

West Grove Center

NOISE IMPACT ANALYSIS CITY OF GARDEN GROVE

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12717-07 Noise Study



TABLE OF CONTENTS

TA AF LIS LIS EX	ABLE OF PPENDI ST OF E ST OF T ST OF A	F CONTENTS CES XHIBITS ABLES ABBREVIATED TERMS VE SUMMARY	.III IV IV .V VI 1
	Summ	nary of CEQA Significance Findings	1
1	INT	RODUCTION	3
	1.1 1.2	Site Location Project Description	3 3
2	FUI	NDAMENTALS	7
	 2.1 2.2 2.3 2.4 2.5 2.6 2.7 2.8 	Range of Noise Noise Descriptors Sound Propagation Noise Control Noise Barrier Attenuation Land Use Compatibility With Noise Community Response to Noise Vibration	7 8 9 10 10 10
3	REC	GULATORY SETTING	13
	3.1 3.2 3.3 3.4 3.5	State of California Noise Requirements City of Garden Grove General Plan Noise Element City of Garden Grove Municipal Code Vibration Standards Los Alamitos Joint Forces Training Base	13 13 14 16 17
4	SIG		19
	4.1 4.2	Noise-Sensitive Receivers Significance Criteria Summary	19 21
5	EXI	STING NOISE LEVEL MEASUREMENTS	23
	5.1 5.2 5.3	Measurement Procedure and Criteria Noise Measurement Locations Noise Measurement Results	23 23 24
6	TR	AFFIC NOISE METHODS AND PROCEDURES	27
	6.1	FHWA Traffic Noise Prediction Model	27
7	OF	F-SITE TRAFFIC NOISE ANALYSIS	31
~	7.1 7.2 7.3	Traffic Noise Contours Existing Project Traffic Noise Level Increases Opening Year Traffic Noise Level Increases	31 31 31
8 9	REC OP	LEIVER LOCATIONS	39 41
	9.1	Operational Noise Sources	41



9.2	2	Reference Noise Levels	41
9.3	3	CadnaA Noise Prediction Model	44
9.4	1	Project Operational Noise Levels	44
9.5	5	Project Operational Noise Level Compliance	45
10	co	NSTRUCTION ANALYSIS	49
10	.1	Construction Noise Levels	49
10	.2	Typical Construction Reference Noise Levels	49
10	.3	Typical Construction Noise Analysis	51
10	.4	Typical Construction Noise Level Compliance	52
10	.5	Construction Vibration Analysis	52
11	REF	FERENCES	55
12	CEF	RTIFICATIONS	57

APPENDICES

- APPENDIX 3.1: CITY OF GARDEN GROVE MUNICIPAL CODE
- APPENDIX 5.1: STUDY AREA PHOTOS
- APPENDIX 5.2: NOISE LEVEL MEASUREMENT WORKSHEETS
- APPENDIX 7.1: OFF-SITE TRAFFIC NOISE LEVEL CALCULATIONS
- APPENDIX 9.1: CADNAA OPERATIONAL NOISE MODEL
- APPENDIX 10.1: CADNAA CONSTRUCTION NOISE MODEL

LIST OF EXHIBITS

EXHIBIT 1-A:	LOCATION MAP	4
EXHIBIT 1-B:	SITE PLAN	5
EXHIBIT 2-A:	TYPICAL NOISE LEVELS	7
EXHIBIT 2-B:	NOISE LEVEL INCREASE PERCEPTION	10
EXHIBIT 2-C:	TYPICAL LEVELS OF GROUND-BORNE VIBRATION	12
EXHIBIT 3-A:	NOISE AND LAND USE COMPATIBILITY MATRIX	14
EXHIBIT 3-B:	JFTB AIRFIELD NOISE CONTOUR BOUNDARIES	18
EXHIBIT 5-A:	NOISE MEASUREMENT LOCATIONS	25
EXHIBIT 8-A:	RECEIVER LOCATIONS	40
EXHIBIT 9-A:	OPERATIONAL NOISE SOURCE LOCATIONS	42
EXHIBIT 10-A	: TYPICAL CONSTRUCTION NOISE SOURCE LOCATIONS	50

LIST OF TABLES

TABLE ES-1: SUMMARY OF CEQA SIGNIFICANCE FINDINGS	1
TABLE 3-1: OPERATIONAL NOISE LEVEL STANDARDS	15
TABLE 3-2: BUILDING DAMAGE VIBRATION CRITERIA	16
TABLE 4-1: SIGNIFICANCE CRITERIA SUMMARY	21
TABLE 5-1: 24-HOUR AMBIENT NOISE LEVEL MEASUREMENTS	24
TABLE 6-1: OFF-SITE ROADWAY PARAMETERS	28
TABLE 6-2: AVERAGE DAILY TRAFFIC VOLUMES	28
TABLE 6-3: TIME OF DAY VEHICLE SPLITS	29
TABLE 6-4: TRAFFIC FLOW BY VEHICLE TYPE (VEHICLE MIX)	29
TABLE 7-1: EXISTING WITHOUT PROJECT CONTOURS	32
TABLE 7-2: EXISTING WITH PROJECT CONTOURS	33
TABLE 7-3: OPENING YEAR WITHOUT PROJECT CONTOURS	34
TABLE 7-4: OPENING YEAR WITH PROJECT CONTOURS	35
TABLE 7-5: EXISTING WITH PROJECT TRAFFIC NOISE LEVEL INCREASES	36
TABLE 7-6: OPENING YEAR WITH PROJECT TRAFFIC NOISE LEVEL INCREASES	37
TABLE 9-1: REFERENCE NOISE LEVEL MEASUREMENTS	43
TABLE 9-2: DAYTIME PROJECT OPERATIONAL NOISE LEVELS	45
TABLE 9-3: NIGHTTIME PROJECT OPERATIONAL NOISE LEVELS	45
TABLE 9-4: OPERATIONAL NOISE LEVEL COMPLIANCE	45
TABLE 9-5: DAYTIME PROJECT OPERATIONAL NOISE LEVEL INCREASES	47
TABLE 9-6: NIGHTTIME PROJECT OPERATIONAL NOISE LEVEL INCREASES	47
TABLE 10-1: CONSTRUCTION REFERENCE NOISE LEVELS	51
TABLE 10-2: TYPICAL CONSTRUCTION EQUIPMENT NOISE LEVEL SUMMARY	51
TABLE 10-3: TYPICAL CONSTRUCTION NOISE LEVEL COMPLIANCE	52
TABLE 10-4: VIBRATION SOURCE LEVELS FOR CONSTRUCTION EQUIPMENT	53
TABLE 10-5: CONSTRUCTION EQUIPMENT VIBRATION LEVELS	53

LIST OF ABBREVIATED TERMS

(1)	Reference
ANSI	American National Standards Institute
CEQA	California Environmental Quality Act
CNEL	Community Noise Equivalent Level
dBA	A-weighted decibels
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
INCE	Institute of Noise Control Engineering
L _{eq}	Equivalent continuous (average) sound level
L _{max}	Maximum level measured over the time interval
L _{min}	Minimum level measured over the time interval
Lw	Sound Power Level
mph	Miles per hour
OCFA	Orange County Fire Authority
PPV	Peak Particle Velocity
Project	West Grove Center
RMS	Root-mean-square
VdB	Vibration Decibels

EXECUTIVE SUMMARY

Urban Crossroads, Inc. has prepared this noise study to determine the noise exposure and the necessary noise mitigation measures, if any, for the proposed West Grove Center development ("Project") located at 12141 Valley View Street in the City of Garden Grove. The Project involves repurposing the former 33,375 sf bowling alley building to accommodate commercial uses and the construction of a new 2,000 sf drive-thru coffee shop in the southeastern portion of the Project site. This study has been prepared to satisfy applicable City of Garden Grove standards and thresholds of significance based on Appendix G of the California Environmental Quality Act (CEQA) Guidelines. (1)

SUMMARY OF CEQA SIGNIFICANCE FINDINGS

The results of this West Grove Center Noise Impact Analysis are summarized below based on the significance criteria in Section 4 of this report consistent with Appendix G of the California Environmental Quality Act (CEQA) Guidelines. (1). Table ES-1 shows the findings of significance for each potential noise and/or vibration impact under CEQA before and after any required mitigation measures described below.

Analusia	Report	Significance Findings		
Analysis	Section	Unmitigated	Mitigated	
Off-Site Traffic Noise	7	Less Than Significant	-	
Operational Noise	9	Less Than Significant	-	
Construction Noise	10	Less Than Significant	-	
Construction Vibration		Less Than Significant	-	

TABLE ES-1: SUMMARY OF CEQA SIGNIFICANCE FINDINGS

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1 INTRODUCTION

This noise analysis has been completed to determine the noise impacts associated with the development of the proposed West Grove Center ("Project"). This noise study briefly describes the proposed Project, provides information regarding noise fundamentals, sets out the local regulatory setting, presents the study methods and procedures for noise and vibration analysis, and evaluates the future exterior noise environment. In addition, this study includes an analysis of the potential Project-related long-term stationary-source operational noise and short-term construction noise and vibration impacts.

1.1 SITE LOCATION

The proposed West Grove Center Project is located at 12141 Valley View Street in the City of Garden Grove as shown on Exhibit 1-A. There are existing commercial uses north of the Project site, including the 251-seat 4 Star Cinemas, which is attached to the northern side of the vacant bowling alley building, and multi-family residential uses to the west. Previously approved redevelopment activities on the parcels to the north of the Project site were recently completed, including a drive-thru restaurant (Jack in the box), and an automatic car wash. There are multi-family residential uses to the southwest of the Project site. A church is located east of the Project site across Valley View Street, commercial uses are located to the northeast, and senior apartments are located to the southeast. Orange County Fire Authority (OCFA) Fire Station 84 is located south of the Project site, south of the alley.

1.2 PROJECT DESCRIPTION

The Project involves repurposing the former 33,375 sf bowling alley building to accommodate commercial uses and the construction of a new 2,000 sf drive-thru coffee shop in the southeastern portion of the Project site. As shown on Exhibit 1-B, the repurposed bowling alley building would accommodate a 12,082-sf anchor tenant, a 1,665-sf restaurant with drive-thru, a 2,792-sf restaurant, and a 2,757-sf restaurant. Exhibit 1-B also depicts the site plan for the commercial development to the north, which was recently redeveloped in accordance with PUD-104-73 Rev. 2018 (approved by the City in 2018).

The Project-related operational noise sources are expected to include: roof-top air conditioning units, drive-thru speakerphone activity, and trash enclosure activity. This noise analysis is intended to describe noise level impacts associated with the expected typical operational activities at the Project site. In addition, this analysis describes the off-site traffic noise level impacts associated with the Project. Based on the *Westgrove Center Project Traffic Study & Parking Analysis* prepared by RK Engineer Group, the Project (Alternative 1) is expected to generate a total of approximately 5,654 daily trips. (2) At the time this noise analysis was prepared, the future tenants of the proposed Project were unknown.





EXHIBIT 1-A: LOCATION MAP



EXHIBIT 1-B: SITE PLAN





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2 FUNDAMENTALS

Noise is simply defined as "unwanted sound." Sound becomes unwanted when it interferes with normal activities, when it causes actual physical harm or when it has adverse effects on health. Noise is measured on a logarithmic scale of sound pressure level known as a decibel (dB). A-weighted decibels (dBA) approximate the subjective response of the human ear to broad frequency noise source by discriminating against very low and very high frequencies of the audible spectrum. They are adjusted to reflect only those frequencies which are audible to the human ear. Exhibit 2-A presents a summary of the typical noise levels and their subjective loudness and effects that are described in more detail below.

COMMON OUTDOOR ACTIVITIES	COMMON INDOOR ACTIVITIES	A - WEIGHTED SOUND LEVEL dBA	SUBJECTIVE LOUDNESS	EFFECTS OF NOISE
THRESHOLD OF PAIN		140		
NEAR JET ENGINE		130	INTOLERABLE OR	
		120	DEAFENING	HEARING LOSS
JET FLY-OVER AT 300m (1000 ft)	ROCK BAND	110		
LOUD AUTO HORN		100		
GAS LAWN MOWER AT 1m (3 ft)		90	VERY NOISY	
DIESEL TRUCK AT 15m (50 ft), at 80 km/hr (50 mph)	FOOD BLENDER AT 1m (3 ft)	80		
NOISY URBAN AREA, DAYTIME	VACUUM CLEANER AT 3m (10 ft)	70	LOUD	SPEECH INTERFERENCE
HEAVY TRAFFIC AT 90m (300 ft)	NORMAL SPEECH AT 1m (3 ft)	60		
QUIET URBAN DAYTIME	LARGE BUSINESS OFFICE	50	MODERATE	CLEED
QUIET URBAN NIGHTTIME	THEATER, LARGE CONFERENCE ROOM (BACKGROUND)	40		DISTURBANCE
QUIET SUBURBAN NIGHTTIME	LIBRARY	30		
QUIET RURAL NIGHTTIME	BEDROOM AT NIGHT, CONCERT HALL (BACKGROUND)	20	FAINT	
	BROADCAST/RECORDING STUDIO	10		NO EFFECT
LOWEST THRESHOLD OF HUMAN HEARING	LOWEST THRESHOLD OF HUMAN HEARING	0		

EXHIBIT 2-A: TYPICAL NOISE LEVELS

Source: Environmental Protection Agency Office of Noise Abatement and Control, Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety (EPA/ONAC 550/9-74-004) March 1974.

2.1 RANGE OF NOISE

Since the range of intensities that the human ear can detect is so large, the scale frequently used to measure intensity is a scale based on multiples of 10, the logarithmic scale. The scale for measuring intensity is the decibel scale. Each interval of 10 decibels indicates a sound energy ten times greater than before, which is perceived by the human ear as being roughly twice as loud. (3) The most common sounds vary between 40 dBA (very quiet) to 100 dBA (very loud). Normal conversation at three feet is roughly at 60 dBA, while loud jet engine noises equate to 110 dBA



at approximately 100 feet, which can cause serious discomfort. (4) Another important aspect of noise is the duration of the sound and the way it is described and distributed in time.

2.2 NOISE DESCRIPTORS

Environmental noise descriptors are generally based on averages, rather than instantaneous, noise levels. The most used figure is the equivalent level (L_{eq}). Equivalent sound levels are not measured directly but are calculated from sound pressure levels typically measured in A-weighted decibels (dBA). The equivalent sound level (L_{eq}) represents a steady state sound level containing the same total energy as a time varying signal over a given sample period and is commonly used to describe the "average" noise levels within the environment.

To describe the time-varying character of environmental noise, the statistical or percentile noise descriptors L_{50} , L_{25} , L_8 and L_2 , are commonly used. The percentile noise descriptors are the noise levels equaled or exceeded during 50 percent, 25 percent, 8 percent and 2 percent of a stated time. Sound levels associated with the L_2 and L_8 typically describe transient or short-term events, while levels associated with the L_{50} describe the steady state (or median) noise conditions. While the L_{50} describes the noise levels occurring 50 percent of the time, the L_{eq} accounts for the total energy (average) observed for the entire hour.

Peak hour or average noise levels, while useful, do not completely describe a given noise environment. Noise levels lower than peak hour may be disturbing if they occur during times when quiet is most desirable, namely evening and nighttime (sleeping) hours. To account for this, the Community Noise Equivalent Level (CNEL), representing a composite 24-hour noise level is utilized. The CNEL is the weighted average of the intensity of a sound, with corrections for time of day, and averaged over 24 hours. The time-of-day corrections require the addition of 5 decibels to dBA L_{eq} sound levels in the evening from 7:00 p.m. to 10:00 p.m., and the addition of 10 decibels to dBA L_{eq} sound levels at night between 10:00 p.m. and 7:00 a.m. These additions are made to account for the noise sensitive time periods during the evening and night hours when sound appears louder. CNEL does not represent the actual sound level heard at any time, but rather represents the total sound exposure. The City of Garden Grove relies on the 24-hour CNEL level to assess land use compatibility with transportation related noise sources. (5)

2.3 SOUND PROPAGATION

When sound propagates over a distance, it changes in level and frequency content. The way noise reduces with distance depends on the following factors.

2.3.1 GEOMETRIC SPREADING

Sound from a localized source (i.e., a stationary point source) propagates uniformly outward in a spherical pattern. The sound level attenuates (or decreases) at a rate of 6 dB for each doubling of distance from a point source. Highways consist of several localized noise sources on a defined path and hence can be treated as a line source, which approximates the effect of several point sources. Noise from a line source propagates outward in a cylindrical pattern, often referred to



as cylindrical spreading. Sound levels attenuate at a rate of 3 dB for each doubling of distance from a line source. (3)

2.3.2 GROUND ABSORPTION

The propagation path of noise from a highway to a receiver is usually very close to the ground. Noise attenuation from ground absorption and reflective wave canceling adds to the attenuation associated with geometric spreading. Traditionally, the excess attenuation has also been expressed in terms of attenuation per doubling of distance. This approximation is usually sufficiently accurate for distances of less than 200 ft. For acoustically hard sites (i.e., sites with a reflective surface between the source and the receiver, such as a parking lot or body of water), no excess ground attenuation is assumed. For acoustically absorptive or soft sites (i.e., those sites with an absorptive ground surface between the source and the receiver and the receiver such as soft dirt, grass, or scattered bushes and trees), an excess ground attenuation value of 1.5 dB per doubling of distance is normally assumed. When added to the cylindrical spreading, the excess ground attenuation results in an overall drop-off rate of 4.5 dB per doubling of distance from a line source. (6)

2.3.3 ATMOSPHERIC EFFECTS

Receivers located downwind from a source can be exposed to increased noise levels relative to calm conditions, whereas locations upwind can have lowered noise levels. Sound levels can be increased at large distances (e.g., more than 500 feet) due to atmospheric temperature inversion (i.e., increasing temperature with elevation). Other factors such as air temperature, humidity, and turbulence can also have significant effects. (3)

2.3.4 Shielding

A large object or barrier in the path between a noise source and a receiver can substantially attenuate noise levels at the receiver. The amount of attenuation provided by shielding depends on the size of the object and the frequency content of the noise source. Shielding by trees and other such vegetation typically only has an "out of sight, out of mind" effect. That is, the perception of noise impact tends to decrease when vegetation blocks the line-of-sight to nearest residents. However, for vegetation to provide a substantial, or even noticeable, noise reduction, the vegetation area must be at least 15 feet in height, 100 feet wide and dense enough to completely obstruct the line-of sight between the source and the receiver. This size of vegetation may provide up to 5 dBA of noise reduction. The Federal Highway Administration (FHWA) does not consider the planting of vegetation to be a noise abatement measure.

2.4 NOISE CONTROL

Noise control is the process of obtaining an acceptable noise environment for an observation point or receiver by controlling the noise source, transmission path, receiver, or all three. This concept is known as the source-path-receiver concept. In general, noise control measures can be applied to these three elements.

2.5 Noise Barrier Attenuation

Effective noise barriers can reduce noise levels by 10 to 15 dBA, cutting the loudness of traffic noise in half. A noise barrier is most effective when placed close to the noise source or receiver. Noise barriers, however, do have limitations. For a noise barrier to work, it must be high enough and long enough to block the path of the noise source. (6)

2.6 LAND USE COMPATIBILITY WITH NOISE

Some land uses are more tolerant of noise than others. For example, schools, hospitals, churches, and residences are more sensitive to noise intrusion than are commercial or industrial developments and related activities. As ambient noise levels affect the perceived amenity or livability of a development, so too can the mismanagement of noise impacts impair the economic health and growth potential of a community by reducing the area's desirability as a place to live, shop and work. For this reason, land use compatibility with the noise environment is an important consideration in the planning and design process. The FHWA encourages State and Local government to regulate land development in such a way that noise-sensitive land uses are either prohibited from being located adjacent to a highway, or that the developments are planned, designed, and constructed in such a way that noise impacts are minimized. (7)

2.7 COMMUNITY RESPONSE TO NOISE

Community responses to noise vary. A change of 3 dBA is considered *barely perceptible*, and changes of 5 dBA are considered *readily perceptible*. A change of 10 dBA is considered twice as loud. (6) Exhibit 2-B describes the expected responses to changes in noise levels.





2.8 VIBRATION

Per the Federal Transit Administration (FTA) *Transit Noise and Vibration Impact Assessment Manual* (9), vibration is the periodic oscillation of a medium or object. The rumbling sound caused by the vibration of room surfaces is called structure-borne noise. Sources of ground-borne vibrations include natural phenomena (e.g., earthquakes, volcanic eruptions, sea waves, landslides) or human-made causes (e.g., explosions, machinery, traffic, trains, construction equipment). Vibration sources may be continuous, such as factory machinery, or transient, such



as explosions. As is the case with airborne sound, ground-borne vibrations may be described by amplitude and frequency.

There are several different methods that are used to quantify vibration. The peak particle velocity (PPV) is defined as the maximum instantaneous peak of the vibration signal. The PPV is most frequently used to describe vibration impacts to buildings but is not always suitable for evaluating human response (annoyance) because it takes some time for the human body to respond to vibration signals. Instead, the human body responds to average vibration amplitude often described as the root mean square (RMS). The RMS amplitude is defined as the average of the squared amplitude of the signal and is most frequently used to describe the effect of vibration on the human body. Decibel notation (VdB) is commonly used to measure RMS. Decibel notation (VdB) serves to reduce the range of numbers used to describe human response to vibration. Typically, ground-borne vibration generated by man-made activities attenuates rapidly with distance from the source of the vibration. Sensitive receivers for vibration include structures (especially older masonry structures), people (especially residents, the elderly, and sick), and vibration-sensitive equipment and/or activities.

The background vibration-velocity level in residential areas is generally 50 VdB. Ground-borne vibration is normally perceptible to humans at approximately 65 VdB. For most people, a vibration-velocity level of 75 VdB is the approximate dividing line between barely perceptible and distinctly perceptible levels. Typical outdoor sources of perceptible ground-borne vibration are construction equipment, steel-wheeled trains, and traffic on rough roads. If a roadway is smooth, the ground-borne vibration is rarely perceptible. Exhibit 2-C illustrates common vibration sources and the human and structural response to ground-borne vibration.





EXHIBIT 2-C: TYPICAL LEVELS OF GROUND-BORNE VIBRATION

* RMS Vibration Velocity Level in VdB relative to 10⁻⁶ inches/second

Source: Federal Transit Administration (FTA) Transit Noise and Vibration Impact Assessment Manual.



3 REGULATORY SETTING

To limit population exposure to physically and/or psychologically damaging as well as intrusive noise levels, the federal government, the State of California, various county governments, and most municipalities in the state have established standards and ordinances to control noise. In most areas, automobile and truck traffic is the major source of environmental noise. Traffic activity generally produces an average sound level that remains constant with time. Air and rail traffic, and commercial and industrial activities are also major sources of noise in some areas. Federal, state, and local agencies regulate different aspects of environmental noise. Federal and state agencies generally set noise standards for mobile sources such as aircraft and motor vehicles, while regulation of stationary sources is left to local agencies.

3.1 STATE OF CALIFORNIA NOISE REQUIREMENTS

The State of California regulates freeway noise, sets standards for sound transmission, provides occupational noise control criteria, identifies noise standards, and provides guidance for local land use compatibility. State law requires that each county and city adopt a General Plan that includes a Noise Element which is to be prepared per guidelines adopted by the Governor's Office of Planning and Research (OPR). (10) The purpose of the Noise Element is to *limit the exposure of the community to excessive noise levels*. In addition, the California Environmental Quality Act (CEQA) requires that all known environmental effects of a project be analyzed, including environmental noise impacts.

3.2 CITY OF GARDEN GROVE GENERAL PLAN NOISE ELEMENT

The City of Garden Grove General Plan Noise Element *examines noise sources in the City to identify and appraise the potential for noise conflicts and problems, and to identify ways to reduce existing and potential noise impacts*. The noise criteria identified in the City of Garden Grove Noise Element are guidelines to evaluate the land use compatibility of transportation-related noise. The compatibility criteria, shown on Exhibit 3-A, provides the City with a planning tool to gauge the compatibility of land uses relative to existing and future exterior noise levels. The *Noise and Land Use Compatibility Matrix* (Table 7-1) in the City of Garden Grove General Plan provides guidelines to evaluate the acceptability of the transportation-related noise level impacts. The planned Project business commercial land use is considered *normally acceptable* with exterior noise levels between 50-70 dBA CNEL. (5) In addition to the Noise and Land Use Compatibility of Garden Grove General Plan Noise Element has identified the following Project-related noise policies.

- *N-1.2:* Incorporate a noise assessment study into the environmental review process, when needed for a specific project for the purposes of identifying potential noise impacts and noise abatement procedures.
- *N-IMP-1D* Require construction activity to comply with the limits established in the City's Noise Ordinance.



- *N-IMP-1E* Require buffers or appropriate mitigation of potential noise sources on noise sensitive areas.
- *N-IMP-1F* Require that vehicle access to commercial properties that are located adjacent to residential parcels or other noise sensitive uses be located at the maximum practical distance from these uses.
- *N-2.3* Incorporate noise reduction features for items such as but not limited to parking and loading areas, ingress/egress point, and refuse collection areas, during site planning to mitigate anticipated noise impacts on affected noise sensitive land uses.

	Community Noise Exposure (Ldn or CNEL, dBA)				
Land Use Category	Normally Acceptable	Conditionally Acceptable	Normally Unacceptable	Clearly Unacceptable	
Residential - Low Density, Single-Family, Duplex, Mobile Homes	50 - 60	55 - 70	70-75	75-85	
Residential - Multiple Family	50 - 65	60 - 70	70 - 75	70 – 85	
Transient Lodging - Motel, Hotels	50 - 65	60 - 70	70 - 80	80 - 85	
Schools, Libraries, Churches, Hospitals, Nursing Homes	50 - 70	60 - 70	70 - 80	80 - 85	
Auditoriums, Concert Halls, Amphitheaters	NA	50 - 70	NA	65 - 85	
Sports Arenas, Outdoor Spectator Sports	NA	50 - 75	NA	70 – 85	
Playgrounds, Neighborhood Parks	50 - 70	NA	67.5 - 75	72.5 - 85	
Golf Courses, Riding Stables, Water Recreation, Cemeteries	50 - 70	NA	70 - 80	80 - 85	
Office Buildings, Business Commercial and Professional	50 - 70	67.5 - 77.5	75 - 85	NA	
Industrial, Manufacturing, Utilities, Agriculture	50 - 75	70 - 80	75 - 85	NA	
NA: Not Applicable Source: Office of Planning and Research, California, General Plan	Guidelines, Octo	ber 2003.			
NA: Not Applicable Source: Office of Planning and Research, California, General Plan Normally Acceptable – Specified land use is satisfactory, based construction, without any special noise insulation requirements.	<i>Guidelines</i> , Octol upon the assumption	ber 2003. ion that any buildin kon only after a de	gs involv	ed are of n	

EXHIBIT 3-A: NOISE AND LAND USE COMPATIBILITY MATRIX

Conditionally Acceptable – New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning, will normally suffice.

Normally Unacceptable – New construction or development should be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design. Clearly Unacceptable – New construction or development should generally not be undertaken.

3.3 CITY OF GARDEN GROVE MUNICIPAL CODE

While the City of Garden Grove General Plan Noise Element provides guidelines to assess transportation noise on sensitive land uses, the City Municipal Code Section 8.47 *Noise Control* has established maximum noise levels for operational (stationary) and construction related noise sources. (11)

3.3.1 OPERATIONAL NOISE STANDARDS

To analyze noise impacts originating from a designated fixed location or private property such as the West Grove Center Project, stationary-source (operational) noise such as the expected roof-top air conditioning units, drive-thru speakerphone activity, and trash enclosure activity are



typically evaluated against standards established under a jurisdiction's Municipal Code. The City of Garden Grove Municipal Code, Section 8.47.040 establishes ambient base noise level standards for sensitive land uses. For sensitive uses, the exterior noise level shall not exceed 55 dBA L_{eq} during the daytime hours (7:00 a.m. to 10:00 p.m.) and 50 dBA L_{eq} during the nighttime hours (10:00 p.m. to 7:00 a.m.). (11) In addition, Section 8.47.050(D) of the Municipal Code indicates that the exterior noise level standards shall apply for a cumulative period of 30 minutes in any hour, as well as the standard plus 5 dBA cannot be exceeded for a cumulative period of more than 15 minutes in any hour, or the standard plus 10 dBA for a cumulative period of more than 5 minutes in any hour, or the standard plus 15 dBA for a cumulative period of more than 1 minute in any hour, or the standard plus 20 dBA for any period of time.

Further, Section 8.47.050(D) indicates that in the event the ambient noise level exceeds any of the first four noise limit categories above, the cumulative period applicable to said category shall be increased to reflect said ambient noise level. In the event the ambient noise level exceeds the fifth noise limit category, the maximum allowable noise level under said category shall be increased to reflect the maximum ambient noise level. The City of Garden Grove operational noise level standards are shown on Table 3-1 and included in Appendix 3.1.

	Exterior Noise Level Standards (dBA) ¹					
Time Period	L ₅₀ (30 mins)	L ₂₅ (15 mins)	L ₈ (5 mins)	L ₂ (1 min)	L _{max} (Anytime)	
Daytime (7:00 a.m. to 10:00 p.m.)	55	60	65	70	75	
Nighttime (10:00 p.m. to 7:00 a.m.)	50	55	60	65	70	

TABLE 3-1: OPERATIONAL NOISE LEVEL STANDARDS

 1 City of Garden Grove Municipal Code Section 8.47.040 Ambient Base Noise Levels for sensitive land uses (Appendix 3.1) with the cumulative adjustments outline in Section 8.47.050(D). The percent noise level is the level exceeded "n" percent of the time during the measurement period. L₅₀ is the noise level exceeded 50% of the time.

The percentile noise descriptors are provided to ensure that the duration of the noise source is fully considered. However, due to the relatively constant intensity of the Project operational activities, the L_{50} or average L_{eq} noise level metrics best describe the roof-top air conditioning units, drive-thru speakerphone activity, and trash enclosure activity. In addition, the L_{eq} noise level metric accounts for noise fluctuations over time by averaging the louder and quieter events and giving more weight to the louder events. In addition, due to the mathematical relationship between the median (L_{50}) and the mean (L_{eq}), the L_{eq} will always be larger than or equal to the L_{50} . The more variable the noise becomes, the larger the L_{eq} becomes in comparison to the L_{50} . Therefore, this noise study conservatively relies on the average L_{eq} sound level limits to describe the Project operational noise levels.

3.3.2 CONSTRUCTION NOISE STANDARDS

Section 8.47.060(D) of the City of Garden Grove Municipal Code, provided in Appendix 3.1, indicates that it shall be unlawful for any person...to operate equipment or perform any outside construction or repair work on buildings, structures, or projects, or to operate any pile driver,



power shovel, pneumatic hammer, derrick, power hoist, or any other construction type device between the hours of 10:00 p.m. of one day and 7:00 a.m. of the next day in such a manner that a person of normal sensitiveness, as determined utilizing the criteria established in Section 8.47.050, is caused discomfort or annoyance unless such operations are of an emergency nature. Section 8.47.050 indicates that the ambient base noise level standard for a given land use shall not be exceeded by more than 20 dBA for any period (e.g., L_{max}). For residential uses, Section 8.47.040 identifies an ambient base noise level of 55 dBA during the daytime hours (7:00 a.m. to 10:00 p.m.) when construction activity would take place. Therefore, the base anytime maximum noise level limit is equal to 75 dBA L_{max} for residential uses. The City of Garden Grove Municipal Code is included in Appendix 3.1.

3.4 VIBRATION STANDARDS

Construction activity can result in varying degrees of ground-borne vibration, depending on the equipment and methods used, distance to the affected structures and soil type. Construction vibration is generally associated with pile driving and rock blasting. Other construction equipment, such as air compressors, light trucks, hydraulic loaders, etc., generate little or no ground vibration. (9) To analyze vibration impacts originating from the construction of the West Grove Center, vibration-generating activities are appropriately evaluated against standards established under the City's Municipal Code, if such standards exist. However, the City of Garden Grove does not identify specific vibration level limits and instead this analysis relies on the Caltrans *Transportation and Construction Vibration Guidance Manual*, (12 p. 38) Table 19 vibration damage criteria to assess potential temporary construction-related impacts at adjacent receiver locations. While ground vibrations from construction activities do not often reach the levels that can damage structures, fragile buildings must receive special consideration. The construction vibration damage potential criteria include consideration of the building conditions. (4 p. 182) Table 3-2 describes the maximum acceptable transient and continuous vibration building damage potential levels by structure type and condition.

Structure and Condition	Maximum Transient Vibration Levels PPV (in/sec)	Maximum Continuous Vibration Levels PPV (in/sec)
Extremely fragile historic buildings	0.12	0.08
Fragile buildings	0.2	0.1
Historic and some old buildings	0.5	0.25
Older residential structures	0.5	0.3
New residential structures	1.0	0.5
Modern industrial/commercial buildings	2.0	0.5

TABLE 3-2: BUILDING DAMAGE VIBRATION CRITERIA

Caltrans Transportation and Construction Vibration Guidance Manual, April 2020, Tables 19, p. 38.

Most of the buildings near the Project site can be described as older residential structures with a maximum acceptable continuous building damage vibration threshold of 0.3 PPV (in/sec).



3.5 LOS ALAMITOS JOINT FORCES TRAINING BASE

The Project site is located approximately 0.8 miles southeast of the Los Alamitos Joint Forces Training Base (JFTB), Los Alamitos airfield. The base contains two runways and is the only remaining military airfield in Los Angeles and Orange Counties. The majority of the JFTB operations consist of helicopter training with some light twin engine fixed aircraft and occasional operations by transient military and civil support aircraft.

The Orange County Airport Land Use Commission *Airport Environs Land Use Plan for Joint Forces Training Base Los Alamitos* (13) shows the 65 and 60 dBA CNEL noise contour boundaries for the Los Alamitos airfield in relation to the West Grove Center site, which is located outside the 60 dBA CNEL noise contour. Based on the City of Garden Grove *Noise and Land Use Compatibility Matrix* (see Exhibit 3-A), the community noise exposure levels at the Project site are considered *normally acceptable*.





EXHIBIT 3-B: JFTB AIRFIELD NOISE CONTOUR BOUNDARIES



4 SIGNIFICANCE CRITERIA

The following significance criteria are based on currently adopted guidance provided by Appendix G of the California Environmental Quality Act (CEQA) Guidelines. (10) For the purposes of this report, impacts would be potentially significant if the Project results in or causes:

- A. Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?
- B. Generation of excessive ground-borne vibration or ground-borne noise levels?
- C. For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

4.1 NOISE-SENSITIVE RECEIVERS

Noise level increases resulting from the Project are evaluated based on the Appendix G CEQA Guidelines described above at the closest sensitive receiver locations. Under CEQA, consideration must be given to the magnitude of the increase, the existing ambient noise levels, and the location of noise-sensitive receivers to determine if a noise increase represents a significant adverse environmental impact. This approach recognizes *that there is no single noise increase that renders the noise impact significant.* (14)

Unfortunately, there is no completely satisfactory way to measure the subjective effects of noise or of the corresponding human reactions of annoyance and dissatisfaction. This is primarily because of the wide variation in individual thresholds of annoyance and differing individual experiences with noise. Thus, an important way of determining a person's subjective reaction to a new noise is the comparison of it to the existing environment to which one has adapted—the so-called *ambient* environment. In general, the more a new noise exceeds the previously existing ambient noise level, the less acceptable the new noise will typically be judged. The Federal Interagency Committee on Noise (FICON) (15) developed guidance to be used for the assessment of project-generated increases in noise levels that consider the ambient noise level. The FICON recommendations are based on studies that relate aircraft noise levels to the percentage of persons highly annoyed by aircraft noise. Although the FICON recommendations are often used in environmental noise impact assessments involving the use of cumulative noise exposure metrics, such as the average-daily noise level (CNEL) and equivalent continuous noise level (L_{eq}).

As previously stated, the approach used in this noise study recognizes *that there is no single noise increase that renders the noise impact significant*, based on a 2008 California Court of Appeal ruling in Gray v. County of Madera. (14) For example, if the ambient noise environment is quiet (<60 dBA) and the new noise source greatly increases the noise levels, an impact may occur if the noise criteria may be exceeded. Therefore, for this analysis, FICON identifies a *readily perceptible* 5 dBA or greater project-related noise level increase as a significant impact when the noise criteria for a given land use is exceeded. Per the FICON, in areas where the "without Project"



noise levels range from 60 to 65 dBA, a 3 dBA *barely perceptible* noise level increase appears to be appropriate for most people. When the "without Project" noise levels already exceed 65 dBA, any increase in community noise louder than 1.5 dBA or greater is considered a significant impact if the noise criteria for a given land use is exceeded, since it likely contributes to an existing noise exposure exceedance.

The FICON guidance provides an established source of criteria to assess the impacts of substantial temporary or permanent increase in ambient noise levels. Based on the FICON criteria, the amount to which a given noise level increase is considered acceptable is reduced when the "without Project" noise levels are already shown to exceed certain land-use specific exterior noise level criteria. The specific levels are based on typical responses to noise level increases of 5 dBA or *readily perceptible*, 3 dBA or *barely perceptible*, and 1.5 dBA depending on the underlying "without Project" noise levels for noise-sensitive uses. These levels of increases and their perceived acceptance are consistent with guidance provided by both the Federal Highway Administration (6 p. 9) and Caltrans (16 p. 2_48).



4.2 SIGNIFICANCE CRITERIA SUMMARY

Noise impacts shall be considered significant if any of the following occur as a direct result of the proposed development. Table 4-1 shows the significance criteria summary matrix.

Analusia	Receiving	Condition(c)	Significance Criteria		
Analysis	Land Use	Condition(s)	Daytime	Nighttime	
		if ambient is < 60 dBA CNEL ≥ 5 dBA CNEL Project in		oject increase	
Off-Site	Sensitive ¹	if ambient is 60 - 65 dBA CNEL	≥ 3 dBA CNEL Project increase		
		if ambient is > 65 dBA CNEL	≥ 1.5 dBA CNEL P	roject increase	
	Residential	Exterior Noise Level Limit ²	55 dBA L _{eq}	50 dBA L _{eq}	
Operational	Sensitive	if ambient is < 60 dBA L_{eq}^1	≥ 5 dBA L _{eq} Project increase		
Operational		if ambient is 60 - 65 dBA L_{eq}^1	≥ 3 dBA L _{eq} Project increase		
		if ambient is > 65 dBA L _{eq} ¹	≥ 1.5 dBA L _{eq} Pr	oject increase	
Construction	Unlawful between the hours 7:00 a.m. of t		⁵ 10:00 p.m. of one da e next day ³	iy and	
Construction	Sensitive	Exterior Noise Level Limit ⁴	75 dBA L _{max}	n/a	
		Building Damage Vibration Threshold ⁵	0.3 PPV (in/sec)		

TABLE 4-1: SIGNIFICANCE CRITERIA SUMMARY

¹ FICON, 1992.

² City of Garden Grove Municipal Code, Section 8.47.040 ambient base noise level standards for sensitive land uses.

³ City of Garden Grove Municipal Code Section 8.47.060(D).

⁴ City of Garden Grove Municipal Code, Section 8.47.050 maximum noise levels for stationary noise sources.

⁵ Caltrans Transportation and Construction Vibration Guidance Manual, April 2020, Tables 19, p. 38.

"Daytime" = 7:00 a.m. - 10:00 p.m.; "Nighttime" = 10:00 p.m. - 7:00 a.m.



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5 EXISTING NOISE LEVEL MEASUREMENTS

To assess the existing noise level environment, 24-hour noise level measurements were taken at three locations in the Project study area. The receiver locations were selected to describe and document the existing noise environment within the Project study area. Exhibit 5-A provides the boundaries of the Project study area and the noise level measurement locations. To fully describe the existing noise conditions, noise level measurements were collected by Urban Crossroads, Inc. on Wednesday, November 18, 2020. Appendix 5.1 includes study area photos.

5.1 MEASUREMENT PROCEDURE AND CRITERIA

To describe the existing noise environment, the hourly noise levels were measured during typical weekday conditions over a 24-hour period. By collecting individual hourly noise level measurements, it is possible to describe the daytime and nighttime hourly noise levels and calculate the 24-hour CNEL. The long-term noise readings were recorded using Piccolo Type 2 integrating sound level meter and dataloggers. The Piccolo sound level meters were calibrated using a Larson-Davis calibrator, Model CAL 150. All noise meters were programmed in "slow" mode to record noise levels in "A" weighted form. The sound level meters and microphones were equipped with a windscreen during all measurements. All noise level measurement equipment satisfies the American National Standards Institute (ANSI) standard specifications for sound level meters ANSI S1.4-2014/IEC 61672-1:2013. (17)

5.2 NOISE MEASUREMENT LOCATIONS

The long-term noise level measurements were positioned as close to the nearest sensitive receiver locations as possible to assess the existing ambient hourly noise levels surrounding the Project site. Both Caltrans and the FTA recognize that it is not reasonable to collect noise level measurements that can fully represent every part of a private yard, patio, deck, or balcony normally used for human activity when estimating impacts for new development projects. This is demonstrated in the Caltrans general site location guidelines which indicate that, *sites must be free of noise contamination by sources other than sources of interest. Avoid sites located near sources such as barking dogs, lawnmowers, pool pumps, and air conditioners unless it is the express intent of the analyst to measure these sources. (3) Further, FTA guidance states, that it is not necessary nor recommended that existing noise exposure be determined by measuring at every noise-sensitive location in the project area. Rather, the recommended approach is to characterize the noise environment for clusters of sites based on measurements or estimates at representative locations in the community. (9)*

Based on recommendations of Caltrans and the FTA, it is not necessary to collect measurements at each individual building or residence, because each receiver measurement represents a group of buildings that share acoustical equivalence. (9) In other words, the area represented by the receiver shares similar shielding, terrain, and geometric relationship to the reference noise source. Receivers represent a location of noise sensitive areas and are used to estimate the future noise level impacts. Collecting reference ambient noise level measurements at the nearest sensitive receiver locations allows for a comparison of the before and after Project noise levels



and is necessary to assess potential noise impacts due to the Project's contribution to the ambient noise levels.

5.3 NOISE MEASUREMENT RESULTS

The noise measurements presented below focus on the average or equivalent sound levels (L_{eq}). The equivalent sound level (L_{eq}) represents a steady state sound level containing the same total energy as a time varying signal over a given sample period. Table 5-1 provides the (energy average) noise levels used to describe the daytime (7:00 a.m. to 10:00 p.m.) and nighttime (10:00 p.m. to 7:00 a.m.) ambient conditions. These daytime and nighttime energy average noise levels represent the average of all hourly noise levels observed during these time periods expressed as a single number.

