

Polopolus Noise Impact Analysis City of Eastvale

PREPARED BY:

Bill Lawson, PE, INCE blawson@urbanxroads.com (949) 336-5979

Alex Wolfe, INCE awolfe@urbanxroads.com (949) 336-5977

March 26, 2018

11336-21 Noise Study



TABLE OF CONTENTS

		CONTENTS	
		CES	
		XHIBITS	
		ABLES	
		BBREVIATED TERMS	
ΕX		/E SUMMARY	
		te Traffic Noise Analysis	
	•	tional Noise Analysis	
		ruction Noise Analysis	
		ruction Noise Mitigation Measures	
		ruction Vibration Analysis	
		nary of CEQA Significance Findings	
1	INT	RODUCTION	7
	1.1	Site Location	7
	1.2	Project Description	7
2	FUI	NDAMENTALS	11
	2.1	Range of Noise	11
	2.2	Noise Descriptors	
	2.3	Sound Propagation	
	2.4	Noise Control	
	2.5	Noise Barrier Attenuation	
	2.6	Land Use Compatibility With Noise	
	2.7	Community Response to Noise	
	2.8	Exposure to High Noise Levels	
	2.9	Vibration	
3	REC	GULATORY SETTING	19
	3.1	State of California Noise Requirements	
	3.2	State of California Building Standards	
	3.3	City of Eastvale Noise Element	
	3.4	Construction Noise Standards	21
4	SIG		
	4.1	Noise-Sensitive Receivers	-
	4.2	Significance Criteria Summary	25
5	EXI	STING NOISE LEVEL MEASUREMENTS	27
	5.1	Measurement Procedure and Criteria	27
	5.2	Noise Measurement Locations	
	5.3	Long-Term Noise Measurement Results (Sites 1 & 2)	
	5.4	Short-Term Noise Measurement Results (Site 2)	30
6		THODS AND PROCEDURES	
	6.1	FHWA Traffic Noise Prediction Model	
	6.2	Off-Site Traffic Noise Prediction Model Inputs	
	6.3	Vibration Assessment	38



7	OF	F-SITE TRANSPORTATION NOISE IMPACTS	.39
	7.1	Traffic Noise Contours	. 39
	7.2	Existing Condition Project Traffic Noise Level Contributions	. 43
	7.3	Opening Year 2019 Project Traffic Noise Level Contributions	. 44
8	REC	CEIVER LOCATIONS	.47
9	OP	ERATIONAL IMPACTS	.51
	9.1	Reference Noise Levels	. 51
	9.2	Site 1 Operational Noise Levels	. 54
	9.3	Site 2 Operational Noise Levels	. 57
	9.4	Project Operational Noise Contributions	. 62
10	СО	NSTRUCTION IMPACTS	.67
	10.1	Construction Noise Levels	. 67
	10.2	Construction Reference Noise Levels	. 67
	10.3	Construction Noise Analysis	. 69
	10.4	Construction Noise Thresholds of Significance	. 76
	10.5	Construction Noise Level Increases	
	10.6	Construction Vibration Impacts	. 79
11	REF	ERENCES	.81
12	CEF	RTIFICATION	.83

APPENDICES

APPENDIX 3.1: CITY OF EASTVALE MUNICIPAL CODE

- APPENDIX 5.1: STUDY AREA PHOTOS
- APPENDIX 5.2: LONG-TERM NOISE LEVEL MEASUREMENT WORKSHEETS
- APPENDIX 5.3: SHORT-TERM NOISE LEVEL MEASUREMENT WORKSHEETS
- APPENDIX 7.1: OFF-SITE TRAFFIC NOISE LEVEL CONTOURS
- APPENDIX 9.1: MOTOR CITY WASH WORKS REFERENCE NOISE LEVEL DATA
- APPENDIX 9.2: SITE 1 OPERATIONAL NOISE LEVEL CALCULATIONS
- APPENDIX 9.3: SITE 2 OPERATIONAL CADNAA NOISE MODEL INPUTS AND RESULTS



LIST OF EXHIBITS

EXHIBIT 1-A:	LOCATION MAP	8
EXHIBIT 1-B:	SITE 1 PLAN	9
EXHIBIT 1-B:	SITE 2 PLAN (WORST-CASE CAR WASH)	10
EXHIBIT 2-A:	TYPICAL NOISE LEVELS	11
EXHIBIT 2-B:	NOISE LEVEL INCREASE PERCEPTION	15
EXHIBIT 2-C:	TYPICAL LEVELS OF GROUND-BORNE VIBRATION	17
EXHIBIT 3-A:	EXTERIOR NOISE LEVEL STANDARDS FOR NON-TRANSPORTATION NOISE	20
EXHIBIT 5-A:	NOISE MEASUREMENT LOCATIONS	33
EXHIBIT 8-A:	RECEIVER LOCATIONS	49
EXHIBIT 9-A:	SITE 1 OPERATIONAL NOISE SOURCE AND RECEIVER LOCATIONS	56
EXHIBIT 9-B:	SITE 2 OPERATIONAL NOISE SOURCE AND RECEIVER LOCATIONS	60
EXHIBIT 9-C:	SITE 2 UNMITIGATED OPERATIONAL NOISE LEVEL CONTOURS	61
EXHIBIT 10-A	A: CONSTRUCTION ACTIVITY AND RECEIVER LOCATIONS	75

LIST OF TABLES

TABLE ES-1: SUMMARY OF CEQA SIGNIFICANCE FINDINGS	.5
TABLE 3-1: VIBRATION LEVEL STANDARDS	
TABLE 3-2: CONSTRUCTION NOISE STANDARDS	
TABLE 4-1: SIGNIFICANCE OF NOISE IMPACTS AT NOISE-SENSITIVE RECEIVERS	
TABLE 4-2: SIGNIFICANCE CRITERIA SUMMARY	26
TABLE 5-1: 24-HOUR (LONG-TERM) AMBIENT NOISE LEVEL MEASUREMENTS	31
TABLE 5-2: 1-HOUR (SHORT-TERM) AMBIENT NOISE LEVEL MEASUREMENTS	32
TABLE 6-1: OFF-SITE ROADWAY PARAMETERS	
TABLE 6-2: AVERAGE DAILY TRAFFIC VOLUMES	
TABLE 6-3: TIME OF DAY VEHICLE SPLITS	
TABLE 6-4: DISTRIBUTION OF TRAFFIC FLOW BY VEHICLE TYPE (VEHICLE MIX)	37
TABLE 6-5: VIBRATION SOURCE LEVELS FOR CONSTRUCTION EQUIPMENT	38
TABLE 7-1: EXISTING WITHOUT PROJECT CONDITIONS NOISE CONTOURS	
TABLE 7-2: EXISTING WITH PROJECT CONDITIONS NOISE CONTOURS4	11
TABLE 7-3: OPENING YEAR 2019 WITHOUT PROJECT CONDITIONS NOISE CONTOURS4	12
TABLE 7-4: OPENING YEAR 2019 WITH PROJECT CONDITIONS NOISE CONTOURS4	
TABLE 7-5: EXISTING CONDITION OFF-SITE PROJECT-RELATED TRAFFIC NOISE IMPACTS	
TABLE 7-6: OPENING YEAR 2019 OFF-SITE PROJECT-RELATED TRAFFIC NOISE IMPACTS4	
TABLE 9-1: REFERENCE NOISE LEVEL MEASUREMENTS5	;2
TABLE 9-2: UNMITIGATED PROJECT OPERATIONAL NOISE LEVELS (SITE 1)5	;5
TABLE 9-3: UNMITIGATED PROJECT OPERATIONAL NOISE LEVELS (SITE 2)5	;9
TABLE 9-4: UNMITIGATED DAYTIME OPERATIONAL NOISE LEVEL INCREASES (SITES 1 & 2)6	53
TABLE 9-5: UNMITIGATED NIGHTTIME OPERATIONAL NOISE LEVEL INCREASES (SITE 1)6	
TABLE 9-6: SITE 2 OPERATIONAL NOISE LEVEL INCREASES (FIRST-FLOOR)6	
TABLE 9-7: SITE 2 OPERATIONAL NOISE LEVEL INCREASES (SECOND-FLOOR)6	
TABLE 10-1: CONSTRUCTION REFERENCE NOISE LEVELS	
TABLE 10-2: DEMOLITION EQUIPMENT NOISE LEVELS6	
TABLE 10-3: SITE PREPARATION EQUIPMENT NOISE LEVELS7	0

TABLE 10-4: GRADING EQUIPMENT NOISE LEVELS	71
TABLE 10-5: BUILDING CONSTRUCTION EQUIPMENT NOISE LEVELS	72
TABLE 10-6: PAVING EQUIPMENT NOISE LEVELS	73
TABLE 10-7: ARCHITECTURAL COATING EQUIPMENT NOISE LEVELS	74
TABLE 10-8: UNMITIGATED CONSTRUCTION EQUIPMENT NOISE LEVEL SUMMARY	76
TABLE 10-9: CONSTRUCTION NOISE LEVEL COMPLIANCE	77
TABLE 10-10: UNMITIGATED CONSTRUCTION TEMPORARY NOISE LEVEL INCREASES	78
TABLE 10-13: UNMITIGATED CONSTRUCTION EQUIPMENT VIBRATION LEVELS	80

LIST OF ABBREVIATED TERMS

(1)	Reference
ADT	Average Daily Traffic
ANSI	American National Standards Institute
Calveno	California Vehicle Noise
CEQA	California Environmental Quality Act
CNEL	Community Noise Equivalent Level
dBA	A-weighted decibels
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
I-15	Interstate 15
IEC	International Electrotechnical Commission
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
mph	Miles per hour
PPV	Peak Particle Velocity
Project	Polopolus
REMEL	Reference Energy Mean Emission Level
RMS	Root-mean-square
VdB	Vibration Decibels

EXECUTIVE SUMMARY

Urban Crossroads, Inc. has prepared this noise study to assess the noise exposure and the necessary noise mitigation measures for the proposed Polopolus development ("Project"). The proposed Project is made up of two sites: Site 1 and Site 2. Site 1 is located on the southeast corner of Hamner Avenue and Schleisman Avenue, and Site 2 is located on the southwest corner of Hamner Avenue and Riverboat Drive, in the City of Eastvale. Site 1 land uses include an eightvehicle fueling position gas station with market, 3,500 square feet of fast-food restaurant with drive-through window use, 2,000 square feet of coffee shop with drive-through window use, a 6,000 square-foot high turnover sit-down restaurant, 4,000 square feet of commercial retail use, 4,000 square feet of fast-food restaurant without drive-through window use, 10,000 square feet of medical office use, a 130-room hotel, 40,000 square feet of government office use, and a 25,000 square-foot library. Site 2 would be developed with 16 VFP gas station with market and drive-through car wash. However, since Site 2 is immediately adjacent to noise-sensitive residential homes this noise study evaluates a worst-case operational noise condition with only a higher noise-generating car wash use within the entirety of Site 2. This study has been prepared consistent with applicable City of Eastvale noise standards and significance criteria based on Appendix G of the California Environmental Quality Act (CEQA) Guidelines. (1)

OFF-SITE TRAFFIC NOISE ANALYSIS

Traffic generated by the operation of the proposed Project will influence the traffic noise levels in surrounding off-site areas. To quantify the traffic noise increases on the surrounding off-site areas, the changes in traffic noise levels on 18 roadway segments surrounding the Project site were calculated based on the change in the average daily traffic (ADT) volumes. The traffic noise levels provided in this analysis are based on the traffic forecasts found in *Polopolus Traffic Impact Analysis* prepared by Urban Crossroads, Inc. (2) To assess the off-site noise level impacts associated with the proposed Project, noise contour boundaries were developed for Existing and Opening Year 2019 traffic conditions. The analysis shows that the unmitigated Project-related traffic noise level increases under all traffic scenarios will be *less than significant*.

OPERATIONAL NOISE ANALYSIS

Using reference noise levels to represent the potential noise sources within Polopolus sites, this analysis estimates the Project-related operational (stationary-source) noise levels at the nearby noise-sensitive receiver locations. The Project-related operational noise sources are expected to include roof-top air conditioning units, drive-through speakerphones, parking lot vehicle movements, and gas station activities within Site 1, and car wash tunnel entrance activity, tunnel exit activity, and vacuum activities within Site 2. The operational noise analysis is separated by Sites 1 and 2 to describe the potential impacts at the adjacent receiver locations based on the unique noise source activity at each Site.



SITE 1: COMPLIANCE WITH APPLICABLE NOISE STANDARDS

The analysis shows that the unmitigated Site 1 Project-related operational noise levels associated with the roof-top air conditioning units, drive-through speakerphones, parking lot vehicle movements, and gas station activities will satisfy the City of Eastvale exterior noise level standards at all the adjacent off-site receiver locations in the Project study area. Therefore, no exterior noise mitigation measures are required to reduce the Site 1 Project operational noise levels.

SITE 2: COMPLIANCE WITH APPLICABLE NOISE STANDARDS

The analysis shows that the unmitigated received noise levels generated by the Site 2 drivethrough car wash tunnel entrance activity, tunnel exit activity, and vacuum activities would satisfy the City of Eastvale 60 dBA L_{eq} daytime (7:00 a.m. to 10:00 p.m.) exterior noise level standards. However, the car wash noise levels would exceed the 50 dBA L_{eq} nighttime (10:00 p.m. to 7:00 a.m.) exterior noise level standard at locations nearest the Site 2 car wash (R1 and R3 to R6). This is a *potentially significant* impact. Therefore, to satisfy the City of Eastvale nighttime noise standards, Noise mitigation measure NOI-1 requires that car wash activity be limited to the daytime hours between (7:00 a.m. and 10:00 p.m.). With application of mitigation measure NOI-1 impacts at receiver locations R1 and R3 to R6 would be *less than significant*.

NOI-1 No car wash activities shall be permitted during the nighttime hours of 10:00 p.m. to 7:00 a.m.

SITE 1 & 2: PROJECT-SOURCE INCREASE IN AMBIENT NOISE CONDITIONS

To assess the potential increase in ambient noise levels the Project-source noise contributions to the ambient noise environment was analyzed under the following scenarios:

Daytime

- Without and with Project Site 1 and 2 operational noise levels at outdoor living areas (backyards) and first-floor building façades;
- Without and with Project Site 2 (car wash) operational noise levels at first and second-floor building façades closest to the car wash use.

Nighttime

• Without and with Project Site 1 operational noise levels at outdoor living areas (backyards) and first-floor building façades (no Site 2 car wash activities shall be permitted to operate during nighttime hours as a part of Project operational noise mitigation).

The analysis shows Project-source incremental noise contributions to the ambient noise environment would be *less than significant* at outdoor living areas (backyards) and first-floor building façades under daytime conditions (Site 1 and 2) and nighttime conditions (Site 1 only). In addition, first-floor building façades adjacent to the Site 2 car wash would experience *less than significant* Project-source noise increases as these receiver locations benefit from the existing 6-foot high noise barrier along the Site 2 westerly boundary.



However, the Project-source incremental contribution to the ambient noise condition at receiver location R6, second-floor building façade, would approach 6.2 dBA L_{eq} . In the context of the ambient noise condition (54.4 dBA L_{eq}), this is a *potentially significant* impact. At the second-floor receiver location, a physical noise barrier exceeding 14 feet would be required to ensure that the incremental noise increase would not exceed 5 dBA, and therefore remain less than significant. Construction of such a barrier would of itself result in land use and aesthetic incompatibilities; and is generally considered unreasonably cost-prohibitive. It is therefore considered infeasible to fully mitigate operational-source noise impacts at the potentially affected R6 receiver location. The increase in ambient noise conditions at receiver R6 (second-floor façade) would exceed 5 dBA, and the incremental increase in the ambient noise condition would be *significant and unavoidable*. Notwithstanding, it is recommended the following noise-reducing design features be considered, and where feasible, incorporated in the final car wash building site plan designs:

- Maximize the distance between noise sources and off-site receptors;
- Incorporate parapet walls where appropriate; and
- Incorporate on-site noise barriers, landscaping, or similar physical features that would act to generally attenuate noise emanating from the car wash site.

Under all scenarios and at all other receiver locations, Project-source contributions to ambient noise conditions would be *less than significant*.

SITE 2: SHORT-TERM NOISE EVENTS

Car wash activities typically cycle on and off as each car progresses through the tunnel. Each phase of the car wash requires different equipment that will start and stop throughout the wash process. In other words, individual car wash equipment like the mechanical dryers do not operate continuously. Short-term noise events such as car doors slamming, air blowers cycling on and off, and water spraying are expected to occur and produce high noise levels over short durations of a few seconds to a few minutes, which are likely to be audible and perceived as nuisance noise. However, these short-term events will not represent a significant contribution to the overall average L_{eq} noise levels when evaluated based on the City of Eastvale L_{eq} average noise level standards. As such, which daytime car wash operational noise levels are shown to be compliant with City of Eastvale standards, short-term events may still be perceived as nuisance noise over shorter durations.



CONSTRUCTION NOISE ANALYSIS

Construction noise represents a short-term increase on the ambient noise levels. Constructionrelated noise impacts are expected to create temporary and intermittent high-level noise conditions at receivers surrounding the Project site when certain activities occur at the closest point to the nearby receiver locations from primary Project construction activity. Using sample reference noise levels to represent the planned construction activities of the Polopolus site, this analysis estimates the Project-related construction noise levels at nearby sensitive receiver locations. Since the City of Eastvale General Plan and Municipal Code do not identify specific construction noise level thresholds, a threshold is identified based on the National Institute for Occupational Safety and Health (NIOSH) limits for construction noise, which is consistent with criteria established by the Federal Transit Administration (FTA). The results of the analysis show that the Project-related short-term construction noise levels are expected to range from 58.4 to 79.1 dBA L_{eq} and will satisfy the 85 dBA L_{eq} threshold identified by NIOSH at all receiver locations.

To describe the temporary Project construction noise level contributions to the existing ambient noise environment, the Project construction noise levels were combined with the existing ambient noise levels measurements at the off-site receiver locations. A temporary noise level increase of 12 dBA Leq is considered a potentially significant impact based on the Caltrans substantial noise level increase criteria which is used to assess the Project-construction noise level increases. (3) The analysis shows that the Project will contribute unmitigated, worst-case construction noise level increases ranging from 0.1 to 23.9 dBA Leq at the nearby receiver locations during the daytime construction hours. Due to the magnitude of the worst-case temporary noise level increases during Project construction activities which are shown to exceed the 12 dBA Leq significance threshold at receiver locations R3 to R6, R10, and R11, the unmitigated construction-source noise level increases are therefore considered *potentially significant*. The following mitigation measures are expected to reduce Project construction-source noise impacts. However, even with application of the noise mitigation measures and Municipal Code construction hour limitations, it is anticipated the Project construction-source noise levels at nearby receiver locations would exceed 12 dBA Leg. Project construction-source noise impacts are therefore recognized as significant and unavoidable.

CONSTRUCTION NOISE MITIGATION MEASURES

While not considered mitigation, the Project Applicant shall comply with all City of Eastvale Municipal Code requirements (City of Eastvale Municipal Code, Section 8.52.020 et al.) acting to minimize effects of construction-source noise. To further reduce Project construction-source noise impacts, the following mitigation measures shall also be implemented:

- **NOI-2** The construction contractor(s) shall place all stationary construction equipment so that emitted noise is directed away from the noise sensitive receptors nearest the Project site.
- **NOI-3** The construction contractor(s) shall limit haul truck deliveries to the same hours specified for construction equipment (between the hours of 6:00 a.m. to 6:00 p.m. June through September, and 7:00 a.m. to 6:00 p.m. October through May).



CONSTRUCTION VIBRATION ANALYSIS

Construction activity can result in varying degrees of ground vibration, depending on the equipment and methods used, distance to the affected structures and soil type. It is expected that ground-borne vibration from Project construction activities would cause only intermittent, localized intrusion. The analysis shows that the unmitigated Project-construction vibration levels of up to 0.068 in/sec peak-particle-velocity (PPV) will remain below the City of Eastvale 0.0787 in/sec PPV standard at all receiver locations, and are therefore, considered a *less than significant* impact. Further, vibration levels at the site of the closest sensitive receiver are unlikely to be sustained during the entire construction period but will occur rather only during the times that heavy construction equipment is operating at the Project site perimeter. Moreover, construction at the Project site will be restricted to daytime hours consistent with City of Eastvale requirements thereby eliminating potential vibration impacts during the sensitive nighttime hours.

SUMMARY OF CEQA SIGNIFICANCE FINDINGS

The results of this Polopolus 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.

Analysia	Report	Significanc	ce Findings
Analysis	Section	Unmitigated	Mitigated
Off-Site Traffic Noise Levels	7	Less Than Significant	n/a
Operational Noise Level Compliance		Less Than Significant	n/a
Operational Noise Level Increases (Permanent)	9	Potentially Significant	Significant and Unavoidable
Construction Noise Level Compliance		Less Than Significant	n/a
Construction Noise Level Increases (Temporary)	10	Potentially Significant	Significant and Unavoidable
Construction Vibration Levels		Less Than Significant	n/a

TABLE ES-1: SUMMARY OF CEQA SIGNIFICANCE FINDINGS	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 Polopolus ("Project"). This noise study briefly describes the proposed Project, provides information regarding noise fundamentals, describes the local regulatory setting, provides the study methods and procedures for transportation noise analysis, and evaluates the future exterior noise environment. In addition, this study includes an analysis of the potential Project-related long-term operational noise impacts and short-term construction noise and vibration impacts.

1.1 SITE LOCATION

The proposed Polopolus Project is made up of two sites: Site 1 and Site 2. Site 1 is located on the southeast corner of Hamner Avenue and Schleisman Avenue, and Site 2 is located on the southwest corner of Hamner Avenue and Riverboat Drive, in the City of Eastvale, as shown on Exhibit 1-A. Existing single-family residential uses are located north, west, and east of the Project site, and the Silverlakes Sports Complex park is located south of the Project site. Interstate15 (I-15) is located approximately one-quarter mile east of the Project site. The closest airport to the Project site is Chino Airport which is located roughly 4 miles northwest of the Project site boundaries.

1.2 PROJECT DESCRIPTION

The Project is proposed to consist of two sites: Site 1 and Site 2, as shown on Exhibits 1-B and 1-C, respectively. Site 1 land uses include an eight-vehicle fueling position gas station with market, 3,500 square feet of fast-food restaurant with drive-through window use, 2,000 square feet of coffee shop with drive-through window use, a 6,000 square-foot high turnover sit-down restaurant, 4,000 square feet of commercial retail use, 4,000 square feet of fast-food restaurant without drive-through window use, 10,000 square feet of medical office use, a 130-room hotel, 40,000 square feet of government office use, and a 25,000 square-foot library. Site 2 would be developed with 16 VFP gas station with market and drive-through car wash. However, since Site 2 is immediately adjacent to noise-sensitive residential homes this noise study evaluates a worstcase operational noise condition with only a higher noise-generating car wash use within the entirety of Site 2.

The on-site Project-only operational noise sources are expected to include: roof-top air conditioning units, drive-through speakerphones, parking lot vehicle movements, and gas station activities within Site 1, and car wash tunnel entrance activity, tunnel exit activity, and vacuum activities within Site 2.

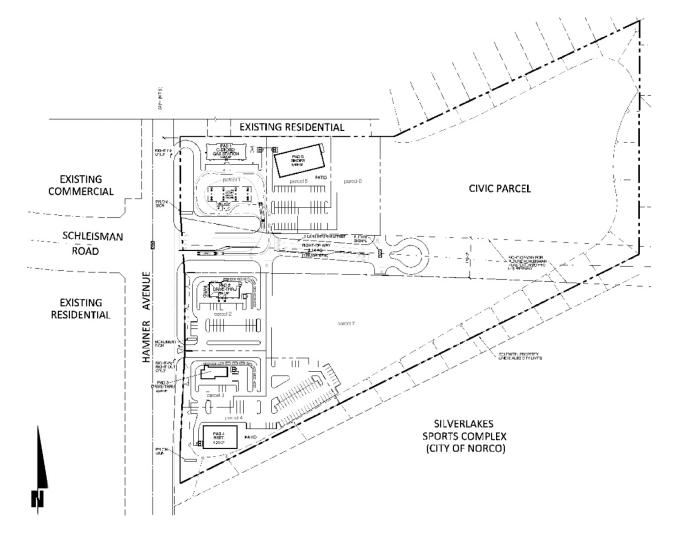




EXHIBIT 1-A: LOCATION MAP



EXHIBIT 1-B: SITE 1 PLAN





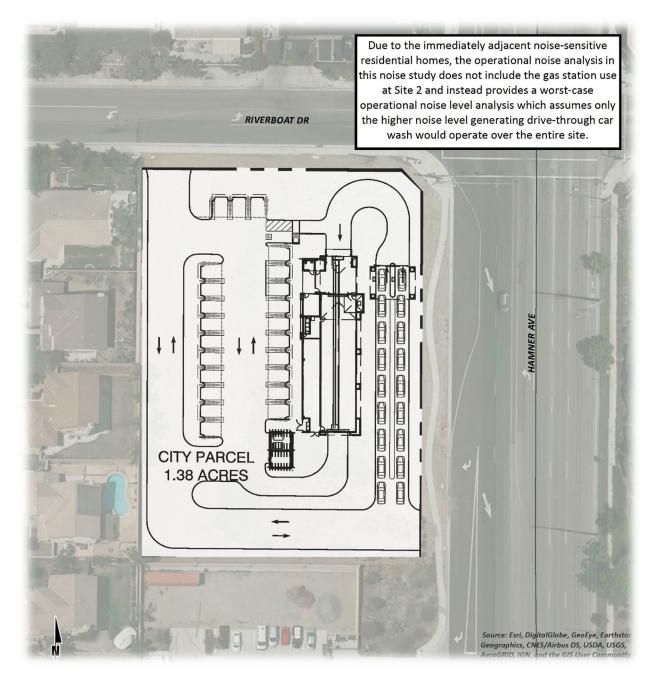


EXHIBIT 1-B: SITE 2 PLAN (WORST-CASE CAR WASH)



2 FUNDAMENTALS

Noise has been 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			
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	SLEEP	
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	VENT FAINT		

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. (4) 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. (5) 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 commonly 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.

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 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 Eastvale relies on the 24-hour CNEL level to assess land use compatibility with transportation related noise sources.

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. (4)

2.3.2 GROUND ABSORPTION

The propagation path of noise from a highway to a receptor 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 receptor, 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 receptor 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

Receptors 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. (4)

2.3.4 SHIELDING

A large object or barrier in the path between a noise source and a receptor can substantially attenuate noise levels at the receptor. 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 nearby resident. 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 FHWA does not consider the planting of vegetation to be a noise abatement measure. (6)

2.4 NOISE CONTROL

Noise control is the process of obtaining an acceptable noise environment for an observation point or receptor by controlling the noise source, transmission path, receptor, or all three. This concept is known as the source-path-receptor 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 receptor. 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 may range from registering a complaint by telephone or letter, to initiating court action, depending upon everyone's susceptibility to noise and personal attitudes about noise. Several factors are related to the level of community annoyance including:

- Fear associated with noise producing activities;
- Socio-economic status and educational level;
- Perception that those affected are being unfairly treated;
- Attitudes regarding the usefulness of the noise-producing activity;
- Belief that the noise source can be controlled.

Approximately ten percent of the population has a very low tolerance for noise and will object to any noise not of their making. Consequently, even in the quietest environment, some complaints will occur. Another twenty-five percent of the population will not complain even in very severe noise environments. Thus, a variety of reactions can be expected from people exposed to any given noise environment. (8) Surveys have shown that about ten percent of the people exposed to traffic noise of 60 dBA will report being highly annoyed with the noise, and each increase of one dBA is associated with approximately two percent more people being highly annoyed. When traffic noise exceeds 60 dBA or aircraft noise exceeds 55 dBA, people may begin to complain. (8) Despite this variability in behavior on an individual level, the population can be expected to exhibit the following responses to changes in noise levels as shown on Exhibit 2-B. An increase or decrease of 1 dBA cannot be perceived except in carefully controlled laboratory experiments, a change of 3 dBA are considered *barely perceptible*, and changes of 5 dBA are considered *readily perceptible*. (6)

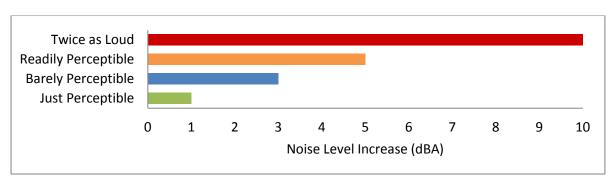


EXHIBIT 2-B: NOISE LEVEL INCREASE PERCEPTION

2.8 EXPOSURE TO HIGH NOISE LEVELS

The Occupational Safety and Health Administration (OSHA) sets legal limits on noise exposure in the workplace. The permissible exposure limit (PEL) for a worker over an eight-hour day is 90 dBA. The OSHA standard uses a 5 dBA exchange rate. This means that when the noise level is increased by 5 dBA, the amount of time a person can be exposed to a certain noise level to receive the same dose is cut in half. The National Institute for Occupational Safety and Health (NIOSH) has recommended that all worker exposures to noise should be controlled below a level equivalent to 85 dBA for eight hours to minimize occupational noise induced hearing loss. NIOSH also recommends a 3 dBA exchange rate so that every increase by 3 dBA doubles the amount of the noise and halves the recommended amount of exposure time. (9)

OSHA has implemented requirements to protect all workers in general industry (e.g. the manufacturing and the service sectors) for employers to implement a Hearing Conservation Program where workers are exposed to a time weighted average noise level of 85 dBA or higher over an eight-hour work shift. Hearing Conservation Programs require employers to measure noise levels, provide free annual hearing exams and free hearing protection, provide training, and conduct evaluations of the adequacy of the hearing protectors in use unless changes to tools, equipment and schedules are made so that they are less noisy and worker exposure to noise is less than the 85 dBA. This noise study does not evaluate the noise exposure of workers within a project or construction site based on CEQA requirements, and instead, evaluates Project-related operational and construction noise levels at the nearby sensitive receiver locations in the Project study area. Further, periodic exposure to high noise levels in short duration, such as Project construction, is typically considered an annoyance and not impactful to human health. It would take several years of exposure to high noise levels to result in hearing impairment. (10)

2.9 VIBRATION

According to the Federal Transit Administration (FTA) *Transit Noise Impact and Vibration Assessment* (11), 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 groundborne 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.

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. The range of interest is from approximately 50 VdB, which is the typical background vibration-velocity level, to 100 VdB, which is the general threshold where minor damage can occur in fragile buildings. Exhibit 2-C illustrates common vibration sources and the human and structural response to ground-borne vibration.



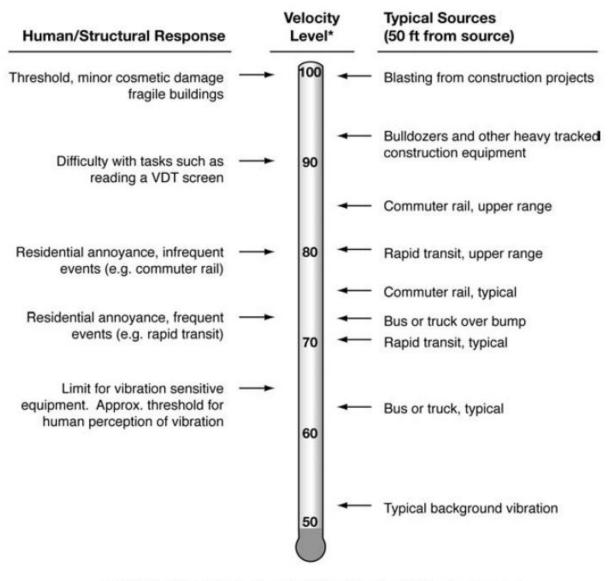


EXHIBIT 2-C: TYPICAL LEVELS OF GROUND-BORNE VIBRATION

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

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

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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. (12) 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 STATE OF CALIFORNIA BUILDING STANDARDS

The 2016 State of California's Green Building Standards Code contains mandatory measures for building construction in Section 5.507 on Environmental Comfort. (13) These noise standards are applied to new construction in California for controlling interior noise levels resulting from exterior noise sources. The regulations specify that acoustical studies must be prepared when structures are developed in areas where the exterior noise levels exceed 65 dBA CNEL, such as within a noise contour of an airport, freeway, railroad, and other areas where noise contours are not readily available. If the development falls within an airport or freeway 65 dBA CNEL noise contour, the combined sound transmission class (STC) rating of the wall and roof-ceiling assemblies must be at least 50. For those developments in areas where noise contours are not readily available, and the noise level exceeds 65 dBA L_{eq} for any hour of operation, a wall and roof-ceiling combined STC rating of 45, and exterior windows with a minimum STC rating of 40 are required (Section 5.507.4.1).

3.3 CITY OF EASTVALE NOISE ELEMENT

The City of Eastvale has adopted a Noise Element of the General Plan to control and abate environmental noise, and to protect the citizens of City of Eastvale from excessive exposure to noise. (14) The Noise Element specifies the maximum allowable exterior noise levels for new developments impacted by transportation and stationary noise sources. To protect the City of Eastvale residents from excessive noise, the Noise Element contains the following four goals:



- *N-1 Prevent and mitigate the adverse impacts of excessive noise exposure on the residents, employees, visitors and noise-sensitive uses of Eastvale.*
- *N-2* Locate noise-tolerant land uses within areas irrevocably committed to land uses that are noise-producing, such as transportation corridors.
- *N-3* Ensure that noise sensitive uses do not encroach into areas needed by noise generating uses.
- *N-4* Locate noise sources away from existing noise sensitive land uses unless appropriate noise control measures are provided.

3.3.1 STATIONARY-SOURCE NOISE LEVEL STANDARDS

The City of Eastvale General Plan Noise Element identifies exterior noise limits to control operational noise impacts associated with the development of the proposed Polopolus Project. Table N-4 of the Noise Element *provides the City's standards for maximum exterior non-transportation noise levels to which land designated for residential land uses may be exposed for any 30-minute period on any day.* (14) For the purposes of this analysis, the noise generated by the roof-top air conditioning units, drive-through speakerphones, parking lot vehicle movements, and gas station activities within Site 1, and car wash tunnel entrance activity, tunnel exit activity, and vacuum activities within Site 2 of the proposed Project will be evaluated based on the City's stationary source standards at the nearby residential land uses.

Table N-4 of the Noise Element (shown on Exhibit 3-A below) requires an exterior noise level standard for the nearby noise-sensitive single-family residential land uses of 60 dBA L_{eq} between the daytime hours of 7:00 a.m. and 10:00 p.m., and 50 dBA L_{eq} between the nighttime hours of 10:00 p.m. to 7:00 a.m. (14)

Land Use Type	Time Period	Maximum Noise Level (dBA)
Single Family Homos and Dunlayes	10 p.m. to 7 a.m.	50
Single-Family Homes and Duplexes	7 a.m. to 10 p.m.	60
Multiple Desidential 2 or Marc Units Der Duilding (Tripley 1)	10 p.m. to 7 a.m.	55
Multiple Residential 3 or More Units Per Building (Triplex +)	7 a.m. to 10 p.m.	60

EXHIBIT 3-A: EXTERIOR NOISE LEVEL STANDARDS FOR NON-TRANSPORTATION NOISE

Source: City of Eastvale General Plan Noise Element, Table N-4.

3.3.2 VIBRATION LEVEL STANDARDS

The City of Eastvale General Plan Noise Element, Policy N-3, identifies a vibration level standard for sensitive land uses of 0.0787 inches per second peak particle velocity (PPV). Therefore, for the purposes of this analysis, the vibration level shall not exceed 0.0787 in/sec PPV at the nearby sensitive receiver locations during Project construction activities capable of generating vibration levels. The construction vibration standards are provided on Table 3-1.



City	Peak Particle Velocity (PPV) Standard (in/sec)
Eastvale ¹	0.0787

TABLE 3-1: VIBRATION LEVEL STANDARDS

¹ Source: City of Eastvale General Plan Noise Element, Policy N-3.

3.4 CONSTRUCTION NOISE STANDARDS

The City of Eastvale has set restrictions to control noise impacts associated with the construction of the proposed Project. According to the City of Eastvale Municipal Code Section 8.52.020, construction activities are limited to the hours of 6:00 a.m. to 6:00 p.m. June through September, and 7:00 a.m. to 6:00 p.m. October through May. (15) While the City establishes limits to the hours during which construction activity may take place, neither the City's General Plan or Municipal Code establish numeric maximum acceptable construction source noise levels at potentially affected receivers, which would allow for a quantified determination of what CEQA constitutes a *substantial temporary or periodic noise increase*.

To evaluate whether the Project will generate potentially significant temporary construction noise levels at off-site sensitive receiver locations, a construction-related noise level threshold is adopted from the Criteria for Recommended Standard: Occupational Noise Exposure prepared by the National Institute for Occupational Safety and Health (NIOSH). (16) A division of the U.S. Department of Health and Human Services, NIOSH identifies a noise level threshold based on the duration of exposure to the source. The construction related noise level threshold starts at 85 dBA for more than eight hours per day, and for every 3 dBA increase, the exposure time is cut in half. This results in noise level thresholds of 88 dBA for more than four hours per day, 92 dBA for more than one hour per day, 96 dBA for more than 30 minutes per day, and up to 100 dBA for more than 15 minutes per day. (16) For the purposes of this analysis, the lowest, more conservative construction noise level threshold of 85 dBA Lea is used as an acceptable threshold for construction noise at the nearby sensitive receiver locations. Since this construction-related noise level threshold represents the energy average of the noise source over a given time period, they are expressed as Leg noise levels. Therefore, the noise level threshold of 85 dBA Leg over a period of eight hours or more is used to evaluate the potential Project-related construction noise level impacts at the nearby sensitive receiver locations.

The 85 dBA L_{eq} threshold is also consistent with the FTA *Transit Noise and Vibration Impact Assessment* criteria for construction noise which identifies an hourly construction noise level threshold of 90 dBA L_{eq} during daytime hours, and 80 dBA L_{eq} during nighttime hours for construction for general assessment at noise-sensitive uses (e.g., residential, medical/hospital, school, etc.). (11) Detailed assessment, according to the FTA, identifies an 8-hour dBA L_{eq} noise level threshold specific to noise-sensitive uses of 80 dBA L_{eq}. Therefore, the Noise Study relies on the NIOSH 85 dBA L_{eq} threshold, consistent with FTA general and detailed assessment criteria for noise-sensitive uses and represents an appropriate threshold for construction noise analysis. The construction noise standards are shown on Table 3-2.

City	Permitted Hours of Construction Activity	Construction Noise Level Threshold (dBA L _{eq}) ²
Eastvale ¹	6:00 a.m. to 6:00 p.m. June through September, and 7:00 a.m. to 6:00 p.m. October through May	85

TABLE 3-2: CONSTRUCTION NOISE STANDARDS

¹ Source: Section 8.52.020 of the City of Eastvale Municipal Code (Appendix 3.1).

² Source: NIOSH, Criteria for Recommended Standard: Occupational Noise Exposure, June 1998.



4 SIGNIFICANCE CRITERIA

The following significance criteria are based on guidance provided by Appendix G of the California Environmental Quality Act (CEQA) Guidelines. (1) For the purposes of this report, impacts would be potentially significant if the Project results in or causes:

- A. Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies;
- B. Exposure of persons to or generation of excessive ground-borne vibration or ground-borne noise levels.
- C. A substantial permanent increase in ambient noise levels in the Project vicinity above existing levels without the proposed Project; or
- D. A substantial temporary or periodic increase in ambient noise levels in the Project vicinity above noise levels existing without the proposed Project.
- E. For a project located within 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, expose people residing or working in the Project area to excessive noise levels.
- F. For a project within the vicinity of a private airstrip, expose people residing or working in the Project area to excessive noise levels.

While the CEQA Guidelines and the City of Eastvale General Plan Guidelines provide direction on noise compatibility and establish noise standards by land use type that are sufficient to assess the significance of noise impacts under CEQA Guideline A, they do not define the levels at which increases are considered substantial for use under Guidelines B, C, and D. CEQA Guidelines E and F apply to nearby public and private airports, if any, and the Project's land use compatibility. The Project site is not located within two miles of a public airport or within an airport land use plan; nor is the Project within the vicinity of a private airstrip. As such, the Project site would not be exposed to excessive noise levels from airport operations, and therefore, impacts are considered *less than significant*, and no further noise analysis is conducted in relation to Guidelines E and F.

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.* (17) Unfortunately, there is no completely satisfactory way to measure the subjective effects of noise or of the corresponding human reactions of annoyance and distatisfaction. 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.



4.1.1 SUBSTANTIAL PERMANENT NOISE LEVEL INCREASES

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) (18) 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 were specifically developed to assess aircraft noise impacts, these 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) or hourly logarithmic average noise levels (L_{eq}).

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 is considered a significant impact when the noise criteria for a given land use is exceeded. Per 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. Table 4-1 below provides a summary of the potential noise impact significance criteria, based on guidance from FICON.

Without Project Noise Level	Potential Significant Impact	
< 60 dBA	5 dBA or more	
60 - 65 dBA	3 dBA or more	
> 65 dBA 1.5 dBA or more		

TABLE 4-1: SIGNIFICANCE OF NOISE IMPACTS AT NOISE-SENSITIVE RECEIVERS

Federal Interagency Committee on Noise (FICON), 1992.

4.1.2 SUBSTANTIAL TEMPORARY OR PERIODIC NOISE LEVEL INCREASES

Due to the temporary, short-term nature of noise-generating construction activities, the temporary or periodic noise level increases over the existing ambient conditions must be considered under CEQA Guideline D, consistent with the legal case, *Friends of Riverside's Hills v*. *Riverside Transportation Commission, et al.* (19) Therefore, the Caltrans *Traffic Noise Analysis Protocol* 12 dBA L_{eq} *substantial* noise level increase threshold is used in this analysis to assess temporary noise level increases. (3) If the Project-related construction noise levels generate a temporary noise level increase above the existing ambient noise levels of up to 12 dBA L_{eq}, then the Project construction noise level increases will be considered a potentially significant impact. Although the Caltrans recommendations were specifically developed to assess traffic noise impacts, the 12 dBA L_{eq} substantial noise level increase threshold is used in California to address noise level increases with the potential to exceed existing conditions. (3)

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 4-2 shows the significance criteria summary matrix.

OFF-SITE TRAFFIC NOISE

- When the noise levels at existing and future noise-sensitive land uses (e.g. residential, etc.):
 - are less than 60 dBA CNEL and the Project creates a *readily perceptible* 5 dBA CNEL or greater Project-related noise level increase; or
 - range from 60 to 65 dBA CNEL and the Project creates a *barely perceptible* 3 dBA CNEL or greater Project-related noise level increase; or
 - already exceed 65 dBA CNEL, and the Project creates a community noise level impact of greater than 1.5 dBA CNEL (FICON, 1992).

OPERATIONAL NOISE

- If Project-related operational (stationary-source) noise levels exceed the exterior 60 dBA L_{eq} daytime or 50 dBA L_{eq} nighttime noise level standards at nearby sensitive receiver locations (City of Eastvale General Plan Noise Element, Table N-4). or
- If the existing ambient noise levels at the nearby noise-sensitive receivers near the Project site:
 - $\circ~$ are less than 60 dBA L_{eq} and the Project creates a readily perceptible 5 dBA L_{eq} or greater Project-related noise level increase; or
 - $\circ~$ range from 60 to 65 dBA L_{eq} and the Project creates a *barely perceptible* 3 dBA L_{eq} or greater Project-related noise level increase; or
 - \circ already exceed 65 dBA L_{eq}, and the Project creates a community noise level impact of greater than 1.5 dBA L_{eq} (FICON, 1992).

CONSTRUCTION NOISE AND VIBRATION

- If Project-related construction activities:
 - o coccur at any time other than the permitted hours of 6:00 a.m. to 6:00 p.m. June through September, and 7:00 a.m. to 6:00 p.m. October through May (Section 8.52.040 of the City of Eastvale Municipal Code); or
 - generate noise levels which exceed the 85 dBA L_{eq} acceptable noise level threshold at the nearby sensitive receiver locations (NIOSH, Criteria for Recommended Standard: Occupational Noise Exposure); or
 - generate temporary Project construction-related noise level increases which exceed the 12 dBA L_{eq} substantial noise level increase threshold at noise-sensitive receiver locations (Caltrans, Traffic Noise Analysis Protocol).
- If short-term Project generated construction vibration levels exceed the City of Eastvale acceptable vibration standard of 0.0787 in/sec PPV at sensitive receiver locations (City of Eastvale General Plan, Policy N-3).



Analysis	Constition (a)	Significance Criteria	
	Condition(s)	Daytime	Nighttime
Off-Site Traffic Noise ¹	if ambient is < 60 dBA CNEL	≥ 5 dBA CNEL Project increase	
	if ambient is 60 - 65 dBA CNEL	≥ 3 dBA CNEL Project increase	
	if ambient is > 65 dBA CNEL	≥ 1.5 dBA CNEL Project increase	
Operational Noise	Exterior Noise Level Standards ²	60 dBA L _{eq}	50 dBA L _{eq}
	if ambient is < 60 dBA L_{eq}^1	≥ 5 dBA L _{eq} Project increase	
	if ambient is 60 - 65 dBA L_{eq}^1	≥ 3 dBA L _{eq} Project increase	
	if ambient is > 65 dBA L_{eq}^1	\geq 1.5 dBA L _{eq} Project increase	
Construction	-	a.m. to 6:00 p.m. June through September, :00 a.m. to 6:00 p.m. October through May ³	
Noise & Vibration	Noise Level Threshold ⁴	85 dBA L _{eq}	n/a
	Noise Level Increase ⁵	12 dBA Leq	n/a
	Vibration Level Threshold ⁶	0.0787 PPV	n/a

TABLE 4-2: SIGNIFICANCE CRITERIA SUMMARY

¹ Source: FICON, 1992.

² Source: City of Eastvale General Plan Noise Element, Table N-4.

³ Source: Section 8.52.040 of the City of Eastvale Municipal Code (Appendix 3.1).

⁴ Source: NIOSH, Criteria for Recommended Standard: Occupational Noise Exposure, June 1998.

⁵ Source: Caltrans Traffic Noise Analysis Protocol, May 2011.

⁶ Source: City of Eastvale General Plan Noise Element, Policy N-3.

"Daytime" = 7:00 a.m. - 10:00 p.m.; "Nighttime" = 10:00 p.m. - 7:00 a.m.; "n/a" = No nighttime construction activity is permitted and therefore, no nighttime construction noise level threshold is identified; "PPV" = Peak particle velocity.



5 EXISTING NOISE LEVEL MEASUREMENTS

To assess the existing noise level environment, noise level measurements were taken at sensitive receiver locations in the Project study area. The measurement 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 Thursday, January 18th and from Wednesday, January 24th to Thursday, January 25th, 2018 for 24-hour periods. Further, to better describe the ambient noise environment at residential homes adjacent to the proposed car wash (Site 2 of the Project), short-term noise level measurements were collected over a one-hour duration on Thursday, February 22nd, 2018. These short-term noise level measurements were collected to further describe existing ambient noise level at the backyards of adjacent homes to the proposed Site 2 car wash use. This included a measurement at a height of 14 feet to represent the existing ambient noise environment at the second-floor building façades. Appendix 5.1 includes study area photos for all measurement locations.

