of Canyon Crest Drive	4	0	11,952	45	0.5	1.8%	0.7%	62.1	-	64	138	297	100	9,287	1,518	1,147
South of Canyon Crest Drive	4	0	8,424	45	0.5	1.8%	0.7%	60.6	-	51	109	236	100	6,545	1,070	809
Interstate 8																
I-8 Westbound Offramp (towards College Avenue)	5	0	4,635	65	0.5	1.8%	0.7%	62.1	-	64	138	298	100	3,601	589	445
I-8 Wesbound	5	0	6,948	65	0.5	1.8%	0.7%	63.9	-	84	181	390	100	5,399	882	667
I-8 Eastbound	5	0	1,998	65	0.5	1.8%	0.7%	58.4	-	-	79	170	100	1,552	254	192
I-8 Eastbound Offramp (Towards College Avenue)	5	0	3,222	65	0.5	1.8%	0.7%	60.5	-	50	108	233	100	2,503	409	309
Del Cerro Boulevard																
East of College Avenue	2	0	3,825	25	0.5	1.8%	0.7%	51.9	-	-	-	62	100	2,972	486	367
West of College Avenue	2	0	1,062	25	0.5	1.8%	0.7%	46.3	-	-	-	-	100	825	135	102

TRAFFIC NOISE LEVELS AND NOISE CONTOURS

Project Number: 2020-024
Project Name: All Peoples Church

Background Information

Model Description: FHWA Highway Noise Prediction Model (FHWA-RD-77-108) with California Vehicle Noise (CALVENO) Emission Levels.
Source of Traffic Volumes: Los Engineering, Inc.
Community Noise Descriptor: L_{dn}: _____ CNEL: x

Assumed 24-Hour Traffic Distribution:	Day	Evening	Night
Total ADT Volumes	77.70%	12.70%	9.60%
Medium-Duty Trucks	87.43%	5.05%	7.52%
Heavy-Duty Trucks	89.10%	2.84%	8.06%

Analysis Condition / Roadway, Segment	Lanes	Median Width	ADT Volume	Design Speed (mph)	Alpha Factor	Vehicle Mix: Medium Trucks	Vehicle Mix: Heavy Trucks	CNEL at 100 Feet	Distance from Centerline of Roadway: Distance to Contour: 70 CNEL	65 CNEL	60 CNEL	55 CNEL	Calc Dist	Traffic Volumes: Day	Eve	Night
2022 Sunday Without Project Conditions																
College Avenue																
North of Del Cerro Boulevard	4	0	5,580	40	0.5	1.8%	0.7%	57.6	-	-	69	148	100	4,336	709	536
Between Del Cerro Boulevard and 1-8 Westbound Onramp (adjacent to	4	0	8,266	40	0.5	1.8%	0.7%	59.3	-	-	89	193	100	6,423	1,050	794
North of Canyon Crest Drive	4	0	11,978	45	0.5	1.8%	0.7%	62.1	-	64	138	298	100	9,307	1,521	1,150
South of Canyon Crest Drive	4	0	8,424	45	0.5	1.8%	0.7%	60.6	-	51	109	236	100	6,545	1,070	809
Interstate 8																
I-8 Westbound Offramp (towards College Avenue)	5	0	4,707	65	0.5	1.8%	0.7%	62.2	-	65	140	301	100	3,657	598	452
I-8 Wesbound	5	0	5,328	65	0.5	1.8%	0.7%	62.7	-	70	152	326	100	4,140	677	511
I-8 Eastbound	5	0	2,025	65	0.5	1.8%	0.7%	58.5	-	-	80	171	100	1,573	257	194
I-8 Eastbound Offramp (Towards College Avenue)	5	0	3,890	65	0.5	1.8%	0.7%	61.3	-	57	123	265	100	3,023	494	373
Del Cerro Boulevard																
East of College Avenue	2	0	3,843	25	0.5	1.8%	0.7%	51.9	-	-	-	62	100	2,986	488	369
West of College Avenue	2	0	1,075	25	0.5	1.8%	0.7%	46.4	-	-	-	-	100	835	137	103