Location ¹	Description	Energy / Noise (dBA	CNEL	
		Daytime	Nighttime	
L1	Located west of the Project site near existing multi-family residential homes at 12092 Stonegate Lane.	53.5	49.0	56.6
L2	Located east of the Project site by The Church of Jesus Christ of Latter-day Saints at 12160 Valley View Street.	60.9	55.6	63.7
L3	Located south of the Project site near existing multi-family residential	60.5	55.7	63.5

TABLE 5-1: 24-HOUR AMBIENT NOISE LEVEL MEASUREMENTS

 $^{\rm 1}$ See Exhibit 5-A for the noise level measurement locations.

² Energy (logarithmic) average levels. The long-term 24-hour measurement worksheets are included in Appendix 5.2.

"Daytime" = 7:00 a.m. to 10:00 p.m.; "Nighttime" = 10:00 p.m. to 7:00 a.m.

The background ambient noise levels in the Project study area are dominated by the transportation-related noise associated with nearest surface streets. Appendix 5.2 provides summary worksheets of the noise levels for each hour as well as the minimum, maximum, L_1 , L_2 , L_5 , L_8 , L_{25} , L_{50} , L_{90} , L_{95} , and L_{99} percentile noise levels observed during the daytime and nighttime periods.





EXHIBIT 5-A: NOISE MEASUREMENT LOCATIONS

LEGEND: N A Measurement Locations



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6 TRAFFIC NOISE METHODS AND PROCEDURES

The following section outlines the methods and procedures used to estimate and analyze the future traffic noise environment. Consistent with the General Plan Noise and Land Use Compatibility Matrix, all transportation related noise levels are presented in terms of the 24-hour CNEL's.

6.1 FHWA TRAFFIC NOISE PREDICTION MODEL

The expected roadway noise level increases from vehicular traffic were calculated by Urban Crossroads, Inc. using a computer program that replicates the Federal Highway Administration (FHWA) Traffic Noise Prediction Model- FHWA-RD-77-108. (18) The FHWA Model arrives at a predicted noise level through a series of adjustments to the Reference Energy Mean Emission Level (REMEL). In California the national REMELs are substituted with the California Vehicle Noise (Calveno) Emission Levels. (19) Adjustments are then made to the REMEL to account for: the roadway classification (e.g., collector, secondary, major or arterial), the roadway active width (i.e., the distance between the center of the outermost travel lanes on each side of the roadway), the total average daily traffic (ADT), the travel speed, the percentages of automobiles, medium trucks, and heavy trucks in the traffic volume, the roadway grade, the angle of view (e.g., whether the roadway view is blocked), the site conditions ("hard" or "soft" relates to the absorption of the ground, pavement, or landscaping), and the percentage of total ADT which flows each hour throughout a 24-hour period. Research conducted by Caltrans has shown that the use of soft site conditions is appropriate for the application of the FHWA traffic noise prediction model used in this analysis. (20)

6.1.1 OFF-SITE TRAFFIC NOISE PREDICTION MODEL INPUTS

Table 6-1 presents the roadway parameters used to assess the Project's off-site transportation noise impacts. Table 6-1 identifies the 13 off-site study area roadway segments, the distance from the centerline to adjacent land use based on the functional roadway classifications per the City of Garden Grove General Plan Circulation Element, and the posted vehicle speeds. Consistent with the Westgrove Center Project Traffic Study & Parking Analysis prepared by RK Engineer Group (2) the off-site traffic noise analysis includes the following traffic scenarios.

- Existing
- Existing Plus Project (E+P)
- Project Opening Year Without Project (OY)
- Project Opening Year With Project (OY+P) •

The average daily traffic (ADT) volumes used for this study are presented on Table 6-1. Table 6-2 provides the time of day (daytime, evening, and nighttime) vehicle splits and Table 6-3 presents the traffic flow distributions (vehicle mix) used for this analysis. The vehicle mix provides the hourly distribution percentages of automobile, medium trucks, and heavy trucks for input into the FHWA noise prediction model.



ID	Roadway	Segment	Receiving Land Use ¹	Classification ²	Centerline Distance to Receiving Land Use (Feet) ³	Vehicle Speed (mph)
1	Valley View St.	n/o Chapman Av.	Sensitive	Major Arterial	60'	45
2	Valley View St.	n/o Belgrave Av.	Sensitive	Major Arterial	60'	45
3	Valley View St.	n/o Lampson Av.	Sensitive	Major Arterial	60'	45
4	Valley View St.	n/o Cerulean Av.	Non-Sensitive	Major Arterial	60'	45
5	Valley View St.	s/o Cerulean Av.	Sensitive	Major Arterial	60'	45
6	Chapman Av.	w/o Valley View St.	Sensitive	Primary Arterial	50'	45
7	Chapman Av.	e/o Valley View St.	Sensitive	Primary Arterial	50'	45
8	Belgrave Av.	w/o Valley View St.	Sensitive	Collector	37'	25
9	Belgrave Av.	e/o Valley View St.	Sensitive	Collector	37'	25
10	Lampson Av.	w/o Valley View St.	Sensitive	Secondary	40'	40
11	Lampson Av.	e/o Valley View St.	Sensitive	Secondary	40'	40
12	Cerulean Av.	w/o Valley View St.	Sensitive	Collector	37'	25
13	Cerulean Av.	e/o Valley View St.	Sensitive	Collector	37'	25

TABLE 6-1: OFF-SITE ROADWAY PARAMETERS

¹ Based on a review of existing aerial imagery. Noise sensitive uses limited to existing residential land uses.

² Garden Grove General Plan 2030 Master Plan of Streets and Highways

³ Based upon the right-of-way distances for each roadway classification provided in the General Plan Circulation Element.

TABLE 6-2: AVERAGE DAILY TRAFFIC VOLUMES

	Roadway	Segment	Average Daily Traffic Volumes ¹			
ID			Existing		Opening Year	
			Without Project	With Project	Without Project	With Project
1	Valley View St.	n/o Chapman Av.	48,468	49,598	50,513	51,643
2	Valley View St.	n/o Belgrave Av.	49,620	52,448	51,711	54,539
3	Valley View St.	n/o Lampson Av.	49,920	51,898	52,023	54,001
4	Valley View St.	n/o Cerulean Av.	49,824	50,672	51,903	52,751
5	Valley View St.	s/o Cerulean Av.	52,152	52,434	54,324	54,606
6	Chapman Av.	w/o Valley View St.	10,476	11,324	11,527	12,375
7	Chapman Av.	e/o Valley View St.	14,076	14,924	15,271	16,119
8	Belgrave Av.	w/o Valley View St.	1,644	2,210	1,710	2,276
9	Belgrave Av.	e/o Valley View St.	264	546	275	557
10	Lampson Av.	w/o Valley View St.	14,916	15,482	16,125	16,691
11	Lampson Av.	e/o Valley View St.	12,240	12,806	13,342	13,908
12	Cerulean Av.	w/o Valley View St.	4,824	5,106	5,017	5,299
13	Cerulean Av.	e/o Valley View St.	5,124	5,406	5,329	5,611

¹ Westgrove Center Project Traffic Study & Parking Analysis prepared by RK Engineer Group.



Vahiela Turna		Total of Time of			
venicie rype	Daytime	Evening	Nighttime	Day Splits	
Autos	77.50%	12.90%	9.60%	100.00%	
Medium Trucks	84.80%	4.90%	10.30%	100.00%	
Heavy Trucks	86.50%	2.70%	10.80%	100.00%	

TABLE 6-3: TIME OF DAY VEHICLE SPLITS

¹ Typical Southern California vehicle mix.

"Daytime" = 7:00 a.m. to 7:00 p.m.; "Evening" = 7:00 p.m. to 10:00 p.m.; "Nighttime" = 10:00 p.m. to 7:00 a.m.

TABLE 6-4: TRAFFIC FLOW BY VEHICLE TYPE (VEHICLE MIX)

	Т				
Roadway	Autos	Medium Trucks	Heavy Trucks	Total	
All Roadways	97.42%	1.84%	0.74%	100.00%	

¹ Typical Southern California vehicle mix.



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7 OFF-SITE TRAFFIC NOISE ANALYSIS

To assess the off-site transportation CNEL noise level impacts associated with development of the proposed Project, noise contours were developed based on the *Westgrove Center Project Traffic Study & Parking Analysis* prepared by RK Engineer Group. (2) Noise contour boundaries represent the equal levels of noise exposure and are measured in CNEL from the center of the roadway.

7.1 TRAFFIC NOISE CONTOURS

Noise contours were used to assess the Project's incremental traffic-related noise impacts at land uses adjacent to roadways conveying Project traffic. The noise contours represent the distance to noise levels of a constant value and are measured from the center of the roadway for the 70, 65, and 60 dBA noise levels. The noise contours do not consider the effect of any existing noise barriers or topography that may attenuate ambient noise levels. In addition, because the noise contours reflect modeling of vehicular noise on area roadways, they appropriately do not reflect noise contributions from the surrounding stationary noise sources within the Project study area. Tables 7-1 to 7-4 present a summary of the exterior traffic noise levels for each traffic condition.

7.2 EXISTING PROJECT TRAFFIC NOISE LEVEL INCREASES

An analysis of existing traffic noise levels plus traffic noise generated by the proposed Project Phase 1 has been included in this report for informational purposes and to fully analyze all the existing traffic scenarios identified in the *Westgrove Center Project Traffic Study & Parking Analysis* prepared by RK Engineer Group. (2) Table 7-1 shows the Existing without Project conditions CNEL noise levels. The Existing without Project exterior noise levels range from 46.5 to 74.2 dBA CNEL, without accounting for any noise attenuation features such as noise barriers or topography. Table 7-2 shows the Existing with Project conditions range from 49.7 to 74.2 dBA CNEL. Table 7-10 shows that the Project off-site traffic noise level ranges from 0.0 to 3.2 dBA CNEL on the study area roadway segments.

7.3 OPENING YEAR TRAFFIC NOISE LEVEL INCREASES

Table 7-3 presents the Opening Year without Project conditions CNEL noise levels. The Opening Year without Project exterior noise levels range from 46.7 to 74.4 dBA CNEL, without accounting for any noise attenuation features such as noise barriers or topography. Table 7-4 shows the Opening Year with Project conditions range from 49.8 to 74.4 dBA CNEL. Table 7-6 shows that the Project off-site traffic noise level increases range from 0.0 to 3.1 dBA CNEL.





10	Deed	Compat	Receiving	CNEL at Nearest Receiving		Distance to Contour from Centerline (Feet)		
טו	коаа	Segment	Land Use ¹	Land Use (dBA) ²	70 dBA CNEL	65 dBA CNEL	60 dBA CNEL	
1	Valley View St.	n/o Chapman Av.	Sensitive	73.9	109	235	506	
2	Valley View St.	n/o Belgrave Av.	Sensitive	74.0	111	239	514	
3	Valley View St.	n/o Lampson Av.	Sensitive	74.0	111	240	516	
4	Valley View St.	n/o Cerulean Av.	Non-Sensitive	74.0	111	239	516	
5	Valley View St.	s/o Cerulean Av.	Sensitive	74.2	115	247	532	
6	Chapman Av.	w/o Valley View St.	Sensitive	67.5	RW	73	158	
7	Chapman Av.	e/o Valley View St.	Sensitive	68.8	RW	89	192	
8	Belgrave Av.	w/o Valley View St.	Sensitive	54.5	RW	RW	RW	
9	Belgrave Av.	e/o Valley View St.	Sensitive	46.5	RW	RW	RW	
10	Lampson Av.	w/o Valley View St.	Sensitive	69.1	RW	75	161	
11	Lampson Av.	e/o Valley View St.	Sensitive	68.2	RW	66	141	
12	Cerulean Av.	w/o Valley View St.	Sensitive	59.2	RW	RW	RW	
13	Cerulean Av.	e/o Valley View St.	Sensitive	59.4	RW	RW	RW	

TABLE 7-1: EXISTING WITHOUT PROJECT CONTOURS

¹ Based on a review of existing aerial imagery. Noise sensitive uses limited to existing residential land uses.
 ² The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the nearest receiving land use.



10	Deed	Segment	Receiving	CNEL at Nearest	Distance to Contour from Centerline (Feet)		
טו	коаа	Segment	Land Use ¹	Land Use (dBA) ²	70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	Valley View St.	n/o Chapman Av.	Sensitive	74.0	111	239	514
2	Valley View St.	n/o Belgrave Av.	Sensitive	74.2	115	248	534
3	Valley View St.	n/o Lampson Av.	Sensitive	74.2	114	246	530
4	Valley View St.	n/o Cerulean Av.	Non-Sensitive	74.1	112	242	522
5	Valley View St.	s/o Cerulean Av.	Sensitive	74.2	115	248	534
6	Chapman Av.	w/o Valley View St.	Sensitive	67.8	RW	77	166
7	Chapman Av.	e/o Valley View St.	Sensitive	69.0	RW	93	200
8	Belgrave Av.	w/o Valley View St.	Sensitive	55.8	RW	RW	RW
9	Belgrave Av.	e/o Valley View St.	Sensitive	49.7	RW	RW	RW
10	Lampson Av.	w/o Valley View St.	Sensitive	69.2	RW	77	165
11	Lampson Av.	e/o Valley View St.	Sensitive	68.4	RW	68	146
12	Cerulean Av.	w/o Valley View St.	Sensitive	59.4	RW	RW	RW
13	Cerulean Av.	e/o Valley View St.	Sensitive	59.6	RW	RW	RW

TABLE 7-2: E	EXISTING WITH	PROJECT	CONTOURS
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¹ Based on a review of existing aerial imagery. Noise sensitive uses limited to existing residential land uses.

² The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the nearest receiving land use.



10	Deed	Receiving	Receiving	CNEL at Nearest	Distance to Contour from Centerline (Feet)		
טו	коаа	Segment	Land Use ¹	Land Use (dBA) ²	70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	Valley View St.	n/o Chapman Av.	Sensitive	74.1	112	242	520
2	Valley View St.	n/o Belgrave Av.	Sensitive	74.2	114	245	529
3	Valley View St.	n/o Lampson Av.	Sensitive	74.2	114	246	531
4	Valley View St.	n/o Cerulean Av.	Non-Sensitive	74.2	114	246	530
5	Valley View St.	s/o Cerulean Av.	Sensitive	74.4	118	254	546
6	Chapman Av.	w/o Valley View St.	Sensitive	67.9	RW	78	168
7	Chapman Av.	e/o Valley View St.	Sensitive	69.1	RW	94	203
8	Belgrave Av.	w/o Valley View St.	Sensitive	54.6	RW	RW	RW
9	Belgrave Av.	e/o Valley View St.	Sensitive	46.7	RW	RW	RW
10	Lampson Av.	w/o Valley View St.	Sensitive	69.4	RW	79	170
11	Lampson Av.	e/o Valley View St.	Sensitive	68.6	RW	69	150
12	Cerulean Av.	w/o Valley View St.	Sensitive	59.3	RW	RW	RW
13	Cerulean Av.	e/o Valley View St.	Sensitive	59.6	RW	RW	RW

TABLE 7-3: OPENING YEAR WITHOUT PROJECT CONTOURS

¹ Based on a review of existing aerial imagery. Noise sensitive uses limited to existing residential land uses.

² The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the nearest receiving land use.



10	Deed	Comment	Receiving	CNEL at Nearest	Distance to Contour from Centerline (Feet)		
טו	коаа	Segment	Land Use ¹	Land Use (dBA) ²	70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	Valley View St.	n/o Chapman Av.	Sensitive	74.2	114	245	528
2	Valley View St.	n/o Belgrave Av.	Sensitive	74.4	118	254	548
3	Valley View St.	n/o Lampson Av.	Sensitive	74.4	117	253	544
4	Valley View St.	n/o Cerulean Av.	Non-Sensitive	74.3	115	249	536
5	Valley View St.	s/o Cerulean Av.	Sensitive	74.4	118	254	548
6	Chapman Av.	w/o Valley View St.	Sensitive	68.2	RW	82	176
7	Chapman Av.	e/o Valley View St.	Sensitive	69.4	RW	98	210
8	Belgrave Av.	w/o Valley View St.	Sensitive	55.9	RW	RW	RW
9	Belgrave Av.	e/o Valley View St.	Sensitive	49.8	RW	RW	RW
10	Lampson Av.	w/o Valley View St.	Sensitive	69.6	RW	81	174
11	Lampson Av.	e/o Valley View St.	Sensitive	68.8	RW	71	154
12	Cerulean Av.	w/o Valley View St.	Sensitive	59.6	RW	RW	RW
13	Cerulean Av.	e/o Valley View St.	Sensitive	59.8	RW	RW	RW

TABLE 7-4: OPENING YEAR WITH PROJECT CONTOURS

¹ Based on a review of existing aerial imagery. Noise sensitive uses limited to existing residential land uses.
 ² The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the nearest receiving land use.



ID	Road	Segment	Receiving	CN Li	IEL at Receivi and Use (dBA	ng) ²	Increme Level I Thre	ntal Noise ncrease shold ³
			Land Use ¹	No Project	With Project	Project Addition	Limit⁴	Exceeded?
1	Valley View St.	n/o Chapman Av.	Sensitive	73.9	74.0	0.1	1.5	No
2	Valley View St.	n/o Belgrave Av.	Sensitive	74.0	74.2	0.2	1.5	No
3	Valley View St.	n/o Lampson Av.	Sensitive	74.0	74.2	0.2	1.5	No
4	Valley View St.	n/o Cerulean Av.	Non-Sensitive	74.0	74.1	0.1	1.5	No
5	Valley View St.	s/o Cerulean Av.	Sensitive	74.2	74.2	0.0	1.5	No
6	Chapman Av.	w/o Valley View St.	Sensitive	67.5	67.8	0.3	1.5	No
7	Chapman Av.	e/o Valley View St.	Sensitive	68.8	69.0	0.2	1.5	No
8	Belgrave Av.	w/o Valley View St.	Sensitive	54.5	55.8	1.3	5.0	No
9	Belgrave Av.	e/o Valley View St.	Sensitive	46.5	49.7	3.2	5.0	No
10	Lampson Av.	w/o Valley View St.	Sensitive	69.1	69.2	0.1	1.5	No
11	Lampson Av.	e/o Valley View St.	Sensitive	68.2	68.4	0.2	1.5	No
12	Cerulean Av.	w/o Valley View St.	Sensitive	59.2	59.4	0.2	5.0	No
13	Cerulean Av.	e/o Valley View St.	Sensitive	59.4	59.6	0.2	5.0	No

TABLE 7-5: EXISTING WITH PROJECT TRAFFIC NOISE LEVEL INCREASES

¹ Based on a review of existing aerial imagery. Noise sensitive uses limited to existing residential land uses.

² The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the receiving land use.

³ Does the Project create an incremental noise level increase exceeding the significance criteria (Table 4-1)?

⁴ When the "no Project" noise level is < 60 dBA CNEL the Project limit is 5 dBA CNEL, when the "no Project" noise level is 60-65 dBA CNEL the Project limit is 3 dBA CNEL, when the "no Project" noise level is > 65 dBA CNEL the Project limit is 1.5 dBA CNEL.



ID	Road	Segment	CNEL at Receiv Receiving Land Use (dB/		CNEL at Receiving Receiving Land Use (dBA) ²		Incremer Level II Thres	ntal Noise ncrease shold ³
			Land Use ¹	No Project	With Project	Project Addition	Limit ⁴	Exceeded?
1	Valley View St.	n/o Chapman Av.	Sensitive	74.1	74.2	0.1	1.5	No
2	Valley View St.	n/o Belgrave Av.	Sensitive	74.2	74.4	0.2	1.5	No
3	Valley View St.	n/o Lampson Av.	Sensitive	74.2	74.4	0.2	1.5	No
4	Valley View St.	n/o Cerulean Av.	Non-Sensitive	74.2	74.3	0.1	1.5	No
5	Valley View St.	s/o Cerulean Av.	Sensitive	74.4	74.4	0.0	1.5	No
6	Chapman Av.	w/o Valley View St.	Sensitive	67.9	68.2	0.3	1.5	No
7	Chapman Av.	e/o Valley View St.	Sensitive	69.1	69.4	0.3	1.5	No
8	Belgrave Av.	w/o Valley View St.	Sensitive	54.6	55.9	1.3	5.0	No
9	Belgrave Av.	e/o Valley View St.	Sensitive	46.7	49.8	3.1	5.0	No
10	Lampson Av.	w/o Valley View St.	Sensitive	69.4	69.6	0.2	1.5	No
11	Lampson Av.	e/o Valley View St.	Sensitive	68.6	68.8	0.2	1.5	No
12	Cerulean Av.	w/o Valley View St.	Sensitive	59.3	59.6	0.3	5.0	No
13	Cerulean Av.	e/o Valley View St.	Sensitive	59.6	59.8	0.2	5.0	No

 TABLE 7-6: OPENING YEAR WITH PROJECT TRAFFIC NOISE LEVEL INCREASES

¹ Based on a review of existing aerial imagery. Noise sensitive uses limited to existing residential land uses.

² The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the receiving land use.

³ Does the Project create an incremental noise level increase exceeding the significance criteria (Table 4-1)?

⁴ When the "no Project" noise level is < 60 dBA CNEL the Project limit is 5 dBA CNEL, when the "no Project" noise level is 60-65 dBA CNEL the Project limit is 3 dBA CNEL, when the "no Project" noise level is > 65 dBA CNEL the Project limit is 1.5 dBA CNEL.



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8 **RECEIVER LOCATIONS**

To assess the potential for long-term operational and short-term construction noise impacts, the following sensitive receiver locations, as shown on Exhibit 8-A, were identified as representative locations for analysis. Sensitive receivers are generally defined as locations where people reside or where the presence of unwanted sound could otherwise adversely affect the use of the land. Noise-sensitive land uses are generally considered to include schools, hospitals, single-family dwellings, mobile home parks, churches, libraries, and recreation areas. Moderately noise-sensitive land uses typically include multi-family dwellings, hotels, motels, dormitories, outpatient clinics, cemeteries, golf courses, country clubs, athletic/tennis clubs, and equestrian clubs. Land uses that are considered relatively insensitive to noise include business, commercial, and professional developments. Land uses that are typically not affected by noise include: industrial, manufacturing, utilities, agriculture, undeveloped land, parking lots, warehousing, liquid and solid waste facilities, salvage yards, and transit terminals.

To describe the potential off-site Project noise levels, three receiver locations in the vicinity of the Project site were identified. All distances are measured from the Project site boundary to the outdoor living areas (e.g., private backyards) or at the building façade, whichever is closer to the Project site. The selection of receiver locations is based on FHWA guidelines and is consistent with additional guidance provided by Caltrans and the FTA, as previously described in Section 5.2. Other sensitive land uses in the Project study area that are located at greater distances than those identified in this noise study will experience lower noise levels than those presented in this report due to the additional attenuation from distance and the shielding of intervening structures. Distance is measured in a straight line from the Project boundary to each receiver location.

- R1: Location R1 represents the existing multi-family noise sensitive residence at 12094 Stonegate Lane, approximately 29 feet west of the Project site. R1 is placed at the building façade behind the existing 6-foot-high wall. A 24-hour noise measurement near this location, L1, is used to describe the existing ambient noise environment.
- R2: Location R2 represents the existing noise sensitive Church of Jesus Christ of Latter-day Saints at 12160 Valley View Street, approximately 142 feet east of the Project site. Receiver R2 is placed at the building façade. A 24-hour noise measurement was taken near this location, L2, to describe the existing ambient noise environment.
- R3: Location R3 represents the existing noise sensitive residence at 5921 Bailey Street approximately 34 feet south of the Project site. Since there are no private outdoor living areas (backyards) facing the Project site, receiver R3 is placed at the residential building façade. A 24-hour noise measurement near this location, L3, is used to describe the existing ambient noise environment.





EXHIBIT 8-A: RECEIVER LOCATIONS



9 OPERATIONAL NOISE ANALYSIS

This section analyzes the potential stationary-source operational noise impacts at the nearest receiver locations, identified in Section 8, resulting from the operation of the proposed West Grove Center Project. Exhibit 9-A identifies the noise source locations used to assess the operational noise levels.

9.1 OPERATIONAL NOISE SOURCES

This operational noise analysis is intended to describe noise level impacts associated with the expected typical daytime and nighttime commercial activities at the Project site. The on-site Project-related noise sources are expected to include: roof-top air conditioning units, drive-thru speakerphone activity, and trash enclosure activity.

9.2 **REFERENCE NOISE LEVELS**

To estimate the Project operational noise impacts, reference noise level measurements were collected from similar types of activities to represent the noise levels expected with the development of the proposed Project. This section provides a detailed description of the reference noise level measurements shown on Table 9-1 used to estimate the Project operational noise impacts. It is important to note that the following projected noise levels assume the worst-case noise environment with the roof-top air conditioning units, drive-thru speakerphone activity, and trash enclosure activity all operating at the same time. These sources of noise activity will likely vary throughout the day.

9.2.1 MEASUREMENT PROCEDURES

The reference noise level measurements presented in this section were collected using a Larson Davis LxT Type 1 precisions sound level meter (serial number 01146). The LxT sound level meter was calibrated using a Larson-Davis calibrator, Model CAL 200, was programmed in "slow" mode to record noise levels in "A" weighted form and was located at approximately five feet above the ground elevation for each measurement. The sound level meters and microphones were equipped with a windscreen during all measurements. All noise level measurement equipment satisfies the American National Standards Institute (ANSI) standard specifications for sound level meters ANSI S1.4-2014/IEC 61672-1:2013. (17)



EXHIBIT 9-A: OPERATIONAL NOISE SOURCE LOCATIONS



Noise Source ¹	Noise Source Height	Min./Hour ²		Reference Noise Level @50 feet	Sound Power Level	
	(Feet)	Day	Night	(dBA L _{eq})	(dBA) ³	
Roof-Top Air Conditioning Units	5'	39	28	57.2	88.9	
Drive-Thru Activity	3'	60	60	50.0	84.0	
Trash Enclosure Activity	5'	10	10	57.3	89.0	

TABLE 9-1: REFERENCE NOISE LEVEL MEASUREMENTS

¹ As measured by Urban Crossroads, Inc.

² Anticipated duration (minutes within the hour) of noise activity during typical hourly conditions expected at the Project site.

"Daytime" = 7:00 a.m. - 10:00 p.m.; "Nighttime" = 10:00 p.m. - 8:00 a.m.

³ Sound power level represents the total amount of acoustical energy (noise level) produced by a sound source independent of distance or surroundings. Sound power levels calculated using the CadnaA noise model at the reference distance to the noise source. Numbers may vary due to size differences between point and area noise sources.

9.2.2 ROOF-TOP AIR CONDITIONING UNITS

To assess the noise levels created by the roof-top air conditioning units, reference noise level measurements were collected from a Lennox SCA120 series 10-ton model packaged air conditioning unit. At the uniform reference distance of 50 feet, the reference noise levels are 57.2 dBA L_{eq}. Based on the typical operating conditions observed over a four-day measurement period, the roof-top air conditioning units are estimated to operate for an average of 39 minutes per hour during the daytime hours, and 28 minutes per hour during the nighttime hours. For this noise analysis, the air conditioning units are expected to be located on the roof of the proposed building. This reference noise level describes the expected roof-top air conditioning units located 5 feet above the roof for the planned air conditioning units at the Project site.

9.2.3 DRIVE-THRU SPEAKERPHONE ACTIVITY

To describe the potential noise level impacts associated with the planned drive-thru speakerphones, this analysis relies on the drive-thru intercom system manufactured by HME. This type of system is commonly used by the quick service restaurant (QSR) industry for drive-thru communications. The HME SPP2 speaker post intercom system produces a maximum noise level of 84 dBA at one foot from the speaker post. The system may also be equipped with an automatic volume control that can automatically reduce the sound levels as the ambient noise level decreases. The reference speakerphone noise level describes continuous drive-thru operations and does not include any periods of inactivity.

9.2.4 TRASH ENCLOSURE ACTIVITY

To describe the noise levels associated with a trash enclosure activity, Urban Crossroads collected a reference noise level measurement at an existing trash enclosure containing two dumpster bins. The trash enclosure noise levels describe metal gates opening and closing, metal scraping against concrete floor sounds, dumpster movement on metal wheels, and trash dropping into the metal dumpster. The reference noise levels describe trash enclosure noise activities when trash is dropped into an empty metal dumpster, as would occur at the Project site. The measured reference noise level at the uniform 50-foot reference distance is 57.3 dBA L_{eq} for the trash



enclosure activity. The reference noise level describes the expected noise source activities associated with the trash enclosures for the Project's proposed building. Typical trash enclosure activities are estimated to occur for 10 minutes per hour.

9.3 CADNAA NOISE PREDICTION MODEL

To fully describe the exterior operational noise levels from the Project, Urban Crossroads, Inc. developed a noise prediction model using the CadnaA (Computer Aided Noise Abatement) computer program. CadnaA can analyze multiple types of noise sources using the spatially accurate Project site plan, georeferenced Nearmap aerial imagery, topography, buildings, and barriers in its calculations to predict outdoor noise levels.

Using the ISO 9613 protocol, CadnaA will calculate the distance from each noise source to the noise receiver locations, using the ground absorption, distance, and barrier/building attenuation inputs to provide a summary of noise level at each receiver and the partial noise level contributions by noise source. Consistent with the ISO 9613 protocol, the CadnaA noise prediction model relies on the reference sound power level (L_w) to describe individual noise sources. While sound pressure levels (e.g. Leg) quantify in decibels the intensity of given sound sources at a reference distance, sound power levels (L_w) are connected to the sound source and are independent of distance. Sound pressure levels vary substantially with distance from the source and diminish because of intervening obstacles and barriers, air absorption, wind, and other factors. Sound power is the acoustical energy emitted by the sound source and is an absolute value that is not affected by the environment. The operational noise level calculations provided in this noise study account for the distance attenuation provided due to geometric spreading, when sound from a localized stationary source (i.e., a point source) propagates uniformly outward in a spherical pattern. A default ground attenuation factor of 0.0 was used in the noise analysis to account for hard site conditions. Appendix 9.1 includes the detailed noise model inputs used to estimate the Project operational noise levels presented in this section.

9.4 PROJECT OPERATIONAL NOISE LEVELS

Using the reference noise levels to represent the proposed Project operations that include rooftop air conditioning units, drive-thru speakerphone activity, and trash enclosure activity, Urban Crossroads, Inc. calculated the operational source noise levels that are expected to be generated at the Project site and the Project-related noise level increases that would be experienced at each of the sensitive receiver locations. Tables 9-2 shows the Project operational noise levels during the daytime hours of 7:00 a.m. to 10:00 p.m. The daytime hourly noise levels at the off-site receiver locations are expected to range from 43.3 to 52.5 dBA L_{eq}.

Tables 9-3 shows the Project operational noise levels during the nighttime hours of 10:00 p.m. to 7:00 a.m. The nighttime hourly noise levels at the off-site receiver locations are expected to range from 40.9 to 50.5 dBA L_{eq} . The differences between the daytime and nighttime noise levels are largely related to the duration of noise activity (Table 9-1). Appendix 9.1 includes the detailed noise model inputs, including the existing perimeter walls, used to estimate the Project operational noise levels presented in this section.



Naisa Cauraal	Operational Noise Levels by Receiver Location (dB				
Noise Source*	R1	R2	R3		
Roof-Top Air Conditioning Units	43.3	48.6	51.0		
Drive-Thru Activity	21.0	32.1	45.5		
Trash Enclosure Activity	14.3	21.6	41.8		
Total (All Noise Sources)	43.3	48.7	52.5		

TABLE 9-2: DAYTIME PROJECT OPERATIONAL NOISE LEVELS

¹ See Exhibit 9-A for the noise source locations. CadnaA noise model calculations are included in Appendix 9.1.

TABLE 9-3: NIGHTTIME PROJECT OPERATIONAL NOISE LEVELS

Noise Coursel	Operational Noise Levels by Receiver Location (dBA Leq)				
Noise Source-	R1	R2	R3		
Roof-Top Air Conditioning Units	40.9	46.2	48.6		
Drive-Thru Activity	20.1	31.1	44.5		
Trash Enclosure Activity	13.4	20.6	40.9		
Total (All Noise Sources)	40.9	46.3	50.5		

¹ See Exhibit 9-A for the noise source locations. CadnaA noise model calculations are included in Appendix 9.1.

9.5 PROJECT OPERATIONAL NOISE LEVEL COMPLIANCE

To demonstrate compliance with local noise regulations, the Project-only operational noise levels are evaluated against exterior noise level thresholds based on the City of Garden Grove exterior noise level standards at nearest noise-sensitive receiver locations. Table 9-4 shows the operational noise levels associated with West Grove Center Project will satisfy the City of Garden Grove daytime and nighttime exterior noise level standards adjusted to reflect the ambient noise levels at all nearest receiver locations. Therefore, the operational noise impacts are considered *less than significant* at the nearest noise-sensitive receiver locations.

Receiver	Project O Noise Level	perational s (dBA Leq) ²	Noise Level Standards (dBA Leq) ³		Noise Level Standards Exceeded? ⁴	
Location	Daytime	Nighttime	Daytime	Nighttime	Daytime	Nighttime
R1	43.3	40.9	54	49	No	No
R2	48.7	46.3	61	56	No	No
R3	52.5	50.5	61	56	No	No

¹ See Exhibit 8-A for the receiver locations.

² Proposed Project operational noise levels as shown on Tables 9-2 and 9-3.

³ Exterior noise level standards adjusted to reflect the ambient noise levels (see Table 5-1) per the City of Garden Grove Municipal Code Per Section 8.47.050(D).

⁴ Do the estimated Project operational noise source activities exceed the noise level standards?

"Daytime" = 7:00 a.m. - 10:00 p.m.; "Nighttime" = 10:00 p.m. - 7:00 a.m.



To describe the Project operational noise level increases, the Project operational noise levels are combined with the existing ambient noise levels measurements for the nearest receiver locations potentially impacted by Project operational noise sources. Since the units used to measure noise, decibels (dB), are logarithmic units, the Project-operational and existing ambient noise levels cannot be combined using standard arithmetic equations. (3) Instead, they must be logarithmically added using the following base equation:

 $SPL_{Total} = 10log_{10}[10^{SPL1/10} + 10^{SPL2/10} + \dots 10^{SPLn/10}]$

Where "SPL1," "SPL2," etc. are equal to the sound pressure levels being combined, or in this case, the Project-operational and existing ambient noise levels. The difference between the combined Project and ambient noise levels describes the Project noise level increases to the existing ambient noise environment. Noise levels that would be experienced at receiver locations when Project-source noise is added to the daytime and nighttime ambient conditions are presented on Tables 9-5 and 9-6, respectively. As indicated on Tables 9-5 and 9-6, the Project will generate a operational noise level increase of 0.3 to 1.2 dBA L_{eq} at the nearest receiver locations. Project-related operational noise level increases will satisfy the operational noise level increase significance criteria presented in Table 4-1, and the increases at the sensitive receiver locations will be *less than significant*.



Receiver Location ¹	Total Project Operational Noise Level ²	Measurement Location ³	Reference Ambient Noise Levels⁴	Combined Project and Ambient ⁵	Project Increase ⁶	Noise Sensitive Land Use?	Increase Criteria ⁷	Increase Criteria Exceeded?
R1	43.3	L1	53.5	53.9	0.4	Yes	5.0	No
R2	48.7	L2	60.9	61.2	0.3	Yes	3.0	No
R3	52.5	L3	60.5	61.1	0.6	Yes	3.0	No

TABLE 9-5: DAYTIME PROJECT OPERATIONAL NOISE LEVEL INCREASES

¹ See Exhibit 8-A for the receiver locations.

² Total Project daytime operational noise levels as shown on Table 9-2.

³ Reference noise level measurement locations as shown on Exhibit 5-A.

⁴ Observed daytime ambient noise levels as shown on Table 5-1.

⁵ Represents the combined ambient conditions plus the Project activities.

⁶ The noise level increase expected with the addition of the proposed Project activities.

⁷ Significance increase criteria as shown on Table 4-1.

TABLE 9-6: NIGHTTIME PROJECT OPERATIONAL NOISE LEVEL INCREASES

Receiver Location ¹	Total Project Operational Noise Level ²	Measurement Location ³	Reference Ambient Noise Levels ⁴	Combined Project and Ambient ⁵	Project Increase ⁶	Noise Sensitive Land Use?	Increase Criteria ⁷	Increase Criteria Exceeded?
R1	40.9	L1	49.0	49.6	0.6	Yes	5.0	No
R2	46.3	L2	55.6	56.1	0.5	Yes	5.0	No
R3	50.5	L3	55.7	56.9	1.2	Yes	5.0	No

¹ See Exhibit 8-A for the receiver locations.

² Total Project nighttime operational noise levels as shown on Table 9-3.

³ Reference noise level measurement locations as shown on Exhibit 5-A.

⁴ Observed nighttime ambient noise levels as shown on Table 5-1.

⁵ Represents the combined ambient conditions plus the Project activities.

⁶ The noise level increase expected with the addition of the proposed Project activities.

⁷ Significance increase criteria as shown on Table 4-1.



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10 CONSTRUCTION ANALYSIS

This section analyzes potential impacts resulting from the short-term construction activities associated with the development of the Project. Exhibit 10-A shows the construction noise source locations in relation to the nearest sensitive receiver locations previously described in Section 8.

To prevent high levels of construction noise from impacting noise-sensitive land uses, City of Garden Grove Municipal Code Section 8.47.060(D) restricts construction activities between the hours of 10:00 p.m. of one day and 7:00 a.m. of the next day.

10.1 CONSTRUCTION NOISE LEVELS

Noise generated by the Project construction equipment will include a combination of trucks, power tools, concrete mixers, and portable generators that when combined can reach high levels. The number and mix of construction equipment are expected to occur in the following stages:

- Building Demolition
- Building Construction
- Paving Replacement
- Architectural Coating

This construction noise analysis was prepared using reference noise level measurements taken by Urban Crossroads, Inc. to describe the typical construction activity noise levels for each stage of Project construction. The construction reference noise level measurements represent a list of typical construction activity noise levels.

10.2 Typical Construction Reference Noise Levels

Using the reference construction equipment noise levels and the CadnaA noise prediction model, calculations of the Project construction noise level impacts at the nearest sensitive receiver locations were completed. To assess the construction noise levels, the Project construction noise analysis relies on the highest noise level impacts when the equipment with the highest reference noise level is operating at the closest point from the edge of construction activity area for each stage of construction to each of the nearest receiver locations. Appendix 10.1 includes the detailed CadnaA construction noise model inputs.





EXHIBIT 10-A: TYPICAL CONSTRUCTION NOISE SOURCE LOCATIONS



Construction Stage	Reference Construction Activity ¹	Reference Noise Level @ 50 Feet (dBA L _{max})	Highest Reference Noise Level (dBA L _{max})
	Scraper, Water Truck, & Dozer Activity	83.3	
Building	Demolition Activity	81.6	83.3
Demontion	Water Truck Pass-By & Backup Alarm	77.9	
	Foundation Trenching	70.5	
Building	Framing	72.3	78.8
construction	Concrete Mixer Backup Alarms & Air Brakes	78.8	
	Concrete Mixer Truck Movements	73.1	
Paving Replacement	Concrete Paver Activities	71.3	73.1
Replacement	Concrete Mixer Pour & Paving Activities	71.9	
Architectural Coating	Air Compressors	67.0	
	Generator	67.0	67.0
	Crane	65.2	

TABLE 10-1: CONSTRUCTION REFERENCE NOISE LEVELS

¹ Reference construction noise level measurements taken by Urban Crossroads, Inc.

10.3 Typical Construction Noise Analysis

Using the reference construction equipment noise levels and the CadnaA noise prediction model, calculations of the Project construction noise level impacts at the nearest sensitive receiver locations were completed. The Project construction noise analysis relies on the highest noise level impacts for each stage of construction at each of the nearest receiver locations. As shown on Table 10-2, the construction noise levels are expected to range from 46.5 to 71.1 dBA L_{max} , and the highest construction levels are expected to range from 58.3 to 71.1 dBA L_{max} at the nearest receiver locations. Appendix 10.1 includes the detailed CadnaA construction noise model inputs.

	Construction Noise Levels by Stage (dBA Lmax)							
Receiver Location ¹	Building Demolition	Building Construction	Paving Replacement	Architectural Coating	Highest Levels ²			
R1	58.0	58.3	57.9	46.5	58.3			
R2	64.8	63.4	65.6	51.6	65.6			
R3	68.9	67.7	71.1	55.9	71.1			

TABLE 10-2: TYPICAL CONSTRUCTION EQUIPMENT NOISE LEVEL SUMMARY

¹Noise receiver locations are shown on Exhibit 8-A.

² Construction noise level calculations based on distance from the project construction activity area for each stage of construction to the nearest receiver locations. CadnaA construction noise model inputs are included in Appendix 10.1.



10.4 Typical Construction Noise Level Compliance

To evaluate whether the Project will generate potentially significant short-term noise levels at nearest receiver locations, the City of Garden Grove has identified a construction-related daytime noise level threshold of 75 dBA L_{max} to assess the daytime construction noise level impacts. The construction noise analysis shows that the nearest receiver locations will be below the daytime 75 dBA L_{max} significance threshold during Project construction activities as shown on Table 10-3. Therefore, the noise impacts due to Project construction noise is considered *less than significant* at all receiver locations.

		Construction Noise Levels (dBA L _{max})					
Receiver Location ¹	Use	Highest Construction Noise Levels ²	Threshold ³	Threshold Exceeded? ⁴			
R1	Residential	58.3	75	No			
R2	Church	65.6	75	No			
R3	Residential	71.1	75	No			

TABLE 10-3: TYPICAL CONSTRUCTION NOISE LEVEL COMPLIANCE

¹Noise receiver locations are shown on Exhibit 8-A.

² Highest construction noise level calculations based on distance from the construction activity area by construction stage the nearest receiver locations as shown on Table 10-2.

³ City of Garden Grove Municipal Code, Section 8.47.050 maximum noise levels for stationary noise sources.

⁴ Do the estimated Project construction noise levels exceed the construction noise level threshold?

10.5 CONSTRUCTION VIBRATION ANALYSIS

Construction activity can result in varying degrees of ground vibration, depending on the equipment and methods employed. Operation of construction equipment causes ground vibrations that spread through the ground and diminish in strength with distance. Ground vibration levels associated with various types of construction equipment are summarized on Table 10-4. It should be noted that pile driving is not required for the Project. Based on the representative vibration levels presented for various construction equipment types, it is possible to estimate the potential for building damage using the following vibration assessment methods defined by the FTA. To describe the vibration impacts the FTA provides the following equation: $PPV_{equip} = PPV_{ref} \times (25/D)^{1.5}$

Table 10-5 presents the expected Project related typical construction activity vibration levels at each of the receiver locations. At distances ranging from 29 to 142 feet from Project construction activity, the transient construction vibration velocity levels are estimated to range from 0.007 to 0.071 PPV in/sec, as shown on Table 10-5. Based on maximum acceptable continuous vibration threshold of 0.3 PPV (in/sec) for older residential structures, the typical Project construction vibration levels will satisfy the building damage thresholds at all the nearest receiver locations. Therefore, the vibration impacts due to the typical Project construction activities are considered *less than significant*.