5.1 MEASUREMENT PROCEDURE AND CRITERIA

To describe the existing noise environment, the noise levels were measured during typical weekday conditions. 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. (20)

5.2 NOISE MEASUREMENT LOCATIONS

The 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 any 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. (4) 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. (11)

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. (11) 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 nearby 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 LONG-TERM NOISE MEASUREMENT RESULTS (SITES 1 & 2)

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 identifies the hourly daytime (7:00 a.m. to 10:00 p.m.) and nighttime (10:00 p.m. to 7:00 a.m.) noise levels at each noise level measurement location. The long-term noise level measurements do not account for any existing noise barrier noise attenuation. Appendix 5.2 provides a summary of the existing hourly ambient noise levels described below:

- Location L1 represents the noise levels north of the Project site on the northeast corner of Hamner Avenue and Riverboat Drive adjacent to existing residential homes. The noise level measurements collected show an overall 24-hour exterior noise level of 83.2 dBA CNEL. The hourly noise levels measured at location L1 ranged from 75.8 to 82.0 dBA L_{eq} during the daytime hours and from 67.2 to 81.9 dBA L_{eq} during the nighttime hours. The energy (logarithmic) average daytime noise level was calculated at 79.9 dBA L_{eq} with an average nighttime noise level of 75.5 dBA L_{eq}.
- Location L2 represents the noise levels at the northwest Project site boundary adjacent to existing residential homes on College Park Drive. The noise level measurements collected show an overall 24-hour exterior noise level of 79.0 dBA CNEL. The hourly noise levels measured at location L2 ranged from 71.2 to 77.9 dBA L_{eq} during the daytime hours and from 64.4 to 78.3 dBA L_{eq} during the nighttime hours. The energy (logarithmic) average daytime noise level was calculated at 74.8 dBA L_{eq} with an average nighttime noise level of 71.6 dBA L_{eq}.
- Location L3 represents the noise levels south of Site 2 adjacent to an existing fire station on Hamner Avenue, near existing residential homes. The 24-hour CNEL indicates that the overall exterior noise level is 65.9 dBA CNEL. At location L3 the background ambient noise levels ranged from 58.5 to 63.3 dBA L_{eq} during the daytime hours to levels of 50.5 to 61.9 dBA L_{eq} during the nighttime hours. The energy (logarithmic) average daytime noise level was calculated at 61.3 dBA L_{eq} with an average nighttime noise level of 58.6 dBA L_{eq}.
- Location L4 represents the noise levels north of the Project site on Mississippi Drive in an existing residential community. The noise level measurements collected show an overall 24-hour exterior noise level of 65.0 dBA CNEL. The hourly noise levels measured at location L4 ranged from 53.1 to 63.6 dBA L_{eq} during the daytime hours and from 52.1 to 62.6 dBA L_{eq} during the nighttime hours.

The energy (logarithmic) average daytime noise level was calculated at 58.9 dBA L_{eq} with an average nighttime noise level of 58.4 dBA $L_{eq}.$

- Location L5 represents the noise levels on Kern River Road east of the Project site within an existing residential community. The noise level measurements collected show an overall 24-hour exterior noise level of 66.5 dBA CNEL. The hourly noise levels measured at location L5 ranged from 56.7 to 61.7 dBA L_{eq} during the daytime hours and from 56.3 to 62.2 dBA L_{eq} during the nighttime hours. The energy (logarithmic) average daytime noise level was calculated at 59.2 dBA L_{eq} with an average nighttime noise level of 59.8 dBA L_{eq}.
- Location L6 represents the noise levels west of the Project site in an existing church parking lot near existing residential homes north of Schleisman Road. The noise level measurements collected show an overall 24-hour exterior noise level of 64.0 dBA CNEL. The hourly noise levels measured at location L6 ranged from 53.5 to 63.3 dBA L_{eq} during the daytime hours and from 49.2 to 61.3 dBA L_{eq} during the nighttime hours. The energy (logarithmic) average daytime noise level was calculated at 60.5 dBA L_{eq} with an average nighttime noise level of 56.6 dBA L_{eq}.
- Location L7 represents the noise levels on Hamner Avenue adjacent to the western Project site boundary near existing residential homes. The 24-hour CNEL indicates that the overall exterior noise level is 73.8 dBA CNEL. At location L7 the background ambient noise levels ranged from 66.7 to 73.2 dBA L_{eq} during the daytime hours to levels of 58.4 to 71.8 dBA L_{eq} during the nighttime hours. The energy (logarithmic) average daytime noise level was calculated at 71.1 dBA L_{eq} with an average nighttime noise level of 65.6 dBA L_{eq}.
- Location L8 represents the noise levels at the western Project site boundary on Hamner Avenue near existing residential homes. The noise level measurements collected show an overall 24-hour exterior noise level of 75.7 dBA CNEL. The hourly noise levels measured at location L8 ranged from 69.0 to 73.3 dBA L_{eq} during the daytime hours and from 60.8 to 73.7 dBA L_{eq} during the nighttime hours. The energy (logarithmic) average daytime noise level was calculated at 71.8 dBA L_{eq} with an average nighttime noise level of 68.2 dBA L_{eq}.
- Location L9 represents the noise levels south of the Project site on Old Hamner Avenue near existing residential homes. The noise level measurements collected show an overall 24-hour exterior noise level of 65.4 dBA CNEL. The hourly noise levels measured at location L9 ranged from 52.2 to 58.7 dBA L_{eq} during the daytime hours and from 54.8 to 62.7 dBA L_{eq} during the nighttime hours. The energy (logarithmic) average daytime noise level was calculated at 55.7 dBA L_{eq} with an average nighttime noise level of 59.1 dBA L_{eq}.

Table 5-1 provides the (energy average) noise levels used to describe the daytime and nighttime ambient conditions at measurement locations L1 to L9. 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. Appendix 5.2 provides summary worksheets of the noise levels for each hour as well as the minimum, maximum, L₁, L₂, L₅, L₈, L₂₅, L₅₀, L₉₀, L₉₅, and L₉₉ percentile noise levels observed during the daytime and nighttime periods. The background ambient noise levels in the Project study area are dominated by the transportation-related noise associated with the arterial roadway network. The 24-hour existing noise level measurements shown on Table 5-1 present the existing ambient noise conditions.



5.4 SHORT-TERM NOISE MEASUREMENT RESULTS (SITE 2)

Table 5-2 identifies the hourly noise levels at each noise level measurement location based on a one-hour measurement collected between 10:00 a.m. to 11:00 a.m. on Thursday, February 22nd, 2018 to represent the quieter, existing residential noise environment adjacent to the proposed car wash use. The short-term noise level measurements do not include the barrier noise attenuation provided by the existing 6-foot high backyard perimeter wall for the homes located on College Park Drive. Location S3 includes an additional noise level measurement at 14 feet to determine difference in noise level between existing ambient first and second-floor building façade noise levels, with this relationship applied to the other locations to determine the second-floor ambient noise levels. Based on the S3 measurements, the difference between the first-floor (5 feet) and second-floor (14 feet) noise levels is 0.8 dBA Leq. Appendix 5.3 provides study-area photos of Site 2 measurement locations and a summary of the existing ambient noise levels described below:

- Location S1 represents the noise levels adjacent to the residential homes at 12653 and 12679 Thornbury Lane north of the Project site across Riverboat Drive. The hourly noise levels measured at location S1 approached 58.9 dBA L_{eq} at the first-floor measurement location, which results in a calculated second-floor ambient noise level of 58.1 dBA L_{eq}.
- Location S2 represents the noise levels adjacent to the residential homes at 7012 and 7022 College Park Drive west of the Project site. The hourly noise levels measured at location S2 approached 57.1 dBA L_{eq} at the first-floor measurement location, which results in a calculated second-floor ambient noise level of 56.3 dBA L_{eq}. While 7012 College Park Drive is a single-story residential home, the second-floor noise levels shown on Table 5-2 for location S2 represent those at 7022 College Park Drive.
- Location S3 represents the noise levels adjacent to the residential home at 7032 College Park Drive west of the Project site. The hourly noise levels measured at location S3 approached 56.0 dBA L_{eq} at the first-floor measurement location, and the measured second-floor ambient noise level was 55.2 dBA L_{eq} at a height of 14 feet. Based on the S3 measurements, the difference between the first-floor (5 feet) and second-floor (14 feet) noise levels is 0.8 dBA L_{eq}.
- Location S4 represents the noise levels adjacent to the residential home at 7042 College Park Drive west of the Project site. The hourly noise levels measured at location S4 approached 55.2 dBA L_{eq} at the first-floor measurement location, which results in a calculated second-floor ambient noise level of 54.4 dBA L_{eq}.

Location ¹ Distance		Description	Hourly N	Average oise Level (L _{eq}) ²	CNEL
	Boundary (Feet)		Daytime	Nighttime	
L1	210'	Located north of the Project site on the northeast corner of Hamner Avenue and Riverboat Drive adjacent to existing residential homes.	79.9	75.5	83.2
L2	0'	Located at the northwest Project site boundary adjacent to existing residential homes on College Park Drive.	74.8	71.6	79.0
L3	155'	Located south of Site 2 adjacent to an existing fire station on Hamner Avenue, near existing residential homes.	61.3	58.6	65.9
L4	180'	Located north of the Project site on Mississippi Drive in an existing residential community.	58.9	58.4	65.0
L5	1,060'	Located on Kern River Road east of the Project site within an existing residential community.	59.2	59.8	66.5
L6	670'	Located west of the Project site in an existing church parking lot near existing residential homes north of Schleisman Road.	60.5	56.6	64.0
L7	0'	Located on Hamner Avenue adjacent to the western Project site boundary near existing residential homes.	71.1	65.6	73.8
L8	0'	Located at the western Project site boundary on Hamner Avenue near existing residential homes.	71.8	68.2	75.7
L9	3,700'	Located south of the Project site on Old Hamner Avenue near existing residential homes.	55.7	59.1	65.4

TABLE 5-1: 24-HOUR (LONG-TERM) AMBIENT NOISE LEVEL MEASUREMENTS

¹ See Exhibit 5-A for the noise level measurement locations.

² 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.



Location ¹	Location ¹ Floor Represen (Height)		Short-Term 1-Hour Noise Levels (dBA L _{eq}) ²
61	1st (5 Feet)	12652 9 12670 Thompson land	58.9
S1	2nd (14 Feet)	12653 & 12679 Thornbury lane	58.1 (estimated)
63	S2 1st (5 Feet) 2nd (14 Feet)		57.1
52		7012 & 7022 College Park Drive	56.3 (estimated)
63	1st (5 Feet)	7022 College Dark Drive	56.0
S3	2nd (14 Feet)	7032 College Park Drive	55.2 (measured)
64	1st (5 Feet)	7042 College Dark Drive	55.2
S4	2nd (14 Feet)	7042 College Park Drive	54.4 (estimated)

TABLE 5-2: 1-HOUR (SHORT-TERM) AMBIENT NOISE LEVEL MEASUREMENTS

See Exhibit 5-A for the noise level measurement locations.

² The short-term 24-hour measurement worksheets are included in Appendix 5.3. Second-floor noise levels at locations S1, S2, and S4 are estimated based on the measured difference between the first and second-floor noise levels collected at location S3.

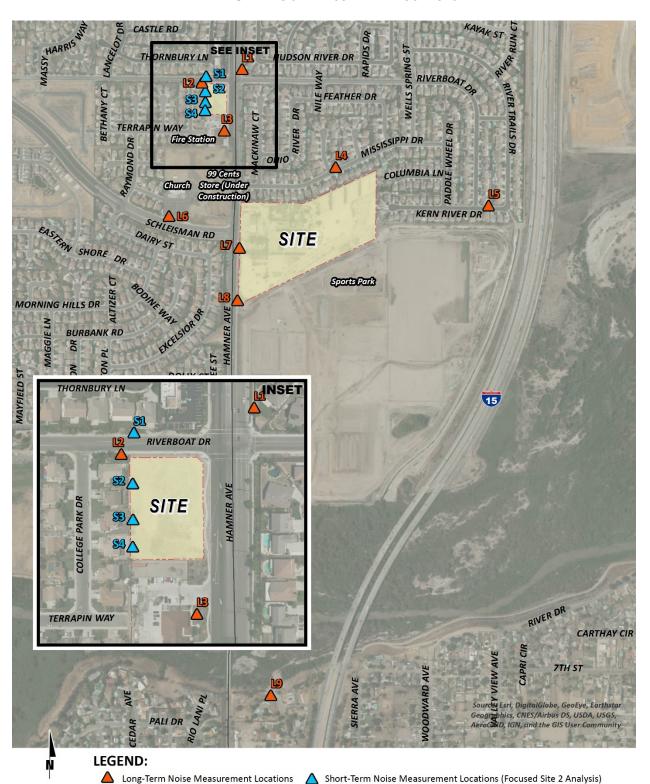


EXHIBIT 5-A: NOISE MEASUREMENT LOCATIONS



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6 METHODS AND PROCEDURES

The following section outlines the methods and procedures used to model and analyze the future traffic noise environment.

6.1 FHWA TRAFFIC NOISE PREDICTION MODEL

The estimated roadway noise impacts from vehicular traffic were calculated using a computer program that replicates the Federal Highway Administration (FHWA) Traffic Noise Prediction Model- FHWA-RD-77-108. (21) 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. (22) 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.

6.2 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 18 study area roadway segments, the distance from the centerline to adjacent land use based on the functional roadway classifications per the City of Eastvale General Plan Circulation Element, and the posted vehicle speeds. For this analysis, soft site conditions are used to analyze the traffic noise impacts within the Project study area. Soft site conditions account for the sound propagation loss over natural surfaces such as normal earth and ground vegetation. Caltrans' research has shown that the use of soft site conditions is appropriate for the application of the FHWA traffic noise prediction model as used in this off-site traffic noise analysis. (23)

The Existing and Opening Year 2019 average daily traffic volumes used for this study are presented on Table 6-2 and are provided by *Polopolus Traffic Impact Analysis* prepared by Urban Crossroads, Inc. (2) Table 6-3 presents the time of day vehicle splits and Table 6-4 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	Adjacent Land Use ¹	Distance from Centerline to Nearest Adjacent Land Use (Feet) ²	Vehicle Speed (mph) ³
1	Scholar Wy.	n/o Schleisman Rd.	Residential	50'	35
2	Scholar Wy.	s/o Schleisman Rd.	Residential	50'	35
3	Hamner Av.	n/o Limonite Av.	Commercial	76'	45
4	Hamner Av.	s/o Limonite Av.	Commercial	76'	45
5	Hamner Av.	s/o 68th St.	Residential	76'	45
6	Hamner Av.	s/o Riverboat Dr.	Residential	76'	45
7	Hamner Av.	s/o Schleisman Rd.	Residential	76'	45
8	Hamner Av.	s/o Citrus St.	Residential	76'	45
9	Limonite Av.	w/o Hamner Av.	Commercial	76'	45
10	Limonite Av.	e/o Hamner Av.	Commercial	76'	45
11	Limonite Av.	e/o I-15 Fwy.	Commercial	76'	45
12	68th St.	w/o Hamner Av.	Residential	59'	45
13	68th St.	e/o Hamner Av.	Residential	59'	45
14	Riverboat Dr.	w/o Hamner Av.	Residential	37'	40
15	Schleisman Rd.	w/o Scholar Wy.	Residential	76'	45
16	Schleisman Rd.	e/o Scholar Wy.	Residential	76'	45
17	Citrus St.	w/o Hamner Av.	Residential	50'	45
18	Citrus St.	e/o Hamner Av.	Residential	50'	45

TABLE 6-1: OFF-SITE ROADWAY PARAMETERS

¹ Source: City of Eastvale General Plan Land Use Map.

² Distance to adjacent land use is based upon the right-of-way distances for each functional roadway classification provided in the City of Eastvale General Plan Circulation Element.

³ Source: Polopolus Traffic Impact Analysis, September 2017.



			Ave	age Daily T	raffic (1,00	0's)1	
ID	Roadway	Segment	Exis	ting	Opening Year 2019		
יי	Nuduway	Segment	Without Project	With Project	Without Project	With Project	
1	Scholar Wy.	n/o Schleisman Rd.	7.3	7.5	7.9	8.1	
2	Scholar Wy.	s/o Schleisman Rd.	7.0	7.3	7.9	8.1	
3	Hamner Av.	n/o Limonite Av.	25.3	25.6	36.0	36.4	
4	Hamner Av.	s/o Limonite Av.	22.8	24.9	30.1	32.3	
5	Hamner Av.	s/o 68th St.	18.2	21.0	25.6	28.4	
6	Hamner Av.	s/o Riverboat Dr.	26.2	29.1	33.9	36.9	
7	Hamner Av.	s/o Schleisman Rd.	22.4	25.4	29.3	32.2	
8	Hamner Av.	s/o Citrus St.	30.7	32.5	37.4	39.2	
9	Limonite Av.	w/o Hamner Av.	28.7	29.2	37.3	37.8	
10	Limonite Av.	e/o Hamner Av.	42.6	43.9	51.8	53.1	
11	Limonite Av.	e/o I-15 Fwy.	37.9	38.2	48.5	48.9	
12	68th St.	w/o Hamner Av.	9.0	9.4	9.7	10.1	
13	68th St.	e/o Hamner Av.	12.8	13.1	15.1	15.4	
14	Riverboat Dr.	w/o Hamner Av.	3.8	6.2	3.9	6.3	
15	Schleisman Rd.	w/o Scholar Wy.	9.0	9.6	10.7	11.4	
16	Schleisman Rd.	e/o Scholar Wy.	8.2	9.3	9.9	11.0	
17	Citrus St.	w/o Hamner Av.	17.1	17.7	18.9	19.5	

TABLE 6-2: AVERAGE DAILY TRAFFIC VOLUMES

¹ Source: Polopolus Traffic Impact Analysis, September 2017.

TABLE 6-3: TIME OF DAY VEHICLE SPLITS

		Total of Time of		
Vehicle Type	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%

¹ Source: 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: DISTRIBUTION OF TRAFFIC FLOW BY VEHICLE TYPE (VEHICLE MIX)

Classification		Total % Traffic Flow ¹		Total	
Classification	Classification Autos Medium Trucks Heavy Trucks				
All Roadways	97.42%	1.84%	0.74%	100.00%	

¹ Source: Typical Southern California vehicle mix.



6.3 VIBRATION ASSESSMENT

This analysis focuses on the potential ground-borne vibration associated with vehicular traffic and construction activities. Ground-borne vibration levels from automobile traffic are generally overshadowed by vibration generated by heavy trucks that roll over the same uneven roadway surfaces. However, due to the rapid drop-off rate of ground-borne vibration and the short duration of the associated events, vehicular traffic-induced ground-borne vibration is rarely perceptible beyond the roadway right-of-way, and rarely results in vibration levels that cause damage to buildings in the vicinity.

However, while vehicular traffic is rarely perceptible, construction has the potential to result in varying degrees of temporary ground vibration, depending on the specific construction activities and equipment used. Ground vibration levels associated with various types of construction equipment are summarized on Table 6-5. Based on the representative vibration levels presented for various construction equipment types, it is possible to estimate the human response (annoyance) using the following vibration assessment methods defined by the FTA. To describe the human response (annoyance) associated with vibration impacts the FTA provides the following equation: $PPV_{equip} = PPV_{ref} \times (25/D)^{1.5}$

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

TABLE 6-5: VIBRATION SOURCE LEVELS FOR CONSTRUCTION EQUIPMENT

Source: Federal Transit Administration, Transit Noise and Vibration Impact Assessment, May 2006.



7 OFF-SITE TRANSPORTATION NOISE IMPACTS

To assess the off-site transportation CNEL noise level impacts associated with development of the proposed Project, noise contours were developed based on *Polopolus Traffic Impact Analysis*. (2) Noise contour boundaries represent the equal levels of noise exposure and are measured in CNEL from the center of the roadway. Noise contours were developed for the following traffic scenarios:

- <u>Existing Conditions Without / With Project</u>: This scenario refers to the existing present-day noise conditions without and with the proposed Project.
- <u>Opening Year 2019 Without / With the Project</u>: This scenario refers to future year 2019 noise conditions without and with the proposed Project. This scenario includes all cumulative projects identified in the Traffic Impact Analysis.

7.1 TRAFFIC NOISE CONTOURS

To quantify the Project's traffic noise impacts on the surrounding areas, the changes in traffic noise levels on roadway segments surrounding the Project were calculated based on the changes in the average daily traffic volumes. Based on the noise impact significance criteria described in Section 4 and shown on Table 4-2, a significant off-site traffic noise level impact occurs:

- When the noise levels at existing and future noise-sensitive land uses (e.g. residential, etc.):
 - are less than 60 dBA CNEL and the Project creates a *readily perceptible* 5 dBA CNEL or greater Project-related noise level increase; or
 - range from 60 to 65 dBA CNEL and the Project creates a *barely perceptible* 3 dBA CNEL or greater Project-related noise level increase; or
 - already exceed 65 dBA CNEL, and the Project creates a community noise level impact of greater than 1.5 dBA CNEL (FICON, 1992).

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 and 7-4 present a summary of the exterior traffic noise levels, without barrier attenuation, for the 18 study area roadway segments analyzed from both the without Project to the with Project conditions under Existing and Opening Year 2019 conditions. Appendix 7.1 includes a summary of the traffic noise level contours for each of the traffic scenarios.



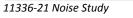
	D Road Segment		Adjacent	CNEL at Nearest	Distance to Contour from Centerline (Feet)		
ID		Segment	Land Use ¹	Adjacent Land Use (dBA) ²	70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	Scholar Wy.	n/o Schleisman Rd.	Residential	65.5	RW	54	117
2	Scholar Wy.	s/o Schleisman Rd.	Residential	65.3	RW	53	114
3	Hamner Av.	n/o Limonite Av.	Commercial	68.8	RW	135	291
4	Hamner Av.	s/o Limonite Av.	Commercial	68.3	RW	126	272
5	Hamner Av.	s/o 68th St.	Residential	67.3	RW	109	234
6	Hamner Av.	s/o Riverboat Dr.	Residential	68.9	RW	138	298
7	Hamner Av.	s/o Schleisman Rd.	Residential	68.2	RW	125	269
8	Hamner Av.	s/o Citrus St.	Residential	69.6	RW	154	331
9	Limonite Av.	w/o Hamner Av.	Commercial	69.3	RW	147	317
10	Limonite Av.	e/o Hamner Av.	Commercial	71.0	89	191	412
11	Limonite Av.	e/o I-15 Fwy.	Commercial	70.5	82	177	381
12	68th St.	w/o Hamner Av.	Residential	65.5	RW	64	137
13	68th St.	e/o Hamner Av.	Residential	67.0	RW	81	174
14	Riverboat Dr.	w/o Hamner Av.	Residential	63.0	RW	RW	59
15	Schleisman Rd.	w/o Scholar Wy.	Residential	64.3	RW	RW	146
16	Schleisman Rd.	e/o Scholar Wy.	Residential	63.9	RW	RW	137
17	Citrus St.	w/o Hamner Av.	Residential	69.2	RW	96	206
18	Citrus St.	e/o Hamner Av.	Residential	60.3	RW	RW	52

TABLE 7-1: EXISTING WITHOUT PROJECT CONDITIONS NOISE CONTOURS

 $^{\rm 1}$ Source: City of Eastvale General Plan Land Use Map.

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

"RW" = Location of the respective noise contour falls within the right-of-way of the road.



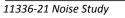
		Segment	Adjacent	CNEL at Nearest	Distance to Contour from Centerline (Feet)		
ID	Road	Segment	Land Use ¹	Adjacent Land Use (dBA) ²	70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	Scholar Wy.	n/o Schleisman Rd.	Residential	65.6	RW	55	119
2	Scholar Wy.	s/o Schleisman Rd.	Residential	65.5	RW	54	117
3	Hamner Av.	n/o Limonite Av.	Commercial	68.8	RW	136	294
4	Hamner Av.	s/o Limonite Av.	Commercial	68.7	RW	134	288
5	Hamner Av.	s/o 68th St.	Residential	67.9	RW	119	257
6	Hamner Av.	s/o Riverboat Dr.	Residential	69.4	RW	148	320
7	Hamner Av.	s/o Schleisman Rd.	Residential	68.8	RW	136	292
8	Hamner Av.	s/o Citrus St.	Residential	69.8	RW	160	344
9	Limonite Av.	w/o Hamner Av.	Commercial	69.4	RW	149	321
10	Limonite Av.	e/o Hamner Av.	Commercial	71.1	91	195	421
11	Limonite Av.	e/o I-15 Fwy.	Commercial	70.5	83	178	383
12	68th St.	w/o Hamner Av.	Residential	65.7	RW	66	141
13	68th St.	e/o Hamner Av.	Residential	67.1	RW	82	176
14	Riverboat Dr.	w/o Hamner Av.	Residential	65.1	RW	38	81
15	Schleisman Rd.	w/o Scholar Wy.	Residential	64.5	RW	RW	153
16	Schleisman Rd.	e/o Scholar Wy.	Residential	64.4	RW	RW	150
17	Citrus St.	w/o Hamner Av.	Residential	69.4	RW	98	211
18	Citrus St.	e/o Hamner Av.	Residential	61.4	RW	RW	62

TABLE 7-2: EXISTING WITH PROJECT CONDITIONS NOISE CONTOURS

 $^{\rm 1}$ Source: City of Eastvale General Plan Land Use Map.

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

"RW" = Location of the respective noise contour falls within the right-of-way of the road.





	D Road		Adjacent	CNEL at Nearest	Distance to Contour from Centerline (Feet)		
ID		Road Segment		Adjacent Land Use (dBA) ²	70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	Scholar Wy.	n/o Schleisman Rd.	Residential	65.9	RW	57	123
2	Scholar Wy.	s/o Schleisman Rd.	Residential	65.9	RW	57	123
3	Hamner Av.	n/o Limonite Av.	Commercial	70.3	79	171	369
4	Hamner Av.	s/o Limonite Av.	Commercial	69.5	RW	152	327
5	Hamner Av.	s/o 68th St.	Residential	68.8	RW	136	294
6	Hamner Av.	s/o Riverboat Dr.	Residential	70.0	76	164	354
7	Hamner Av.	s/o Schleisman Rd.	Residential	69.4	RW	149	321
8	Hamner Av.	s/o Citrus St.	Residential	70.5	81	175	378
9	Limonite Av.	w/o Hamner Av.	Commercial	70.4	81	175	377
10	Limonite Av.	e/o Hamner Av.	Commercial	71.9	101	218	470
11	Limonite Av.	e/o I-15 Fwy.	Commercial	71.6	97	209	450
12	68th St.	w/o Hamner Av.	Residential	65.8	RW	67	144
13	68th St.	e/o Hamner Av.	Residential	67.7	RW	90	194
14	Riverboat Dr.	w/o Hamner Av.	Residential	63.1	RW	RW	60
15	Schleisman Rd.	w/o Scholar Wy.	Residential	65.0	RW	76	164
16	Schleisman Rd.	e/o Scholar Wy.	Residential	64.7	RW	RW	156
17	Citrus St.	w/o Hamner Av.	Residential	69.7	RW	102	220
18	Citrus St.	e/o Hamner Av.	Residential	62.3	RW	RW	72

TABLE 7-3: OPENING YEAR 2019 WITHOUT PROJECT CONDITIONS NOISE CONTOURS

 $^{\rm 1}$ Source: City of Eastvale General Plan Land Use Map.

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

"RW" = Location of the respective noise contour falls within the right-of-way of the road.



			Adjacent	CNEL at Nearest	Distance to Contour from Centerline (Feet)		
ID	Road	Segment	Land Use ¹	Adjacent Land Use (dBA) ²	70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	Scholar Wy.	n/o Schleisman Rd.	Residential	66.0	RW	58	125
2	Scholar Wy.	s/o Schleisman Rd.	Residential	66.0	RW	58	125
3	Hamner Av.	n/o Limonite Av.	Commercial	70.3	80	172	371
4	Hamner Av.	s/o Limonite Av.	Commercial	69.8	RW	159	343
5	Hamner Av.	s/o 68th St.	Residential	69.3	RW	146	315
6	Hamner Av.	s/o Riverboat Dr.	Residential	70.4	81	174	375
7	Hamner Av.	s/o Schleisman Rd.	Residential	69.8	RW	159	342
8	Hamner Av.	s/o Citrus St.	Residential	70.7	84	181	390
9	Limonite Av.	w/o Hamner Av.	Commercial	70.5	82	177	381
10	Limonite Av.	e/o Hamner Av.	Commercial	72.0	103	222	478
11	Limonite Av.	e/o I-15 Fwy.	Commercial	71.6	97	210	452
12	68th St.	w/o Hamner Av.	Residential	66.0	RW	69	148
13	68th St.	e/o Hamner Av.	Residential	67.8	RW	91	196
14	Riverboat Dr.	w/o Hamner Av.	Residential	65.2	RW	38	82
15	Schleisman Rd.	w/o Scholar Wy.	Residential	65.3	RW	79	171
16	Schleisman Rd.	e/o Scholar Wy.	Residential	65.1	RW	78	167
17	Citrus St.	w/o Hamner Av.	Residential	69.8	RW	104	225
18	Citrus St.	e/o Hamner Av.	Residential	62.9	RW	RW	78

TABLE 7-4: OPENING YEAR 2019 WITH PROJECT CONDITIONS NOISE CONTOURS

¹ Source: City of Eastvale General Plan Land Use Map.

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

"RW" = Location of the respective noise contour falls within the right-of-way of the road.

7.2 EXISTING CONDITION PROJECT TRAFFIC NOISE LEVEL CONTRIBUTIONS

Table 7-1 presents the Existing without Project conditions CNEL noise levels. The without Project exterior noise levels are expected to range from 60.3 to 71.0 dBA CNEL, without accounting for any noise attenuation features such as noise barriers or topography. Table 7-2 shows the Existing with Project conditions will range from 61.4 to 71.1 dBA CNEL. As shown on Table 7-5 the Project will generate a noise level increase of up to 2.1 dBA CNEL on the study area roadway segments. Based on the significance criteria in Section 4, the Project-related noise level increases are considered *less than significant* under Existing with Project conditions at the land uses adjacent to roadways conveying Project traffic.



ID	Road	Road Segment		CN La	Threshold Exceeded? ³		
			Land Use ¹	No Project	With Project	Project Addition	Exceeded
1	Scholar Wy.	n/o Schleisman Rd.	Residential	65.5	65.6	0.1	No
2	Scholar Wy.	s/o Schleisman Rd.	Residential	65.3	65.5	0.2	No
3	Hamner Av.	n/o Limonite Av.	Commercial	68.8	68.8	0.1	No
4	Hamner Av.	s/o Limonite Av.	Commercial	68.3	68.7	0.4	No
5	Hamner Av.	s/o 68th St.	Residential	67.3	67.9	0.6	No
6	Hamner Av.	s/o Riverboat Dr.	Residential	68.9	69.4	0.5	No
7	Hamner Av.	s/o Schleisman Rd.	Residential	68.2	68.8	0.5	No
8	Hamner Av.	s/o Citrus St.	Residential	69.6	69.8	0.2	No
9	Limonite Av.	w/o Hamner Av.	Commercial	69.3	69.4	0.1	No
10	Limonite Av.	e/o Hamner Av.	Commercial	71.0	71.1	0.1	No
11	Limonite Av.	e/o I-15 Fwy.	Commercial	70.5	70.5	0.0	No
12	68th St.	w/o Hamner Av.	Residential	65.5	65.7	0.2	No
13	68th St.	e/o Hamner Av.	Residential	67.0	67.1	0.1	No
14	Riverboat Dr.	w/o Hamner Av.	Residential	63.0	65.1	2.1	No
15	Schleisman Rd.	w/o Scholar Wy.	Residential	64.3	64.5	0.3	No
16	Schleisman Rd.	e/o Scholar Wy.	Residential	63.9	64.4	0.5	No
17	Citrus St.	w/o Hamner Av.	Residential	69.2	69.4	0.1	No
18	Citrus St.	e/o Hamner Av.	Residential	60.3	61.4	1.0	No

TABLE 7-5: EXISTING CONDITION OFF-SITE PROJECT-RELATED TRAFFIC NOISE IMPACTS

¹Source: City of Eastvale General Plan Land Use Map.

² The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the nearest adjacent land use. ³ Significance Criteria (Section 4).

7.3 OPENING YEAR 2019 PROJECT TRAFFIC NOISE LEVEL CONTRIBUTIONS

Table 7-3 presents the Opening Year 2019 without Project conditions CNEL noise levels which are expected to range from 62.3 to 71.9 dBA CNEL, without accounting for any noise attenuation features such as noise barriers or topography. Table 7-4 shows the Opening Year 2019 with Project conditions will range from 62.9 to 72.0 dBA CNEL. As shown on Table 7-6 the Project will generate a noise level increase of up to 2.1 dBA CNEL on the study area roadway segments. Based on the significance criteria in Section 4, the Project-related noise level increases are considered *less than significant* under Opening Year 2019 with Project conditions at the land uses adjacent to roadways conveying Project traffic.



ID	Road	Segment	Adjacent Land Use ¹		•	CNEL at Adjacent Land Use (dBA) ¹	
				No Project	With Project	Project Addition	Exceeded? ²
1	Scholar Wy.	n/o Schleisman Rd.	Residential	65.9	66.0	0.1	No
2	Scholar Wy.	s/o Schleisman Rd.	Residential	65.9	66.0	0.1	No
3	Hamner Av.	n/o Limonite Av.	Commercial	70.3	70.3	0.0	No
4	Hamner Av.	s/o Limonite Av.	Commercial	69.5	69.8	0.3	No
5	Hamner Av.	s/o 68th St.	Residential	68.8	69.3	0.5	No
6	Hamner Av.	s/o Riverboat Dr.	Residential	70.0	70.4	0.4	No
7	Hamner Av.	s/o Schleisman Rd.	Residential	69.4	69.8	0.4	No
8	Hamner Av.	s/o Citrus St.	Residential	70.5	70.7	0.2	No
9	Limonite Av.	w/o Hamner Av.	Commercial	70.4	70.5	0.1	No
10	Limonite Av.	e/o Hamner Av.	Commercial	71.9	72.0	0.1	No
11	Limonite Av.	e/o I-15 Fwy.	Commercial	71.6	71.6	0.0	No
12	68th St.	w/o Hamner Av.	Residential	65.8	66.0	0.2	No
13	68th St.	e/o Hamner Av.	Residential	67.7	67.8	0.1	No
14	Riverboat Dr.	w/o Hamner Av.	Residential	63.1	65.2	2.1	No
15	Schleisman Rd.	w/o Scholar Wy.	Residential	65.0	65.3	0.3	No
16	Schleisman Rd.	e/o Scholar Wy.	Residential	64.7	65.1	0.5	No
17	Citrus St.	w/o Hamner Av.	Residential	69.7	69.8	0.1	No
18	Citrus St.	e/o Hamner Av.	Residential	62.3	62.9	0.6	No

TABLE 7-6: OPENING YEAR 2019 OFF-SITE PROJECT-RELATED TRAFFIC NOISE IMPACTS

¹Source: City of Eastvale General Plan Land Use Map.

² The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the nearest adjacent land use. ³ Significance Criteria (Section 4).



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8 **RECEIVER LOCATIONS**

To assess the potential for long-term operational noise and short-term construction noise and vibration impacts, the following 11 receiver locations as shown on Exhibit 8-A were identified as representative locations for focused 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, out-patient 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, natural open space, undeveloped land, parking lots, warehousing, liquid and solid waste facilities, salvage yards, and transit terminals.

Sensitive receivers near the Project site include existing residential homes, a fire station, a church, and a park, as described below. The closest sensitive receiver locations are represented by R3 and R7 to R9, at approximately 10 to 19 feet from the Project site boundaries. 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.

- R1: Located approximately 88 feet north of the Project site, R1 represents existing outdoor living areas (backyards) of residential homes at 12653 & 12679 Thornbury Lane. A 24hour noise level measurement, L2, and a short-term one-hour noise level measurement, S1, were taken near this location to describe the existing ambient noise environment.
- R2: Location R2 represents existing outdoor living areas (backyards) of residential homes located approximately 197 feet northeast of the Project site on Hudson River Drive. A 24-hour noise level measurement was taken near this location, L1, to describe the existing ambient noise environment.
- R3: Location R3 represents existing outdoor living area (backyard) of a residential home located approximately 10 feet west of the Project site at 7012 College Park Drive. A 24-hour noise level measurement, L2, and a short-term one-hour noise level measurement, S2, were taken near this location to describe the existing ambient noise environment.
- R4: Location R4 represents existing outdoor living area (backyard) of a residential home located approximately 10 feet west of the Project site at 7022 College Park Drive. A 24-hour noise level measurement, L2, and a short-term one-hour noise level measurement, S2, were taken near this location to describe the existing ambient noise environment.
- R5: Location R5 represents existing outdoor living area (backyard) of a residential home located approximately 10 feet west of the Project site at 7032 College Park Drive. A 24-hour noise level measurement, L2, and a short-term one-hour noise level measurement, S3, were taken near this location to describe the existing ambient noise environment.



- R6: Location R6 represents existing outdoor living area (backyard) of a residential home located approximately 10 feet west of the Project site at 7042 College Park Drive. A 24-hour noise level measurement, L2, and a short-term one-hour noise level measurement, S4, were taken near this location to describe the existing ambient noise environment.
- R7: Location R7 represents existing outdoor living areas (backyards) of residential homes located approximately 173 feet east of the Project site on Mackinaw Court. A 24-hour noise level measurement was taken near this location, L3, to describe the existing ambient noise environment.
- R8: Location R8 represents existing fire station located approximately 146 feet south of the Project site on Hamner Avenue. A 24-hour noise level measurement was taken near this location, L3, to describe the existing ambient noise environment.
- R9: Location R9 represents the existing church located approximately 537 feet west of the Project site on Schleisman Road. A 24-hour noise level measurement was taken near this location, L6, to describe the existing ambient noise environment.
- R10: Location R10 represents the existing outdoor living areas (backyards) of residential homes located approximately 19 feet north of the Project site on Mississippi Drive. A 24-hour noise level measurement was taken near this location, L4, to describe the existing ambient noise environment.
- R11: Location R11 represents the existing outdoor living areas (backyards) of residential homes located approximately 12 feet north of the Project site on Mississippi Drive. A 24-hour noise level measurement was taken near this location, L4, to describe the existing ambient noise environment.
- R12: Location R12 represents existing outdoor living areas (backyards) of residential homes located approximately 10 feet east of the Project site on Kern River Drive. A 24-hour noise level measurement was taken near this location, L5, to describe the existing ambient noise environment.
- R13: Location R13 represents the existing outdoor living areas (backyards) residential homes located approximately 151 feet west of the Project site across Hamner Avenue. A 24-hour noise level measurement was taken near this location, L7, to describe the existing ambient noise environment.
- R14: Location R14 represents the existing Silverlakes Sports Complex located approximately 99 feet south of the Project site, east of Hamner Avenue. A 24-hour noise level measurement was taken near this location, L8, to describe the existing ambient noise environment.





EXHIBIT 8-A: RECEIVER LOCATIONS



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9 OPERATIONAL IMPACTS

This section analyzes the potential operational noise impacts due to the Project's stationary noise sources on the off-site sensitive receiver locations identified in Section 8. Exhibit 9-A identifies the receiver locations and noise source locations used to assess the Project-related operational noise levels from uses proposed in Site 1, and Exhibit 9-B shows the receiver locations and noise source locations used to perational noise levels from the proposed to evaluate the Project-related operational noise levels from the proposed car wash in Site 2.

9.1 **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-through speakerphones, parking lot vehicle movements, and gas station activities within Site 1, and car wash tunnel entrance activity, tunnel exit activity, and vacuum activities within Site 2 all operating simultaneously. In reality, these noise level impacts will likely vary throughout the day and/or nighttime hours.



Noise Source	Duration	Ref. Noise Distance Source		Hourly	Reference Noise Level (dBA L _{eq})				
Noise Source	(hh:mm:ss)	(Feet)	Height (Feet)	Activity (Mins) ⁷	@ Ref. Dist.	@ 50 Feet			
Site 1 Reference Noise Levels									
Roof-Top Air Conditioning Unit ¹	96:00:00	5'	5'	39	77.2	57.2			
Drive-Through Speakerphone ²	00:02:00	15'	3'	60	62.0	51.5			
Parking Lot Vehicle Movements ³	00:15:00	5'	5'	60	60.1	45.1			
Gas Station Activity ⁴	00:03:00	5'	5'	60	68.2	48.2			
Site 2 Reference Noise Levels									
Car Wash Entrance Activity ⁵	01:00:00	20'	5'	60	71.7	63.7			
Car Wash Tunnel Exit (Air Blowers/Dryer) ⁵	-	40'	10'	20	71.3	69.4			
Car Wash Vacuum Activity ⁶	00:01:02	5'	5'	60	74.6	54.6			

TABLE 9-1:	REFERENCE NOISE LEVEL MEASUREMENTS
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¹ As measured by Urban Crossroads, Inc. on 7/27/2015 at the Santee Walmart located at 170 Town Center Parkway.

² As measured by Urban Crossroads, Inc. on 12/19/2014 at a Panera Bread drive-thru in the City of Brea.

³ As measured by Urban Crossroads, Inc. on 5/30/2012 at the Laguna Niguel Walmart located at 27470 Alicia Parkway.

⁴ As measured by Urban Crossroads, Inc. on 4/26/2016 at an ARCO gas station located at 6501 Quail Hill Parkway in the City of Irvine.

⁵ Source: Fast5Xpress Car Wash, Motor City Wash Works reference noise level at 40 feet adjusted to reflect the observed operating time of the air blowers and dryers at the Fast5Xpress car wash in the City of Irvine on 1/23/2018.

⁶ As measured by Urban Crossroads, Inc. on 5/27/2011 at an express car wash located at 1195 Baker Street in Costa Mesa.

⁷ Anticipated duration (minutes within the hour) of noise activity during typical hourly conditions expected at the Project site based on the reference noise level measurement activity.

9.1.1 ROOF-TOP AIR CONDITIONING UNITS (SITE 1)

To assess the noise levels created by the roof-top air conditioning units at the Project site, reference noise levels measurements were taken at the Santee Walmart on July 27th, 2015. Located at 170 Town Center Parkway in the City of Santee, the noise level measurements describe a single mechanical roof-top air conditioning unit on the roof of an existing Walmart store. The reference noise level represents a Lennox SCA120 series 10-ton model packaged air conditioning unit. Using a uniform reference distance of 50 feet, the reference noise level noise level is 57.2 dBA L_{eq}. The operating conditions of the reference noise level measurement reflect peak summer cooling requirements with measured temperatures approaching 96 degrees Fahrenheit (°F) with average daytime temperatures of 82°F. The noise attenuation provided by a parapet wall is not reflected in this reference noise level measurement. Based on the typical operating conditions observed over a four-day measurement period, the roof-top air conditioning units are estimated to operate for 39 minutes per hour during the peak hour.



9.1.2 DRIVE-THRU SPEAKERPHONE (SITE 1)

To describe the potential noise level impacts associated with potential drive-thru speakerphones and vehicle activities, a reference noise level measurement was collected on Friday, December 19th, 2014 at a Panera Bread restaurant located at 423 South Associated Road in the City of Brea. The reference noise levels collected at the Panera Bread restaurant are expected to reflect potential drive-thru speakerphone noise level activities at the Project site, since the reference measurement includes both drive-thru speakerphone and vehicle activity noise. The noise sources included in the reference noise level measurement consist of voices of the Panera Bread employees over the speakerphone, customers' voices ordering food, car engines idling, car radios playing music, and cars queuing in the drive-thru lane. At 50 feet from the speakerphone, a reference noise level of 51.5 dBA L_{eq} was measured. This reference noise level measurement overstates the actual average noise levels since it represents the average of 28 speakerphone menu board ordering events observed over a two-hour period. In other words, the Panera Bread speakerphone menu board reference noise level describes continuous drive-thru operations and does not include any periods of inactivity.

9.1.3 PARKING LOT VEHICLE MOVEMENTS (SITE 1)

To determine the noise levels associated with commercial parking lot vehicle movements, Urban Crossroads collected reference noise level measurements at the Laguna Niguel Walmart located at 27470 Alicia Parkway on May 30, 2012. The 15-minute noise level measurement indicates that the parking lot vehicle movements generates noise levels of 45.1 dBA L_{eq} at a normalized distance of 50 feet. The parking lot noise levels are mainly due to cars pulling in and out of spaces, car alarms sounding, and customers moving shopping carts. Noise associated with parking lot vehicle movements is expected during the entire hour (60 minutes).

9.1.4 Gas Station Activity (Site 1)

To describe the potential noise level impacts created by the gas station of the proposed Project uses, a reference noise level measurement was collected on Tuesday, April 26th, 2016 at an ARCO gas station located at 6501 Quail Hill Parkway in the City of Irvine. The reference noise level measurement includes six cars fueling at once, car doors closing, engines starting, fuel pump TV sounds, and background car pass-by events within a 3-minute period. At a uniform reference noise level noise level distance of 50 feet, the reference noise level is 48.2 dBA L_{eq}.

9.1.5 CAR WASH ENTRANCE ACTIVITY (SITE 2)

On January 23^{rd} , 2018, a reference noise level measurement was taken by Urban Crossroads, Inc. at the Fast5Xpress car wash in the City of Irvine to describe the car wash tunnel entrance and vehicle movement activities at the Project site. A reference noise level of 63.7 dBA L_{eq} was measured at the uniform reference distance of 50 feet. The entirety of the reference measurement was collected over a period of 24-hours to determine the peak hour of activity, which is used as the reference noise level in this analysis to present a conservative approach. The reference noise level measurement includes vehicles queueing for the car wash tunnel, employees and customers talking, music playing in vehicles, and car wash tunnel water and soap spraying activities. It is anticipated that the car wash entrance activity will occur for the entire hour (60 minutes) during peak conditions to present a conservative approach.

9.1.6 CAR WASH TUNNEL EXIT ACTIVITY (SITE 2)

Reference car wash tunnel noise level measurement data was provided by Fast5Xpress, the planned operator of the Site 2 car wash use, based on the planned tunnel exit air blowers and dryer equipment. The Fast5Xpress car wash equipment manufacture Motor City Wash Works indicates that the air blower and dryer noise level produce a reference noise level of 76 dBA at 40 feet under peak operating conditions. This does not account for the actual time-weighted energy average noise levels during typical daytime Project operational conditions. (24) Based on an existing Fast5Xpress car wash in the City of Irvine, the peak operating activity of the car wash tunnel air blowers and dryers at the tunnel exit were observed to operate for 20 minutes of the hour, during continuous operation. Therefore, the reference noise level shown on Table 9-1 reflects the observed operating conditions and uniform reference distance of 50 feet to result in an hourly average car wash tunnel exit reference noise level of 69.4 dBA Leq. The reference noise level measurement includes five 90 horse-power car wash tunnel exit air blowers operating simultaneously, in addition to a dry-n-shine car dryer. Appendix 9.1 includes the car wash tunnel exit reference noise level specifications.

9.1.7 CAR WASH VACUUM ACTIVITY (SITE 2)

To represent the self-serve vacuums within the Project site, a reference noise level measurement was collected on May 27th, 2011 at an express car wash located at 1195 Baker Street in the City of Costa Mesa. The reference noise level measurement represents up to four vacuums operating simultaneously at the Costa Mesa express car wash. At a uniform reference distance of 50 feet, the vacuum reference noise level is 54.6 dBA L_{eq}. It is anticipated that the vacuums will operate during the entire hour of peak Project activity, as modeled in this noise study.