TRAFFIC NOISE LEVELS AND NOISE CONTOURS

Project Number: 2020-024
Project Name: All Peoples Church

Background Information

Model Description: FHWA Highway Noise Prediction Model (FHWA-RD-77-108) with California Vehicle Noise (CALVENO) Emission Levels.
Source of Traffic Volumes: Los Engineering, Inc.
Community Noise Descriptor: L_{dn}: _____ CNEL: x

Assumed 24-Hour Traffic Distribution:	Day	Evening	Night
Total ADT Volumes	77.70%	12.70%	9.60%
Medium-Duty Trucks	87.43%	5.05%	7.52%
Heavy-Duty Trucks	89.10%	2.84%	8.06%

Analysis Condition				Design		Vehicle Mix		Distance from Centerline of Roadway						Traffic Volumes		
Roadway, Segment	Lanes	Median Width	ADT Volume	Speed (mph)	Alpha Factor	Medium Trucks	Heavy Trucks	CNEL at 100 Feet	70 CNEL	65 CNEL	60 CNEL	55 CNEL	Calc Dist	Day	Eve	Night
2022 Sunday With Project Conditions																
College Avenue																
North of Del Cerro Boulevard	4	0	5,652	40	0.5	1.8%	0.7%	57.6	-	-	69	150	100	4,392	718	543
Between Del Cerro Boulevard and 1-8 Westbound Onramp (adjacent to	4	0	9,670	40	0.5	1.8%	0.7%	60.0	-	46	99	214	100	7,514	1,228	928
North of Canyon Crest Drive	4	0	12,114	45	0.5	1.8%	0.7%	62.2	-	65	139	300	100	9,413	1,538	1,163
South of Canyon Crest Drive	4	0	8,550	45	0.5	1.8%	0.7%	60.6	-	51	110	238	100	6,643	1,086	821
Interstate 8																
I-8 Westbound Offramp (towards College Avenue)	5	0	4,707	65	0.5	1.8%	0.7%	62.2	-	65	140	301	100	3,657	598	452
I-8 Wesbound	5	0	7,029	65	0.5	1.8%	0.7%	63.9	-	85	182	393	100	5,462	893	675
I-8 Eastbound	5	0	2,025	65	0.5	1.8%	0.7%	58.5	-	-	80	171	100	1,573	257	194
I-8 Eastbound Offramp (Towards College Avenue)	5	0	3,949	65	0.5	1.8%	0.7%	61.4	-	58	124	267	100	3,068	502	379
Del Cerro Boulevard																
East of College Avenue	2	0	3,879	25	0.5	1.8%	0.7%	51.9	-	-	-	62	100	3,014	493	372
West of College Avenue	2	0	1,089	25	0.5	1.8%	0.7%	46.4	-	-	-	-	100	846	138	105

TRAFFIC NOISE LEVELS AND NOISE CONTOURS

Project Number: 2020-024
Project Name: All Peoples Church

Background Information

Model Description: FHWA Highway Noise Prediction Model (FHWA-RD-77-108) with California Vehicle Noise (CALVENO) Emission Levels.
Source of Traffic Volumes: Los Engineering, Inc.
Community Noise Descriptor: L_{dn}: _____ CNEL: x

Assumed 24-Hour Traffic Distribution:	Day	Evening	Night
Total ADT Volumes	77.70%	12.70%	9.60%
Medium-Duty Trucks	87.43%	5.05%	7.52%
Heavy-Duty Trucks	89.10%	2.84%	8.06%