Equipment	PPV (in/sec) at 25 feet
Small bulldozer	0.003
Jackhammer	0.035
Loaded Trucks	0.076
Large bulldozer	0.089

TABLE 10-4: VIBRATION SOURCE LEVELS FOR CONSTRUCTION EQUIPMENT

Federal Transit Administration, Transit Noise and Vibration Impact Assessment Manual

TABLE 10-5: CONSTRUCTION EQUIPMENT VIBRATION LEVELS

	Distance		Receiver PPV Levels (in/sec) ³					
Receiver ¹	to Const. Activity (Feet) ²	Small Bulldozer	Jack- hammer	Loaded Trucks	Large Bulldozer	Peak Vibration	Threshold PPV (in/sec)⁴	Threshold Exceeded? ⁵
R1	29'	0.002	0.028	0.061	0.071	0.071	0.3	No
R2	142'	0.000	0.003	0.006	0.007	0.007	0.3	No
R3	34'	0.002	0.022	0.048	0.056	0.056	0.3	No

¹Receiver locations are shown on Exhibit 8-A.

 $^{\rm 2}$ Distance from the building construction activity to each of the nearest receiver locations.

³ Based on the Vibration Source Levels of Construction Equipment included on Table 10-4.

⁴ Caltrans Transportation and Construction Vibration Guidance Manual, April 2020, Tables 19, p. 38.

⁵ Does the peak vibration exceed the County of San Bernardino maximum acceptable vibration threshold?

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11 REFERENCES

- 1. **State of California.** *California Environmental Quality Act, Environmental Checklist Form Appendix G.* 2019.
- 2. **RK Engineering Group, Inc.** Westgrove Center Project Traffic Study and Parking Analysis. December 2020.
- 3. California Department of Transportation Environmental Program. *Technical Noise Supplement A Technical Supplement to the Traffic Noise Analysis Protocol.* Sacramento, CA : s.n., September 2013.
- 4. Environmental Protection Agency Office of Noise Abatement and Control. Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety. March 1974. EPA/ONAC 550/9/74-004.
- 5. City of Garden Grove. General Plan Noise Element. May 2008.
- 6. U.S. Department of Transportation, Federal Highway Administration, Office of Environment and Planning, Noise and Air Quality Branch. *Highway Traffic Noise Analysis and Abatement Policy and Guidance*. December 2011.
- 7. U.S. Department of Transportation, Federal Highway Administration. *Highway Traffic Noise in the United States, Problem and Response.* April 2000. p. 3.
- 8. U.S. Environmental Protection Agency Office of Noise Abatement and Control. *Noise Effects Handbook-A Desk Reference to Health and Welfare Effects of Noise*. October 1979 (revised July 1981). EPA 550/9/82/106.
- 9. U.S. Department of Transportation, Federal Transit Administration. *Transit Noise and Vibration Impact Assessment Manual.* September 2018.
- 10. Office of Planning and Research. State of California General Plan Guidlines. October 2017.
- 11. Clty of Garden Grove. Municipal Code Chapter 8.47 Noise Control.
- 12. California Department of Transportation. *Transportation and Construction Vibration Guidance Manual.* April 2020.
- 13. Orange County Airport Land Use Commission. *Airport Environs Land Use Plan for Joint Forces Training Base Los Alamitos*. August 2017.
- 14. California Court of Appeal. *Gray v. County of Madera, F053661.* 167 Cal.App.4th 1099; Cal.Rptr.3d, October 2008.
- 15. Federal Interagency Committee on Noise. Federal Agency Review of Selected Airport Noise Analysis Issues. August 1992.
- 16. California Department of Transportation. *Technical Noise Supplement*. November 2009.
- 17. American National Standards Institute (ANSI). Specification for Sound Level Meters ANSI S1.4-2014/IEC 61672-1:2013.
- 18. U.S. Department of Transportation, Federal Highway Administration. *FHWA Highway Traffic Noise Prediction Model.* December 1978. FHWA-RD-77-108.
- 19. California Department of Transportation Environmental Program, Office of Environmental Engineering. Use of California Vehicle Noise Reference Energy Mean Emission Levels (Calveno REMELs) in FHWA Highway Traffic Noise Prediction. September 1995. TAN 95-03.



- 20. **California Department of Transportation.** *Traffic Noise Attenuation as a Function of Ground and Vegetation Final Report.* June 1995. FHWA/CA/TL-95/23.
- 21. Riverside County Airport Land Use Commission. March Air Reserve Base/Inland Port Airport Land Use Compatibility Plan. November 2014.



12 CERTIFICATIONS

The contents of this noise study report represent an accurate depiction of the noise environment and impacts associated with the proposed West Grove Center Project. The information contained in this noise study report is based on the best available data at the time of preparation. If you have any questions, please contact me directly at (949) 584-3148.

Bill Lawson, P.E., INCE Principal URBAN CROSSROADS, INC. 1133 Camelback #8329 Newport Beach, CA 92658 (949) 581-3148 blawson@urbanxroads.com



EDUCATION

Master of Science in Civil and Environmental Engineering California Polytechnic State University, San Luis Obispo • December, 1993

Bachelor of Science in City and Regional Planning California Polytechnic State University, San Luis Obispo • June, 1992

PROFESSIONAL REGISTRATIONS

PE – Registered Professional Traffic Engineer – TR 2537 • January, 2009 AICP – American Institute of Certified Planners – 013011 • June, 1997–January 1, 2012 PTP – Professional Transportation Planner • May, 2007 – May, 2013 INCE – Institute of Noise Control Engineering • March, 2004

PROFESSIONAL AFFILIATIONS

ASA – Acoustical Society of America ITE – Institute of Transportation Engineers

PROFESSIONAL CERTIFICATIONS

Certified Acoustical Consultant – County of Orange • February, 2011 FHWA-NHI-142051 Highway Traffic Noise Certificate of Training • February, 2013





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APPENDIX 3.1:

CITY OF GARDEN GROVE MUNICIPAL CODE



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Garden Grove Municipal Code								
Up	Previous	Next	Main	Collapse	Search	Print	No Frames	
Title 8	Title 8 PEACE, SAFETY AND MORALS							

Chapter 8.47 NOISE CONTROL

Note

* Prior ordinance history: Ord. Nos. 1949, 1950, and 2258.

8.47.020 Definitions

The following words, phrases, and terms as used in this chapter shall have the meaning as indicated below:

"Actual measured ambient noise level" shall mean that noise level existing in the general area of the noise problem, excluding the noise generated by the noise source being evaluated.

"Ambient base noise level" shall mean the maximum loudness level normally found to be acceptable for given land uses and that serves as the basis for determining loudness noise violations pursuant to the provisions of Section $\underline{8.48.040}$ of this chapter.

"Ambient noise level" shall mean the all-encompassing background noise associated with a given environment, being usually a composite of sounds from many sources near and far.

"Commercial use" shall mean any enterprise whose principal endeavor is the sale of goods and/or services.

"Decibel (dB)" shall mean a unit that denotes the ratio between two quantities that are proportional to power: the number of decibels corresponding to the ratio of two amounts of power is 10 times the logarithm to the base 10 of this ratio. The commonly used unit for measuring sound pressure levels.

"Emergency" means operations made necessary to restore property to a safe condition following a public calamity, or work required to protect persons or property from an imminent exposure to danger or work by private or public utilities when restoring utility service.

"Industrial use" means any facility or operations involved in the manufacturing, repairing, testing, processing, warehousing, wholesaling, researching, and treatment of products.

"Institutional use" means an establishment maintained and operated by a society, church, corporation, individual, foundation, or public agency for the purpose of providing religious, charitable, social, educational, fraternal, or similar services.

"Noise" means any sound that exceeds the appropriate actual or presumed ambient noise level, that annoys or tends to disturb humans, or that causes or tends to cause an adverse psychological or physiological effect on humans of normal sensitiveness.

"Office-professional use" means any enterprise engaged in providing business or professional services.

"Residential use" means any structure utilized principally for human habitation, excluding hotels, motels, and recreational vehicle parks.

"Sound amplifying equipment" means any device for the amplification of the human voice, music, or any other sound and does not include standard automobile radios when used and heard only by the occupants of the vehicle in which the automobile radio is installed or devices on authorized emergency vehicles or horns or other warning devices on any vehicle used only for traffic safety purposes.

"Sound level in decibels (dB)" means the sound measured utilizing the A-weighting scale and the slow needle response by a sound level meter.

"Sound level meter" means an instrument meeting American National Standard Institutes Standard S1.4-1971 for Type 1 or Type 2 sound level meters or an equivalent standard. (2802 § 1, 2011; 2660 § 2, 2005)

8.47.030 Noise Level Measurement

10/16/2018

Chapter 8.47 NOISE CONTROL

All noise level measurements made pursuant to the provisions of this chapter shall be performed using a sound level meter as defined in Section 8.47.020, using a fast needle response, utilizing the dB(A) scale. (2802 § 1, 2011; 2660 § 2, 2005)

8.47.040 Ambient Base Noise Levels

The ambient base noise levels contained in the following chart shall be utilized as the basis for determining noise levels in excess of those allowed by this chapter unless the actual measured ambient noise level occurring at the same time as the noise under review is being investigated exceeds the ambient base noise level contained in the chart. When the actual measured ambient noise level exceeds the ambient base noise level, the actual measured ambient noise level shall be utilized as the basis for determining whether or not the subject noise exceeds the level allowed by this section. In situations where two adjoining properties exist within two different use designations, the most restrictive ambient base noise level will apply. This section permits any noise level that does not exceed either the ambient base noise level or the actual measured ambient noise level by 5 dB(A), as measured at the property line of the noise generation property.

USE CATEGORIES	USE DESIGNATIONS	AMBIENT BASE NOISE LEVELS	TIME OF DAY
Sensitive	Residential Use	55 dB(A) 50 dB(A)	7:00 a.m.—10:00 p.m. 10:00 p.m.—7:00 a.m.
Conditionally Sensitive	Institutional Use	65 dB(A)	Any Time
	Office-Professional Use	65 dB(A)	Any Time
	Hotels & Motels	65 dB(A)	Any Time
Non-Sensitive	Commercial Uses	70 dB(A)	Any Time
	Commercial/ Industrial Uses within 150 feet of	65 dB(A)	7:00 a.m.—10:00 p.m.
	Residential	50 dB(A)	10:00 p.m.—7:00 a.m.
	Industrial Use	70 dB(A)	Any Time

(2802 § 1, 2011; 2660 § 2, 2005)

8.47.050 General Noise Regulation

A. NOISE DISTURBANCE CRITERIA. It shall be unlawful for any person to willfully make, continue, or cause to be made or continued, any loud, unnecessary, or unusual noise that disturbs the peace or quiet of any neighborhood, or that causes discomfort or annoyance to any person of normal sensitiveness.

B. The criteria that shall be utilized in determining whether a violation of the provisions of this section exists shall include, but not be limited to, the following:

- 1. The level of the noise.
- 2. The frequency of occurrence of the noise.
- 3. Whether the nature of the noise is usual or unusual.
- 4. The level and intensity of the background noise, if any.
- 5. The proximity of the noise to residential sleeping facilities.
- 6. The nature and zoning of the area within which the noise emanates.
- 7. The density of the inhabitation of the area within which the noise is received.
- 8. The time of day or night the noise occurs.
- 9. The duration of the noise.
- C. DURATION OF NOISE. The following criteria shall be used whenever the noise level exceeds:

Chapter 8.47 NOISE CONTROL

- 1. The noise standard for a cumulative period of more than 30 minutes in any hour;
- 2. The noise standard plus five dB(A) for a cumulative period of more than 15 minutes in any hour;
- 3. The noise standard plus 10 dB(A) for a cumulative period of more than five minutes in any hour;
- 4. The noise standard plus 15 dB(A) for a cumulative period of more than one minute in any hour; or
- 5. The noise standard plus 20 dB(A) for any period of time.

D. In the event the ambient noise level exceeds any of the first four noise limit categories above, the cumulative period applicable to said category shall be increased to reflect said ambient noise level. In the event the ambient noise level exceeds the fifth noise limit category, the maximum allowable noise level under said category shall be increased to reflect the maximum ambient noise level. (2802 § 1, 2011; 2660 § 2, 2005)

8.47.060 Special Noise Sources

A. RADIOS, TELEVISION SETS, AND SIMILAR DEVICES.

1. USE RESTRICTED. It shall be unlawful for any person within any residential area of the City to use or operate any radio receiving set, musical instrument, stereo equipment, television set, or other machine or device for the producing or reproducing of sound between the hours of 10:00 p.m. of one day and 7:00 a.m. of the following day in such a manner as to disturb the peace, quiet, and comfort of any person of normal sensitiveness residing in the area, as determined utilizing the criteria established in Section 8.47.050(A).

2. PRIMA FACIE VIOLATION. Any noise level exceeding the ambient base level at the property line of any property (or, if a condominium or apartment house, within any adjoining apartment) by more than five decibels shall be deemed to be prima facie evidence of a violation of the provisions of this section.

B. MUSICAL INSTRUMENTS—USE RESTRICTED. It shall be unlawful for any person to use any drum or other instrument or device of any kind for the purpose of attracting attention by the creation of noise within the City. This section shall not apply to any person who is a participant in a duly licensed parade or who has been otherwise duly authorized to engage in such conduct.

C. MACHINERY, EQUIPMENT, FANS, AND AIR CONDITIONING. It shall be unlawful for any person to operate any machinery, equipment, pump, fan, air conditioning apparatus, or similar mechanical device in any manner so as to create any noise that would cause the noise level at the property line of any property to exceed either the ambient base noise level or the actual measured ambient noise level by more than five decibels.

D. CONSTRUCTION OF BUILDINGS AND PROJECTS. It shall be unlawful for any person within a residential area, or within a radius of 500 feet therefrom, to operate equipment or perform any outside construction or repair work on buildings, structures, or projects, or to operate any pile driver, power shovel, pneumatic hammer, derrick, power hoist, or any other construction type device between the hours of 10:00 p.m. of one day and 7:00 a.m. of the next day in such a manner that a person of normal sensitiveness, as determined utilizing the criteria established in Section <u>8.47.050(B)</u>, is caused discomfort or annoyance unless such operations are of an emergency nature.

E. VEHICLE REPAIRS. It shall be unlawful for any person within any residential area of the City to repair, rebuild, or test any motor vehicle in such a manner that a person of normal sensitiveness residing in the area is caused discomfort or annoyance, as determined utilizing the criteria established in Section <u>8.47.050</u>, unless such operations are of an emergency nature.

F. MOTOR DRIVEN VEHICLES. It shall be unlawful for any person to operate any motor driven vehicle within the City in such a manner that a person of normal sensitiveness residing in the area is caused discomfort or annoyance, as determined utilizing the criteria established in Section <u>8.47.050(B)</u>, unless such operations are of an emergency nature; provided, however, any such vehicle that is operated upon any public highway, street, or right-of-way shall be excluded from the provisions of this section.

G. AMPLIFIED SOUND.

1. PURPOSE. While recognizing the constitutional rights of freedom of speech and assembly, the City nevertheless feels obligated to reasonably regulate the use of sound amplifying equipment in order to protect the rights of the citizens of the City to privacy and freedom from excessively loud and unnecessary noise.

Chapter 8.47 NOISE CONTROL

2. REGISTRATION. It shall be unlawful for any person, other than personnel of law enforcement or governmental agencies, to install, use, or operate within the City a loudspeaker or sound amplifying equipment mounted upon any vehicle for the purposes of warnings, giving instructions, directions, talks, addresses, lectures, or transmitting music to any persons or assemblages of persons without first filing a registration statement at least seven days prior to the date on which the sound amplifying equipment is intended to be used and obtaining approval from the Zoning Administrator.

3. APPROVAL. The Zoning Administrator shall return to the applicant an approved copy of the registration statement unless he or she finds that:

a. The conditions of the motor vehicle movement are such that use of the equipment would constitute a detriment to traffic safety; or

b. The conditions of pedestrian movement are such that use of the equipment would constitute a detriment to traffic safety.

4. DISAPPROVAL. In the event the registration statement is disapproved, the Zoning Administrator shall endorse upon the statement the reason for disapproval and return it to the applicant.

5. APPEALS. Any decision by the Zoning Administrator may be appealed to the City Council within seven days of action of the Zoning Administrator by filing a notice of appeal with the City Clerk.

H. WASTE HAULERS/COMMERCIAL SWEEPERS AND LEAF BLOWERS. It shall be unlawful for any person within any commercial, industrial, or office complex area of the City to operate any refuse compacting, processing or collection vehicle, parking lot sweeper or leaf blower within 150 feet of residential property between the hours of 10:00 p.m. of one day and 7:00 a.m. of the following day.

I. LOADING/UNLOADING. It shall be unlawful for any person in any commercial or industrial area of the City that abuts or is located adjacent to any residential property between the hours of 10:00 p.m. of one day and 7:00 a.m. of the following day to load or unload any vehicle, or operate any dollies, carts, forklifts, or other wheeled equipment that causes any noise that disturbs the peace or quiet of the residential neighborhood. (2802 § 1, 2011; 2660 § 2, 2005)

8.47.070 Exemptions

A. EMERGENCY ACTIVITIES. The provisions of this chapter shall not preclude the operation, maintenance, and repair of equipment, apparatus, or facilities of essential public services, including those of governmental agencies and public utilities providing those activities are of an emergency nature or are necessary to maintain the health, safety, and welfare of the citizenry.

B. COMMUNITY ACTIVITIES. Community events, as described in Section <u>8.08.060</u> of the Municipal Code, outdoor gatherings, school bands, dances, shows, and athletic events are hereby exempted from the provisions of this chapter provided such activities are conducted pursuant to a duly authorized license or permit.

C. STATE AND FEDERAL PREEMPTIONS. Motor vehicle and aircraft operations and any other activity whose regulation has been preempted by state or federal law is hereby exempted from the provisions of this chapter. (2802 § 1, 2011; 2660 § 2, 2005)

8.47.080 Abatement

The City Manager or his or her designee and his or her duly authorized representatives are hereby directed to enforce the provisions of this chapter by requiring that the alleged offender correct violations and achieve compliance with the provisions of this chapter within a reasonable period of time.

A. The City Manager or his or her designee shall have the power and duty to enforce the following noise control provisions of this Code: Section 8.47.050, Section 8.47.060(A)(2), (C), (H), and (I).

B. The Police Department shall have the power and duty to enforce the following noise control provisions of this Code: Section 8.47.060 (A)(1), (B), (E), (F), (G)(1) and (2).

C. The Building Official shall have the power and duty to enforce the following noise control provisions of this Code: Section <u>8.47.060(D)</u>. (2802 § 1, 2011; 2660 § 2, 2005)

APPENDIX 5.1:

STUDY AREA PHOTOS



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JN: 12717 Study Area Photos



L1_E 33, 47' 16.630000", 118, 1' 46.480000"



L1_N 33, 47' 16.630000", 118, 1' 46.480000"



L1_S 33, 47' 16.630000", 118, 1' 46.480000"



33, 47' 16.630000", 118, 1' 46.810000"



L2_E 33, 47' 8.800000", 118, 1' 41.430000"



L2_N 33, 47' 8.800000", 118, 1' 41.430000"

JN: 12717 Study Area Photos



L2_S 33, 47' 8.800000", 118, 1' 41.430000"



L2_W 33, 47' 8.800000", 118, 1' 41.430000"



L3_E 33, 47' 8.730000", 118, 1' 46.180000"



L3_N 33, 47' 8.730000", 118, 1' 46.180000"



L3_S 33, 47' 8.720000", 118, 1' 46.180000"



L3_W 33, 47' 8.720000", 118, 1' 46.180000"

JN: 12717 Study Area Photos



L4_E 33, 47' 13.730000", 118, 1' 46.950000"



L4_N 33, 47' 13.680000", 118, 1' 46.980000"



33, 47' 13.740000", 118, 1' 46.980000"



L4_W 33, 47' 13.740000", 118, 1' 47.010000"





APPENDIX 5.2:

NOISE LEVEL MEASUREMENT WORKSHEETS







						24-Hou	ur Noise Le	evel Meas	urement S	ummary						
Date: Project:	Wednesday West Grove	, November Center Valle	18, 2020 :y		Location	· L1 - Located family resid	l west of the ential home	Project site s at 12092 St	near existing onegate Lan	g multi- e.	Meter:	Piccolo II			JN: Analyst:	12717 P. Mara
							Hourly L _{eq}	dBA Readings	(unadjusted)							
85.0	0															
₹ 80.0																
B 70.0	ğ — — —															
، 60 ت																
<u>ר</u> 55.0 בד 50.0		+ ~				m 10		4 o	- <mark>4</mark> '	<mark>0 4</mark>	<mark>ه – ی</mark> –				m N	
9 45.0	0 4 0	43.4	23.4	48.3	49.0	<mark>51.6</mark>	25	2	2 <mark>. 5</mark>	<mark>с</mark> гс	5 <mark>5</mark> -	23.	49.6	20.0	51.2	47.0
35.0	0 + +															+
	0	1 2	3	4 5	6	7 8	9 :	10 11 Hour Be	12 1 eginning	.3 14	15 16	5 17	18 19	20	21 22	23
Timeframe	Hour	L _{eq}	L max	L _{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L _{eq}	Adj.	Adj. L _{eq}
	0	46.1	52.7	42.8	52.2	51.7	50.4	49.5	46.4	44.6	43.2	43.0	42.9	46.1	10.0	56.1
	2	43.4	49.6	41.3	49.2 47.3	48.6	47.0	45.9	43.5	42.4	41.6	41.5	41.3	43.4	10.0	53.4 52.9
Night	3	53.4	59.8	51.3	58.9	58.3	56.1	55.4	53.5	52.5	51.7	51.5	51.3	53.4	10.0	63.4
	4	48.3	52.0	46.7	51.7	51.2	50.4	49.8	48.7	47.9	47.0	46.9	46.7	48.3	10.0	58.3
	5	48.3	57.1	43.4	56.4	55.5	53.3	51.8	48.4	46.5	44.2	43.9	43.6	48.3	10.0	58.3
	5	49.6 51.8	57.9	44.1	57.4	56.7	54.4 55.4	53.0 54.8	50.0	47.7	44.8	44.6	44.Z	49.6 51.8	0.0	59.6 51.8
	8	51.6	56.2	48.6	55.7	55.3	54.4	53.8	52.0	51.0	49.3	49.0	48.7	51.6	0.0	51.6
	9	52.7	57.9	50.0	57.5	56.9	55.5	54.7	53.2	52.2	50.6	50.3	50.1	52.7	0.0	52.7
	10	55.4	61.7	51.2	61.1	60.5	59.1	58.4	56.3	54.2	52.0	51.7	51.3	55.4	0.0	55.4
	11	55.0	60.2	52.3 51.0	59.7	59.2	57.8	57.1	55.4	54.4	52.9	52.7	52.4	55.0	0.0	55.0
Day	12	55.5	60.7	52.5	58.5 60.1	59.6	58.7	58.1	56.1	54.7	53.2	52.9	52.6	55.5	0.0	55.5
	14	55.4	61.4	51.9	60.7	60.2	59.2	58.4	55.9	54.3	52.5	52.3	52.0	55.4	0.0	55.4
	15	54.6	60.2	51.4	59.8	59.4	58.1	57.2	55.1	53.7	52.1	51.8	51.5	54.6	0.0	54.6
	16	54.8	61.9	51.6	61.2	60.4	58.4	57.2	55.0	53.8	52.3	52.0	51.7	54.8	0.0	54.8
	1/	53.2 53.1	58.7 58.7	50.0 49.4	58.2	57.7	56.4 56.9	55.7 56.1	53.7	52.5	50.7	50.4 49.8	50.1 49.5	53.2 53.1	0.0	53.2 53.1
	19	49.9	57.2	45.6	56.8	56.2	54.6	53.4	50.2	48.4	46.3	45.8	45.7	49.9	5.0	54.9
Evening	20	50.0	58.4	45.3	57.8	57.1	55.2	53.7	50.1	47.8	46.0	45.8	45.4	50.0	5.0	55.0
	21	47.8	54.5	44.1	53.9	53.3	51.8	50.9	48.4	46.3	44.6	44.5	44.2	47.8	5.0	52.8
Night	22	51.2 47.0	62.0 56.1	49.7 41.9	61.2 55.6	60.0 54.8	58.2 53.0	56.8 51.2	52.5	51.3 43.9	50.1 42.3	50.0 42.1	49.8	51.2 47.0	10.0	61.2 57.0
Timeframe	Hour	L _{eq}	L max	L min	L1%	L2%	L5%	L8%	L25%	L50%	42.5 L90%	L95%	L99%	47.0	L _{eg} (dBA)	57.0
Dav	Min	51.6	56.2	47.6	55.7	55.3	54.4	53.8	52.2	50.7	48.5	48.0	47.7	24-Hour	Davtime	Niahttime
Duy	Max	55.5	61.9	52.5	61.2	60.5	59.2	58.4	56.3	54.7	53.2	52.9	52.6	24 11001	Buytime	rightime
Energy	Average	54.2	54 5	age:	59.0	58.5	57.2	56.5	54.6	53.1 46.3	51.4	51.1	50.8	52.3	53.5	49.0
Evening	Max	50.0	58.4	45.6	57.8	57.1	55.2	53.7	50.2	48.4	46.3	46.0	45.7	24-	Hour CNEL (a	IBA)
Energy	Average	49.3	Ave	erage:	56.2	55.5	53.9	52.7	49.5	47.5	45.7	45.4	45.1			
Night	Min	42.9	47.9	41.2	47.3	46.7	45.3	44.7	43.1	42.4	41.5	41.4	41.2		56.6	
Energy	Average	49.0	Ave	erage:	54.4	53.7	52.0	50.8	48.1	46.6	45.2	45.0	44.8			



						24-Hou	ur Noise L	evel Meası	urement S	ummary						
Date:	Wednesdav	. November :	18. 2020		Location	. L2 - Located	east of the	Project site b	y The Churcl	h of Jesus	Meter:	Piccolo II			JN:	12717
Project:	West Grove	Center Valle	:y			Christ of Lat	ter-day Sain	nts at 12160 V	/alley View S	treet.					Analyst:	P. Mara
							Hourly I	dBA Readinas	(unadiusted)							
							Houriy L _{eq}	ubA neuuliigs	(unuujusteu)							
85.0																
Y 75.0	j															
g 65.0						_										
ل ال								0	<u> </u>	3.3 3			- <u></u>	9		
5 50.0 9 45.0) - 4	0.2		56.2	28	60	6	<mark>.9</mark>	- <mark>.</mark>	o	0 0	99		9	57.(54.6
40.0		- U - 4												+		
	0	1 2	3	4 5	6	7 8	9	10 11	12 1	.3 14	15 16	17	18 19	20	21 22	23
								Hour Be	eginning							
Timeframe	Hour	L _{eq}	L _{max}	L _{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L _{eq}	Adj.	Adj. L _{eq}
	0	54.4 50.2	66.5 59.6	42.7	65.9 59.2	65.0 58.7	62.1 57.0	59.6 55.7	51.5	46.8	43.6	43.2 41.8	42.8	54.4 50.2	10.0 10.0	64.4 60.2
	2	48.6	57.8	40.8	57.5	56.9	55.4	54.1	48.2	43.8	41.2	41.0	40.9	48.6	10.0	58.6
Night	3	54.0	63.9	45.9	63.5	62.9	61.5	59.5	52.2	48.7	46.5	46.3	46.0	54.0	10.0	64.0
	4	56.2	63.8	51.9	63.4	62.8	61.2	60.2	56.5	54.0	52.2	52.1	52.0	56.2	10.0	66.2
	5	58.7 58.9	67.7	47.8	67.3 66.8	66.7	65.3 64.6	64.2	58.9	54.6 56.3	49.4	48.6 47 4	48.0	58.7 58.9	10.0 10.0	68.7 68.9
	7	61.5	70.2	51.8	69.6	69.0	67.1	65.9	61.7	59.0	54.4	53.3	52.1	61.5	0.0	61.5
	8	60.3	67.4	52.3	66.9	66.4	65.0	64.0	61.3	58.9	54.3	53.3	52.5	60.3	0.0	60.3
	9	61.1	71.5	51.2	71.0	70.1	67.1	65.1	61.0	57.9	53.1	52.2	51.4	61.1	0.0	61.1
	10 11	60.0 61.4	67.1 70.8	51.9 53.4	66.7 70.3	69.6	64.7 67.0	63.8 65.0	61.1 61.3	58.2	53.6 55.1	52.8 54.3	52.1	60.0 61.4	0.0	60.0 61.4
	12	61.0	70.8	53.0	70.1	69.0	66.2	64.7	61.1	58.6	54.6	53.9	53.2	61.0	0.0	61.0
Day	13	61.2	70.4	53.9	69.8	69.1	66.5	65.0	61.2	59.0	55.4	54.7	54.0	61.2	0.0	61.2
	14	63.3	72.6	55.1	72.1	71.2	68.6	66.8	63.3	61.1	57.1	56.2	55.3	63.3	0.0	63.3
	15 16	60.9 60.7	68.3	53.5	67.9 68.0	67.4 67.5	66.0 66.1	65.0 64.6	61.7 61.2	59.0	55.0	54.3	53.6	60.9 60.7	0.0	60.9 60.7
	10	60.5	68.0	53.1	67.5	66.9	65.1	64.0	61.4	59.1	54.9	54.2	53.3	60.5	0.0	60.5
	18	62.0	70.9	52.7	70.4	69.8	68.2	66.9	62.0	59.0	54.5	53.5	52.9	62.0	0.0	62.0
	19	59.7	68.6	49.7	68.1	67.4	65.4	64.1	60.3	56.9	51.7	50.6	49.8	59.7	5.0	64.7
Evening	20	60.6	71.4	48.3	70.8	69.7	67.3	65.3 61.5	60.5	55.8	50.1	49.2	48.4	60.6	5.0	65.6
	22	55.3	64.6	40.0	64.2	63.5	61.6	59.9	55.8	51.8	45.7	47.0	40.2	55.3	10.0	65.3
Night	23	54.6	64.8	41.6	64.4	63.6	61.6	59.7	54.1	49.7	43.1	42.3	41.8	54.6	10.0	64.6
Timeframe	Hour	L _{eq}	L _{max}	L _{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%		L _{eq} (dBA)	
Day	Min Max	60.0 63.3	67.1 72.6	51.2 55.1	66./ 72.1	66.1 71.2	64.7 68.6	63.8 66.9	61.0 63.3	57.9 61.1	53.1 57.1	52.2	51.4 55.3	24-Hour	Daytime	Nighttime
Energy	Average	61.2	Ave	erage:	69.2	68.5	66.5	65.1	61.5	59.0	54.7	53.9	53.1	ГОС	60.0	
Evening	Min	57.0	65.3	46.0	64.9	64.3	62.8	61.5	57.8	54.2	48.2	47.0	46.2	0.6C	00.9	32.0
Francis	Max	60.6	71.4	49.7	70.8	69.7	67.3	65.3	60.5	56.9	51.7	50.6	49.8	24-	Hour CNEL (d	BA)
Energy	Min	59.3 48.6	57.8	40.8	67.9 57 5	56.9	55.2	54 1	59.5 48.2	43.8	41.2	48.9	48.2		\sim $-$	
Night	Max	58.9	67.7	51.9	67.3	66.7	65.3	64.2	59.8	56.3	52.2	52.1	52.0		63./	
Energy	Average	55.6	Ave	erage:	63.6	62.9	61.1	59.6	54.1	50.1	45.8	45.3	44.9			



						24-Ho	ur Noise Le	evel Measu	urement S	ummary						
Date: Project:	Wednesday West Grove	, November : Center Valle	18, 2020 :y		Location.	L3 - Located	south of the ential homes	e Project site at 5921 Belؤ ما	near existing grave Avenue	g multi- e.	Meter:	Piccolo II			JN: Analyst:	12717 P. Mara
							Hourly L _{eq} d	dBA Readings	(unadjusted)							
85.0)															
3 80.0																
5 70.0																
- 60.0					m			o		<u>, </u>						
i 50.0	Ď – C –	6. 9		58.9	29.8	6 <mark>.</mark>	20.8			61.	60.	<mark>.00</mark>	59.2	58.4	<u>+</u> , <u>-</u>	و
± 40.0		49	22	23											<u> </u>	
55.0	0	1 2	3	4 5	6	7 8	9 1	LO 11	12 1	.3 14	15 16	17	18 19	20	21 22	23
								Hour Be	eginning							
Timeframe	Hour	L _{eq}	L _{max}	L _{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L _{eq}	Adj.	Adj. L _{eq}
	0	55.7 53.9	67.7 66.7	43.0 41.4	67.2 66.2	66.5 65.3	63.8 61.9	61.3 58.4	52.2 49.8	47.1	43.7 41 9	43.4 41 7	43.1	55.7 53.9	10.0	65.7 63.9
	2	49.6	61.0	40.0	60.7	59.9	57.2	55.0	46.8	42.9	40.6	40.4	40.2	49.6	10.0	59.6
Night	3	52.7	64.0	40.3	63.4	63.1	60.9	58.3	49.5	44.5	41.2	40.8	40.4	52.7	10.0	62.7
	4	53.4	63.7	41.6	63.0	62.2	59.6	58.3	53.4	49.2	43.0	42.2	41.7	53.4	10.0	63.4
	5	58.9 59.8	68.6 69.5	46.9	68.0 69.0	68.3	65.5 66.1	64.1 64.6	59.2 60.0	54.4	48.2 49 7	47.6 48.7	47.1	58.9 59.8	10.0	69.9
	7	62.1	70.1	52.7	69.7	69.2	67.6	66.4	62.9	60.0	54.7	53.8	53.0	62.1	0.0	62.1
	8	61.8	71.5	52.7	70.8	69.9	67.1	65.1	62.1	59.6	54.8	53.8	52.9	61.8	0.0	61.8
	9	59.8	69.1	50.7	68.8	68.2	65.7	63.6	59.8	57.2	52.4	51.7	50.9	59.8	0.0	59.8
	10	62.0 60.9	71.4 70.8	53.0 52.8	70.8 70.4	69.8 69.6	67.5 66.9	65.8 64.9	62.5 60.5	59.5 58.1	54.7 54.4	53.8 53.7	53.2 52.9	62.0 60.9	0.0	62.0 60.9
Devi	12	59.2	68.3	52.5	67.9	67.2	64.9	62.9	59.0	56.8	53.7	53.2	52.7	59.2	0.0	59.2
Day	13	62.5	78.7	56.9	77.9	76.3	74.9	73.8	69.6	65.9	58.6	57.8	57.1	62.5	0.0	62.5
	14	61.2	71.0	54.7	70.4	69.6	67.3	65.6	60.6	58.0	55.5	55.1	54.8	61.2	0.0	61.2
	15	59.9 60.9	68.3 71.7	54.7 54 5	67.8 71 1	67.0 70.0	64.9 66.7	63.4 64 3	60.0 60.2	58.3 58.1	55.6 55.4	55.2 55.0	54.8 54.7	59.9 60.9	0.0	59.9 60.9
	17	60.4	69.8	52.1	69.2	68.5	66.8	64.6	60.2	57.3	53.5	52.8	52.2	60.4	0.0	60.4
	18	59.2	67.3	51.2	66.8	66.3	64.9	63.8	59.7	56.4	52.8	52.0	51.4	59.2	0.0	59.2
E contra e	19	59.4	69.0	49.6	68.6	68.0	65.9	64.1	59.1	55.9	51.2	50.4	49.8	59.4	5.0	64.4
Evening	20 21	58.4 55.7	68.7 66.2	48.0 46.0	68.1 65.7	67.7	66.1 62.1	63.2 60.0	57.0 55.0	53.7	49.6 47.4	48.9 46 7	48.3 46.1	58.4 55.7	5.0	63.4 60.7
Nicht	22	54.7	65.3	43.0	64.9	64.5	62.2	59.8	53.5	49.6	44.5	43.7	43.2	54.7	10.0	64.7
Night	23	52.6	62.4	41.1	61.9	61.4	60.2	58.2	51.9	48.1	42.4	41.7	41.2	52.6	10.0	62.6
Timeframe	Hour Min	L _{eq}	L _{max}	L _{min}	L1%	L2%	L5%	L8%	59.0	L50%	L90%	<i>L95%</i>	<i>L99%</i>		L _{eq} (dBA)	
Day	Max	62.5	78.7	56.9	77.9	76.3	74.9	73.8	69.6	65.9	58.6	57.8	57.1	24-Hour	Daytime	Nighttime
Energy	Average	61.0	Ave	erage:	70.1	69.3	67.1	65.4	61.4	58.8	54.7	54.0	53.4	50 2	60 5	557
Evening	Min	55.7	66.2	46.0	65.7	64.9	62.1	60.0	55.0	52.1	47.4	46.7	46.1	33.5		55.7
Fnergy	Average	59.4 58.1	69.0 Ave	49.6 erage:	67.5	66.9	64.7	62 4	59.1 57 1	55.9	51.2 49.4	50.4 48.7	49.8	24-	HOUR CNEL (à	DA)
Niekt	Min	49.6	61.0	40.0	60.7	59.9	57.2	55.0	46.8	42.9	40.6	40.4	40.2	1	62 F	
Night	Max	59.8	69.5	47.8	69.0	68.3	66.1	64.6	60.0	56.3	49.7	48.7	48.0	ļ	02.2	
Energy	Average	55.7	Ave	erage:	64.9	64.3	62.0	59.8	52.9	48.6	43.9	43.3	42.9			







APPENDIX 7.1:

OFF-SITE TRAFFIC NOISE LEVEL CALCULATIONS







	FH	WA-RD-77-108	HIGHW	AY NO	DISE P	REDICTI	ом мо	DEL			
Scenar Road Nan Road Segme	rio: Existing ne: Valley Viev nt: n/o Chapm	v St. Ian Av.				Project Job Ni	Name: umber:	West 12717	Grove Cen	ter	
SITE	SPECIFIC IN	NPUT DATA				N	OISE	NODE	EL INPUT	s	
Highway Data				S	ite Cor	nditions ('Hard =	10, S	oft = 15)		
Average Daily	Traffic (Adt):	48,468 vehicle	s					Autos	: 15		
Peak Hour	Percentage:	10.00%			Me	edium Tru	icks (2)	Axles)	: 15		
Peak H	lour Volume:	4,847 vehicle	s		He	eavy Truc	ks (3+ ,	Axles)	: 15		
Ve	hicle Speed:	45 mph		V	ehicle	Mix					
Near/Far La	ne Distance:	78 feet			Veh	nicleType		Day	Evening	Night	Daily
Site Data						A	utos:	77.5%	6 12.9%	9.69	6 97.42%
Ba	rrier Height:	0.0 feet			Μ	ledium Tr	ucks:	84.8%	6 4.9%	10.39	6 1.84%
Barrier Type (0-V	Vall, 1-Berm):	0.0				Heavy Tr	ucks:	86.5%	6 2.7%	10.89	6 0.74%
Centerline Di	ist. to Barrier:	60.0 feet		N	oise S	ource Ele	evation	s (in f	eet)		
Centerline Dist.	to Observer:	60.0 feet				Autos	: 0.	000	1		
Barrier Distance	to Observer:	0.0 feet			Mediu	m Trucks	: 2.	297			
Observer Height	(Above Pad):	5.0 feet			Hea	vy Trucks	: 8.	006	Grade Ad	ljustmer	nt: 0.0
P	ad Elevation:	0.0 feet									
Ro	ad Elevation:	0.0 feet		L	ane Eq	uivalent	Distan	ce (In	feet)		
	Road Grade:	0.0%				Autos	: 45.	.869			
	Left View:	-90.0 degre	es		Mediu	m Trucks	: 45.	.676			
	Right View:	90.0 degre	es		неа	vy Trucks	: 45	695			
FHWA Noise Mod	el Calculation	IS									
VehicleType	REMEL	Traffic Flow	Dista	nce	Finite	Road	Fresr	nel	Barrier Att	en Be	erm Atten
Autos:	68.46	4.90		0.46		-1.20		-4.69	0.0	000	0.000
Medium Trucks:	79.45	-12.33		0.49		-1.20		-4.88	0.0	000	0.000
Heavy Trucks:	84.25	-16.29		0.48		-1.20		-5.34	0.0	000	0.000
Unmitigated Nois	e Levels (with	out Topo and	barrier	attenu	ation)						
VehicleType	Leq Peak Ho	ur Leq Da	/ L	.eq Eve	ening	Leq I	Vight		Ldn	(ONEL
Autos:	72	2.6	70.7		69.0)	62.9	9	71.	5	72.1
Medium Trucks:	66	5.4	64.9		58.5	i	57.0	D	65.4	4	65.7
Heavy Trucks:	67	7.2	65.8		56.8		58.	0	66.4	4	66.5
Vehicle Noise:	14	1.5	12.1		69.6)	64.	9	73.	4	73.9
Centerline Distan	ce to Noise C	ontour (in fee	9	70 d	24	65.4	ID A		60 dBA	5	EdDA
			I dn:	10 01	5A)	050	0 0	1	472	5	5 UBA
		0	NEL:	102	-	21	5		+/2		1,017
		L L	IVEL.	105	,	23	5		500		1,091