It is important to note that the reference car wash tunnel exit activity measurement, described in Section 9.1.6, includes background vacuum activity which may result in a doubling of vacuumgenerated noise levels accounted for the operational noise analysis. However, to present a conservative approach both reference noise level measurements are used in this analysis.

9.2 SITE 1 OPERATIONAL NOISE LEVELS

Based upon the Site 1 reference noise levels, it is possible to estimate the Project operational stationary-source noise levels at each of the sensitive receiver locations adjacent to Site 1. The operational noise level calculations shown on Table 9-2 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. Hard site conditions are used in the operational noise analysis which result in noise levels that attenuate (or decrease) at a rate of 6 dBA for each doubling of distance from a point source. The basic noise attenuation equation shown below is used to calculate the distance attenuation based on a reference noise level (SPL1):

$$SPL_2 = SPL_1 - 20log(D_2/D_1)$$

Where SPL_2 is the resulting noise level after attenuation, SPL_1 is the source noise level, D_2 is the distance to the reference sound pressure level (SPL_1), and D_1 is the distance to the receiver location. Table 9-2 indicates that the hourly noise levels associated with Site 1 operational noise sources are expected to range from 35.5 to 47.0 dBA L_{eq} at the sensitive off-site receiver locations. The operational noise level calculation worksheets are included in Appendix 9.2.

To demonstrate compliance with local noise regulations, the Project-only operational noise levels are evaluated against exterior noise level threshold based on the City of Eastvale exterior noise level standards. Table 9-2 shows the operational noise levels associated with Site 1 of the Polopolus Project will satisfy the City of Eastvale 60 dBA L_{eq} daytime and 50 dBA L_{eq} nighttime exterior noise level standards at all adjacent receiver locations (R9 to R14). Receiver locations R1 to R8 are included in the Site 2 Project operational noise level analysis since they are located adjacent to Site 2.

		Site 1 Noise	Sources ²		Combined Site 1	Threshold Exceeded? ⁴		
Receiver Location ¹	Roof-Top Air Conditioning Unit	Drive-Through Speakerphone	Parking Lot Vehicle Movements	Gas Station Activity	Operational Noise Levels (dBA L _{eq}) ³	Daytime (60 dBA L _{eq})	Nighttime (50 dBA L _{eq})	
R9	33.4	26.8	27.0	26.1	35.5	No	No	
R10	46.6	26.7	35.2	29.6	47.0	No	No	
R11	43.9	21.6	36.7	20.1	44.7	No	No	
R12	43.5	18.6	36.9	15.9	44.4	No	No	
R13	36.7	29.3	29.9	26.7	38.4	No	No	
R14	43.8	31.6	37.3	25.0	44.9	No	No	

TABLE 9-2: UNMITIGATED PROJECT OPERATIONAL NOISE LEVELS (SITE 1)

¹ See Exhibit 9-A for the receiver and noise source locations.

² Reference noise sources as shown on Table 9-1.

³ Calculations for each noise source are provided in Appendix 9.2.

⁴ Exterior noise level standards as shown on Exhibit 3-A. Do the estimated Project operational noise source activities exceed the noise level threshold?



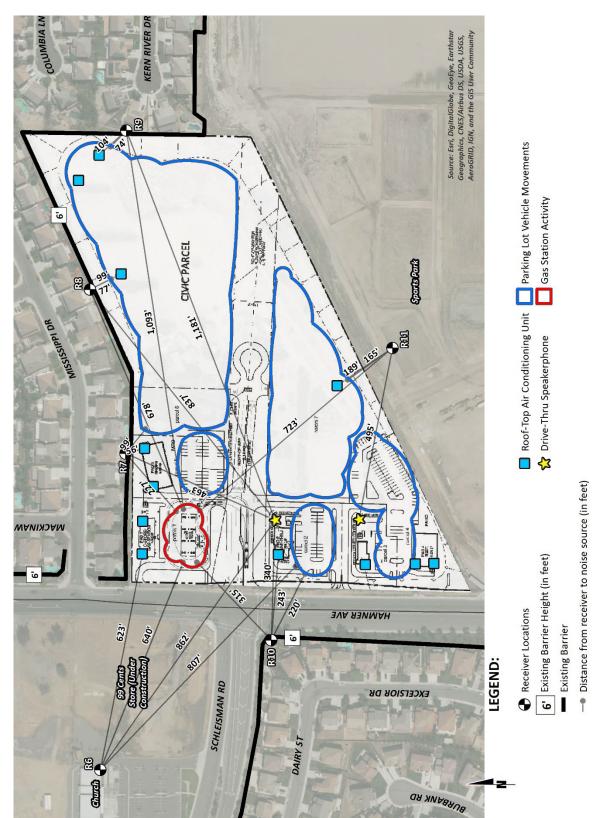


EXHIBIT 9-A: SITE 1 OPERATIONAL NOISE SOURCE AND RECEIVER LOCATIONS

56

9.3 SITE 2 OPERATIONAL NOISE LEVELS

This section provides a detailed analysis of the Project operational noise levels associated with the reference Site 2 car wash activities described in Section 9.1. Exhibit 9-B shows the Site 2 operational noise sources associated with the proposed car wash.

9.3.1 CADNAA NOISE PREDICTION MODEL

To fully describe the exterior operational noise levels from the Polopolus development, Urban Crossroads, Inc. developed a noise prediction model using the CadnaA (Computer Aided Noise Abatement) computer program. CadnaA can analyze the noise level of multiple types of noise sources and calculates the noise levels at any location using the spatially accurate Project site plan and includes the effects of topography, buildings, and multiple barriers in its calculations using the latest standards to predict outdoor noise impacts.

Using the spatially accurate Project site plan and flown aerial imagery from Google Earth, a CadnaA noise prediction model of the Project study area was developed. The noise model provides a three-dimensional representation of the Project study area using the following key data inputs:

- Ground absorption (hard site conditions);
- Reflections at all buildings and barriers;
- Reference noise level sources by type (e.g., area, point, etc.);
- Reference noise source geometry;
- Multiple noise receiver locations and heights;
- Existing barrier attenuation.

Based on these data inputs, the CadnaA noise prediction model will calculate the distance from each noise source to the receiver locations, in addition to the ground absorption, distance, and barrier/building attenuation to provide a summary of noise level calculations at each receiver location, and the partial noise level contributions by each noise source. The reference sound power level (PWL) for each noise source is used in the CadnaA noise prediction model. While sound pressure levels (e.g. L_{eq}) quantify in decibels the intensity of given sound sources at a reference distance, sound power levels (PWL) 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. Hard site conditions are used in the operational noise analysis which result in noise levels that attenuate (or decrease) at a rate of 6 dBA for each doubling of distance from a point source. The basic noise attenuation



equation shown below is used to calculate the distance attenuation based on a reference noise level (SPL₁):

$$SPL_2 = SPL_1 - 20log(D_2/D_1)$$

Where SPL_2 is the resulting noise level after attenuation, SPL_1 is the source noise level, D_2 is the distance to the reference sound pressure level (SPL_1), and D_1 is the distance to the receiver location. Appendix 9.3 includes the CadnaA noise model inputs and calculation data.

9.3.2 SITE 2 UNMITIGATED OPERATIONAL NOISE LEVELS

Table 9-3 indicates that the hourly noise levels associated with Site 2 operational noise sources are expected to range from 47.2 to 59.4 dBA L_{eq} at sensitive off-site receiver locations R1 to R8, including backyard, first-floor and second-floor building façades at the closest receiver locations to the car wash, R1 and R3 to R6. To demonstrate compliance with local noise regulations, the Project-only operational noise levels are evaluated against exterior noise level threshold based on the City of Eastvale exterior noise level standards.

Table 9-3 shows the unmitigated operational noise levels associated with Site 1 of the Polopolus Project will remain below the City of Eastvale 60 dBA L_{eq} daytime exterior noise level standards at all the nearby sensitive receiver locations. However, the received car wash noise levels would exceed the 50 dBA L_{eq} nighttime (10:00 p.m. to 7:00 a.m.) exterior noise level standard at locations nearest the Site 2 car wash (R1 and R3 to R6). This is a *potentially significant* impact. Therefore, to satisfy the City of Eastvale nighttime noise standards, Noise mitigation measure NOI-1 requires that car wash activity be limited to the daytime hours between (7:00 a.m. and 10:00 p.m.). With application of mitigation measure NOI-1 impacts at receiver locations R1 and R3 to R6 would be *less than significant*.

NOI-1 No car wash activities shall be permitted during the nighttime hours of 10:00 p.m. to 7:00 a.m.



Receiver Location ¹		Site 2 Noise Sources ²			Combined Site 2	Noise Level Standard (dBA L _{eq}) ⁴		Threshold Exceeded? ⁵	
ID	Location	Car Wash Entrance Activity	Car Wash Tunnel Exit	Car Wash Vacuum Activity	Operational Noise Levels (dBA L _{eq}) ³	Daytime	Nighttime	Daytime	Nighttime
R1		50.4	31.5	40.2	50.8	60	50	No	Yes
R2		47.0	29.5	31.0	47.2	60	50	No	No
R3	-	56.1	34.5	45.1	56.4	60	50	No	Yes
R4	yarc	56.6	36.1	46.3	57.0	60	50	No	Yes
R5	Backyard	56.5	36.7	45.4	56.8	60	50	No	Yes
R6		56.3	54.2	41.9	58.5	60	50	No	Yes
R7		49.7	34.4	24.1	49.8	60	50	No	No
R8		50.7	50.9	33.7	53.9	60	50	No	Yes
R1		48.1	29.0	37.9	48.6	60	50	No	No
R2		_6	_6	_6	_6	_6	_6	_6	_6
R3	ade	53.3	32.3	42.9	53.7	60	50	No	Yes
R4	First-Floor Building Façade	53.6	33.5	43.9	54.1	60	50	No	Yes
R5	irst-l	53.1	33.8	42.9	53.6	60	50	No	Yes
R6	Fi Build	53.0	51.7	40.6	55.5	60	50	No	Yes
R7		_6	_6	_6	_6	_6	_6	_6	_6
R8		_6	_6	_6	_6	_6	_6	_6	_6
R1		53.1	33.5	42.9	53.5	60	50	No	Yes
R2		_6	_6	_6	_6	_6	_6	_6	_6
R3	or ade	_7	_7	_7	_7	_7	_7	_7	_7
R4	Second-Floor Building Façade	57.7	43.3	48.8	58.3	60	50	No	Yes
R5		56.7	51.7	47.7	58.3	60	50	No	Yes
R6		57.1	54.9	45.4	59.4	60	50	No	Yes
R7		_6	_6	_6	_6	_6	_6	_6	_6
R8		_6	_6	_6	_6	_6	_6	_6	_6

TABLE 9-3: UNMITIGATED PROJECT OPERATIONAL NOISE LEVELS (SITE 2)

¹ See Exhibit 9-B for the receiver and noise source locations.

² Reference noise sources as shown on Table 9-1.

³ Calculations for each noise source are provided in Appendix 9.3.

⁴ Exterior noise level standards as shown on Exhibit 3-A.

⁵ Do the estimated Project operational noise source activities exceed the noise level threshold?

⁶ Receiver locations R2, R7, and R8 are located further from the Project site than those residential homes directly adjacent to the Project Site 2 car wash, and as such, are excluded from the extra building facade analysis for residential homes immediately adjacent to the Project.

⁷ Single-story residential home (without a second-floor building facade for this analysis).



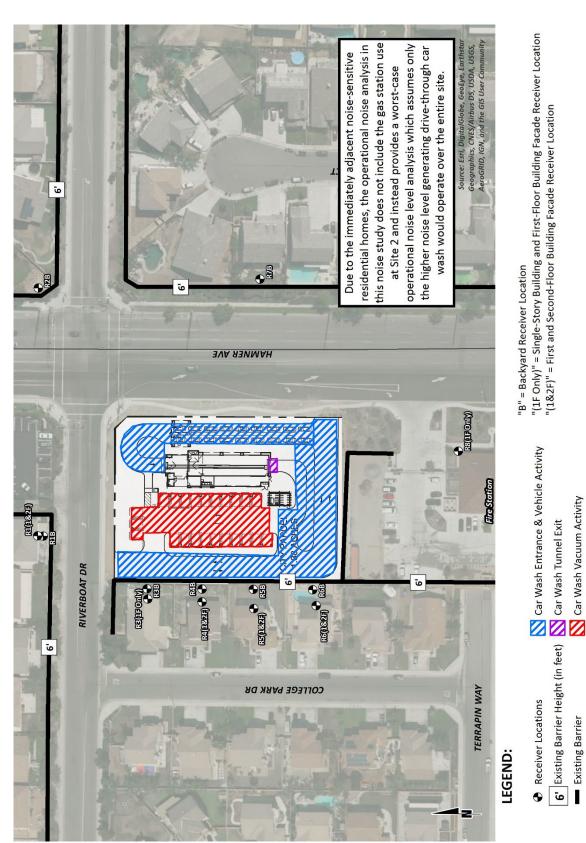


EXHIBIT 9-B: SITE 2 OPERATIONAL NOISE SOURCE AND RECEIVER LOCATIONS

11336-21 Noise Study

Existing Barrier



09

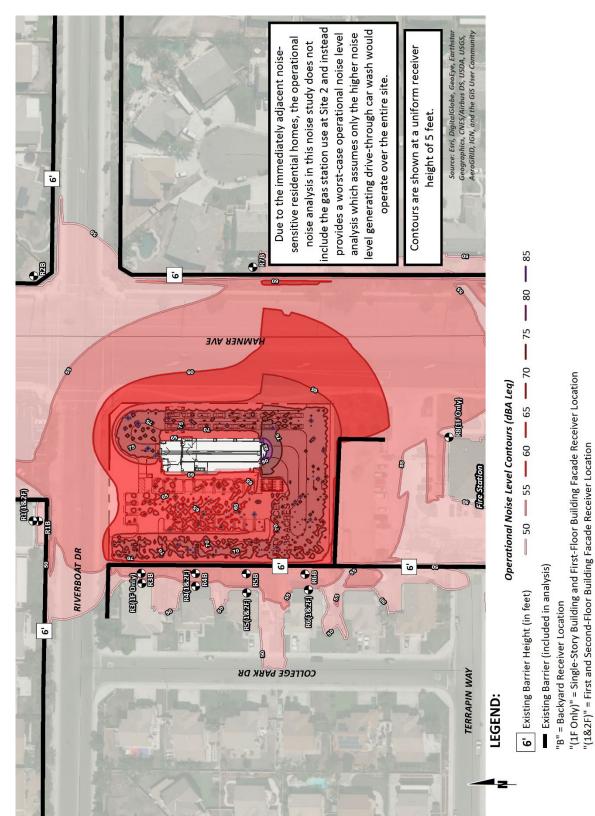


EXHIBIT 9-C: SITE 2 UNMITIGATED OPERATIONAL NOISE LEVEL CONTOURS

61

9.4 PROJECT OPERATIONAL NOISE CONTRIBUTIONS

To describe the Project operational noise level contributions, the Project operational noise levels were combined with the existing ambient noise levels measurements for the off-site 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. (4) 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 describe the Project noise level contributions. Project operational noise level contributions to the existing ambient noise environment are analyzed under the following scenarios:

Daytime

- Without and with Project Site 1 and 2 operational noise levels at outdoor living areas (backyards) and first-floor building façades;
- Without and with Project Site 2 (car wash) operational noise levels at first and second-floor building façades closest to the car wash use.

Nighttime

• Without and with Project Site 1 operational noise levels at outdoor living areas (backyards) and first-floor building façades (no Site 2 car wash activities shall be permitted to operate during nighttime hours as a part of Project operational noise mitigation).

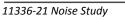
9.4.1 DAYTIME PROJECT OPERATIONAL NOISE LEVEL INCREASES (SITES 1 & 2)

As indicated on Table 9-4, the Project will contribute an operational noise level increase during the daytime hours ranging from 0.0 to 4.9 dBA L_{eq}. Based on the significance criteria described in Section 4, the highest unmitigated Project-related operational noise level increases of 4.9 dBA L_{eq} during the daytime hours at receiver location R6 represents a *less than significant* noise level impact when the without Project conditions are below 60 dBA L_{eq}.

9.4.2 NIGHTTIME PROJECT OPERATIONAL NOISE LEVEL INCREASES (SITE 1)

Since Site 2 car wash uses will be prohibited to operate during the noise-sensitive nighttime hours of 10:00 p.m. to 7:00 a.m., as previously described in Section 9.3, the nighttime Project-only operational noise level increases described in this section appropriately do not include any nighttime noise level increases at receiver locations R1 to R8 adjacent to Site 2.

During the nighttime hours, Project-only operational noise level contributions are shown to range between 0.0 to 0.3 dBA L_{eq} at receiver locations R9 to R14 near Site 1. Based on the significance criteria described in Section 4, the highest unmitigated Project-related operational noise level





increases of 0.3 dBA L_{eq} during the nighttime hours represents a *less than significant* noise level impact.

Receiver Location ¹	Total Project Operational Noise Level (dBA Leq) ²	Measurement Location ³	Reference Ambient Noise Levels (dBA L _{eq}) ⁴	Combined Project and Ambient (dBA Leq) ⁵	Project Contribution (dBA L _{eq}) ⁶	Threshold Exceeded? ⁷
R1	50.8	S1	58.9	59.5	0.6	No
R2	47.2	L1	79.9	79.9	0.0	No
R3	56.4	S2	57.1	59.8	2.7	No
R4	57.0	S2	57.1	60.1	3.0	No
R5	56.8	S3	56.0	59.5	3.5	No
R6	58.5	S4	55.2	60.1	4.9	No
R7	49.8	L3	61.3	61.6	0.3	No
R8	53.9	L3	61.3	62.0	0.7	No
R9	35.5	L6	60.5	60.5	0.0	No
R10	47.0	L4	58.9	59.2	0.3	No
R11	44.7	L4	58.9	59.1	0.2	No
R12	44.4	L5	59.2	59.3	0.1	No
R13	38.4	L7	71.1	71.1	0.0	No
R14	44.9	L8	71.8	71.8	0.0	No

TABLE 9-4: UNMITIGATED DAYTIME OPERATIONAL NOISE LEVEL INCREASES (SITES 1 & 2)

¹ See Exhibits 9-A and 9-B for the sensitive receiver locations.

 $^{\rm 2}$ Unmitigated Project operational noise levels as shown on Tables 9-2 and 9-3.

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

 $^{\rm 4}$ Observed daytime ambient noise levels as shown on Table 5-1 and 5-2.

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 Criteria as defined in Section 4.



Receiver Location ¹	Total Project Operational Noise Level (dBA L _{eq}) ²	Measurement Location ³	Reference Ambient Noise Levels (dBA L _{eq}) ⁴	Combined Project and Ambient (dBA Leq) ⁵	Project Contribution (dBA L _{eq}) ⁶	Threshold Exceeded? ⁷
R9	35.5	L6	56.6	56.6	0.0	No
R10	47.0	L4	58.4	58.7	0.3	No
R11	44.7	L4	58.4	58.6	0.2	No
R12	44.4	L5	59.8	59.9	0.1	No
R13	38.4	L7	65.6	65.6	0.0	No
R14	44.9	L8	68.2	68.2	0.0	No

TABLE 9-5: UNMITIGATED NIGHTTIME OPERATIONAL NOISE LEVEL INCREASES (SITE 1)

 $^{\rm 1}$ See Exhibits 9-A for the sensitive receiver locations.

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

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

⁴ Observed nighttime ambient noise levels as shown on Table 5-1 and 5-2.

⁵ Represents the combined ambient conditions plus the Project activities.

 $^{\rm 6}$ The noise level increase expected with the addition of the proposed Project activities.

⁷ Significance Criteria as defined in Section 4.

9.4.3 SITE 2 PROJECT OPERATIONAL NOISE LEVEL INCREASES AT FIRST-FLOOR BUILDING FAÇADES

This section identifies the Project-only operational noise level increases over existing ambient conditions at the first-floor building façades of receiver locations adjacent to Site 2: R1, and R3 to R6. As indicated on Table 9-6, the Project will contribute an operational noise level increase during the daytime hours ranging from 0.4 to 3.2 dBA L_{eq} . Based on the significance criteria described in Section 4, the highest unmitigated Project-related operational noise level increases of 3.2 dBA L_{eq} during the daytime hours at the first-floor building façade of receiver location R6 represents a *less than significant* noise level impact when the without Project conditions are below 60 dBA L_{eq} .

9.4.4 SITE 2 PROJECT OPERATIONAL NOISE LEVEL INCREASES AT SECOND-FLOOR BUILDING FAÇADES

This section identifies the Project-only operational noise level increases over existing ambient conditions at the second-floor building façades of receiver locations adjacent to Site 2: R1, and R4 to R6. Receiver location R3 is a single-story residential home at 7012 College Park Drive and is therefore excluded from the second-floor building façade analysis. As indicated on Table 9-7, the Project will contribute an operational noise level increase during the daytime hours ranging from 1.3 to 6.2 dBA L_{eq}. The Project-source incremental contribution to the ambient noise condition at receiver location R6, second-floor building façade, would approximate to 6.2 dBA L_{eq}. In the context of the ambient noise condition (54.4 dBA L_{eq}), this is a *potentially significant* impact. At the affected second floor receiver location, a physical noise barrier exceeding 14 feet would be required to ensure that the increment of received noise would not exceed 5 dBA, and therefore be less than significant. Construction of such a barrier would of itself result in land use and aesthetic incompatibilities; and from a pragmatic perspective would cost-prohibitive. It is therefore considered infeasible to fully mitigate operational-source noise impacts at the



potentially affected R6 receiver location. The increase in ambient noise conditions at receiver R6 (second-floor façade) would exceed 5 dBA, and the incremental increase in the ambient noise condition would be *significant and unavoidable*. Notwithstanding, it is recommended the following noise-reducing design features be considered, and where feasible, incorporated in the final car wash building site plan designs:

- Maximize the distance between noise sources and off-site receptors;
- Incorporate parapet walls where appropriate; and
- Incorporate on-site noise barriers, landscaping, or similar physical features that would act to generally attenuate noise emanating from the car wash site.

Under all scenarios and at all other receiver locations, Project-source contributions to ambient noise conditions would be *less than significant*.

9.4.5 SITE 2 PROJECT OPERATIONAL NOISE LEVEL INCREASE PERCEPTION

The Project operational noise level increase of up to 6.2 dBA L_{eq} represents a *readily perceptible* noise level increase that would be experienced at the second-floor building façade of an existing residential home represented by receiver location R6. This second-floor receiver location will have a direct line-of-sight to the car wash exit tunnel, and as a result, experiences the highest Project-related operational noise level contribution to the existing ambient noise environment. Typical residential building construction materials would reduce these exterior noise levels in interior spaces under "windows-closed" conditions. However, should windows be open during Project operation in any of the residential homes represented by receiver locations R1 and R3 to R6, the noise-sensitive residential receivers are likely to experience *barely* to *readily perceptible* noise level increases because of Project-only operational noise level contributions to the existing noise level increases because of Project-only operational noise level contributions to the existing noise environment.



Receiver Location ¹	Total Project Operational Noise Level (dBA L _{eq}) ²	Measurement Location ³	Reference Ambient Noise Levels (dBA L _{eq}) ⁴	Combined Project and Ambient (dBA Leq) ⁵	Project Contribution (dBA Leq) ⁶	Threshold Exceeded? ⁷
R1	48.6	S1	58.9	59.3	0.4	No
R3	53.7	S2	57.1	58.7	1.6	No
R4	54.1	S2	57.1	58.9	1.8	No
R5	53.6	S3	56.0	58.0	2.0	No
R6	55.5	S4	55.2	58.4	3.2	No

TABLE 9-6: SITE 2 OPERATIONAL NOISE LEVEL INCREASES (FIRST-FLOOR)

 $^{\rm 1}$ See Exhibits 9-B for the sensitive receiver locations.

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

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 Criteria as defined in Section 4.

TABLE 9-7: SITE 2 OPERATIONAL NOISE LEVEL INCREASES (SECOND-FLOOR)

Receiver Location ¹	Total Project Operational Noise Level (dBA L _{eq}) ²	Measurement Location ³	Reference Ambient Noise Levels (dBA L _{eq}) ⁴	Combined Project and Ambient (dBA Leq) ⁵	Project Contribution (dBA Leq) ⁶	Threshold Exceeded? ⁷
R1	53.5	S1	58.1	59.4	1.3	No
R3	_8	_8	_8	_8	_8	_8
R4	58.3	S2	56.3	60.4	4.1	No
R5	58.3	S3	55.2	60.0	4.8	No
R6	59.4	S4	54.4	60.6	6.2	Yes

¹ See Exhibits 9-B for the sensitive receiver locations.

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

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 Criteria as defined in Section 4.

⁸ Single-story residential home (without a second-floor building facade for this analysis).

10 CONSTRUCTION IMPACTS

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 activity boundaries in relation to the nearby sensitive receiver locations.

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 is expected to occur in the following stages:

- Demolition
- Site Preparation
- Grading
- Building Construction
- Paving
- 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. Noise levels generated by heavy construction equipment can range from approximately 62 dBA to in excess of 80 dBA when measured at 50 feet. However, these noise levels diminish with distance from the construction site at a rate of 6 dBA per doubling of distance. For example, a noise level of 80 dBA measured at 50 feet from the noise source to the receiver would be reduced to 74 dBA at 100 feet from the source to the receiver and would be further reduced to 68 dBA at 200 feet from the source to the receiver. The construction stages used in this analysis are consistent with the data used to support the construction emissions in the *Polopolus Air Quality Impact Analysis* prepared by Urban Crossroads, Inc. (25)

10.2 CONSTRUCTION REFERENCE NOISE LEVELS

To describe the Project construction noise levels, measurements were collected for similar activities at several construction sites. Table 10-1 provides a summary of the 17-construction reference noise level measurements. Since the reference noise levels were collected at varying distances, all construction noise level measurements presented on Table 10-1 have been adjusted to describe a common reference distance of 50 feet.



ID	Noise Source	Reference Distance From Source (Feet)	Reference Noise Levels @ Reference Distance (dBA Leq)	Reference Noise Levels @ 50 Feet (dBA L _{eq}) ⁷
1	Truck Pass-bys & Dozer Activity ¹	30'	63.6	59.2
2	Dozer Activity ¹	30'	68.6	64.2
3	Construction Vehicle Maintenance Activities ²	30'	71.9	67.5
4	Foundation Trenching ²	30'	72.6	68.2
5	Rough Grading Activities ²	30'	77.9	73.5
6	Framing ³	30'	66.7	62.3
7	Water Truck Pass-By & Backup Alarm ⁴	30'	76.3	71.9
8	Dozer Pass-By ⁴	30'	84.0	79.6
9	Two Scrapers & Water Truck Pass-By ⁴	30'	83.4	79.0
10	Two Scrapers Pass-By ⁴	30'	83.7	79.3
11	Scraper, Water Truck, & Dozer Activity ⁴	30'	79.7	75.3
12	Concrete Mixer Truck Movements ⁵	50'	71.2	71.2
13	Concrete Paver Activities ⁵	30'	70.0	65.6
14	Concrete Mixer Pour & Paving Activities ⁵	30'	70.3	65.9
15	Concrete Mixer Backup Alarms & Air Brakes⁵	50'	71.6	71.6
16	Concrete Mixer Pour Activities ⁵	50'	67.7	67.7
17	Forklift, Jackhammer, & Metal Truck Bed Loading	50'	67.9	67.9

TABLE 10-1: CONSTRUCTION REFERENCE NOISE LEVELS

¹As measured by Urban Crossroads, Inc. on 10/14/15 at a business park construction site located at the northwest corner of Barranca Parkway and Alton Parkway in the City of Irvine.

² As measured by Urban Crossroads, Inc. on 10/20/15 at a construction site located in Rancho Mission Viejo.

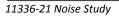
³ As measured by Urban Crossroads, Inc. on 10/20/15 at a residential construction site located in Rancho Mission Viejo.

⁴ As measured by Urban Crossroads, Inc. on 10/30/15 during grading operations within an industrial construction site located in the City of Ontario.

⁵ Reference noise level measurements were collected from a nighttime concrete pour at an industrial construction site, located at 27334 San Bernardino Avenue in the City of Redlands, between 1:00 a.m. to 2:00 a.m. on 7/1/15.

⁶ As measured by Urban Crossroads, Inc. on 9/9/16 during the demolition of an existing parking lot at 41 Corporate Park in Irvine.

⁷ Reference noise levels are calculated at 50 feet using a drop off rate of 6 dBA per doubling of distance (point source).





10.3 CONSTRUCTION NOISE ANALYSIS

Tables 10-2 to 10-7 show the Project construction stages and the reference construction noise levels used for each stage. Table 10-8 provides a summary of the noise levels from each stage of construction at each of the sensitive receiver locations shown on Exhibit 10-A. Based on the reference construction noise levels, the Project-related construction noise levels when the highest reference noise level is operating at a single point nearest the sensitive receiver location from primary construction activity will range from 58.4 to 79.1 dBA L_{eq} at the sensitive receiver locations. Exhibit 10-A shows the construction activity noise source location and the distance to each nearby sensitive receiver location.

Reference Construction Activity ¹	Reference Noise Level @ 50 Feet (dBA L _{eq})
Truck Pass-Bys & Dozer Activity	59.2
Forklift, Jackhammer, & Metal Truck Bed Activities	67.9
Highest Reference Noise Level at 50 Feet (dBA L_{eq}):	67.9

TABLE 10-2: DEMOLITION EQUIPMENT NOISE LEVELS

Receiver Location	Distance to Construction Activity (Feet) ²	Distance Attenuation (dBA L _{eq}) ³	Calculated Noise Barrier Attenuation (dBA L _{eq}) ⁴	Construction Noise Level (dBA L _{eq})
R1	103'	-6.3	-4.9	56.7
R2	215'	-12.7	-4.9	50.3
R3	30'	4.4	-4.9	67.4
R4	30'	4.4	-4.9	67.4
R5	30'	4.4	-4.9	67.4
R6	30'	4.4	-4.9	67.4
R7	186'	-11.4	-4.9	51.6
R8	161'	-10.2	0.0	57.7
R9	570'	-21.1	0.0	46.8
R10	48'	0.4	-5.5	62.8
R11	64'	-2.1	-5.5	60.3
R12	73'	-3.3	-5.5	59.1
R13	176'	-10.9	-5.5	51.5
R14	161'	-10.2	0.0	57.7

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

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

³ Point (stationary) source drop off rate of 6.0 dBA per doubling of distance.

Reference Construction Activity ¹	Reference Noise Level @ 50 Feet (dBA L _{eq})
Truck Pass-Bys & Dozer Activity	59.2
Dozer Activity	64.2
Dozer Pass-By	79.6
Highest Reference Noise Level at 50 Feet (dBA L_{eq}):	79.6

TABLE 10-3: SITE PREPARATION EQUIPMENT NOISE LEVELS

Receiver Location	Distance to Construction Activity (Feet) ²	Distance Attenuation (dBA L _{eq}) ³	Calculated Noise Barrier Attenuation (dBA L _{eq}) ⁴	Construction Noise Level (dBA L _{eq})
R1	103'	-6.3	-4.9	68.4
R2	215'	-12.7	-4.9	62.0
R3	30'	4.4	-4.9	79.1
R4	30'	4.4	-4.9	79.1
R5	30'	4.4	-4.9	79.1
R6	30'	4.4	-4.9	79.1
R7	186'	-11.4	-4.9	63.3
R8	161'	-10.2	0.0	69.4
R9	570'	-21.1	0.0	58.4
R10	48'	0.4	-5.5	74.4
R11	64'	-2.1	-5.5	71.9
R12	73'	-3.3	-5.5	70.8
R13	176'	-10.9	-5.5	63.1
R14	161'	-10.2	0.0	69.4

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

² Distance from the nearest point of construction activity to the nearest receiver.

 $^{\rm 3}$ Point (stationary) source drop off rate of 6.0 dBA per doubling of distance.



Reference Construction Activity ¹	Reference Noise Level @ 50 Feet (dBA L _{eq})
Truck Pass-Bys & Dozer Activity	59.2
Dozer Activity	64.2
Rough Grading Activities	73.5
Dozer Pass-By	79.6
Highest Reference Noise Level at 50 Feet (dBA L_{eq}):	79.6

TABLE 10-4: GRADING EQUIPMENT NOISE LEVELS

Receiver Location	Distance to Construction Activity (Feet) ²	Distance Attenuation (dBA L _{eq}) ³	Calculated Noise Barrier Attenuation (dBA L _{eq}) ⁴	Construction Noise Level (dBA L _{eq})
R1	103'	-6.3	-4.9	68.4
R2	215'	-12.7	-4.9	62.0
R3	30'	4.4	-4.9	79.1
R4	30'	4.4	-4.9	79.1
R5	30'	4.4	-4.9	79.1
R6	30'	4.4	-4.9	79.1
R7	186'	-11.4	-4.9	63.3
R8	161'	-10.2	0.0	69.4
R9	570'	-21.1	0.0	58.4
R10	48'	0.4	-5.5	74.4
R11	64'	-2.1	-5.5	71.9
R12	73'	-3.3	-5.5	70.8
R13	176'	-10.9	-5.5	63.1
R14	161'	-10.2	0.0	69.4

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

² Distance from the nearest point of construction activity to the nearest receiver.

 $^{\rm 3}$ Point (stationary) source drop off rate of 6.0 dBA per doubling of distance.



Reference Construction Activity ¹	Reference Noise Level @ 50 Feet (dBA L _{eq})
Construction Vehicle Maintenance Activities	67.5
Foundation Trenching	68.2
Framing	62.3
Highest Reference Noise Level at 50 Feet (dBA L_{eq}):	68.2

TABLE 10-5: BUILDING CONSTRUCTION EQUIPMENT NOISE LEVELS

Receiver Location	Distance to Construction Activity (Feet) ²	Distance Attenuation (dBA L _{eq}) ³	Calculated Noise Barrier Attenuation (dBA L _{eq}) ⁴	Construction Noise Level (dBA L _{eq})
R1	103'	-6.3	-4.9	57.0
R2	215'	-12.7	-4.9	50.6
R3	30'	4.4	-4.9	67.7
R4	30'	4.4	-4.9	67.7
R5	30'	4.4	-4.9	67.7
R6	30'	4.4	-4.9	67.7
R7	186'	-11.4	-4.9	51.9
R8	161'	-10.2	0.0	58.0
R9	570'	-21.1	0.0	47.0
R10	48'	0.4	-5.5	63.0
R11	64'	-2.1	-5.5	60.5
R12	73'	-3.3	-5.5	59.4
R13	176'	-10.9	-5.5	51.7
R14	161'	-10.2	0.0	58.0

 $^{1}\,\mathrm{Reference}$ construction noise level measurements taken by Urban Crossroads, Inc.

² Distance from the nearest point of construction activity to the nearest receiver.

 $^{\rm 3}$ Point (stationary) source drop off rate of 6.0 dBA per doubling of distance.



Reference Construction Activity ¹	Reference Noise Level @ 50 Feet (dBA L _{eq})
Concrete Mixer Truck Movements	71.2
Concrete Paver Activities	65.6
Concrete Mixer Pour & Paving Activities	65.9
Concrete Mixer Backup Alarms & Air Brakes	71.6
Concrete Mixer Pour Activities	67.7
Highest Reference Noise Level at 50 Feet (dBA L_{eq}):	71.6

TABLE 10-6: PAVING EQUIPMENT NOISE LEVELS

Receiver Location	Distance to Construction Activity (Feet) ²	Distance Attenuation (dBA L _{eq}) ³	Calculated Noise Barrier Attenuation (dBA Leq) ⁴	Construction Noise Level (dBA L _{eq})
R1	103'	-6.3	-4.9	60.4
R2	215'	-12.7	-4.9	54.0
R3	30'	4.4	-4.9	71.1
R4	30'	4.4	-4.9	71.1
R5	30'	4.4	-4.9	71.1
R6	30'	4.4	-4.9	71.1
R7	186'	-11.4	-4.9	55.3
R8	161'	-10.2	0.0	61.4
R9	570'	-21.1	0.0	50.5
R10	48'	0.4	-5.5	66.5
R11	64'	-2.1	-5.5	64.0
R12	73'	-3.3	-5.5	62.8
R13	176'	-10.9	-5.5	55.2
R14	161'	-10.2	0.0	61.4

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

² Distance from the nearest point of construction activity to the nearest receiver.

³ Point (stationary) source drop off rate of 6.0 dBA per doubling of distance.



Reference Construction Activity ¹	Reference Noise Level @ 50 Feet (dBA L _{eq})
Construction Vehicle Maintenance Activities	67.5
Framing	62.3
Highest Reference Noise Level at 50 Feet (dBA L_{eq}):	67.5

TABLE 10-7: ARCHITECTURAL COATING EQUIPMENT NOISE LEVELS

Receiver Location	Distance to Construction Activity (Feet) ²	Distance Attenuation (dBA L _{eq}) ³	Calculated Noise Barrier Attenuation (dBA L _{eq}) ⁴	Construction Noise Level (dBA L _{eq})
R1	103'	-6.3	-4.9	56.3
R2	215'	-12.7	-4.9	49.9
R3	30'	4.4	-4.9	67.0
R4	30'	4.4	-4.9	67.0
R5	30'	4.4	-4.9	67.0
R6	30'	4.4	-4.9	67.0
R7	186'	-11.4	-4.9	51.2
R8	161'	-10.2	0.0	57.3
R9	570'	-21.1	0.0	46.3
R10	48'	0.4	-5.5	62.3
R11	64'	-2.1	-5.5	59.8
R12	73'	-3.3	-5.5	58.7
R13	176'	-10.9	-5.5	51.0
R14	161'	-10.2	0.0	57.3

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

² Distance from the nearest point of construction activity to the nearest receiver.

 $^{\rm 3}$ Point (stationary) source drop off rate of 6.0 dBA per doubling of distance.



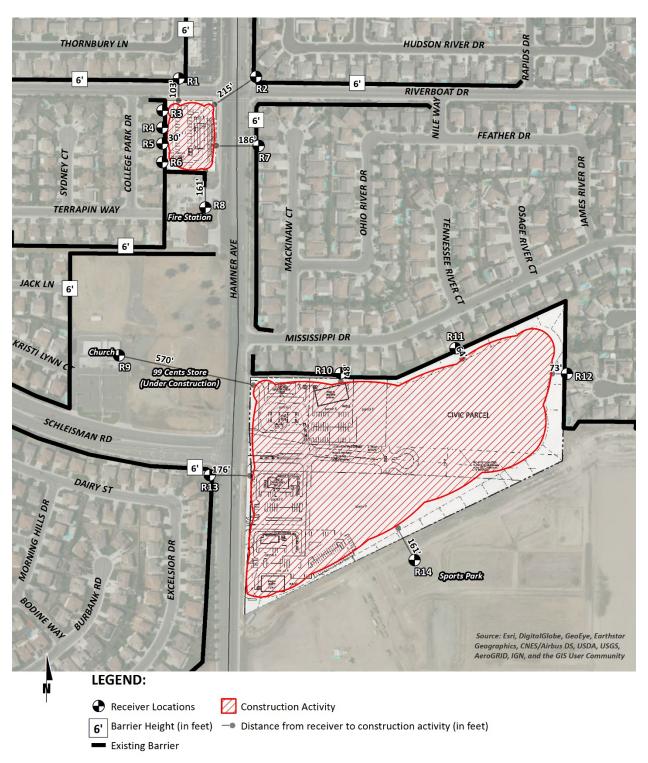


EXHIBIT 10-A: CONSTRUCTION ACTIVITY AND RECEIVER LOCATIONS



10.4 CONSTRUCTION NOISE THRESHOLDS OF SIGNIFICANCE

The construction noise analysis shows that the highest construction noise levels will occur when construction activities take place at the edge of primary construction activity. As shown on Table 10-8, the unmitigated construction noise levels are expected to range from 58.4 to 79.1 dBA L_{eq} at the sensitive receiver locations.

		ι	Jnmitigated (Construction N	oise Levels (d	BA L _{eq})	
Receiver Location ¹	Demolition	Site Preparation	Grading	Building Construction	Paving	Architectural Coating	Highest Construction Noise Levels ²
R1	56.7	68.4	68.4	57.0	60.4	56.3	68.4
R2	50.3	62.0	62.0	50.6	54.0	49.9	62.0
R3	67.4	79.1	79.1	67.7	71.1	67.0	79.1
R4	67.4	79.1	79.1	67.7	71.1	67.0	79.1
R5	67.4	79.1	79.1	67.7	71.1	67.0	79.1
R6	67.4	79.1	79.1	67.7	71.1	67.0	79.1
R7	51.6	63.3	63.3	51.9	55.3	51.2	63.3
R8	57.7	69.4	69.4	58.0	61.4	57.3	69.4
R9	46.8	58.4	58.4	47.0	50.5	46.3	58.4
R10	62.8	74.4	74.4	63.0	66.5	62.3	74.4
R11	60.3	71.9	71.9	60.5	64.0	59.8	71.9
R12	59.1	70.8	70.8	59.4	62.8	58.7	70.8
R13	51.5	63.1	63.1	51.7	55.2	51.0	63.1
R14	57.7	69.4	69.4	58.0	61.4	57.3	69.4

TABLE 10-8: UNMITIGATED CONSTRUCTION EQUIPMENT NOISE LEVEL SUMMARY

¹Noise receiver locations are shown on Exhibit 10-A.

² Estimated construction noise levels during peak operating conditions.

Table 10-9 shows the highest construction noise levels at the potentially impacted receiver locations approaching 79.1 dBA L_{eq} will satisfy the NIOSH 85 dBA L_{eq} significance threshold during temporary Project construction activities.



_ .	Unmitigate	d Construction Noise Leve	els (dBA L _{eq})
Receiver Location ¹	Highest Construction Noise Level ²	Threshold ³	Threshold Exceeded? ⁴
R1	68.4	85	No
R2	62.0	85	No
R3	79.1	85	No
R4	79.1	85	No
R5	79.1	85	No
R6	79.1	85	No
R7	63.3	85	No
R8	69.4	85	No
R9	58.4	85	No
R10	74.4	85	No
R11	71.9	85	No
R12	70.8	85	No
R13	63.1	85	No
R14	69.4	85	No

TABLE 10-9: CONSTRUCTION NOISE LEVEL COMPLIANCE

¹Noise receiver locations are shown on Exhibit 10-A.

² Estimated construction noise levels during peak operating conditions, as shown on Table 10-8.

³ Construction noise level threshold as shown on Table 4-2.

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

10.5 CONSTRUCTION NOISE LEVEL INCREASES

To describe the temporary Project construction noise level contributions to the existing ambient noise environment, the Project construction noise levels were combined with the existing ambient noise levels measurements at the off-site receiver locations. The difference between the combined Project-construction and ambient noise levels are used to describe the construction noise level contributions. Temporary noise level increases that would be experienced at sensitive receiver locations when Project construction-source noise is added to the ambient daytime conditions are presented on Table 10-10. A temporary noise level increase of 12 dBA L_{eq} is considered a potentially significant impact based on the Caltrans substantial noise level increase criteria which is used to assess the Project-construction noise level increases. (3) No nighttime construction activity is permitted in the City of Eastvale Municipal Code, and therefore, nighttime noise level increases are not analyzed in this noise study.

As indicated in Table 10-10, the Project will contribute unmitigated, worst-case construction noise level increases between 0.1 to 23.9 dBA L_{eq} at the adjacent sensitive receiver locations during the daytime hours. Due to the magnitude of the worst-case temporary noise level increases during Project construction activities which are shown to exceed the 12 dBA L_{eq} significance threshold at receiver locations R3 to R6, R10, and R11, the unmitigated construction-source noise level increases are therefore considered *potentially significant*. Construction noise



mitigation measures (NOI-2 and NOI-3) identified in the Executive Summary would generally and qualitatively reduce Project construction-source noise impacts. However, even with application of these measures and the Municipal Code construction hour limitations, it is anticipated the Project construction-source noise received at proximate receptors would exceed 12 dBA L_{eq} . Project construction-source noise impacts are therefore recognized as *significant and unavoidable*.

Receiver Location ¹	Highest Project Construction Noise Level ²	Measurement Location ³	Reference Ambient Noise Levels ⁴	Combined Project and Ambient ⁵	Temporary Worst-Case Project Contribution ⁶	Threshold Exceeded? ⁷
R1	68.4	S1	58.9	68.8	9.9	No
R2	62.0	L1	79.9	80.0	0.1	No
R3	79.1	S2	57.1	79.1	22.0	Yes
R4	79.1	S2	57.1	79.1	22.0	Yes
R5	79.1	S3	56.0	79.1	23.1	Yes
R6	79.1	S4	55.2	79.1	23.9	Yes
R7	63.3	L3	61.3	65.4	4.1	No
R8	69.4	L3	61.3	70.0	8.7	No
R9	58.4	L6	60.5	62.6	2.1	No
R10	74.4	L4	58.9	74.5	15.6	Yes
R11	71.9	L4	58.9	72.1	13.2	Yes
R12	70.8	L5	59.2	71.1	11.9	No
R13	63.1	L7	71.1	71.7	0.6	No
R14	69.4	L8	71.8	73.8	2.0	No

TABLE 10-10: UNMITIGATED CONSTRUCTION TEMPORARY NOISE LEVEL INCREASES

¹ Noise receiver locations are shown on Exhibit 10-A.

² Highest unmitigated Project construction noise levels as shown on Table 10-9.

³ Ambient 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 construction activities.

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

⁷ Based on the 12 dBA temporary increase significance criteria as defined in Section 4.



10.6 CONSTRUCTION VIBRATION IMPACTS

Construction activity can result in varying degrees of ground vibration, depending on the equipment and methods used, distance to the affected structures and soil type. It is expected that ground-borne vibration from Project construction activities would cause only intermittent, localized intrusion. The proposed Project's construction activities most likely to cause vibration impacts are:

- Heavy Construction Equipment: Although all heavy mobile construction equipment has the potential of causing at least some perceptible vibration while operating close to building, the vibration is usually short-term and is not of sufficient magnitude to cause building damage. It is not expected that heavy equipment such as large bulldozers would operate close enough to any residences to cause a vibration impact.
- Trucks: Trucks hauling building materials to construction sites can be sources of vibration intrusion if the haul routes pass through residential neighborhoods on streets with bumps or potholes. Repairing the bumps and potholes generally eliminates the problem.

Ground-borne vibration levels resulting from construction activities occurring within the Project site were estimated by data published by the Federal Transit Administration. Construction activities that would have the potential to generate low levels of ground-borne vibration within the Project site include grading. Using the vibration source level of construction equipment provided on Table 6-5 and the construction vibration assessment methodology published by the FTA, it is possible to estimate the Project vibration impacts. Table 10-11 presents the unmitigated Project construction-related vibration levels at each of the sensitive receiver locations.

Based on the reference vibration levels provided by the FTA, a large bulldozer represents the peak source of vibration with a reference velocity of 0.089 in/sec PPV at 25 feet. At distances ranging from 30 to 570 feet from the Project construction activities, construction vibration velocity levels are expected to range from 0.001 to 0.068 in/sec PPV, as shown on Table 10-11. Based on the City of Eastvale vibration standard of 0.0787 in/sec PPV, the proposed Project construction activities will generate unmitigated vibration levels which remain below the 0.0787 in/sec PPV threshold, and therefore, represents a *less than significant* impact.