Analysis Condition				Design		Vehicle Mix		Distance from Centerline of Roadway						Traffic Volumes		
Roadway, Segment	Lanes	Median Width	ADT Volume	Speed (mph)	Alpha Factor	Medium Trucks	Heavy Trucks	CNEL at 100 Feet	70 CNEL	65 CNEL	60 CNEL	55 CNEL	Calc Dist	Day	Eve	Night
Existing Weekday Conditions																
College Avenue																
North of Del Cerro Boulevard	4	0	6,651	40	0.5	1.8%	0.7%	58.3	-	-	77	167	100	5,168	845	638
Between Del Cerro Boulevard and 1-8 Westbound Onramp (adjacent to	4	0	10,057	40	0.5	1.8%	0.7%	60.1	-	47	102	220	100	7,814	1,277	965
North of Canyon Crest Drive	4	0	17,073	45	0.5	1.8%	0.7%	63.6	-	81	175	377	100	13,266	2,168	1,639
South of Canyon Crest Drive	4	0	12,348	45	0.5	1.8%	0.7%	62.2	-	65	141	304	100	9,594	1,568	1,185
Interstate 8																
I-8 Westbound Offramp (towards College Avenue)	5	0	9,477	65	0.5	1.8%	0.7%	65.2	-	103	222	479	100	7,364	1,204	910
I-8 Wesbound	5	0	9,198	65	0.5	1.8%	0.7%	65.1	-	101	218	470	100	7,147	1,168	883
I-8 Eastbound	5	0	5,904	65	0.5	1.8%	0.7%	63.2	-	75	162	350	100	4,587	750	567
I-8 Eastbound Offramp (Towards College Avenue)	5	0	2,610	65	0.5	1.8%	0.7%	59.6	-	-	94	203	100	2,028	331	251
Del Cerro Boulevard																
East of College Avenue	2	0	4,626	25	0.5	1.8%	0.7%	52.7	-	-	33	70	100	3,594	588	444
West of College Avenue	2	0	1,575	25	0.5	1.8%	0.7%	48.0	-	-	-	34	100	1,224	200	151

TRAFFIC NOISE LEVELS AND NOISE CONTOURS

Project Number: 2020-024
Project Name: All Peoples Church

Background Information

Model Description: FHWA Highway Noise Prediction Model (FHWA-RD-77-108) with California Vehicle Noise (CALVENO) Emission Levels.
Source of Traffic Volumes: Los Engineering, Inc.
Community Noise Descriptor: L_{dn}: _____ CNEL: x

Assumed 24-Hour Traffic Distribution:	Day	Evening	Night
Total ADT Volumes	77.70%	12.70%	9.60%
Medium-Duty Trucks	87.43%	5.05%	7.52%
Heavy-Duty Trucks	89.10%	2.84%	8.06%

Analysis Condition / Roadway, Segment	Lanes	Median Width	ADT Volume	Design Speed (mph)	Alpha Factor	Vehicle Mix: Medium Trucks	Vehicle Mix: Heavy Trucks	CNEL at 100 Feet	Distance from Centerline of Roadway: Distance to Contour: 70 CNEL	65 CNEL	60 CNEL	55 CNEL	Calc Dist	Traffic Volumes: Day	Eve	Night
Existing Weekday Conditions + Project																
College Avenue																
North of Del Cerro Boulevard	4	0	6,660	40	0.5	1.8%	0.7%	58.3	-	-	77	167	100	5,175	846	639
Between Del Cerro Boulevard and 1-8 Westbound Onramp (adjacent to	4	0	10,399	40	0.5	1.8%	0.7%	60.3	-	48	104	225	100	8,080	1,321	998
North of Canyon Crest Drive	4	0	17,451	45	0.5	1.8%	0.7%	63.7	-	82	178	383	100	13,559	2,216	1,675
South of Canyon Crest Drive	4	0	12,375	45	0.5	1.8%	0.7%	62.3	-	66	141	304	100	9,615	1,572	1,188
Interstate 8																
I-8 Westbound Offramp (towards College Avenue)	5	0	9,477	65	0.5	1.8%	0.7%	65.2	-	103	222	479	100	7,364	1,204	910
I-8 Wesbound	5	0	9,522	65	0.5	1.8%	0.7%	65.2	-	104	223	481	100	7,399	1,209	914
I-8 Eastbound	5	0	5,940	65	0.5	1.8%	0.7%	63.2	-	76	163	351	100	4,615	754	570
I-8 Eastbound Offramp (Towards College Avenue)	5	0	2,727	65	0.5	1.8%	0.7%	59.8	-	-	97	209	100	2,119	346	262
Del Cerro Boulevard																
East of College Avenue	2	0	4,626	25	0.5	1.8%	0.7%	52.7	-	-	33	70	100	3,594	588	444
West of College Avenue	2	0	1,575	25	0.5	1.8%	0.7%	48.0	-	-	-	34	100	1,224	200	151