		A-ILB-11-100	mon			LDIGH					
Scenar	io: Existing					Project	Name: \	Vest C	Grove Cen	ter	
Road Nam	e: Valley View	St.				Job Ni	umber: 1	2717			
Road Segme	nt: n/o Lampso	on Av.									
SITE	SPECIFIC IN	IPUT DATA				N	OISE N	IODE	L INPUT	S	
Highway Data				S	ite Con	ditions (Hard =	10, So	ft = 15)		
Average Daily	Traffic (Adt): 4	19,920 vehicle	S					Autos:	15		
Peak Hour	Percentage:	10.00%			Me	dium Tru	icks (2 A	xles):	15		
Peak H	lour Volume:	4,992 vehicle	S		He	avy Truc	ks (3+ A	xles):	15		
Ve	hicle Speed:	45 mph		V	ehicle N	lix					
Near/Far La	ne Distance:	78 feet			Vehi	cleType		Day	Evening	Night	Daily
Site Data						A	utos:	77.5%	12.9%	9.6%	97.42%
Ba	rrier Heiaht:	0.0 feet			Me	edium Tr	ucks:	84.8%	4.9%	10.3%	1.84%
Barrier Type (0-W	/all, 1-Berm):	0.0			F	leavy Tr	ucks:	86.5%	2.7%	10.8%	0.74%
Centerline Di	st. to Barrier:	60.0 feet		N	nise So	urce Ek	vations	(in fe	of)		
Centerline Dist.	to Observer:	60.0 feet			0136 00	Autor	. 0.0	000			
Barrier Distance	to Observer:	0.0 feet			Mediur	n Trucks	. 0.0	007			
Observer Height ((Above Pad):	5.0 feet			Heav	v Trucks	. 2.2	006	Grade Ad	iustment	0.0
Pa	ad Elevation:	0.0 feet			mour	,				,	
Roa	ad Elevation:	0.0 feet		Li	ane Equ	iivalent	Distanc	e (in f	'eet)		
1	Road Grade:	0.0%				Autos	: 45.8	369			
	Left View:	-90.0 degree	es		Mediur	n Trucks	s: 45.6	676			
	Right View:	90.0 degree	es		Heav	y Trucks	: 45.6	595			
FHWA Noise Mode	el Calculation:	5									
VehicleType	REMEL	Traffic Flow	Dista	ance	Finite	Road	Fresn	el	Barrier Att	en Ber	m Atten
Autos:	68.46	5.03		0.46		-1.20		-4.69	0.0	000	0.000
Medium Trucks:	79.45	-12.21		0.49		-1.20		-4.88	0.0	000	0.000
Heavy Trucks:	84.25	-16.16		0.48		-1.20		-5.34	0.0	000	0.00
Unmitigated Noise	e Levels (with	out Topo and	barrier	r attenu	ation)						
VehicleType	Leq Peak Hou	r Leq Day	· 1	Leq Eve	ening	Leq I	Vight		Ldn	CI	NEL
Autos:	72	.8	70.9		69.1		63.0		71.	7	72.3
Medium Trucks:	66	.5	65.0		58.7		57.1		65.0	5	65.
Heavy Trucks:	67	.4	66.0		56.9		58.2		66.	5	66.6
Vehicle Noise:	74	.6	72.9		69.7		65.0		73.	6	74.0
Centerline Distanc	ce to Noise Co	ntour (in feet				_	_				
			L	70 dE	BA	65 0	1BA	6	0 dBA	55	dBA
			Ldn:	104	1	22	3		481	1,	037
		-					-				

	FHV	VA-RD-77-108	HIGHWA	Y NC	DISE PI	REDICT	ION MC	DEL				
Scena	rio: Existing					Project	Name:	West	Grove C	Center		
Road Nar	ne: Valley View	St.				Job N	lumber:	12717	,			
Road Segme	ent: n/o Belgrav	e Av.										
SITE	SPECIFIC IN	IPUT DATA				N	IOISE	MODI	EL INP	UTS		
Highway Data				Si	te Con	ditions	(Hard =	: 10, S	oft = 15)		
Average Daily	Traffic (Adt):	49,620 vehicles						Autos	: 15			
Peak Hour	Percentage:	10.00%			Me	dium Tru	ucks (2	Axles)	: 15			
Peak I	lour Volume:	4,962 vehicles			He	avy Tru	cks (3+	Axles)	: 15			
Ve	ehicle Speed:	45 mph		Ve	ehicle l	Mix						
Near/Far La	ane Distance:	78 feet			Veh	icleType		Day	Eveni	ng N	ight	Daily
Site Data							Autos:	77.5	% 12.9	9%	9.6%	97.42%
Ba	rrier Height:	0.0 feet			М	edium Ti	rucks:	84.89	% 4.9	9% 1	0.3%	1.84%
Barrier Type (0-V	Vall, 1-Berm):	0.0			ŀ	Heavy Ti	rucks:	86.5	% 2.7	7% 1	0.8%	0.74%
Centerline D	ist. to Barrier:	60.0 feet		N	oise So	ource El	evation	s (in 1	feet)			
Centerline Dist.	to Observer:	60.0 feet				Auto	s: 0	000				
Barrier Distance	to Observer:	0.0 feet			Mediu	m Truck	s: 2	297				
Observer Height	(Above Pad):	5.0 feet			Heav	v Truck	s: 8	006	Grade	Adjust	tment:	0.0
P	ad Elevation:	0.0 feet										
Ra	ad Elevation:	0.0 feet		Lá	ane Eq	uivalent	Distan	ce (in	feet)			
	Road Grade:	0.0%				Auto	s: 45	.869				
	Left View:	-90.0 degree	s		Mediu	m Truck	s: 45	.676				
	Right View:	90.0 degree	s		Heav	y Truck	s: 45	.695				
FHWA Noise Mod	el Calculation	s										
VehicleType	REMEL	Traffic Flow	Distanc	e	Finite	Road	Fres	nel	Barrier	Atten	Berr	m Atten
Autos:	68.46	5.01	(0.46		-1.20		-4.69		0.000		0.000
Medium Trucks:	79.45	-12.23	(0.49		-1.20		-4.88		0.000		0.000
Heavy Trucks:	84.25	-16.19	(0.48		-1.20		-5.34		0.000		0.000
Unmitigated Nois	e Levels (with	out Topo and b	oarrier at	tenu	ation)							
VehicleType	Leq Peak Hou	r Leq Day	Leq	y Eve	ening	Leq	Night		Ldn		C٨	JEL
Autos:	72	.7 7	0.8		69.1		63.	0		71.6		72.2
Medium Trucks:	66	.5 6	65.0		58.6		57.	1		65.5		65.8
Heavy Trucks:	67	.3 6	65.9		56.9		58.	1		66.5		66.6
Vehicle Noise:	74	.6 7	2.8		69.7		65.	0		73.5		74.0
Centerline Distan	ce to Noise Co	ontour (in feet)								_		
			7	70 dE	BA	65	dBA		60 dBA		55	dBA
		L	.dn:	103		2	23		480		1,0	033
		CN	IEL:	111		23	39		514		1,1	108

	FH\	WA-RD-77-108	HIGHW	AY NO	DISE PI	REDICTIC		DEL			
Scenar	io: Existing					Project N	lame: V	Vest C	Grove Cent	er	
Road Nan	ne: Valley Viev	v St.				Job Nu	mber: 1	2717			
Road Segme	nt: n/o Cerulea	an Av.									
SITE	SPECIFIC IN	NPUT DATA				NC	DISE M	ODE	L INPUT	S	
Highway Data				S	ite Con	ditions (H	Hard = 1	10, So	ft = 15)		
Average Daily	Traffic (Adt):	49,824 vehicle	s				A	utos:	15		
Peak Hour	Percentage:	10.00%			Me	dium Truc	cks (2 A	xles):	15		
Peak H	lour Volume:	4,982 vehicle	s		He	avy Truck	(3+ A)	xles):	15		
Ve	hicle Speed:	45 mph		V	ehicle I	Mix					
Near/Far La	ne Distance:	78 feet		-	Veh	icleTvpe	Ĺ	Dav	Evenina	Niaht	Dailv
Site Data						AL	utos: 7	7.5%	12.9%	9.6%	6 97.42%
Ba	rrier Heiaht:	0 0 feet			М	edium Tru	icks: 8	34.8%	4.9%	10.3%	6 1.84%
Barrier Type (0-V	/all, 1-Berm):	0.0			1	Heavy Tru	icks: 8	36.5%	2.7%	10.8%	6 0.74%
Centerline Di	st. to Barrier:	60.0 feet		N	oise So	ource Elev	vations	(in fe	et)		
Centerline Dist.	to Observer:	60.0 feet				Autos	0.0	00			
Barrier Distance	to Observer:	0.0 feet			Mediu	m Trucks:	22	97			
Observer Height	(Above Pad):	5.0 feet			Heav	v Trucks:	8.0	06	Grade Ad	iustmen	t: 0.0
P	ad Elevation:	0.0 feet				,	0.0				
Ro	ad Elevation:	0.0 feet		Li	ane Eq	uivalent L	Distance	e (in f	'eet)		
	Road Grade:	0.0%				Autos:	45.8	69			
	Left View:	-90.0 degree	es		Mediu	m Trucks:	45.6	76			
	Right View:	90.0 degree	es		Heav	y Trucks:	45.6	95			
FHWA Noise Mod	el Calculation	s									
VehicleType	REMEL	Traffic Flow	Dista	nce	Finite	Road	Fresne	2/	Barrier Atte	en Be	rm Atten
Autos:	68.46	5.02		0.46		-1.20	-	4.69	0.0	000	0.000
Medium Trucks:	79.45	-12.21		0.49		-1.20	-	4.88	0.0	000	0.000
Heavy Trucks:	84.25	-16.17		0.48		-1.20	-	5.34	0.0	000	0.000
Unmitigated Nois	e Levels (with	out Topo and	barrier a	attenu	ation)						
VehicleType	Leq Peak Hou	ur Leq Day	' L	eq Eve	ening	Leq N	light		Ldn	C	NEL
Autos:	72	2.7	70.8		69.1		63.0		71.6	6	72.3
Medium Trucks:	66	3.5	65.0		58.7		57.1		65.6	6	65.8
Heavy Trucks:	67	7.4	65.9		56.9		58.2		66.5	5	66.6
Vehicle Noise:	74	1.6	72.8		69.7		65.0		73.6	3	74.0
Centerline Distan	ce to Noise Co	ontour (in feet)								
				70 dE	BA	65 dl	BA	6	i0 dBA	55	5 dBA
			Ldn:	104	Ļ	223	3		481	1	,036
		C	NEL:	111		239	Э		516	1	,111

Sunday, January 17, 2021

Sunday, January 17, 2021

	FH	WA-RD-77-108	HIGHV	NAY NO	DISE PI	REDICTIC	ON MOI	DEL			
Scena Road Nan Road Segme	rio: Existing ne: Valley View ent: s/o Cerulea	v St. an Av.				Project N Job Nu	lame: \ mber: 1	Vest (2717	Grove Cent	er	
SITE	SPECIFIC IN	NPUT DATA				NC	DISE N	IODE	L INPUT	5	
Highway Data				S	te Con	ditions (H	lard =	10, So	oft = 15)		
Average Daily	Traffic (Adt):	52,152 vehicle	s				1	Autos:	15		
Peak Hour	Percentage:	10.00%			Me	dium Truc	cks (2 A	xles):	15		
Peak I	Hour Volume:	5,215 vehicle	s		He	avy Truck	(3+ A	xles):	15		
Ve	ehicle Speed:	45 mph		V	hicle	Mix					
Near/Far La	ane Distance:	78 feet		-	Veh	icleType		Dav	Evenina	Niaht	Daily
Site Data						AL	itos:	77.5%	12.9%	9.6%	97.42%
Ba	rrier Heiaht:	0.0 feet			М	edium Tru	cks:	84.8%	4.9%	10.3%	1.84%
Barrier Type (0-V	Vall, 1-Berm):	0.0			1	Heavy Tru	cks:	86.5%	2.7%	10.8%	0.74%
Centerline D	ist. to Barrier:	60.0 feet		N	oise So	ource Ele	vations	in fe	et)		
Centerline Dist.	to Observer:	60.0 feet				Autos	0.0	000			
Barrier Distance	to Observer:	0.0 feet			Mediu	m Trucks	2.2	997			
Observer Height	(Above Pad):	5.0 feet			Heat	/v Trucks:	8.0	06	Grade Ad	iustment	0.0
P	ad Elevation:	0.0 feet			mour	, <i>maono</i> .	0.0				
Ro	ad Elevation:	0.0 feet		Li	ane Eq	uivalent L	Distanc	e (in f	feet)		
	Road Grade:	0.0%				Autos:	45.8	369			
	Left View:	-90.0 degre	es		Mediu	m Trucks:	45.6	676			
	Right View:	90.0 degre	es		Heav	y Trucks:	45.6	695			
FHWA Noise Mod	el Calculation	s									
VehicleType	REMEL	Traffic Flow	Dista	ance	Finite	Road	Fresn	e/	Barrier Att	en Ber	m Atten
Autos:	68.46	5.22		0.46		-1.20		4.69	0.0	000	0.000
Medium Trucks:	79.45	-12.02		0.49		-1.20		-4.88	0.0	000	0.000
Heavy Trucks:	84.25	-15.97		0.48		-1.20		-5.34	0.0	000	0.000
Unmitigated Nois	e Levels (with	out Topo and	barrier	attenu	ation)						
VehicleType	Leq Peak Ho	ur Leq Daj	/ 1	Leq Eve	ening	Leq N	light		Ldn	C	NEL
Autos:	72	2.9	71.0		69.3		63.2		71.8	3	72.4
Medium Trucks:	66	5.7	65.2		58.8		57.3		65.8	3	66.0
Heavy Trucks:	67	7.6	66.1		57.1		58.4		66.7	7	66.8
Vehicle Noise:	74	4.8	73.0		69.9		65.2		73.8	3	74.2
Centerline Distan	ce to Noise C	ontour (in feet)								
				70 dE	BA	65 di	BA	6	i0 dBA	55	dBA
			Ldn:	107		230)		496	1,	068
		С	NEL:	115		241	7		532	1,	146

Road Segment: e SITE SPE Highway Data Average Daily Trat Peak Hour Per Peak Hour Vehicle Near/Far Lane D Site Data	Vo Valley View CIFIC INPU fic (Adt): 14,0 centage: 10.0 Volume: 1,4 Speed:	St. T DATA 76 vehicles 00% 08 vehicles 45 mph		Site Con	NO ditions (H	ISE M	ODE		5	
SITE SPE Highway Data Average Daily Trat Peak Hour Per Peak Hour Vehicle Near/Far Lane D Site Data	fic (Adt): 14,0 centage: 10. Volume: 1,4 e Speed:	76 vehicles 00% 08 vehicles		Site Con	NO ditions (H	ISE M	ODE		5	
Average Daily Trat Peak Hour Per Peak Hour Peak Hour Vehicle Near/Far Lane D Site Data	fic (Adt): 14,0 centage: 10,0 Volume: 1,4 e Speed:	76 vehicles 00% 08 vehicles		Sile Con	uiuons (n			** = 761		-
Average Daily Tra Peak Hour Pen Peak Hour Vehicle Near/Far Lane D Site Data	nc (Adt): 14,0 centage: 10. Volume: 1,4 e Speed:	00% 00% 08 vehicles				uru – 1	10, 30	45		
Peak Hour Peak Hour Vehicle Near/Far Lane D Site Data	Volume: 1,4 Speed:	00% 08 vehicles		Ma	dium Truc	F Vr (2 A	viec)	15		
Vehicle Near/Far Lane D	Speed:	45 mmh		IVIC Ho	aut Truck	13 (2 A	vlec).	15		
Near/Far Lane D	sopeeu.			110	avy much	s (3+ A	xies).	15		
Site Data)istance	48 feet		Vehicle I	Nix					
Site Data	istance.	10 1001		Veh	icleType	1	Day	Evening	Night	Daily
					Au	tos: 1	77.5%	12.9%	9.6%	97.42
Barrier	Height:	0.0 feet		M	edium True	cks: {	34.8%	4.9%	10.3%	1.84
Barrier Type (0-Wall,	1-Berm):	0.0			leavy Tru	cks: 8	36.5%	2.7%	10.8%	0.74
Centerline Dist. to	Barrier: 5	0.0 feet		Noise So	ource Elev	ations	(in fe	et)		
Centerline Dist. to C	bserver: 5	0.0 feet			Autos:	0.0	00			
Barrier Distance to C	bserver:	0.0 feet		Mediu	m Trucks:	2.2	97			
Observer Height (Abo	ve Pad):	5.0 feet		Heav	y Trucks:	8.0	06	Grade Ad	iustment	: 0.0
Pad E	levation:	0.0 feet		Long Fr	vivalant D	iotono	o (in f	oot)		
Road E	levation:	0.0 feet		Lane Eq	Autoo	ISLANC AA A	e (III I 47	eel)		
Roa	grade:	0.0%		Modiu	m Trucks:	44.1	47			
Li	t View: -9	0.0 degrees		Heat	v Trucks:	43.5	147 166			
nig.	ni view. 9	0.0 degrees		near	y macks.	40.0	00			
FHWA Noise Model Ca	alculations									
VehicleType F	REMEL Tra	ffic Flow D	istance	Finite	Road	Fresne	el i	Barrier Atte	en Ber	m Atter
Autos:	68.46	-0.47	0.	71	-1.20	-	4.65	0.0	000	0.00
Medium Trucks:	79.45	-17.70	0.	74	-1.20	-	4.87	0.0	000	0.00
Heavy Trucks:	84.25	-21.66	0.	73	-1.20	-	5.43	0.0	000	0.00
Unmitigated Noise Le	vels (without	Topo and barr	ier atte	nuation)						
VehicleType Leq	Peak Hour	Leq Day	Leq	Evening	Leq Ni	ght		Ldn	CI	VEL
Autos:	67.5	65.6		63.8		57.8		66.4	ŀ	67
Medium Trucks:	61.3	59.8		53.4		51.9		60.3	3	60
Heavy Trucks:	62.1	60.7		51.7		52.9		61.3	3	61.
Vehicle Noise:	69.3	67.6		64.4		59.8		68.3	3	68.
Centerline Distance to	Noise Conto	ur (in feet)	70	dBA	65 dF	Δ	6	0 dBA	55	dBA
		l da	70	30	83	~	0	170	1 33	86
		CNEL:		41	80			102	4	14

	FH'	WA-RD-77-108	HIGHW	AY NO	ISE P	REDICT	ION MO	DEL			
Scenar Road Narr Road Segme	io: Existing ne: Chapman i nt: w/o Valley	Av. View St.				Project Job N	t Name: Number:	West (12717	Grove Cen	ter	
SITE	SPECIFIC IN	NPUT DATA					NOISE	IODE	L INPUT	s	
Highway Data				Sit	e Cor	nditions	(Hard =	10, Se	oft = 15)		
Average Daily Peak Hour	Traffic (Adt): Percentage:	10,476 vehicle 10.00%	s		Me	edium Tr	ucks (2)	Autos: Axles): Axles):	15 15		
reak n	biolo Speed	1,046 Verlicie	5		110	avy nu	CK3 (3+7	12/03/.	15		
Near/Ear La	ne Distance:	45 mpn		Ve	hicle	Mix					
iveai/i ai La	ne Distance.	40 1661			Veh	nicleType	9	Day	Evening	Night	Daily
Site Data							Autos:	77.5%	5 12.9%	9.6%	97.42%
Ba	rrier Height:	0.0 feet			Μ	ledium T	rucks:	84.8%	4.9%	10.3%	1.84%
Barrier Type (0-W	/all, 1-Berm):	0.0				Heavy T	rucks:	86.5%	5 2.7%	10.8%	0.74%
Centerline Di	st. to Barrier:	50.0 feet		No	ise S	ource E	levation	s (in f	eet)		
Centerline Dist.	to Observer:	50.0 feet				Auto	. 0	000	,		-
Barrier Distance	to Observer:	0.0 feet			Mediu	m Truck	(e· 2)	207			
Observer Height	(Above Pad):	5.0 feet			Hea	vv Truck	(S' 8)	006	Grade Ad	liustmen	t: 0.0
P	ad Elevation:	0.0 feet				,, ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		000		,	
Ro	ad Elevation:	0.0 feet		La	ne Eq	uivalen	t Distan	ce (in	feet)		
	Road Grade:	0.0%				Auto	os: 44.	147			
	Left View:	-90.0 degre	es		Mediu	m Truck	(s: 43.	947			
	Right View:	90.0 degre	es		Hea	vy Truck	(s: 43.	966			
FHWA Noise Mode	el Calculation	IS									
VehicleType	REMEL	Traffic Flow	Distar	nce	Finite	Road	Fresh	el	Barrier Att	en Be	rm Atten
Autos:	68.46	-1.75		0.71		-1.20		-4.65	0.	000	0.000
Medium Trucks:	79.45	-18.99		0.74		-1.20		-4.87	0.0	000	0.000
Heavy Trucks:	84.25	-22.94		0.73		-1.20		-5.43	0.0	000	0.000
Unmitigated Noise	e Levels (with	out Topo and	barrier a	attenua	tion)						
VehicleType	Leq Peak Ho	ur Leq Day	' L	eq Eve	ning	Leq	Night		Ldn	C	NEL
Autos:	66	5.2	64.3		62.6	i	56.5	5	65.	1	65.7
Medium Trucks:	60	0.0	58.5		52.1		50.6	6	59.	D	59.3
Heavy Trucks:	60	0.8	59.4		50.4		51.6	3	60.	0	60.1
Vehicle Noise:	68	3.1	66.3		63.2	2	58.5	5	67.	0	67.5
Centerline Distant	ce to Noise C	ontour (in feet)					1			
				70 dB.	A	65	dBA	1	60 dBA	55	i dBA
			Ldn:	32		6	68		147		317
		C	NEL:	34		1	73		158		340

	гни	A-RD-77-108 HIG	HWAY	NOISE PI	REDICTION	MODEL			
Scenar	io: Existing				Project Na	ne: West	Grove Cent	ter	
Road Nan	ne: Belgrave Av	r.			Job Numl	er: 12717			
Road Segme	nt: w/o Valley V	/iew St.							
SITE	SPECIFIC IN	PUT DATA			NOI	SE MODE	L INPUT	s	
Highway Data				Site Con	ditions (Ha	rd = 10, So	oft = 15)		
Average Daily	Traffic (Adt):	1,644 vehicles				Autos.	15		
Peak Hour	Percentage:	10.00%		Me	dium Trucks	(2 Axles)	15		
Peak H	lour Volume:	164 vehicles		He	avy Trucks	(3+ Axles).	15		
Ve	ehicle Speed:	25 mph	ŀ	Vehicle I	Mix				
Near/Far La	ane Distance:	12 feet		Veh	icleType	Day	Evening	Night	Daily
Site Data					Auto	s: 77.5%	12.9%	9.6%	97.42%
Ba	rrier Heiaht:	0.0 feet		Me	edium Truck	s: 84.8%	4.9%	10.3%	1.84%
Barrier Type (0-V	Vall, 1-Berm):	0.0		ŀ	leavy Truck	s: 86.5%	2.7%	10.8%	0.74%
Centerline D	ist. to Barrier:	37.0 feet	ŀ	Noise Sc	urce Eleva	tions (in f	eet)		
Centerline Dist.	to Observer:	37.0 feet	f		Autos:	0.000			
Barrier Distance	to Observer:	0.0 feet		Modiu	m Trucke:	2 207			
Observer Height	(Above Pad):	5.0 feet		Heav	n Trucks:	2.207	Grade Ad	iustment	· 0.0
P	ad Elevation:	0.0 feet		neur	y macks.	0.000	0/000//0	fuotimorit.	0.0
Ro	ad Elevation:	0.0 feet		Lane Eq	uivalent Dis	tance (in	feet)		
	Road Grade:	0.0%			Autos:	36.851			
	Left View:	-90.0 degrees		Mediu	m Trucks:	36.610			
	Right View:	90.0 degrees		Heav	y Trucks:	36.634			
FHWA Noise Mod	el Calculations	;						-	
VehicleType	REMEL	Traffic Flow D	listance	Finite	Road F	resnel	Barrier Att	en Ben	m Atten
Autos:	58.73	-7.24	1.8	88	-1.20	-4.56	0.0	000	0.000
Medium Trucks:	70.80	-24.48	1.9	3	-1.20	-4.87	0.0	000	0.000
Heavy Trucks:	77.97	-28.43	1.9	92	-1.20	-5.61	0.0	000	0.000
Unmitigated Nois	e Levels (witho	out Topo and barr	rier atter	nuation)				-	
VehicleType	Leq Peak Hou	r Leq Day	Leq E	vening	Leq Nigl	nt	Ldn	CI	VEL
Autos:	52.	2 50.3	3	48.5		42.5	51.1	1	51.7
Medium Trucks:	47.	0 45.5	5	39.2		37.6	46.1	1	46.3
Heavy Trucks:	50.	3 48.8	3	39.8		41.1	49.4	1	49.5
Vehicle Noise:	55.	.1 53.4	Ļ	49.5		45.6	54.1	1	54.5
Centerline Distan	ce to Noise Co	ntour (in feet)							
			70	dBA	65 dBA		60 dBA	55	dBA
		Ldn.	:	3	7		15	3	32
		CNEL		3	7		16	3	34

Sunday, January 17, 2021

Sunday, January 17, 2021

	FH	WA-RD-77-108	HIGHW	AY NO	DISE P	REDICTIO		DEL			
Scenar Road Nan Road Segme	io: Existing ne: Belgrave A nt: e/o Valley	v. View St.				Project I Job Ni	Name: \ Imber: `	Nest (12717	Grove Cent	er	
SITE	SPECIFIC I	NPUT DATA				N	OISE N	IODE	L INPUT	5	
Highway Data				Si	te Cor	nditions (Hard =	10, Sc	oft = 15)		
Average Daily	Traffic (Adt):	264 vehicle	s				,	Autos:	15		
Peak Hour	Percentage:	10.00%			M	edium Tru	cks (2 A	(xles):	15		
Peak F	lour Volume:	26 vehicle	s		He	eavy Truc	ks (3+ A	(xles):	15		
Ve	hicle Speed:	25 mph		Ve	hicle	Mix					
Near/Far La	ne Distance:	12 feet			Veł	nicleType		Day	Evening	Night	Daily
Site Data						A	utos:	77.5%	12.9%	9.6%	97.42%
Ba	rrier Height:	0.0 feet			N	ledium Tru	ucks:	84.8%	4.9%	10.3%	1.84%
Barrier Type (0-W	/all, 1-Berm):	0.0				Heavy Tru	ucks:	86.5%	2.7%	10.8%	0.74%
Centerline Di	st. to Barrier:	37.0 feet		N	oise S	ource Ele	vations	in fe	et)		
Centerline Dist.	to Observer:	37.0 feet				Autos	: 0.0	000	,		
Barrier Distance	to Observer:	0.0 feet			Mediu	ım Trucks	: 2.2	297			
Observer Height	(Above Pad):	5.0 feet			Hea	vv Trucks	: 8.0	006	Grade Ad	iustment	t: 0.0
P	ad Elevation:	0.0 feet				.,					
Ro	ad Elevation:	0.0 feet		Lá	ane Eq	uivalent	Distanc	e (in i	feet)		
	Road Grade:	0.0%				Autos	36.0	351			
	Left View:	-90.0 degre	es		Mediu	ım Trucks	36.0	610			
	Right View:	90.0 degre	es		Hea	vy Trucks	: 36.0	534			
FHWA Noise Mod	el Calculation	s									
VehicleType	REMEL	Traffic Flow	Dista	nce	Finite	Road	Fresn	el	Barrier Atte	en Ber	rm Atten
Autos:	58.73	-15.18		1.88		-1.20		-4.56	0.0	000	0.000
Medium Trucks:	70.80	-32.42		1.93		-1.20		-4.87	0.0	000	0.000
Heavy Trucks:	77.97	-36.38		1.92		-1.20		-5.61	0.0	000	0.000
Unmitigated Noise	e Levels (with	out Topo and	barrier a	attenu	ation)						
VehicleType	Leq Peak Ho	ur Leq Day	/ L	eq Eve	ening	Leq N	light		Ldn	C	NEL
Autos:	44	1.2	42.3		40.6	3	34.5		43.1		43.7
Medium Trucks:	39	9.1	37.6		31.2	2	29.7		38.1	1	38.4
Heavy Trucks:	42	2.3	40.9		31.9)	33.1		41.5	5	41.6
Vehicle Noise:	47	7.1	45.5		41.5	5	37.6		46.1		46.5
Centerline Distan	ce to Noise C	ontour (in feet)	70			0.4				-10.4
			🖵	70 dE	SA	65 d	IBA	6	и авА	55	aBA
		_	Lan:	1		2			4		10
		C	NEL:	1		2			5		10

Scenario:	Existing					Project	Name: \	Nest	Grove Cent	er	
Road Name:	Lampson A	V.				Job N	lumber: ·	12717			
Road Segment:	e/o valley v	iew St.									
SITE SP	ECIFIC IN	PUT DATA				1	IOISE N	IODE		5	
Highway Data				S	ite Con	aitions	(Hard =	10, S	oft = 15)		
Average Daily Tra	affic (Adt):	2,240 vehicle	s					Autos.	15		
Peak Hour Pe	rcentage:	10.00%			Me	dium Tr	ucks (2 A	(xles)	15		
Peak Hou	r Volume:	1,224 vehicle	s		He	avy Tru	cks (3+ A	(xles).	: 15		
Vehic	le Speed:	40 mph		V	ehicle N	lix					
Near/Far Lane	Distance:	36 teet			Vehi	cleType	;	Day	Evening	Night	Daily
Site Data							Autos:	77.5%	6 12.9%	9.6%	97.42
Barrie	r Height:	0.0 feet			Me	edium T	rucks:	84.8%	6 4.9%	10.3%	1.849
Barrier Type (0-Wall,	1-Berm):	0.0			H	leavy T	rucks:	86.5%	6 2.7%	10.8%	0.749
Centerline Dist.	to Barrier:	40.0 feet		N	oise So	urce E	levations	: (in f	eet)		
Centerline Dist. to	Observer:	40.0 feet		-	0.00 00	Auto	s' 0 (000			
Barrier Distance to	Observer:	0.0 feet			Mediur	n Truck	s 21	297			
Observer Height (Ab	ove Pad):	5.0 feet			Heav	v Truck	s: 8.0	006	Grade Ad	iustment.	0.0
Pad	Elevation:			,							
Road	Elevation:	0.0 feet		Li	ane Equ	iivalen	t Distanc	:e (in	feet)		
Roi	ad Grade:	0.0%				Auto	s: 36.	069			
	Left View:	-90.0 degree	es		Mediur	n Truck	s: 35.	823			
R	ight View:	90.0 degree	es		Heav	y Truck	s: 35.	847			
FHWA Noise Model (Calculation	;									
VehicleType	REMEL	Traffic Flow	Di	stance	Finite	Road	Fresn	el	Barrier Atte	en Ber	m Atten
Autos:	66.51	-0.56		2.02		-1.20		-4.59	0.0	000	0.00
Medium Trucks:	77.72	-17.80		2.07		-1.20		-4.87	0.0	000	0.00
Heavy Trucks:	82.99	-21.76		2.06		-1.20		-5.56	0.0	000	0.00
Unmitigated Noise L	evels (with	out Topo and	barri	er attenu	ation)					1	
VehicleType Le	q Peak Hou	r Leq Day	1	Leq Eve	ening	Leq	Night		Ldn	CI	VEL
Autos:	66	.8	64.9		63.1		57.1		65.7	,	66
Medium Trucks:	60	.8	59.3		52.9		51.4		59.8	3	60
Heavy Trucks:	62	.1	60.7		51.6		52.9		61.2	2	61
Vehicle Noise:	68	.8	67.1		63.8		59.2	2	67.8	3	68.
Centerline Distance	to Noise Co	ntour (in feet)					1			
			1.10	70 dE	3A	65	aBA	I '	DU OBA	55	aBA
		~	Lan:	28		6	01		132	2	ö4
		C	VEL:			6	n		141		U4

	FH\	WA-RD-77-108	HIGH	NAY NO	DISE P	REDICTI		DEL			
Scenar Road Nam Road Segme	io: Existing ne: Lampson A nt: w/o Valley	Av. View St.				Project Job N	Name: \ umber: 1	Vest (2717	Grove Cente	er	
SITE	SPECIFIC IN	NPUT DATA				N	OISE N	IODE	L INPUTS	3	
Highway Data				S	ite Cor	ditions	(Hard =	10, So	oft = 15)		
Average Daily Peak Hour Peak H	Traffic (Adt): Percentage: Iour Volume:	14,916 vehicle 10.00% 1,492 vehicle	s		Me He	edium Tru eavy Truc) Icks (2 A Sks (3+ A	Autos: (xles): (xles):	15 15 15		
Ve	hicle Speed:	40 mph		V	ehicle	Mix					
Near/Far La	ne Distance:	36 feet			Veh	icleType		Day	Evening	Night	Daily
Site Data						A	Autos:	77.5%	12.9%	9.6%	6 97.42%
Bai	rrier Heiaht:	0.0 feet			М	edium Tr	ucks:	84.8%	4.9%	10.3%	5 1.84%
Barrier Type (0-W	/all, 1-Berm):	0.0				Heavy Tr	ucks:	86.5%	2.7%	10.8%	0.74%
Centerline Dis	st. to Barrier:	40.0 feet		N	oise Se	ource Ele	evations	in fe	eet)		
Centerline Dist.	to Observer:	40.0 feet				Autos	s: 0.0	000			
Barrier Distance	to Observer:	0.0 feet			Mediu	m Trucks	s: 2.2	297			
Observer Height ((Above Pad):	5.0 feet			Hear	vy Trucks	s: 8.0	006	Grade Adj	ustmen	t: 0.0
Pa	ad Elevation:	0.0 feet		_							
Roa	ad Elevation:	0.0 feet		Li	ane Eq	uivalent	Distanc	e (in :	feet)		
	Road Grade:	0.0%				Autos	s: 36.0)69			
	Left View:	-90.0 degre	es		Mediu	m Trucks	s: 35.8	323			
	Right View:	90.0 degre	es		Hear	vy Trucks	5: 35.8	347			
FHWA Noise Mode	el Calculation	s									
VehicleType	REMEL	Traffic Flow	Dista	ance	Finite	Road	Fresn	el	Barrier Atte	en Be	rm Atten
Autos:	66.51	0.30		2.02		-1.20		-4.59	0.0	00	0.000
Medium Trucks:	77.72	-16.94		2.07		-1.20		-4.87	0.0	00	0.000
Heavy Trucks:	82.99	-20.90		2.06		-1.20		-5.56	0.0	00	0.000
Unmitigated Noise	e Levels (with	out Topo and	barrier	r attenu	ation)						
VehicleType	Leq Peak Hou	ur Leq Day	/ 1	Leq Eve	ening	Leq I	Night		Ldn	C	NEL
Autos:	67	7.6	65.7		64.0		57.9		66.5		67.1
Medium Trucks:	61	1.6	60.1		53.8		52.2		60.7		60.9
Heavy Trucks:	63	3.0	61.5		52.5		53.8		62.1		62.2
Vehicle Noise:	69	9.7	67.9		64.6		60.1		68.6	i	69.1
Centerline Distance	ce to Noise Co	ontour (in feet)	70 4	24	65.			SO dRA	E	- dPA
			I da:	10 01	-A	050	0		151	55	224
		0	NEL ·	32		7	5		161		347
	CNEL:					35 75 161 3				047	

	FH\	NA-RD-77-108	HIGHW	AY NO	DISE PF	REDICTI	ом мо	DEL			
Scena	rio: Existing					Project	Name:	West	Grove Cen	iter	
Road Nar	ne: Cerulean A	<i>v</i> .				Job N	umber:	12717			
Road Segme	ent: w/o Valley	View St.									
SITE	SPECIFIC IN	IPUT DATA				N	OISE	NODE	L INPUT	s	
Highway Data				S	ite Con	ditions ('Hard =	10, So	oft = 15)		
Average Daily	Traffic (Adt):	4,824 vehicles						Autos:	15		
Peak Hou	r Percentage:	10.00%			Ме	dium Tru	icks (2)	Axles):	15		
Peak I	Hour Volume:	482 vehicles			He	avy Truc	ks (3+)	Axles):	15		
Ve	ehicle Speed:	25 mph		V	ehicle I	Mix					
Near/Far La	ane Distance:	12 feet		-	Veh	icleTvpe		Dav	Evenina	Niaht	Dailv
Site Data						A	utos:	77.5%	12.9%	9.69	% 97.42%
Ba	arrier Height:	0 0 feet			M	edium Tr	ucks:	84.8%	4.9%	10.39	% 1.84%
Barrier Type (0-V	Vall, 1-Berm):	0.0			ŀ	Heavy Tr	ucks:	86.5%	2.7%	10.89	% 0.74%
Centerline D	ist. to Barrier:	37.0 feet		N	oise Sc	ource Ele	evation	s (in f	et)		
Centerline Dist.	to Observer:	37.0 feet				Autos	e: 0.	000			
Barrier Distance	to Observer:	0.0 feet			Mediu	m Trucks	: 2	297			
Observer Height	(Above Pad):	5.0 feet		Heavy Trucks: 8,006 Grade Adjustment: 0.0							nt: 0.0
F	Pad Elevation:	0.0 feet									
Ro	ad Elevation:	0.0 feet		Li	ane Equ	uivalent	Distan	ce (in	feet)		
	Road Grade:	0.0%				Autos	: 36.	851			
	Left View:	-90.0 degree	s		Mediui	m Trucks	s: 36.	610			
	Right View:	90.0 degree	s		Heav	y Trucks	:: 36.	634			
FHWA Noise Mod	lel Calculation	s									
VehicleType	REMEL	Traffic Flow	Dista	nce	Finite	Road	Fresr	nel	Barrier At	ten Be	erm Atten
Autos	58.73	-2.56		1.88		-1.20		-4.56	0.	000	0.000
Medium Trucks	70.80	-19.80		1.93		-1.20		-4.87	0.	000	0.000
Heavy Trucks:	77.97	-23.76		1.92		-1.20		-5.61	0.	000	0.000
Unmitigated Nois	e Levels (with	out Topo and I	oarrier	attenu	ation)						
VehicleType	Leq Peak Hou	Ir Leq Day	L	eq Eve	ening	Leq I	Vight		Ldn	(CNEL
Autos	: 56	.9 !	55.0		53.2		47.	1	55.	8	56.4
Medium Trucks.	: 51	.7	50.2		43.9		42.3	3	50.	8	51.0
Heavy Trucks:	54	.9	53.5		44.5		45.1	7	54.	1	54.2
Vehicle Noise:	59	.8	58.1		54.2		50.3	3	58.	8	59.2
Centerline Distan	ce to Noise Co	ontour (in feet)									
				70 dE	BA	65 0	1BA		50 dBA	5	5 dBA
			dn:	7	7		4		31		66
		CN	IEL:	7	7 15 32				70		

Sunday, January 17, 2021

Sunday, January 17, 2021

	FH	WA-RD-77-10	B HIGH	NAY NO	DISE P	REDICT	ION MO	DEL			
Scenar Road Nan Road Segme	io: Existing ne: Cerulean A nt: e/o Valley	View St.				Project Job N	Name: umber:	West 12717	Grove Cent	er	
SITE	SPECIFIC I	NPUT DATA				N	IOISE I	NODE	L INPUT	5	
Highway Data				S	ite Cor	nditions	(Hard =	10, S	oft = 15)		
Average Daily	Traffic (Adt):	5,124 vehicle	s					Autos	15		
Peak Hour	Percentage:	10.00%			Me	eaium Tri	ICKS (2)	Axies)	15		
Peak F	lour Volume:	512 vehicle	s		He	eavy Truc	cks (3+)	Axles).	15		
Ve	hicle Speed:	25 mph		V	ehicle	Mix					
Near/Far La	ne Distance:	12 feet			Veh	nicleType		Day	Evening	Night	Daily
Site Data							Autos:	77.5%	6 12.9%	9.6%	6 97.42%
Ba	rrier Height:	0.0 feet			М	ledium Ti	rucks:	84.8%	6 4.9%	10.3%	6 1.84%
Barrier Type (0-W	/all, 1-Berm):	0.0				Heavy Ti	rucks:	86.5%	6 2.7%	10.8%	6 0.74%
Centerline Di	st. to Barrier:	37.0 feet		N	oise Se	ource El	evation	s (in f	eet)		
Centerline Dist.	to Observer:	37.0 feet				Auto	s: 0.	000			
Barrier Distance	to Observer:	0.0 feet			Mediu	m Truck	s: 2.	297			
Observer Height	(Above Pad):	5.0 feet			Hear	vy Truck	s: 8.	006	Grade Ad	iustmer	nt: 0.0
P	ad Elevation:	0.0 feet		-							
Ro	ad Elevation:	0.0 feet		L	ane Eq	uivalent	Distan	ce (in	feet)		
	Road Grade:	0.0%				Auto	s: 36.	.851			
	Left View:	-90.0 degre	es		Mediu	m Truck	s: 36.	.610			
	Right View:	90.0 degre	es		Hear	vy Truck	s: 36.	.634			
FHWA Noise Mod	el Calculation	IS									
VehicleType	REMEL	Traffic Flow	Dist	ance	Finite	Road	Fresr	nel	Barrier Att	en Be	erm Atten
Autos:	58.73	-2.30	1	1.88		-1.20		-4.56	0.0	000	0.000
Medium Trucks:	70.80	-19.54		1.93		-1.20		-4.87	0.0	000	0.000
Heavy Trucks:	77.97	-23.50	1	1.92		-1.20		-5.61	0.0	000	0.000
Unmitigated Noise	e Levels (with	out Topo and	barrie	r attenu	ation)						
VehicleType	Leq Peak Ho	ur Leq Da	y	Leq Eve	ening	Leq	Night		Ldn	0	ONEL
Autos:	57	7.1	55.2		53.5		47.4	4	56.0)	56.6
Medium Trucks:	52	2.0	50.5		44.1		42.	6	51.0)	51.3
Heavy Trucks:	55	5.2	53.8		44.7	,	46.	0	54.3	3	54.5
Vehicle Noise:	60	0.0	58.3		54.4		50.	5	59.0)	59.4
Centerline Distan	ce to Noise C	ontour (in fee	9								
			L	70 dl	ЗA	65	dBA		50 dBA	5	5 dBA
			Ldn:	7 15 32		32		69			
		C	NEL:	7		1	6		34		73

Scenaric											
occitatio	: Existing + P					Project	Name: \	Vest (Grove Cen	ter	
Road Name	: Valley View	St.				Job Nu	imber: 1	2717			
Road Segmen	t: n/o Belgrave	e Av.									
SITE S	PECIFIC IN	PUT DATA				N	OISE N	IODE	L INPUT	S	
Highway Data				:	Site Con	ditions (Hard =	10, Sc	oft = 15)		
Average Daily T	raffic (Adt): 5	2,448 vehicle	s				/	Autos:	15		
Peak Hour F	Percentage:	10.00%			Me	dium Tru	cks (2 A	xles):	15		
Peak Ho	ur Volume:	5,245 vehicle	s		He	avy Truc	ks (3+ A	xles):	15		
Veh	icle Speed:	45 mph		1	Vehicle I	lix					
Near/Far Lan	e Distance:	78 feet			Vehi	cleType		Day	Evening	Night	Daily
Site Data						A	utos:	77.5%	12.9%	9.6%	97.42
Barr	ier Height:	0.0 feet			Me	edium Tr	ucks:	84.8%	4.9%	10.3%	1.849
Barrier Type (0-Wa	ll, 1-Berm):	0.0			ŀ	leavy Tr	ucks:	86.5%	2.7%	10.8%	0.74
Centerline Dist	to Barrier:	60.0 feet		7	Noise So	urce Ele	vations	in fe	et)		
Centerline Dist. to	o Observer:	60.0 feet		-		Autos	: 0.0	000	.,		
Barrier Distance to	o Observer:	0.0 feet			Mediur	n Trucks	: 2.2	297			
Observer Height (A	bserver Height (Above Pad): 5.0 feet						: 8.0	006	Grade Ad	ljustment	: 0.0
Pa	d Elevation:	-	l ana Eau	ui valant	Distanc	o (in i	faat)				
Road	d Elevation:	0.0 feet		ŕ	Lane Equ	Autor			eel)		
ĸ	oad Grade:	0.0%			Modiu	Aulos n Trucks	. 45.0	376			
	Right View:	-90.0 degree			Heav	v Trucks	· 45.0	395			
	ragin view.	50.0 degree			mour	<i>y</i> 11 dono	. 10.1				
FHWA Noise Model	Calculations				T					Т	
VehicleType	REMEL	Traffic Flow	Di	stance	Finite	Road	Fresn	el	Barrier Att	en Ber	m Atten
Autos:	68.46	5.25		0.4	6	-1.20		-4.69	0.0	000	0.00
Medium Trucks:	79.45	-11.99		0.4	9	-1.20		-4.88	0.0	000	0.00
Heavy Trucks:	84.25	-15.95		0.4	8	-1.20		-5.34	0.0	000	0.00
Unmitigated Noise	Levels (witho	out Topo and	barri	er atten	uation)			1			
VehicleType L	eq Peak Hou	r Leq Day		Leg E	vening	Leq I	light		Ldn	C	VEL 70
Autos:	73.	.0	/1.1		69.3		63.2		/1.9	9	72.
Medium Trucks:	00. 67	.1	66.2		58.9		57.3		00.0	8	00. 66
Vehicle Noise: 74.9 73.1					57.1		00.4 65.2		72	0	74
venicie noise.	74.		13.1		09.9		05.2		73.	0	74.
Centerline Distance	e to Noise Co	ntour (in feet,)	70 /	dRΔ	65.0	RΔ	F	O dBA	55	dBA
			I dn'	10	17	22	1		498	1 35	072
Ldn:			107 231 498			V1 6					