	Distance		Receive	r PPV Levels	(in/sec) ²		
Receiver Location ¹	To Const. Activity (Feet)	Small Bulldozer	Jack- hammer	Loaded Trucks	Large Bulldozer	Highest Levels (PPV)	Threshold Exceeded? ³
R1	103'	0.0004	0.0042	0.0091	0.0106	0.0106	No
R2	215'	0.0001	0.0014	0.0030	0.0035	0.0035	No
R3	30'	0.0023	0.0266	0.0578	0.0677	0.0677	No
R4	30'	0.0023	0.0266	0.0578	0.0677	0.0677	No
R5	30'	0.0023	0.0266	0.0578	0.0677	0.0677	No
R6	30'	0.0023	0.0266	0.0578	0.0677	0.0677	No
R7	186'	0.0001	0.0017	0.0037	0.0044	0.0044	No
R8	161'	0.0002	0.0021	0.0047	0.0054	0.0054	No
R9	570'	0.0000	0.0003	0.0007	0.0008	0.0008	No
R10	48'	0.0011	0.0132	0.0286	0.0335	0.0335	No
R11	64'	0.0007	0.0085	0.0186	0.0217	0.0217	No
R12	73'	0.0006	0.0070	0.0152	0.0178	0.0178	No
R13	176'	0.0002	0.0019	0.0041	0.0048	0.0048	No
R14	161'	0.0002	0.0021	0.0047	0.0054	0.0054	No

TABLE 10-13: UNMITIGATED CONSTRUCTION EQUIPMENT VIBRATION LEVELS

¹Receiver locations are shown on Exhibit 10-A.

² Based on the Vibration Source Levels of Construction Equipment included on Table 6-5.

³ Does the peak vibration exceed the maximum acceptable vibration threshold shown on Table 3-1?

11 REFERENCES

- 1. State of California. California Environmental Quality Act, Appendix G. 2016.
- 2. Urban Crossroads, Inc. Polopolus Traffic Impact Analysis. September 2017.
- 3. California Department of Transportation. *Traffic Noise Analysis Protocol for New Highway Construction, Reconstruction, and Retrofit Barrier Projects.* May 2011.
- 4. California Department of Transportation Environmental Program. *Technical Noise Supplement A Technical Supplement to the Traffic Noise Analysis Protocol.* Sacramento, CA : s.n., September 2013.
- 5. 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.
- 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*. June, 1995.
- 7. U.S. Department of Transportation, Federal Highway Administration. *Highway Traffic Noise in the United States, Problem and Response.* April 2000. p. 3.
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- 9. Occupational Safety and Health Administration. Standard 29 CRF, Part 1910.
- 10. Center for Disease Control and Prevention. About Hearing Loss. [Online] [Cited: 04 15, 2016.] http://www.cdc.gov/healthyschools/noise/signs.htm.
- 11. U.S. Department of Transportation, Federal Transit Administration. *Transit Noise and Vibration Impact Assessment*. May 2006. FTA-VA-90-1003-06.
- 12. Office of Planning and Research. State of California General Plan Guidlines 2003. October 2003.
- 13. State of California. 2013 California Green Building Standards Code. January 2014.
- 14. City of Eastvale. General Plan Noise Element. June 2012.
- 15. —. Municipal Code, Section 8.52.020.
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- 17. California Court of Appeal. *Gray v. County of Madera, F053661.* 167 Cal.App.4th 1099; Cal.Rptr.3d, October 2008.
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- 19. **Superior Court of California, County of Riverside.** *Friends of Riverside's Hills v. Riverside Transportation Commission, et al.* RIC 1113896, January 2013.
- 20. American National Standards Institute (ANSI). Specification for Sound Level Meters ANSI S1.4-2014/IEC 61672-1:2013.
- 21. U.S. Department of Transportation, Federal Highway Administration. FHWA Highway Traffic Noise Prediction Model. December 1978. FHWA-RD-77-108.



- 22. 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.
- 23. **California Department of Transportation.** *Traffic Noise Attenuation as a Function of Ground and Vegetation Final Report.* June 1995. FHWA/CA/TL-95/23.
- 24. Motor City Wash Works. 90 Horsepower Profiler Plus Dry-N-Shine Sound Study. April 2017.
- 25. Urban Crossroads, Inc. Polopolus Air Quality Impact Analysis. January 2018.



12 CERTIFICATION

The contents of this noise study report represent an accurate depiction of the noise environment and impacts associated with the proposed Polopolus 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) 336-5979.

Bill Lawson, P.E., INCE Principal URBAN CROSSROADS, INC. 260 E. Baker Street, Suite 200 Costa Mesa, CA 92626 (949) 336-5979 <u>blawson@urbanxroads.com</u>



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 EASTVALE MUNICIPAL CODE



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Sec. 8.52.010. - Reserved.

Sec. 8.52.020. - Exemptions.

Sound emanating from the following sources is exempt from the provisions of this chapter:

- (1) Facilities owned or operated by or for a governmental agency;
- (2) Capital improvement projects of a governmental agency;
- (3) The maintenance or repair of public properties;
- (4) Public safety personnel in the course of executing their official duties, including, but not limited to, sworn peace officers, emergency personnel and public utility personnel. This exemption includes, without limitation, sound emanating from all equipment used by such personnel, whether stationary or mobile;
- (5) Public or private schools and school-sponsored activities;
- (6) Agricultural operations on land designated agriculture in the city general plan, or land zoned A-l (light agriculture), A-P (light agriculture with poultry), A-2 (heavy agriculture), A-D (agriculture-dairy) or C/V (citrus/vineyard), provided such operations are carried out in a manner consistent with accepted industry standards. This exemption includes, without limitation, sound emanating from all equipment used during such operations, whether stationary or mobile;
- (7) Wind energy conversion systems (WECS), provided such systems comply with the WECS noise provisions of county Ordinance No. 348;
- (8) Private construction projects located one-quarter of a mile or more from an inhabited dwelling;
- (9) Private construction projects located within one-quarter of a mile from an inhabited dwelling, provided that construction does not occur between the hours of:
 - a. 6:00 p.m. and 6:00 a.m. during the months of June through September; and
 - b. 6:00 p.m. and 7:00 a.m. during the months of October through May;
- (10) Property maintenance, including, but not limited to, the operation of lawnmowers, leaf blowers, etc., provided such maintenance occurs between the hours of 7:00 a.m. and 8:00 p.m.;
- (11) Motor vehicles, other than off-highway vehicles. This exemption does not include sound emanating from motor vehicle sound systems;
- (12) Heating and air conditioning equipment;
- (13) Safety, warning and alarm devices, including, but not limited to, house and car alarms, and other warning devices that are designed to protect the public health, safety and welfare;
- (14) The discharge of firearms consistent with all state laws.

(Ord. No. 2011-04, §§ 1, 2, 1-26-2011)

Sec. 8.52.030. - Definitions.

The following words, terms and phrases, when used in this chapter, shall have the meanings ascribed to them in this section, except where the context clearly indicates a different meaning:

Audio equipment means a television, stereo, radio, tape player, compact disc player, mp3 player, I-POD or other similar device.

Decibel (dB) means a unit for measuring the relative amplitude of a sound equal approximately to the smallest difference normally detectable by the human ear, the range of which includes approximately <u>130</u> decibels on a scale beginning with zero decibels for the faintest detectable sound. Decibels are measured with a sound level meter using different methodologies defined as follows:

- (1) The term, "A-weighting (dBA)" means the standard A-weighted frequency response of a sound level meter, which de-emphasizes low and high frequencies of sound in a manner similar to the human ear for moderate sounds.
- (2) The term "maximum sound level (Lmax)" means the maximum sound level measured on a sound level meter.

Governmental agency means the United States, the state, the county, any city within the county, any special district within the county or any combination of these agencies.

Land use permit means a discretionary permit issued by the city pursuant to title 120 (planning and zoning) of this Code.

Motor vehicle means a vehicle that is self-propelled.

Motor vehicle sound system means a stereo, radio, tape player, compact disc player, mp3 player, I-POD or other similar device in a motor vehicle.

Noise means any loud, discordant or disagreeable sound.

Occupied property means property upon which is located a residence, business or industrial or manufacturing use.

Off-highway vehicle means a motor vehicle designed to travel over any terrain.

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APPENDIX 5.1:

STUDY AREA PHOTOS



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L1_N 33, 57' 40.300000", 117, 33' 28.990000"



L1_S 33, 57' 40.300000", 117, 33' 28.990000"



L1_W 33, 57' 40.280000", 117, 33' 29.210000"



L2_E 33, 57' 38.910000", 117, 33' 33.900000"



L2_N 33, 57' 38.940000", 117, 33' 33.900000"



L2_W 33, 57' 38.940000", 117, 33' 33.900000"



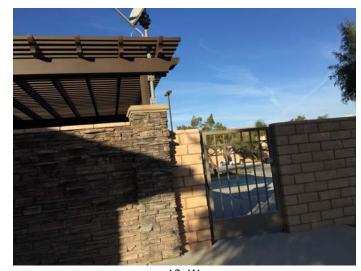
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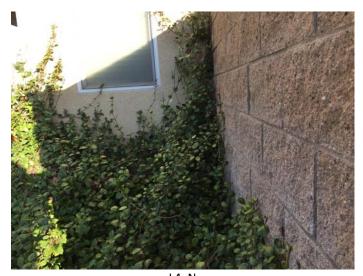
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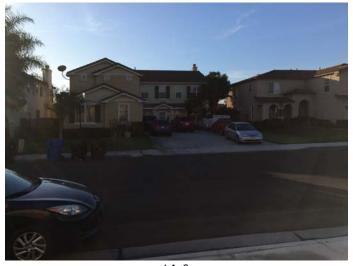
33, 57' 34.490000", 117, 33' 32.090000"



L3_W 33, 57' 34.650000", 117, 33' 31.900000"



L4_N 33, 57' 30.340000", 117, 33' 18.740000"



L4_S 33, 57' 30.810000", 117, 33' 18.830000"



L4_W 33, 57' 30.600000", 117, 33' 18.910000"



L5_E 33, 57' 27.620000", 117, 33' 1.170000"



L5_SW 33, 57' 27.600000", 117, 33' 3.130000"



L5_W 33, 57' 27.670000", 117, 33' 1.020000"



L6_E 33, 57' 26.370000", 117, 33' 36.570000"



L6_N 33, 57' 26.370000", 117, 33' 36.570000"



L6_S 33, 57' 26.370000", 117, 33' 36.570000"



L6_W 33, 57' 26.370000", 117, 33' 36.570000"



L7_E 33, 57' 24.830000", 117, 33' 29.370000"



L7_N 33, 57' 24.830000", 117, 33' 29.370000"



L7_S 33, 57' 24.750000", 117, 33' 29.340000"



L7_W 33, 57' 24.830000", 117, 33' 29.370000"

33, 56' 41.210000", 117, 33' 24.570000"

33, 56' 41.210000", 117, 33' 24.570000"



L9_N



L8_S 33, 57' 18.780000", 117, 33' 29.430000"





L8_E 33, 57' 18.780000", 117, 33' 29.450000"



JN:11336 Polopolus

95



L9_NE 33, 56' 41.210000", 117, 33' 24.570000"



L9_SE 33, 56' 41.210000", 117, 33' 24.570000"

APPENDIX 5.2:

LONG-TERM NOISE LEVEL MEASUREMENT WORKSHEETS



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Pro	<i>Project Name:</i> Polopolus	Polopolus		2	24-Hour No	ise Level	our Noise Level Measurement Summary	ent Summa		JN: 11336	Energy Average Leq	erage Leq	24-Hour
		L1 - Located n	orth of the Pi	L1 - Located north of the Project site on the northeast corner of Hamner Avenue	he northeast (corner of Har	nner Avenue		Analyst:	Analyst: A. Wolfe	Day	Night	CNEL
	דטרמווטוו.	and Riverboat	t Drive adjace	and Riverboat Drive adjacent to existing residential homes.	esidential hor	nes.			Date:	Date: 1/18/2018	79.9	75.5	83.2
Hourly Leq dBA Readings (unadjusted)	A Readings (unadjusted)											
85.0 —	_		-	_			_	_	_	_	_	_	
									\square				
	S		۲. 4.7	°T8	7.8	9.7 8.97	t.91	.28	5.08 18	.08 .08	8.8	1.8	
	2.7	C'TZ	Z 									"7L 	E.8
111 22:0	<u>/</u> / / / /												9
Hot 45.0													
	0	2 3	4 - 5	- 9	7 8	9 10	11 12	13 14	15 16	17 18	19 20	21 22	23
						Ĭ	Hour Beginning	P .6					
Time Period	Hour	bəŢ	Гтах	Lmin	11%	12%	L5%	78%	L25%	L50%	70%	195%	%667
Day	Min	75.8	98.0 100 r	59.2	86.0	84.0	80.0	78.0	74.0	71.0	65.0 71.0	64.0 70.0	62.0
Energy Average:	verage:	0.20		Average:	0.06 89.9	87.7	83.9	81.9	77.5	74.1	0.1.1 68.7	67.7	00.0 65.6
Niah+	Min	67.2	85.9	54.8	77.0	75.0	72.0	71.0	66.0	62.0	58.0	58.0	57.0
าเมลิเท	Мах	81.9	104.0		92.0	90.0	86.0	84.0	80.0	77.0	72.0	71.0	0.69
Energy Average:	verage:	75.5	Ave	Average:	82.9	80.7	77.4	75.6	70.3	66.7	63.1	62.3	61.2
						Hourly	Hourly Summary						
	0,	67.2 	85.9	54.8	77.0	75.0	72.0	71.0	66.0 50.0	62.0	58.0	58.0	57.0
	т 2	71.3	100.2 97.2	56.7 56.7	84.0 81.0	0.10 80.0	78.0	75.0	00.U 67.0	02.0 64.0	0.6c 61.0	0.06 0.09	59.0
Night	3	71.1	96.4	59.2	80.0	78.0	76.0	74.0	68.0	65.0	63.0	62.0	61.0
	4 r	74.7	99.9	59.9	85.0	82.0	78.0	76.0	72.0	69.0 20.0	64.0	63.0	62.0
	o o	81.9	104.0	03.7 66.3	92.0	90.0 90.0	86.0 86.0	84.0	0.0/ 80.0	0.27	72.0	71.0	0.00
	7	80.0	100.4	64.7	0.06	88.0	85.0	83.0	78.0	75.0	70.0	0.69	68.0
	∞ σ	78.7	104.0	63.4 60.2	89.0 0.00	87.0	83.0	81.0	76.0	73.0	68.0 68.0	67.0 67.0	65.0 65.0
	10	77.6	101.3	59.8	87.0	85.0	82.0	80.0	76.0	72.0	67.0	65.0	63.0
	11	79.1	101.5	59.2	0.09 0.09	88.0	84.0	82.0	77.0	74.0	67.0	66.0 68.0	63.0 GT 0
	12	82.0 82.0	102.9 105.1	61.U 63.6	92.0 92.0	0.08 0.06	84.0 86.0	82.U 84.0	/8.U 80.0	77.0	69.0 71.0	68.U 70.0	0.co 67.0
Day	14	82.0	104.7	63.9	93.0	90.06	86.0	84.0	80.0	76.0	71.0	70.0	68.0
	15	81.2	106.5	63.4	92.0	89.0	85.0	83.0	79.0	76.0	71.0	70.0	68.0
	16 17	80.5 80.8	103.0 106.0	63.1 64.4	0.09 0.0P	88.0 88.0	85.0 84.0	83.0 82.0	79.0	76.0 76.0	71.0 71.0	70.0	68.0 68.0
	18	81.3	104.4	63.6	92.0	0.06	86.0	84.0	78.0	74.0	69.0	68.0	66.0 66.0
	19	78.8	99.7	61.8	90.06	87.0	83.0	81.0	77.0	73.0	67.0	66.0	65.0
	20 21	75.8 78.1	98.0 104.0	59.9 59.3	86.0 89.0	84.0 86.0	80.0 82.0	78.0 80.0	74.0 74.0	71.0 71.0	66.0 65.0	65.0 64.0	63.0 62.0
Niaht	22	72.3	94.8	58.2	83.0	80.0	76.0	75.0	70.0	66.0	62.0	61.0	60.0
INIBILI	23	68.3	89.6	56.8	78.0	76.0	73.0	71.0	66.0	63.0	61.0	60.0	59.0

đ	Proiect Name: Polopolus	Polopolus		2	24-Hour No	ise Level	our Noise Level Measurement Summary	ent Summa		JN: 11336	Energy Average Leg	rage Leg	24-Hour
		L2 - Located a	at the northw	12 - Located at the northwest Project site boundary adjacent to existing	boundary ad	iacent to exis	ting		Analyst:	Analyst: A. Wolfe	Day	Night	CNEL
	Location:	residential ho	omes on Colle	residential homes on College Park Drive.			0		Date:	Date: 1/18/2018	74.8	71.6	0.67
Hourly Leg di	Hourly Leq dBA Readings (unadjusted)	unadjusted)											
eq (c	Ľ	E.8	5.0	82	73.7	£.27	2.£7	8.47 9.27	73.3 2.67	Γ. ΔΓ	8.8T	2.5T	
	29 7. 7 9												° S9
Ho 35.0													
	0 1	2 3	4 5	9	7 8	9 10	11 12	13 14	15 16	17 18	19 20	21 22	2 23
						Ī	Hour Beginning	50					
Time Period	Hour	bəŢ	Гтах	Lmin	L1%	12%	T5%	%8T	L25%	T 50%	%067	<i>1</i> 95%	%667
Day	Min Max	71.2 77.9	87.0 103.7	57.6 65.5	0.08 0.08	78.0 86.0	75.0 82.0	73.0 80.0	68.0 74.0	65.0 71.0	62.0 68.0	61.0 67.0	60.0 66.0
Energy #	Energy Average:	74.8		Average:	84.5	81.4	78.0	76.5	71.5	68.1	64.2	63.3	62.0
Night	Min	64.4 70.2	79.7	56.4	74.0	72.0	69.0	67.0	63.0 76.0	61.0	58.0	58.0	57.0
Energy 6	NiaX Fnerøv Average:	71 F	1.2UL	Δν	0.08 78.6	84.U 76 1	81.U	80.U 71 2	/0.0 67.7	/3.U 65 2	03.0 62 0	69.U	68.U 61 0
- HC1 91 -		0:7 /			0.07	Hourly	Hourly Summary	C:+ /		0.00	0:20	0.70	0.10
	0	64.4	7.97	56.4	74.0	72.0	69.0	67.0	63.0	61.0	58.0	58.0	57.0
) (1	67.7	90.2	57.9	0.97	76.0	71.0	68.0	64.0	63.0	60.0	60.0	59.0
Niceb+	2	67.3 Con	81.4 85 1	60.2 53.8	76.0	74.0	72.0	70.0	67.0 58.0	64.0	62.0	62.0	61.0
INIGHT	n 4	08.3 70.5	90.4	02.0 62.6	0.0/ 80.0	77.0	74.0	73.0	0.80 69.0	00.0 67.0	64.0 64.0	64.0 64.0	63.0 63.0
	л И	72.3	87.3	66.0 67 A	81.0	0.07	76.0	75.0	72.0	70.0	68.0	67.0 60.0	67.0 69.0
	0 ~	73.7	1.201	65.5	83.0	81.0	0.17	76.0	73.0	71.0	0.90	67.0	000 000
	8	71.2	87.0	63.1	80.0	78.0	76.0	75.0	70.0	68.0	65.0	65.0	64.0
	9 10	77.2 72.3	99.7 91.8	61.2 57.6	88.0 83.0	85.0 80.0	82.0 77.0	80.0 75.0	73.0 71.0	69.0 67.0	64.0 63.0	63.0 62.0	62.0 60.0
	11	73.2	93.6	57.9	85.0	81.0	78.0	76.0	70.0	67.0	62.0	61.0	60.0
	12	73.6	95.5 02 1	58.8	85.0	81.0	78.0	76.0	71.0	67.0 71.0	63.0 66.0	62.0 64.0	61.0 62 0
Day	14	75.6	97.4	60.3	0.4.0 86.0	83.0 83.0	0.67	78.0	73.0	70.0	65.0	04.0 64.0	02.0 62.0
	15	76.1	96.9	60.3	88.0	84.0	79.0	78.0	73.0	0.69	65.0	64.0	62.0
	16 17	73.3 74.7	95.2 97 9	61.0 61.4	82.0 85.0	80.0 82.0	78.0	76.0 77.0	72.0	68.0 69.0	64.0 65.0	63.0 64.0	62.0 63.0
	18	9.77	103.0	61.3	89.0	86.0	82.0	80.0	73.0	68.0	64.0	64.0	62.0
	19	73.8	0.66	62.4	83.0	80.0	77.0	75.0	71.0	68.0	65.0	64.0	63.0
	20 21	75.3 73.5	103.7 96.5	59.9 57.7	80.0 86.0	78.0 81.0	75.0 76.0	73.0 74.0	68.0 69.0	65.0 65.0	62.0 62.0	62.0 61.0	61.0 60.0
Night	22	70.0	96.5	59.0	81.0	77.0	74.0	72.0	67.0	63.0	61.0	60.0	60.0
	23	65.0	86.3	58.6	74.0	72.0	69.0	67.0	63.0	61.0	60.0	29.0	59.0

ď	<i>Project Name:</i> Polopolus	Polopolus			24	24-Hour N	loise Le	our Noise Level Measurement Summary	uremer	nt Summ		<i>JN:</i> 11336	Energy .	Energy Average Leq	bə1 i	24-Hour
	•	L3 - Located south of Site 2 adiacent to an existing fire station on Hamner Avenue.	south of Si	te 2 adiá	acent to an	existing fi	re station (on Hamner /	Avenue.		Analyst:	<i>Analyst:</i> A. Wolfe	Dαγ	2	Night	CNEL
	Location:	near existing residential homes.	residentia	l homes		0					Date:	Date: 1/18/2018	61.3		58.6	65.9
Hourly Leg di	Hourly Leq dBA Readings (unadjusted)	unadjusted)														
85.0 7																
				1		⊥	Ŧ	+	-	Ŧ	Ŧ	Ŧ	•		Ŧ	
0.0.0 2000 Alnu	8.2	2.7a	6.62	6.0 3	е9 т9	8.82	.29		E.03	.29 	. T9 . 79	7 [.] T9 5 [.] 09	5:09	5.82	2°T9	5.
Ho	22															05
)	0 1	2 3	4		6 7	00	- - -	10 11		13 14	15 16	17 18	19	20	21 22	23
								Hour Be	Hour Beginning							
Time Period	Hour	ред	Ттах		Lmin	L1%	L2%		L5%	<i>%8</i> 7	L25%	150%	%067	7	L95%	%667
Day	Min Max	5.82 63.3	74.9 87 8		41.2 50.4	67.0 73.0	65.0 70.0		62.0 66.0	61.0 65 0	57.0 62.0	53.0 61 0	47.0 57.0		46.0 55.0	44.0 52 0
Energy A	Energy Average:	61.3		Average:		70.1	67.6		64.7	63.2	59.9	57.1	51.2		49.7	47.1
Night	Min	50.5			41.8	60.0 	59.0		56.0	55.0	49.0	45.0 	43.0		42.0	42.0
- Enorm	Max	61.9 Fer	92.3	- OP CAOLA	52.6	70.0	69.0		66.0	65.0 F0.2	61.0 FF 4	59.0 F2 1	56.0		55.0 47.0	54.0
cliergy /	Ellergy Average:	0.86		Average.		6.00	64.0		00.8	59.3	T.CC	1.26	48.b	-	47.9	47.U
	,						E	mmus yırı	ary							
	0 -	52.3 55.8	68.8 80.9		42.1	63.0 64.0	60.0		57.0	55.0	51.0	48.U 49.0	43.0 45.0		45.0 45.0	42.0 44.0
	2	56.1	73.4		45.2	65.0	64.0		61.0	60.0	56.0	52.0	48.0		47.0	46.0
Night	ς, γ	57.5	74.9	_	50.0	67.0	65.0		61.0	60.0	57.0	55.0	52.0		51.0	50.0
	4 v	6.6c	0.77		40.0 52.1	0.99.U 68.O	67.0 67.0		65.0	64.0 64.0	0.0c 60.0	57.0	54.0		54.0	49.0 53.0
	6	61.9	78.4		52.6	70.0	69.0		66.0	65.0	61.0	59.0	56.0	_,	55.0	54.0
	۲ 8	63.3 58.8	87.0 74 9		50.4 46.4	73.0 67.0	70.0		66.0 63.0	64.0 62.0	61.0 59.0	59.0 56.0	54.0 50.0		53.0 49.0	52.0 47 0
	6	62.0	87.1		44.1	71.0	69.0		66.0	64.0	60.0	57.0	51.0		50.0	47.0
	10	61.0 61 9	83.5 84 9		41.2 41 7	70.0	67.0 69.0		65.0 65.0	63.0 63.0	60.0 59.0	57.0 56.0	49.0 49.0		47.0 46.0	44.0 44.0
	12	60.3	80.0		41.4	71.0	68.0		64.0	63.0	59.0	56.0	49.0		47.0	45.0
Ċ	13	61.1	76.7		42.9	71.0	69.0		66.0	64.0	60.0	57.0	51.0		50.0	47.0
Лау	14 15	62.1 62.4	78.9 78.9		46.5 43.1	69.0 70.0	67.0 68.0		0.20 66.0	64.0 65.0	62.0 62.0	61.0 60.0	54.0 54.0		52.0 52.0	52.0 47.0
	16	61.7	76.5		46.7	70.0	68.0		66.0	65.0	62.0	59.0	53.0		51.0	48.0
	17	60.9 61.4	78.8		44.9	70.0	68.0		65.0 64.0	63.0 62.0	60.0	58.0	52.0		50.0	47.0 46.0
	19	6.09	85.1		43.7	0.17	67.0		65.0	0.20 63.0	0.09	57.0 57.0	53.0		49.0 52.0	40.0 50.0
	20	58.5	78.5		44.9	68.0	65.0		62.0	61.0	57.0	54.0	49.0		48.0	46.0
	21	60.5	87.8		43.0	70.0	66.0		62.0	61.0	57.0	53.0	47.0		46.0	44.0
Night	22 23	61.2 50.5	92.3 68.6		42.7 41.8	67.0 60.0	64.0 59.0		60.0 56.0	58.0 55.0	53.0 49.0	48.0 45.0	44.0 43.0		43.0 42.0	43.0 42.0

l d	Proiect Name: Polopolus	Polonolus		2	24-Hour No	oise Level	our Noise Level Measurement Summary	ent Summa		IN: 11336	Enerav Averaae Lea	eraae Lea	24-Hour	
•			, - 14 J - 14		C		-;+		Analvst:	Analvst: A. Wolfe	Dav	Night	CNEL	
	Location:	L4 - Locateu r community.	ווסרנה טו נהפ	Project site on	MISSISSIPPI UF	ive in an exis	L4 - Located north of the Project site on Mississippi Drive in an existing residential community.		Date:	Date: 1/24/2018	58.9	58.4	65.0	
Hourly Lea dB	Hourly Lea dBA Readinas (unadiusted)	(unadiusted)												
		Instealantin												
			F	9		5			-					
4 20.0 4 20.0 4 20.0 4 20.0 5 20.0 4 20.0 5 20.	+ + + + + + + + + + + + + + + + + + +	7.4 8.72	2.13	4.0a	5.03 2.03	•7-99 •7-99	0'9	2.ez	6'6S 9'6S	9.72	5:99 5:5	7.82	T'S	
	ZS ZS					S I I I I I I I I I I I I I I I I I I I		S						
	0 1	2 3	4	5 6	7 8	9 10	11 12	13 14	15 16	17 18	19 20	21	22 23	
						Ŧ	Hour Beginning	50						
Time Period	Hour	ред	Гтах	Lmin	11%	12%	L5%	%81	L25%	150%	%067	195%	%667	
Day	Min	53.1 62 6	73.4 on e	38.0 40 E	66.0 74.0	64.0 72.0	57.0 70.0	55.0 70.0	47.0 58.0	42.0 55 0	39.0 52.0	38.0 51.0	38.0 50.0	
Energy A	Energy Average:	58.9		Average:	69.5	67.5	63.2	60.5	52.1	47.6	44.0	43.6	42.9	
Night	Min	52.1	e		60.0	58.0	54.0	53.0	51.0	49.0	46.0	45.0	43.0	
יוופועו	Max	62.6	90.1	54.3	71.0	68.0	62.0	61.0	59.0	58.0	56.0	56.0	55.0	
Energy A	Energy Average:	58.4	Av	Average:	65.3	62.7	59.0	57.7	55.2	53.6	50.5	49.8	48.4	
						Hourly	Hourly Summary							
	0,	52.1	72.9	42.7	61.0	58.0	54.0	53.0	51.0	49.0	46.0	45.0	43.0	
		52.4 54.7	/b.b 65.3	42.8	60.0 60.0	59.0 59.0	58.0 58.0	0.66 57 0	55.0	49.0 53 0	46.U 50.0	45.U 49.0	44.0 47.0	
Night	I M	57.8	83.9	47.5	65.0	62.0	60.0	59.0	57.0	55.0	50.0	49.0	48.0	
	4	61.2	85.6	52.2	71.0	67.0	61.0	60.0	58.0	57.0	55.0	55.0	54.0	
	o م	60.4 62.6	80.2 90.1	54.3 52.7	71.0	68.0 68.0	62.0 62.0	61.U 60.0	58.0 58.0	57.0	55.0	54.0	53.0 53.0	
	7	63.6	90.8	49.0	74.0	72.0	68.0	65.0	58.0	55.0	51.0	50.0	50.0	
	∞ (60.5	80.2	46.7	72.0	70.0	67.0 	63.0 	57.0	53.0	48.0	48.0	47.0	
	10 ^{بر}	01.0 56.4	78.0 78.0	42.1 41.1	/ 1.U 68.0	/ 1.U 66.0	/0.U 62.0	/U.U 59.0	52.0 52.0	48.U 47.0	43.U 42.0	43.U 42.0	42.0 42.0	
	11	53.1	73.7	40.1	66.0	64.0	57.0	55.0	47.0	44.0	42.0	42.0	41.0	
	12	56.0	84.3	38.1	67.0	65.0	59.0	56.0	47.0	43.0	40.0	39.0	39.0	
Dav	13	0.00 0.07	7.97	38.0	08.U 70.0	00.0	64.0 64.0	58.U	47.U	42.U 44 D	0.95	38.0 38.0	38.U	
6 22	15	59.6	85.8	38.0	71.0	0.00 69.0	65.0	62.0	51.0	45.0	39.0	39.0	38.0	
	16	59.9	85.9 21	39.9	71.0	0.69	65.0	62.0	52.0	46.0	42.0	42.0	41.0	
	1/	57.6 57.2	7.05	42.7	/0.0	67.0	64.0 52.0	61.0	53.0	47.0	44.0	44.0	43.0	
	61 19	57.2 55.3	0.67	42.0 42.8	67.0 67.0	67.0 65.0	63.U 61.0	58.0	0.25 49.0	47.0	44.0 44.0	44.0 44.0	43.0 43.0	
	20	56.5	73.4	48.3	68.0	65.0	60.0	57.0	54.0	53.0	51.0	50.0	49.0	
	21	58.7	78.2	49.5	70.0	68.0	61.0	59.0	56.0	54.0	52.0	51.0	50.0	
Night	22 23	55.7 55.1	76.7 73.0	45.4 46.4	66.0 64.0	63.0 61.0	59.0 59.0	57.0 57.0	54.0 54.0	52.0 52.0	47.0 49.9	46.0 49.0	45.0 47.0	
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Induct: A worke Data II of the Project After Mith an enclose Montr: A worke Data II of the Project After Mith an enclose Colspan="6">Colspan="6">Montr: A worke Data II of the Project After Mith an enclose Data II of the Project After Mith an enclose Data II of the Project After Mith an enclose Data II of the Project After Mith an enclose Data II of the Project After Mith an enclose Data II of the Project After Mith an enclose Data II of the Project After Mith an enclose Data II of the Project After Mith an enclose Data II of the Project After Mith an enclose Data II of the Project After Mith an enclose Data II of the Project After Mith an enclose Data II of the Project After Mith an enclose Data II of the Project After Mith an enclose Data II of the Project After Mith an enclose Data II of the Project After Mith an enclose Data II of the Project After Mith an enclose Data II of the Project After Mith an enclose Data II of the Project After Mith an enclose Data II of the Project After Mith and	ł	<i>Project Name:</i> Polopolus	Polopolus			2	24-Hour I	Noise I	evel M	our Noise Level Measurement Summary	ent Sumi		JN: 11336	1	Energy Average Leq	age Leq	24-Hour
Controlity. Date: 1/24/2018 59.2 59.8 1 4 5 6 7 8 9 1 2 59.4 1 2 59.4 1 2 59.4 1 2 59.4 1 2 59.4 1 2 59.4 1 2 59.4 1 2 59.4 1 2 59.4 1 2 59.4 1 2 59.4 1 2 59.4 1 2 2 59.4 1 2 59.4 1 2 59.4 1 2 59.4 1 2 59.4 1 2 59.4 1 2 59.4 1 2 59.4 1 2 5			L5 - Located	on Kern Ri	iver Ro	ad east of th	ie Project	site withi	n an exist	ting		Analy	st: A. Wolfe		Day	Night	CNEL
1 1		Location:	residential c	ommunity.)		Dat	e: 1/24/2018	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	59.2	59.8	66.5
36.3 37.0 30.3 <th< th=""><th>Hourly Leg d</th><th>IBA Readings (</th><th>(unadjusted)</th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th></th<>	Hourly Leg d	IBA Readings ((unadjusted)														
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$							_							-	_		
Aligned <																	
				Ŧ	2				F						E	Ŧ	
					.29			2.62				8.73					
Hour Let Intro Like Like <thlike< th=""> Like Like <thl< th=""><th></th><th></th><th></th><th>4</th><th>ъ</th><th></th><th></th><th>6</th><th></th><th>11 12</th><th>13</th><th>15</th><th>17</th><th></th><th></th><th></th><th></th></thl<></thlike<>				4	ъ			6		11 12	13	15	17				
Hour Lot Imode Imode Lot Lot <thlot< th=""> Lot Lot Lo</thlot<>									Hor	ır Beginnin	8						
	Time Period		ted (Lmax		Lmin	11%		.2%	15%	<i>81</i> %	L25%	L50%		190%	L95%	%667
	Day	Min	56.7	66.8 04 7		50.3	62.0 70.0		60.0	59.0	58.0	56.0	55.0		53.0 17.0	52.0	51.0
	Energy	Average:	59.2	7.16			64.9		67.0 52.9	60.9	60.1 60.1	58.4	57.5		55.3	54.8	53.7
	Nicht	Min	56.3	0.69			62.0		60.0	59.0	58.0	57.0	55.0		52.0	51.0	49.0
Igh verage: 598 Average: 6.37 6.37 6.13 6.37 6.13 6.37 6.13 6.37 6.13 6.37 6.13 6.37 6.13 6.37 6.13 6.37 6.13 6.37 6.13 6.13 7.21 6.13 7.21 6.13 7.21 6.23 6.13 7.21 6.23	INIBILI	Max	62.2	80.1			70.0		68.0	65.0	63.0	62.0	61.0		59.0	58.0	58.0
1 553 690 770 550 570 580	Energy	Average:	59.8		Averag	e:	65.4		63.7	61.9	60.8	59.3	57.8		55.2	54.4	53.1
									Hourly Su	ummary							
		0	56.3	0.69		47.9	62.0		60.0	59.0	58.0	57.0	55.0		52.0	51.0	49.0
3 610 770 532 650 640 630 640 630 640 570 560 570 560 570 560 570 560 570 560 570 560 570 560 570 560 570 560 570 560 570 560 570 560 580 560 560 580 560 580 560 580 560 580 560 580 560 580 560 580 5			57.6	71.17		46.8 49.8	64.0 64.0		61.0 51.0	60.0 60.0	59.0	57.0	55.0	_	52.0 54.0	53.0	49.0 52.0
4 61.9 80.1 56.5 67.0 65.0 63.0 64.0 63.0 64.0 59.0 58.0 7 6 61.3 73.6 57.0 66.0 63.0 63.0 64.0 59.0 58.0	Night	I M	61.0	77.0		53.2	65.0		64.0	63.0	62.0	61.0	60.0	_	57.0	56.0	54.0
6 6123 73.6 500 700 6600 63.0 63.0 63.0 63.0 53.0 53.0 53.0 53.0 53.0 53.0 53.0 53.0 53.0 53.0 55.0		4 1	61.9	80.1		56.5	67.0		65.0	64.0	63.0	62.0	61.0	_	59.0	58.0	58.0
7 58.9 71.9 53.8 67.0 64.0 61.0 60.0 59.0 58.0 56.0 55.0 9 59.1 70.3 53.5 64.0 62.0 61.0 60.0 59.0 58.0 56.0 55.0 9 59.7 76.1 53.4 68.0 65.0 61.0 60.0 59.0 58.0 56.0		n u	62.2 61.3	72.2		55.3	/U.U 67.0		68.U 56.0	63.0 63.0	63.U 62.0	62.U 61.0	0.10 60.0	_	58.0	58.0 58.0	57.0
8 591 703 53.5 64.0 62.0 61.0 60.0 59.0 58.0 56.		7	58.9	71.9		53.8	67.0		64.0	61.0	60.0	59.0	58.0		56.0	55.0	54.0
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$		∞ ⊂	59.1 E0 7	70.3		53.5	64.0		62.0	61.0 62.0	60.0	29.0 E0.0	28.0		56.0	56.0 E 6 0	54.0
11 59.8 71.4 54.3 64.0 62.0 61.0 61.0 60.0 59.0 57.0 56.0 12 58.9 70.1 52.2 63.0 62.0 61.0 61.0 59.0 57.0 56.0 55.0 13 58.9 70.1 52.2 63.0 65.0 61.0 59.0 58.0 56.0 55.0		10	61.4	81.5		53.0	70.0		67.0	02.0 63.0	62.0	0.09	59.0	_	57.0	56.0	55.0
12 58.9 70.1 52.2 63.0 64.0 64.0 64.0 64.0 56.0		11	59.8	71.4		54.3	64.0		62.0	61.0	61.0	60.0	59.0	_	57.0	56.0	55.0
14 567 74.8 50.4 64.0 61.0 59.0 56.0 55.0 50.3 <		12	58.9 78.9	75.2		53.0 53.0	03.0 65.0		62.U	61.0 61.0	60 0	59.0 58 0	58.0 58.0		56.0	0.22 55.0	54.0
1557.877.550.366.064.060.059.056.053.053.052.01657.473.752.463.062.060.059.057.056.054.054.01756.874.152.463.062.060.059.056.054.054.054.01857.766.851.663.062.060.059.056.054.054.054.01959.569.952.964.063.062.060.059.057.056.054.054.02060.170.154.364.063.062.060.059.057.056.057.057.02161.770.154.364.063.062.061.059.057.056.057.057.02259.173.550.966.065.065.067.057.057.057.057.02357.066.065.066.065.067.059.057.057.057.057.02357.066.065.066.065.067.057.057.057.057.057.02357.057.057.057.057.057.057.057.057.057.02357.066.065.065.065.067.057.057.057.057.02466.065.065.065.0<	Day	14	56.7	74.8	_	50.4	64.0		61.0	59.0	58.0	56.0	55.0		53.0	52.0	51.0
16 57.4 73.7 52.4 63.0 62.0 60.0 59.0 57.0 56.0 54.0 56.0 57.0 57.0 57.0 57.0 57.0 57.0 57.0 57.0 <th></th> <th>15</th> <th>57.8</th> <th>77.5</th> <th></th> <th>50.3</th> <th>66.0</th> <th></th> <th>64.0</th> <th>60.0</th> <th>59.0</th> <th>56.0</th> <th>55.0</th> <th></th> <th>53.0</th> <th>52.0</th> <th>51.0</th>		15	57.8	77.5		50.3	66.0		64.0	60.0	59.0	56.0	55.0		53.0	52.0	51.0
		16 17	57.4 56.8	73.7		52.4 57.4	63.0 62 0		62.0 50.0	60.0 59.0	59.0 58.0	57.0	56.0		54.0 54.0	54.0 54.0	53.0 53.0
		18	57.7	66.8	_	51.6	63.0		62.0	60.09	59.0	58.0	57.0		54.0	54.0	53.0
20 60.1 70.1 54.3 64.0 63.0 62.0 62.0 59.0 57.0 57.0 21 61.7 91.7 52.2 66.0 64.0 62.0 61.0 59.0 57.0 57.0 57.0 57.0 57.0 57.0 57.0 57.0 57.0 55.0 55.0 55.0 55.0 55.0 55.0 55.0 55.0 55.0 55.0 55.0 54.0 </th <th></th> <th>19</th> <th>59.5</th> <th>6.69</th> <th></th> <th>52.9</th> <th>64.0</th> <th></th> <th>63.0</th> <th>62.0</th> <th>62.0</th> <th>60.0</th> <th>58.0</th> <th></th> <th>56.0</th> <th>55.0</th> <th>54.0</th>		19	59.5	6.69		52.9	64.0		63.0	62.0	62.0	60.0	58.0		56.0	55.0	54.0
22 59.1 73.5 50.9 66.0 65.0 62.0 61.0 59.0 57.0 54.0 54.0 23 57.0 69.2 46.8 64.0 63.0 61.0 60.0 57.0 52.0 51.0		20 21	60.1 61.7	70.1 91.7		54.3 52.2	64.0 66.0		63.0 54.0	62.0 62.0	62.0 61.0	60.0 59.0	59.0 58.0		57.0 55.0	57.0 55.0	56.0 54.0
	Night	22	59.1	73.5		50.9	66.0		65.0	62.0	61.0	59.0	57.0		54.0	54.0	53.0
		23	0.73	69.2		46.8	64.0		63.0	61.0	60.0	0./2	0.43		22.0		

ď	Project Name: Polopolus	Polopolus			24-Hour N	oise Level	our Noise Level Measurement Summary	ent Summa		JN: 11336	Energy Av	Energy Average Leq	24-Hour
	l'ocation.	L6 - Located	west of the P	roject site in a	n existing chı	ırch parking lo	L6 - Located west of the Project site in an existing church parking lot near existing		Analyst:	<i>Analyst:</i> A. Wolfe	Day	Night	CNEL
	FOCULION.	residential h	omes north o	residential homes north of Schleisman Road.	load.				Date:	Date: 1/24/2018	60.5	56.6	64.0
Hourly Leg di	Hourly Leq dBA Readings (unadjusted)	(unadjusted)											
			_						_				
10 10 10													
					Ŧ	Ŧ	Ŧ	+					
	+ T		0.6	E.13	2'T9 	6°09	:E9 (.Т9	°79	7 .6	9 [.]	9.7	3	+
Hor 45.0	2°TS	22 ''ES	S							SS (S	23°	:67 :75	5.64
0.05	0	2 3	4	5	7 8	9 10	11 12	13 14	15 16	17 18	19 20	21 22	2 23
						-	Hour Beginning						
Time Deried	Поше			Imin	110/	70 C 1	15%	10%	175%	150%	70U0 1	105%	1 00%
		בס ב דבל		30 E	62 0		0 CJ	56 N	0/C21	0.81		0 0 0	
Day	Max	63.3	85.3	51.2	74.0	72.0	68.0	67.0	0.1.0 63.0	60.0	55.0	54.0	53.0
Energy A	Energy Average:	60.5		Average:	69.0	66.3	63.1	61.7	57.6	54.1	49.1	47.7	45.9
Night	Min	49.2	64.8 	41.0	58.0	56.0	52.0	50.0	45.0	44.0	42.0	42.0	41.0
Enormy	Average:	5.L0 E.E.C	٥		0.1.1	69.0	00.U	64.U	60.U	50.U	0.66	54.U 47.2	0.53 AG A
FIICI PA		0.00		Average.	t.00	D.TO		C.0C	0.70	1.00	5.14	0.14	+0.+
	¢			;					0.00	0.00	0.00		0.00
	o -	49.2 51 2	64.8 74.2	41.1 47.7	58.0 61.0	58.0	53.0 53.0	52.0 52.0	49.0 49.0	46.U 48.0	43.U 45.0	42.0 44.0	42.0 43.0
	+ 7	53.4	70.7	45.7	63.0	61.0	57.0	56.0	53.0	50.0	48.0	47.0	46.0
Night	ſ	55.5	74.0	48.8	61.0	59.0	57.0	57.0	55.0	54.0	51.0	51.0	50.0
	4 1	59.0	76.2	49.1	0.69	66.0	63.0	61.0	58.0	55.0	51.0	51.0	50.0
	n u	61.3 61.3	77.6	5.1.4 7.2.5	71.0	0.00	0.60	64.0 64.0	0.06	0.00 58.0	55.0	54.0	53.0
	7	63.3	82.1	51.2	74.0	72.0	68.0	65.0	61.0	58.0	55.0	54.0	53.0
	∞	61.7	82.5	48.7	72.0	69.0	67.0	65.0	59.0	56.0	52.0	51.0	50.0
	6 01	62.2 60 9	81.9 84 3	45.3 30.5	70.0	67.0 68.0	65.0 64 0	65.0 62 0	62.0 57.0	57.0 52.0	51.0 46.0	49.0 44.0	46.0 41 0
	11	61.7	78.4	45.7	72.0	70.0	67.0	65.0	60.0	58.0	52.0	50.0	48.0
	12	63.1	82.4	44.6	72.0	70.0	68.0	67.0	62.0	59.0	53.0	51.0	49.0
	13	62.7 53 F	78.7	43.2	70.0	69.0	67.0	66.0 67.0	63.0	60.0 76.0	50.0	48.0	45.0
Day	15 15	56.6	80.9 75.6	42.0 41.0	0.07 68.0	65.0 65.0	61.0	59.0 59.0	03.U 55.0	51.0	46.0 46.0	40.0 45.0	43.U 43.0
	16	59.4	85.3	43.8	68.0	65.0	61.0	60.0	55.0	52.0	47.0	46.0	44.0
	17	57.5	80.8 	43.3	68.0 22	64.0 20 0	60.0	58.0	54.0	51.0	46.0	45.0	44.0
	18	55.6 57.6	78.8	44.3	66.0 66.0	62.0	58.0	57.0	54.0 EE 0	51.0 E2 0	47.0 E1.0	46.0 F0.0	45.0 40.0
	20	53.5	71.0	44.1	62.0	60.0	57.0	56.0	53.0	50.0	47.0	46.0	45.0
	21	54.3	73.2	43.2	66.0	63.0	58.0	56.0	51.0	48.0	45.0	44.0	43.0
Night	22	49.7 49.9	67.3 73.3	41.1 41 0	61.0 58.0	57.0 56.0	52.0	52.0 50.0	47.0 45.0	45.0 44.0	42.0 42.0	42.0 42.0	41.0 41.0
	1			5	5	5) }))		2.41		