TRAFFIC NOISE LEVELS AND NOISE CONTOURS

Project Number: 2020-024
Project Name: All Peoples Church

Background Information

Model Description: FHWA Highway Noise Prediction Model (FHWA-RD-77-108) with California Vehicle Noise (CALVENO) Emission Levels.
Source of Traffic Volumes: Los Engineering, Inc.
Community Noise Descriptor: L_{dn}: _____ CNEL: x

Assumed 24-Hour Traffic Distribution:	Day	Evening	Night
Total ADT Volumes	77.70%	12.70%	9.60%
Medium-Duty Trucks	87.43%	5.05%	7.52%
Heavy-Duty Trucks	89.10%	2.84%	8.06%

Analysis Condition / Roadway, Segment	Lanes	Median Width	ADT Volume	Design Speed (mph)	Vehicle Mix: Alpha Factor	Vehicle Mix: Medium Trucks	Vehicle Mix: Heavy Trucks	CNEL at 100 Feet	Distance from Centerline of Roadway to Contour: 70 CNEL	65 CNEL	60 CNEL	55 CNEL	Calc Dist	Traffic Volumes: Day	Eve	Night
2022 Weekday Without Project Conditions																
College Avenue																
North of Del Cerro Boulevard	4	0	7,191	40	0.5	1.8%	0.7%	58.7	-	-	82	176	100	5,587	913	690
Between Del Cerro Boulevard and 1-8 Westbound Onramp (adjacent to	4	0	11,016	40	0.5	1.8%	0.7%	60.5	-	50	108	233	100	8,559	1,399	1,058
North of Canyon Crest Drive	4	0	19,575	45	0.5	1.8%	0.7%	64.2	-	89	192	413	100	15,210	2,486	1,879
South of Canyon Crest Drive	4	0	14,967	45	0.5	1.8%	0.7%	63.1	-	74	160	346	100	11,629	1,901	1,437
Interstate 8																
I-8 Westbound Offramp (towards College Avenue)	5	0	10,629	65	0.5	1.8%	0.7%	65.7	52	111	240	517	100	8,259	1,350	1,020
I-8 Wesbound	5	0	10,881	65	0.5	1.8%	0.7%	65.8	53	113	244	525	100	8,455	1,382	1,045
I-8 Eastbound	5	0	6,489	65	0.5	1.8%	0.7%	63.6	-	80	173	372	100	5,042	824	623
I-8 Eastbound Offramp (Towards College Avenue)	5	0	2,754	65	0.5	1.8%	0.7%	59.8	-	-	98	210	100	2,140	350	264
Del Cerro Boulevard																
East of College Avenue	2	0	4,895	25	0.5	1.8%	0.7%	52.9	-	-	34	73	100	3,803	622	470
West of College Avenue	2	0	1,890	25	0.5	1.8%	0.7%	48.8	-	-	-	39	100	1,469	240	181

TRAFFIC NOISE LEVELS AND NOISE CONTOURS

Project Number: 2020-024
Project Name: All Peoples Church

Background Information

Model Description: FHWA Highway Noise Prediction Model (FHWA-RD-77-108) with California Vehicle Noise (CALVENO) Emission Levels.
Source of Traffic Volumes: Los Engineering, Inc.
Community Noise Descriptor: L_{dn}: _____ CNEL: x