	FH\	WA-RD-77-108	HIGHW	AY NOI	SE PI	REDICT		DEL			
Scenar Road Narr Road Segme	io: Existing + I ne: Valley View nt: n/o Chapm	P v St. an Av.				Project Job N	Name: \ lumber: `	West (12717	Grove Cent	ter	
SITE	SPECIFIC IN	NPUT DATA				N	IOISE N	IODE	L INPUT	S	
Highway Data				Site	Con	ditions	(Hard =	10, Sc	ft = 15)		
Average Daily Peak Hour Peak H	Traffic (Adt): Percentage: Iour Volume:	49,598 vehicle 10.00% 4,960 vehicle	s		Me He	edium Tri eavy Tru) ucks (2 A cks (3+ A	Autos: (xles): (xles):	15 15 15		
Ve	hicle Speed:	45 mph		Veh	icle l	Mix					
Near/Far La	ne Distance:	78 feet			Veh	icleType		Day	Evening	Night	Daily
Site Data							Autos:	77.5%	12.9%	9.6%	97.42%
Ba	rrier Height	0.0 feet			м	edium T	rucks:	84.8%	4.9%	10.3%	1.84%
Barrier Type (0-W	(all, 1-Berm):	0.0			1	Heavy T	rucks:	86.5%	2.7%	10.8%	0.74%
Centerline Di	st. to Barrier:	60.0 feet		Noi	se So	ource El	levations	in fe	et)		
Centerline Dist.	to Observer:	60.0 feet				Auto	s' 0 (00	.,		
Barrier Distance	to Observer:	0.0 feet			<i>lediu</i>	m Truck	s: 21	97			
Observer Height	(Above Pad):	5.0 feet			Heat	v Truck	s' 80	106	Grade Ad	iustmen	t: 0.0
P	ad Elevation:	0.0 feet				,	. 0.0				
Ro	ad Elevation:	0.0 feet		Lan	e Eq	uivalent	t Distanc	e (in f	eet)		
	Road Grade:	0.0%				Auto	s: 45.	369			
	Left View:	-90.0 degre	es	٨	lediu	m Truck	s: 45.0	676			
	Right View:	90.0 degre	es		Heav	vy Truck	s: 45.0	695			
FHWA Noise Mode	el Calculation	s									
VehicleType	REMEL	Traffic Flow	Dista	nce I	=inite	Road	Fresn	el	Barrier Att	en Bei	m Atten
Autos:	68.46	5.00		0.46		-1.20		-4.69	0.0	000	0.000
Medium Trucks:	79.45	-12.23		0.49		-1.20		-4.88	0.0	000	0.000
Heavy Trucks:	84.25	-16.19		0.48		-1.20		-5.34	0.0	000	0.000
Unmitigated Noise	e Levels (with	out Topo and	barrier a	attenuat	ion)						
VehicleType	Leq Peak Hou	ur Leq Day	/ L	eq Even	ing	Leq	Night		Ldn	С	NEL
Autos:	72	2.7	70.8		69.1		63.0		71.6	5	72.2
Medium Trucks:	66	6.5	65.0		58.6		57.1		65.5	5	65.8
Heavy Trucks:	67	7.3	65.9		56.9		58.1		66.5	5	66.6
Vehicle Noise:	74	1.6	72.8		69.7		65.0		73.5	5	74.0
Centerline Distant	ce to Noise Co	ontour (in feet)								
				70 dBA		65	dBA	6	0 dBA	55	dBA
			Ldn:	103 223			23	479		1	,033
		C	NEL:	111 239 514 1,108						108	

	FH	WA-RD-77-108	HIGHV	VAY NO	DISE PR	EDICTIC	ON MO	DEL			
Scenar	io: Existing + I	>				Project N	lame:	West (Grove Cen	ter	
Road Nan	e: Valley Viev	v St.				Job Nu	mber:	12717			
Road Segme	nt: n/o Lamps	on Av.									
SITE	SPECIFIC IN	NPUT DATA				N	DISE	IODE	L INPUT	S	
Highway Data				S	ite Cond	ditions (I	Hard =	10, Sc	oft = 15)		
Average Daily	Traffic (Adt):	51,898 vehicle	s					Autos:	15		
Peak Hour	Percentage:	10.00%			Med	dium Truc	cks (2 /	Axles):	15		
Peak H	lour Volume:	5,190 vehicle	s		Hea	avy Truck	(3+ /	Axles):	15		
Ve	hicle Speed:	45 mph		V	ehicle N	lix					
Near/Far La	ne Distance:	78 feet		-	Vehic	cleType		Day	Evening	Night	Daily
Site Data						A	utos:	77.5%	12.9%	9.6%	97.42%
Ba	rrier Heiaht:	0 0 feet			Me	dium Tru	icks:	84.8%	4.9%	10.3%	1.84%
Barrier Type (0-W	/all, 1-Berm):	0.0			н	leavy Tru	icks:	86.5%	2.7%	10.8%	0.74%
Centerline Di	st. to Barrier:	60.0 feet		N	oise So	urce Ele	vation	s (in fi	et)		
Centerline Dist.	to Observer:	60.0 feet			0.00 00.	Autos	0	000			
Barrier Distance	to Observer:	0.0 feet			Mediun	n Trucks	2	207			
Observer Height			Heav	v Trucks:	8	006	Grade Ad	liustment	t: 0.0		
P	ad Elevation:	0.0 feet				,	0.	000			
Ro	ad Elevation:	0.0 feet		Li	ane Equ	ivalent l	Distan	ce (in i	feet)		
	Road Grade:	0.0%				Autos:	45.	869			
	Left View:	-90.0 degre	es		Mediun	n Trucks:	45.	676			
	Right View:	90.0 degre	es		Heavy	y Trucks:	45.	695			
FHWA Noise Mod	el Calculation	S									
VehicleType	REMEL	Traffic Flow	Dista	ance	Finite I	Road	Fresh	el	Barrier At	en Bei	rm Atten
Autos:	68.46	5.20		0.46		-1.20		-4.69	0.	000	0.000
Medium Trucks:	79.45	-12.04		0.49		-1.20		-4.88	0.	000	0.000
Heavy Trucks:	84.25	-15.99		0.48		-1.20		-5.34	0.	000	0.000
Unmitigated Nois	e Levels (with	out Topo and	barrier	attenu	ation)					-	
VehicleType	Leq Peak Hou	ur Leq Day	/	Leq Eve	ening	Leq N	light		Ldn	С	NEL
Autos:	72	2.9	71.0		69.3		63.2	2	71.	8	72.4
Medium Trucks:	66	6.7	65.2		58.8		57.3	3	65.	7	66.0
Heavy Trucks:	67	7.5	66.1		57.1		58.3	3	66.	7	66.8
Vehicle Noise:	74	1.8	73.0		69.9		65.2	2	73.	7	74.2
Centerline Distant	ce to Noise Co	ontour (in feet)								
				70 dE	BA	65 d	ВА	6	60 dBA	55	dBA
			Ldn:	106	106 2		Э		494	1,	,064
		C	NEL:	114	1	246	6		530	1,	,142

Sunday, January 17, 2021

Sunday, January 17, 2021

	FH	WA-RD-77-108	HIGHW	AY NO	DISE P	REDICTIC	ON MOI	DEL			
Scenar Road Nan Road Segme	io: Existing + ne: Valley View nt: n/o Cerule	P v St. an Av.				Project N Job Nu	lame: \ mber: 1	Nest (12717	Grove Cent	er	
SITE	SPECIFIC II	NPUT DATA				NC	DISE N	IODE	L INPUT	5	
Highway Data				S	ite Cor	nditions (H	lard =	10, Sc	oft = 15)		
Average Daily	Traffic (Adt):	50,672 vehicle	s				-	Autos:	15		
Peak Hour	Percentage:	10.00%			Me	edium Truc	cks (2 A	(xles):	15		
Peak F	lour Volume:	5,067 vehicle	s		He	eavy Truck	(3+ A	(xles):	15		
Ve	hicle Speed:	45 mph		V	ehicle	Mix					
Near/Far La	ne Distance:	78 feet			Veh	nicleType		Day	Evening	Night	Daily
Site Data						AL	itos:	77.5%	12.9%	9.6%	97.42%
Ba	rrier Height:	0.0 feet			Μ	ledium Tru	cks:	84.8%	4.9%	10.3%	1.84%
Barrier Type (0-W	/all, 1-Berm):	0.0				Heavy Tru	cks:	86.5%	2.7%	10.8%	0.74%
Centerline Di	st. to Barrier:	60.0 feet		N	oise S	ource Elev	vations	in fe	et)		
Centerline Dist.	to Observer:	60.0 feet				Autos:	0.0	000			
Barrier Distance	to Observer:	0.0 feet			Mediu	ım Trucks:	2.2	297			
Observer Height	(Above Pad):	5.0 feet			Hea	vy Trucks:	8.0	006	Grade Adj	iustment	t: 0.0
P	ad Elevation:	0.0 feet		_							
Ro	ad Elevation:	0.0 feet		La	ane Eq	uivalent L	Distanc	e (in i	feet)		
	Road Grade:	0.0%				Autos:	45.8	369			
	Left View:	-90.0 degre	es		Mediu	im Trucks:	45.6	676			
	Right View:	90.0 degre	es		Hea	vy Trucks:	45.6	595			
FHWA Noise Mod	el Calculation	IS									
VehicleType	REMEL	Traffic Flow	Distar	nce	Finite	e Road	Fresn	el	Barrier Atte	en Bei	rm Atten
Autos:	68.46	5.10		0.46		-1.20		-4.69	0.0	000	0.000
Medium Trucks:	79.45	-12.14		0.49		-1.20		-4.88	0.0	000	0.000
Heavy Trucks:	84.25	-16.10		0.48		-1.20		-5.34	0.0	000	0.000
Unmitigated Noise	e Levels (with	out Topo and	barrier a	ttenu	ation)						
VehicleType	Leq Peak Ho	ur Leq Daj	/ Le	eq Eve	ening	Leq N	light		Ldn	C	NEL
Autos:	73	2.8	70.9		69.2	2	63.1		71.7	,	72.3
Medium Trucks:	66	5.6	65.1		58.7	,	57.2		65.6	5	65.9
Heavy Trucks:	6	7.4	66.0		57.0)	58.2		66.6	6	66.7
Vehicle Noise:	74	4.7	72.9		69.8	3	65.1		73.6	3	74.1
Centerline Distant	ce to Noise C	ontour (in feet)								
				70 dE	BA	65 dl	BA	6	60 dBA	55	dBA
		-	Ldn:	105 226 486			486	1,	,048		
	CNEL:					112 242 522 1,124					

Scenari	. Evicting + D					Project	Name: 1	Nort (Provo Cont	or	
Road Nam	2. Existing + P						indirite. N	2717	Siove Cell	CI.	
Road Seamen	t: w/o Vallev V	iew St.				000 140		2111			
SITE				T		N		ODE		8	
Highway Data		UI DAIA		:	Site Con	ditions (Hard =	10, So	ft = 15)		
Average Daily	Traffic (Adt): 1	1.324 vehicles						utos:	15		
Peak Hour I	Percentage:	10.00%			Me	dium Tru	cks (2 A	xles):	15		
Peak He	our Volume:	1.132 vehicles			He	avy Truc	ks (3+ A	, xles):	15		
Vel	nicle Speed:	45 mph		-	lahiala I			,			
Near/Far Lar	ne Distance:	48 feet		- H	Venicie i	nix cleTune		Dav	Evening	Night	Daily
Site Data					veni	LIET YPE A	utos:	77 5%	12 9%	9.6%	97 429
one Data		0.0.6			Me	edium Tr	ucks:	R4 8%	4.9%	10.3%	1 849
Bar Barrier Type (0 W	ner Height:	0.0 reet			F	leavy Tr	ucks:	B6.5%	2.7%	10.8%	0.749
Centerline Dis	t to Barrier	0.0 50.0 feet				,					
Centerline Dist 1	n Observer	50.0 feet		1	Voise So	urce Ele	evations	(in fe	et)		
Barrier Distance t	o Observer:	0.0 feet				Autos	: 0.0	000			
Observer Height ()	Above Pad):	5.0 feet			Mediur	n Trucks	: 2.2	97	0		
Pa	d Elevation:	0.0 feet			Heav	y Trucks	: 8.0	106	Grade Adj	usiment	: 0.0
Roa	d Elevation:	0.0 feet		1	Lane Equ	ıivalent	Distanc	e (in f	'eet)		
F	Road Grade:	0.0%				Autos	: 44.1	147			
	Left View:	-90.0 degree	s		Mediur	n Trucks	: 43.9	947			
	Right View:	90.0 degree	s		Heav	y Trucks	: 43.9	966			
FHWA Noise Mode	l Calculations										
VehicleType	REMEL	Traffic Flow	Dis	stance	Finite	Road	Fresn	e/	Barrier Atte	en Ber	m Atten
Autos:	68.46	-1.41		0.7	1	-1.20		4.65	0.0	000	0.00
Medium Trucks:	79.45	-18.65		0.7	4	-1.20		4.87	0.0	000	0.00
Heavy Trucks:	84.25	-22.61		0.7	3	-1.20		-5.43	0.0	00	0.00
Unmitigated Noise	Levels (witho	ut Topo and I	barri	er atten	uation)						
VehicleType	Leq Peak Hour	· Leq Day		Leg E	/ening	Leq I	Vight		Ldn	CI	NEL
Autos:	66.	6 (54.7		62.9		56.8		65.5	5	66.
Meaium Trucks:	60.	3 1	08.8		52.5		50.9		59.4	ŀ	59.
meavy Trucks:	Heavy Trucks: 61.2 59.8				50.7		52.0		60.3		60.
venicie Noise:	68.	4 (00.7		63.5		58.8		67.4	+	67.
Centerline Distanc	e to Noise Col	ntour (in feet)	1	70 0	1BA	65 0	IBA	6	0 dBA	55	dBA
			dn.		3	7	2		155		34
					~				100		

	FH	WA-RD-77-108	HIGH	WAY NC	DISE P	REDICT	ION MO	DEL			
Scenar Road Narr Road Segme	io: Existing + I ne: Valley Viev nt: s/o Cerulea	P v St. an Av.				Projec Job N	t Name: \ Number:	West (12717	Grove Cen	ter	
SITE	SPECIFIC IN	NPUT DATA				I	NOISE N	IODE	L INPUT	S	
Highway Data				Si	te Cor	nditions	(Hard =	10, Sc	oft = 15)		
Average Daily Peak Hour Peak H	Traffic (Adt): Percentage: Iour Volume:	52,434 vehicle 10.00% 5,243 vehicle	s		Me He	edium Ti eavy Tru	ucks (2 Å Icks (3+ Å	Autos: Axles): Axles):	15 15 15		
Ve	hicle Speed:	45 mph		Ve	hicle	Mix					
Near/Far La	ne Distance:	78 feet		-	Veł	nicleType	9	Dav	Evenina	Niaht	Daily
Site Data							Autos:	77.5%	12.9%	9.6	% 97.42%
Ba	rrier Height	0.0 feet			Μ	ledium T	rucks:	84.8%	4.9%	10.3	% 1.84%
Barrier Type (0-W	/all, 1-Berm):	0.0				Heavy T	rucks:	86.5%	2.7%	10.8	% 0.74%
Centerline Di	st. to Barrier:	60.0 feet		No	oise S	ource E	levations	s (in fe	et)		
Centerline Dist.	to Observer:	60.0 feet				Auto	os: 0.0	000	,		
Barrier Distance	to Observer:	0.0 feet			Mediu	m Truck	(s: 2.)	297			
Observer Height	(Above Pad):	5.0 feet			Hea	vy Truck	(S: 8.0	006	Grade Ad	ljustme	nt: 0.0
P	ad Elevation:	0.0 feet		_						-	
Ro	ad Elevation:	0.0 feet		La	ne Eq	uivalen	t Distanc	e (in i	teet)		
	Road Grade:	0.0%				Auto	os: 45.	869			
	Left View:	-90.0 degre	es		Mediu	m Truck	(s: 45.	676			
	Right View:	90.0 degre	es		Hea	vy Truck	(s: 45.	695			
FHWA Noise Mode	el Calculation	IS									
VehicleType	REMEL	Traffic Flow	Dis	tance	Finite	Road	Fresn	el	Barrier At	ten B	erm Atten
Autos:	68.46	5.25		0.46		-1.20		-4.69	0.	000	0.000
Medium Trucks:	79.45	-11.99		0.49		-1.20		-4.88	0.	000	0.000
Heavy Trucks:	84.25	-15.95		0.48		-1.20		-5.34	0.	000	0.000
Unmitigated Noise	e Levels (with	out Topo and	barrie	r attenu	ation)						
VehicleType	Leq Peak Ho	ur Leq Daj	/	Leq Eve	ning	Leq	Night		Ldn		CNEL
Autos:	73	3.0	71.1		69.3		63.2	2	71.	9	72.5
Medium Trucks:	66	6.7	65.2		58.9)	57.3	5	65.	8	66.0
Heavy Trucks:	67	7.6	66.2		57.1		58.4	ļ	66.	7	66.9
Vehicle Noise:	74	4.8	73.1		69.9)	65.2	2	73.	8	74.2
Centerline Distant	ce to Noise C	ontour (in feet)								
			L	/0 dE	(A	65	ава	6	DU aBA	5	5 aBA
			Ldn:	107	107 231 497				1,072		
	CNEL:						115 248 534 1,150				

	FH	WA-RD-77-108	BHIGH	WAY N	OISE PF	REDICTIO	N MOD	EL _			
Scenar	io: Existing + I	P				Project N	lame: W	est G	Grove Cen	ter	
Road Nam	e: Chapman /	Av.				Job Nur	nber: 12	2717			
Road Segme	nt: e/o Valley	View St.									
SITE	SPECIFIC IN	NPUT DATA				NO	ISE M	ODE	L INPUT	S	
Highway Data				S	Site Con	ditions (H	lard = 1	0, So	ft = 15)		
Average Daily	Traffic (Adt):	14,924 vehicle	s				A	utos:	15		
Peak Hour	Percentage:	10.00%			Me	dium Truc	ks (2 A)	(les):	15		
Peak H	lour Volume:	1,492 vehicle	s		Hea	avy Truck	s (3+ Ax	des):	15		
Ve	hicle Speed:	45 mph		V	/ehicle A	Nix					
Near/Far La	ne Distance:	48 feet		-	Vehi	cleType	D)ay	Evening	Night	Daily
Site Data						Au	itos: 7	7.5%	12.9%	9.6%	97.42%
Ba	rrier Height:	0.0 feet			Me	edium Tru	cks: 8	4.8%	4.9%	10.3%	1.84%
Barrier Type (0-W	/all, 1-Berm):	0.0			H	leavy Tru	cks: 8	6.5%	2.7%	10.8%	0.74%
Centerline Di	st. to Barrier:	50.0 feet			loise So	urce Elev	ations	(in fe	et)		
Centerline Dist.	to Observer:	50.0 feet				Autos:	0.00	00	.,		
Barrier Distance	to Observer:	0.0 feet			Mediur	n Trucks:	2.29	97			
Observer Height	(Above Pad):			Heav	v Trucks:	8.00	06	Grade Ad	justment	: 0.0	
P	ad Elevation:	0.0 feet		-		,				·	
Ro	ad Elevation:	0.0 feet		L	ane Equ	ivalent D	Distance	e (in f	eet)		
	Road Grade:	0.0%				Autos:	44.14	47			
	Left View:	-90.0 degre	es		Mediur	n Trucks:	43.9	47			
	Right View:	90.0 degre	es		Heav	y Trucks:	43.9	66			
FHWA Noise Mod	el Calculation	S									
VehicleType	REMEL	Traffic Flow	Dist	tance	Finite	Road	Fresne	1 1	Barrier Att	en Ber	m Atten
Autos:	68.46	-0.21		0.71	1	-1.20	-4	4.65	0.0	000	0.000
Medium Trucks:	79.45	-17.45		0.74	1	-1.20	-4	4.87	0.0	000	0.000
Heavy Trucks:	84.25	-21.41		0.73	3	-1.20	-4	5.43	0.0	000	0.000
Unmitigated Noise	e Levels (with	out Topo and	barrie	r atteni	uation)						
VehicleType	Leq Peak Hou	ur Leq Daj	V	Leq Ev	rening	Leq Ni	ight		Ldn	C	NEL
Autos:	67	7.8	65.9		64.1		58.0		66.	7	67.3
Medium Trucks:	61	1.5	60.0		53.7		52.1		60.0	6	60.8
Heavy Trucks:	62	2.4	61.0		51.9		53.2		61.	5	61.7
Vehicle Noise:	69	9.6	67.9		64.7		60.0		68.	6	69.0
Centerline Distant	ce to Noise Co	ontour (in feet)								
				70 d	IBA	65 dE	BA	6	0 dBA	55	dBA
			Ldn:	40	40 87			186	4	02	
		С	NEL:	43	3	93			200	4	31

Sunday, January 17, 2021

Sunday, January 17, 2021

	FH	WA-RD-77-10	BHIGHV	VAY NO	DISE P	REDICTI	ON MO	DEL		_	_
Scenar Road Nan Road Segme	ne: Existing + l ne: Belgrave A nt: w/o Valley	P .v. View St.				Project Job Ni	Name: umber:	West (12717	Grove Cent	er	
SITE	SPECIFIC IN	NPUT DATA				N	OISE N	IODE	L INPUTS	5	
Highway Data				Si	ite Cor	nditions ('Hard =	10, Se	oft = 15)		
Average Daily	Traffic (Adt):	2,210 vehicle	es				,	Autos:	15		
Peak Hour	Percentage:	10.00%			Me	edium Tru	icks (2 A	Axles).	15		
Peak H	lour Volume:	221 vehicle	es		He	eavy Truc	ks (3+ A	(xles)	15		
Ve	ehicle Speed:	25 mph		V	ehicle	Mix					
Near/Far La	ne Distance:	12 feet			Veh	nicleType		Day	Evening	Night	Daily
Site Data						A	utos:	77.5%	6 12.9%	9.6%	97.42%
Ba	rrier Height:	0.0 feet			Μ	ledium Tr	ucks:	84.8%	6 4.9%	10.3%	1.84%
Barrier Type (0-W	Vall, 1-Berm):	0.0				Heavy Tr	ucks:	86.5%	6 2.7%	10.8%	0.74%
Centerline Di	ist. to Barrier:	37.0 feet		N	oise S	ource Ele	evations	s (in f	eet)		
Centerline Dist.	to Observer:	37.0 feet				Autos	: 0.0	000	1		
Barrier Distance	to Observer:	0.0 feet			Mediu	m Trucks	. 2.1	297			
Observer Height	(Above Pad):	5.0 feet			Hea	vy Trucks	: 8.0	006	Grade Adj	iustment	: 0.0
P	ad Elevation:	0.0 feet									
Ro	ad Elevation:	0.0 feet		Lä	ane Eq	uivalent	Distanc	e (In	feet)		
	Road Grade:	0.0%				Autos	: 36.	851			
	Left View:	-90.0 degre	es		меаш	m Trucks	. 36.	610			
	Right view:	90.0 degre	es		пеа	vy mucks	. 30.	034			
FHWA Noise Mod	el Calculation	IS									
VehicleType	REMEL	Traffic Flow	Dista	ance	Finite	Road	Fresn	el	Barrier Atte	en Ber	m Atten
Autos:	58.73	-5.95	5	1.88		-1.20		-4.56	0.0	000	0.000
Medium Trucks:	70.80	-23.19)	1.93		-1.20		-4.87	0.0	000	0.000
Heavy Trucks:	77.97	-27.15	5	1.92		-1.20		-5.61	0.0	000	0.000
Unmitigated Noise	e Levels (with	out Topo and	barrier	attenu	ation)						
VehicleType	Leq Peak Ho	ur Leq Da	y I	Leq Eve	ening	Leq I	Vight		Ldn	C	NEL
Autos:	50	3.5	51.6		49.8		43.7	,	52.4	Ļ	53.0
Medium Trucks:	48	3.3	46.8		40.5		38.9)	47.4	Ļ	47.6
Heavy Trucks:	51	1.5	50.1		41.1		42.3	1	50.7	'	50.8
Vehicle Noise:	56	5.4	54.7		50.8	1	46.9)	55.4	ŀ	55.8
Centerline Distant	ce to Noise C	ontour (in fee	t)								
				70 dE	BA	65 0	iBA	1	60 dBA	55	dBA
			Ldn:	4	4 8 18		18	:	39		
	CNEL:					9)		19		42

	FHV	VA-RD-77-108	HIG	HWAY NC	ISE PREDIC		DEL			
Scenari	o: Existing + F)			Proje	ct Name:	West	Grove Cent	er	
Road Nam	e: Lampson A	v.			Job	Number:	12717			
Road Segmer	nt: w/o Valley \	/iew St.								
SITE	SPECIFIC IN	IPUT DATA				NOISE I	NODE		S	
Highway Data				Si	te Condition	s (Hard =	10, So	oft = 15)		
Average Daily	Traffic (Adt):	15,482 vehicle	s				Autos:	15		
Peak Hour	Percentage:	10.00%			Medium	Trucks (2)	Axles):	15		
Peak H	our Volume:	1,548 vehicle	s		Heavy T	rucks (3+)	Axles):	15		
Vel	nicle Speed:	40 mph		Ve	hicle Mix					
Near/Far Lar	ne Distance:	36 feet			VehicleTy	be	Day	Evening	Night	Daily
Site Data						Autos:	77.5%	12.9%	9.6%	97.42
Bar	rier Height	0.0 feet			Medium	Trucks:	84.8%	4.9%	10.3%	1.84
Barrier Type (0-W	all. 1-Berm):	0.0			Heavy	Trucks:	86.5%	2.7%	10.8%	0.74
Centerline Dis	t. to Barrier:	40.0 feet				- 1	- // #			
Centerline Dist.	to Observer:	40.0 feet		NO	ise source	Elevation	s (in t	et)		
Barrier Distance	to Observer:	0.0 feet			AU	tos: 0.	000			
Observer Height (J	Above Pad):	5.0 feet			Meaium Tru	CKS: 2.	297	Crada Ad	ivetment	
Pa	d Elevation:	0.0 feet			Heavy Iru	CKS: 8.	000	Grade Au	usimeni	. 0.0
Roa	d Elevation:	0.0 feet		La	ne Equivale	nt Distan	ce (in	feet)		
F	Road Grade:	0.0%			Au	tos: 36.	069			
	Left View:	-90.0 degree	es		Medium Tru	cks: 35.	823			
	Right View:	90.0 degree	es		Heavy Tru	cks: 35.	847			
FHWA Noise Mode	I Calculation:	s								
VehicleType	REMEL	Traffic Flow	Di	stance	Finite Road	Fresr	nel	Barrier Att	en Ber	m Atten
Autos:	66.51	0.46		2.02	-1.2	D	-4.59	0.0	000	0.00
Medium Trucks:	77.72	-16.78		2.07	-1.2	0	-4.87	0.0	000	0.00
Heavy Trucks:	82.99	-20.74		2.06	-1.2	0	-5.56	0.0	000	0.00
Unmitigated Noise	Levels (with	out Topo and	barri	er attenua	ation)					
VehicleType	Leq Peak Hou	r Leq Day	1	Leq Eve	ning Le	q Night		Ldn	CI	NEL
Autos:	67	.8	65.9		64.1	58.	1	66.7	7	67
Medium Trucks:	61	.8	60.3		53.9	52.4	4	60.9	9	61.
Heavy Trucks:	63	.1	61.7		52.7	53.9	9	62.3	3	62.
Vehicle Noise:	69	.8	68.1		64.8	60.3	3	68.8	3	69.
Centerline Distanc	e to Noise Co	ntour (in feet)				1			
			L	70 dB	A 6	5 dBA	1	ou dBA	55	aBA
			Ldn:	33		12		154	3	32
	CNEL:				36 77 165 356					

	FHV	NA-RD-77-108	HIGH	WAY NO	DISE P	REDICT	ION MOI	DEL			
Scenai Road Nan Road Segme	rio: Existing + F ne: Belgrave A nt: e/o Valley \	o v. /iew St.				Project Job N	t Name: \ lumber: `	West 0	Grove Cent	ter	
SITE	SPECIFIC IN	IPUT DATA					NOISE N	IODE	L INPUT	S	
Highway Data				S	ite Cor	nditions	(Hard =	10, So	ft = 15)		
Average Daily Peak Hour Peak F	Traffic (Adt): Percentage: Iour Volume:	546 vehicle 10.00% 55 vehicle	s		Me He	edium Tr eavy Tru) ucks (2 A cks (3+ A	Autos: (xles): (xles):	15 15 15		
Ve	hicle Speed:	25 mph		V	ohiclo	Mix					
Near/Far La	ane Distance:	12 feet			Ver	nicleType		Dav	Evenina	Night	Daily
Site Data					101	noie i ype	Autos:	77.5%	12.9%	9.69	6 97.42%
Ba	rrier Height	0.0 feet			Μ	ledium T	rucks:	84.8%	4.9%	10.39	6 1.84%
Barrier Type (0-V	Vall, 1-Berm):	0.0				Heavy T	rucks:	86.5%	2.7%	10.89	6 0.74%
Centerline Di	ist. to Barrier:	37.0 feet		N	oise S	ource E	levations	; (in fe	et)		
Centerline Dist.	to Observer:	37.0 feet				Auto	s: 0.0	000	,		
Barrier Distance	to Observer:	0.0 feet			Mediu	m Truck	s: 2.2	97			
Observer Height	bserver Height (Above Pad): 5.0 feet				Hea	vv Truck	s: 8.0	006	Grade Ad	justmer	nt: 0.0
P	Pad Elevation: 0.0 feet										
Ro	ad Elevation:	0.0 feet		L	ane Eq	uivalen	t Distanc	e (in f	eet)		
	Road Grade:	0.0%				Auto	s: 36.	351			
	Left View:	-90.0 degre	es		Mediu	m Truck	s: 36.0	510 204			
	Right view.	90.0 degre	es		nea	vy much	.3. 30.1	554			
FHWA Noise Mod	el Calculation	s									
VehicleType	REMEL	Traffic Flow	Dist	tance	Finite	Road	Fresn	el	Barrier Att	en Be	erm Atten
Autos:	58.73	-12.03		1.88		-1.20		-4.56	0.0	000	0.000
Medium Trucks:	70.80	-29.26		1.93		-1.20		-4.87	0.0	000	0.000
Heavy Trucks:	77.97	-33.22		1.92		-1.20		-5.61	0.0	000	0.000
Unmitigated Nois	e Levels (with	out Topo and	barrie	r attenu	ation)						
VehicleType	Leq Peak Hou	ir Leq Daj	/	Leq Eve	ening	Leq	Night		Ldn	(CNEL
Autos:	47	.4	45.5		43.7		37.7		46.3	3	46.9
Medium Trucks:	42	3	40.8		34.4		32.8		41.3	3	41.5
Heavy Trucks:	45	.5	44.1		35.0		36.3		44.6	6	44.7
Contorline Diston	Ju	ntour (in foot	+0.0		-++.7		40.0		43.	5	49.7
Centenine Distan	ce lo NOISE CO	nitour (in feet		70 dl	BA	65	dBA	6	0 dBA	5	5 dBA
			Ldn:	2	2 3		3		7		15
	CNEL:					2 4 8 16					16

	FH	WA-RD-77-108	HIGH	NAY NO		EDICT					
Scenar	io: Existing + I	Þ				Project	Name:	West	Grove Cen	ter	
Road Nam	e: Lampson A	w.				Job N	lumber:	12717			
Road Segme	nt: e/o Valley	/iew St.									
SITE	SPECIFIC IN	IPUT DATA				N	OISE	MODE	L INPUT	s	
Highway Data				S	ite Cond	ditions	(Hard =	= 10, So	oft = 15)		
Average Daily	Traffic (Adt):	12,806 vehicle	s					Autos:	15		
Peak Hour	Percentage:	10.00%			Med	dium Tr	ucks (2	Axles):	15		
Peak H	lour Volume:	1,281 vehicle	s		Hea	avy Tru	cks (3+	Axles):	15		
Ve	hicle Speed:	40 mph		v	ehicle N	lix					
Near/Far La	ne Distance:	36 feet		Ē	Vehi	cleTvpe	,	Dav	Evenina	Niaht	Dailv
Site Data							Autos:	77.5%	12.9%	9.6	% 97.42%
Ba	rrier Height	0.0 feet			Me	dium T	rucks:	84.8%	4.9%	10.3	% 1.84%
Barrier Type (0-W	(all 1-Berm):	0.0			Ь	leavy T	rucks:	86.5%	2.7%	10.8	% 0.74%
Centerline Di	st. to Barrier:	40.0 feet		_							
Centerline Dist.	to Observer:	40.0 feet		N	oise So	urce El	levation	is (in f	eet)		
Barrier Distance	to Observer:	0.0 feet				Auto	s: 0	.000			
Observer Height ((Above Pad):	5.0 feet			Medium Trucks: 2.297 Heavy Trucks: 9.006 Grade Adjustment: 0.0						
Pa	ad Elevation:		Heav	у ттиск	s: 8	.006	Grade Ad	jusime	ni. 0.0		
Roa	ad Elevation:	0.0 feet		L	ane Equ	ivalen	t Distan	ce (in	feet)		
	Road Grade:	0.0%				Auto	s: 36	.069			
	Left View:	-90.0 degree	es		Mediun	n Truck	s: 35	.823			
	Right View:	90.0 degree	es		Heav	y Truck	s: 35	.847			
FHWA Noise Mode	el Calculation	s									
VehicleType	REMEL	Traffic Flow	Dist	ance	Finite	Road	Fres	nel	Barrier Att	en B	erm Atten
Autos:	66.51	-0.37		2.02		-1.20		-4.59	0.	000	0.000
Medium Trucks:	77.72	-17.60		2.07		-1.20		-4.87	0.	000	0.000
Heavy Trucks:	82.99	-21.56		2.06		-1.20		-5.56	0.	000	0.000
Unmitigated Noise	e Levels (with	out Topo and	barrie	r attenu	ation)						
VehicleType	Leq Peak Hou	ur Leq Day	<i>(</i>	Leq Eve	ening	Leq	Night		Ldn		CNEL
Autos:	67	.0	65.1		63.3		57.	3	65.	9	66.5
Medium Trucks:	61	.0	59.5		53.1		51.	6	60.	0	60.3
Heavy Trucks:	62	2.3	60.9		51.8		53.	1	61.	4	61.6
Vehicle Noise:	69	9.0	67.3		64.0		59.	4	68.	0	68.4
Centerline Distant	ce to Noise Co	ontour (in feet,)								
				70 dl	BA	65	dBA	(60 dBA	5	i5 dBA
			Ldn:	29	29		53		136		293
		C	NEL:	31	31 68 146 314				314		

Sunday, January 17, 2021

Sunday, January 17, 2021

	FH	WA-RD-77-108	HIGH	NAY NO	DISE P	REDICTI	ON MO	DEL			
Scenar Road Nan Road Segme	io: Existing + I ne: Cerulean A nt: w/o Valley	P Av. View St.				Project Job N	Name: umber:	West (12717	Grove Cent	er	
SITE	SPECIFIC I	NPUT DATA				N	OISE I	NODE	L INPUT	5	
Highway Data				S	ite Cor	ditions ((Hard =	10, Se	oft = 15)		
Average Daily	Traffic (Adt):	5,106 vehicle	s					Autos:	15		
Peak Hour	Percentage:	10.00%			Me	edium Tru	icks (2)	Axles).	15		
Peak H	lour Volume:	511 vehicle	s		He	eavy Truc	:ks (3+)	Axles):	15		
Ve	hicle Speed:	25 mph		V	ehicle	Mix					
Near/Far La	ne Distance:	12 feet		-	Veh	nicleType		Day	Evening	Night	Daily
Site Data						A	lutos:	77.5%	6 12.9%	9.6%	97.42%
Ba	rrier Height:	0.0 feet			М	ledium Tr	ucks:	84.8%	6 4.9%	10.3%	1.84%
Barrier Type (0-W	/all, 1-Berm):	0.0				Heavy Tr	ucks:	86.5%	6 2.7%	10.8%	0.74%
Centerline Di	st. to Barrier:	37.0 feet		N	oise So	ource Ele	evation	s (in f	eet)		
Centerline Dist.	to Observer:	37.0 feet				Autos	s: 0.	000	,		
Barrier Distance	to Observer:	0.0 feet			Mediu	m Trucks	: 2.	297			
Observer Height	(Above Pad):	5.0 feet			Hear	vy Trucks	. 8.	006	Grade Adj	iustment	: 0.0
P	ad Elevation:	0.0 feet		_							
Ro	ad Elevation:	0.0 feet		Li	ane Eq	uivalent	Distan	ce (in	feet)		
	Road Grade:	0.0%				Autos	s: 36.	851			
	Left View:	-90.0 degre	es		Mediu	m Trucks	s: 36.	610			
	Right View:	90.0 degre	es		Hea	vy Trucks	s: 36.	634			
FHWA Noise Mod	el Calculation	IS									
VehicleType	REMEL	Traffic Flow	Dista	ance	Finite	Road	Fresr	nel	Barrier Atte	en Ber	m Atten
Autos:	58.73	-2.32		1.88		-1.20		-4.56	0.0	000	0.000
Medium Trucks:	70.80	-19.56		1.93		-1.20		-4.87	0.0	000	0.000
Heavy Trucks:	77.97	-23.51		1.92		-1.20		-5.61	0.0	000	0.000
Unmitigated Noise	e Levels (with	out Topo and	barrier	r attenu	ation)						
VehicleType	Leq Peak Ho	ur Leq Da	/	Leq Eve	ening	Leq I	Night		Ldn	C	NEL
Autos:	57	7.1	55.2		53.4		47.4	1	56.0)	56.6
Medium Trucks:	52	2.0	50.5		44.1		42.6	3	51.0)	51.2
Heavy Trucks:	55	5.2	53.8		44.7		46.0)	54.3	3	54.5
Vehicle Noise:	60	0.0	58.3		54.4		50.5	5	59.0)	59.4
Centerline Distant	ce to Noise C	ontour (in fee)					1			
			L	70 dBA 65 dBA 60 dBA		60 dBA	55	dBA			
		_	Ldn:	7 15 32			68				
		С	NEL:	7	7 16 34 73						73

	FHV	/A-RD-77-108	HIGH	HWAY NO	DISE PF	REDICT	ION MO	DEL			
Scenario	: OY					Project	Name:	Nest (Grove Cen	ter	
Road Name	e: Valley View	St.				Job N	umber:	12717			
Road Segmen	t: n/o Chapma	an Av.									
SITE S	PECIFIC IN	PUT DATA				N	IOISE N	IODE	L INPUT	S	
Highway Data				S	ite Con	ditions	(Hard =	10, Sc	oft = 15)		
Average Daily 1	raffic (Adt): 5	0,513 vehicle	s					Autos:	15		
Peak Hour I	Percentage:	10.00%			Me	dium Tr	ucks (2 A	(xles)	15		
Peak Ho	our Volume:	5,051 vehicle	s		Hei	avy Tru	cks (3+ A	(xles)	15		
Veh	icle Speed:	45 mph		V	hicle A	lix					
Near/Far Lan	e Distance:	78 feet		-	Vehi	cleTvpe		Dav	Evenina	Night	Dailv
Site Data					-		Autos:	77.5%	12.9%	9.6%	97.42
Ban	rier Height:	0.0 feet			Me	edium T	rucks:	84.8%	4.9%	10.3%	1.84
Barrier Type (0-Wa	all 1-Berm)	0.0			E	leavy T	rucks:	86.5%	2.7%	10.8%	0.74
Centerline Dis	t. to Barrier:	60.0 feet							- 4		
Centerline Dist. t	o Observer:	60.0 feet		N	oise So	urce El	evations	s (in fe	et)		
Barrier Distance t	o Observer:	0.0 feet				Auto	s: 0.0	000			
Observer Height ()	Above Pad):	5.0 feet			Mediur	n Truck	s: 2.2	297	0		
Pa	d Elevation:		Heav	y Truck	s: 8.	J06	Grade Ad	justment	0.0		
Roa	d Elevation:	0.0 feet		Li	ane Equ	iivalem	Distand	e (in i	feet)		
F	oad Grade:	0.0%				Auto	s: 45.	869			
	Left View:	-90.0 degree	es		Mediur	n Truck	s: 45.	676			
	Right View:	90.0 degree	es		Heav	y Truck	s: 45.	695			
FHWA Noise Mode	l Calculations	;		I							
VehicleType	REMEL	Traffic Flow	Dis	stance	Finite	Road	Fresn	el	Barrier Att	en Ber	m Atter
Autos:	68.46	5.08		0.46		-1.20		-4.69	0.0	000	0.00
Medium Trucks:	79.45	-12.16		0.49		-1.20		-4.88	0.0	000	0.00
Heavy Trucks:	84.25	-16.11		0.48		-1.20		-5.34	0.0	000	0.00
Unmitigated Noise	Levels (witho	out Topo and	barri	er attenu	ation)						
VehicleType	Leq Peak Hou	r Leq Day	1	Leq Eve	ening	Leq	Night		Ldn	CI	VEL
Autos:	72.	8	70.9		69.1		63.1		71.	7	72
Medium Trucks:	66.	.6	65.1		58.7		57.2		65.0	6	65
Heavy Trucks:	67.	4	66.0		57.0		58.2		66.0	6	66
Vehicle Noise:	74.	6	72.9		69.7		65.1		73.	6	74
Centerline Distance	e to Noise Co	ntour (in feet)								
			L	70 dE	SA .	65	аВА	6	U dBA	55	aBA
			Lan:	105		2	25		485	1,	045
	CNEL:				112 242 520 1,121				121		