PI	Project Name: Polopolus	Polopolus		2	24-Hour No	oise Level	our Noise Level Measurement Summary	ent Summa		JN: 11336	Energy Average Leg	erage Leq	24-Hour
	location.	L7 - Located (L7 - Located on Hamner Avenue adjacent to the western Project site boundary	enue adjacent	to the weste	ern Project site	e boundary		Analyst:	<i>Analyst:</i> A. Wolte	Day	Night	CNEL
		near existing	near existing residential homes.	mes.					Date:	Date: 1/18/2018	71.1	65.6	73.8
Hourly Leg dE	Hourly Leq dBA Readings (unadjusted)	(unadjusted)											
85.0 -	-	-	-	-	-	-	-	-	-		-	-	
				Ŧ		+	Ŧ	Ŧ	Ŧ	Ŧ			
		$+ \overline{+}$		3.17	7.8 1.1	£.0		3.17 2.12	7.2.V	6.01 2.12	e.8	5°T/	
1 22:0	9.8	: E9 E:29	.43								99		0.0
Hou 45.0													
35.0 +	0	3 7	4 	9	7 8	9 10	11 12	13 14	15 16	17 18	19 20	21 22	23
							Begi						
					1401		800 000			1 5 00 /	/0001	1010/	/0001
Time Period	Hour	bəŋ	Lmax	Lmin	20 0°	12% 	L5%	18%	L25%	L50%	20% 23	L95%	199% 201
Day	Min Max	66./ 73.2	84.4 101.1	47.3 55.8	/6.0 83.0	/3.0 80.0	77.0	75.0	65.0 72.0	60.0 68.0	53.0 60.0	51.0 59.0	48.0 57.0
Energy Average:	Average:	71.1		Average:	80.2	77.4	74.3	72.9	69.1	65.0	57.8	56.5	54.0
Night	Min	58.4	76.5	42.9	69.0	67.0	64.0 26.0	61.0 27.0	55.0	50.0	46.0	45.0	44.0
V TWACH	Max Morage:	/1.8			0.18	0.6/ C 1-C	/0.0	0.5/	/1.0	68.U	62.U	60.U	58.0
Ellergy Average.	Average	0.c0	AVE	AVEI dge:	13.2	/ 1.2	08.2	b0.4	1.10	5./6	1.26	21.2	49.8
						Hourly	Hourly Summary						
	0 -	58.4 58.6	76.5	43.7 AF 6	69.0 70.0	67.0 68.0	64.0 64.0	62.0 61 0	56.0 56.0	53.0	48.0	47.0	45.0 47.0
	7 7	52.3 62.3	86.0	48.5	72.0	0.00	04-0 66.0	64.0	0.0 60.0	56.0	52.0	50.0	49.0
Night	£	63.7	89.7	51.2	73.0	71.0	68.0	66.0	60.0	57.0	54.0	53.0	52.0
	4 r	64.9	82.4	51.2	74.0	72.0	70.0	69.0	64.0	61.0	56.0	54.0	52.0
	c o	1.00 71.8	03.1 93.1	50.2 56.4	81.0	0.07	76.0	75.0	00.U 71.0	68.0 68.0	60.0 62.0	0.9c	58.0 58.0
	7	71.1	91.3	55.8	81.0	79.0	75.0	74.0	70.0	66.0	60.0	59.0	57.0
	× 0	68.7 70.1	84.4 02 6	52.2 50.7	0.6/	/6.0	74.0	72.0	68.U	64.0 64.0	57.0 57.0	56.U	54.0 52 0
	ر 10	1.07	95.4	50.1	0.05 79.0	76.0	73.0	72.0	00.0 68.0	64.0	56.0	55.0	52.0 52.0
	11	72.7	101.1	50.2	81.0	78.0	75.0	73.0	69.0	65.0	57.0	55.0	53.0
	12	72.7	91.8 100 2	52.9 40 8	80.0 820	78.0	75.0	73.0	70.0	65.0 66.0	58.0	57.0 58.0	54.0 56.0
Dav	14	71.8	91.2	53.0	82.0	2.0.0	76.0	74.0	71.0	68.0 68.0	60.0	59.0	56.0
	15	71.8	91.3	51.4	81.0	79.0	76.0	75.0	71.0	68.0	60.0	58.0	55.0
	16 1	72.4	91.8 200	53.1	83.0	80.0	77.0	75.0	72.0	68.0	60.0	59.0	56.0
	1/	9.17 20.05	96.U	54.2 54.0	82.U	0.67	72.0	74.0	/1.U	67.U	0.92	58.0	50.U
	19	6.89	87.4	50.3	0.00	77.0	73.0	72.0	0.20 68.0	0.00 64.0	58.0	56.0	54.0
	20	66.7	88.7	49.7	76.0	73.0	71.0	70.0	66.0	61.0	55.0	54.0	51.0
	21	71.5	100.9	47.3	78.0	75.0	72.0	70.0	65.0	60.0	53.0	51.0	48.0
Night	22 23	61.9 60.0	83.4 81.0	42.9 43.2	72.0 71.0	70.0 69.0	68.0 65.0	66.0 63.0	60.0 55.0	54.0 50.0	47.0 46.0	45.0 45.0	44.0 44.0

đ	<i>Project Name:</i> Polopolus	Polopolus		2	24-Hour No	ise Level	our Noise Level Measurement Summary	ent Summa		JN: 11336	Energy Average Leq	rage Leq	24-Hour
		L8 - Located a	at the wester	L8 - Located at the western Project site boundary on Hamner Avenue near	oundary on H	amner Avenu	le near		Analyst:	<i>Analyst:</i> A. Wolfe	Day	Night	CNEL
	Location:	existing residential homes.	ential homes						Date:	Date: 1/18/2018	71.8	68.2	75.7
Hourly Leg di	Hourly Leq dBA Readings (unadjusted)	(unadjusted)											
			\square	7.8	£.5	H	0.	£.5	8.2	5.5		6	
	9°T	8.2a		L		02	TZ TZ				.69 TZ	C.43	S.2
nuoH 2000 4000 1000 1000 1000 1000 1000 1000													9
D.C5	0	2 3	4	5 6	7 8	9 10	11 12	13 14	15 16	17 18	19 20	21 22	23
						Í	Hour Beginning						
Time Period	Hour	ped	Гтах	Lmin	L1%	12%	L5%	<i>8%</i>	L25%	L50%	%061	195%	%667
Day	Min	0.69	88.1	46.5	77.0	75.0	74.0	72.0	68.0 	63.0 24 0	54.0	53.0	49.0
Fnerøv /	Finerøv Average:	71.8		Average:	797	0.67	75.5	74.5	717	/1.0	58.0	55.8 28.0	0.72 527
	Min	60.8	80.2	46.1	72.0	70.0	66.0	64.0	58.0	52.0	49.0	48.0	47.0
Night	Max	73.7			81.0	79.0	77.0	76.0	74.0	72.0	64.0	61.0	59.0
Energy A	Energy Average:	68.2	Av	Average:	75.2	73.6	71.1	69.4	64.2	59.9	55.1	54.0	52.6
						Hourly	Hourly Summary						
	0,	60.8	80.2	46.1	72.0	70.0	67.0	64.0	58.0	54.0 0	50.0	49.0	48.0
	1 0	61.6 64.5	84.2 88.9	49.0 51.6	74.0	72.0	69.0	67.0	58.U 61.0	58.0	55.0	54.0	53.0
Night	I M	65.8	86.7	55.0	75.0	73.0	71.0	70.0	64.0	60.0	58.0	57.0	56.0
	4 L	68.7 74 F	88.4	54.8	77.0	76.0	74.0	73.0	69.0 72.0	64.0	57.0	57.0	55.0
	o 9	73.7	80.2 91.5	57.8	0.67 81.0	79.0 79.0	77.0	0.c/ 76.0	74.0	000.U 72.0	0.1.0 64.0	60.0 61.0	58.0
	2	72.3	88.5 200	55.2	80.0	79.0 7-7	77.0	76.0	73.0	70.0	60.0	58.0	57.0
	0 01	6'0Z	00.0 92.3	49.4	0.00	0.77	75.0	74.0	71.0	0.00 67.0	56.0	53.0	50.0
	10	70.4	88.1	47.5	78.0	77.0	75.0	74.0	71.0	68.0	56.0	53.0	50.0
	11	71.0 71 E	92.7	46.5 46.6	80.0	78.0	75.0	74.0 76.0	71.0	68.0 60 0	57.0	55.0	51.0 40.0
	13	73.3	1.05 99.5	40.0	81.0	78.0	76.0	75.0	73.0	70.0	59.0	56.0	49.0 53.0
Day	14	73.3	98.8	49.2	80.0	78.0	76.0	75.0	73.0	70.0	59.0	57.0	52.0
	15	72.8	92.6	49.6	81.0	79.0	77.0	76.0	73.0	70.0	59.0	56.0	52.0
	16 17	72.9 72.5	90.6 91.5	49.9 51.3	80.0 80.0	79.0 78.0	77.0 76.0	76.0 75.0	73.0 73.0	71.0 70.0	60.0 60.0	57.0 57.0	52.0 53.0
	18	72.4	99.1	54.1	0.9.0	77.0	75.0	74.0	72.0	68.0	59.0	57.0	55.0
	19	71.3	93.0	54.4	80.0	78.0	75.0	74.0	71.0	67.0	59.0	58.0	56.0
	21 21	0.69 6.93	0.98 96.3	50.5 50.5	0.77 80.0	0.c/ 77.0	74.0	72.0 72.0	69.0 68.0	63.0 63.0	54.0	50.U 53.0	51.0
Night	22	64.7	83.0	46.7	74.0	73.0	71.0	69.0	64.0	56.0	50.0	49.0	47.0
	23	6.20	84.I	40.I	/3.0	/1.0	69.0	67.0	58.0	0.25	49.0	48.0	4/.0

24-Hour	1001-42	CNEL	65.4					85	23		%667	47.0	53.0	49.1	48.0 58.0	52.4		51.0	50.0	48.0	50.0	58.0 58.0	57.0	53.0	50.0	49.0 18 0	47.0	47.0	47.0	48.0	48.0	48.0	50.0	51.0	51.0 51.0	51.0	50.0	URBAN Crossroads
na l ann	מאב דבא	Night	59.1				Ŧ	85	21 22		195%	48.0	53.0	50.1	50.0 59.0	53.7		52.0	52.0	50.0	51.0	59.0 59.0	57.0	53.0	51.0	0.02	48.0	48.0	48.0	0.05	49.5	50.0	51.0	52.0	52.0 52.0	52.0	52.0	5 Č
Eneray Average Lea	בווכו אל אעכו	Day	55.7				۲. 6	85 .92	19 20		<i>%06</i> 7	48.0	54.0	50.7	50.0 60.0	54.2		53.0	53.0	50.0	51.0	0.06	58.0	54.0	51.0	0.16	48.0	48.0	49.0	0.1.0	50.0	50.0	51.0	53.0	53.0 53.0	53.0	52.0	
1226		. Wolfe	Date: 1/24/2018					p.42	17 18		L50%	50.0	57.0	53.1	53.0 61.0	56.7		56.0	55.0	53.0	0.02	60.0 61.0	59.0	56.0	53.0	53.U	50.0	51.0	51.0	0.55	52.0	52.0	53.0	55.0	57.0 57.0	55.0	56.0	
V MI: 11226	T .N/r	Analyst: A. Wolfe	Date: 1,					Þ.42	15 16		L25%	51.0	59.0	54.5	55.0 62.0	58.6		58.0	58.0	55.0	58.0	62.0	60.0	57.0	54.0	54.U	51.0	53.0	53.0	0.4.0	53.5	53.0	54.0	57.0	59.0 58.0	57.0	58.0	
our Noise Level Measurement Summary								5.4.3 54.3	13 14		78%	53.0	62.0	57.1	57.0 64.0	60.6		60.0	61.0	57.0	60.0 62.0	64.0 64.0	61.0	59.0	56.0	0.70	53.0	55.0	55.0	0.73	56.0	55.0	56.0	59.0	62.0 61.0	59.0	60.0	
easuremen		ing						7.£3	12	Hour Beginning	L5%	55.0	62.0	58.1	58.0 65.0	61.4	nmary	61.0	62.0	58.0	61.0	65.0	62.0	60.0	57.0	0.85 60 0	55.0	57.0	56.0	0.76	57.0	56.0	57.0	60.0	62.0 62.0	60.0	61.0	
e Level Me		amner Avenue near existing					ł	2.2 .92	10 11	Hour	12%	58.0	64.0	60.7	59.0 68.0	63.1	Hourly Summary	63.0	63.0	59.0	62.0	64.0 68.0	63.0	64.0	60.0	60.U	58.0	60.0	59.0	0.95 0.19	0.1.U 59.5	58.0	59.0	62.0	64.0 63.0	63.0	63.0	107
Hour Nois		d Hamner Avei						2.42 2.22	8		L1%	60.0	67.0	62.8	62.0 69.0	64.3		64.0	64.0	62.0	62.0 67.0	0.co	65.0	67.0	62.0	63.U	60.0	64.0	62.0	60.U	61.5	61.0	60.0	64.0	65.0 64.0	64.0	64.0	
24-Ho		ect site on Olo					τ.(8S 9	6 7		Lmin	45.8	52.1		47.4 56.8	1		50.0	47.7	47.4	49.9	56.8	55.6	52.1	48.6	47.1 76.7	46.4	46.2	45.8	47.1 A6 5	47.1	47.6	48.6	50.1	49.4 49.6	50.8	49.1	
		uth of the Proj	es.				τ.τ τ.τ		4 5		Lmax	66.6	77.0	Average	66.9 80.7	Average		71.1	68.8	69.1	66.9 77 2	73.2	69.8	75.9	69.4 73.0	76.1	70.5	69.6	66.6 27 -7	70 5	72.5	74.4	71.6	72.5	70.4 77.0	67.3	80.7	
	shindoin	L9 - Located south of the Project site on Old H	residential homes	adjusted)			T	3.42 .72	2 3		Leq	52.2	58.7	55.7	54.8 62.7	59.1		57.6	57.5	54.8	57.1 51.1	61.1 62.7	60.1	58.0	54.9	0.00 56.1	52.2	53.7	53.3	5.4.3 F.1.1	54.4	54.4	54.4	56.9	58.7 58.4	57.1	58.4	
Droiact Name: Dolonolus	קרו אמוווב. ד		recation:	Neadings (un				25	0 1		Hour	Min	Max	erage:	Min Max	erage:		0	1	2	- CY	4 LV	6	7	∞ α	- رو م	11	12	13	14 7	16	17	18	19	20 21	22	23	
Dro				Hourly Leq dBA Readings (unadjusted)				100			Time Period		۲ay	Energy Average:	Night	Energy Average:				:	NIGNT									Abu						Nitaba	Night	

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APPENDIX 5.3:

SHORT-TERM NOISE LEVEL MEASUREMENT WORKSHEETS



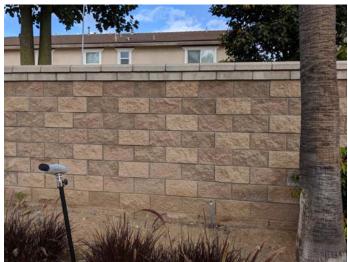
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JN:11336 Site 2 Short-Term Measurement Photos



S1_E 33, 57' 39.160000", 117, 33' 33.470000"



S1_N 33, 57' 39.160000", 117, 33' 33.470000"



S1_NE 33, 57' 39.160000", 117, 33' 33.470000"



\$1_W 33, 57' 39.160000", 117, 33' 33.470000"



S2_E 33, 57' 37.720000", 117, 33' 33.190000"



S2_N 33, 57' 37.720000", 117, 33' 33.190000"

JN:11336 Site 2 Short-Term Measurement Photos



S2_NE 33, 57' 37.720000", 117, 33' 33.190000"



S2_NW 33, 57' 37.720000", 117, 33' 33.190000"



S2_S 33, 57' 37.720000", 117, 33' 33.190000"



S2_SW 33, 57' 37.720000", 117, 33' 33.190000"



S2_W 33, 57' 37.720000", 117, 33' 33.190000"



S3_NW 33, 57' 37.340000", 117, 33' 33.050000"

JN:11336 Site 2 Short-Term Measurement Photos



S3_SW 33, 57' 37.480000", 117, 33' 33.130000"



S3_W 33, 57' 37.340000", 117, 33' 33.050000"



S4_S 33, 57' 37.050000", 117, 33' 33.150000"



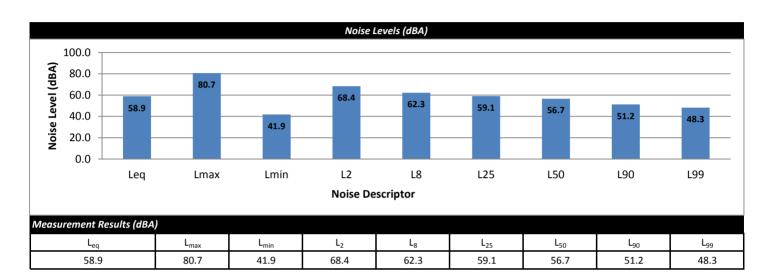
\$4_\$2 33, 57' 35.980000", 117, 33' 33.010000"



S4_SW 33, 57' 37.340000", 117, 33' 33.050000"

	Short-Term Noise	Level Measuremen	t Summary			
Project Name:	Polopolus (Site 2 Car Wash)	JN:	11336	Measur	rement Time (hh:ı	mm:ss)
Measurement ID:	S1	Analyst:	A. Wolfe	Start	Stop	Duration
Measurement Location:	12653 & 12679 Thornbury Lane	Date:	2/22/2018	10:00:00 AM	11:00:00 AM	1:00:00
	on Riverboat Drive				C1	
Sound Level Meter:	SoftdB Piccolo Type 2				S1	
Response:	Slow					
Noise Source:	Existing traffic volumes on Riverboat Drive an lot vehicle movements from the 7-Eleven con			ł		

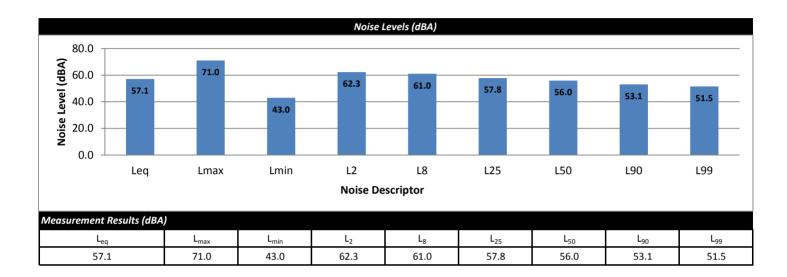
lot vehicle movements from the 7-Eleven convenience store and background gardening and lawn mower noise from within the residential neighborhood north of the meter.





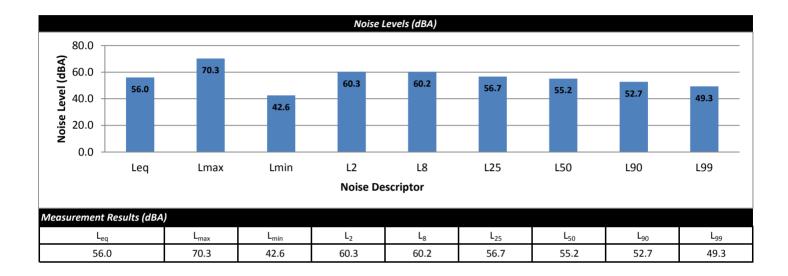
	Short-Term Nois	e Level Measuremen	t Summary			
Project Name:	Polopolus (Site 2 Car Wash)	JN:	11336	Measur	rement Time (hh:r	nm:ss)
Measurement ID:	S2	Analyst:	A. Wolfe	Start	Stop	Duration
Measurement Location:	7012 & 7022 College Park Drive	Date:	2/22/2018	10:00:00 AM	11:00:00 AM	1:00:00
	within Site 2				62	
Sound Level Meter:	SoftdB Piccolo Type 2				32	
Response:	Slow					
Noise Source:	Existing traffic volumes on Riverboat Drive a	nd Hamner Avenue	Adiacent parkin	σ		

Noise Source: Existing traffic volumes on Riverboat Drive and Hamner Avenue. Adjacent parking lot vehicle movements from the 7-Eleven convenience store.



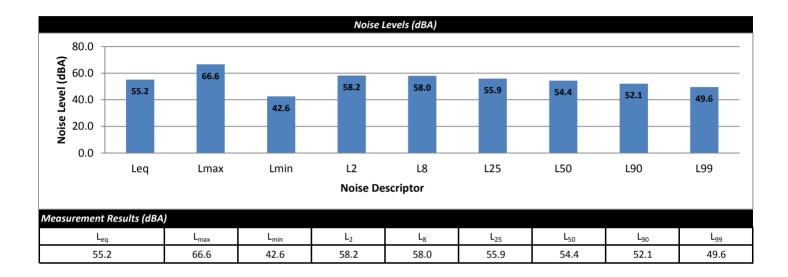


	Short-Term No	oise Level Measuremen	t Summary			
Project Name:	Polopolus (Site 2 Car Wash)	JN:	11336	Measur	rement Time (hh:ı	nm:ss)
Measurement ID:	S3 - First Floor	Analyst:	A. Wolfe	Start	Stop	Duration
Measurement Location:	7032 College Park Drive	Date:	2/22/2018	10:00:00 AM	11:00:00 AM	1:00:00
	within Site 2			CO	First F	laar
Sound Level Meter:	SoftdB Piccolo Type 2			33 -	ΓΠΣΓ	1001
Response:	Slow					
Noise Source:	Existing traffic volumes on Riverboat Drive	and Hamner Avenue.				





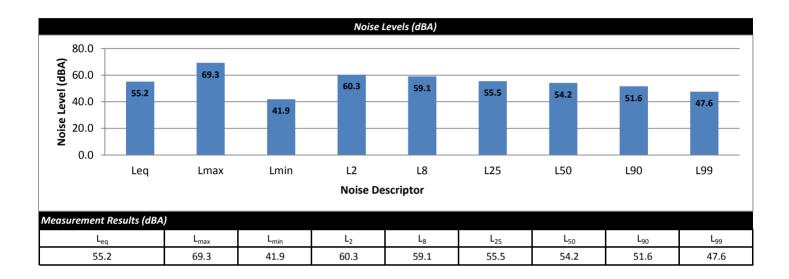
	Short-Term Noi	se Level Measuremen	t Summary			
Project Name:	Polopolus (Site 2 Car Wash)	JN:	11336	Measur	rement Time (hh:ı	mm:ss)
Measurement ID:	S3 - Second Floor	Analyst:	A. Wolfe	Start	Stop	Duration
Measurement Location:	7032 College Park Drive	Date:	2/22/2018	10:00:00 AM	11:00:00 AM	1:00:00
	within Site 2			62 6	acand	Floor
Sound Level Meter:	SoftdB Piccolo Type 2			33 - 3	econd	FIOOI
Response:	Slow					
Noise Source:	Existing traffic volumes on Riverboat Drive	and Hamner Avenue.				





	Short-Term Noise Leve	el Measuremen	t Summary			
Project Name:	Polopolus (Site 2 Car Wash)	JN:	11336	Measu	rement Time (hh:i	nm:ss)
Measurement ID:	S4	Analyst:	A. Wolfe	Start	Stop	Duration
Measurement Location:	7042 College Park Drive	Date:	2/22/2018	10:00:00 AM	11:00:00 AM	1:00:00
	within Site 2				C A	
Sound Level Meter:	SoftdB Piccolo Type 2				54	
Response:	Slow					

Noise Source: Existing traffic volumes on Riverboat Drive and Hamner Avenue.





APPENDIX 7.1:

OFF-SITE TRAFFIC NOISE LEVEL CONTOURS



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	FHW	/A-RD-77-108 HIG	GHWAY I		REDICTION				
Scenario	p: Existing Wit	hout Project			Project Na	me: Polo	polus		
Road Name	e: Scholar Wy				Job Num	ber: 1133	36		
Road Segmen	t: n/o Schleisr	nan Rd.							
	SPECIFIC IN	PUT DATA					EL INPUT	'S	
Highway Data				Site Con	ditions (H	ard = 10,	Soft = 15)		
Average Daily	Traffic (Adt):	7,300 vehicles				Auto	s: 15		
Peak Hour I	Percentage:	10%		Me	dium Truck	s (2 Axles	s): 15		
Peak He	our Volume:	730 vehicles		He	avy Trucks	(3+ Axles	s): 15		
Vel	nicle Speed:	45 mph	ŀ	Vehicle	Mix				
Near/Far Lar	e Distance:	36 feet	ŀ	Veh	icleTvpe	Dav	Evenina	Niaht	Dailv
Site Data					Aut	os: 77.5	% 12.9%	9.6%	97.42%
Bar	rier Height:	0.0 feet		M	edium Truc	ks: 84.8	4.9%	10.3%	1.84%
Barrier Type (0-Wa	•	0.0		ŀ	Heavy Truc	ks: 86.5	% 2.7%	10.8%	0.74%
Centerline Dis	t. to Barrier:	50.0 feet	ŀ	Noise So	ource Elev	ations (in	feet)		
Centerline Dist. t	o Observer:	50.0 feet	ŀ		Autos:	0.000			
Barrier Distance t	o Observer:	0.0 feet		Mediu	m Trucks:	2.297			
Observer Height (/	Above Pad):	5.0 feet		Heav	y Trucks:	8.006	Grade Ad	liustment	: 0.0
	d Elevation:	0.0 feet	-		-				
	d Elevation:	0.0 feet	-	Lane Eq	uivalent Di		n feet)		
F	Road Grade:	0.0%			Autos:	46.915			
	Left View:	-90.0 degrees			m Trucks:	46.726			
	Right View:	90.0 degrees		Heav	y Trucks:	46.744			
FHWA Noise Mode									
VehicleType	REMEL		Distance			Fresnel	Barrier At		rm Atten
Autos:	68.46	-3.32	0.3		-1.20	-4.6		000	0.00
Medium Trucks:	79.45	-20.56	0.3		-1.20	-4.8		000	0.00
Heavy Trucks:	84.25	-24.51	0.3		-1.20	-5.4	3 0.	000	0.00
Unmitigated Noise			1						
	Leq Peak Hou			vening	Leq Nig		Ldn		NEL
Autos:	64. 58.			60.6 50.2		54.5 48.6	63. 57.		63.
Medium Trucks:	58. 58.		-	50.2 48.4		48.6 49.7	57.		57.
Heavy Trucks: Vehicle Noise:	58.		-	48.4		49.7	58.	-	58. 65.
			4	61.2		5.90	65.	1	65.
Centerline Distanc	e to Noise Co	ntour (in feet)	70	dBA	65 dB	4	60 dBA	55	dBA
		Ldr		23	51		109		235
		CNEL		25	54		117	-	252
		0.1122			0.				

	FHW	A-RD-77-108 H	IIGHWA	Y NOISE I	PREDICT	TION MO	DEL			
	Existing With Scholar Wy. s/o Schleism	,				t Name: Number:				
SITE SI	PECIFIC INF	PUT DATA				NOISE	/ODE	L INPUT	s	
Highway Data				Site Co	onditions	s (Hard =	10, Se	oft = 15)		
Average Daily Tr	affic (Adt):	7.000 vehicles					Autos:	15		
Peak Hour Pe	ercentage:	10%		N	ledium Ti	rucks (2 /	Axles):	15		
Peak Hou	ır Volume:	700 vehicles		H	leavy Tru	Icks (3+ /	xles):	15		
Vehi	cle Speed:	45 mph		Vehicle	Mise	-				
Near/Far Lane	Distance:	36 feet			hicleTyp		Dav	Evening	Night	Daily
Site Data				Ve			77.5%	•		97.429
					Medium T		84.8%		10.3%	
	er Height:	0.0 feet		,			86.5%		10.3%	
Barrier Type (0-Wal	. ,	0.0			neavy i	ruchs.	00.37	2.170	10.076	0.74
Centerline Dist.		50.0 feet		Noise \$	Source E	levation	s (in f	eet)		
Centerline Dist. to		50.0 feet			Auto	os: 0.	000			
Barrier Distance to		0.0 feet		Medi	um Truci	ks: 2.	297			
Observer Height (Al	bove Pad): Elevation:	5.0 feet		Hea	avy Truck	ks: 8.	006	Grade Ad	justment	0.0
	Elevation: Elevation:	0.0 feet 0.0 feet		Lano E	auivalor	nt Distan	o (in	foot)		
		0.0 reet		LaneL	Auto		915	ieel)		
R	ad Grade: Left View:	-90.0 degrees		Madi	um Truci					
F	Right View:	90.0 degrees			avy Truck					
FHWA Noise Model	Calculations									
VehicleType	REMEL	Traffic Flow	Distant	ce Finit	e Road	Fresr	el	Barrier Att	en Ber	m Atter
Autos:	68.46	-3.50		0.31	-1.20		-4.65	0.0	000	0.00
Medium Trucks:	79.45	-20.74		0.34	-1.20		-4.87	0.0	000	0.00
Heavy Trucks:	84.25	-24.69		0.34	-1.20		-5.43	0.0	000	0.00
Unmitigated Noise I										
	eq Peak Hour			q Evening		n Night		Ldn	-	NEL
Autos:	64.1		2.2	60.		54.4		63.0		63.
Medium Trucks:	57.8		5.3	50.	-	48.4		56.9		57.
Heavy Trucks:	58.7	-	7.3	48.		49.5		57.8		58
Vehicle Noise:	65.9		4.2	61.	0	56.3	3	64.9	9	65
Centerline Distance	to Noise Cor	ntour (in feet)		70 dBA	65	i dBA	6	60 dBA	55	dBA
			dn:	23		49		106		28

FHWA-RD-77-108 H	Norma A	ROIDE P					
Scenario: Existing Without Project			Project Na				
Road Name: Hamner Av.			Job Num	ber: 1133	6		
Road Segment: n/o Limonite Av.							
SITE SPECIFIC INPUT DATA					EL INPUT	s	
Highway Data		Site Cor	nditions (Ha	ard = 10, S	Soft = 15)		
Average Daily Traffic (Adt): 25,300 vehicles				Autos	: 15		
Peak Hour Percentage: 10%		Me	edium Truck	s (2 Axles)): 15		
Peak Hour Volume: 2,530 vehicles		He	eavy Trucks	(3+ Axles)): 15		
Vehicle Speed: 45 mph		Vehicle	Mix				
Near/Far Lane Distance: 78 feet			nicleType	Dav	Evening	Night	Daily
Site Data			Auto	os: 77.59	•	9.6%	
Barrier Height: 0.0 feet		M	ledium Truci	ks: 84.89	% 4.9%	10.3%	1.849
Barrier Type (0-Wall, 1-Berm): 0.0			Heavy Truck	ks: 86.5	% 2.7%	10.8%	0.749
Centerline Dist. to Barrier: 76.0 feet		Noise S	ource Eleva	tions (in	feet)		
Centerline Dist. to Observer: 76.0 feet			Autos:	0.000			
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	justment.	: 0.0
Pad Elevation: 0.0 feet							
Road Elevation: 0.0 feet		Lane Eq	uivalent Di		feet)		
Road Grade: 0.0%		Marth	Autos:	65.422			
Left View: -90.0 degrees			m Trucks: vy Trucks:	65.286 65.300			
Right View: 90.0 degrees		пеа	vy mucks.	65.300			
FHWA Noise Model Calculations						-	
VehicleType REMEL Traffic Flow	Distanc			resnel	Barrier Att		m Atten
Autos: 68.46 2.08 Medium Trucks: 79.45 -15.16		1.85 1.84	-1.20	-4.73 -4.88		000	0.00
		1.84 1.84	-1.20 -1.20			000	0.00
			-1.20	-5.25	0.0	000	0.00
Unmitigated Noise Levels (without Topo and ba VehicleType Leg Peak Hour Leg Day		(Evening	Leg Nig	ht	l dn	0	NFI
Autos: 67.5 65		63.8	1 0	57.8	66.4		67.
Medium Trucks: 61.2 59		53.4		51.8	60.3		60.
Heavy Trucks: 62.1 60		51.6		52.9	61.3	-	61.
Vehicle Noise: 69.3 67		64.4		59.8	68.3	-	68.
Centerline Distance to Noise Contour (in feet)							
	7	'0 dBA	65 dB/	ł	60 dBA	55	dBA
La	In:	59	126		272	5	685

	FH	WA-RD-77-108	HIGHW	VAY N	OISE PI	REDICTIO	N MOD	EL				
Road Nam	io: Existing W ne: Hamner Av nt: s/o Limonit	<i>.</i>				Project N Job Nur			s			
SITE	SPECIFIC IN	NPUT DATA			NOISE MODEL INPUTS							
Highway Data				5	Site Con	ditions (H	lard = 1	0, Soft	= 15)			
Average Daily	Traffic (Adt):	22,800 vehicle	s				Α	utos:	15			
Peak Hour	Percentage:	10%			Me	dium Truc	ks (2 A)	des):	15			
Peak H	lour Volume:	2,280 vehicle	s		He	avy Truck	s (3+ A)	des):	15			
Ve	hicle Speed:	45 mph		,	/ehicle	Mix						
Near/Far La	ne Distance:	78 feet				icleType	ſ	Dav E	vening	Night	Daily	
Site Data				_	VCII			7.5%	12.9%	9.6%	97.42%	
		0.0 ()			М	edium Tru		4.8%	4.9%	10.3%	1.84%	
ва Barrier Type (0-W	rrier Height:	0.0 feet 0.0				Heavy Tru		6.5%	2.7%	10.8%	0.74%	
Centerline Di		76.0 feet										
Centerline Dist.		76.0 feet		/	Voise So	ource Elev			t)			
Barrier Distance		0.0 feet				Autos:	0.00					
Observer Height		5.0 feet				m Trucks:	2.29					
	ad Elevation:	0.0 feet			Heav	y Trucks:	8.00	06 G	irade Adji	ustment:	0.0	
	ad Elevation:	0.0 feet		L	ane Eq	uivalent L	Distance	e (in fe	et)			
	Road Grade:	0.0%				Autos:	65.4	22	,			
	Left View:	-90.0 degre	es		Mediu	m Trucks:	65.2	86				
	Right View:	90.0 degre			Heav	y Trucks:	65.3	00				
FHWA Noise Mod	el Calculation	IS										
VehicleType	REMEL	Traffic Flow	Dista	nce	Finite	Road	Fresne	l B	arrier Atte	n Ber	m Atten	
Autos:	68.46			-1.85		-1.20		4.73	0.0		0.000	
Medium Trucks:	79.45			-1.84		-1.20		4.88	0.0		0.000	
Heavy Trucks:	84.25			-1.84		-1.20	~	5.25	0.0	00	0.000	
Unmitigated Nois												
VehicleType	Leq Peak Ho			Leq Ev	v	Leq N	•	L	.dn	CI	VEL	
Autos:	•••		65.1		63.4		57.3		65.9		66.5	
Medium Trucks:			59.3		52.9		51.4		59.8		60.1	
Heavy Trucks:			60.2		51.2		52.4		60.8		60.9	
Vehicle Noise:	68	3.9	67.1		64.0		59.3		67.8		68.3	
Centerline Distan	ce to Noise C	ontour (in feet	:)									
				70 a		65 dE			dBA		dBA	
			Ldn:	55		118		_	53	-	46	
		C	NEL:	59	Э	126		2	72	5	86	

Wednesday, January 17, 2018

Wednesday, January 17, 2018

	FHW	A-RD-77-108 HIG	HWAY N	IOISE P	REDICTIO	N MODI	EL				
Scenario	p: Existing Wit	nout Project			Project Na	ame: Po	olopolus				
	e: Hamner Av.			Job Number: 11336							
Road Segmen	t: s/o 68th St.										
SITE S	SPECIFIC IN	PUT DATA		NOISE MODEL INPUTS							
Highway Data				Site Cor	nditions (H	ard = 10	0, Soft = 15)				
Average Daily 1	raffic (Adt): 1	3,200 vehicles				AL	itos: 15				
Peak Hour F	Percentage:	10%		Me	edium Truck	is (2 Ax	<i>les):</i> 15				
Peak Ho	our Volume:	1,820 vehicles		He	eavy Trucks	(3+ Ax	<i>les):</i> 15				
Veh	nicle Speed:	45 mph	F	Vehicle	Mix						
Near/Far Lan	e Distance:	78 feet	F		nicleType	D	ay Evening	Niaht	Dailv		
Site Data				10.	Aut		7.5% 12.9%				
Par	rier Height:	0.0 feet		M	ledium Truc	ks: 84	4.8% 4.9%	6 10.3%	1.84%		
Barrier Type (0-Wa	•	0.0			Heavy Truc	ks: 86	6.5% 2.7%	6 10.8%	0.74%		
Centerline Dis		76.0 feet	_								
Centerline Dist. t		76.0 feet	4	Noise S	ource Elev		, ,				
Barrier Distance t	o Observer:	0.0 feet			Autos:	0.00	-				
Observer Height (A	Above Pad);	5.0 feet			m Trucks:	2.29		-E			
0 1	d Elevation:	0.0 feet		Hea	vy Trucks:	8.00	6 Grade A	djustmen	t: 0.0		
Roa	d Elevation:	0.0 feet		Lane Eq	uivalent D	istance	(in feet)				
R	Road Grade:	0.0%			Autos:	65.42	2				
	Left View:	-90.0 degrees		Mediu	m Trucks:	65.28	6				
	Right View:	90.0 degrees		Hea	vy Trucks:	65.30	0				
FHWA Noise Mode	l Calculations										
VehicleType	REMEL		istance			Fresnel			rm Atten		
Autos:	68.46	0.65	-1.8	-	-1.20			0.000	0.00		
Medium Trucks:	79.45	-16.59	-1.8		-1.20			0.000	0.000		
Heavy Trucks:	84.25	-20.54	-1.8	4	-1.20	-5	5.25 (0.000	0.000		
Unmitigated Noise					1						
	Leq Peak Hour			vening	Leq Nig		Ldn		NEL		
Autos:	66.			62.4		56.3		5.0	65.0		
Medium Trucks:	59.			52.0		50.4		3.9	59.1		
Heavy Trucks: Vehicle Noise:	60.			50.2		51.5		9.8	59.9		
	67.			63.0		58.3	66	6.9	67.3		
Centerline Distanc	e to Noise Co	ntour (in feet)	70.	dBA	65 dB	Δ	60 dBA	54	ō dBA		
		Ldn:			101	~	218		470		
		CNEL:			101		210		470 504		
		CNEL.	5	0	109		234		JU4		

FHWA-RD-77-108 F	IIGHWA	Y NOISE PR	EDICTI	ON MODEL				
Scenario: Existing Without Project				Name: Polop				
Road Name: Hamner Av.			Job N	umber: 1133	6			
Road Segment: s/o Riverboat Dr.								
SITE SPECIFIC INPUT DATA				OISE MOD		S		
Highway Data		Site Con	ditions	(Hard = 10, S	Soft = 15)			
Average Daily Traffic (Adt): 26,200 vehicles				Autos	: 15			
Peak Hour Percentage: 10%		Med	dium Tru	icks (2 Axles,): 15			
Peak Hour Volume: 2,620 vehicles		Hea	avy Truc	ks (3+ Axles)): 15			
Vehicle Speed: 45 mph		Vehicle N	Nix					
Near/Far Lane Distance: 78 feet		-	cleType	Dav	Evening	Night Daily		
Site Data		Autos: 77.5% 12.9% 9.6% 97						
Barrier Height: 0.0 feet		Medium Trucks: 84.8% 4.9% 10.3% 1.8						
Barrier Type (0-Wall, 1-Berm): 0.0		H	leavy Tr	ucks: 86.5°	% 2.7%	10.8% 0.74		
Centerline Dist. to Barrier: 76.0 feet								
Centerline Dist. to Observer: 76.0 feet		Noise So		evations (in	feet)			
Barrier Distance to Observer: 0.0 feet			Autos					
Observer Height (Above Pad): 5.0 feet			n Trucks		Oursels Art			
Pad Elevation: 0.0 feet		Heav	y Trucks	8.006	Grade Adj	iustment: 0.0		
Road Elevation: 0.0 feet		Lane Equ	iivalent	Distance (in	feet)			
Road Grade: 0.0%			Autos	65.422				
Left View: -90.0 degrees	3	Mediun	n Trucks	65.286				
Right View: 90.0 degrees	3	Heav	y Trucks	65.300				
FHWA Noise Model Calculations								
VehicleType REMEL Traffic Flow	Distanc	e Finite	Road	Fresnel	Barrier Atte	en Berm Atter		
Autos: 68.46 2.23	-'	1.85	-1.20	-4.73	0.0	0.0		
Medium Trucks: 79.45 -15.01		1.84	-1.20	-4.88				
Heavy Trucks: 84.25 -18.96	-'	1.84	-1.20	-5.25	0.0	0.0		
Unmitigated Noise Levels (without Topo and b	arrier at	tenuation)						
VehicleType Leq Peak Hour Leq Day	Leo	Evening	Leq	Vight	Ldn	CNEL		
	5.7	64.0		57.9	66.5			
	9.9	53.5		52.0	60.4			
	0.8	51.8		53.0	61.4			
Vehicle Noise: 69.5 6	7.7	64.6		59.9	68.4	68		
Centerline Distance to Noise Contour (in feet)								
		70 dBA	65 (60 dBA	55 dBA		
L	dn:	60	12	29	278	599		
CN		64	13		298	642		

	FH\	NA-RD-77-108	HIGH	WAY N	NOISE PF	REDICT		DEL			
Scenario: E:	kisting Wi	ithout Project				Project	Name: F	Polopo	olus		
Road Name: H						Job N	umber: 1	1336			
Road Segment: s/	o Schleis	man Rd.									
	CIFIC IN	IPUT DATA							L INPUTS	5	
Highway Data					Site Con	ditions	(Hard =	10, So	oft = 15)		
Average Daily Traffi	c (Adt):	22,400 vehicle	s					lutos:			
Peak Hour Perc	entage:	10%					ucks (2 A	/			
Peak Hour V	/olume:	2,240 vehicle	s		He	avy Tru	cks (3+ A	xles):	15		
Vehicle	Speed:	45 mph		F	Vehicle I	Mix					
Near/Far Lane Di	stance:	78 feet		F	Vehi	cleType		Day	Evening	Night	Daily
Site Data							Autos:	, 77.5%	12.9%	9.6%	97.42%
Barrier	Heiaht:	0.0 feet			Me	edium T	rucks:	34.8%	4.9%	10.3%	1.84%
Barrier Type (0-Wall, 1		0.0			ŀ	leavy T	rucks:	36.5%	2.7%	10.8%	0.74%
Centerline Dist. to	Barrier:	76.0 feet		ŀ	Noise Sc	urce F	levation	: (in fi	oet)		
Centerline Dist. to Ol	oserver:	76.0 feet		F		Auto					
Barrier Distance to Ot	server:	0.0 feet			Modiuu	n Truck	0.0				
Observer Height (Abov	e Pad):	5.0 feet				v Truck	J		Grade Adj	ustment	0.0
Pad Ele	evation:	0.0 feet				· · ·					
Road Ele		0.0 feet		L	Lane Eq				feet)		
	Grade:	0.0%				Auto					
	ft View:	-90.0 degre				n Truck					
Rigi	nt View:	90.0 degre	es		Heav	y Truck	s: 65.3	00			
FHWA Noise Model Ca	lculation	s		I							
	EMEL	Traffic Flow	Dist	tance	Finite		Fresn		Barrier Atte		m Atten
Autos:	68.46	1.55		-1.8	-	-1.20		4.73	0.0		0.00
Medium Trucks:	79.45	-15.69		-1.8		-1.20		4.88	0.0		0.00
Heavy Trucks:	84.25	-19.64		-1.8	4	-1.20		5.25	0.0	00	0.00
Unmitigated Noise Lev	els (with	out Topo and	barrie	r atter	nuation)						
, , ,	Peak Hou			Leq E	vening	Leq	Night		Ldn	-	NEL
Autos:	67		65.1		63.3		57.2		65.9		66.
Medium Trucks:	60		59.2		52.9		51.3		59.8		60.
	61		60.1		51.1		52.4		60.7		60.8
Heavy Trucks:			67.1		63.9		59.2		67.8		68.2
Heavy Trucks: Vehicle Noise:	68	.8	07.1		00.0						
Vehicle Noise:			;)		dBA		dBA	e	60 dBA		dBA
Vehicle Noise:		ontour (in fee		5		1	dBA 16 25	ŧ	60 dBA 250 269	5	dBA 540

	NOISE PREDICTION MODEL
Scenario: Existing Without Project Road Name: Hamner Av. Road Segment: s/o Citrus St.	Project Name: Polopolus Job Number: 11336
SITE SPECIFIC INPUT DATA	NOISE MODEL INPUTS
Highway Data	Site Conditions (Hard = 10, Soft = 15)
Average Daily Traffic (Adt): 30,700 vehicles	Autos: 15
Peak Hour Percentage: 10%	Medium Trucks (2 Axles): 15
Peak Hour Volume: 3,070 vehicles	Heavy Trucks (3+ Axles): 15
Vehicle Speed: 45 mph	Vehicle Mix
Near/Far Lane Distance: 78 feet	VehicleType Day Evening Night Daily
Site Data	Autos: 77.5% 12.9% 9.6% 97.42%
	Medium Trucks: 84.8% 4.9% 10.3% 1.84%
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0	Heavy Trucks: 86.5% 2.7% 10.8% 0.74%
Centerline Dist. to Barrier: 76.0 feet	
Centerline Dist. to Observer: 76.0 feet	Noise Source Elevations (in feet)
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	Heavy Trucks: 8.006 Grade Adjustment: 0.0
Road Elevation: 0.0 feet	Lane Equivalent Distance (in feet)
Road Grade: 0.0%	Autos: 65.422
Left View: -90.0 degrees	Medium Trucks: 65.286
Right View: 90.0 degrees	Heavy Trucks: 65.300
FHWA Noise Model Calculations	
VehicleType REMEL Traffic Flow Distance	Finite Road Fresnel Barrier Atten Berm Atten
Autos: 68.46 2.92 -1	.85 -1.20 -4.73 0.000 0.000
Medium Trucks: 79.45 -14.32 -1	.84 -1.20 -4.88 0.000 0.000
Heavy Trucks: 84.25 -18.27 -1	.84 -1.20 -5.25 0.000 0.000
Unmitigated Noise Levels (without Topo and barrier att	enuation)
VehicleType Leq Peak Hour Leq Day Leq	Evening Leq Night Ldn CNEL
Autos: 68.3 66.4	64.7 58.6 67.2 67.8
Medium Trucks: 62.1 60.6	54.2 52.7 61.1 61.4
Heavy Trucks: 62.9 61.5	52.5 53.7 62.1 62.2
Vehicle Noise: 70.2 68.4	65.3 60.6 69.1 69.6
Centerline Distance to Noise Contour (in feet)	
	0 dBA 65 dBA 60 dBA 55 dBA
Ldn:	67 143 309 666
CNFL:	71 154 331 714