Assumed 24-Hour Traffic Distribution:	Day	Evening	Night
Total ADT Volumes	77.70%	12.70%	9.60%
Medium-Duty Trucks	87.43%	5.05%	7.52%
Heavy-Duty Trucks	89.10%	2.84%	8.06%

Analysis Condition / Roadway, Segment	Lanes	Median Width	ADT Volume	Design Speed (mph)	Vehicle Mix: Alpha Factor	Vehicle Mix: Medium Trucks	Vehicle Mix: Heavy Trucks	CNEL at 100 Feet	Distance from Centerline of Roadway to Contour: 70 CNEL	65 CNEL	60 CNEL	55 CNEL	Traffic Volumes: Calc Dist	Day	Eve	Night
2022 Weekday With Project Conditions																
College Avenue																
North of Del Cerro Boulevard	4	0	7,200	40	0.5	1.8%	0.7%	58.7	-	-	82	176	100	5,594	914	691
Between Del Cerro Boulevard and 1-8 Westbound Onramp (adjacent to	4	0	11,358	40	0.5	1.8%	0.7%	60.7	-	51	111	238	100	8,825	1,442	1,090
North of Canyon Crest Drive	4	0	21,015	45	0.5	1.8%	0.7%	64.6	-	93	201	433	100	16,329	2,669	2,017
South of Canyon Crest Drive	4	0	14,994	45	0.5	1.8%	0.7%	63.1	-	75	161	346	100	11,650	1,904	1,439
Interstate 8																
I-8 Westbound Offramp (towards College Avenue)	5	0	10,629	65	0.5	1.8%	0.7%	65.7	52	111	240	517	100	8,259	1,350	1,020
I-8 Wesbound	5	0	11,025	65	0.5	1.8%	0.7%	65.9	53	114	246	530	100	8,566	1,400	1,058
I-8 Eastbound	5	0	6,489	65	0.5	1.8%	0.7%	63.6	-	80	173	372	100	5,042	824	623
I-8 Eastbound Offramp (Towards College Avenue)	5	0	2,871	65	0.5	1.8%	0.7%	60.0	-	-	100	216	100	2,231	365	276
Del Cerro Boulevard																
East of College Avenue	2	0	4,896	25	0.5	1.8%	0.7%	52.9	-	-	34	73	100	3,804	622	470
West of College Avenue	2	0	1,890	25	0.5	1.8%	0.7%	48.8	-	-	-	39	100	1,469	240	181

ATTACHMENT D

SoundPLAN Outputs – Onsite Project Noise

SoundPLAN
Output Source Information

Number	Reciever Name	Floor	Daytime Level at Receiver
1	At the intersection of Glenmont Street and Marne Avenue.	Ground Floor	48.9 dBA
2	At the intersection of Capri Drive and Arno Drive.	Ground Floor	36.8 dBA
3	At the intersection of Raydel Courte and Marne Avenue.	Ground Floor	42.5 dBA
4	Residence east of the Project site adjacent to sanctuary.	Ground Floor	53.9 dBA
5	Residence east of the Project site adjacent parking garage.	Ground Floor	53.5 dBA
6	Residence east of the Project site adjacent parking garage.	Ground Floor	56.3 dBA
7	Residence east of the Project site.	Ground Floor	56.8 dBA
8	Residence east of the Project site.	Ground Floor	55.6 dBA
9	Residence north of the Project site.	Ground Floor	44.9 dBA
10	Residence west of the Project site.	Ground Floor	48.7 dBA

Number	Noise Source Information	Citation	Level at Source
1	Parking Lot Activities	ECORP Reference Noise Measurements at a Safeway Grocery Store Parking Lot on November 11, 2019	61.1 dBA