	FH\	NA-RD-77-108	B HIGH	IWAY N	OISE P	REDICT	ION MOI	DEL			
Scenar Road Nar Road Segme	io: Existing + I ne: Cerulean A nt: e/o Valley \	o .v. /iew St.				Project Job N	t Name: \ lumber: `	West (12717	Grove Cent	er	
SITE	SPECIFIC IN	IPUT DATA				N	NOISE N	IODE	L INPUT	5	
Highway Data				S	ite Co	nditions	(Hard =	10, Sc	oft = 15)		
Average Daily	Traffic (Adt):	5,406 vehicle	s					Autos:	15		
Peak Hour	Percentage:	10.00%			М	edium Tr	ucks (2 A	(xles):	15		
Peak H	lour Volume:	541 vehicle	s		H	eavy Tru	cks (3+ A	(xles):	15		
Ve	hicle Speed:	25 mph		v	ehicle	Mix					
Near/Far La	ne Distance:	12 feet		-	Vel	hicleType		Day	Evening	Night	Daily
Site Data							Autos:	77.5%	12.9%	9.6%	97.42%
Ba	rrier Heiaht:	0 0 feet			٨	1edium T	rucks:	84.8%	4.9%	10.3%	1.84%
Barrier Type (0-W	/all, 1-Berm):	0.0				Heavy T	rucks:	86.5%	2.7%	10.8%	0.74%
Centerline Di	st. to Barrier:	37.0 feet			loise S	ource E	levations	: (in fe	et)		
Centerline Dist.	to Observer:	37.0 feet		_		Auto	us [.] 0 (000			
Barrier Distance	to Observer:	0.0 feet			Medii	ım Truck	s 21	97			
Observer Height	(Above Pad):	5.0 feet			Hea	vv Truck	s: 80	106	Grade Ad	iustment	: 0.0
P	ad Elevation:	0.0 feet		_		.,					
Ro	ad Elevation:	0.0 feet		L	ane Ec	uivalen	t Distanc	e (in t	feet)		
	Road Grade:	0.0%				Auto	s: 36.	351			
	Left View:	-90.0 degre	es		Mediu	ım Truck	s: 36.0	510			
	Right View:	90.0 degre	es		Hea	vy Truck	s: 36.0	534			
FHWA Noise Mode	el Calculation	s									
VehicleType	REMEL	Traffic Flow	Dis	stance	Finite	e Road	Fresn	el	Barrier Att	en Ber	m Atten
Autos:	58.73	-2.07		1.88		-1.20		-4.56	0.0	000	0.000
Medium Trucks:	70.80	-19.31		1.93		-1.20		-4.87	0.0	000	0.000
Heavy Trucks:	77.97	-23.26		1.92		-1.20		-5.61	0.0	000	0.000
Unmitigated Noise	e Levels (with	out Topo and	barrie	er attenu	ation)						
VehicleType	Leq Peak Hou	ır Leq Da	y	Leq Ev	ening	Leq	Night		Ldn	C	NEL
Autos:	57	'.3	55.5		53.7	7	47.6		56.3	3	56.9
Medium Trucks:	52	2.2	50.7		44.3	3	42.8		51.3	3	51.5
Heavy Trucks:	55	5.4	54.0		45.0)	46.2		54.6	6	54.7
Vehicle Noise:	60).2	58.6		54.7	7	50.8		59.3	3	59.6
Centerline Distant	ce to Noise Co	ontour (in fee	t)								
			L	70 d	BA	65	dBA	6	i0 dBA	55	dBA
			Ldn:	7	7 15 33				71		
		С	NEL:	8	8 16 35 75						75

	- FR		пібп	WATN		CEDIC IIC		DEL			
Scenari	io: OY					Project N	lame:	West	Grove Cen	er	
Road Nam	e: Valley View	v St.				Job Nu	mber:	12717			
Road Segmer	nt: n/o Belgrav	ve Av.									
SITE	SPECIFIC IN	IPUT DATA				NC	DISE	NODE	L INPUT	s	
Highway Data				9)	Site Con	ditions (l	Hard =	10, So	oft = 15)		
Average Daily	Traffic (Adt):	51,711 vehicle	s					Autos:	15		
Peak Hour	Percentage:	10.00%			Me	dium Truc	cks (2 /	Axles):	15		
Peak H	lour Volume:	5,171 vehicle	s		He	avy Truck	(3+)	Axles):	15		
Ve	hicle Speed:	45 mph		1	/ehicle	Nix					
Near/Far La	ne Distance:	78 feet			Veh	cleType		Day	Evening	Night	Daily
Site Data						A	utos:	77.5%	12.9%	9.6%	% 97.42%
Bai	rrier Heiaht:	0.0 feet			M	edium Tru	icks:	84.8%	4.9%	10.3%	% 1.84%
Barrier Type (0-W	all. 1-Berm):	0.0			ŀ	leavy Tru	icks:	86.5%	2.7%	10.8%	6 0.74%
Centerline Dis	st. to Barrier:	60.0 feet			laina Ca	uree Ele	votion	a (in f			
Centerline Dist.	to Observer:	60.0 feet		,	voise sc	urce Ele	valion	s (III II	eu)		
Barrier Distance	to Observer:	0.0 feet			Madiu	Autos:	0.	207			
Observer Height (Above Pad):	5.0 feet			Heav	n Trucks.	2. 0	297	Grade Ad	iustmar	nt: 0.0
Pa	ad Elevation:	0.0 feet			Tieav	y mucks.	0.	000	Orade Au	usinoi	<i>n</i> . 0.0
Roa	ad Elevation:	0.0 feet		L	ane Equ	ivalent l	Distan	ce (in	feet)		
1	Road Grade:	0.0%				Autos:	45.	869			
	Left View:	-90.0 degree	es		Mediu	n Trucks:	45.	676			
	Right View:	90.0 degree	es		Heav	y Trucks:	45.	695			
FHWA Noise Mode	el Calculation	S									
VehicleType	REMEL	Traffic Flow	Dist	ance	Finite	Road	Fresr	iel	Barrier Att	en Be	erm Atten
Autos:	68.46	5.18		0.46	6	-1.20		-4.69	0.0	000	0.000
Medium Trucks:	79.45	-12.05		0.49	Э	-1.20		-4.88	0.0	000	0.000
Heavy Trucks:	84.25	-16.01		0.48	3	-1.20		-5.34	0.0	000	0.000
Unmitigated Noise	e Levels (with	out Topo and	barrie	r atteni	uation)						
VehicleType	Leq Peak Hou	ur Leq Day	'	Leq Ev	<i>ening</i>	Leq N	light		Ldn	(ONEL
Autos:	72	2.9	71.0		69.2		63.2	2	71.8	3	72.4
Medium Trucks:	66	6.7	65.2		58.8		57.3	3	65.	7	66.0
Heavy Trucks:	67	.5	66.1		57.1		58.3	3	66.	7	66.8
Vehicle Noise:	74	1.7	73.0		69.9		65.3	2	73.	7	74.2
Centerline Distance	ce to Noise Co	ontour (in feet									
				70 a	íBA	65 d	BA		60 dBA	5	5 dBA
			Ldn:	10	6	229	Э		493	1	1,062
		C	VEL:	11	4	24	5		529	1	1,139

Sunday, January 17, 2021

Sunday, January 17, 2021

	FH	WA-RD-77-108	HIGHV	VAY NO	DISE P	REDICTIC		DEL			
Scenar Road Nan Road Segme	io: OY ne: Valley Viev nt: n/o Lamps	v St. on Av.				Project N Job Nu	lame: \ mber: `	West (12717	Grove Cen	ter	
SITE	SPECIFIC II	NPUT DATA				NC	DISE N	IODE	L INPUT	s	
Highway Data				Si	te Cor	ditions (H	lard =	10, So	oft = 15)		
Average Daily	Traffic (Adt):	52,023 vehicle	s					Autos:	15		
Peak Hour	Percentage:	10.00%			Me	edium Truc	:ks (2 A	(xles):	15		
Peak H	lour Volume:	5,202 vehicle	s		He	avy Truck	's (3+ A	(xles):	15		
Ve	hicle Speed:	45 mph		V	hicle	Mix					
Near/Far La	ne Distance:	78 feet			Veh	icleType		Day	Evening	Night	Daily
Site Data						AL	itos:	77.5%	12.9%	9.6%	6 97.42%
Ba	rrier Height:	0.0 feet			М	edium Tru	cks:	84.8%	4.9%	10.3%	5 1.84%
Barrier Type (0-W	/all, 1-Berm):	0.0				Heavy Tru	cks:	86.5%	2.7%	10.8%	0.74%
Centerline Di	st. to Barrier:	60.0 feet		N	oise Se	ource Elev	ations	; (in fe	et)		
Centerline Dist.	to Observer:	60.0 feet				Autos:	0.0	000			
Barrier Distance	to Observer:	0.0 feet			Mediu	m Trucks:	2.2	297			
Observer Height	(Above Pad):	5.0 feet			Hea	v Trucks:	8.0	006	Grade Ad	iustmen	t: 0.0
P	ad Elevation:	0.0 feet				,					
Ro	ad Elevation:	0.0 feet		Lá	ne Eq	uivalent L	Distanc	e (in t	feet)		
	Road Grade:	0.0%				Autos:	45.0	369			
	Left View:	-90.0 degre	es		Mediu	m Trucks:	45.0	676			
	Right View:	90.0 degre	es		Hea	vy Trucks:	45.0	695			
FHWA Noise Mod	el Calculation	s									
VehicleType	REMEL	Traffic Flow	Dista	ance	Finite	Road	Fresn	el	Barrier Att	en Be	rm Atten
Autos:	68.46	5.21		0.46		-1.20		-4.69	0.0	000	0.000
Medium Trucks:	79.45	-12.03		0.49		-1.20		-4.88	0.0	000	0.000
Heavy Trucks:	84.25	-15.98		0.48		-1.20		-5.34	0.0	000	0.000
Unmitigated Nois	e Levels (with	out Topo and	barrier	attenu	ation)						
VehicleType	Leq Peak Ho	ur Leq Da	/ [Leq Eve	ning	Leq N	ight		Ldn	C	NEL
Autos:	72	2.9	71.0		69.3		63.2		71.8	3	72.4
Medium Trucks:	66	5.7	65.2		58.8		57.3		65.8	3	66.0
Heavy Trucks:	6	7.6	66.1		57.1		58.3		66.	7	66.8
Vehicle Noise:	74	4.8	73.0		69.9		65.2		73.	7	74.2
Centerline Distant	ce to Noise C	ontour (in fee)								
				70 dE	BA	65 dl	BA	6	60 dBA	55	5 dBA
			Ldn:	107		230)		495	1	,066
		С	NEL:	114		246	6		531	1	,144

Scenario	: OY					Project	Name:	West 0	Grove Cen	ter	
Road Name	e: Valley View	St.				Job N	umber:	12717			
Road Segmen	t: s/o Cerulea	n Av.									
SITE S	PECIFIC IN	PUT DATA				N	IOISE I	NODE	L INPUT	S	
Highway Data					Site Con	ditions	(Hard =	10, Sc	oft = 15)		
Average Daily 1	raffic (Adt):	54,324 vehicle	s					Autos:	15		
Peak Hour I	Percentage:	10.00%			Me	dium Tri	ucks (2)	Axles):	15		
Peak Ho	our Volume:	5,432 vehicle	s		He	avy Tru	cks (3+)	Axles):	15		
Veh	icle Speed:	45 mph		F	Vehicle I	<i>lix</i>					
Near/Far Lan	e Distance:	78 feet		-	Veh	cleType		Day	Evening	Night	Daily
Site Data							Autos:	77.5%	12.9%	9.6%	97.42
Bar	rier Heiaht:	0.0 feet			M	edium T	rucks:	84.8%	4.9%	10.3%	1.84
Barrier Type (0-Wa	all, 1-Berm):	0.0			ŀ	leavy Ti	rucks:	86.5%	2.7%	10.8%	0.749
Centerline Dis	t. to Barrier:	60.0 feet			Noise Sc	urce El	evation	s (in fe	et)		
Centerline Dist. t	o Observer:	60.0 feet		F		Auto	s: 0.	000	,		
Barrier Distance t	o Observer:	0.0 feet			Mediu	n Truck	s: 2.	297			
Observer Height (A	Above Pad):	5.0 feet			Heav	y Truck	s: 8.	006	Grade Ad	justment	: 0.0
Pa	d Elevation:	F									
Roa	d Elevation:	0.0 feet		2	Lane Equ	livalent	Distan	ce (in i	reet)		
F	oad Grade:	0.0%			Ma dia	Auto	S: 45.	869			
	Left View:	-90.0 degree	es		Mediui	T Truck	S: 45.	0/0 605			
	Right view:	90.0 degree	es		neav	y muck	5. 40.	095			
FHWA Noise Mode	Calculation:	5									
VehicleType	REMEL	Traffic Flow	Di	stance	Finite	Road	Fresr	iel	Barrier Att	en Ber	m Atten
Autos:	68.46	5.40		0.4	6	-1.20		-4.69	0.0	000	0.00
Medium Trucks:	79.45	-11.84		0.4	9	-1.20		-4.88	0.0	000	0.00
Heavy Trucks:	84.25	-15.80		0.4	8	-1.20		-5.34	0.0	000	0.00
Unmitigated Noise	Levels (with	out Topo and	barri	er atten	uation)						
VehicleType	Leq Peak Hou	r Leq Day	1	Leq E	vening	Leq	Night		Ldn	CI	NEL
Autos:	73	.1	71.2		69.5		63.4	1	72.0	D	72.
Medium Trucks:	66	.9	65.4		59.0		57.	5	65.9	9	66.
Heavy Trucks: 67.7 66.3					57.3		58.	5	66.9	9	67.
Vehicle Noise:	75	.0	73.2		70.1		65.4	1	73.	9	74.
Centerline Distance	e to Noise Co	ntour (in feet)								
			[70	dBA	65	dBA	6	i0 dBA	55	dBA
		_	Ldn:	1	10	2	36		509	1,	097
		C	VEL:	1	18	2	54		546	1,	1/7

	FH'	WA-RD-77-108	HIGHV	VAY NO	ISE P	REDICT	ION MOI	DEL			
Scenari Road Nam Road Segmer	o: OY e: Valley Viev nt: n/o Cerulea	v St. an Av.				Project Job N	t Name: \ lumber: `	West (12717	Grove Cent	er	
SITE	SPECIFIC II	NPUT DATA				N	NOISE N	IODE	L INPUT	S	
Highway Data				Sit	te Cor	nditions	(Hard =	10, Sc	oft = 15)		
Average Daily Peak Hour	Traffic (Adt): Percentage:	51,903 vehicle 10.00%	s		Me	edium Tr	ucks (2 A	Autos: (xles):	15 15		
r cak n	hicle Sneed	45 mph	5		11	avy na	013 (0 - 7	мез).	10		
Near/Far La	ne Distance:	78 feet		Ve	hicle	Mix					
Nearr ar Ear	ic Distance.	10 1000			Veł	nicleType		Day	Evening	Night	Daily
Site Data							Autos:	77.5%	12.9%	9.6%	97.42%
Bai	rier Height:	0.0 feet			N	ledium T	rucks:	84.8%	4.9%	10.3%	1.84%
Barrier Type (0-W	all, 1-Berm):	0.0				Heavy T	rucks:	86.5%	2.7%	10.8%	0.74%
Centerline Dis	st. to Barrier:	60.0 feet		No	oise S	ource E	levations	: (in fe	et)		
Centerline Dist.	to Observer:	60.0 feet				Auto		000	.00		
Barrier Distance	to Observer:	0.0 feet			Modiu	m Truck		007			
Observer Height (Above Pad):	5.0 feet			Hea	wy Truck	-o. 2.4 re: 0.0	106	Grade Ad	iustmen	t· 0.0
Pa	ad Elevation:	0.0 feet			nea	vy mach		000	0/000/10	actinon	0.0
Roa	ad Elevation:	0.0 feet		La	ne Eq	uivalen	t Distanc	e (in t	feet)		
1	Road Grade:	0.0%				Auto	s: 45.4	369			
	Left View:	-90.0 degre	es		Mediu	m Truck	s: 45.0	676			
	Right View:	90.0 degre	es		Hea	vy Truck	s: 45.0	695			
FHWA Noise Mode	el Calculation	s									
VehicleType	REMEL	Traffic Flow	Dista	ance	Finite	Road	Fresn	el	Barrier Att	en Be	rm Atten
Autos:	68.46	5.20		0.46		-1.20		-4.69	0.0	000	0.000
Medium Trucks:	79.45	-12.04		0.49		-1.20		-4.88	0.0	000	0.000
Heavy Trucks:	84.25	-15.99		0.48		-1.20		-5.34	0.0	000	0.000
Unmitigated Noise	Levels (with	out Topo and	barrier	attenua	tion)						
VehicleType	Leq Peak Ho	ur Leq Day	′ I	Leq Eve	ning	Leq	Night		Ldn	C	NEL
Autos:	72	2.9	71.0		69.3		63.2		71.8	3	72.4
Medium Trucks:	66	6.7	65.2		58.8	1	57.3		65.7	7	66.0
Heavy Trucks:	67	7.5	66.1		57.1		58.3		66.7	7	66.8
Vehicle Noise:	74	1.8	73.0		69.9)	65.2		73.7	7	74.2
Centerline Distance	e to Noise C	ontour (in feet)								
				70 dB	A	65	dBA	6	i0 dBA	55	i dBA
			Ldn:	106	106		29		494	1	,065
		C	NEL:	114		2	46		530	1	,142

	FH	WA-RD-77-108	HIGHV	VAY NO	DISE PH	KEDICTIC		DEL						
Scenar	io: OY					Project I	Vame:	West (Grove Cen	ter				
Road Nam	e: Chapman A	Av.				Job Nu	mber:	12717						
Road Segme	nt: w/o Valley	View St.												
SITE	SPECIFIC IN	IPUT DATA				N	DISE I	NODE	L INPUT	s				
Highway Data				S	ite Con	ditions (Hard =	10, Sc	oft = 15)					
Average Daily	Traffic (Adt):	11,527 vehicle	s					Autos:	15					
Peak Hour	Percentage:	10.00%			Me	dium Tru	cks (2 /	Axles):	15					
Peak H	lour Volume:	1,153 vehicle	s		He	avy Truci	ks (3+ /	Axles):	15					
Ve	hicle Speed:	45 mph		v	ehicle I	Nix								
Near/Far La	ne Distance:	48 feet		Ē	Vehi	icleType		Day	Evening	Night	Daily			
Site Data						A	utos:	77.5%	12.9%	9.6%	97.42%			
Ba	rrier Heiaht:	0 0 feet			Me	edium Tru	icks:	84.8%	4.9%	10.3%	1.84%			
Barrier Type (0-W	all, 1-Berm):	0.0			ŀ	leavy Tru	icks:	86.5%	2.7%	10.8%	0.74%			
Centerline Di	st. to Barrier:	50.0 feet		N	laise Sa	urco Ele	vation	e (in fi	aat)					
Centerline Dist.	to Observer:	50.0 feet		~	0/30 00	Autos	· 0	000						
Barrier Distance	to Observer:	0.0 feet			Mediu	m Trucks	. 0.	207						
Observer Height (Above Pad):	5.0 feet			Heav	v Trucks	. 8	006	6 Grade Adjustment: 0.0					
Pa	ad Elevation:	0.0 feet				,	. 0.		Grade Adjustment. 0.0					
Roa	ad Elevation:	0.0 feet		L	ane Equ	uivalent	Distan	ce (in i	feet)					
	Road Grade:	0.0%				Autos	: 44.	147						
	Left View:	-90.0 degre	es		Mediur	m Trucks	: 43.	947						
	Right View:	90.0 degre	es		Heav	y Trucks	43.	966						
FHWA Noise Mode	el Calculation	S												
VehicleType	REMEL	Traffic Flow	Dista	ance	Finite	Road	Fresr	nel	Barrier Att	en Be	rm Atten			
Autos:	68.46	-1.33		0.71		-1.20		-4.65	0.0	000	0.000			
Medium Trucks:	79.45	-18.57		0.74		-1.20		-4.87	0.0	000	0.000			
Heavy Trucks:	84.25	-22.53		0.73		-1.20		-5.43	0.0	000	0.000			
Unmitigated Noise	e Levels (with	out Topo and	barrier	attenu	ation)									
VehicleType	Leq Peak Hou	ur Leq Day	′ I	Leq Eve	ening	Leq N	light		Ldn	С	NEL			
Autos:	66	6.6	64.7		63.0		56.9	Э	65.	5	66.1			
Medium Trucks:	60).4	58.9		52.5		51.0	D	59.	5	59.7			
Heavy Trucks:	61	.3	59.8		50.8		52.1	1	60.4	60.4 6				
Vehicle Noise:	68	3.5	66.7		63.6		58.9	9	67.	5	67.9			
Centerline Distant	ce to Noise Co	ontour (in feet)											
				70 dl	BA	65 d	BA	6	60 dBA	55	i dBA			
			Ldn:	34		73	3		157	:	338			
		C	NEL:	36		78	3		168	:	363			

Sunday, January 17, 2021

Sunday, January 17, 2021

	FH	WA-RD-77-10	BHIGH	WAY N	OISE P	REDICTIC	N MOD	EL	_	_	
Scenar Road Nan	io: OY ne: Chapman	Av.				Project N Job Nu	lame: W mber: 12	est Gro 717	ove Cente	er	
Road Segme	nt: e/o valley	view St.									
SITE	SPECIFIC I	NPUT DATA				NC	DISE MO	ODEL I	INPUTS	5	
Highway Data				s	ite Cor	nditions (H	lard = 1	0, Soft	= 15)		
Average Daily	Traffic (Adt):	15,271 vehicle	es				A	utos:	15		
Peak Hour	Percentage:	10.00%			Me	edium Truc	ks (2 Ax	(les):	15		
Peak H	lour Volume:	1,527 vehicle	es		He	eavy Truck	's (3+ Ax	(les):	15		
Ve	ehicle Speed:	45 mph		v	ehicle	Mix					
Near/Far La	ane Distance:	48 feet			Veh	icleType	D	ay E	vening	Night	Daily
Site Data						AL	itos: 7	7.5%	12.9%	9.6%	97.42%
Ba	rrier Height:	0.0 feet			М	ledium Tru	cks: 8	4.8%	4.9%	10.3%	1.84%
Barrier Type (0-V	Vall, 1-Berm):	0.0			,	Heavy Tru	cks: 8	6.5%	2.7%	10.8%	0.74%
Centerline Di	ist. to Barrier:	50.0 feet		Λ	loise Se	ource Elev	ations	(in feet))		
Centerline Dist.	to Observer:	50.0 feet				Autos:	0.00	<u>, ,</u> 00			
Barrier Distance	to Observer:	0.0 feet			Mediu	m Trucks:	2.29	97			
Observer Height	(Above Pad):	5.0 feet			Hear	vy Trucks:	8.00)6 Gr	rade Adju	ustment:	0.0
P	ad Elevation:	0.0 feet		-							
Ro	ad Elevation:	0.0 feet		L	ane Eq	uivalent L	vistance	(in fee	t)		
	Road Grade:	0.0%				Autos:	44.14	47			
	Left View:	-90.0 degre	es		Mediu	m Trucks:	43.94	47			
	Right View:	90.0 degre	es		Hea	vy Trucks:	43.90	90			
FHWA Noise Mod	el Calculation	s									
VehicleType	REMEL	Traffic Flow	Dis	tance	Finite	Road	Fresne	I Ba	arrier Atte	n Beri	m Atten
Autos:	68.46	-0.11		0.71		-1.20	-4	4.65	0.0	00	0.000
Medium Trucks:	79.45	-17.35	5	0.74		-1.20	-4	4.87	0.0	00	0.000
Heavy Trucks:	84.25	-21.31		0.73		-1.20	-8	5.43	0.0	00	0.000
Unmitigated Nois	e Levels (with	out Topo and	barrie	er attenu	ation)						
VehicleType	Leq Peak Ho	ur Leq Da	y	Leq Ev	ening	Leq N	ight	Lo	dn	CN	IEL
Autos:	67	7.9	66.0		64.2	2	58.1		66.8		67.4
Medium Trucks:	61	1.6	60.1		53.8		52.2		60.7		60.9
Heavy Trucks:	62	2.5	61.1		52.0)	53.3		61.6		61.8
Vehicle Noise:	69	9.7	68.0		64.8		60.1		68.7		69.1
Centerline Distan	ce to Noise C	ontour (in fee	t)	70 /					10.4		-10.4
			Lala	70 d	ВА	65 di	3A	60 0	ara ara	55	ава
			Lan:	41 88 189			4	08			
		C	NEL:	44	44 94 203 437						31

Scenari	o: OY					Projec	t Name: \	West	Grove Cent	er	
Road Nam	e: Belgrave Av					Job N	lumber:	12717			
Road Segmer	t: e/o Valley V	iew St.									
SITE	SPECIFIC IN	PUT DATA					NOISE	IODE		s	
Highway Data				5	Site Con	ditions	(Hard =	10, S	oft = 15)		
Average Daily	Traffic (Adt):	275 vehicle	s					Autos.	15		
Peak Hour	Percentage:	10.00%			Me	dium Tr	rucks (2 A	Axles).	15		
Peak H	our Volume:	27 vehicle	s		He	avy Tru	cks (3+ A	Axles).	15		
Vel	nicle Speed:	25 mph		1	/ehicle	Mix					
Near/Far Lar	ne Distance:	12 feet			Veh	icleType	•	Day	Evening	Night	Daily
Site Data							Autos:	77.5%	12.9%	9.6%	97.42
Bar	rier Height:	0.0 feet			M	edium T	rucks:	84.8%	4.9%	10.3%	1.84
Barrier Type (0-W	all, 1-Berm):	0.0			1	leavy T	rucks:	86.5%	2.7%	10.8%	0.74
Centerline Dis	t. to Barrier:	37.0 feet			Voise Sr	urco E	lovation	: (in f	oof)		
Centerline Dist.	to Observer:	37.0 feet		<i>'</i>	10/36 30	Auto		000	een		
Barrier Distance	to Observer:	0.0 feet			Madiu	AUIC Truck	IS. U.I	207			
Observer Height (Above Pad):	5.0 feet			Heat	W Truck	ιο. 2 (c) θι	201	Grade Ad	iustment	0.0
Pa	d Elevation:	0.0 feet			Tieav	y much	3. 0.	000	Orade Au	usiment	0.0
Roa	d Elevation:	0.0 feet		L	ane Eq	uivalen	t Distand	ce (in	feet)		
F	Road Grade:	0.0%				Auto	s: 36.	851			
	Left View:	-90.0 degree	es		Mediu	m Truck	(s: 36.	610			
	Right View:	90.0 degree	es		Heav	y Truck	s: 36.	634			
FHWA Noise Mode	I Calculations										
VehicleType	REMEL	Traffic Flow	Di	stance	Finite	Road	Fresn	el	Barrier Att	en Ber	m Atter
Autos:	58.73	-15.01		1.88	3	-1.20		-4.56	0.0	000	0.00
Medium Trucks:	70.80	-32.25		1.93	3	-1.20		-4.87	0.0	000	0.00
Heavy Trucks:	77.97	-36.21		1.92	2	-1.20		-5.61	0.0	000	0.00
Unmitigated Noise	Levels (witho	ut Topo and	barri	er atten	uation)						
VehicleType	Leq Peak Hour	· Leq Day	1	Leq Ev	rening	Leq	Night		Ldn	CI	VEL
Autos:	44.	4	42.5		40.7		34.7	,	43.3	3	43
Medium Trucks:	39.	3	37.8		31.4		29.9)	38.3	3	38
Heavy Trucks:	42.	5	41.1		32.0		33.3	5	41.6	5	41.
Vehicle Noise:	47.	3	45.6		41.7		37.8	3	46.3	3	46
Centerline Distanc	e to Noise Co	ntour (in feet)	70 -	ID A	67	dB A		C dBA	57	dD A
			I dn'	100	ıdA	05	2	I'	5 GBA	55	UBA 10
		~		1			2		5		10
		0	¥66.				4		5		

	FHW	A-RD-77-108 HIG	GHWAY	NOISE PF	REDICTIO	N MODEL			
Scenari Road Nam Road Segmer	o: OY e: Belgrave Av. nt: w/o Valley Vi	ew St.			Project N Job Nur	ame: West nber: 1271	Grove Cente	er	
SITE	SPECIFIC INF	UT DATA	1		NO	ISE MOD	EL INPUTS	5	
Highway Data				Site Con	ditions (H	lard = 10, S	oft = 15)		
Average Daily Peak Hour	Traffic (Adt): 1 Percentage: 1	1,710 vehicles 10.00%		Me	dium Truc	Autos ks (2 Axles)	: 15 : 15		
Peak H	our Volume:	171 vehicles		He	avy Truck	s (3+ Axles)	: 15		
Ve	hicle Speed:	25 mph	F	Vehicle I	Mix				
Near/Far La	ne Distance:	12 feet	ŀ	Vehi	icleTvpe	Dav	Evenina	Niaht	Daily
Site Data				10.11	Au	tos: 77.5	% 12.9%	9.6%	97.42%
Bai	rier Heiaht:	0.0 feet		Me	edium Truc	cks: 84.8	% 4.9%	10.3%	1.84%
Barrier Type (0-W	all, 1-Berm):	0.0		F	leavy Truc	cks: 86.5	% 2.7%	10.8%	0.74%
Centerline Dis	st. to Barrier:	37.0 feet	ŀ	Noise So	urce Elev	ations (in	feet)		-
Centerline Dist.	to Observer:	37.0 feet			Autos	0.000	,		
Barrier Distance	to Observer:	0.0 feet		Mediur	n Trucks	2 297			
Observer Height (Above Pad):	5.0 feet		Heav	v Trucks:	8 006	Grade Adi	iustment:	0.0
Pa	ad Elevation:	0.0 feet	-		,	0.000			
Roa	ad Elevation:	0.0 feet	-	Lane Equ	uivalent D	istance (in	feet)		
1	Road Grade:	0.0%			Autos:	36.851			
	Left View:	-90.0 degrees		Mediur	m Trucks:	36.610			
	Right View:	90.0 degrees		Heav	y Trucks:	36.634			
FHWA Noise Mode	el Calculations								
VehicleType	REMEL	Traffic Flow D	listance	Finite	Road	Fresnel	Barrier Atte	en Bern	n Atten
Autos:	58.73	-7.07	1.8	38	-1.20	-4.56	0.0	000	0.000
Medium Trucks:	70.80	-24.31	1.9	93	-1.20	-4.87	0.0	000	0.000
Heavy Trucks:	77.97	-28.26	1.9	92	-1.20	-5.61	0.0	000	0.000
Unmitigated Noise	Levels (without	ut Topo and bari	rier atter	nuation)					
VehicleType	Leq Peak Hour	Leq Day	Leq E	vening	Leq Ni	ght	Ldn	CN	EL
Autos:	52.4	50.5	5	48.7		42.6	51.3	3	51.9
Medium Trucks:	47.2	2 45.7	7	39.3		37.8	46.3	3	46.5
Heavy Trucks:	50.4	49.0)	40.0		41.2	49.6	6	49.7
Vehicle Noise:	55.2	2 53.6	6	49.7		45.8	54.3	3	54.6
Centerline Distance	e to Noise Con	tour (in feet)							
			70	dBA	65 dE	BA	60 dBA	55 a	<i>i</i> BA
		Ldn	:	3	7		15	33	3
		CNEL	:	4	8		16	3	5

	FH\	WA-RD-77-10	8 HIGF	IWAY N	IOISE PI	REDICTIO	ом ис	DEL			
Scena	rio: OY					Project I	Name:	West	Grove Cen	iter	
Road Nar	ne: Lampson A	w.				Job Nu	imber:	12717			
Road Segme	ent: w/o Valley	View St.									
SITE	SPECIFIC IN	IPUT DATA				N	OISE M	NODE	L INPUT	s	
Highway Data				5	Site Con	ditions (Hard =	10, S	oft = 15)		
Average Daily	Traffic (Adt):	16,125 vehicle	es					Autos.	15		
Peak Hou	r Percentage:	10.00%			Me	dium Tru	cks (2 /	Axles).	15		
Peak I	Hour Volume:	1,612 vehicle	es		He	avy Truci	ks (3+ /	Axles).	15		
Ve	ehicle Speed:	40 mph		1	Vehicle I	Mix					
Near/Far La	ane Distance:	36 feet		F	Veh	icleType		Day	Evening	Night	Daily
Site Data						A	utos:	77.5%	6 12.9%	9.6	% 97.42%
Ba	arrier Heiaht:	0.0 feet			M	edium Tru	ucks:	84.8%	6 4.9%	10.3	% 1.84%
Barrier Type (0-V	Vall, 1-Berm):	0.0			1	Heavy Tru	ucks:	86.5%	6 2.7%	10.8	% 0.74%
Centerline D	ist. to Barrier:	40.0 feet			Noise Sr	urce Ele	vation	e (in f	oof)		
Centerline Dist.	to Observer:	40.0 feet		É	10/30 00	Autos	· 0	000			
Barrier Distance	to Observer:	0.0 feet			Mediu	m Trucks	. 0.	207			
Observer Height	(Above Pad):	5.0 feet			Heav	v Trucks	. 2.	006	Grade Ad	liustme	nt: 0.0
F	Pad Elevation:	0.0 feet				<i>y</i> 11 dono	. 0.	000		,	
Ro	ad Elevation:	0.0 feet		1	Lane Eq	uivalent	Distan	ce (in	feet)		
	Road Grade:	0.0%				Autos	: 36.	069			
	Left View:	-90.0 degre	es		Mediu	m Trucks	: 35.	823			
	Right View:	90.0 degre	es		Heav	y Trucks	: 35.	847			
FHWA Noise Mod	lel Calculation	s									
VehicleType	REMEL	Traffic Flow	Dis	stance	Finite	Road	Fresh	el	Barrier At	ten B	erm Atten
Autos	66.51	0.64	ļ	2.0	2	-1.20		-4.59	0.	000	0.000
Medium Trucks.	: 77.72	-16.60)	2.0	7	-1.20		-4.87	0.	000	0.000
Heavy Trucks:	82.99	-20.56	3	2.06	6	-1.20		-5.56	0.	000	0.000
Unmitigated Nois	e Levels (with	out Topo and	barrie	er atten	uation)						
VehicleType	Leq Peak Hou	ur Leq Da	y	Leq Ev	vening	Leq N	light		Ldn		CNEL
Autos	68	3.0	66.1		64.3		58.3	3	66.	9	67.5
Medium Trucks.	: 62	2.0	60.5		54.1		52.6	6	61.	0	61.3
Heavy Trucks:	63	3.3	61.9		52.8		54.1		62.	4	62.6
Vehicle Noise:	70	0.0	68.3		65.0		60.4	1	69.	0	69.4
Centerline Distan	ce to Noise Co	ontour (in fee	t)								
			L	70 c	dBA	65 d	BA		60 dBA	5	i5 dBA
			Ldn:	3	4	74	1		159		342
		NEL:	3	37 79 170			170		366		

Sunday, January 17, 2021

Sunday, January 17, 2021

	FH	WA-RD-77-108	HIGHV	VAY NO	DISE P	REDICTI	ION MC	DEL			
Scenar Road Nan Road Segme	io: OY ne: Lampson A nt: e/o Valley \	Av. View St.				Project Job N	Name: umber:	West 12717	Grove Cent	er	
SITE	SPECIFIC I	NPUT DATA				N	OISE	MODE	EL INPUT	5	
Highway Data				S	ite Cor	ditions	(Hard =	10, S	oft = 15)		
Average Daily Peak Hour	Traffic (Adt): Percentage:	13,342 vehicle 10.00%	S		Ме	edium Tru	ucks (2	Autos Axles)	: 15 : 15		
Peak F	lour Volume:	1.334 vehicle	s		He	avv Truc	ks (3+	, Axles)	15		
Ve	hicle Speed:	40 mph		-				,			
Near/Far La	ne Distance:	36 feet		V	ehicle	Mix					
Site Data					Veh	licleType	lutos	Day	Evening	Night	Daily
Sile Dala					м	r Iedium Tr	ucks:	84.8%	6 / 0%	10.39	% 1.97.42.70
Barrier Turne (0.14	rrier Height:	0.0 feet				Heavy Tr	ucks:	86.5%	6 2.7%	10.89	% 0.74%
Centerline Di	st. to Barrier:	40.0 feet									
Centerline Dist.	to Observer:	40.0 feet		N	oise Si	ource El	evation	s (in f	eet)		
Barrier Distance	to Observer	0.0 feet				Autos	s: 0	.000			
Observer Height	(Above Pad)	5.0 feet			Mediu	m Trucks	s: 2	297			
P	ad Elevation:	0.0 feet			Hea	vy Trucks	s: 8	.006	Grade Ad	lustmer	nt: 0.0
Ro	ad Elevation:	0.0 feet		Li	ane Eq	uivalent	Distan	ce (in	feet)		
	Road Grade:	0.0%			·	Autos	s: 36	.069			
	Left View:	-90.0 deare	es		Mediu	m Trucks	s: 35	.823			
	Right View:	90.0 degre	es		Hea	vy Trucks	s: 35	.847			
FHWA Noise Mod	el Calculation	IS									
VehicleType	REMEL	Traffic Flow	Dista	ance	Finite	Road	Fres	nel	Barrier Att	en Be	erm Atten
Autos:	66.51	-0.19		2.02		-1.20		-4.59	0.0	000	0.000
Medium Trucks:	77.72	-17.43		2.07		-1.20		-4.87	0.0	000	0.000
Heavy Trucks:	82.99	-21.38		2.06		-1.20		-5.56	0.0	000	0.000
Unmitigated Noise	e Levels (with	out Topo and	barrier	attenu	ation)						
VehicleType	Leq Peak Ho	ur Leq Da	/ [Leq Eve	ening	Leq	Night		Ldn	(CNEL
Autos:	67	7.1	65.2		63.5		57.	4	66.1	1	66.7
Medium Trucks:	61	1.2	59.7		53.3		51.	7	60.2	2	60.4
Heavy Trucks:	62	2.5	61.1		52.0		53.	3	61.6	6	61.8
Vehicle Noise:	69	9.2	67.4		64.2		59.	6	68.1	1	68.6
Centerline Distant	ce to Noise C	ontour (in fee)			r					
				70 dE	BA	65 (dBA		60 dBA	5	5 dBA
			Ldn:	30		6	5		140		301
		С	NEL:	32		6	9		150		322

Scenario Road Name Road Sacross	o: OY e: Cerulean Av.	, St			Project Na Job Num	ame: We aber: 127	st Grove Cen 17	ter	
SITE S		T DATA	1		NO	SE MO		s	
Highway Data				Site Con	ditions (Ha	ard = 10,	Soft = 15)	•	
Average Daily 7 Peak Hour I Peak Ho	Traffic (Adt): 5,3 Percentage: 10 pur Volume: 5	329 vehicles .00% 533 vehicles .25 mph		Mei Hei	dium Truck avy Trucks	Aut s (2 Axle (3+ Axle	dos: 15 es): 15 es): 15		
Near/Far I ar	ncie Speeu. le Distance:	12 feet	_	Vehicle N	lix				
	o Biotanoo.	12 1000		Vehi	cleType	Da	y Evening	Night	Daily
Site Data				M	Aut dium Truc	05: 11 ke: 04	.5% 12.9%	9.6%	97.42
Bar Barrier Type (0-Wi	r ier Height: all, 1-Berm):	0.0 feet 0.0		F	leavy Truc	ks: 84 ks: 86	.8% 4.9% .5% 2.7%	10.3%	0.74
Centerline Dis	t. to Barrier:	37.0 feet		Noise So	urce Eleva	ations (i	n feet)		
Centerline Dist. t Barrier Distance t Observer Height (, 	o Observer: o Observer: Above Pad): d Elevation:	0.0 feet 5.0 feet 0.0 feet	-	Mediur Heav	Autos: n Trucks: y Trucks:	0.000 2.297 8.006) 6 Grade Ad	ljustment	: 0.0
Roa	d Elevation:	0.0 feet	2	Lane Equ	Ivalent Di	stance	in reet)		
F	Left View: - Right View: -	0.0% 90.0 degrees 90.0 degrees		Mediur Heav	n Trucks: y Trucks:	36.65 36.61(36.634	1) 1		
FHWA Noise Mode	l Calculations								
VehicleType	REMEL Tr	affic Flow Di	istance	Finite	Road	Fresnel	Barrier Att	en Ber	m Atter
Autos:	58.73	-2.13	1.8	8	-1.20	-4.	56 0.	000	0.00
Medium Trucks:	70.80	-19.37	1.9	13	-1.20	-4.	87 0.	000	0.00
Heavy Trucks:	77.97	-23.33	1.9	2	-1.20	-5.	61 0.	000	0.00
Unmitigated Noise	Levels (without	Topo and barr	ier atten	uation)					
VehicleType	Leq Peak Hour	Leq Day	Leq E	vening	Leq Nig	pht	Ldn	CI	NEL
Autos:	57.3	55.4		53.6		47.6	56.	2	56
Medium Trucks:	52.2	50.6		44.3		42.7	51.	2	51
Heavy Trucks:	55.4	53.9		44.9		46.2	54.	5	54.
Vehicle Noise:	60.2	58.5		54.6		50.7	59.	2	59
Centerline Distanc	e to Noise Conto	our (in feet)	70	dBA	65 dB,	4	60 dBA	55	dBA
		Ldn:		7	15		33		70
		2011.		-	.0				70