Wednesday, January 17, 2018

Wednesday, January 17, 2018

	FHV	VA-RD-77-108	HIGHW	AY NOISE F	PREDICTIO	N MODEL						
Scenario	p: Existing Wi	thout Project			Project Na	ame: Polop	olus					
	e: Limonite Av				Job Nun	nber: 1133	6					
Road Segmen	t: w/o Hamne	r Av.										
	SPECIFIC IN	IPUT DATA		NOISE MODEL INPUTS								
Highway Data				Site Co	nditions (H	ard = 10, S	oft = 15)					
Average Daily 7	Fraffic (Adt): 2	28,700 vehicles				Autos	: 15					
Peak Hour F	Percentage:	10%		M	edium Truck	s (2 Axles)	: 15					
Peak Ho	our Volume:	2,870 vehicles		Н	eavy Trucks	(3+ Axles)	: 15					
Veh	nicle Speed:	45 mph		Vehicle	Mix							
Near/Far Lan	e Distance:	78 feet			hicleType	Dav	Evening	Night	Daily			
Site Data					Aut	os: 77.5	0	9.6%				
Ban	rier Height:	0.0 feet		٨	Aedium Truc	ks: 84.89	6 4.9%	10.3%	1.84%			
Barrier Type (0-Wa	•	0.0			Heavy Truc	ks: 86.59	% 2.7%	10.8%	0.74%			
Centerline Dis		76.0 feet		Noise S	Source Elev	ations (in	feet)					
Centerline Dist. t	o Observer:	76.0 feet			Autos:	0.000						
Barrier Distance t	o Observer:	0.0 feet		Medi	um Trucks:	2.297						
Observer Height (A	Above Pad):	5.0 feet		Hea	vy Trucks:	8.006	Grade Ad	iustment.	: 0.0			
	d Elevation:	0.0 feet			,		-					
	d Elevation:	0.0 feet		Lane E	quivalent D		feet)					
R	Road Grade:	0.0%			Autos:	65.422						
	Left View:	-90.0 degree			um Trucks:	65.286						
	Right View:	90.0 degree	s	Hea	avy Trucks:	65.300						
FHWA Noise Mode	l Calculation	s		1								
VehicleType	REMEL	Traffic Flow	Distan	ce Finit	e Road	Fresnel	Barrier Att	en Ber	m Atten			
Autos:	68.46	2.63		-1.85	-1.20	-4.73			0.00			
Medium Trucks:	79.45	-14.61		-1.84	-1.20	-4.88		000	0.000			
Heavy Trucks:	84.25	-18.57		-1.84	-1.20	-5.25	0.0	000	0.00			
Unmitigated Noise			-		1							
	Leq Peak Hou	1.7		q Evening	Leq Nig		Ldn		NEL			
Autos:	68		6.1	64.		58.3	66.9		67.			
Medium Trucks:	61		0.3	53.	-	52.4	60.8	-	61.1			
Heavy Trucks:	62		1.2	52.		53.4	61.8		61.9			
Vehicle Noise:	69		i8.1	65.	U	60.3	68.8	3	69.			
Centerline Distanc	e to Noise Co	ontour (in feet)		70 10 4	05 :=				10.4			
				70 dBA	65 dB	A	60 dBA		dBA			
			.dn: IEL:	64 68	137 147		295 317	-	36 83			

FH\	VA-RD-77-108 HIG	SHWAY I	NOISE PR	REDICTIO	ON MOI	DEL					
Scenario: Existing Wi Road Name: Limonite A	<i>.</i>		Project Name: Polopolus Job Number: 11336								
Road Segment: e/o Hamne	r Av.										
SITE SPECIFIC IN	IPUT DATA			N	DISE N	IODE	L INPUT	S			
Highway Data			Site Conditions (Hard = 10, Soft = 15)								
Average Daily Traffic (Adt):	42,600 vehicles				/	Autos:	15				
Peak Hour Percentage:	10%		Me	dium True	cks (2 A	xles):	15				
Peak Hour Volume:	4,260 vehicles		He	avy Truck	ks (3+ A	xles):	15				
Vehicle Speed:	45 mph	ŀ	Vehicle I	Mix							
Near/Far Lane Distance:	78 feet	ŀ		icleTvpe		Dav	Evening	Night	Dailv		
Site Data			Autos: 77.5% 12.9% 9.6% 9								
Barrier Height:	0.0 feet		Medium Trucks: 84,8% 4,9% 10,3% 1.8								
Barrier Type (0-Wall, 1-Berm):	0.0 1001		ŀ	leavy Tru		86.5%		10.8%			
Centerline Dist, to Barrier:	76.0 feet			,							
Centerline Dist. to Observer:	76.0 feet	-	Noise So				et)				
Barrier Distance to Observer:	0.0 feet			Autos:							
Observer Height (Above Pad):	5.0 feet			m Trucks:							
Pad Elevation:	0.0 feet		Heav	y Trucks.	8.0	006	Grade Adj	ustment	0.0		
Road Elevation:		Lane Eq	uivalent	Distand	e (in i	feet)					
Road Grade:			Autos:	65.4	122	,					
Left View:	-90.0 degrees		Mediui	m Trucks:	65.2	286					
Right View:	90.0 degrees		Heav	y Trucks	65.3	300					
FHWA Noise Model Calculation											
VehicleType REMEL		Distance		Road	Fresn		Barrier Att		m Atten		
Autos: 68.46	4.34	-1.8		-1.20		-4.73	0.0		0.00		
Medium Trucks: 79.45	-12.90	-1.8		-1.20		-4.88	0.0		0.00		
Heavy Trucks: 84.25	-16.85	-1.8	14	-1.20		-5.25	0.0	000	0.00		
Unmitigated Noise Levels (with	out Topo and bar	rier attei	nuation)								
VehicleType Leq Peak Hou			vening	Leq N	light		Ldn		VEL		
Autos: 69			66.1		60.0		68.7		69.		
Medium Trucks: 63			55.6		54.1		62.6		62.		
Heavy Trucks: 64			53.9		55.2		63.5		63.		
Vehicle Noise: 71		3	66.7		62.0		70.6	6	71.		
Centerline Distance to Noise Co	ontour (in feet)	70	-/0.4	05	04		0 -10 4		-10.4		
	1 -1		dBA	65 d		6	0 dBA		dBA		
	Ldn. CNFL		33 39	17 19			384 412		28 88		
	UNEL.	. 8	59	19	1		412	8	00		

Scenario: Existing Without Project			Project N	Jame [.] P	olonol	us		
Road Name: Limonite Av.				mber: 1		us		
Road Segment: e/o I-15 Fwy.			000744	mber. 1	1000			
SITE SPECIFIC INPUT DATA			NI		ODEI			
Highway Data		Site Co	onditions (•	
Average Daily Traffic (Adt): 37,900 vehicles					utos:	15		
Peak Hour Percentage: 10%		A	ledium Truc	cks (2 A	xles):	15		
Peak Hour Volume: 3.790 vehicles			leavy Truck	•		15		
Vehicle Speed: 45 mph				- 1-	,	-		
Near/Far Lane Distance: 78 feet		Vehicle			Dav	E un min m	Manhat	Deile
Site Data		Ve	hicleType		7.5%	Evening 12.9%	Night 9.6%	Daily 97.429
		-	Al Medium Tri		4.8%	4.9%	9.6%	
Barrier Height: 0.0 feet		1	Heavy Tru		36.5%		10.3 %	
Barrier Type (0-Wall, 1-Berm): 0.0			neavy nu	ichs. c	0.378	2.1 /0	10.076	0.74
Centerline Dist. to Barrier: 76.0 feet		Noise	Source Ele	vations	(in fe	et)		
Centerline Dist. to Observer: 76.0 feet			Autos:	0.0	00			
Barrier Distance to Observer: 0.0 feet		Med	um Trucks:	2.2	97			
Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet		He	avy Trucks:	8.0	06	Grade Adj	ustment	: 0.0
0.0 1001		Lano F	quivalent	Distano	o (in f	not)		
Road Elevation: 0.0 feet Road Grade: 0.0%		LaneL	Autos			eei)		
Left View: -90.0 degrees		Mod	um Trucks:					
Right View: 90.0 degrees			avy Trucks:	00.2				
5								
FHWA Noise Model Calculations VehicleType REMEL Traffic Flow	Distan	- Cini	e Road	Fresne		Barrier Atte		m Atter
VehicleType REMEL Traffic Flow Autos: 68.46 3.84		e Finii 1.85	-1.20		4.73	Sarrier Atte		m Atter
Medium Trucks: 79.45 -13.40		1.84	-1.20		4.73 4.88	0.0		0.00
		1.84	-1.20		4.00 5.25	0.0		0.00
Heavy Trucks: 84.25 -17.36		topuotion	1					NFI
Heavy Trucks: 84.25 -17.36 Unmitigated Noise Levels (without Topo and ba	arrier at			liaht		l dn	C	
Heavy Trucks: 84.25 -17.36	Arrier at	tenuation Ferening 65.	Leq N	light 59.5		Ldn 68.1		
Heavy Trucks: 84.25 -17.36 Unmitigated Noise Levels (without Topo and be VehicleType Leq Peak Hour Leq Day	Lei .3	q Evening	Leq N	•				68
Heavy Trucks: 84.25 -17.36 Unmitigated Noise Levels (without Topo and ba Vehicle Type Leg Peak Hour Leg Day Autors: 69.2 67 Medium Trucks: 63.0 61	Lei .3 .5	q Evening 65.	6 1	59.5		68.1		68 62
Heavy Trucks: 84.25 -17.36 Unmitigated Noise Levels (without Topo and ba VehicleType Leq Peak Hour Leq Day Autos: 69.2 67 Medium Trucks: 63.0 61	Lei Lei .3 .5	q Evening 65. 55.	Leq N 6 1 4	59.5 53.6		68.1 62.1		68 62 63
Heavy Trucks: 84.25 -17.36 Unmitigated Noise Levels (without Topo and bar VehicleType Leq Peak Hour Leq Day Autos: 69.2 67 Medium Trucks: 63.0 61 Heavy Trucks: 63.9 62 Vehicle Noise: 71.1 69	Lei Lei .3 .5	<i>q Evening</i> 65. 55. 53.	Leq N 6 1 4	59.5 53.6 54.6		68.1 62.1 63.0		68 62 63
Heavy Trucks: 84.25 -17.36 Unmitigated Noise Levels (without Topo and ba VehicleType Leg Peak Hour Leg Day Autos: 69.2 67 Medium Trucks: 63.0 61 Heavy Trucks: 63.9 62	.3 .5 .4	<i>q Evening</i> 65. 55. 53.	Leq N 6 1 4	59.5 53.6 54.6 61.5		68.1 62.1 63.0		68 62 63
Heavy Trucks: 84.25 -17.36 Unmitigated Noise Levels (without Topo and ba VehicleType Leq Peak Hour Leq Day Autos: 69.2 67 Medium Trucks: 63.0 61 Heavy Trucks: 63.9 62 Vehicle Noise: 71.1 69	Lei .3 .5 .4	g Evening 65. 55. 53. 66.	Leq N 6 1 4 2	59.5 53.6 54.6 61.5 BA	6	68.1 62.1 63.0 70.1	55	68. 62. 63. 70.

Fi	HWA-RD-77-108	HIGHW	Y NOISE F	REDICTI	ON MODE	ïL		
Scenario: Existing V Road Name: 68th St. Road Segment: w/o Ham	,				Name: Po Imber: 11			
SITE SPECIFIC	INPUT DATA			N	OISE MO	DEL INPU	TS	
Highway Data			Site Co.	nditions ((Hard = 10), Soft = 15)		
Average Daily Traffic (Adt):	9,000 vehicle	s			Au	tos: 15		
Peak Hour Percentage:	10%		M	edium Tru	cks (2 Axle	es): 15		
Peak Hour Volume:	900 vehicle	s	H	eavy Truc	ks (3+ Axle	es): 15		
Vehicle Speed:	45 mph		Vehicle	Mix				
Near/Far Lane Distance:	48 feet			hicleType	De	y Evening	Night	Daily
Site Data			Vei			.5% 12.9%	•	
				n Iedium Tri		.8% 4.9%		
Barrier Height:				Heavy Tri		.5% 2.7%		
Barrier Type (0-Wall, 1-Berm):							10.070	0.7470
Centerline Dist. to Barrier: Centerline Dist. to Observer:			Noise S	ource Ele	evations (in feet)		
Barrier Distance to Observer:				Autos	0.000)		
Observer Height (Above Pad):			Mediu	ım Trucks	: 2.297	7		
Pad Elevation:			Hea	vy Trucks	: 8.006	6 Grade A	djustment	: 0.0
Road Elevation:	0.0 1000		Lane Ed	nuivalent	Distance	(in feet)		
Road Grade:			Luno Lu	Autos		. ,		
I eft View:		A S	Medii	Im Trucks				
Right View:	00.0 009.0			vy Trucks				
FHWA Noise Model Calculation	ons							
VehicleType REMEL	Traffic Flow	Distan	ce Finite	e Road	Fresnel	Barrier A	tten Ber	m Atten
Autos: 68.4	6 -2.41		0.62	-1.20	-4.	.69 0	.000	0.000
Medium Trucks: 79.4	5 -19.65		0.60	-1.20	-4.	.88 0	.000	0.000
Heavy Trucks: 84.2	5 -23.60		0.60	-1.20	-5.	.35 0	.000	0.000
Unmitigated Noise Levels (with		barrier a	ttenuation)					
VehicleType Leq Peak H	our Leq Day	/ Le	q Evening	Leq I	Vight	Ldn		NEL
	64.2	62.3	60.6		54.5	63		63.7
Medium Trucks: 5	58.0	56.5	50.1		48.6	57		57.3
	58.8	57.4	48.4		49.6	58		58.1
Vehicle Noise:	6.1	64.3	61.2	2	56.5	65	.0	65.5
Centerline Distance to Noise	Contour (in feet	t)						
			70 dBA	65 0	iBA	60 dBA	55	dBA
		Ldn:	28	59	-	128	_	276
	C	NEL:	30	64	4	137	2	296

Wednesday, January 17, 2018

Wednesday, January 17, 2018

	FHW	A-RD-77-108 HIC	GHWAY I		REDICTION						
Scenari	o: Existing With	hout Project			Project Na	me: Polo	polus				
Road Nam	e: 68th St.				Job Num	ber: 1133	36				
Road Segmer	t: e/o Hamner	Av.									
	SPECIFIC IN	PUT DATA		NOISE MODEL INPUTS							
Highway Data				Site Cor	ditions (H	ard = 10,	Soft = 15)				
Average Daily	Traffic (Adt): 1	2,800 vehicles				Auto	s: 15				
Peak Hour	Percentage:	10%		Me	dium Truck	s (2 Axles	s): 15				
Peak H	our Volume:	1,280 vehicles		He	avy Trucks	(3+ Axles	s): 15				
Vel	nicle Speed:	45 mph	-	Vehicle	Mix						
Near/Far Lar	ne Distance:	48 feet	-		icleType	Dav	Evening	Niaht	Dailv		
Site Data					Aut	os: 77.5	% 12.9%	9.6%	97.42%		
Bar	rier Height:	0.0 feet		М	edium Truc	ks: 84.8	4.9%	10.3%	1.84%		
Barrier Type (0-W	•	0.0		1	Heavy Truc	ks: 86.5	i% 2.7%	10.8%	0.74%		
Centerline Dis		59.0 feet		Noise Se	ource Elev	ations (in	feet)				
Centerline Dist. t		59.0 feet			Autos:	0.000	,				
Barrier Distance t	o Observer:	0.0 feet		Mediu	m Trucks:	2.297					
Observer Height (,	5.0 feet		Heav	y Trucks:	8.006	Grade Ac	ljustment	: 0.0		
	d Elevation:	0.0 feet	_		-			,			
	d Elevation:	0.0 feet	_	Lane Eq	uivalent D		n feet)				
F	Road Grade:	0.0%			Autos:	54.129					
	Left View:	-90.0 degrees			m Trucks:	53.966					
	Right View:	90.0 degrees		Heav	/y Trucks:	53.982					
FHWA Noise Mode				1			т	Т			
VehicleType			Distance			Fresnel	Barrier At		rm Atten		
Autos:	68.46	-0.88	-0.6	-	-1.20	-4.6		000	0.000		
Medium Trucks:	79.45	-18.12	-0.6	-	-1.20	-4.8		000	0.000		
Heavy Trucks:	84.25	-22.07	-0.6	-	-1.20	-5.3	5 0.	000	0.000		
Unmitigated Noise			1								
VehicleType Autos:	Leq Peak Hour 65.8	1.1.7		vening 62.1	Leq Nig		Ldn 64.		NEL 65.3		
Medium Trucks:	59.5			51.7		56.0 50.1	64. 58.		58.8		
Heavy Trucks:	59.: 60.4		-	51.7 49.9		50.1	58. 59.		58.8		
Vehicle Noise:	60.4		-	49.9		51.2 58.0	59.		59. 67.0		
			,	02.7		30.0	00.	•	07.0		
Centerline Distanc	e lo NOISE CO	ntour (ill feet)	70	dBA	65 dB	4	60 dBA	55	dBA		
		Ldn	v 3	15	75		162	3	349		
		CNEL		37	81		174	3	374		

	FHW	A-RD-77-108 HI	GHWAY	' NOISE PI	REDICTIO	N MOD	EL					
Road Nan	tio: Existing With the: Riverboat Di nt: w/o Hamner	r. É		Project Name: Polopolus Job Number: 11336								
SITE	SPECIFIC INI	PUT DATA	-	NOISE MODEL INPUTS								
Highway Data			-	Site Con	ditions (H	lard = 1	0, So	ft = 15)				
Average Daily	Traffic (Adt):	3,800 vehicles				A	utos:	15				
Peak Hour	Percentage:	10%		Me	dium Truc	ks (2 Ax	des):	15				
Peak H	our Volume:	380 vehicles		He	avy Truck	s (3+ Ax	des):	15				
Ve	hicle Speed:	40 mph		Vehicle	Mix							
Near/Far La	ne Distance:	12 feet				L 1)av	Evening	Night	Daily		
Site Data												
					edium Truc		4.8%	4.9%	10.3%			
	rrier Height:	0.0 feet			Heavy True		6.5%		10.8%			
Barrier Type (0-V		0.0			loary ma	JAG. 0	0.070	2.170	10.070	0.747		
	st. to Barrier:	37.0 feet		Noise So	ource Elev	ations	(in fe	et)				
Centerline Dist. Barrier Distance		37.0 feet 0.0 feet			Autos:	0.00	00					
Observer Height		5.0 feet		Mediu	m Trucks:	2.29						
	ad Elevation:	0.0 feet		Heav	y Trucks:	8.00)6	Grade Adj	iustment.	0.0		
	ad Elevation:	0.0 feet		Lane Eq	uivalent D	istance	e (in f	eet)				
	Road Grade:	0.0%			Autos:	36.8		,				
	Left View:	-90.0 degrees		Mediu	m Trucks:	36.6						
	Right View:	90.0 degrees		Heav	y Trucks:	36.63	34					
FHWA Noise Mod	el Calculations											
VehicleType	REMEL		Distance		Road	Fresne		Barrier Att	en Ber	m Atten		
Autos:		-5.64		.88	-1.20		4.56		000	0.00		
Medium Trucks:	=	-22.88		.93	-1.20		4.87		000	0.00		
Heavy Trucks:		-26.84		.92	-1.20	~	5.61	0.0	000	0.00		
Unmitigated Nois			-	,								
VehicleType	Leq Peak Hour		_	Evening	Leq Ni	· ·		Ldn		VEL		
Autos:	61.0			57.9		51.8		60.5		61.		
Medium Trucks:	55.0			47.7		46.1		54.6		54.		
Heavy Trucks:	56.9		-	46.4		47.7		56.0		56.		
Vehicle Noise:			8	58.6		54.0		62.6	6	63.		
Centerline Distan	ce to Noise Co	ntour (in feet)	7	0 dBA	65 dE	RΔ	6	0 dBA	55	dBA		
		Ldr		12	25	// T	0	55		ива 18		

FHWA-RD-77-108 H	IGHWA	Y NOISE	PREDICTIO		DEL				
Scenario: Existing Without Project			Project I			lus			
Road Name: Schleisman Rd.		Job Number: 11336							
Road Segment: w/o Scholar Wy.									
SITE SPECIFIC INPUT DATA		011					S		
Highway Data		Site C	onditions (
Average Daily Traffic (Adt): 9,000 vehicles					Autos:	15			
Peak Hour Percentage: 10%			Medium Tru			15			
Peak Hour Volume: 900 vehicles			Heavy Truck	ks (3+ A	xles):	15			
Vehicle Speed: 45 mph		Vehic	le Mix						
Near/Far Lane Distance: 78 feet		ν	ehicleType		Day	Evening	Night	Daily	
Site Data			A	utos:	77.5%	12.9%	9.6%	97.429	
Barrier Height: 0.0 feet			Medium Tru	icks:	84.8%	4.9%	10.3%	1.849	
Barrier Type (0-Wall, 1-Berm): 0.0			Heavy Tru	icks:	86.5%	2.7%	10.8%	0.749	
Centerline Dist. to Barrier: 76.0 feet		Noise	Source Ele	vations	s (in fe	et)			
Centerline Dist. to Observer: 76.0 feet			Autos						
Barrier Distance to Observer: 0.0 feet		Mer	lium Trucks	0.0					
Observer Height (Above Pad): 5.0 feet			avy Trucks			Grade Adj	ustment	: 0.0	
Pad Elevation: 0.0 feet									
Road Elevation: 0.0 feet		Lane	Equivalent			eet)			
Road Grade: 0.0%			Autos.						
Left View: -90.0 degrees			lium Trucks.						
Right View: 90.0 degrees		He	eavy Trucks.	65.3	300				
FHWA Noise Model Calculations									
VehicleType REMEL Traffic Flow	Distan		ite Road	Fresn		Barrier Atte		m Atten	
Autos: 68.46 -2.41		1.85	-1.20		4.73	0.0		0.00	
Medium Trucks: 79.45 -19.65		1.84	-1.20		4.88	0.0		0.00	
Heavy Trucks: 84.25 -23.60		1.84	-1.20		-5.25	0.0	00	0.00	
Unmitigated Noise Levels (without Topo and ba			,						
VehicleType Leq Peak Hour Leq Day		q Evening		·		Ldn		NEL	
Autos: 63.0 61 Medium Trucks: 56.8 55			1.3 1.9	53.3 47.3		61.9 55.8		62. 56.	
			1.9 1.1	47.3		55.8 56.8		56. 56.	
010 00	.1	59	.9	55.3		63.8	5	64.	
Centerline Distance to Noise Contour (in feet)		70 - 10 4	05	04	_	0.404		-10.4	
		70 dBA 29	65 d		6	0 dBA		dBA 94	
Lo	m:	29	63	5		136	2	94	
CNE		32	68			146		15	

Scenario: Existing Without Project Road Name: Project Name: Polopolus Job Number: Tisse Road Segment: 40 Scholar Wy. Job Number: 11336 SITE SPECIFIC INPUT DATA NOISE MODEL INPUTS Highway Data Site Conditions (Hard = 10, Soft = 15) Average Daily Traffic (Adt): 8,200 vehicles Autos: 15 Peak Hour Percentage: 10% Medium Trucks (2 Axles): 15 Vehicle Speed: 45 mph Medium Trucks (3+ Axles): 15 Vehicle Pope Day Evening Night Daily Site Data Autos: 77.5% 12.9% 9.6% 97.42% Barrier Height: 0.0 feet Mutos: 77.5% 12.9% 9.6% 97.42% Barrier Height: 0.0 feet Mutos: 77.5% 12.9% 9.6% 0.74% Centerline Dist. to Darrier: 76.0 feet Medium Trucks: 2.297 Medium Trucks: 2.297 Observer Height (Above Pad): 5.0 feet Autos: 65.30.0 1.24% Roa		FHV	VA-RD-77-108	HIGHWA	Y NOISE P	REDICTI	ON MOI	DEL				
Site Conditions (Hard = 10, Soft = 15) Average Daily Traffic (Adt): 8.200 vehicles Peak Hour Percentage: 10% Peak Hour Volume: 820 vehicles Vehicle Speed: 45 mph Near(Far Lane Distance: 78 feet Site Data Autos:: Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist to Diserver: 76.0 feet Centerline Dist to Doserver: 76.0 feet Rad Grade: 0.0% Pad Elevation: 0.0 feet Road Grade: 0.0% Left View: 90.0 degrees FHWA Noise Model Calcutations 1.85 Vehicle Type Reade I raftic Flow Vehicle Type Leq Veal Vehicle Type Leq Peak Hour Volume: 42.5 -24.01 -1.85 -1.20 Autos: 65.286 Heavy Truc	Road Nam	e: Schleisman	Rd.									
Average Daily Traffic (Adt): 8,200 vehicles Autos: 15 Peak Hour Percentage: 10% Medium Trucks (2 Axles): 15 Peak Hour Volume: 820 vehicles Medium Trucks (2 Axles): 15 Vehicle Speed: 45 mph Medium Trucks (2 Axles): 15 Site Data Vehicle Mix Vehicle Type Day Evening Night Daily Barrier Height: 0.0 feet Mutos: 15.0 0.0 % Medium Trucks: 86.5% 2.7% 10.8% 0.74% Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist to Barrier: 76.0 feet Moles Source Elevations (In feet) 0.3% 1.84% 4.9% 1.0.3% 1.84% Centerline Dist to Observer: 0.0 feet Moles Source Elevations (In feet) Medium Trucks: 80.06 Grade Adjustment: 0.0 Road Grade: 0.0% Eater View: 90.0 degrees Medium Trucks: 65.226 Medium Trucks: 65.300 FHWA Noise Model Calculations Vehicle Type REMEL Traffic Flow Distance Finite Road	SITE	SPECIFIC IN	PUT DATA			N	IOISE N	IODE	L INPUTS	5		
Notes 10% Medium Trucks (2 Axles): 15 Peak Hour Volume: 820 vehicles Heavy Trucks (3+ Axles): 15 Vehicle Speed: 45 mph Vehicle Mix Vehicle Mix Neat/Far Lane Distance: 78 feet Vehicle Mix 15 Site Data 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 Dist. to Diserver: 76.0 feet Moles Cource 10.0% Medium Trucks: 2.297 10.8% 0.74% Observer Height (Above Pad): 5.0 feet Autos: 0.000 Medium Trucks: 2.297 Observer Height (Above Pad): 5.0 feet Autos: 6.5.422 Medium Trucks: 6.5.422 Road Clevation: 0.0 teet Lane Equivalent Distance for feet) Medium Trucks: 65.422 Wehicle Type REMEL Traffic Flow Distance Finite Road Fresnel Barrier Atten Berm Atten Autos: 68.46 -2.81	Highway Data				Site Col	nditions	(Hard =	10, So	oft = 15)			
Peak Hour Volume: 820 vehicles Vehicle Speed: 45 mph Near/Far Lane Distance: 78 feet Site Data Autos: 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 Autos: 6.036 0.7% 0.7% 10.8% 0.7% 0.74% Centerline Dist to Diserver: 76.0 feet Autos: 0.000 Medium Trucks: 84.8% 4.9% 10.3% 1.84% Pad Elevation: 0.0 feet Autos: 6.000 Medium Trucks: 8.297 Mediustment: 0.0 Road Grade: 0.0% Left View: 90.0 degrees Heavy Trucks: 65.286 Heavy Trucks: 65.286 Heavy Trucks: 84.85 -2.81 -1.85 -1.20 -4.73 0.000 0.000 Medium Trucks: 79.45	Average Daily	Traffic (Adt):	8,200 vehicles					Autos:	15			
Vehicle Speed: Neat/Far Lane Distance: 45 mph 78 feet Vehicle Mix Site Data Vehicle Type Day Evening Night Daily Site Data Autos: 77.5% 12.9% 9.6% 97.42% Barrier Height: Barrier Type (0-Wall, 1-Berm): 0.0 feet Medium Trucks: 84.8% 4.9% 1.03% 1.84% Barrier Type (0-Wall, 1-Berm): 0.0 feet Mole With Trucks: 86.5% 2.7% 10.8% 0.74% Centerline Dist to Dasrier: 0.0 feet Mole Source Elevations (In feet) Mole Source Elevations (In feet) 0.0 6.64 4.005 6.64.22 9.00 Medium Trucks: 6.5.286 Heavy Trucks: 6.5.286 Heavy Trucks: 6.5.300 1.185 -1.20 -4.73 0.000 <t< td=""><td>Peak Hour</td><td>Percentage:</td><td>10%</td><td></td><td>Me</td><td>edium Tru</td><td>icks (2 A</td><td>xles):</td><td>15</td><td></td><td></td></t<>	Peak Hour	Percentage:	10%		Me	edium Tru	icks (2 A	xles):	15			
Near/Far Lane Distance: 78 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: 84.8% 4.9% 10.3% 1.84% Barrier Jist to Barrier: 76.0 feet Moise Source Elevations (in feet) Noise Source Elevations (in feet) 0.0 Observer Height (Above Pad): 5.0 feet Medium Trucks: 8.000 Grade Adjustment: 0.0 Road Elevation: 0.0 feet Autos: 65.422 Medium Trucks: 65.286 Right View: 90.0 degrees Heavy Trucks: 65.300 Medium Trucks: 65.300 FHWA Noise Model Calculations Over Subsect -1.85 -1.20 -4.73 0.000 0.000 Medium Trucks: 79.45 -20.05 -1.84 -1.20 -4.73 0.000 0.000 Medium Trucks: 79.45 -20.05 -1.84 -1.20 -4.73 0.000 0.000 Medium Trucks:	Peak H	lour Volume:	820 vehicles		He	eavy Truc	cks (3+ A	xles):	15			
Near/Far Lane Distance: 78 feet VehicleType Day Evening Night Daily Site Data Autos: 77.5% 1.2% 9.6% 97.42% Barrier Height: 0.0 feet Medium Trucks: 84.8% 4.9% 1.3% 1.84% Barrier Type (0-Wall, 1-Berm): 0.0 Note Medium Trucks: 86.5% 2.7% 10.8% 0.74% Centerline Dist to Observer: 0.0 feet Modum Trucks: 2.297 10.8% 0.74% Dbserver Height (Above Pad): 5.0 feet Autos: 0.000 Medium Trucks: 8.006 Grade Adjustment: 0.0 Road Elevation: 0.0 feet Autos: 65.422 Medium Trucks: 65.300 FHWA Noise Model Calculations VehicleType REMEL Traffic Flow Distance Finite Road Fresnel Barrier Atten Bern Atten Autos: 68.46 -28.1 -1.20 -4.73 0.000 0.000 Medium Trucks: 79.45 -20.05 -1.84 -1.20 -6.25 <td>Ve</td> <td>hicle Speed:</td> <td>45 mph</td> <td></td> <td>Vahiala</td> <td>Mix</td> <td></td> <td></td> <td></td> <td></td> <td></td>	Ve	hicle Speed:	45 mph		Vahiala	Mix						
Site Data Autos: 77.5% 12.9% 9.7.42% Barrier Height: 0.0 feet Medium Trucks: 12.9% 9.6% 97.42% Barrier Type (0-Wall, 1-Berm): 0.0 Medium Trucks: 84.8% 4.9% 10.3% 1.84% Barrier Dist. to Barrier 76.0 feet Moles Source 76.0 feet Noise Source Elevations (in feet) 0.000 Observer Height (Above Pad): 5.0 feet Autos: 0.000 Medium Trucks: 2.297 Observer Height (Above Pad): 5.0 feet Autos: 6.5.422 Medium Trucks: 2.297 Road Cirade: 0.0% Laft View: 90.0 degrees Autos: 65.422 Wedium Trucks: 1.84% Autos: 65.422 Medium Trucks: 65.422 VehicleType REMEL Traffic Flow Distance Finite Road Fresnel Barrier Atten Berm Atten Autos: 68.46 -2.81 -1.85 -1.20 -4.73 0.000 0.000 Medium Trucks: 79.45 -20.05 -1.84 </td <td>Near/Far La</td> <td>ne Distance:</td> <td>78 feet</td> <td></td> <td></td> <td></td> <td></td> <td>Davi</td> <td>Evening</td> <td>Night</td> <td>Dailu</td>	Near/Far La	ne Distance:	78 feet					Davi	Evening	Night	Dailu	
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 76.0 feet Barrier Dist. to Diserver: 76.0 feet Barrier Distance to Observer: 76.0 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 Heavy Trucks: 65.286 Heavy Trucks: 65.286 Heavy Trucks: 65.286 Heavy Trucks: 65.286 Heavy Trucks: 73.40.000 Medium Trucks: 74.2 Medium Trucks: 65.286 Heavy Trucks: 65.286 Heavy Trucks: 79.45 Soud Grade: -2.81 Autos: 63.42 Heavy Trucks: 84.25 Soud Grade: 0.000 Medium Trucks: 84.25 Vehicle Type Leq Peak Hour Leq Davi Leq Dav Leq Evening <td>Site Data</td> <td></td> <td></td> <td></td> <td>ver</td> <td></td> <td></td> <td></td> <td>•</td> <td>•</td> <td></td>	Site Data				ver				•	•		
Barrier Tregent: OU Yeet Heavy Trucks: 86.5% 2.7% 10.8% 0.74% Centerline Dist to Darrier: 76.0 feet Noise Source Elevations (in feet) Noise Elevations (in feet) Noise Elevations (in feet) Noise Elevations (in feet) Noise Elevation (in feet)												
Lame Type Destrier: 76.0 feet Centerline Dist to Observer: 76.0 feet Barrier Distance to Observer: 76.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Carde: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees Right View: 90.0 degrees Right View: 90.0 degrees Reavy Trucks: 65.422 Medium Trucks: 65.422 Medium Trucks: 65.422 Medium Trucks: 79.45 -20.05 -1.85 -1.20 -4.73 0.000 0.000 Medium Trucks: 79.45 -20.05 -1.84 -1.20 -4.73 0.000 0.000 Medium Trucks: 56.4 0.70.46 52.9 Medium Trucks: 56.4 40.5 56.4								/				
Centerline Dist. to Observer: 76.0 feet Autos: 0.000 Barier Distance to Observer: 0.0 feet Autos: 0.000 Observer Height (Above Pad Elevation: 0.0 feet Medium Trucks: 2.297 Road Elevation: 0.0 feet Heavy Trucks: 8.006 Grade Adjustment: 0.0 Road Crade: 0.0% Left View: 90.0 degrees Medium Trucks: 65.286 Wehicle Type REMEL Traffic Flow Distance Finite Road Fresnel Barrier Atten Bern Atten Autos: 65.422 Medium Trucks: 65.300 Medium Trucks: 65.300 FHWA Noise Model Calcutations Vehicle Type REMEL Traffic Flow Distance Finite Road Fresnel Barrier Atten Berm Atten Autos: 65.45 -2.81 -1.85 -1.20 -4.73 0.000 0.000 Medium Trucks: 79.45 -20.05 -1.84 -1.20 -5.25 0.000 0.000 Ummitigated Noise Levels (without Topo and barrier attenuation) Leq Evening<	<i></i>	. ,								10.070	0.7 170	
Barrier Distance to Observer: 0.0 feet Autor Observer Height (Above Pad): 5.0 feet Medium Trucks: 2.297 Pad Elevation: 0.0 feet Medium Trucks: 8.006 Grade Adjustment: 0.0 Road Elevation: 0.0 feet Autos: 65.422 Medium Trucks: 65.422 Left View: 90.0 degrees Medium Trucks: 65.286 Heavy Trucks: 65.300 FHWA Noise Model Calculations VehicleType REMEL Traffic Flow Distance Finite Road Fresnel Barrier Atten Bern Atten Autos: 68.46 -28.1 -1.20 -4.73 0.000 0.000 Medium Trucks: 79.45 -20.05 -1.84 -1.20 -4.73 0.000 0.000 Heavy Trucks: 84.25 -24.01 -1.84 -1.20 -5.25 0.000 0.000 Unmitigated Noise Levels (without Topo and barrier attenuation) VehicleType Leq Peak Hour Leq Day Leq Night Ldn CNEL Autos: 6					Noise S	ource El	evations	s (in fe	et)			
Observer Height (Above Pad): 5.0 feet Medium Trucks: 2.297 Pad Elevation: 0.0 feet Heavy Trucks: 8.006 Grade Adjustment: 0.0 Road Elevation: 0.0 feet Lane Equivalent Distance (in feet) Lane Equivalent Distance (in feet) Road Glevation: 0.0 feet Autos: 65.422 Left View: -90.0 degrees Medium Trucks: 65.300 FHWA Noise Model Calculations Vehicle Nue 90.0 degrees Finite Road Fresnel Barrier Atten Vehicle Type REMEL Traffic Flow Distance Finite Road Fresnel Barrier Atten Berm Atten Medium Trucks: 79.45 -20.05 -1.84 -1.20 -4.73 0.000 0.000 Medium Trucks: 79.45 -20.05 -1.84 -1.20 -5.25 0.000 0.000 Medium Trucks: 8.425 -20.05 5.89 52.9 61.5 62.1 Medium Trucks: 56.4 56.8 60.7 58.9 52.9 56.3 56.5						Autos	s: 0.0	00				
Pad Elevation: 0.0 feet Indexly Tracks: 8.006 Grade Adjustment: 0.0 Grad Road Crede: 0.0% Lane Equivalent Distance (in feet) Lane Equivalent Distance (in feet) Lane Equivalent Distance (in feet) Road Crede: 0.0% Lane Equivalent Distance (in feet) Lane Equivalent Distance (in feet) Webicle Type REMEL Traffic Flow Distance Finite Road Fresnel Barrier Atten Bern Atten Autos: 66.46 -2.81 -1.85 -1.20 -4.73 0.000 0.000 Medium Trucks: 79.45 -20.05 -1.84 -1.20 -4.73 0.000 0.000 Heavy Trucks: 84.25 -24.01 -1.84 -1.20 -4.73 0.000 0.000 Unmitigated Noise Levels (without Topo and barrier attenuation) Vehicle Type Leq Peek Hour Leq Right Ldn CNEL Autos: 65.64 60.7 58.9 52.9 61.5 62.1 Medium Trucks: 56.4 60.7 58.9 52.9 63.4 63.9					Mediu	m Trucks	s: 2.2	97				
Road Elevation: 0.0 feet Lane Equivalent Distance (in feet) Road Grade: 0.0% Autos: 65.422 Left View: 90.0 degrees Medium Trucks: 65.286 Weiner Mutos: 68.422 Medium Trucks: 65.300 FHWA Noise Model Calculations Distance Inite Road Fresnel Barrier Atten VehicleType REMEL Traffic Flow Distance Finite Road Fresnel Barrier Atten Bern Atten Autos: 68.46 -2.81 -1.85 -1.20 -4.73 0.000 0.000 Medium Trucks: 79.45 -20.05 -1.84 -1.20 -4.88 0.000 0.000 Heavy Trucks: 84.25 -24.01 -1.84 -1.20 -5.25 0.000 0.000 Unmitigated Noise Levels (without Topo and barrier attenuation) Leq Right Ldn CNEL Vehicle Type Leq Peak Hour Leq Day Leq Evening Leq Night Ldn CNEL Medium Trucks: 56.4 54.8 48.5		,			Hea	vy Trucks	s: 8.0	06	Grade Adj	ustment.	0.0	
Road Grade: 0.0% Autos: 65.422 Left View: -90.0 degrees Medium Trucks: 65.286 Right View: 90.0 degrees Medium Trucks: 65.286 VehicleType REMEL Traffic Flow Distance Finite Road Fresnel Barrier Atten Medium Trucks: 79.45 -2.05 -1.20 -4.73 0.000 0.000 Medium Trucks: 79.45 -20.05 -1.84 -1.20 -4.73 0.000 0.000 Medium Trucks: 79.45 -20.05 -1.84 -1.20 -4.73 0.000 0.000 Medium Trucks: 84.25 -20.05 -1.84 -1.20 -5.25 0.000 0.000 Unmitigated Noise Levels (without Topo and barrier attenuation) VehicleType Leq Peak Hour Leq Day Leq Evening Leq Night Ldn CNEL Autos: 56.4 54.8 48.5 46.9 55.4 55.6 Medium Trucks: 57.2 55.8 46.7 48.0 56.3					Lane Fr	wivelon	Distanc	o (in f	(oot)			
Left View: -90.0 degrees Medium Trucks: 65.286 Right View: 90.0 degrees Medium Trucks: 65.286 HWA Noise Model Calcutations Medium Trucks: 65.286 Vehicle Type REMEL Traffic Flow Distance Finite Road Fresnel Barrier Atten Berm Atten Autos: 68.46 -2.81 -1.85 -1.20 -4.73 0.000 0.000 Medium Trucks: 79.45 -20.05 -1.84 -1.20 -4.73 0.000 0.000 Medium Trucks: 84.25 -24.01 -1.84 -1.20 -4.73 0.000 0.000 Unmitigated Noise Levels (without Topo and barrier attenuation) Leq Evening Leq Night Ldn CNEL Autos: 56.6 60.7 58.9 52.9 61.5 62.1 Medium Trucks: 56.4 48.8 46.9 55.4 55.5 Vehicle Noise: 64.4 62.7 59.5 54.9 63.4 63.9 Center/Ine Distance to Noise Contour (in feet					Lane Le				001/			
Right View: 90.0 degrees Heavy Trucks: 65.300 FHWA Noise Model Calculations Distance Finite Road Fresnel Barrier Atten Bern Atten VehicleType REMEL Traffic Flow Distance Finite Road Fresnel Barrier Atten Bern Atten Autos: 68.46 -2.81 -1.85 -1.20 -4.73 0.000 0.000 Medium Trucks: 79.45 -20.05 -1.84 -1.20 -4.88 0.000 0.000 Heavy Trucks: 84.25 -24.01 -1.84 -1.20 -5.25 0.000 0.000 Ummitgated Noise Levels (without Topo and barrier attenuation) VehicleType Leq Peak Hour Leq Day Leq Night Ldn CNEL Autos: 52.6 60.7 58.9 52.9 61.5 62.1 Medium Trucks: 55.4 54.8 48.5 46.9 55.4 55.6 Vehicle Noise: 64.4 62.7 59.5 54.9 63.4 63.9 Centerline Distance t				~	Mediu							
VehicleType REMEL Traffic Flow Distance Finite Road Fresnel Barrier Atten Berm Atten Autos: 68.46 -2.81 -1.85 -1.20 -4.73 0.000 0.000 Medium Trucks: 79.45 -20.05 -1.84 -1.20 -4.73 0.000 0.000 Heavy Trucks: 79.45 -24.01 -1.84 -1.20 -5.25 0.000 0.000 Unmitigated Noise Levels (without Topo and barrier attenuation)			0									
Autos: 68.46 -2.81 -1.85 -1.20 -4.73 0.000 0.000 Medium Trucks: 79.45 -20.05 -1.84 -1.20 -4.73 0.000 0.000 Heavy Trucks: 79.45 -20.05 -1.84 -1.20 -4.73 0.000 0.000 Unmitigated Noise Levels (without Topo and barrier attenuation) VenicleType Leq Peak Hour Leq Day Leq Evening Leq Night Ldn CNEL Autos: 62.6 60.7 55.9 52.9 61.5 62.1 Medium Trucks: 55.4 54.8 48.5 46.9 55.4 55.6 Heavy Trucks: 57.2 55.8 46.7 48.0 56.3 56.5 Vehicle Noise: 64.4 62.7 59.5 54.9 63.4 63.9 Vehicle Noise: 64.4 62.7 59.5 54.9 63.4 63.9 Center/line Distance to Noise Contour (in feet)	FHWA Noise Mod	el Calculations	s		-							
Medium Trucks: 79.45 -20.05 -1.84 -1.20 -4.88 0.000 0.000 Heavy Trucks: 84.25 -24.01 -1.84 -1.20 -6.25 0.000 0.000 Unnitigated Noise Levels (without Topo and barrier attenuation) Leq Night Ldn CNEL Vehicle Type Leq Peak Hour Leq Day Leq Night Ldn CNEL Medium Trucks: 62.6 60.7 58.9 52.9 61.5 62.1 Medium Trucks: 56.4 54.8 48.5 46.9 55.4 55.6 Vehicle Noise: 64.4 62.7 59.5 54.9 63.4 63.9 Center/line Distance to Noise Contour (in feet) Image: Contour (in feet) Image: Contour (in feet) Image: Contour (in feet)	VehicleType	REMEL	Traffic Flow	Distanc	e Finite	Road	Fresn	el .	Barrier Atte	en Ber	m Atten	
Heavy Trucks: 84.25 -24.01 -1.84 -1.20 -5.25 0.000 0.000 Unnitigated Noise Levels (without Topo and barrier attenuation) Ueq Peak Hour Leq Day Leq Evening Leq Night Ldn CNEL Autos: 62.6 60.7 58.9 52.9 61.5 62.1 Medium Trucks: 56.4 54.8 48.5 46.9 55.4 55.6 Heavy Trucks: 57.2 55.8 46.7 48.0 56.3 56.5 Vehicle Noise: 64.4 62.7 59.5 54.9 63.4 63.9 Centerline Distance to Noise Contour (in feet) TO dBA 65 dBA 60 dBA 55 dBA Ldm: 28 59 128 276	Autos:	68.46	-2.81	-*	1.85	-1.20		4.73	0.0	00	0.000	
Unmitigated Noise Levels (without Topo and barrier attenuation) VehicleType Leq Peak Hour Leq Day Leq Evening Leq Night Ldn CNEL Autos: 62.6 60.7 58.9 52.9 61.5 62.1 Medium Trucks: 56.4 54.8 48.5 46.9 55.4 55.6 Vehicle Noise: 64.4 62.7 59.5 54.9 63.4 63.9 Vehicle Noise: 64.4 62.7 59.5 54.9 63.4 63.4 63.4 63.4 63.4 63.4 63.4 63.4 63.4 63.4 63.4 63.4 63.4 63.4 63.4 63.4 65.6 6.6 6.6 6.6 6.6 6.6 6.6 6.6 6.6 6.6 6.6 6.5 6.5 6	Medium Trucks:	79.45	-20.05	-1	1.84	-1.20		4.88	0.0	00	0.000	
VehicleType Leq Peak Hour Leq Day Leq Evening Leq Night Ldn CNEL Autos: 62.6 60.7 58.9 52.9 61.5 62.1 Medium Trucks: 56.4 54.8 48.5 46.9 55.4 55.6 Heavy Trucks: 57.2 55.8 46.7 48.0 56.3 56.5 Vehicle Noise: 64.4 62.7 59.5 54.9 63.4 63.9 Centerline Distance to Noise Contour (in feet) 70 dBA 65 dBA 60 dBA 55 dBA Ldm: 28 59 128 276	Heavy Trucks:	84.25	-24.01	-1	1.84	-1.20		5.25	0.0	00	0.000	
Autos: 62.6 60.7 56.9 52.9 61.5 62.1 Medium Trucks: 56.4 54.8 48.5 46.9 55.4 55.6 Heavy Trucks: 57.2 55.8 46.7 48.0 56.3 56.5 Vehicle Noise: 64.4 62.7 59.5 54.9 63.4 63.9 Centerline Distance to Noise Contour (in feet) 70 dBA 65 dBA 60 dBA 55 dBA Ldn: 28 59 128 276	Unmitigated Noise			barrier at	tenuation)							
Medium Trucks: 56.4 54.8 48.5 46.9 55.4 55.6 Heavy Trucks: 57.2 55.8 46.7 48.0 56.3 56.5 Vehicle Noise: 64.4 62.7 59.5 54.9 63.4 63.9 Centerline Distance to Noise Contour (in feet) 70 dBA 65 dBA 60 dBA 55 dBA Ldn: 28 59 128 276	VehicleType	Leq Peak Hou	r Leq Day	Leo	l Evening	Leq	Night		Ldn	CI		
Heavy Trucks: 57.2 55.8 46.7 48.0 56.3 56.5 Vehicle Noise: 64.4 62.7 59.5 54.9 63.4 63.9 Center/line Distance to Noise Contour (in feet) 70 dBA 65 dBA 60 dBA 55 dBA Ldn: 28 59 128 276	Autos:	62.	.6 6	60.7	58.9)	52.9		61.5		62.1	
Vehicle Noise: 64.4 62.7 59.5 54.9 63.4 63.9 Centerline Distance to Noise Contour (in feet)	Medium Trucks:	56.	.4 5	54.8	48.5		46.9		55.4		55.6	
Centerline Distance to Noise Contour (in feet) 70 dBA 65 dBA 60 dBA 55 dBA Ldn: 28 59 128 276		57.	.2 5	5.8	46.7		48.0		56.3		56.5	
TO dBA 65 dBA 60 dBA 55 dBA Ldn: 28 59 128 276	Vehicle Noise:	64.	.4 6	52.7	59.5	_	54.9		63.4		63.9	
Ldn: 28 59 128 276	Centerline Distant	ce to Noise Co	ontour (in feet)									
					70 dBA			6	0 dBA	55	dBA	
CNEL: 30 64 137 296												
			CN	IEL:	30	6	4		137	2	96	

Wednesday, January 17, 2018

Wednesday, January 17, 2018

	FHV	VA-RD-77-108	HIGHWA	Y NOI	SE PREDICTIO	N MODEL			
Scenario	: Existing Wi	thout Project			Project N	ame: Polo	polus		
Road Name	Citrus St.				Job Nur	nber: 113	36		
Road Segment	t: w/o Hamne	r Av.							
	PECIFIC IN	PUT DATA					DEL INPUT	S	
Highway Data				Sit	e Conditions (H	lard = 10,	Soft = 15)		
Average Daily T	raffic (Adt): 1	7,100 vehicles	6			Auto	os: 15		
Peak Hour F	Percentage:	10%			Medium Truc	ks (2 Axle	s <i>):</i> 15		
Peak Ho	our Volume:	1,710 vehicles	6		Heavy Truck	s (3+ Axle	s <i>):</i> 15		
	icle Speed:	45 mph		Ve	hicle Mix				
Near/Far Lan	e Distance:	36 feet			VehicleType	Dav	Evening	Night	Dailv
Site Data					,,	tos: 77.5	0	9.6%	97.42%
Barr	ier Height:	0.0 feet			Medium Truc	ks: 84.8	3% 4.9%	10.3%	1.84%
Barrier Type (0-Wa		0.0			Heavy True	cks: 86.5	5% 2.7%	10.8%	0.74%
Centerline Dist		50.0 feet		No	ise Source Elev	ations (ir	n feet)		
Centerline Dist. to		50.0 feet			Autos:	0.000	,		
Barrier Distance to		0.0 feet		1	Medium Trucks:	2.297			
Observer Height (A	,	5.0 feet			Heavy Trucks:	8.006	Grade Ad	ljustment	: 0.0
	d Elevation:	0.0 feet		-					
	d Elevation:	0.0 feet		Lai	ne Equivalent D		n teet)		
R	oad Grade:	0.0%			Autos:	46.915			
	Left View:	-90.0 degree			Medium Trucks:	46.726			
	Right View:	90.0 degree	es		Heavy Trucks:	46.744			
FHWA Noise Mode					1		T		
VehicleType	REMEL	Traffic Flow	Distan		Finite Road	Fresnel	Barrier Att		m Atten
Autos:	68.46	0.38		0.31	-1.20	-4.6		000	0.00
Medium Trucks:	79.45	-16.86		0.34	-1.20	-4.8		000	0.00
Heavy Trucks:	84.25	-20.82		0.34	-1.20	-5.4	3 0.0	000	0.00
Unmitigated Noise VehicleType			1		<i></i>	and a d	Ldn		NEL
Autos:	eq Peak Hou 68	, , ,	66.1	q Ever	64.3 Leq Ni	58.2	Lan 66.9		NEL 67.
Medium Trucks:	61		60.2		53.9	52.3	60.1	-	61.
Heavy Trucks:	62		61.2		52.1	52.5 53.4	61.3	-	61.
Vehicle Noise:	69		68.1		64.9	60.2	68.6		69.
Centerline Distance	e to Noise Co	ontour (in feet)						
				70 dB/	4 65 dE	A	60 dBA	55	dBA
			Ldn:	41	89		192	4	14

	FHW	/A-RD-77-108 H	IIGHWA	Y NOISE F	REDICTI	ON MO	DEL						
Road Nam	io: Existing Wit le: Citrus St. nt: e/o Hamner	,		Project Name: Polopolus Job Number: 11336									
SITE	SPECIFIC IN	PUT DATA			N	OISE N	/IODE	L INPUT	s				
Highway Data				Site Conditions (Hard = 10, Soft = 15)									
Average Daily	Traffic (Adt):	2,200 vehicles				,	Autos:	15					
Peak Hour	Percentage:	10%		M	edium Tru	icks (2 A	(xles)	15					
Peak H	lour Volume:	220 vehicles		н	avy Truc	ks (3+ A	xles):	15					
Ve	hicle Speed:	45 mph		Vehicle	Mix	-							
Near/Far La	ne Distance:	36 feet			nicleType		Dav	Evening	Night	Daily			
Site Data				Vei			Day 77.5%	•		97.429			
					r Iedium Tr		84.8%		10.3%				
	rrier Height:	0.0 feet			Heavy Tr		04.0% 86.5%		10.3%				
Barrier Type (0-W	. ,	0.0			neavy n	uons.	00.57	5 2.170	10.076	0.747			
Centerline Di		50.0 feet		Noise S	ource El	evation	s (in f	eet)					
Centerline Dist.		50.0 feet			Autos	: 0.0	000						
Barrier Distance		0.0 feet		Mediu	m Trucks	: 2.1	297						
Observer Height (Above Pad): ad Elevation:	5.0 feet		Hea	vy Trucks	: 8.0	006	Grade Ad	justment	: 0.0			
	ad Elevation: ad Elevation:	0.0 feet 0.0 feet		Lano E	uivalent	Distan	no (in	foot)					
	ad Elevation: Road Grade:	0.0 feet		Lane Lu	Autos			ieel)					
	Road Grade: Left View:	-90.0 degrees		Modiu	m Trucks								
	Right View:	90.0 degrees			vy Trucks								
FHWA Noise Mod	el Calculations	;											
VehicleType	REMEL	Traffic Flow	Distand	ce Finite	Road	Fresh	el	Barrier Att	en Ber	m Atten			
Autos:	68.46	-8.53		0.31	-1.20		-4.65	0.0	000	0.00			
Medium Trucks:	79.45	-25.77		0.34	-1.20		-4.87	0.0	000	0.00			
Heavy Trucks:	84.25	-29.72		0.34	-1.20		-5.43	0.0	000	0.00			
Unmitigated Nois	e Levels (witho	out Topo and b	arrier at	tenuation)									
VehicleType	Leq Peak Hou	r Leq Day	Le	q Evening	Leq I	Vight		Ldn	C	NEL			
Autos:	59.		7.1	55.4		49.3		57.9		58.			
Medium Trucks:	52.		1.3	45.0		43.4		51.9		52.			
Heavy Trucks:	53.	7 5	2.2	43.2		44.5	i	52.8	3	52.			
Vehicle Noise:	60.	9 5	9.1	56.0	1	51.3	5	59.9	9	60.			
Centerline Distant	ce to Noise Co	ntour (in feet)	-										
				70 dBA	65 0		0	60 dBA		dBA			
			dn: EL:	11 11	2	3 4		49 52		05 13			

	FHV	VA-RD-77-108	HIG	HWAY N	NOISE PF	REDICT		DEL			
Scenario: Existin	g Wit	th Project				Project	t Name: F	Polopo	olus		
Road Name: Schola						Job N	lumber: 1	1336			
Road Segment: n/o Sch	nleisr	nan Rd.									
SITE SPECIFI	CIN	PUT DATA							L INPUTS	5	
Highway Data					Site Con	ditions	(Hard =	10, S	oft = 15)		
Average Daily Traffic (Ad	(t):	7,500 vehicle	s					Autos:			
Peak Hour Percentag	le:	10%					ucks (2 A	/			
Peak Hour Volum	ie:	750 vehicle	s		He	avy Tru	cks (3+ A	xles):	15		
Vehicle Spee	ed:	45 mph		-	Vehicle I	Mix					
Near/Far Lane Distand	e:	36 feet		F		icleType	e	Day	Evening	Night	Daily
Site Data							Autos:	77.5%	12.9%	9.6%	97.42%
Barrier Heigl	ht:	0.0 feet			Me	edium T	rucks:	84.8%	4.9%	10.3%	1.84%
Barrier Type (0-Wall, 1-Berr		0.0			ŀ	leavy T	rucks:	86.5%	2.7%	10.8%	0.74%
Centerline Dist. to Barri	er:	50.0 feet		F	Noise Sc	urce F	levation	: (in f	eet)		
Centerline Dist. to Observ	er:	50.0 feet		F		Auto			000)		
Barrier Distance to Observ	er:	0.0 feet			Modiuu	n Truck	0.0				
Observer Height (Above Pa	d):	5.0 feet				v Truck			Grade Adj	ustment	- 0 0
Pad Elevation	on:	0.0 feet								douriorit	. 0.0
Road Elevation	on:	0.0 feet			Lane Eq	uivalen	t Distand	e (in	feet)		
Road Grad	le:	0.0%				Auto		915			
Left Vie	W:	-90.0 degre	es			n Truck		26			
Right Vie	W:	90.0 degre	es		Heav	y Truck	s: 46.7	744			
FHWA Noise Model Calcula	tions	5									
VehicleType REMEL	-	Traffic Flow	Di	istance	Finite		Fresn	el	Barrier Atte	en Bei	rm Atten
	3.46	-3.20		0.3		-1.20		-4.65	0.0		0.00
Medium Trucks: 79	9.45	-20.44		0.3	4	-1.20		-4.87	0.0	00	0.000
Heavy Trucks: 84	1.25	-24.39		0.3	4	-1.20		-5.43	0.0	00	0.000
Unmitigated Noise Levels (with	out Topo and	barr	ier atter	nuation)						
VehicleType Leq Peak				Leq E	vening	Leq	Night		Ldn		NEL
Autos:	64.		62.5		60.7		54.7		63.3		63.9
Medium Trucks:	58.		56.6		50.3		48.7		57.2		57.4
Heavy Trucks:	59.		57.6		48.5		49.8		58.1		58.3
	66.	2	64.5		61.3		56.6		65.2		65.6
Vehicle Noise:											
Vehicle Noise: Centerline Distance to Nois	e Co	ontour (in feet)								
	e Co				dBA		dBA	(60 dBA		dBA
	e Co		Ldn:	2	dBA 24 26	1	dBA 51	(60 dBA 111 119	2	dBA 239 256

FHWA-RD-77-	108 HIGHWA	Y NOISE PRE	DICTION MOD	EL	
Scenario: Existing With Project Road Name: Scholar Wy. Road Segment: s/o Schleisman Rd.			Project Name: P Job Number: 1		
SITE SPECIFIC INPUT DAT	A		NOISE M	ODEL INPUTS	
Highway Data		Site Condi	itions (Hard = 1	10, Soft = 15)	
Average Daily Traffic (Adt): 7,300 veh	icles		A	utos: 15	
Peak Hour Percentage: 10%		Mediu	um Trucks (2 A	des): 15	
Peak Hour Volume: 730 veh	icles	Heav	y Trucks (3+ A	kles): 15	
Vehicle Speed: 45 mp	h	Vehicle Mi	~		
Near/Far Lane Distance: 36 fee	t	Venicle Will		Day Evening	Night Daily
Site Data		Venica		7.5% 12.9%	9.6% 97.42%
Barrier Height: 0.0 fe		Med		4.8% 4.9%	10.3% 1.84%
Barrier Type (0-Wall, 1-Berm): 0.0	31	He	avy Trucks: 8	6.5% 2.7%	10.8% 0.74%
Centerline Dist. to Barrier: 50.0 fee	et				
Centerline Dist. to Observer: 50.0 fee		Noise Soul	rce Elevations		
Barrier Distance to Observer: 0.0 fee			Autos: 0.0		
Observer Height (Above Pad): 5.0 fee	et	Medium			
Pad Elevation: 0.0 fee		Heavy	Trucks: 8.0	06 Grade Adju	stment: 0.0
Road Elevation: 0.0 fee	et	Lane Equiv	valent Distanc	e (in feet)	
Road Grade: 0.0%			Autos: 46.9	15	
Left View: -90.0 de	grees	Medium	Trucks: 46.7	26	
Right View: 90.0 de	grees	Heavy	Trucks: 46.7	44	
FHWA Noise Model Calculations					
VehicleType REMEL Traffic Flo	ow Distanc	e Finite R	oad Fresne	el Barrier Atte	n Berm Atten
Autos: 68.46 -3	.32 (0.31 -	-1.20 -	4.65 0.00	0.000
Medium Trucks: 79.45 -20	.56 (0.34 -	-1.20 -	4.87 0.00	
Heavy Trucks: 84.25 -24	.51 (0.34 -	-1.20 -	5.43 0.00	0.000
Unmitigated Noise Levels (without Topo	and barrier at	tenuation)			
VehicleType Leq Peak Hour Leq	Day Leo	g Evening	Leq Night	Ldn	CNEL
Autos: 64.3	62.4	60.6	54.5	63.2	63.8
Medium Trucks: 58.0	56.5	50.2	48.6	57.1	57.3
Heavy Trucks: 58.9	57.5	48.4	49.7	58.0	58.1
Vehicle Noise: 66.1	64.4	61.2	56.5	65.1	65.5
Centerline Distance to Noise Contour (in	feet)				
		70 dBA	65 dBA	60 dBA	55 dBA
	Ldn:	23	51	109	235
	CNEL:	25	54	117	252

Wednesday, January 17, 2018

Wednesday, January 17, 2018

	FHW	A-RD-77-108 HIG	HWAY N		REDICTION		EL					
Scenario	: Existing With	n Project			Project Na	me: P	olopo	lus				
Road Name	: Hamner Av.			Job Number: 11336								
Road Segmen	t: n/o Limonite	Av.										
	PECIFIC INF	PUT DATA		NOISE MODEL INPUTS								
Highway Data				Site Con	ditions (H	ard = 1	10, So	ft = 15)				
Average Daily 1	raffic (Adt): 25	5,600 vehicles				A	utos:	15				
Peak Hour F	Percentage:	10%		Me	dium Truck	s (2 A	xles):	15				
Peak Ho	our Volume: 2	2,560 vehicles		He	avy Trucks	(3+ A	xles):	15				
Veh	icle Speed:	45 mph	-	Vehicle I	Mix							
Near/Far Lan	e Distance:	78 feet	-		icleTvpe	[Dav	Evening	Night	Dailv		
Site Data					Aut		7.5%	12.9%	9.6%			
Par	rier Height:	0.0 feet		Me	edium Truc	ks: 8	34.8%	4.9%	10.3%	1.84%		
Barrier Type (0-Wa	•	0.0		ŀ	Heavy Truc	ks: E	86.5%	2.7%	10.8%	0.74%		
Centerline Dis	t. to Barrier:	76.0 feet	-	Noise Sr	ource Elev	ations	(in fe	et)				
Centerline Dist. t	o Observer:	76.0 feet	E E		Autos:	0.0						
Barrier Distance t	o Observer:	0.0 feet		Modiu	m Trucks:	2.2						
Observer Height (A	Above Pad):	5.0 feet			y Trucks:	8.0		Grade Ad	iustment	· 0.0		
Pa	d Elevation:	0.0 feet			-							
Roa	d Elevation:	0.0 feet		Lane Eq	uivalent Di			eet)				
F	load Grade:	0.0%			Autos:	65.4						
	Left View:	-90.0 degrees			m Trucks:	65.2						
	Right View:	90.0 degrees		Heav	y Trucks:	65.3	00					
FHWA Noise Mode	l Calculations											
VehicleType		Traffic Flow D	istance	Finite	Road	Fresne	el I	Barrier Att	en Ber	m Atten		
Autos:	68.46	2.13	-1.8	-	-1.20		4.73		000	0.000		
Medium Trucks:	79.45	-15.11	-1.8		-1.20		4.88		000	0.000		
Heavy Trucks:	84.25	-19.06	-1.8	4	-1.20	-	5.25	0.0	000	0.00		
Unmitigated Noise		· ·		<u> </u>								
	Leq Peak Hour		Leq E	vening	Leq Nig			Ldn		NEL		
Autos:	67.5			63.9		57.8		66.4		67.0		
Medium Trucks:	61.3			53.4		51.9		60.3	-	60.0		
Heavy Trucks:	62.1			51.7		52.9		61.3		61.4		
Vehicle Noise:	69.4			64.5		59.8		68.3	3	68.8		
Centerline Distanc	e to Noise Cor	ntour (in feet)	70	dBA	65 dB	<u> </u>	0	0 dBA	FE	dBA		
		Ldn:	70 0		65 dB	м	0	274		68A 690		
		CNEL:	-	-	127			274 294	-	90 33		
		GNEL:	6	0	130			234	c			

	FHW	A-RD-77-108 H	IIGHWA	Y NOISE P	REDICTIO		DEL					
Road Nam	io: Existing With le: Hamner Av. nt: s/o Limonite			Project Name: Polopolus Job Number: 11336								
SITE	SPECIFIC INI	PUT DATA			N	DISE N	/ODE	L INPUT	s			
Highway Data				Site Col	nditions (Hard =	10, S	oft = 15)				
Average Daily	Traffic (Adt): 2	4,900 vehicles				,	Autos:	15				
Peak Hour	Percentage:	10%		Me	edium True	cks (2 A	(xles)	15				
Peak H	lour Volume:	2,490 vehicles		He	eavy Truck	ks (3+ A	xles).	15				
Ve	hicle Speed:	45 mph		Vehicle	Mix							
Near/Far La	ne Distance:	78 feet			hicleType		Dav	Evening	Night	Daily		
Site Data				Ver			77.5%	•		97.42		
		0.0 ()		- N	ledium Tru		84.8%		10.3%			
	rrier Height:	0.0 feet 0.0			Heavy Tru		86.5%		10.3%			
Barrier Type (0-W Centerline Di	. ,	0.0 76.0 feet							10.070	0.7 1		
Centerline Dis Centerline Dist.		76.0 feet		Noise S	ource Ele	vation	s (in f	eet)				
Barrier Distance		0.0 feet			Autos:		000					
Observer Height (5.0 feet			im Trucks:		297					
	ad Elevation:	0.0 feet		Hea	vy Trucks:	: 8.0	006	Grade Ad	justment	0.0		
	ad Elevation:	0.0 feet		Lane Ec	uivalent	Distand	ce (in	feet)				
	Road Grade: 0.0%				Autos			,				
	Left View:	-90.0 degrees		Mediu	im Trucks	65.2	286					
	Right View:	90.0 degrees		Hea	vy Trucks.	65.3	300					
FHWA Noise Mod	el Calculations											
VehicleType		Traffic Flow	Distanc		e Road	Fresn		Barrier Att		m Atter		
Autos:	68.46	2.01		1.85	-1.20		-4.73		000	0.00		
Medium Trucks:	79.45	-15.23		1.84	-1.20		-4.88		000	0.00		
Heavy Trucks:	84.25	-19.18		1.84	-1.20		-5.25	0.0	000	0.00		
Unmitigated Noise				,		Ender	1	Lala	0	VEL		
VehicleType Autos:	Leq Peak Hour 67.4		5.5	q Evening 63.8	Leq N	light 57.7		Ldn 66.3	-	VEL 66.		
Medium Trucks:	61.3		9.5 9.7	53.3		51.8		60.2		60		
Heavy Trucks:	62.0		9.7).6	53.3		52.8		61.2	-	61		
Vehicle Noise:	69.3		7.5	64.4		59.7		68.2		68		
Centerline Distan	ce to Noise Co	ntour (in feet)										
				70 dBA	65 d	BA		60 dBA	55	dBA		
		L	dn:	58	12	5		269	5	79		

	IĞHWA	Y NOISE I	PREDICTIO	N MODEL			
Scenario: Existing With Project				ame: Polo			
Road Name: Hamner Av.			Job Nur	nber: 113	36		
Road Segment: s/o 68th St.							
SITE SPECIFIC INPUT DATA					DEL INPUT	s	
Highway Data		Site Co	nditions (H				
Average Daily Traffic (Adt): 21,000 vehicles				Auto			
Peak Hour Percentage: 10%			ledium Truc		,		
Peak Hour Volume: 2,100 vehicles		H	leavy Truck	s (3+ Axle	s): 15		
Vehicle Speed: 45 mph		Vehicle	Mix				
Near/Far Lane Distance: 78 feet		Ve	hicleType	Day	Evening	Night	Daily
Site Data			Au	tos: 77.5	5% 12.9%	9.6%	97.42
Barrier Height: 0.0 feet		1	Aedium Tru	cks: 84.8	3% 4.9%	10.3%	1.84
Barrier Type (0-Wall, 1-Berm): 0.0			Heavy Tru	cks: 86.5	5% 2.7%	10.8%	0.74
Centerline Dist. to Barrier: 76.0 feet		Noise	Source Elev	ations (ir	(feet)		
Centerline Dist. to Observer: 76.0 feet			Autos:	0.000			
Barrier Distance to Observer: 0.0 feet		Modi	um Trucks:	2.297			
Observer Height (Above Pad): 5.0 feet			avy Trucks:	8.006	Grade Ad	justment:	0.0
Pad Elevation: 0.0 feet							
Road Elevation: 0.0 feet		Lane E	quivalent L		n feet)		
Road Grade: 0.0%			Autos:	65.422			
Left View: -90.0 degrees			um Trucks:	65.286			
Right View: 90.0 degrees		Hea	avy Trucks:	65.300			
FHWA Noise Model Calculations							
VehicleType REMEL Traffic Flow	Distanc	-	e Road	Fresnel	Barrier Att		h Atter
Autos: 68.46 1.27		1.85	-1.20	-4.7		000	0.00
Medium Trucks: 79.45 -15.97		1.84	-1.20	-4.8	• • • •	000	0.00
Heavy Trucks: 84.25 -19.92	-	1.84	-1.20	-5.2	5 0.0	000	0.00
Unmitigated Noise Levels (without Topo and ba							
VehicleType Leg Peak Hour Leg Day		q Evening	Leq Ni	0	Ldn	CN	
	.8	63.	-	57.0	65.6	-	66
Autos: 66.7 64		52.	6	51.0	59.5	-	59
Autos: 66.7 64 Medium Trucks: 60.4 58	8.9		-		60.4	1	60
Autos: 66.7 64 Medium Trucks: 60.4 56 Heavy Trucks: 61.3 55).9	50.	•	52.1			
Autos: 66.7 64 Medium Trucks: 60.4 56 Heavy Trucks: 61.3 55		50. 63.	•	52.1 58.9	67.5	5	67
Autos: 66.7 64 Medium Trucks: 60.4 58 Heavy Trucks: 61.3 55 Vehicle Noise: 68.5 66).9).8	63.	6	58.9	67.5		
Autos: 66.7 64 Medium Trucks: 60.4 55 Heavy Trucks: 61.3 55 Vehicle Noise: 68.5 66 Centerline Distance to Noise Contour (in feet)	0.9 6.8	63. 70 dBA	6 65 dE	58.9 3A	67.5	55 d	
Autos: 66.7 64 Medium Trucks: 60.4 55 Heavy Trucks: 61.3 55 Vehicle Noise: 68.5 66 Centerline Distance to Noise Contour (in feet)	9.9 6.8 dn:	63.	6	58.9 84	67.5		IBA 7

	FHW	A-RD-77-108 HI	GHWAY	NOISE P	REDICT	ION MOI	DEL			
Road Name	 Existing With Hamner Av. s/o Riverboa 					Name: F lumber: 1		lus		
SITE S	SPECIFIC INI	PUT DATA			I	IOISE N	IODE	L INPUT	s	
Highway Data				Site Cor	nditions	(Hard =	10, Sc	oft = 15)		
Average Daily	Traffic (Adt): 2	9,100 vehicles					Autos:	15		
Peak Hour	Percentage:	10%		Me	dium Tr	ucks (2 A	xles):	15		
Peak He	our Volume:	2,910 vehicles		He	avy Tru	cks (3+ A	xles):	15		
Vel	nicle Speed:	45 mph		Vehicle	Mix					
Near/Far Lar	e Distance:	78 feet			nicleType		Day	Evening	Night	Daily
Site Data				101			77.5%	•	9.6%	
				м	, ledium T		84.8%		10.3%	1.84%
	rier Height:	0.0 feet 0.0			Heavy T		86.5%		10.8%	0.74%
Barrier Type (0-Wa Centerline Dis	. ,	0.0 76.0 feet							10.070	0.7 170
Centerline Dis Centerline Dist. t		76.0 feet		Noise S	ource E	levations	s (in fe	et)		
Barrier Distance t		0.0 feet			Auto	s: 0.0	000			
Observer Height (/		5.0 feet		Mediu	m Truck	s: 2.2	297			
0 1	d Elevation:	0.0 feet		Hear	vy Truck	s: 8.0	006	Grade Ad	justment.	0.0
	d Elevation:	0.0 feet		Lane Eo	uivalen	t Distand	e (in i	feet)		
	Road Grade:	0.0%			Auto					
	Left View:	-90.0 degrees		Mediu	m Truck					
	Right View:	90.0 degrees			vy Truck					
FHWA Noise Mode	Calculations									
VehicleType	REMEL	Traffic Flow	Distance	Finite	Road	Fresn	el	Barrier Att	en Ber	m Atten
Autos:	68.46	2.69	-1.8	35	-1.20		-4.73	0.0	000	0.000
Medium Trucks:	79.45	-14.55	-1.8	34	-1.20		-4.88	0.0	000	0.000
Heavy Trucks:	84.25	-18.51	-1.8	34	-1.20		-5.25	0.0	000	0.000
Unmitigated Noise	Levels (witho	ut Topo and ba	rrier atte	nuation)						
VehicleType	Leq Peak Hour	Leq Day	Leq E	evening	Leq	Night		Ldn	CI	VEL
Autos:	68.1	1 66.	2	64.4		58.4		67.0)	67.6
Medium Trucks:	61.9			54.0		52.4		60.9		61.1
Heavy Trucks:	62.	7 61.	3	52.2		53.5		61.9)	62.0
Vehicle Noise:	69.9	9 68.	2	65.0		60.4		68.9	9	69.4
Centerline Distance	e to Noise Co	ntour (in feet)								
				dBA		dBA	6	i0 dBA		dBA
		Ldr		64		38		298	-	42
		CNEL	<u> </u>	69	1	48		320	6	89

Wednesday, January 17, 2018

Wednesday, January 17, 2018

FHWA-RD-77-108 HIGH	AY NOISE PREDICTION MODEL	
Scenario: Existing With Project	Project Name: Polopolus	
Road Name: Hamner Av.	Job Number: 11336	
Road Segment: s/o Schleisman Rd.		
SITE SPECIFIC INPUT DATA	NOISE MODEL INPUTS	
Highway Data	Site Conditions (Hard = 10, Soft = 15)	
Average Daily Traffic (Adt): 25,400 vehicles	Autos: 15	
Peak Hour Percentage: 10%	Medium Trucks (2 Axles): 15	
Peak Hour Volume: 2,540 vehicles	Heavy Trucks (3+ Axles): 15	
Vehicle Speed: 45 mph	Vehicle Mix	
Near/Far Lane Distance: 78 feet	VehicleType Day Evening Night	Daily
Site Data	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	Heavy Trucks: 86.5% 2.7% 10.8%	0.74%
Centerline Dist. to Barrier: 76.0 feet	Noise Source Elevations (in feet)	
Centerline Dist. to Observer: 76.0 feet	Autos: 0.000	
Barrier Distance to Observer: 0.0 feet	Medium Trucks: 2,297	
Observer Height (Above Pad): 5.0 feet	Heavy Trucks: 8.006 Grade Adjustment:	0.0
Pad Elevation: 0.0 feet		
Road Elevation: 0.0 feet	Lane Equivalent Distance (in feet)	
Road Grade: 0.0%	Autos: 65.422	
Left View: -90.0 degrees	Medium Trucks: 65.286	
Right View: 90.0 degrees	Heavy Trucks: 65.300	
FHWA Noise Model Calculations		
VehicleType REMEL Traffic Flow Dis		m Atten
Autos: 68.46 2.10	-1.85 -1.20 -4.73 0.000	0.000
Medium Trucks: 79.45 -15.14	-1.84 -1.20 -4.88 0.000	0.000
Heavy Trucks: 84.25 -19.10	-1.84 -1.20 -5.25 0.000	0.000
Unmitigated Noise Levels (without Topo and barrie VehicleType Leg Peak Hour Leg Day	,	VEL
VehicleType Leq Peak Hour Leq Day Autos: 67.5 65.6	eq Evening Leq Night Ldn Cl 63.8 57.8 66.4	67.0
Medium Trucks: 61.3 59.8	53.4 51.9 60.3	60.5
Heavy Trucks: 62.1 60.7	51.7 52.9 61.3	61.4
Vehicle Noise: 69.3 67.6	51.7 52.9 61.3 64.4 59.8 68.3	68.8
Centerline Distance to Noise Contour (in feet)		
Centerline Distance to Noise Contour (in feet)	70 dBA 65 dBA 60 dBA 55	dBA
Centerline Distance to Noise Contour (in feet) Ldn:		dBA 87

Average Daily Traffic (Adt): 32,500 vehicles Autos:: 15 Peak Hour Percentage: 10% Medium Trucks (2 Axles): 15 Peak Hour Volume: 3,250 vehicles Medium Trucks (2 Axles): 15 Vehicle Speed: 45 mph Heavy Trucks (3+ Axles): 15 Vehicle Speed: 45 mph Vehicle Type Day Evening Night L Site Data Autos: 78 feet Vehicle Type Day Evening Night L Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Darrier: 76.0 feet Medium Trucks: 84.9% 4.9% 10.3% Heavy Trucks: 80.65% 2.7% 10.8% 0.0% Barrier Dist. to Deserver: 0.0 feet Medium Trucks: 65.422 Heavy Trucks: 65.286 Pad Elevation: 0.0 feet Medium Trucks: 65.422 Medium Trucks: 65.422 VehicleType REMEL Traffic Flow Distance Finite Road Fresnel Barrier Atten Berrier Autos: 68.46 3.17		FHW	/A-RD-77-108 HI	GHWAY	NOISE PI	REDICTI	ION MOI	DEL						
Highway Data Site Conditions (Hard = 10, Soft = 15) Average Daily Traffic (Ad): 32,500 vehicles Autos: 15 Peak Hour Vercentage: 10% Medium Trucks (24 Avles): 15 Peak Hour Volume: 3,250 vehicles Medium Trucks (24 Avles): 15 Vehicle Speed: 45 mph Medium Trucks (24 Avles): 15 Near/Far Lane Distance: 78 feet Vehicle Mix Vehicle Type Day Evening Night L Stre Data 0.0 feet Medium Trucks: 84.8% 4.9% 10.3% Heavy Trucks: 86.5% 2.7% 10.8% 0 Centerline Dist. to Deserver: 0.0 feet Moles Source Elevations (in feet) Autos: 0.000 Road Elevation: 0.0 feet Autos: 65.422 Heavy Trucks: 65.422 Publicle Type REMEL Traffic Flow Distance Finite Road Fresnel Barrier Atten Bern Autos: Weikider Type REMEL Traffic Flow Distance Finite Road Fresnel Barrier Atten Bern Autos:	Road Nam	ne: Hamner Av.												
Average Daily Traffic (Adt): 32,500 vehicles Autos:: 15 Peak Hour Percentage: 10% Peak Hour Volume: 3,2500 vehicles Vehicle Speed: 45 mph Near/Far Lane Distance: 78 feet Site Data Autos:: 77.5% 12.9% 9.6% 05 Barrier Type (O-Wall, 1-Berm): 0.0 Centerline Dist. to Diserver: 76.0 feet Barrier Type (O-Wall, 1-Berm): 0.0 Centerline Dist. to Diserver: 76.0 feet Barrier Type (O-Wall, 1-Berm): 0.0 Centerline Dist. to Diserver: 76.0 feet Road Elevation: 0.0 feet Autos: 65.422 Medium Trucks: <	SITE	SPECIFIC IN	PUT DATA			N	OISE N	IODE	L INPUT	s				
Peak Hour Percentage: 10% Medium Trucks (2 Axles): 15 Peak Hour Volume: 3,250 vehicles Heavy Trucks (3+ Axles): 15 Vehicle Speed: 45 mph Vehicle Type Day Evening Night L Site Data Vehicle Speed: 45 mph Vehicle Type Day Evening Night L Site Data Vehicle Type Day Evening Night L Barrier Type (Or Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 76.0 feet Noise Source Elevations (in feet) Noise Noise Source Elevations (in feet) Conterline Dist. to Diserver: 0.0 feet Autos: 0.000 Medium Trucks: 82.92 Medium Trucks: 83.06 Grade Adjustment: 0. Barrier Type (Or Wall, 1-Berm): 0.0 feet Autos: 65.422 Medium Trucks: 65.422														
Beak Hour Volume: 3,250 vehicles Vehicle Speed: 45 mph Near/Far Lane Distance: 78 feet Vehicle Type Day Evening Night L Site Data Valide Day Evening Night L Barrier Height: 0.0 feet Medium Trucks: 8.4.8% 4.9% 10.3% C Barrier Type (0-Wail, 1-Berm): 0.0 Centerline Dist. to Diserver: 76.0 feet Notes Notes 2.2.97 10.8% 0.0 Centerline Dist. to Observer: 0.0 feet Medium Trucks: 8.006 Grade Adjustment: 0.0 Barrier Joistance to Observer: 0.0 feet Must Autos: 0.000 Medium Trucks: 8.0.06 Grade Adjustment: 0.0 Barrier Jistance to Observer: 0.0 feet Medium Trucks: 65.422 Medium Trucks: 65.422 Road Elevation: 0.0 degrees Finite Road Fresnel Barrier Atten Bern Marrier Atten Wehicle Type REMEL Traffic Flow Distance Finite Road Fresne	Average Daily	Traffic (Adt): 3	2,500 vehicles					Autos:	15					
Peak Hour Volume: 3,250 vehicles Vehicle Speed: Heavy Trucks (3+ Axles): 15 Near/Far Lane Distance: 78 feet Vehicle Type Day Evening Night L Site Data Vehicle Type Day Evening Night L Barrier Height: 0.0 feet Heavy Trucks: 84.8% 4.9% 10.3% Barrier Type (0-Wail, 1-Berm): 0.0 Heavy Trucks: 86.5% 2.7% 10.8% 0 Centerline Dist. to Dbserver: 76.0 feet Motion: Noise Source Elevations (in feet) Noise	Peak Hour	Percentage:	10%		Me	dium Tru	icks (2 A	xles):	15					
Near/Far Lane Distance: 78 fet Vehicle Type Day Evening Night L Site Data Vehicle Type Day Evening Night L Site Data Vehicle Type Day Evening Night L Site Data Vehicle Type Day Evening Night L Barrier Dist. for Darrier: 0.0 feet Medium Trucks: 84.8% 4.9% 9.6%			3,250 vehicles		He	avy Truc	ks (3+ A	xles):	15					
Near/Far Lane Distance: 78 feet Site Data VehicleType Day Evening Night L Site Data Autos: 77.5% 12.9% 9.6% </td <td>Ve</td> <td>hicle Speed:</td> <td>45 mph</td> <td></td> <td>Vohiclo</td> <td>Mix</td> <td></td> <td></td> <td></td> <td></td> <td></td>	Ve	hicle Speed:	45 mph		Vohiclo	Mix								
Site Data Autos: 77.5% 12.9% 9.6% 9. Barrier Height: 0.0 feet Medium Trucks: 84.9% 4.9% 10.3% - Barrier Type (0-Walt, 1-Bern): 0.0 - Medium Trucks: 84.9% 4.9% 10.3% - Centerline Dist. to Barrier: 76.0 feet - Noise Source Elevations (in feet) - Autos: 0.000 Medium Trucks: 84.9% 4.9% 10.3% - Barrier Distance to Observer: 76.0 feet - Autos: 0.000 Medium Trucks: 80.06 Grade Adjustment: 0. Pad Elevation: 0.0 feet - - Autos: 65.422 Medium Trucks: 65.422 Medium Trucks: 79.45 -14.07 -1.84 -1.20 -4.73 0.000 FHWA Noise Molect Type REMEL Traffic Flow Distance Finite Road Fresnel Barrier Atten Berm ////////////////////////////////////	Near/Far La	ne Distance:	78 feet					Dav	Evoning	Night	Dailv			
Barrier Height: 0.0 feet Medium Trucks: 8.4.8% 4.9% 10.3% Barrier Type (0-Wall, 1-Berm): 0.0 Heavy Trucks: 86.5% 2.7% 10.8% 0 Centerline Dist. to Dbserver: 76.0 feet Noise Source Elevations (in feet) Noise Source Elevations (in feet) Noise Source Elevations (in feet)	Sito Data				Ven				•					
Barrier Type (IV-Wall, 1-Berm): 0.0 Heavy Trucks: 86.5% 2.7% 10.8% 0.0% Centerline Dist. to Diserver: 76.0 feet Noise Source Elevations (in feet) Noise Source Elevations (in feet) Diserver: 0.0 feet Autos: 0.000 Barrier Type (IV-Wall, 1-Berry): 0.0 feet Autos: 0.000 Barrier Type (IV-Wall, 1-Berry): 0.0 feet Autos: 0.000 Road Elevation: 0.0 feet Autos: 65.422 Medium Trucks: 65.426 Medium Trucks: 65.286 Right View: 90.0 degrees Heavy Trucks: 65.300 FHWA Noise Model Calculations VehicleType REMEL Traffic Flow Distance Finite Road Fresnel Barrier Atten Bern Autos: 68.46 3.17 -1.84 -1.20 -4.88 0.000 Heavy Trucks: 74.5 -1.41407 -1.84 -1.20 -4.88 0.000 Umittigated Noise Levels (without Topo an					M									
Darker Type Observer: 76.0 Test Centerline Dist. to Darive: 76.0 feet Centerline Dist. to Darive: 76.0 feet Barrier Distance to Observer: 76.0 feet Barrier Distance to Observer: 76.0 feet Part Elevation: 0.0 feet Part Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: 90.0 Left View: 90.0 degrees Medium Trucks: 65.286 Heavy Trucks: 65.200 Heavy Trucks: 65.200 FHWA Noise Model Calculations Distance Finite Road Fresnel Barrier Atten Bermir VehicleType REMEL Traffic Flow Distance Finite Road Fresnel Barrier Atten Bermir Autos: 68.46 3.17 -1.85 -1.20 -4.73 0.000 Heavy Trucks: 84.25 -18.03 -1.84 -1.20 -5.25 0.000														
Centerline Dist. to Observer: 76.0 feet Noise Source Elevations (in feet) Barrier Distance to Observer: 0.0 feet Autos: 0.000 Observer Height (Above Pad): 5.0 feet Heavy Trucks: 2.297 Pad Elevation: 0.0 feet Heavy Trucks: 8.006 Grade Adjustment: 0. Road Elevation: 0.0 feet Lane Equivalent Distance (in feet) Lane Equivalent Distance (in feet) Road Grade: 0.0% Autos: 65.226 Heavy Trucks: 65.300 FHWA Noise Model Calculations 90.0 degrees Heavy Trucks: 65.300 Heavy Trucks: 65.300 FHWA Noise Model Calculations 1.85 -1.20 -4.73 0.000 Medium Trucks: 79.45 -14.07 -1.84 -1.20 -4.88 0.000 Heavy Trucks: 84.25 -18.03 -1.84 -1.20 -5.25 0.000 Umitigated Noise Levels (without Topo and barrier attenuation) Vehicle Type Leq Day Leq Day Eq Evening Leq Night Ldn CNEI Medium Trucks: 62.						loary n	dono.	00.070	2.170	10.070	0.747			
Barrier Distance to Observer: 0.0 feet Autos: 0.000 Observer Height (Above Pad): 5.0 feet Medium Trucks: 2.97 Pad Elevation: 0.0 feet Heavy Trucks: 8.006 Grade Adjustment: 0. Road Elevation: 0.0 feet Lane Equivalent Distance (in feet) Autos: 65.422 Road Grade: 0.0% Autos: 65.422 Medium Trucks: 65.300 FHWA Noise Model Calculations vehicleType REMEL Traffic Flow Distance Finite Road Fresnel Barrier Atten Bern / VehicleType REMEL Traffic Flow Distance 1.84 -1.20 -4.73 0.000 Heavy Trucks: 7.945 -14.07 -1.84 -1.20 -4.88 0.000 Heavy Trucks: 84.25 -18.03 -1.84 -1.20 -5.25 0.000 Ummitigated Noise Levels (without Topo and barrier attenuation) VehicleType Leq Peak Hour Leq Zevening Leq Night Ldn CNEI Autos: 68.6 66.7					Noise So	ource El	evations	s (in fe	eet)					
Observer Height (Above Pad): 5.0 feet Medium Trucks: 2.29/ Heavy Trucks: 8.006 Grade Adjustment: 0. Pad Elevation: 0.0 feet Heavy Trucks: 8.006 Grade Adjustment: 0. Road Clavation: 0.0 feet Autos: 65.422 Medium Trucks: 65.266 Right View: 90.0 degrees Heavy Trucks: 65.266 Heavy Trucks: 65.266 FHWA Noise Mode Calculations Distance Finite Road Fresnel Barrier Atten Berri VehicleType REMEL Traffic Flow Distance Finite Road Fresnel Barrier Atten Berri Medium Trucks: 74.5 -1.120 -4.73 0.000 Heavy Trucks: 84.25 -18.4 -1.20 -4.88 0.000 Heavy Trucks: 84.25 -18.03 -1.84 -1.20 -5.25 0.000 Unmitigated Noise Levels (without Topo and barrier attenuation) Leq Right Ldn CNEI Autos: 68.6 66.7 64.9 58.9 67.5 Medium Trucks:						Autos	s: 0.0	000						
Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Elevation: 0.0 feet Road Elevation: 0.0 feet Road Cardo: 0.0% Lane Equivalent Distance (in feet) Autos: 65.286 Right View: 90.0 degrees FHWA Noise Model Calculations Earlier Atten Barrier Atten Berry VehicleType REMEL Traffic Flow Distance Finite Road Fresnel Barrier Atten Berry Autos: 68.46 3.17 -1.85 -1.20 -4.73 0.000 Medium Trucks: 79.45 -14.07 -1.84 -1.20 -4.88 0.000 Heavy Trucks: 84.25 -18.03 -1.84 -1.20 -5.25 0.000 Unmitigated Noise Levels (without Topo and barrier attenuation) VehicleType Leq Day Leq Day Leq Ses.9 67.5 Medium Trucks: 62.3 60.8 54.5 52.9 61.4 Heavy Trucks: 63.2 61.8 52.7														
Road Elevation: 0.0 feet Lane Equivalent Distance (in feet) Road Grade: 0.0% Autos: 65.422 Left View: 90.0 degrees Medium Trucks: 65.286 Right View: 90.0 degrees Heavy Trucks: 65.300 FHWA Noise Model Calculations Finite Road Fresnel Barrier Atten Berni / Autos: VehicleType REMEL Traffic Flow Distance Finite Road Fresnel Barrier Atten Berni / Autos: Medium Trucks: 68.46 3.17 -1.85 -1.20 -4.73 0.000 Heavy Trucks: 84.25 -18.03 -1.84 -1.20 -5.25 0.000 Umnitigated Noise Levels (without Topo and barrier attenuation) VehicleType Leq Peak Hour Leq Devels CNEI Autos: 68.6 66.7 64.9 58.9 67.5 Medium Trucks: 63.2 61.8 52.7 54.0 62.3 Vehicle Noise: 70.4 68.7 65.5 60.8 69.4		· ,			Heav	ry Trucks	s: 8.0	006	Grade Ad	justment.	0.0			
Road Grade: 0.0% Autos: 65.422 Left View: -90.0 degrees Medium Trucks: 65.286 Right View: 90.0 degrees Heavy Trucks: 65.286 WehicleType REMEL Traffic Flow Distance Finite Road Fresnel Barrier Atten Bermin Autos: 68.46 3.17 -1.85 -1.20 -4.73 0.000 Medium Trucks: 79.45 -14.407 -1.84 -1.20 -4.88 0.000 Medium Trucks: 79.45 -1.84 -1.20 -5.25 0.000 Unnitigated Noise Levels (without Topo and barrier attenuation) -5.25 0.000 0.000 Unmitigated Moise Levels (without Topo and barrier attenuation) Leq Night Ldn CNEI Autos: 68.6 66.7 64.9 58.9 67.5 Medium Trucks: 63.2 61.8 52.7 54.0 62.3 Vehicle Noise: 70.4 68.7 65.5 60.8 69.4 Centertime Distance to Noise Contour (in feet)					Lane Eq	uivalent	Distanc	e (in	feet)					
Left View: -90.0 degrees Right View: Medium Trucks: 65.286 Heavy Trucks: 65.286 FHWA Noise Model Calculations Female Heavy Trucks: 65.300 VehicleType REMEL Traffic Flow Distance Finite Road Fresnel Barrier Atten Bern / Bern / Autos: 68.46 3.17 -1.85 -1.20 -4.73 0.000 Medium Trucks: 79.45 -14.07 -1.84 -1.20 -4.88 0.000 Heavy Trucks: 84.25 -18.03 -1.84 -1.20 -5.25 0.000 Unmitigated Noise Levels (without Topo and barrier attenuation) Vehicle Type Leq Peak Hour Leq Day Leq Se.9 67.5 Medium Trucks: 62.3 60.8 54.5 52.9 61.4 Heavy Trucks: 63.2 61.8 52.7 54.0 62.3 Vehicle Noise: 70.4 68.7 65.5 60.8 69.4														
Right View: 90.0 degrees Heavy Trucks: 65.300 FHWA Noise Model Calculations Finite Road Fresnel Barrier Atten Berrier Atten VehicleType REMEL Traffic Flow Distance Finite Road Fresnel Barrier Atten Berrier Atten Matas: 68.46 3.17 -1.85 -1.20 -4.73 0.000 Medium Trucks: 79.45 -14.07 -1.84 -1.20 -4.88 0.000 Heavy Trucks: 84.25 -18.03 -1.84 -1.20 -5.25 0.000 Ummitigated Noise Levels (without Topo and barrier attenuation) VehicleType Leq Peak Hour Leq Day Leq Revening Leq Night Ldn CNEI Autos: 68.6 66.7 64.9 56.9 67.5 Medium Trucks: 63.2 61.8 52.7 54.0 62.3 Vehicle Noise: 70.4 68.7 65.5 60.8 69.4					Mediu									
VehicleType REMEL Traffic Flow Distance Finite Road Fresnel Barrier Atten Berm / Autos: 68.46 3.17 -1.85 -1.20 -4.73 0.000 Medium Trucks: 79.45 -14.07 -1.84 -1.20 -4.88 0.000 Heavy Trucks: 84.25 -18.03 -1.84 -1.20 -5.25 0.000 Unmitigated Noise Levels (without Topo and barrier attenuation) -5.25 0.000 -5.25 0.000 Unmitigated Moise Levels (without Topo and barrier attenuation) Leq Night Ldn CNEI Autos: 68.6 66.7 64.9 58.9 67.5 Medium Trucks: 62.3 60.8 54.5 52.9 61.4 Heavy Trucks: 63.2 61.8 52.7 54.0 62.3 Vehicle Noise: 70.4 68.7 65.5 60.8 69.4 Centertime Distance to Noise Contour (in feet) -12 -12 -12 -12		Right View:	•		Heav	y Trucks	s: 65.3	300						
Autos: 68.46 3.17 -1.85 -1.20 -4.73 0.000 Medium Trucks: 79.45 -14.07 -1.84 -1.20 -4.88 0.000 Heavy Trucks: 84.25 -18.03 -1.84 -1.20 -5.25 0.000 Unmitigated Noise Levels (without Topo and barrier attenuation) VehicleType Leq Day Leq Evening Leq Night Ldn CNEI VehicleType Leq Reak Hour Leq Day Leq Evening Leq Night Ldn CNEI Autos: 68.6 66.7 64.9 58.9 67.5 61.4 Heavy Trucks: 63.2 61.8 52.7 54.0 62.3 Vehicle Noise: 70.4 68.7 65.5 60.8 69.4 Centerline Distance to Noise Contour (in feet)	FHWA Noise Mod	el Calculations												
Medium Trucks: 79.45 -14.07 -1.84 -1.20 -4.88 0.000 Heavy Trucks: 84.25 -18.03 -1.84 -1.20 -5.25 0.000 Umitigated Noise Levels (without Topo and barrier attenuation) Vehicle Type Leq Peak Hour Leq Qay Leq Revining Leq Night Ldn CNEI Autos: 68.6 66.7 64.9 58.9 67.5 61.4 Heavy Trucks: 62.3 60.8 54.5 52.9 61.4 Heavy Trucks: 63.2 61.8 52.7 54.0 62.3 Vehicle Noise: 70.4 68.7 65.5 60.8 69.4 Centerline Distance to Noise Contour (in feet) Eutorian Contour (in feet) Eutorian Contour (in feet) Eutorian Contour (in feet)											m Atten			
Heavy Trucks: 84.25 -18.03 -1.84 -1.20 -5.25 0.000 Unnitigated Noise Levels (without Topo and barrier attenuation) Leq Evening Leq Night Ldn CNEI Vehicle Type Leq Peak Hour Leq Day Leq Evening Leq Night Ldn CNEI Autos: 68.6 66.7 64.9 58.9 67.5 Medium Trucks: 62.3 60.8 54.5 52.9 61.4 Heavy Trucks: 63.2 61.8 52.7 54.0 62.3 Vehicle Noise: 70.4 68.7 65.5 60.8 69.4 Centerline Distance to Noise Contour (in feet) Enterline Distance to Noise Contour (in feet) Enterline Distance to Noise Contour (in feet) Enterline Distance to Noise Contour (in feet)											0.00			
Unmitigated Noise Levels (without Topo and barrier attenuation) Unmitigated Noise Levels (without Topo and barrier attenuation) CNE VehicleType Leq Peak Hour Leq Day Leq Evening Leq Night Ldn CNE Autos: 68.6 66.7 64.9 58.9 67.5 Medium Trucks: 62.3 60.8 54.5 52.9 61.4 Heavy Trucks: 63.2 61.8 52.7 54.0 62.3 Vehicle Noise: 70.4 68.7 65.5 60.8 69.4 Centerline Distance to Noise Contour (in feet) Enterline Distance to Noise Contour (in feet) Enterline Distance to Noise Contour (in feet)											0.00			
VehicleType Leq Peak Hour Leq Day Leq Vehicle Type Leq Night Ldn CNEI Autos: 68.6 66.7 64.9 58.9 67.5 Medium Trucks: 62.3 60.8 54.5 52.9 61.4 Heavy Trucks: 63.2 61.8 52.7 54.0 62.3 Vehicle Noise: 70.4 68.7 65.5 60.8 69.4 Centerline Distance to Noise Contour (In feet)	,					-1.20		-5.25	0.0	000	0.00			
Autos: 68.6 66.7 64.9 58.9 67.5 Medium Trucks: 62.3 60.8 54.5 52.9 61.4 Heavy Trucks: 63.2 61.8 52.7 54.0 62.3 Vehicle Noise: 70.4 68.7 65.5 60.8 69.4 Centerline Distance to Noise Contour (in feet) Enterline Distance to Noise Contour (in feet) Enterline Distance to Noise Contour (in feet) Enterline Distance to Noise Contour (in feet)														
Medium Trucks: 62.3 60.8 54.5 52.9 61.4 Heavy Trucks: 63.2 61.8 52.7 54.0 62.3 Vehicle Noise: 70.4 68.7 65.5 60.8 69.4 Centerline Distance to Noise Contour (in feet)		,					· ·							
Heavy Trucks: 63.2 61.8 52.7 54.0 62.3 Vehicle Noise: 70.4 68.7 65.5 60.8 69.4 Centerline Distance to Noise Contour (in feet)											68.			
Vehicle Noise: 70.4 68.7 65.5 60.8 69.4 Centerline Distance to Noise Contour (in feet)				-							61.			
Centerline Distance to Noise Contour (in feet)	· · · ·			-							62.			
				/	65.5		60.8		69.4	1	69.			
	centerline Distan	ce to Noise Co	ntour (in feet)			65	JD A		o dBA	57	dD A			
Ldn: 69 149 321 691			باد ا					6						
CNEL: 74 160 344 742														