	FHV	VA-RD-77-108	HIGH	IWAY N	OISE PF	REDICTI	ON MO	DDEL		ľ		
Scenar	rio: OY					Project	Name:	West	Grove Co	enter		
Road Nan	ne: Cerulean A	v.				Job Ni	umber:	12717				
Road Segme	ent: w/o Valley \	/iew St.										
SITE	SPECIFIC IN	IPUT DATA				N	OISE	MODE	EL INPU	TS		
Highway Data				s	Site Con	ditions ((Hard =	= 10, S	oft = 15)			
Average Daily	Traffic (Adt):	5,017 vehicle	s					Autos	: 15			
Peak Hour	Percentage:	10.00%			Me	dium Tru	ıcks (2	Axles)	: 15			
Peak H	lour Volume:	502 vehicle	s		He	avy Truc	:ks (3+	Axles)	: 15			
Ve	ehicle Speed:	25 mph		v	/ehicle	Nix						
Near/Far La	ane Distance:	12 feet		F	Veh	icleType		Day	Evenin	g N	ight	Daily
Site Data						A	utos:	77.5%	6 12.9	%	9.6%	97.42%
Ba	rrier Height:	0.0 feet			Me	edium Tr	ucks:	84.8%	6 4.9	% 1	0.3%	1.84%
Barrier Type (0-V	Vall, 1-Berm):	0.0			ŀ	leavy Tr	ucks:	86.5%	6 2.79	% 1	0.8%	0.74%
Centerline Di	ist. to Barrier:	37.0 feet			loise Sc	urce Ele	evatior	ns (in f	eet)			
Centerline Dist.	to Observer:	37.0 feet		Ē		Autos	. 0	000	,			
Barrier Distance	to Observer:	0.0 feet			Mediu	n Trucks	. 0 .: 2	297				
Observer Height	(Above Pad):	5.0 feet			Heav	v Trucks	: 8	006	Grade	Adjust	ment	0.0
P	ad Elevation:	0.0 feet		-								
Ro	ad Elevation:	0.0 feet		4	ane Equ	uvalent	Distan	ice (in	feet)			
	Road Grade:	0.0%				Autos	s: 36	.851				
	Left View:	-90.0 degree	es		Mediui	m Trucks	s: 36	.610				
	Right View:	90.0 degree	es		Heav	y Trucks	36	.634				
FHWA Noise Mod	el Calculation	s										
VehicleType	REMEL	Traffic Flow	Dis	stance	Finite	Road	Fres	nel	Barrier	Atten	Beri	m Atten
Autos:	58.73	-2.39		1.88	3	-1.20		-4.56		0.000		0.000
Medium Trucks:	70.80	-19.63		1.93	3	-1.20		-4.87		0.000		0.000
Heavy Trucks:	77.97	-23.59		1.92	2	-1.20		-5.61		0.000		0.000
Unmitigated Nois	e Levels (with	out Topo and	barrie	er attenu	uation)							
VehicleType	Leq Peak Hou	r Leq Day	/	Leq Ev	rening	Leq I	Night		Ldn		CN	JEL
Autos:	57	.0	55.1		53.4		47.	3	5	5.9		56.5
Medium Trucks:	51	.9	50.4		44.0		42.	5	5	0.9		51.2
Heavy Trucks:	55	.1	53.7		44.7		45.	9	5	4.3		54.4
Vehicle Noise:	59	.9	58.3		54.3		50.	.4	5	8.9		59.3
Centerline Distan	ce to Noise Co	ontour (in feet,)									
			L	70 d	BA	65 0	'BA		60 dBA		55	dBA
			Ldn:	7		1	5		31		e	68
		Ci	NEL:	7		1	5		33		7	2

	FHV	VA-RD-77-108	HIGH	WAY NO	DISE PF	REDICT		DEL			
Scenar	<i>io:</i> OY + P					Project	Name: \	Nest	Grove Cent	er	
Road Nam	ne: Valley View	St.				Job N	umber: ·	12717			
Road Segme	nt: n/o Chapma	an Av.									
SITE	SPECIFIC IN	PUT DATA				N	OISE N	IODE	L INPUT	s	
Highway Data				S	ite Con	ditions	(Hard =	10, So	oft = 15)		
Average Daily	Traffic (Adt):	51,643 vehicle	s				,	Autos:	15		
Peak Hour	Percentage:	10.00%			Me	dium Tru	ucks (2 A	(xles)	15		
Peak H	lour Volume:	5,164 vehicle	s		He	avy Truc	cks (3+ A	(xles)	15		
Ve	hicle Speed:	45 mph		v	ehicle I	Mix					
Near/Far La	ne Distance:	78 feet		-	Vehi	icleTvpe		Dav	Evenina	Night	Dailv
Site Data							Autos:	77.5%	6 12.9%	9.6	% 97.42%
Ba	rrier Heiaht:	0 0 feet			Me	edium Ti	ucks:	84.8%	6 4.9%	10.3	% 1.84%
Barrier Type (0-W	/all, 1-Berm):	0.0			ŀ	leavy Tr	ucks:	86.5%	6 2.7%	10.89	% 0.74%
Centerline Di	st. to Barrier:	60.0 feet		N	laise Sa	urce El	ovations	in f	oof)		
Centerline Dist.	to Observer:	60.0 feet		~	0/30 00	Auto	- 0 (000			
Barrier Distance	to Observer:	0.0 feet			Modiu	m Truck	5. U.U	207			
Observer Height	(Above Pad):	5.0 feet			Heav	v Truck	s. 2.2	106	Grade Ad	iustmei	nt: 0.0
P	ad Elevation:	0.0 feet				<i>y</i>	. 0.0	000	,		
Ro	ad Elevation:	0.0 feet		L	ane Equ	uivalent	Distanc	e (in	feet)		
	Road Grade:	0.0%				Autos	s: 45.	869			
	Left View:	-90.0 degre	es		Mediur	m Truck	s: 45.0	676			
	Right View:	90.0 degre	es		Heav	y Truck	s: 45.0	695			
FHWA Noise Mod	el Calculation:	5									
VehicleType	REMEL	Traffic Flow	Dis	tance	Finite	Road	Fresn	el	Barrier Atte	en Be	erm Atten
Autos:	68.46	5.18		0.46		-1.20		-4.69	0.0	000	0.000
Medium Trucks:	79.45	-12.06		0.49		-1.20		-4.88	0.0	000	0.000
Heavy Trucks:	84.25	-16.02		0.48		-1.20		-5.34	0.0	000	0.000
Unmitigated Noise	e Levels (with	out Topo and	barrie	r attenu	ation)						
VehicleType	Leq Peak Hou	r Leq Daj	1	Leq Eve	ening	Leq	Night		Ldn	(CNEL
Autos:	72	.9	71.0		69.2		63.2		71.8	3	72.4
Medium Trucks:	66	.7	65.2		58.8		57.3		65.7	7	66.0
Heavy Trucks:	67	.5	66.1		57.1		58.3		66.7	7	66.8
Vehicle Noise:	74	.7	73.0		69.8		65.2		73.7	7	74.2
Centerline Distant	ce to Noise Co	ntour (in feet)								-
				70 dl	BA	65	dBA		60 dBA	5	5 dBA
			Ldn:	106	6	22	29		492		1,061
		С	NEL:	114	4	24	45		528		1,138

Sunday, January 17, 2021

Sunday, January 17, 2021

	FH	WA-RD-77-108	B HIGH	WAY NO	DISE P	REDICTI	ON MO	DEL			
Scenar Road Nan Road Segme	rio: OY + P ne: Valley Viev nt: n/o Belgrav	v St. ve Av.				Project Job Ni	Name: umber:	West (12717	Grove Cent	er	
SITE	SPECIFIC I	NPUT DATA				N	OISE	NODE		5	
Highway Data				Si	ite Cor	ditions (Hard =	10, Sc	oft = 15)		
Average Daily Peak Hour	Traffic (Adt): Percentage:	54,539 vehicle 10.00%	s		Ме	edium Tru	icks (2)	Autos: Axles):	15 15		
Peak H	lour Volume:	5,454 vehicle	s		He	eavy Truc	ks (3+)	Axles):	15		
Ve	hicle Speed:	45 mph		V	ehicle	Mix					
Near/Far La	ne Distance:	78 feet		-	Veh	icleType		Dav	Evenina	Niaht	Daily
Site Data						A	utos:	77.5%	5 12.9%	9.6%	97.42%
Ba	rrier Heiaht:	0.0 feet			М	edium Tr	ucks:	84.8%	4.9%	10.3%	1.84%
Barrier Type (0-W	Vall, 1-Berm):	0.0				Heavy Tr	ucks:	86.5%	2.7%	10.8%	0.74%
Centerline Di	ist. to Barrier:	60.0 feet		N	oise Si	ource Ele	vation	s (in fi	eef)		
Centerline Dist.	to Observer:	60.0 feet			0.00 0	Autos	. 0	000			
Barrier Distance	to Observer:	0.0 feet			Mediu	m Trucks	. 0.	297			
Observer Height	(Above Pad):	5.0 feet			Heat	v Trucks	. 8	006	Grade Adi	iustment	: 0.0
P	ad Elevation:	0.0 feet				,					
Ro	ad Elevation:	0.0 feet		La	ane Eq	uivalent	Distan	ce (in	feet)		
	Road Grade:	0.0%				Autos	:: 45.	869			
	Left View:	-90.0 degre	es		Mediu	m Trucks	: 45.	676			
	Right View:	90.0 degre	es		Hear	vy Trucks	: 45.	695			
FHWA Noise Mod	el Calculation	IS									
VehicleType	REMEL	Traffic Flow	Dista	ance	Finite	Road	Fresr	nel	Barrier Atte	en Ber	m Atten
Autos:	68.46	5.42		0.46		-1.20		-4.69	0.0	000	0.000
Medium Trucks:	79.45	-11.82		0.49		-1.20		-4.88	0.0	000	0.000
Heavy Trucks:	84.25	-15.78		0.48		-1.20		-5.34	0.0	000	0.000
Unmitigated Nois	e Levels (with	out Topo and	barrier	r attenu	ation)						
VehicleType	Leq Peak Ho	ur Leq Da	y .	Leq Eve	ening	Leq I	Vight		Ldn	C	NEL
Autos:	73	3.1	71.2		69.5		63.4	1	72.0)	72.6
Medium Trucks:	66	5.9	65.4		59.0		57.5	5	66.0)	66.2
Heavy Trucks:	67	7.8	66.3		57.3		58.5	5	66.9)	67.0
Vehicle Noise:	75	5.0	73.2		70.1		65.4	4	74.0)	74.4
Centerline Distant	ce to Noise C	ontour (in fee	t)								
				70 dE	BA	65 0	iBA 🗌	0	60 dBA	55	dBA
			Ldn:	110)	23	7		511	1,	100
	CNEL:			118	118 254 548 1,180					180	

Scenario): OY + P					Project	Name: \	West (Grove Cen	ter	
Road Name	: Valley View	St.				Job N	umber:	12717			
Road Segmen	t: n/o Cerulea	in Av.									
SITE S	PECIFIC IN	IPUT DATA		1		N	OISE N	IODE		s	
Highway Data					Site Con	ditions	(Hard =	10, Sc	oft = 15)		
Average Daily 1	raffic (Adt):	52,751 vehicle	s					Autos:	15		
Peak Hour I	Percentage:	10.00%			Me	dium Tru	ıcks (2 A	Axles):	15		
Peak Ho	our Volume:	5,275 vehicle	s		He	avy Truc	:ks (3+ A	Axles):	15		
Veh	icle Speed:	45 mph		F	Vehicle I	<i>lix</i>					
Near/Far Lan	e Distance:	78 feet		Ē	Vehi	cleType		Day	Evening	Night	Daily
Site Data							lutos:	77.5%	12.9%	9.6%	97.42
Bar	rier Heiaht:	0.0 feet			Me	edium Ti	ucks:	84.8%	4.9%	10.3%	1.849
Barrier Type (0-Wa	all, 1-Berm):	0.0			ŀ	leavy Tr	ucks:	86.5%	2.7%	10.8%	0.749
Centerline Dis	t. to Barrier:	60.0 feet		-	Noise So	urce El	evation	s (in fe	et)		
Centerline Dist. t	o Observer:	60.0 feet		f		Auto	s: 0.0	000			
Barrier Distance t	o Observer:	0.0 feet			Mediur	n Truck	5: 2.3	297			
Observer Height (A	Above Pad):	5.0 feet			Heav	y Trucks	s: 8.0	006	Grade Ad	justment	: 0.0
Pa	Pad Elevation: 0.0 feet										
Roa	d Elevation:	0.0 feet		2	Lane Equ	livalent	Distant	ce (in i	reet)		
F	oad Grade:	0.0%			Marthur	Auto	S. 45.	869			
	Left View:	-90.0 degre	es		Mediur	TI Truck	5. 45.	070 605			
	Rigitt view.	90.0 degre	es		neav	y much	5. 4 J.	090			
FHWA Noise Mode	Calculation	s									
VehicleType	REMEL	Traffic Flow	Di	stance	Finite	Road	Fresn	el	Barrier Att	en Ber	m Atten
Autos:	68.46	5.27		0.4	6	-1.20		-4.69	0.0	000	0.00
Medium Trucks:	79.45	-11.97		0.4	9	-1.20		-4.88	0.0	000	0.00
Heavy Trucks:	84.25	-15.92		0.4	8	-1.20		-5.34	0.0	000	0.00
Unmitigated Noise	Levels (with	out Topo and	barri	ier atten	uation)						
VehicleType	Leq Peak Hou	ir Leq Day	/	Leq E	vening	Leq	Night		Ldn	C	NEL
Autos:	73	.0	71.1		69.3		63.3	3	71.9	9	72.
Medium Trucks:	66	.8	65.3		58.9		57.4	Ļ	65.	8	66.
Heavy Trucks:	67	.6	66.2		57.2		58.4		66.	3	66.
Vehicle Noise:	74	.8	73.1		69.9		65.3	3	73.	8	74.
Centerline Distance	e to Noise Co	ontour (in feet)								
			[70	dBA	65 (1BA	6	60 dBA	55	dBA
			Ldn:	10	18	23	52		499	1,	076
		C	NEL:	1	15	24	19		536	1,	154

	FH\	NA-RD-77-108	HIGHWA	NY NC	DISE PF	EDICTIC	N MODEL			
Scenar	io: OY + P					Project N	lame: Wes	t Grove Ce	nter	
Road Nam Road Segme	nt: n/o Lampso	n Av.				JOD NUI	mber: 127	17		
SITE	SPECIFIC IN	IPUT DATA				NC	DISE MOI	DEL INPUT	rs	
Highway Data				Si	te Con	ditions (H	lard = 10,	Soft = 15)		
Average Daily	Traffic (Adt):	54,001 vehicles					Auto	s: 15		
Peak Hour	Percentage:	10.00%			Mee	dium Truc	ks (2 Axle	s): 15		
Peak H	lour Volume:	5,400 vehicles			Hea	avy Truck	s (3+ Axle	s): 15		
Ve	hicle Speed:	45 mph		V	hicle N	lix				
Near/Far La	ne Distance:	78 feet		-	Vehi	cleType	Day	Evening	Night	Daily
Site Data				-		AL	itos: 77.	5% 12.9%	9.6%	97.42%
Bai	rrier Height:	0.0 feet			Me	edium Tru	cks: 84.	3% 4.9%	10.3%	1.84%
Barrier Type (0-W	(all, 1-Berm):	0.0			H	leavy Tru	cks: 86.	5% 2.7%	10.8%	0.74%
Centerline Dis	st. to Barrier:	60.0 feet		N	oise So	urce Elev	vations (in	feet)		
Centerline Dist.	to Observer:	60.0 feet				Autos	0.000			
Barrier Distance	to Observer:	0.0 feet			Mediur	n Trucks:	2 297			
Observer Height ((Above Pad):	5.0 feet			Heav	v Trucks:	8 006	Grade A	diustment	t: 0.0
Pa	ad Elevation:	0.0 feet			nour	,	0.000		.,	
Roa	ad Elevation:	0.0 feet		La	ane Equ	ivalent L	Distance (i	n feet)		
	Road Grade:	0.0%				Autos:	45.869			
	Left View:	-90.0 degree	s		Mediur	n Trucks:	45.676			
	Right View:	90.0 degree	s		Heav	y Trucks:	45.695			
FHWA Noise Mode	el Calculation	s								-
VehicleType	REMEL	Traffic Flow	Distan	ce	Finite	Road	Fresnel	Barrier A	tten Ber	rm Atten
Autos:	68.46	5.37		0.46		-1.20	-4.6	9 0	.000	0.000
Medium Trucks:	79.45	-11.87		0.49		-1.20	-4.8	8 0	.000	0.000
Heavy Trucks:	84.25	-15.82		0.48		-1.20	-5.3	4 0	.000	0.000
Unmitigated Noise	e Levels (with	out Topo and L	barrier at	tenu	ation)					
VehicleType	Leq Peak Hou	ır Leq Day	Le	q Eve	ening	Leq N	ight	Ldn	C	NEL
Autos:	73	3.1 7	71.2		69.4		63.4	72	.0	72.6
Medium Trucks:	66	6.9 6	65.4		59.0		57.5	65	.9	66.1
Heavy Trucks:	67	7.7 6	6.3		57.3		58.5	66	.9	67.0
Vehicle Noise:	74	.9 7	73.2		70.0		65.4	73	.9	74.4
Centerline Distance	ce to Noise Co	ontour (in feet)								
				70 dE	BA	65 dl	BA	60 dBA	55	dBA
		L	dn:	109 235 507			1,	,093		
		CN	IEL:	117		253	3	544	1,	172

	FHW	A-RD-77-108	HIGHV	VAYN	OISE PI	REDICTI		DEL			
Scenar	<i>io:</i> OY + P					Project	Name:	West	Grove Cent	ter	
Road Nan	ne: Valley View	St.				Job N	umber:	12717			
Road Segme	nt: s/o Cerulear	n Av.									
SITE	SPECIFIC IN	PUT DATA				N	OISE N	IODE	L INPUT	s	
Highway Data				S	ite Con	ditions	(Hard =	10, S	oft = 15)		
Average Daily	Traffic (Adt): 5	4,606 vehicle	s				,	Autos.	15		
Peak Hour	Percentage:	10.00%			Me	dium Tru	icks (2 A	Axles).	15		
Peak H	lour Volume:	5,461 vehicle	s		He	avy Truc	:ks (3+ A	Axles).	15		
Ve	hicle Speed:	45 mph		v	ehicle I	Mix					
Near/Far La	ane Distance:	78 feet		-	Veh	icleTvpe		Dav	Evenina	Niaht	Daily
Site Data							lutos:	77.5%	6 12.9%	9.69	% 97.42%
Ba	rrier Height	0.0 feet			M	edium Tr	ucks:	84.8%	6 4.9%	10.39	% 1.84%
Barrier Type (0-V	Vall 1-Berm):	0.0			ŀ	leavy Tr	ucks:	86.5%	6 2.7%	10.89	% 0.74%
Centerline D	ist. to Barrier:	60.0 feet						- (in 1	41		
Centerline Dist.	to Observer:	60.0 feet		N	ioise sc	ource El	evations	s (IN T	eet)		
Barrier Distance	to Observer:	0.0 feet				Autos	S. 0.0	000			
Observer Height	(Above Pad):	5.0 feet			Mediui	TTTUCKS	5. Z.,	297	Crada Ad	i cotraco	at: 0.0
P	ad Elevation:	0.0 feet			Heav	y Trucks	5. 8.0	006	Grade Au	Justinei	<i>n</i> . 0.0
Ro	ad Elevation:	0.0 feet		L	ane Equ	uivalent	Distand	ce (in	feet)		
	Road Grade:	0.0%				Autos	s: 45.	869			
	Left View:	-90.0 degree	es		Mediui	m Trucks	s: 45.	676			
	Right View:	90.0 degree	es		Heav	y Trucks	s: 45.	695			
FHWA Noise Mod	el Calculations										
VehicleType	REMEL	Traffic Flow	Dista	nce	Finite	Road	Fresn	el	Barrier Att	en Be	erm Atten
Autos:	68.46	5.42		0.46		-1.20		-4.69	0.0	000	0.000
Medium Trucks:	79.45	-11.82		0.49		-1.20		-4.88	0.0	000	0.000
Heavy Trucks:	84.25	-15.77		0.48		-1.20		-5.34	0.0	000	0.000
Unmitigated Nois	e Levels (witho	ut Topo and	barrier	attenu	ation)						
VehicleType	Leq Peak Hour	Leq Day	′ I	Leq Ev	ening	Leq	Night		Ldn	(CNEL
Autos:	73.	1	71.2		69.5		63.4	ļ	72.0	J	72.6
Medium Trucks:	66.	9	65.4		59.0		57.5	5	66.0)	66.2
Heavy Trucks:	67.8	В	66.3		57.3		58.6	6	66.9)	67.0
Vehicle Noise:	75.0	D	73.2		70.1		65.4	Ļ	74.0)	74.4
Centerline Distan	ce to Noise Cor	ntour (in feet)								
				70 d	BA	65 0	dBA		60 dBA	5	5 dBA
			Ldn:	110	0	23	37		511		1,101
		C	VEL:	11	8	25	54		548		1,181

Sunday, January 17, 2021

Sunday, January 17, 2021

	FH	WA-RD-77-108	HIGHW	AY NO	DISE P	REDICT	ION MC	DEL			
Scenar Road Nan Road Segme	io: OY + P ne: Chapman i nt: w/o Valley	Av. View St.				Project Job N	Name: umber:	West 12717	Grove Cent	er	
SITE	SPECIFIC I	NPUT DATA				N	OISE	MODE	L INPUT	5	
Highway Data				S	ite Cor	ditions	(Hard =	10, S	oft = 15)		
Average Daily Peak Hour	Traffic (Adt): Percentage:	12,375 vehicle 10.00%	S		Ме	edium Tri	ucks (2	Autos Axles)	15 15		
Peak F	lour Volume:	1.238 vehicle	s		He	avy Truc	cks (3+ .	Axles).	15		
Ve	hicle Speed:	45 mph					•	<u> </u>			
Near/Far La	ne Distance:	48 feet		V	enicie	MIX			-		
Site Data					Ven	iicie i ype	Autos	77.5%	Evening	Night 9.69	Daily
Ba	rrier Height	0.0 feet			м	Iedium Ti	rucks:	84.89	6 4.9%	10.39	% 1.84%
ва Barrier Type (0-И	/all, 1-Berm):	0.0 feet 0.0				Heavy Ti	rucks:	86.5%	6 2.7%	10.89	% 0.74%
Centerline Di	st. to Barrier:	50.0 feet		N	oise Se	ource El	evation	s (in f	eef)		
Centerline Dist.	to Observer:	50.0 feet				Auto	s' 0	000	,		
Barrier Distance	to Observer:	0.0 feet			Mediu	m Truck	s. 0.	297			
Observer Height	(Above Pad):	5.0 feet			Heat	vy Truck	s 2.	006	Grade Ad	iustmei	nt: 0.0
P	ad Elevation:	0.0 feet			mou	<i>, , , , , , , , , ,</i>	J. U.				
Ro	ad Elevation:	0.0 feet		La	ane Eq	uivalent	Distan	ce (in	feet)		
	Road Grade:	0.0%				Auto	s: 44	.147			
	Left View:	-90.0 degre	es		Mediu	m Truck	s: 43	.947			
	Right View:	90.0 degre	es		Hear	vy Truck	s: 43	.966			
FHWA Noise Mod	el Calculation	s									
VehicleType	REMEL	Traffic Flow	Dista	nce	Finite	Road	Fresi	nel	Barrier Att	en Be	erm Atten
Autos:	68.46	-1.03		0.71		-1.20		-4.65	0.0	000	0.000
Medium Trucks:	79.45	-18.26		0.74		-1.20		-4.87	0.0	000	0.000
Heavy Trucks:	84.25	-22.22		0.73		-1.20		-5.43	0.0	000	0.000
Unmitigated Nois	e Levels (with	out Topo and	barrier	attenu	ation)						
VehicleType	Leq Peak Ho	ur Leq Da	/ L	.eq Eve	ening	Leq	Night		Ldn	(CNEL
Autos:	66	3.9	65.0		63.3		57.	2	65.8	3	66.5
Medium Trucks:	60).7	59.2		52.9		51.	3	59.8	3	60.0
Heavy Trucks:	61	1.6	60.1		51.1		52.	4	60.7	7	60.8
Vehicle Noise:	68	3.8	67.0		63.9		59.	2	67.8	3	68.2
Centerline Distant	ce to Noise C	ontour (in feel)					_			
				70 at	3A	65	OBA 10		ACE	5	D aBA
			Lan:	35			0		100		304
		C	NEL:	38	38 82 176 38				380		

Scenario Road Name	o: OY + P e: Belgrave Av.					Project Job N	Name: \ umber: 1	Vest (2717	Grove Cent	er	
Road Segmen	t: w/o Valley V	iew St.									
SITE S	SPECIFIC IN	PUT DATA				N	OISE N	IODE	L INPUT	5	
Highway Data				S	ite Con	ditions	(Hard =	10, Sc	oft = 15)		
Average Daily	Traffic (Adt):	2,276 vehicles						Autos:	15		
Peak Hour I	Percentage:	10.00%			Me	dium Tru	icks (2 A	xles):	15		
Peak He	our Volume:	228 vehicles			He	avy Truc	:ks (3+ A	xles):	15		
Vel	nicle Speed:	25 mph		v	ehicle l	lix					
Near/Far Lar	ne Distance:	12 feet		F	Vehi	cleType		Day	Evening	Night	Daily
Site Data						A	lutos:	77.5%	12.9%	9.6%	97.42
Bar	rier Heiaht:	0.0 feet			Me	edium Tr	ucks:	84.8%	4.9%	10.3%	1.84
Barrier Type (0-Wa	all, 1-Berm):	0.0			ŀ	leavy Tr	ucks:	86.5%	2.7%	10.8%	0.74
Centerline Dis	t. to Barrier:	37.0 feet			loise So	urce Ek	ovations	(in fe	of)		
Centerline Dist. t	o Observer:	37.0 feet		-		Autos	s' 0 (000			
Barrier Distance t	o Observer:	0.0 feet			Mediu	n Truck	. 22	97			
Observer Height (/	Above Pad):	5.0 feet			Heav	v Trucks	: 8.0	006	Grade Ad	iustment	: 0.0
Pa	d Elevation:	0.0 feet				,					
Roa	d Elevation:	0.0 feet		L	ane Equ	iivalent	Distanc	e (in i	feet)		
F	Road Grade:	0.0%				Autos	s: 36.8	351			
	Left View:	-90.0 degrees			Mediur	n Trucks	s: 36.6	510			
	Right View:	90.0 degrees			Heav	у ттиске	5: 30.0	534			
FHWA Noise Mode	l Calculations				T	T		- 1			
VehicleType	REMEL	Traffic Flow	Dista	nce	Finite	Road	Fresn	e/	Barrier Atte	en Ber	m Atter
Autos:	58.73	-5.83		1.88	3	-1.20		4.56	0.0	000	0.00
Medium Trucks:	70.80	-23.07		1.93	3	-1.20		4.87	0.0	000	0.00
Heavy Trucks:	//.9/	-27.02		1.92	<u>.</u>	-1.20		-5.67	0.0	000	0.00
Unmitigated Noise	Levels (witho	ut Topo and ba	rrier	attenı	uation)						
VehicleType	Leq Peak Hour	Leq Day	L	.eq Ev	ening	Leq	Night		Ldn	CI	NEL
Autos:	53.6	5 51	.7		49.9		43.9		52.5	5	53
Medium Trucks:	48.5	5 46	.9		40.6		39.0		47.5	5	47
Heavy Trucks:	51.	/ 50	.3		41.2		42.5		50.8	-	50
Venicle Noise:	56.5	54	.8		50.9		47.0		55.5)	55
Centerline Distanc	e to Noise Cor	ntour (in feet)		70 d	RA I	65 /	-IRA	f	0 dBA	55	dBA
		10	n:	, 5 0		001)		19		40
		20		-			-				

	FHV	VA-RD-77-108	HIGHW	AY NC	ISE P	REDICT		DEL			
Scenar Road Nan Road Segme	rio: OY + P ne: Chapman A nt: e/o Valley \	w. /iew St.				Project Job N	Name: \ umber: `	West G 12717	Grove Cent	er	
SITE	SPECIFIC IN	IPUT DATA				N	IOISE N	IODE	L INPUT:	s	
Highway Data				Si	te Col	nditions	(Hard =	10, So	ft = 15)		
Average Daily Peak Hour Peak H	Traffic (Adt): Percentage: Iour Volume:	16,119 vehicle: 10.00% 1,612 vehicle:	5		M H	edium Tru eavy Truc) ucks (2 A cks (3+ A	Autos: (xles): (xles):	15 15 15		
Ve	hicle Speed:	45 mph		Ve	hiclo	Mix					
Near/Far La	ane Distance:	48 feet			Val	hicleType		Dav	Evenina	Night	Daily
Site Data					101	noic rypc	Autos:	77.5%	12.9%	9.6%	97.42%
Ba	rrier Height	0.0 feet			٨	ledium Ti	rucks:	84.8%	4.9%	10.3%	1.84%
Barrier Type (0-W	Vall, 1-Berm):	0.0				Heavy Ti	rucks:	86.5%	2.7%	10.8%	0.74%
Centerline Di	ist. to Barrier:	50.0 feet		No	oise S	ource El	evations	; (in fe	et)		
Centerline Dist.	to Observer:	50.0 feet				Auto	s: 0.0	000	,		
Barrier Distance	to Observer:	0.0 feet			Mediı	im Truck	s: 2.2	97			
Observer Height	(Above Pad):	5.0 feet			Hea	vv Truck	s: 8.0	006	Grade Ad	iustmen	t: 0.0
P	ad Elevation:	0.0 feet		-						-	
Ro	ad Elevation:	0.0 feet		La	ne Eq	quivalent	Distanc	e (in f	eet)		
	Road Grade:	0.0%				Auto:	s: 44.	147			
	Left View:	-90.0 degree	es		Mediu	Im Truck	s: 43.9	947			
	Right view:	90.0 degree	es		пеа	vy muck	5. 43.	900			
FHWA Noise Mod	el Calculation	S									
VehicleType	REMEL	Traffic Flow	Distai	nce	Finite	e Road	Fresn	el	Barrier Att	en Be	rm Atten
Autos:	68.46	0.12		0.71		-1.20		-4.65	0.0	000	0.000
Medium Trucks:	79.45	-17.12		0.74		-1.20		-4.87	0.0	000	0.000
Heavy Trucks:	84.25	-21.07		0.73		-1.20		-5.43	0.0	000	0.000
Unmitigated Noise	e Levels (with	out Topo and	barrier a	attenua	ation)						
VehicleType	Leq Peak Hou	r Leq Day	' L	eq Eve	ning	Leq	Night		Ldn	C	NEL
Autos:	68	.1	66.2		64.4	1	58.4		67.0)	67.6
Medium Trucks:	61	.9	60.4		54.0)	52.5		60.9	9	61.1
Heavy Trucks:	62	.7	61.3		52.3	3	53.5		61.9	9	62.0
Vehicle Noise:	69	.9	68.2		65.0)	60.4		68.9	9	69.4
Centerline Distant	ce to Noise Co	ontour (in feet)						-			
			∟	70 dB	A	65	аВА	6	U dBA	55	aBA
		~	Lan:	42		91			196		123
		CI	VEL:	45		98 210					+D3

Scenario: OY + P Road Name: Belgrave Av. Road Segment: do'Valley View St. Project Name: West Grove Center Job Number: 12717 Highway Data Site Specific INPUT DATA NOISE MODEL INPUTS Highway Data Site Conditions (Hard = 10. Sort = 15) Average Daily Traffic (Adt): 557 vehicles Medium Trucks: (3 Axles): 15 Peak Hour Percentage: 10.0% Medium Trucks (3 + Axles): 15 Vehicle Speed: 25 mph Vehicle Mix Day Evening Night Daily Site Data Barrier Height: 0.0 feet Medium Trucks: 84.8% 4.9% 0.3% 1.84 Barrier Height: 0.0 feet Medium Trucks: 84.8% 4.9% 0.3% 1.84 Barrier Height: 0.0 feet Medium Trucks: 8.066 Grade Adjustment: 0.0 Observer Height (Above Pad): 5.0 feet Heavy Trucks: 8.006 Grade Adjustment: 0.0 Barrier Dist. to Barrier: 37.0 feet Lane Equivalent Distance (in feet) Autos: 2.297 Observer Height (Above Pad): 5.0 feet Heavy Trucks: 8.066 <th></th> <th>FHW</th> <th>A-RD-77-108 HIG</th> <th>HWAYN</th> <th>IOISE PH</th> <th>REDICTIO</th> <th>NMODEL</th> <th></th> <th></th> <th></th>		FHW	A-RD-77-108 HIG	HWAYN	IOISE PH	REDICTIO	NMODEL			
Road Name: Belgrave Av. Job Number: 12717 Road Segment: elo Valley View St. Site SPECIFIC INPUT DATA Noise MODEL INPUTS Highway Data Site Conditions (Hard = 10, Soft = 15) Average Daily Traffic (Adt): 557 vehicles Autos: 15 Peak Hour Volume: 56 vehicles Autos: 15 Vehicle Speed: 25 mph Medium Trucks (3 + Axles): 15 Vehicle Speed: 25 mph Vehicle Mix Vehicle Mix Site Data Barrier Height: 0.0 feet Medium Trucks: 84.8% 4.9% 0.0% 1.84 Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 37.0 feet Moise Source Elevations (in feet) 0.0% Autos:: 0.0% Medium Trucks: 8.65% 2.7% 10.8% 0.74 Barrier Distance to Observer: 0.0 feet Autos:: 0.00 Freat Earleine Mathetits 0.00 Earleine Mathetits 0.00 Autos:: 0.00 Autos:: 0.00 Autos:: </th <th>Scenar</th> <th>io: OY + P</th> <th></th> <th></th> <th></th> <th>Project Na</th> <th>ame: West</th> <th>Grove Cent</th> <th>ter</th> <th></th>	Scenar	io: OY + P				Project Na	ame: West	Grove Cent	ter	
Road Segment: elo Valley View St. SITE SPECIFIC INPUT DATA NOISE MODEL INPUTS Highway Data Site Conditions (Hard = 10, Soft = 15) Average Daily Traffic (Ad): 557 vehicles Autros: 15 Peak Hour Percentage: 10.00% Autros: 15 Peak Hour Volume: 56 vehicles Vehicle Speed: Vehicle Type Day Levening Night Daliy Site Data Autos:: 7.5% Calley Vehicle Type Day Levening Night Daily Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Deserver: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Medium Trucks: 8.000 Grade Adjustment: 0.0 Barrier Type (0-Wall, 1-Berm): 0.0 Noise Source Elevations (in feet) Centerline Dist. to Deserver: 0.0 feet Autos:: 8.0000 Grade Adjustment:	Road Nan	e: Belgrave Av.				Job Nurr	nber: 12717			
SITE SPECIFIC INPUT DATA NOISE MODEL INPUTS Highway Data Site Conditions (Hard = 10, Soft = 15) Average Daily Traffic (Adt): 557 vehicles Redium Trucks (3 A Xeles): 15 Peak Hour Volume: 56 vehicles Meady Trucks (3 - Axles): 15 Vehicle Speed: 25 mph Vehicle Speed: 25 mph Near/Far Lane Distance: 12 feet Vehicle Type Day Evening Night Daily Site Data Autos: 77.5% 12.9% 9.6% 97.42 Barrier Type (O-Wall, 1-Berm): 0.0 feet Medium Trucks: 84.8% 4.9% 10.3% 1.84 Barrier Type (O-Wall, 1-Berm): 0.0 feet Medium Trucks: 84.8% 4.9% 0.0% 0.74 Centerline Dist. to Darrier: 37.0 feet Noise Source Elevations (In feet) Noise Source Ilevations 0.0 Road Elevation: 0.0 feet Autos: 36.63 Road Grade: .0.90 degrade: 1.94 1.88 -1.20 -4.56 0.000 0.000	Road Segme	nt: e/o Valley Vie	ew St.							
Highway Data Site Conditions (Hard = 10, Soft = 15) Average Daily Traffic (Ad!): 557 vehicles Autos: 15 Peak Hour Percentage: 10.00% Medium Trucks (2 Akles): 15 Vehicle Speed: 25 mph Vehicle Mix Venicle Type Day Evening Night Daily Site Data 12 feet Vehicle Type Day Evening Night Daily Site Data 0.0 feet Medium Trucks: 84.8% 4.9% 10.3% 1.84 Barrier Height: 0.0 feet Heavy Trucks: 86.5% 2.7% 10.8% 0.74 Centerline Dist. to Barrier: 37.0 feet Autos: 10.00 Medium Trucks: 2.297 Moise Source Elevations (in feet) 4.06 0.00 10.4% 0.14% 0.0 15 10.8% 0.74 10.8% 0.74 10.8% 0.74 10.8% 0.74 10.8% 0.74 10.8% 0.74 10.8% 0.74 10.8% 10.4% 10.4% 10.4% 10.4% 10.3% 1.84	SITE	SPECIFIC INF	UT DATA			NO	ISE MODE	L INPUT	S	
Average Daily Traffic (Adi): 557 vehicles Peak Hour Percentage: Autos: 15 Heavy Trucks (2 Axles): 15 Peak Hour Volume: 56 vehicles Vehicle Speed: 25 mph Medium Trucks (2 Axles): 15 Near/Far Lane Distance: 12 feet Vehicle Mix Vehicle Mix Vehicle Mix Site Data Autos: 77.5% 12.9% 9.6% 97.42 Barrier Height: 0.0 feet Autos: 77.5% 10.8% 0.7% Centerline Dist. to Barrier: 37.0 feet Autos: 0.00 Medium Trucks: 84.8% 4.9% 10.8% 0.74 Barrier Distance to Observer: 0.0 feet Autos: 0.00 Medium Trucks: 2.297 Observer Height (Nove Pad): 5.0 feet Autos: 36.851 Heavy Trucks: 8.006 Grade Adjustment: 0.0 Road Grade: 0.0% Autos: 36.851 Heavy Trucks: 36.610 Heavy Trucks: 77.97 -33.14 1.92 -4.67 0.000 0.00 Medium Trucks: 77.97 -33.14	Highway Data				Site Con	ditions (H	ard = 10, S	oft = 15)		
Peak Hour Procentage: 10.00% Medium Trucks (2 Axles): 15 Peak Hour Volume: 56 vehicles Heavy Trucks (3 + Axles): 15 Vehicle Speed: 25 mph Vehicle Speed: 25 mph Near/Far Lane Distance: 12 feet Vehicle Speed: 25 mph Site Data Autos: 77.5% 12.9% 9.6% 97.42 Barrier Type (O-Wall, 1-Berm): 0.0 10.3%	Average Daily	Traffic (Adt):	557 vehicles				Autos.	15		
Peak Hour Volume: 56 vehicles Vehicle Speed: 25 mph Near/Far Lane Distance: 12 feet Vehicle Mix Vehicle Type Day Evening Night Daily Site Data Autos: 77.5% 12.9% 9.6% 97.42 Barrier Height: 0.0 feet Autos: 77.5% 12.9% 9.6% 97.42 Barrier Type (0-Wall, 1-Berm): 0.0 feet Medium Trucks: 84.8% 4.9% 10.3% 1.84 Barrier Dist. to Observer: 37.0 feet Noise Source Elevations (in feet) Noise Source Elevations (in feet) 0.0 Observer Height (Above Paul): 5.0 feet Road Grade: 0.0% Lare Equivalent Distance (in feet) Medium Trucks: 36.610 Road Grade: 0.0% Lare Equivalent Distance (in feet) Medium Trucks: 36.634 FHWA Noise Model Calculations Finite Road Fresnel Barrier Atten Berm Atten VehicleType REMEL Traffic Flow Distance Finite Road Fresnel Barrier Atten Berm Atten <td< td=""><td>Peak Hour</td><td>Percentage: 1</td><td>0.00%</td><td></td><td>Me</td><td>dium Truck</td><td>s (2 Axles).</td><td>15</td><td></td><td></td></td<>	Peak Hour	Percentage: 1	0.00%		Me	dium Truck	s (2 Axles).	15		
Vehicle Speed: 25 mph Vehicle Speed: 12 feet Vehicle Mix Vehicle Mix Site Data Day Evening Night Daily Site Data Barrier Height: 0.0 feet Autos: 77.5% 12.9% 9.6% 97.42 Barrier Height: 0.0 feet Medium Trucks: 84.8% 4.9% 10.3% 1.84 Barrier Type (0-Wall, 1-Berm): 0.0 No 1.84 Heavy Trucks: 86.5% 2.7% 10.3% 0.3% 1.84 Barrier Distance to Observer: 37.0 feet Autos: 0.00 Moise Source Elevations (In feet) Moise Source Elevations (In feet) 0.000 0.000 Pad Elevation: 0.0 feet Road Grade: 0.0% Autos: 36.851 Heavy Trucks: 36.634 Heavy Trucks: 36.634 FHWA Noise Model Calculations VehicleType REMEL Traffic Flow Distance Finite Road Fresnel Barrier Atten Berm Atten Autos: 53.7 -11.94 1.88 -1.20 -4.66 0.000 0.00 Medium Trucks: 70.	Peak H	lour Volume:	56 vehicles		He	avy Trucks	(3+ Axles).	15		
Near/Far Lane Distance: 12 feet Vehicle Type Day Evening Night Daily Site Data Autos: 77.5% 12.9% 9.6% 97.42 Barrier Height: 0.0 feet Medium Trucks: 44.8% 4.9% 10.3% 1.04 Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Diserver: 37.0 feet Medium Trucks: 86.5% 2.7% 10.8% 0.74 Barrier Dist. to Observer: 0.0 feet Autos: 0.00 Medium Trucks: 2.297 Observer Height (Above Pad): 5.0 feet Autos: 0.00 Grade 0.00 Road Elevation: 0.0 feet Autos: 36.851 Left View: 90.0 degrees VehicleType REMEL Traffic Flow Distance Finite Road Fresnel Barrier Atten Berrier Atten Medium Trucks: 70.97 -33.14 1.92 -1.20 -4.56 0.000 0.00 Heavy Trucks: 77.97 -33.14 1.92 -1.20 -4.56 0.000	Ve	hicle Speed:	25 mph		Vehicle I	Mix				
Site Data Autos: 77.5% 12.9% 9.6% 97.42 Barrier Height: 0.0 feet Medium Trucks: 84.8% 4.9% 10.3% 16.4% Barrier Type (G-Wall, 1-Berm): 0.0 Medium Trucks: 86.5% 2.7% 10.8% 0.74 Centerline Dist. to Barrier: 37.0 feet Moise Source Elevations (in feet) Noise Source Elevations (in feet) Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Medium Trucks: 2.297 Road Grade: 0.0% Left View: -90.0 degrees Grade Adjustment: 0.0 FHWA Noise Model Calculations VehicleType REMEL Traffic Flow Distance Finite Road Fresnel Barrier Atten Berm Atter Autos: 58.73 -11.94 1.88 -1.20 -4.65 0.000 0.00 Medium Trucks: 77.97 -33.14 1.92 -1.20 -5.61 0.000 0.00 Ummitigated Noise Levels (without Topo and barrier attenuation) UeticleType Leg Peak Hour Leg Day Leg Veining	Near/Far La	ne Distance:	12 feet	-	Vehi	icleType	Day	Evening	Night	Daily
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Deserver: 37.0 feet Barrier Distance to Observer: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees Right View: 90.0 degrees Autos: 7.79 Autos: 7.5 Autos: 45.6<	Site Data					Aut	os: 77.5%	6 12.9%	9.6%	97.42%
Barrier Type (0-Wall, 1-Berm): 0.0 Heavy Trucks: 86.5% 2.7% 10.8% 0.74 Centerline Dist. to Desriver: 37.0 feet Autos: 0.000 Moise Source Elevations (in feet) 0.000 Barrier Distance to Observer: 0.0 feet Autos: 0.000 Medium Trucks: 2.297 Observer Height (Above Pad): 5.0 feet Autos: 8.006 Grade Adjustment: 0.0 Road Elevation: 0.0 feet Autos: 36.851 Medium Trucks: 36.851 VehicleType REMEL Traffic Flow Distance Finite Road Fresnel Barrier Atten Berm Atten Medium Trucks: 77.97 -33.14 1.92 -4.66 0.000 0.000 Medium Trucks: 77.97 -33.14 1.92 -4.67 0.000 0.000 Ummitigated Noise Levels (without Tope and barrier attenuation) Leq Verning Leq Night Ldn CNEL VehicleType [Berek Hear] 45.6 43.8 37.8 46.4 47 Medium Trucks:	Ba	rrier Heiaht:	0 0 feet		Me	edium Truc	ks: 84.8%	6 4.9%	10.3%	1.84%
Centerline Dist. to Barrier: 37.0 feet Centerline Dist. to Observer: 37.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Grade: 0.0% Left View: 90.0 degrees Right View: 90.0 degrees VehicleType REMEL VehicleType REMEL Autos: 5.7.3 -11.94 1.88 -12.0 -4.56 Medium Trucks: 7.0.00 Medium Trucks: 7.0.0 VehicleType REMEL VehicleType Item Calculations VehicleType REMEL VehicleType REMEL VehicleType REMEL VehicleType Traffic Flow Distance Finite Road Medium Trucks: 77.97 -3.14 1.92 -1.20 -5.61 0.000 0.00 Ummitigated Noise Levels (without Topo and barrier attenuation)	Barrier Type (0-V	/all. 1-Berm):	0.0		F	leavy Truc	ks: 86.5%	6 2.7%	10.8%	0.74%
Centerline Dist. to Observer: 37.0 feet Autos: 0.000 Barrier Distance to Observer: 0.0 feet Autos: 0.000 Observer Height (Above Pad): 5.0 feet Medium Trucks: 2.297 Pad Elevation: 0.0 feet Lare Equivalent Distance (in feet) Medium Trucks: 2.297 Road Elevation: 0.0 feet Lare Equivalent Distance (in feet) Medium Trucks: 36.651 Right View: -90.0 degrees Medium Trucks: 36.634 Medium Trucks: 36.634 FHWA Noise Model Calculations VehicleType REMEL Traffic Flow Distance Finite Road Fresnel Barrier Atten Bern Atten Autos: 58.73 -11.94 1.88 -1.20 -4.56 0.000 0.00 Medium Trucks: 70.80 -29.18 1.93 -1.20 -5.61 0.000 0.00 Unnitigated Noise Levels (without Topo and barrier attenuation) Ureq Evening Leq Evening Leq Night Ldn CNEL Autos: 45.6 43.8 37.8 <td>Centerline Di</td> <td>st. to Barrier:</td> <td>37.0 feet</td> <td></td> <td>Noise Sa</td> <td>urce Elev</td> <td>ations (in f</td> <td>oot)</td> <td></td> <td></td>	Centerline Di	st. to Barrier:	37.0 feet		Noise Sa	urce Elev	ations (in f	oot)		
Barrier Distance to Observer: 0.0 feet Madium Trucks: 2.2.97 Observer Height (Above Pad): 5.0 feet Medium Trucks: 2.2.97 Pad Elevation: 0.0 feet Lerk View: 8.006 Grade Adjustment: 0.0 Road Elevation: 0.0 feet Lerk View: 90.0 degrees Autos: 36.610 FHWA Noise Model Calculations Weiner Trucks: 36.610 Heavy Trucks: 36.610 FHWA Noise Model Calculations VenicleType REMEL Traffic Flow Distance Finite Road Fresnel Barrier Atten Bern Atten Autos: 50.81 1.93 -1.20 -4.66 0.000 0.00 Medium Trucks: 70.79 -33.14 1.92 -1.20 -5.61 0.000 0.00 Unnitigated Noise Levels (without Topo and barrier attenuation) Leq Right Ldn CNEL 2 46.4 47 Medium Trucks: 45.6 43.8 37.8 46.4 47 Medium Trucks: 45.6 43.8 37.8 46.4	Centerline Dist.	to Observer:	37.0 feet	H	10/30 00	Autor:	0 000			
Observer Height (Above Pad): 5.0 feet Intervention 2.2.51 Pad Elevation: 0.0 feet Heavy Trucks: 8.00 Grade Adjustment: 0.0 Road Elevation: 0.0 feet Lare Equivalent Distance (in feet) Lare Equivalent Distance (in feet) Lare Equivalent Distance (in feet) Road Clavation: 0.0 % Autos: 36.651 Left View: 90.0 degrees Heavy Trucks: 36.651 VehicleType REMEL Traffic Flow Distance Finite Road Fresnel Barrier Atten Berm Atter Autos: 58.73 -11.94 1.88 -1.20 -4.56 0.000 0.00 Heavy Trucks: 77.97 -33.14 1.92 -1.20 -5.61 0.000 0.00 Ummitigated Noise Levels (without Topo and barrier attenuation) Leq Evening Leq Night Ldn CNEL VehicleType Leq Deak Hour Leq Day Leq Evening Leq Night Ldn CNEL Autos: 47.5 45.6 43.8 37.8 46.4 47 </td <td>Barrier Distance</td> <td>to Observer:</td> <td>0.0 feet</td> <td></td> <td>Modiu</td> <td>m Trucke:</td> <td>2 207</td> <td></td> <td></td> <td></td>	Barrier Distance	to Observer:	0.0 feet		Modiu	m Trucke:	2 207			
Pad Elevation: 0.0 feet Lane Equivalent Distance (in feet) Road Grade: 0.0 % Autos: 3.6.851 Left View: -90.0 degrees Medium Trucks: 36.610 PHWA Noise Model Calculations Finite Road Fresnel Barrier Atten VehicleType REMEL Traffic Flow Distance Finite Road Fresnel Barrier Atten Autos: 58.73 -11.94 1.88 -1.20 -4.56 0.000 0.00 Medium Trucks: 70.80 -29.18 1.93 -1.20 -4.67 0.000 0.00 Unnitigated Noise Levels (without Topo and barrier attenuation) VehicleType Leg Day Leg Evening Leg Night Ldn CNEL Autos: 45.6 43.8 37.8 46.4 47 Medium Trucks: 42.3 40.8 35.9 41.4 41 Heavy Trucks: 45.6 43.8 37.8 46.4 47 Medium Trucks: 42.3 40.8 35.9 41.4 41	Observer Height	(Above Pad):	5.0 feet		Heav	v Trucks:	8.006	Grade Ad	iustment	0.0
Road Elevation: 0.0 feet Lane Equivalent Distance (in feet) Road Grade: 0.0% Autos: 36.851 Left View: -90.0 degrees Medium Trucks: 36.610 Right View: 90.0 degrees Heavy Trucks: 36.610 FHWA Noise Model Calculations Fresnei Barrier Atten Bernier Atten WeiliceType RRMEL Traffic Flow Distance Finite Road Fresnei Barrier Atten Bernier Atten Autos: 58.73 -11.94 1.88 -1.20 -4.56 0.000 0.00 Medium Trucks: 70.80 -29.18 1.92 -1.20 -5.61 0.000 0.00 Unnitigated Noise Levels (without Topo and barrier attenuation) VehicleType Leq Peak Hour Leq Day Leq Right Ldn CNEL Autos: 47.5 45.6 43.8 37.8 46.4 47 Medium Trucks: 45.6 44.7 36.4 44.7 44 44 44 44 44.8 40.9 49.4 49 </td <td>P</td> <td>ad Elevation:</td> <td>0.0 feet</td> <td></td> <td>mour</td> <td>, ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,</td> <td>0.000</td> <td></td> <td>,</td> <td></td>	P	ad Elevation:	0.0 feet		mour	, ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	0.000		,	
Road Grade: 0.0% Autos: 36.851 Left View: 90.0 degrees Medium Trucks: 36.610 FHWA Noise Model Calculations Heavy Trucks: 36.610 VehicleType REMEL Traffic Flow Distance Finite Road Fresnel Barrier Atten Bern Atten Autos: 58.73 -11.94 1.88 -1.20 -4.56 0.000 0.00 Medium Trucks: 70.80 -29.18 1.93 -1.20 -4.57 0.000 0.00 Medium Trucks: 77.97 -33.14 1.92 -1.20 -5.61 0.000 0.00 Ummitigated Noise Levels (without Topo and barrier attenuation) Leq Revining Leq Night Ldn CNEL Vehicle Type Leq Peak Hour Leq Day Leq Evening Leq Night Ldn CNEL Vehicle Noise: 50.4 43.6 37.8 46.4 47 Medium Trucks: 45.6 44.7 44.8 40.9 49.4 49 49 Centerline Distance to	Ro	ad Elevation:	0.0 feet	4	Lane Equ	uivalent D	istance (in	feet)		
Left View: -90.0 degrees Medium Trucks: 36.610 FHWA Noise Model Calculations Heavy Trucks: 36.634 VehicleType REMEL Traffic Flow Distance Finite Road Fresnel Barrier Atten Berner Atten Medium Trucks: 70.80 -29.18 1.93 -1.20 -4.56 0.000 0.00 Medium Trucks: 77.97 -33.14 1.92 -1.20 -5.61 0.000 0.00 Unnitigated Noise Levels (without Topo and barrier attenuation) - - - - - - - - 0.000 0.00 Unnitigated Noise Levels (without Topo and barrier attenuation) - - - - - - 0.000 0.00 Unnitigated Noise Levels (without Topo and barrier attenuation) - - - - 0.00 0.00 Medium Trucks: 42.3 40.8 34.5 32.9 411.4 41 Autos: 47.5 45.6 44.8 36.61 44.7 44		Road Grade:	0.0%			Autos:	36.851			
Right View: 90.0 degrees Heavy Trucks: 36.634 FHWA Noise Model Calculations Frite Road Fresnel Barrier Atten Berner Attent VehicleType REMEL Traffic Flow Distance Finite Road Fresnel Barrier Atten Berner Attent Autos: 55.73 -11.94 1.88 -1.20 -4.56 0.000 0.00 Medium Trucks: 70.80 -29.18 1.93 -1.20 -5.61 0.000 0.00 Unnitigated Noise Levels (without Topo and barrier attenuation) VehicleType Leg Peak Hour Leg Evening Leg Night Ldn CNEL VehicleType Leg Peak Hour Leg Attent 31.5 32.9 41.4 41 Heavy Trucks: 45.6 44.7 44.8 40.9 49.4 49 VehicleType 50.4 48.7 44.8 40.9 49.4 49 Medium Trucks: 45.6 44.7 44.8 40.9 49.4 49 Centerline Distance to Noise Contour (in feet) <		Left View:	-90.0 degrees		Mediur	m Trucks:	36.610			
FHWA Noise Model Calculations VehicleType REMEL Traffic Flow Distance Finite Road Fresnel Barrier Atten Berm Atten Autos: 58.73 -11.94 1.88 -1.20 -4.56 0.000 0.00 Medium Trucks: 70.80 -29.18 1.93 -1.20 -4.67 0.000 0.00 Unnitigated Noise Levels (without Topo and barrier attenuation) -1.20 -5.61 0.000 0.00 VehicleType Leq Peak Hour Leq Day Leq Reining Leq Night Ldn CNEL Vehicle Types Lag Peak Hour Leq Day Leq Evening Leq Night Ldn CNEL Heavy Trucks: 42.3 40.8 34.5 32.9 41.4 41 Heavy Trucks: 45.6 44.7 44.8 40.9 49.4 49 Centerline Distance to Noise Contour (in feet) TO dBA 65 dBA 60 dBA 55 dBA Ldn: 2 3 7 16 CNEL: 2 4		Right View:	90.0 degrees		Heav	y Trucks:	36.634			
VehicleType REMEL Traffic Flow Distance Finite Road Freshel Barrier Atten Bern Atten Autos: 58.73 -11.94 1.88 -1.20 -4.56 0.000 0.00 Medium Trucks: 77.97 -33.14 1.92 -1.20 -4.56 0.000 0.00 Ummitgated Noise Levels (without Topo and barrier attenuation) -1.20 -5.61 0.000 0.00 Umitigated Noise Levels (without Topo and barrier attenuation) Leq Evening Leq Night Ldn CNEL Autos: 47.5 45.6 43.8 37.8 46.4 47 Medium Trucks: 42.3 40.8 34.5 32.9 41.4 41 Heavy Vehicle Noise: 50.4 48.7 44.8 40.9 49.4 49 Centerline Distance to Noise Contour (in feet) TO dBA 65 dBA 60 dBA 55 dBA Ldn: 2 3 7 16	FHWA Noise Mod	el Calculations								
Autos: 58.73 -11.94 1.88 -1.20 -4.66 0.000 0.00 Medium Trucks: 70.80 -29.18 1.93 -1.20 -4.87 0.000 0.00 Heavy Trucks: 77.97 -33.14 1.92 -1.20 -5.61 0.000 0.00 Unnitigated Noise Levels (without Topo and barrier attenuation) Leq Day Leq Evening Leq Night Ldn CNEL Autos: 47.5 45.6 43.8 37.8 46.4 47.7 Medium Trucks: 42.3 40.8 34.5 32.9 41.4 41 Heavy Trucks: 45.6 44.1 35.1 36.4 44.7 44 Vehicle Noise: 50.4 48.7 44.8 40.9 49.4 49 Centerline Distance to Noise Contour (in feet) 70 dBA 65 dBA 60 dBA 55 dBA Ldn: 2 3 7 16 CNEL: 2 4 8 17	VehicleType	REMEL	Traffic Flow Di	istance	Finite	Road	Fresnel	Barrier Att	en Ber	m Atten
Medium Trucks: 70.80 -29.18 1.93 -1.20 -4.87 0.000 0.00 Heavy Trucks: 77.97 -33.14 1.92 -1.20 -5.61 0.000 0.00 Unmitigated Noise Levels (without Topo and barrier attenuation) -1.20 -5.61 0.000 0.00 VehicleType Leq Peak Hour Leq Day Leq Evening Leq Night Ldn CNEL Autos: 47.5 45.6 43.8 37.8 46.4 47 Medium Trucks: 42.3 40.8 34.5 32.9 41.4 41 Heavy Trucks: 45.6 44.1 35.1 36.4 44.7 44 Vehicle Noise: 50.4 48.7 44.8 40.9 49.4 49 Centerline Distance to Noise Contour (In feet) -70 dBA 65 dBA 60 dBA 55 dBA Ldn: 2 3 7 16 CNEL: 2 4 8 17	Autos:	58.73	-11.94	1.8	8	-1.20	-4.56	0.0	000	0.000
Heavy Trucks: 77.97 -33.14 1.92 -1.20 -5.61 0.000 0.000 Unmitigated Noise Levels (without Topo and barrier attenuation) Leq Day Leq Evening Leq Night Ldn CNEL VehicleType Leq Peak Hour Leq Day Leq Evening Leq Night Ldn CNEL Medium Trucks: 47.5 45.6 43.8 37.8 46.4 47 Medium Trucks: 42.3 40.8 34.5 32.9 41.4 41 Heavy Trucks: 45.6 44.7 36.4 44.7 44 Vehicle Noise: 50.4 48.7 44.8 40.9 49.4 49 Centerline Distance to Noise Contour (in feet)	Medium Trucks:	70.80	-29.18	1.9	3	-1.20	-4.87	0.0	000	0.000
Unmitigated Noise Levels (without Topo and barrier attenuation) Leq Night Ldn CNEL VehicleType Leq Peak Hour Leq Day Leq Evening Leq Night Ldn CNEL Autos: 47.5 45.6 43.8 37.8 46.4 47 Medium Trucks: 42.3 40.8 34.5 32.9 41.4 41 Heavy Trucks: 45.6 44.1 35.1 36.4 44.7 44 Vehicle Noise: 50.4 48.7 44.8 40.9 49.4 49 Centerline Distance to Noise Contour (in feet)	Heavy Trucks:	77.97	-33.14	1.9	2	-1.20	-5.61	0.0	000	0.000
VehicleType Leq Peak Hour Leq Day Leq Evening Leq Night Ldn CNEL Autos: 47.5 45.6 43.8 37.8 46.4 47 Medium Trucks: 42.3 40.8 34.5 32.9 41.4 41 Heavy Trucks: 45.6 44.1 35.1 36.4 44.7 44 Vehicle Noise: 50.4 48.7 44.8 40.9 49.4 49 Centerline Distance to Noise Contour (In feet)	Unmitigated Nois	e Levels (withou	ut Topo and barn	ier atten	uation)					
Autos: 47.5 45.6 43.8 37.8 46.4 47.7 Medium Trucks: 42.3 40.8 34.5 32.9 41.4 47.1 Heavy Trucks: 45.6 44.1 35.1 36.4 44.7 44.1 Vehicle Noise: 50.4 48.7 44.8 40.9 49.4 49 Centerline Distance to Noise Contour (In feet) 70 dBA 65 dBA 60 dBA 55 dBA Ldn: 2 3 7 16 CNEL: 2 4 8 17	VehicleType	Leq Peak Hour	Leq Day	Leq E	vening	Leq Nig	ght	Ldn	CI	VEL
Medium Trucks: 42.3 40.8 34.5 32.9 41.4 41 Heavy Trucks: 45.6 44.1 35.1 36.4 44.7 44 Vehicle Noise: 50.4 48.7 44.8 40.9 49.4 49 Centerline Distance to Noise Contour (in feet) 70 dBA 65 dBA 60 dBA 55 dBA Ldn: 2 3 7 16 CNEL: 2 4 8 17	Autos:	47.5	i 45.6		43.8		37.8	46.4	4	47.0
Heavy Trucks: 45.6 44.1 35.1 36.4 44.7 44 Vehicle Noise: 50.4 48.7 44.8 40.9 49.4 49 Centerline Distance to Noise Contour (in feet) Image: Control of the state of th	Medium Trucks:	42.3	40.8		34.5		32.9	41.4	4	41.6
Vehicle Noise: 50.4 48.7 44.8 40.9 49.4 49 Centerline Distance to Noise Contour (in feet)	Heavy Trucks:	45.6	i 44.1		35.1		36.4	44.7	7	44.8
Centerline Distance to Noise Contour (in feet) 70 dBA 65 dBA 60 dBA 55 dBA Ldn: 2 3 7 16 CNEL: 2 4 8 17	Vehicle Noise:	50.4	48.7		44.8		40.9	49.4	4	49.8
70 dBA 65 dBA 60 dBA 55 dBA Ldn: 2 3 7 16 CNEL: 2 4 8 17	Centerline Distan	ce to Noise Con	tour (in feet)	r.						
Ldn: 2 3 7 16 CNEL: 2 4 8 17				70 0	dBA	65 dB	A	60 dBA	55	dBA
CNEL: 2 4 8 17			Ldn:	2	2	3		7		16
			CNEL:	2	2	4		8		17

Sunday, January 17, 2021

Sunday, January 17, 2021

	FH	WA-RD-77-10		WAY NO	DISE P	REDICTIC	N MOD	EL	_	_	
Scenar Road Nan	io: OY + P	Av.				Project N	lame: W	/est Gi	rove Center	er	
Road Segme	nt: w/o Valley	View St.				000 140	inder. I	2111			
SITE	SPECIFIC IN	NPUT DATA				NC	DISE M	ODEL	INPUTS	3	
Highway Data				S	ite Cor	ditions (H	lard = 1	0, Sof	t = 15)		
Average Daily	Traffic (Adt):	16,691 vehicle	es				Α	utos:	15		
Peak Hour	Percentage:	10.00%			Me	edium Truc	cks (2 A)	kles):	15		
Peak F	lour Volume:	1,669 vehicle	es		He	eavy Truck	(3+ A)	kles):	15		
Ve	hicle Speed:	40 mph		V	ehicle	Mix					-
Near/Far La	ne Distance:	36 feet			Veh	icleType	Ľ	Day I	Evening	Night	Daily
Site Data						AL	itos: 7	7.5%	12.9%	9.6%	97.42%
Ba	rrier Height:	0.0 feet			М	edium Tru	icks: 8	4.8%	4.9%	10.3%	1.84%
Barrier Type (0-W	/all, 1-Berm):	0.0				Heavy Tru	icks: 8	6.5%	2.7%	10.8%	0.74%
Centerline Di	st. to Barrier:	40.0 feet		N	oise Se	ource Elev	vations	(in fee	et)		-
Centerline Dist.	to Observer:	40.0 feet				Autos:	0.0	00	,		-
Barrier Distance	to Observer:	0.0 feet			Mediu	m Trucks:	2.2	97			
Observer Height	(Above Pad):	5.0 feet			Hear	vy Trucks:	8.0	06 (Grade Adj	ustment.	: 0.0
P	ad Elevation:	0.0 feet									
Ro	ad Elevation:	0.0 feet		Li	ane Eq	uivalent L	Jistance	e (in fe	et)		
	Road Grade:	0.0%				Autos:	36.0	69 00			
	Left View:	-90.0 degre	es		меаш	m Trucks:	35.8	23			
	Right View:	90.0 degre	es		неа	y Trucks:	35.8	47			
FHWA Noise Mod	el Calculation	s									
VehicleType	REMEL	Traffic Flow	Dist	ance	Finite	Road	Fresne	el E	arrier Atte	en Ber	m Atten
Autos:	66.51	0.79)	2.02		-1.20		4.59	0.0	00	0.000
Medium Trucks:	77.72	-16.45	0	2.07		-1.20		4.87	0.0	00	0.000
Heavy Trucks:	82.99	-20.4		2.06		-1.20		5.56	0.0	00	0.000
Unmitigated Nois	e Levels (with	out Topo and	barrie	r attenu	ation)						
VehicleType	Leq Peak Hou	ur Leq Da	y	Leq Eve	ening	Leq N	ight		Ldn	CI	VEL 07.0
Autos.	00	5.1	00.2		04.5		58.4		67.0		07.0
Medium Trucks:	62	2.1	60.0		54.3		52.7		61.2		61.4
Vehicle Noise:	70).1	68.4		65.1		60.6		69.1	,	69.6
Centerline Distan	re to Noise C	ontour (in fee	f)								
2 contraction of Diotant			~	70 dE	BA	65 dl	BA	60	dBA	55	dBA
			Ldn:	35 75 162		3	50				
		C	NEL:	37	37 81 174 37				74		

Scenario Road Name	o: OY + P e: Cerulean Av				Project Na Job Num	ame: We aber: 12	est Grove Cen 717	ter	
Road Segmen	t: w/o Valley Viev	v St.							
SITE S	PECIFIC INPU	T DATA			NO	ISE MO	DEL INPUT	S	
Highway Data				Site Con	ditions (Ha	ard = 10	, Soft = 15)		
Average Daily 1	Traffic (Adt): 5,2	99 vehicles				Au	tos: 15		
Peak Hour I	Percentage: 10.	.00%		Me	dium Truck	s (2 Axl	es): 15		
Peak Ho	our Volume: 5	30 vehicles		Hei	avy Trucks	(3+ Axl	es): 15		
Veh	icle Speed:	25 mph	F	Vehicle N	lix				
Near/Far Lan	e Distance:	12 feet	Ī	Vehi	cleType	Da	y Evening	Night	Daily
Site Data					Aut	os: 77	.5% 12.9%	9.6%	97.42
Ban	rier Height:	0.0 feet		Me	edium Truc	ks: 84	.8% 4.9%	10.3%	1.84
Barrier Type (0-Wa	all, 1-Berm):	0.0		H	leavy Truc	ks: 86	.5% 2.7%	10.8%	0.74
Centerline Dis	t. to Barrier:	37.0 feet		Noise So	urce Eleva	ations (in feet)		
Centerline Dist. t	o Observer:	37.0 feet	-		Autos:	0.00)		
Barrier Distance t	o Observer:	0.0 feet		Mediur	n Trucks:	2.29	7		
Observer Height (A	Above Pad):	5.0 feet		Heav	v Trucks:	8.00	6 Grade Ad	ljustment	: 0.0
Pa	d Elevation:	0.0 feet	_						
Roa	d Elevation:	0.0 feet	2	Lane Equ	iivalent Di	stance	(in feet)		
F	load Grade:	0.0%		1 4 m all	Autos:	36.85	1		
	Left View: -9	90.0 degrees		Mediur	n Trucks:	30.01	4		
	Right view:	90.0 degrees		neav	y TTUCKS.	30.03	4		
FHWA Noise Mode	l Calculations	1							
VehicleType	REMEL Tr	affic Flow Di	stance	Finite	Road	Fresnel	Barrier Att	en Ber	m Atter
Autos:	58.73	-2.16	1.8	8	-1.20	-4	.56 0.	000	0.00
Medium Trucks:	70.80	-19.39	1.9	3	-1.20	-4.	.8/ 0.1	000	0.00
neavy Trucks:	17.97	-23.35	1.9	2	-1.20	-5.	.07 0.0	000	0.00
Unmitigated Noise	Levels (without	Topo and barri	ier atten	uation)					
VehicleType	Leq Peak Hour	Leq Day	Leq E	vening	Leq Nig	ht	Ldn	CI	VEL
Autos:	57.3	55.4		53.6		47.5	56.	2	56
Meaium Trucks:	52.1	50.6		44.3		42.7	51.	2	51.
Heavy Trucks:	55.3	53.9		44.9		40.1	54.	2	54.
venicle Noise:	60.2	58.5		54.6		SU.7	59.	2	59.
Centerline Distance	e to Noise Conto	our (in feet)	70.	dBA	65 dB	4	60 dBA	55	dBA
		l dn:	, , , , , , , , , , , , , , , , , , , ,	7	15	•	33		70
		Lun.			10		00		

	FH'	WA-RD-77-108	HIGHW	AY NC	DISE P	REDICT	ION MOI	DEL			
Scenari Road Nam Road Segmer	o: OY + P e: Lampson A nt: e/o Valley	Av. View St.				Project Job N	t Name: \ lumber: `	Nest (12717	Grove Cent	ter	
SITE	SPECIFIC II	NPUT DATA				M	NOISE N	IODE	L INPUT	S	
Highway Data				Si	te Cor	nditions	(Hard =	10, Sc	oft = 15)		
Average Daily Peak Hour Peak H	Traffic (Adt): Percentage: our Volume	13,908 vehicle 10.00% 1.391 vehicle	s		Me He	edium Tr eavy Tru	/ ucks (2 A cks (3+ A	Autos: (xles): (xles):	15 15 15		
Ve	hicle Sneed	40 mph	5			ury na	0110 (0 - 7		10		
Near/Far La	ne Distance:	36 feet		Ve	ehicle	Mix		_			
					Veł	nicleType		Day	Evening	Night	Daily
Site Data				_			Autos:	77.5%	12.9%	9.6%	6 97.42%
Bai	rier Height:	0.0 feet			N	ieaium i	rucks:	84.8%	4.9%	10.39	6 1.84%
Barrier Type (0-W	all, 1-Berm):	0.0				Heavy I	rucks:	86.5%	2.7%	10.8%	o 0.74%
Centerline Dis	st. to Barrier:	40.0 feet		No	oise S	ource El	levations	s (in fe	eet)		
Centerline Dist.	to Observer:	40.0 feet				Auto	s: 0.0	000			
Barrier Distance	to Observer:	0.0 feet			Mediu	im Truck	s: 2.2	297			
Observer Height (Above Pad):	5.0 feet			Hea	vy Truck	s: 8.0	006	Grade Ad	justmer	nt: 0.0
Pa	ad Elevation:	0.0 feet		_							
Roa	ad Elevation:	0.0 feet		La	ne Eq	uivalen	t Distanc	e (in i	teet)		
1	Road Grade:	0.0%				Auto	s: 36.0	069			
	Left View:	-90.0 degre	es		Mediu	ım Truck	s: 35.0	323			
	Right View:	90.0 degre	es		Hea	vy Truck	s: 35.0	347			
FHWA Noise Mode	el Calculation	s									
VehicleType	REMEL	Traffic Flow	Dista	nce	Finite	Road	Fresn	el	Barrier Att	en Be	rm Atten
Autos:	66.51	-0.01		2.02		-1.20		-4.59	0.0	000	0.000
Medium Trucks:	77.72	-17.25		2.07		-1.20		-4.87	0.0	000	0.000
Heavy Trucks:	82.99	-21.20		2.06		-1.20		-5.56	0.0	000	0.000
Unmitigated Noise	Levels (with	out Topo and	barrier	attenua	ation)						
VehicleType	Leq Peak Ho	ur Leq Day	′ L	.eq Eve	ning	Leq	Night		Ldn	(NEL
Autos:	67	7.3	65.4		63.7	7	57.6		66.2	2	66.8
Medium Trucks:	61	1.3	59.8		53.5	5	51.9		60.4	4	60.6
Heavy Trucks:	62	2.7	61.2		52.2	2	53.4		61.8	3	61.9
Vehicle Noise:	69	9.4	67.6		64.3	3	59.8		68.3	3	68.8
Centerline Distance	e to Noise C	ontour (in feet)								
				70 dB	BA	65	dBA	6	60 dBA	5	5 dBA
			Ldn:	31	31		57		144		310
		C	NEL:	33	33 71 154			331			

	FHW	A-RD-77-108 HIG	HWAT	NUISE PI	REDICTIO	N MODEL			
Scenar	io: OY + P				Project N	lame: West	Grove Cen	ter	
Road Nam	e: Cerulean Av				Job Nur	mber: 12717	,		
Road Segme	nt: e/o Valley V	iew St.							
SITE	SPECIFIC IN	PUT DATA			NO	ISE MODI	EL INPUT	S	
Highway Data				Site Con	ditions (H	lard = 10, S	oft = 15)		
Average Daily	Traffic (Adt):	5,611 vehicles				Autos	: 15		
Peak Hour	Percentage:	10.00%		Me	dium Truc	ks (2 Axles)	: 15		
Peak H	lour Volume:	561 vehicles		He	avy Truck	s (3+ Axles)	: 15		
Ve	hicle Speed:	25 mph	ł	Vehicle I	Mix				
Near/Far La	ne Distance:	12 feet		Veh	icleType	Day	Evening	Night	Daily
Site Data					Au	itos: 77.5%	6 12.9%	9.6%	97.42%
Ba	rrier Heiaht:	0.0 feet		M	edium Tru	cks: 84.8%	6 4.9%	10.3%	1.84%
Barrier Type (0-W	/all, 1-Berm):	0.0		ŀ	Heavy Tru	cks: 86.5%	6 2.7%	10.8%	0.74%
Centerline Di	st. to Barrier:	37.0 feet		Noise Sc	ource Elev	ations (in t	feet)		
Centerline Dist.	to Observer:	37.0 feet			Autos	0.000	000		
Barrier Distance	to Observer:	0.0 feet		Modiu	m Trucks:	2 207			
Observer Height	(Above Pad):	5.0 feet		Heav	v Trucks:	8.006	Grade Ad	liustment	0.0
P	ad Elevation:	0.0 feet		mour	y maono.	0.000		,	
Ro	ad Elevation:	0.0 feet		Lane Eq	uivalent D	Distance (in	feet)		
	Road Grade:	0.0%			Autos:	36.851			
	Left View:	-90.0 degrees		Mediu	m Trucks:	36.610			
	Right View:	90.0 degrees		Heav	y Trucks:	36.634			
FHWA Noise Mod	el Calculations								
VehicleType	REMEL	Traffic Flow D	istance	Finite	Road	Fresnel	Barrier Att	en Ber	m Atten
Autos:	58.73	-1.91	1.8	38	-1.20	-4.56	0.	000	0.000
Medium Trucks:	70.80	-19.15	1.9	93	-1.20	-4.87	0.	000	0.000
Heavy Trucks:	77.97	-23.10	1.9	92	-1.20	-5.61	0.	000	0.000
Unmitigated Noise	e Levels (witho	ut Topo and barr	rier atter	nuation)					
VehicleType	Leq Peak Hour	· Leq Day	Leq E	Evening	Leq Ni	ight	Ldn	CI	NEL
Autos:	57.	5 55.6	;	53.8		47.8	56.	4	57.0
Medium Trucks:	52.	4 50.9)	44.5		43.0	51.	4	51.7
Heavy Trucks:	55.	6 54.2		45.1		46.4	54.	7	54.9
Vehicle Noise:	60	4 58.7		54.8		50.9	59.	4	59.8
Centerline Distant	ce to Noise Co	ntour (in feet)							
			70	dBA	65 dE	BA	60 dBA	55	dBA
		Ldn:		7	16		34	1	73
		CNEL:		8	17		36	1	77

Sunday, January 17, 2021

Sunday, January 17, 2021





APPENDIX 9.1:

CADNAA OPERATIONAL NOISE MODEL







12717 - West Grove Center

CadnaA Noise Prediction Model: 12717.cna Date: 16.01.21 Analyst: B. Lawson

Calculation Configuration

Configurat	ion
Parameter	Value
General	
Country	(user defined)
Max. Error (dB)	0.00
Max. Search Radius (#(Unit,LEN))	2000.01
Min. Dist Src to Rcvr	0.00
Partition	
Raster Factor	0.50
Max. Length of Section (#(Unit,LEN))	999.99
Min. Length of Section (#(Unit,LEN))	1.01
Min. Length of Section (%)	0.00
Proj. Line Sources	On
Proj. Area Sources	On
Ref. Time	
Reference Time Day (min)	960.00
Reference Time Night (min)	480.00
Daytime Penalty (dB)	0.00
Recr. Time Penalty (dB)	5.00
Night-time Penalty (dB)	10.00
DTM	
Standard Height (m)	0.00
Model of Terrain	Triangulation
Reflection	
max. Order of Reflection	2
Search Radius Src	100.00
Search Radius Rcvr	100.00
Max. Distance Source - Rcvr	1000.00 1000.00
Min. Distance Rvcr - Reflector	1.00 1.00
Min. Distance Source - Reflector	0.10
Industrial (ISO 9613)	
Lateral Diffraction	some Obj
Obst. within Area Src do not shield	On
Screening	Incl. Ground Att. over Barrier
	Dz with limit (20/25)
Barrier Coefficients C1,2,3	3.0 20.0 0.0
Temperature (#(Unit,TEMP))	10
rel. Humidity (%)	70
Ground Absorption G	0.00
Wind Speed for Dir. (#(Unit,SPEED))	3.0
Roads (RLS-90)	
Strictly acc. to RLS-90	
Railways (FTA/FRA)	
Aircraft (???)	
Strictly acc. to AzB	

Receiver Noise Levels

Name	М.	ID		Level Lr		Lir	nit. Valı	ue		Land	l Use	Height	:	Co	oordinates	
			Day	Night	CNEL	Day	Night	CNEL	Туре	Auto	Noise Type			Х	Y	Z
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)				(ft)		(ft)	(ft)	(ft)
RECEIVERS		R1	39.9	37.5	44.2	55.0	50.0	0.0				5.00	а	6020934.88	2234936.86	5.00
RECEIVERS		R2	48.7	46.3	52.9	55.0	50.0	0.0				5.00	а	6021385.11	2234288.49	5.00
RECEIVERS		R3	52.3	50.4	56.9	55.0	50.0	0.0				5.00	а	6020940.23	2234138.75	5.00
RECEIVERS		R4	43.3	40.9	47.6	55.0	50.0	0.0				5.00	а	6020914.32	2234685.37	5.00

Point Source(s)

Name	М.	ID	R	esult. PW	'L		Lw/L	i	Op	erating Ti	ime	к0	Height		Co	oordinates	
			Day	Evening	Night	Туре	Value	norm.	Day	Special	Night				х	Y	Z
			(dBA)	(dBA)	(dBA)			dB(A)	(min)	(min)	(min)	(dB)	(ft)		(ft)	(ft)	(ft)
POINTSOURCE		AC01	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	0.0	5.00	g	6021194.66	2234205.90	26.00
POINTSOURCE		AC02	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	0.0	5.00	g	6021195.41	2234254.62	26.00
POINTSOURCE		AC03	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	0.0	5.00	g	6020945.79	2234283.11	27.00
POINTSOURCE		AC04	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	0.0	5.00	g	6021037.62	2234382.44	27.00
POINTSOURCE		AC05	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	0.0	5.00	g	6021036.87	2234330.71	27.00
POINTSOURCE		AC06	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	0.0	5.00	g	6021034.24	2234286.11	27.00
POINTSOURCE		AC07	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	0.0	5.00	g	6020945.04	2234349.83	27.00
POINTSOURCE		AC08	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	0.0	5.00	g	6020944.66	2234411.30	27.00
POINTSOURCE		DT01	83.2	83.2	83.2	Lw	83.2		900.00	0.00	540.00	0.0	5.00	a	6021168.05	2234187.53	5.00
POINTSOURCE		DT02	83.2	83.2	83.2	Lw	83.2		900.00	0.00	540.00	0.0	5.00	a	6020995.26	2234270.74	5.00
POINTSOURCE		TRASH01	89.0	89.0	89.0	Lw	89		150.00	0.00	90.00	0.0	5.00	a	6021065.73	2234187.53	5.00

Barrier(s)

Name	М.	ID	Abso	rption	Z-Ext.	Canti	ilever	H	lei	ght		Coordinat	es	
			left	right		horz.	vert.	Begin		End	х	У	z	Ground
					(ft)	(ft)	(ft)	(ft)		(ft)	(ft)	(ft)	(ft)	(ft)
BARRIEREXISTING		0						6.00	а		6020934.68	2234945.19	6.00	0.00
											6020944.62	2234945.21	6.00	0.00
											6020938.48	2234658.08	6.00	0.00
											6020889.56	2234654.64	6.00	0.00
											6020889.02	2234629.65	6.00	0.00
											6020869.03	2234630.08	6.00	0.00
											6020859.09	2234189.10	6.00	0.00

Building(s)

Name	М.	ID	RB	Residents	Absorption	Height			Coordinates y z Ground			
						Begin		х	У	z	Ground	
						(ft)		(ft)	(ft)	(ft)	(ft)	
BUILDING		BUILDING00001	х	0		22.00	а	6020933.49	2234424.13	22.00	0.00	
								6021033.12	2234422.63	22.00	0.00	
								6021069.67	2234419.62	22.00	0.00	
								6021066.67	2234269.42	22.00	0.00	
								6020931.49	2234272.43	22.00	0.00	
BUILDING		BUILDING00002	х	0		21.00	а	6021179.82	2234261.41	21.00	0.00	
								6021211.86	2234260.91	21.00	0.00	
								6021209.86	2234195.83	21.00	0.00	
								6021179.32	2234198.33	21.00	0.00	

APPENDIX 10.1:

CADNAA CONSTRUCTION NOISE MODEL







12717 - West Grove Center

CadnaA Noise Prediction Model: 12717_Construction.cna Date: 16.01.21 Analyst: B. Lawson

Calculation Configuration

Configuration											
Parameter	Value										
General											
Country	(user defined)										
Max. Error (dB)	0.00										
Max. Search Radius (#(Unit,LEN))	2000.01										
Min. Dist Src to Rcvr	0.00										
Partition											
Raster Factor	0.50										
Max. Length of Section (#(Unit,LEN))	999.99										
Min. Length of Section (#(Unit,LEN))	1.01										
Min. Length of Section (%)	0.00										
Proj. Line Sources	On										
Proj. Area Sources	On										
Ref. Time											
Reference Time Day (min)	960.00										
Reference Time Night (min)	480.00										
Daytime Penalty (dB)	0.00										
Recr. Time Penalty (dB)	5.00										
Night-time Penalty (dB)	10.00										
DTM											
Standard Height (m)	0.00										
Model of Terrain	Triangulation										
Reflection											
max. Order of Reflection	2										
Search Radius Src	100.00										
Search Radius Rcvr	100.00										
Max. Distance Source - Rcvr	1000.00 1000.00										
Min. Distance Rvcr - Reflector	1.00 1.00										
Min. Distance Source - Reflector	0.10										
Industrial (ISO 9613)											
Lateral Diffraction	some Obj										
Obst. within Area Src do not shield	On										
Screening	Incl. Ground Att. over Barrier										
	Dz with limit (20/25)										
Barrier Coefficients C1,2,3	3.0 20.0 0.0										
Temperature (#(Unit,TEMP))	10										
rel. Humidity (%)	70										
Ground Absorption G	0.00										
Wind Speed for Dir. (#(Unit,SPEED))	3.0										
Roads (RLS-90)											
Strictly acc. to RLS-90											
Railways (FTA/FRA)											
Aircraft (???)											
Strictly acc. to AzB											

Receiver Noise Levels

Name	M.	ID	Level Lr			Lir	nit. Valı	ue		Land	Use	Height	:	C	oordinates		
			Day	Night	CNEL	Day	Night	CNEL	Туре	Auto	Noise Type			Х	Y	Z	
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)				(ft)		(ft)	(ft)	(ft)	
RECEIVERS		R1	56.8	56.8	63.5	80.0	0.0	0.0				5.00	а	6020934.88	2234936.86	5.00	
RECEIVERS		R2	67.8	67.8	74.5	80.0	0.0	0.0				5.00	а	6021385.11	2234288.49	5.00	
RECEIVERS		R3	73.3	73.3	80.0	80.0	0.0	0.0				5.00	а	6020940.23	2234138.75	5.00	
RECEIVERS		R4	60.1	60.1	66.8	80.0	0.0	0.0				5.00	а	6020914.32	2234685.37	5.00	

Area Source(s)

Name	М.	ID	R	esult. PW	'L	Re	esult. PW		Lw/L	i	Op	Height			
			Day	Evening	Night	Day	Evening	Night	Туре	Value	norm.	Day	Special	Night	(ft)
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)			dB(A)	(min)	(min)	(min)	
CONSTRUCTION		CONSTRUCTION	114.8	114.8	114.8	75.3	75.3	75.3	Lw"	75.3					8

Name	ŀ	lei	ght		Coordinates									
	Begin	End		х	У	z	Ground							
	(ft)		(ft)		(ft)	(ft)	(ft)	(ft)						
CONSTRUCTION	8.00	00 a			6020859.70	2234174.62	8.00	0.00						
					6020864.82	2234424.32	8.00	0.00						
			6021245.36	2234416.10	8.00	0.00								
					6021240.43	2234164.03	8.00	0.00						

Barrier(s)

Name	м.	ID	Abso	rption	Z-Ext.	Canti	Height					Coordinat	es		
			left	right		horz.	vert.	Begin		End		х	У	z	Ground
					(ft)	(ft)	(ft)	(ft)		(ft)		(ft)	(ft)	(ft)	(ft)
BARRIEREXISTING		0						6.00	а			6020934.68	2234945.19	6.00	0.00
												6020944.62	2234945.21	6.00	0.00
												6020938.48	2234658.08	6.00	0.00
												6020889.56	2234654.64	6.00	0.00
												6020889.02	2234629.65	6.00	0.00
												6020869.03	2234630.08	6.00	0.00
												6020859.09	2234189.10	6.00	0.00