Soonar	io: Existing Wi	th Project				Proiect	Nama	Polone	due		
	e: Limonite A						umber:				
	nt: w/o Hamne					300 14	uniber.	11550			
•	SPECIFIC IN					N	OISE	MODE	L INPUT	c .	
Highway Data	SPECIFIC IN	PUTDATA		4	Site Cor	nditions				3	
Average Daily	Traffic (Adt):	29 200 vehicle	20					Autos:	,		
	Percentage:	10%			Me	edium Tru	icks (2	Axles):	15		
	lour Volume:	2.920 vehicle	es			avy Truc					
Ve	hicle Speed:	45 mph		-	Vehicle	, Mix					
Near/Far La	ne Distance:	78 feet		-		iviix nicleType	1	Day	Evening	Night	Daily
Site Data				-			utos:	77.5%	· ·	9.6%	
	rrier Heiaht:	0.0 feet			М	, edium Tr		84.8%		10.3%	
Barrier Type (0-W		0.0 1001				Heavy Tr	ucks:	86.5%	2.7%	10.8%	0.74
Centerline Di	. ,	76.0 feet		H	Noice C	ource El	ovetion	in lin f	0.041		
Centerline Dist.	to Observer:	76.0 feet		Ľ	Noise S	Autos			eet)		
Barrier Distance	to Observer:	0.0 feet			Marth	m Trucks		000 297			
Observer Height (Above Pad):	5.0 feet					·· -	297	Grade Ad	iuctmont	
Pa	ad Elevation:	0.0 feet			пеа	vy Trucks	s. 0.	000	Oldde Aq	usunem	. 0.0
Roa	ad Elevation:	0.0 feet		1	Lane Eq	uivalent	Distan	ce (in	feet)		
1	Road Grade:	0.0%				Autos	8: 65	.422			
	Left View:	-90.0 degre	es			m Trucks		.286			
	Right View:	90.0 degre	ees		Hear	vy Trucks	8: 65	.300			
FHWA Noise Mod	el Calculation	s									
VehicleType	REMEL	Traffic Flow	Dist	tance	Finite	Road	Fres	nel	Barrier Att	en Ber	m Atter
Autos:	68.46	2.70	Ì	-1.8	5	-1.20		-4.73	0.0	000	0.0
Medium Trucks:	79.45	-14.54		-1.84	4	-1.20		-4.88	0.0	000	0.0
Heavy Trucks:	84.25	-18.49)	-1.84	4	-1.20		-5.25	0.0	000	0.00
Unmitigated Noise	e Levels (with	out Topo and	l barrie	r atten	uation)						
VehicleType	Leq Peak Hou	ır Leq Da	у	Leq E	vening	Leq	Night		Ldn	C	NEL
Autos:	68		66.2		64.4		58.		67.0		67
Medium Trucks:	61		60.4		54.0		52.		60.9		61
Heavy Trucks:	62		61.3		52.3		53.	-	61.9		62
Vehicle Noise:	69	.9	68.2		65.1		60.	4	68.9	9	69
	ce to Noise Co	ontour (in fee	t)								
Centerline Distant				70	dBA	CE .	1BA	6	S0 dBA	55	dBA
Centerline Distant											
Centerline Distand			Ldn: NEL:	6	4	13	39		299 321	6	44 91

FHW	A-RD-77-108 HIG	HWAY I	NOISE PI	REDICTI	ON MOI	DEL			
Scenario: Existing Wit Road Name: Limonite Av Road Segment: e/o Hamner					Name: F Imber: 1		lus		
SITE SPECIFIC IN	PUT DATA							S	
Highway Data			Site Con	ditions	(Hard =	10, Sc	oft = 15)		
Average Daily Traffic (Adt): 4	3,900 vehicles					Autos:	15		
Peak Hour Percentage:	10%		Me	dium Tru	cks (2 A	xles):	15		
Peak Hour Volume:	4,390 vehicles		He	avy Truc	ks (3+ A	xles):	15		
Vehicle Speed:	45 mph	ŀ	Vehicle	Miy					
Near/Far Lane Distance:	78 feet	ł		icleType		Day	Evening	Night	Daily
Site Data			Ven			77.5%	~	9.6%	
			14	edium Tr		34.8%		10.3%	1.84%
Barrier Height:	0.0 feet			Heavy Tr		36.5%		10.8%	0.74%
Barrier Type (0-Wall, 1-Berm):	0.0							10.070	0.1470
Centerline Dist. to Barrier: Centerline Dist. to Observer:	76.0 feet 76.0 feet		Noise So	ource El	evations	s (in fe	et)		
Barrier Distance to Observer:	0.0 feet			Autos	: 0.0	00			
Observer Height (Above Pad):	5.0 feet		Mediu	m Trucks	: 2.2	97			
Pad Elevation:	0.0 feet		Heav	y Trucks	: 8.0	06	Grade Adj	iustment.	0.0
Road Elevation:	0.0 feet	ŀ	Lane Eq	uivalent	Distand	e (in i	eet)		
Road Grade:	0.0%	ŀ	Lano Ly	Autos			000		
Left View:	-90.0 degrees		Mediu	m Trucks					
Right View:	90.0 degrees			y Trucks					
FHWA Noise Model Calculations	;								
VehicleType REMEL	Traffic Flow Di	istance	Finite	Road	Fresn	el	Barrier Att	en Ber	m Atten
Autos: 68.46	4.47	-1.8	35	-1.20		4.73	0.0	000	0.000
Medium Trucks: 79.45	-12.76	-1.8	34	-1.20		4.88	0.0	000	0.000
Heavy Trucks: 84.25	-16.72	-1.8	34	-1.20		-5.25	0.0	000	0.000
Unmitigated Noise Levels (witho									
VehicleType Leq Peak Hou			vening	Leq I			Ldn	-	VEL
Autos: 69.			66.2		60.2		68.8		69.4
Medium Trucks: 63.	• •=··		55.8		54.2		62.7		62.9
Heavy Trucks: 64.			54.0		55.3		63.6		63.8
Vehicle Noise: 71.			66.8		62.1		70.7	,	71.1
Centerline Distance to Noise Co	ntour (in feet)								
			dBA	65 0		6	0 dBA		dBA
	Ldn:	-	34	18	-		392	-	45
	CNEL:	ę	91	19	5		421	9	06

Wednesday, January 17, 2018

Wednesday, January 17, 2018

Wednesday, January 17, 2018

Average Daily Traffic (Adt): 38,200 vehicles Autos: 15 Peak Hour Percentage: 10% Medium Trucks (2 Axles): 15 Peak Hour Volume: 3,820 vehicles Medium Trucks (2 Axles): 15 Vehicle Speed: 45 mph Heavy Trucks (3+ Axles): 15 Vehicle Speed: 45 mph Vehicle Type Day Evening Night Daily Site Data Autos: 75 feet Vehicle Type Day Evening Night Daily Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Dserver: 0.0 feet Medium Trucks: 84.8% 4.9% 10.8% 1.8% Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Dserver: 0.0 feet Autos: 0.00 Medium Trucks: 86.5% 2.7% 10.8% 0.74 Observer Height (Above Pad): 5.0 feet Autos: 65.422 Medium Trucks: 65.422 Road Grade: 0.0% Left View: 90.0 degrees Heavy Trucks: 65.300 FHWA Noise Model Calculations VehicleType		FHWA-	RD-77-108 HIG	HWAY N	NOISE PR	REDICTION	N MODE	ïL		
Highway Data Site Conditions (Hard = 10, Soft = 15) Average Daily Traffic (Adt): 38,200 vehicles Peak Hour Percentage: 10% Autos: 15 Peak Hour Volume: 3,820 vehicles Vehicle Speed: 45 mph Autos: 15 Venicle Speed: 45 mph Medium Trucks (24 Axles): 15 Ste Data Vehicle Type Day Evening Night Daily Barrier Height: 0.0 teet Heavy Trucks: 84.8% 4.9% 10.3% 1.84 Barrier Dist. to Dserver: 76.0 feet Autos: Noise Source Elevations (in feet) Noise Source (in feet) Autos: 0.00 Road Grade: 0.0% Left View: -90.0 degrees Heavy Trucks: 65.286 Heavy Trucks: 65.200 0.000 0.00 WehicleT	Road Name	e: Limonite Av.	roject							
Average Daily Traffic (Adt): 38,200 vehicles Autos: 15 Peak Hour Percentage: 10% Medium Trucks (2 Axles): 15 Peak Hour Volume: 3,820 vehicles Medium Trucks (2 Axles): 15 Vehicle Speed: 45 mph Heavy Trucks (3+ Axles): 15 Vehicle Speed: 45 mph Vehicle Type Day Evening Night Daily Site Data Autos: 75 feet Vehicle Type Day Evening Night Daily Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Dserver: 0.0 feet Medium Trucks: 84.8% 4.9% 10.8% 1.8% Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Dserver: 0.0 feet Autos: 0.00 Medium Trucks: 86.5% 2.7% 10.8% 0.74 Observer Height (Above Pad): 5.0 feet Autos: 65.422 Medium Trucks: 65.422 Road Grade: 0.0% Left View: 90.0 degrees Heavy Trucks: 65.300 FHWA Noise Model Calculations VehicleType	SITE S	SPECIFIC INPU	T DATA			NO	SE MO	DEL INPUT	s	
Peak Hour Percentage: 10% Medium Trucks (2 Axles): 15 Peak Hour Volume: 3,820 vehicles Heavy Trucks (3-4 Axles): 15 Vehicle Speed: 45 mph Vehicle Speed: 45 mph Near/Far Lane Distance: 78 feet Vehicle Speed: 45 mph Site Data Autos: 77.5% 12.9% 9.6% 97.42' Barrier Type (OWalt, 1-Berm): 0.0 feet Autos: 76.0 feet Autos: 0.000 0.74' Barrier Type (OWalt, 1-Berm): 0.0 feet Autos: 0.000 0.74' Needium Trucks: 82.5% 2.7% 10.3% 1.84' Barrier Type (OWalt, 1-Berm): 0.0 feet Autos: 0.000 Medium Trucks: 2.297 Observer: 0.0 feet Autos: 65.422' Medium Trucks: 65.422 Road Cievation: 0.0 feet Autos: 65.422 Autos: 65.300 VehicleType REMEL Traffic Flow Distance Finite Road Fresnel Barrier Atten Berm Atter Autos:	Highway Data				Site Con	ditions (H	ard = 10), Soft = 15)		
Peak Hour Volume: 3,820 vehicles Vehicle Speed: 45 mph Near/Far Lane Distance: 78 feet Vehicle Mix Vehicle Mix Vehicle Mix Vehicle Mix Site Data Vehicle Mix Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Dserver: 76.0 feet Barrier Jistance to Observer: 0.0 feet Barrier Jistance to Observer: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees Right View: 90.0 degrees Right View: 90.0 degrees Heavy Trucks: 65.286 Heavy Trucks: 65.300 FHWA Noise Model Calculations Finite Road Fresnel VehicleType Lag Day Lag Evening Lag Evening VehicleType Leg Day Lag Evening 0.000 Medium Trucks: 73.3 7 1.84 1.20 -4.73 0.000 Medium Trucks: 84.	Average Daily	Traffic (Adt): 38,2	00 vehicles				Au	tos: 15		
Vehicle Speed: Near/Far Lane Distance: 45 mph 78 feet Vehicle Mx Site Data Autos: 77.5% 12.9% 9.6% 97.42 Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Dserver: 76.0 feet Barrier Distance to Observer: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 feet Centerline Dist. to Dserver: 76.0 feet Barrier Distance to Observer: 0.0 feet Pad Elevation: 0.0 feet Road Grade: 0.0% Left View: 90.0 degrees Right View: 90.0 degrees Rodum Trucks: 84.28 VehicleType REMEL VehicleType REMEL VehicleType RefMet L VehicleType RefMet L VehicleType RefMet L VehicleType RefMet L VehicleType 1.84 VehicleType 1.84 VehicleType 1.84 VehicleType 63.3	Peak Hour I	Percentage:	10%		Me	dium Truck	s (2 Axl	es): 15		
Near/Far Lane Distance: 78 feet Vehicle Mix Day Evening Night Daily Site Data 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 Height: 0.0 Feet Medium Trucks: 84.8% 4.9% 10.3% 1.84' Barrier Distance to Observer: 76.0 feet Noise Source Elevations (in feet) Noise Source Clevations (in feet) Noise Source Clevations (in feet) Noise Source Elevations (in feet) Noise Source Clevations (in feet)	Peak He	our Volume: 3,8	20 vehicles		He	avy Trucks	(3+ Axl	es): 15		
Near/Far Lane Distance: 78 feet VehicleType Day Evening Night Daily Site Data Autos: 75% 12.9% 9.6% 9.74% 9.6% 9.74% 9.6% 9.74% 9.6% 9.74% 10.8% 9.6% 9.74% 10.8% 9.6% 9.74% 10.8% 9.6% 9.74% 10.8% 9.6% 9.74% 10.8%	Vel	nicle Speed:	45 mph	-	Vohiclo	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% 1.84 Barrier Type (0-Wall, 1-Berm): 0.0 Notest Medium Trucks:: 84.8% 4.9% 10.3% 1.84 Centerline Dist. to Barrier: 76.0 feet Noise Source Elevations (in feet) Noise Source Elevations (in feet) Autos: 0.000 Medium Trucks: 2.297 Heavy Trucks: 8.006 Grade Adjustment: 0.0 Deserver Height (Above Pad): 0.0 feet Autos: 6.228 Medium Trucks: 6.229 Medium Trucks: 6.226 Road Grade: 0.00% Left View: -90.0 degrees Medium Trucks: 65.286 Heavy Trucks: 65.300 0.000 0.00 FHWA Noise Model Calculations VehicleType REMEL Traffic Flow Distance Finite Road Fresnel Barrier Atten Berner Atter Autos: 68.46 3.87 -1.85 -1.20 -4.73 0.000 0.00	Near/Far Lar	ne Distance:	78 feet	F			D	Evening	Night	Daily
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 76.0 feet Centerline Dist. to Observer: 76.0 feet Barrier Height: 0.0 feet Barrier Jiste to Observer: 76.0 feet Barrier Distance to Observer: 76.0 feet Barrier Distance to Observer: 0.0 feet Road Elevation: 0.0 feet Road Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees FHWA Noise Model Calculations Entitic Flow VehicleType REMEL Traffic Flow Distance Finite Road Fresnel Medium Trucks: 65.300 Unnitigated Noise Levels (without Topo and barrier attenuation) Concel VehicleType Leq Desk Hour Leq Day Leq Evening Leq Evening Leq Night Autos: 69.3 67.4 65.6 53.6 62.1 </td <td>Site Data</td> <td></td> <td></td> <td></td> <td>ven</td> <td></td> <td></td> <td>, 0</td> <td></td> <td></td>	Site Data				ven			, 0		
Barrier Type (IV-Wall, 1-Berm): 0.0 Heavy Trucks: 86.5% 2.7% 10.8% 0.74 Centerline Dist. to Diserver: 76.0 feet Autos: 0.00 0.00 0.74 Barrier Type (IV-Wall, 1-Berri) 76.0 feet Autos: 0.000 0.74 Barrier Dist. to Diserver: 0.0 feet Autos: 0.000 0.74 Barrier Distance to Observer: 0.0 feet Autos: 0.000 0.000 Road Elevation: 0.0 feet Autos: 65.422 0.000 Medium Trucks: 65.422 VehicleType REMEL Traffic Flow Distance Frite Road Fresnel Barrier Atten Berm Atter VehicleType Lag Deal 71.84 -1.20 -4.73 0.000 0.000 Medium Trucks: 79.45 -13.37 -1.84 -1.20 -4.73 0.000 0.000 Medium Trucks: 63.3 67.4 65.6 59.6 68.2 68 68.2 68 68		-less Helestet	0.0.4		Me					
Definition Description Total Noise Source Elevations (in feet) Centerline Dist. to Barrier: 76.0 feet Noise Source Elevations (in feet) Barrier Distance to Observer: 76.0 feet Autos: 0.000 Deserver Height (Above Pad): 5.0 feet Autos: 2.297 Pad Elevation: 0.0 feet Lane Equivalent Distance (in feet) Autos: Road Grade: 0.0 % Autos: 65.286 Right View: -90.0 degrees Medium Trucks: 65.286 Heavy Trucks: 65.406 3.87 -1.85 -1.20 -4.73 0.000 0.00 Medium Trucks: 79.45 -13.37 -1.84 -1.20 -4.73 0.000 0.00 Heavy Trucks: 84.25 -17.32 -1.84 -1.20 -5.25 0.000 0.00 Unnitigated Noise Levels (without Topo and barrier attenuation) VehicleType Leq Day Leq Evening Leq Night Ldn CNEL Autos: 69.3 67.4 65.6 59.6 68.2 68 <tr< td=""><td></td><td>•</td><td></td><td></td><td>ŀ</td><td>leavv Truc</td><td></td><td></td><td></td><td></td></tr<>		•			ŀ	leavv Truc				
Noise Barrier Atten Barrier Atten Berrier Atten Berrier Atten Berrier Atten Berrier Atten Berrier Atten CNO0 Observer Height View: -90.0 degrees -1.85 -1.20 -4.73 0.000 0.000 Pad Elevation: 0.0 feet Lane Equivalent Distance (in feet) Autos: 0.000 Road Grade 0.0% Lane Equivalent Distance (in feet) Autos: 65.286 Right View: -90.0 degrees Heavy Trucks: 65.286 Heavy Trucks: 65.200 FHWA Noise Model Calculations Traffic Flow Distance Finite Road Fresnel Barrier Atten Bern Atter Autos: 68.46 3.87 -1.85 -1.20 -4.73 0.000 0.00 Medium Trucks: 79.45 -13.37 -1.84 -1.20 -5.25 0.000 0.00 Unnitigated Noise Levels (without Topo and barrier attenuation) Vehicle Type Lag Deav Lag Evening Leg Night Ldn CNEL Autos: 69.3 67.4 65.6 59.6	<i>,</i> , , ,	. ,								
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 Medium Trucks: 2.297 Road Grade: 0.0% Autos: 65.422 Left View: 90.0 degrees Medium Trucks: 65.422 WeihleType REMEL Traffic Flow Distance Finite Road Fresnel Barrier Atten WorkiceType REMEL Traffic Flow Distance Finite Road Fresnel Barrier Atten Bern Atter Autos: 68.46 3.87 -1.85 1.20 -4.73 0.000 0.00 Medium Trucks: 79.45 -13.37 -1.84 -1.20 -4.88 0.000 0.00 Medium Trucks: 63.3 67.4 65.6 59.6 68.2 68 Medium Trucks: 63.3 67.4 65.6 59.6 68.2 68 Medium Trucks: 63.3 67.4 65.6 59.6 68.2				-	Noise So			,		
Observer Height (Above Pad): 5.0 feet Medium Trucks: 2.297 Pad Elevation: 0.0 feet Heavy Trucks: 8.006 Grade Adjustment: 0.0 Road Elevation: 0.0 feet Lane Equivalent Distance (in feet) Lane Equivalent Distance (in feet) Road Grade: 0.0% Heavy Trucks: 65.422 Left View: -90.0 degrees Medium Trucks: 65.286 FHWA Noise Model Calculations VehicleType REMEL Traffic Flow Distance Finite Road Fresnel Barrier Atten Berner Atten VehicleType REMEL Traffic Flow Distance 1.85 -1.20 -4.73 0.000 0.00 Medium Trucks: 84.25 -17.32 -1.84 -1.20 -5.25 0.000 0.00 Medium Trucks: 84.25 -17.32 -1.84 -1.20 -5.25 0.000 0.00 Umitigated Noise Levels (without Topo and barrier attenuation) UencleType Leq Paek Hour Leq Day Leq Evening Leq Night Ldn CNEL Autos:										
Pad Elevation: 0.0 feet Road Elevation: 0.0 degrees Right View: -90.0 degrees FHWA Noise Model Calculations Medium Trucks: 65.286 VehicleType REMEL Traffic Flow Distance Finite Road Fresnel Barrier Atten Bern Atter Autos: 68.46 3.87 -1.85 -1.20 -4.73 0.000 0.00 Medium Trucks: 79.45 -13.37 -1.84 -1.20 -4.73 0.000 0.00 Unnitigated Noise Levels (without Topo and barrier attenuation) VehicleType Leq Deak Hour Leq Day Leq Evening Leq Night Ldn CNEL Autos: 63.0 61.5 55.2 53.4 54.7 63.0 63 <t< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></t<>										
Road Elevation: 0.0 feet Lane Equivalent Distance (in feet) Road Grade: 0.0% Autos: 65.422 Left View: 90.0 degrees Medium Trucks: 65.300 FHWA Noise Model Calculations VehicleType REMEL Traffic Flow Distance Finite Road Fresnel Barrier Atten Berm Attern Autos: 68.46 3.87 -1.85 -1.20 -4.73 0.000 0.00 Medium Trucks: 79.45 -13.37 -1.84 -1.20 -4.78 0.000 0.00 Medium Trucks: 69.42 -17.32 -1.84 -1.20 -5.25 0.000 0.00 Unnitigated Noise Levels (without Topo and barrier attenuation) Leq Evening Leq Night Ldn CNEL VehicleType Eq Peak Hor Leq Day Eq So.6 68.2 68 Medium Trucks: 63.0 61.5 55.2 53.4 64.7 63.0 Heavy Trucks: 63.9 62.5 53.4 64.7 63.0 63 <td>0 (</td> <td>,</td> <td></td> <td></td> <td>Heav</td> <td>y Trucks:</td> <td>8.00</td> <td>6 Grade Ad</td> <td>justment</td> <td>: 0.0</td>	0 (,			Heav	y Trucks:	8.00	6 Grade Ad	justment	: 0.0
Left View: -90.0 degrees Medium Trucks: 65.286 Right View: 90.0 degrees Heavy Trucks: 65.300 FHWA Noise Model Calculations Entite Road Fresnel Barrier Atten Bern Atter VehicleType REMEL Traffic Flow Distance Finite Road Fresnel Barrier Atten Bern Atter Autos: 68.46 3.87 -1.85 -1.20 -4.73 0.000 0.00 Medium Trucks: 79.45 -13.37 -1.84 -1.20 -5.25 0.000 0.00 Unnitigated Noise Levels (without Topo and barrier attenuation) VehicleType Leq Day Leq Evening Leq Night Ldn CNEL Autos: 69.3 67.4 65.6 59.6 68.2 68 Medium Trucks: 63.0 61.5 55.2 53.4 62.1 62.1 62.1 62.1 62.1 62.1 62.1 62.1 62.1 62.1 63.0 61.5 70.1 70 Vehicle Noise: 71.1 <t< td=""><td></td><td></td><td></td><td></td><td>Lane Eq</td><td>uivalent Di</td><td>istance</td><td>(in feet)</td><td></td><td></td></t<>					Lane Eq	uivalent Di	istance	(in feet)		
Right View: 90.0 degrees Heavy Trucks: 65.300 FHWA Noise Model Calculations Enter Name Freshel Barrier Atten Bern Atten VehicleType REMEL Traffic Flow Distance Fritte Road Freshel Barrier Atten Bern Atten Autos: 68.46 3.87 -1.85 -1.20 -4.73 0.000 0.000 Medium Trucks: 79.45 -13.37 -1.84 -1.20 -4.88 0.000 0.000 Unmitigated Noise Levels (without Topo and barrier attenuation) VehicleType Lcq Deak Hour Leq Deny Leq Reing Lch CNEL VehicleType 63.9 67.4 65.6 59.6 68.2 68 Medium Trucks: 63.9 61.5 55.2 53.4 62.1 62 Heavy Trucks: 63.9 62.5 53.4 54.7 63.0 63 Medium Trucks: 63.9 62.5 53.4 54.7 63.0 63 Vehicle Noise: 71.1 69.4 66.2	F	Road Grade:	0.0%			Autos:	65.42	2		
FHWA Noise Model Calculations Free Number of Calculations VehicleType REMEL Traffic Flow Distance Finite Road Fresnel Barrier Atten Berm Atter Autos: 68.46 3.87 -1.85 -1.20 -4.73 0.000 0.00 Medium Trucks: 79.45 -13.37 -1.84 -1.20 -4.88 0.000 0.00 Heavy Trucks: 84.25 -17.32 -1.84 -1.20 -5.25 0.000 0.00 Unnitigated Noise Levels (without Topo and barrier attenuation) VehicleType Leq Peak Hour Leq Qay Leq Evening Leq Night Ldn CNEL Autos: 69.3 67.4 65.6 59.6 68.2 68 Medium Trucks: 63.9 62.5 53.4 54.7 63.0 63 Vehicle Noise: 71.1 69.4 66.2 61.5 70.1 70 Centerline Distance to Noise Contour (in feet)		Left View: -9	0.0 degrees		Mediur	n Trucks:	65.28	6		
VehicleType REMEL Traffic Flow Distance Finite Road Fresnel Barrier Atten Bern Atter Autos: 68.46 3.87 -1.85 -1.20 -4.73 0.000 0.00 Medium Trucks: 79.45 -13.37 -1.84 -1.20 -4.73 0.000 0.00 Heavy Trucks: 84.25 -17.32 -1.84 -1.20 -5.25 0.000 0.00 Unnitigated Noise Levels (without Topo and barrier attenuation) Leq Evening Leq Night Ldn CNEL Autos: 69.3 67.4 65.6 59.6 68.2 68 Medium Trucks: 63.9 62.5 53.4 54.7 63.0 63 Vehicle Noise: 71.1 69.4 66.2 61.5 70.1 70 Centerline Distance to Noise Contour (In feet)		Right View: 9	0.0 degrees		Heav	y Trucks:	65.30	0		
Autos: 68.46 3.87 -1.85 -1.20 -4.73 0.000 0.00 Medium Trucks: 79.45 -13.37 -1.84 -1.20 -4.88 0.000 0.00 Heavy Trucks: 84.25 -17.32 -1.84 -1.20 -5.25 0.000 0.00 Umitigate Molse Levels (without Top can barrier attenuation) VehicleType Leq Peak Hour Leq Day Leq Evening Leq Night Ldn CNEL Autos: 69.3 67.4 65.6 59.6 68.2 68 Medium Trucks: 63.9 62.5 53.4 54.7 63.0 63 Vehicle Noise: 71.1 69.4 66.2 61.5 70.1 70 Centerline Distance to Noise Contour (in feet)	FHWA Noise Mode	l Calculations								
Medium Trucks: 79.45 -13.37 -1.84 -1.20 -4.88 0.000 0.00 Heavy Trucks: 84.25 -17.32 -1.84 -1.20 -5.25 0.000 0.00 Unmitigated Noise Levels (without Topo and barrier attenuation) -1.20 -5.25 0.000 0.00 VehicloType Leq Deak Hour Leq Devining Leq Right Ldn CNEL Autos: 63.0 61.5 55.2 53.6 68.2 68 Medium Trucks: 63.0 61.5 55.2 53.4 64.7 63.0 63 Vehicle Noise: 71.1 69.4 66.2 61.5 70.1 70 Centerline Distance to Noise Contour (In feet) 77 166 357 770										
Heavy Trucks: 84.25 -17.32 -1.84 -1.20 -5.25 0.000 0.000 Unnitigated 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: 63.0 61.5 55.2 53.6 62.1 62 Heavy Trucks: 63.9 62.5 53.4 54.7 63.0 63 Vehicle Noise: 71.1 69.4 66.2 61.5 70.1 70 Centerline Distance to Noise Contour (in feet)										0.00
Unmitigated Noise Levels (without Topo and barrier attenuation) VehicleType Leq Peak Hour Leq Day Leq Evening Leq Night Ldn CNEL Autos: 69.3 67.4 65.6 59.6 68.2 68 Medium Trucks: 63.0 61.5 55.2 53.6 62.1 62 Heavy Trucks: 63.9 62.5 53.4 54.7 63.0 63 Vehicle Noise: 71.1 69.4 66.2 61.5 70.1 70 Centerline Distance to Noise Contour (In feet)										
VehicleType Leq Peak Hour Leq Day Leq Evening Leq Night Ldn CNEL Autos: 69.3 67.4 65.6 59.6 68.2 68 Medium Trucks: 63.0 61.5 55.2 53.6 62.1 62 Heavy Trucks: 63.9 62.5 53.4 54.7 63.0 63 Vehicle Noise: 71.1 69.4 66.2 61.5 70.1 70 Centerline Distance to Noise Contour (In feet)					·	-1.20	-5	.25 0.0	000	0.00
Autos: 69.3 67.4 65.6 59.6 68.2 68 Medium Trucks: 63.0 61.5 55.2 53.6 62.1 62 Heavy Trucks: 63.9 62.5 53.4 54.7 63.0 63 Vehicle Noise: 71.1 69.4 66.2 61.5 70.1 70 Centerline Distance to Noise Contour (In feet) 70 dBA 65 dBA 60 dBA 55 dBA Ldn: 77 166 357 770										
Medium Trucks: 63.0 61.5 55.2 53.6 62.1 62 Heavy Trucks: 63.9 62.5 53.4 54.7 63.0 63 Vehicle Noise: 71.1 69.4 66.2 61.5 70.1 70 Centerline Distance to Noise Contour (in feet)	,,			Leq E	•	Leq Nig				
Heavy Trucks: 63.9 62.5 53.4 54.7 63.0 63 Vehicle Noise: 71.1 69.4 66.2 61.5 70.1 70 Centerline Distance to Noise Contour (in feet) 201 70 dBA 65 dBA 60 dBA 55 dBA Ldn: 77 166 357 770									-	
Vehicle Noise: 71.1 69.4 66.2 61.5 70.1 70 Centerline Distance to Noise Contour (in feet) 70 dBA 65 dBA 60 dBA 55 dBA Ldn: 77 166 357 770										
Zenterline Distance to Noise Contour (in feet) 70 dBA 65 dBA 60 dBA 55 dBA Ldn: 77 166 357 770	· · ·									70.
70 dBA 65 dBA 60 dBA 55 dBA Ldn: 77 166 357 770					00.2		01.0	70.		70.
	centeriine Distanc	e to worse Conto	our (in reet)	70	dBA	65 dB.	4	60 dBA	55	dBA
CNEL 02 170 000 000			Ldn:	7	7	166		357	7	70
UNEL: 83 178 383 826			CNEL:	8	3	178		383	8	326

	FHW	/A-RD-77-108	HIGH	WAY I	NOISE PF	REDICT		DEL			
Scenario: Existi	ng Wit	h Project				Projec	t Name:	Polopo	olus		
Road Name: 68th	St.					Job I	Vumber:	11336			
Road Segment: w/o H	amner	Av.									
SITE SPECIF	IC IN	PUT DATA							L INPUT	s	
Highway Data					Site Con	ditions	s (Hard =	10, So	oft = 15)		
Average Daily Traffic (A	dt):	9,400 vehicles	5					Autos:	15		
Peak Hour Percenta	ige:	10%			Me	dium Ti	rucks (2 A	(xles)	15		
Peak Hour Volu	me:	940 vehicles	S		He	avy Tru	icks (3+ A	(xles)	15		
Vehicle Spe	ed:	45 mph		ŀ	Vehicle I	Mix					
Near/Far Lane Distar	nce:	48 feet		ŀ		icleTyp	e	Dav	Evening	Night	Daily
Site Data								77.5%	•		97.42
Barrier Hei	aht.	0.0 feet			Me	edium T	Trucks:	84.8%	4.9%	10.3%	1.84
Barrier Type (0-Wall, 1-Be	-	0.0 1001			ŀ	leavy T		86.5%		10.8%	
Centerline Dist. to Bar		59.0 feet		-							
Centerline Dist. to Obser		59.0 feet		ŀ	Noise Sc				eet)		
Barrier Distance to Obser		0.0 feet				Auto		000			
Observer Height (Above P		5.0 feet			Mediur			297			
Pad Eleva		0.0 feet			Heav	y Trucl	KS: 8.0	006	Grade Ad	justment	0.0
Road Eleva	ion:	0.0 feet		Ī	Lane Eq	uivaler	nt Distan	ce (in	feet)		
Road Gra	ade:	0.0%		ľ		Auto	os: 54.	129			
Left V	iew:	-90.0 degree	es		Mediur	n Truci	ks: 53.	966			
Right V	iew:	90.0 degree	es		Heav	y Trucl	ks: 53.	982			
FHWA Noise Model Calcu	ations	;									
VehicleType REM	L	Traffic Flow	Dist	tance	Finite	Road	Fresh	el	Barrier Att	en Ber	m Atter
Autos:	68.46	-2.22		-0.6	62	-1.20		-4.69	0.0	000	0.00
Medium Trucks:	79.45	-19.46		-0.6	60	-1.20		-4.88	0.0	000	0.00
Heavy Trucks:	34.25	-23.41		-0.6	60	-1.20		-5.35	0.0	000	0.00
Unmitigated Noise Levels					í ,						
VehicleType Leq Pea				Leq E	vening	Leq	Night		Ldn		NEL
Autos:	64.		62.5		60.8		54.7		63.3		63
Medium Trucks:	58.		56.7		50.3		48.8		57.2		57
Heavy Trucks:	59.	-	57.6		48.6		49.8		58.2		58
Vehicle Noise:	66.	3	64.5		61.4		56.7	'	65.2	2	65
Centerline Distance to No.	ise Co	ntour (in feet,)								
					dBA		i dBA	6	60 dBA		dBA
			Ldn:	-	28		61		132		84
			VFI :		30		66		141		04

		AY NOISE P					
Scenario: Existing With Project				ame: Polop			
Road Name: 68th St.			Job Num	ber: 1133	5		
Road Segment: e/o Hamner Av.							
SITE SPECIFIC INPUT DATA					EL INPUT	S	
Highway Data		Site Co.	nditions (H	ard = 10, S	Soft = 15)		
Average Daily Traffic (Adt): 13,100 vehicles				Autos			
Peak Hour Percentage: 10%			edium Truck	,			
Peak Hour Volume: 1,310 vehicles		H	eavy Trucks	(3+ Axles)): 15		
Vehicle Speed: 45 mph		Vehicle	Mix				
Near/Far Lane Distance: 48 feet		Vei	nicleType	Day	Evening	Night	Daily
Site Data			Aut	os: 77.5	% 12.9%	9.6% 9	7.42
Barrier Height: 0.0 feet		٨	ledium Truc	ks: 84.8	% 4.9%	10.3%	1.84
Barrier Type (0-Wall, 1-Berm): 0.0			Heavy Truc	ks: 86.5	% 2.7%	10.8%	0.74
Centerline Dist. to Barrier: 59.0 feet		Noise S	ource Elev	ations (in	feet)		
Centerline Dist. to Observer: 59.0 feet			Autos:	0.000			
Barrier Distance to Observer: 0.0 feet		Medii	im Trucks:	2.297			
Observer Height (Above Pad): 5.0 feet			vy Trucks:	8.006	Grade Adi	ustment: 0	0.0
Pad Elevation: 0.0 feet							
Road Elevation: 0.0 feet		Lane Ed	uivalent D		feet)		
Road Grade: 0.0%			Autos:	54.129			
Left View: -90.0 degree			Im Trucks:	53.966			
Right View: 90.0 degree	S	Hea	vy Trucks:	53.982			
FHWA Noise Model Calculations							
VehicleType REMEL Traffic Flow	Distan			Fresnel	Barrier Atte	en Berm	
Autos: 68.46 -0.78		-0.62	-1.20	-4.69			0.0
Medium Trucks: 79.45 -18.02		-0.60	-1.20	-4.88			0.00
Heavy Trucks: 84.25 -21.97		-0.60	-1.20	-5.35	0.0	00	0.00
Unmitigated Noise Levels (without Topo and	barrier a	ttenuation)					
VehicleType Leq Peak Hour Leq Day		q Evening	Leq Nig		Ldn	CNE	-
	64.0	62.2		56.1	64.8		65
	58.1	51.8		50.2	58.7		58
	59.1	50.0		51.3	59.6		59
Vehicle Noise: 67.7	6.0	62.8	3	58.1	66.7	,	67
Centerline Distance to Noise Contour (in feet)							
		70 dBA	65 dB	A	60 dBA	55 dE	
	dn: IFL:	35 38	76 82		164 176	354 380	

FF	IWA-RD-77-108 HIG	HWAY I	NOISE P	REDICT		DEL			
Scenario: Existing V Road Name: Riverboat Road Segment: w/o Hamr	Dr.				Name: I lumber:		lus		
SITE SPECIFIC I	NPUT DATA			I	NOISE N	IODE	L INPUT	s	
Highway Data			Site Cor	nditions	(Hard =	10, Sc	oft = 15)		
Average Daily Traffic (Adt):	6.200 vehicles				,	Autos:	15		
Peak Hour Percentage:	10%		Me	edium Tr	ucks (2 A	xles):	15		
Peak Hour Volume:	620 vehicles		He	avy Tru	cks (3+ A	xles):	15		
Vehicle Speed:	40 mph	-	Mahiata		•	· ·			
Near/Far Lane Distance:	12 feet	-	Vehicle			0	Constant	Allashat	Delle
			ver	icleType		Day	Evening	Night	Daily
Site Data						77.5%		9.6%	
Barrier Height:	0.0 feet			edium T		84.8%		10.3%	1.84%
Barrier Type (0-Wall, 1-Berm):	0.0			Heavy T	rucks:	86.5%	2.7%	10.8%	0.74%
Centerline Dist. to Barrier:	37.0 feet		Noise S	ource E	levation	s (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		297			
Observer Height (Above Pad):	5.0 feet			vy Truck		006	Grade Ad	justment.	0.0
Pad Elevation:	0.0 feet	-		·					
Road Elevation:	0.0 feet	-	Lane Eq		t Distand		feet)		
Road Grade:	0.0%			Auto					
Left View:	-90.0 degrees			m Truck					
Right View:	90.0 degrees		Hear	vy Truck	s: 36.0	634			
FHWA Noise Model Calculatio	ns	1							
VehicleType REMEL	Traffic Flow D	istance	Finite	Road	Fresn	el	Barrier Att	en Ber	m Atten
Autos: 66.5	1 -3.52	1.8	8	-1.20		-4.56	0.0	000	0.000
Medium Trucks: 77.7	2 -20.75	1.9	13	-1.20		-4.87	0.0	000	0.000
Heavy Trucks: 82.9	-24.71	1.9	2	-1.20		-5.61	0.0	000	0.000
Unmitigated Noise Levels (wit									
VehicleType Leq Peak Ho	our Leq Day	Leq E	vening	Leq	Night		Ldn		VEL
	3.7 61.8		60.0		54.0		62.6		63.2
Medium Trucks: 5	7.7 56.2		49.8		48.3		56.7	7	57.0
Heavy Trucks: 5	9.0 57.6		48.5		49.8		58.2	2	58.3
Vehicle Noise: 6	5.7 64.0		60.7		56.1		64.7	7	65.1
Centerline Distance to Noise (Contour (in feet)								
			dBA		dBA	6	i0 dBA		dBA
	Ldn:		16		35		76		64
	CNEL:	: 1	18	3	38		81	1	75

Wednesday, January 17, 2018

Wednesday, January 17, 2018

	FHV	VA-RD-77-108	HIGH	WAY N	OISE PF	REDICTIO	MOD	EL			
Scenario:	Existing Wi	th Project				Project Na	ame: Po	olopol	us		
Road Name: \$						Job Nurr	ber: 11	336			
Road Segment: \	w/o Schola	r Wy.									
	ECIFIC IN	PUT DATA								S	
Highway Data				2	site Con	ditions (H		.,	,		
Average Daily Trai	. ,	9,600 vehicle	S					itos:	15		
Peak Hour Per	0	10%				dium Truck		/	15		
Peak Hour		960 vehicle	S		He	avy Trucks	(3+ Ax	les):	15		
	e Speed:	45 mph		١	/ehicle l	Mix					
Near/Far Lane [Distance:	78 feet			Veh	icleType	D	ay	Evening	Night	Daily
Site Data						Aut	os: 7	7.5%	12.9%	9.6%	97.42
Barrie	Height:	0.0 feet			Me	edium Truc	ks: 8	4.8%	4.9%	10.3%	1.849
Barrier Type (0-Wall,	1-Berm):	0.0			ŀ	leavy Truc	ks: 8	6.5%	2.7%	10.8%	0.749
Centerline Dist. to		76.0 feet		Λ	loise So	ource Elev	ations	(in fe	et)		
Centerline Dist. to C		76.0 feet				Autos:	0.00	0			
Barrier Distance to C		0.0 feet			Mediur	n Trucks:	2.29	7			
Observer Height (Abo	,	5.0 feet			Heav	y Trucks:	8.00	6	Grade Adj	ustment	: 0.0
	levation:	0.0 feet		-	_						
	levation:	0.0 feet		4	ane Eq	uivalent D			eet)		
	d Grade:	0.0%				Autos:	65.42	-			
-	eft View:	-90.0 degre				n Trucks:	65.28	-			
Rig	ght View:	90.0 degre	es		Heav	y Trucks:	65.30	0			
FHWA Noise Model C		-				1	_			-	
	REMEL	Traffic Flow -2.13	Dist	ance -1.85	Finite	-1.20	Fresne		Barrier Atte		rm Atter
Autos: Medium Trucks:	68.46	-2.13 -19.37		-1.85		-1.20 -1.20		1.73 1.88	0.0		0.00
	79.45 84.25	-19.37 -23.32		-1.84		-1.20		.88 5.25	0.0	00	0.00
Heavy Trucks:	020		h			-1.20	-<	0.25	0.0	00	0.00
Unmitigated Noise Le VehicleType Lee	y Peak Hou			Leg Ev		Leg Nig	tht		Ldn	0	NEL
Autos:	63		61.4	LOYLV	59.6	2041115	53.6		62.2		62
Medium Trucks:	57		55.5		49.2		47.6		56.1		56
Heavy Trucks:	57		56.5		47.4		48.7		57.0		57
Vehicle Noise:	65	-	63.4		60.2		55.5		64.1		64
Centerline Distance to	o Noise Co	ontour (in feet)								
				70 a		65 dB	A		0 dBA		dBA
			Ldn:	31		66			142	3	307

F	HWA-RD-7	7-108 HIG	HWAY	NOISE PF	REDICTI		DEL			
Scenario: Existing Road Name: Schleisn Road Segment: e/o Scho	nan Rd.	t			Project Job Ni	Name: I umber:		olus		
SITE SPECIFIC	INPUT DA	ATA			N	OISE N	/ODE		s	
Highway Data				Site Con					-	
Average Daily Traffic (Adt)	: 9,300 ve	ehicles				,	Autos:	15		
Peak Hour Percentage	: 10%			Me	dium Tru	icks (2 A	Axles):	15		
Peak Hour Volume	: 930 ve	ehicles		He	avy Truc	ks (3+ A	(xles)	15		
Vehicle Speed	: 45 m	nph		Vehicle I	Mix					
Near/Far Lane Distance	: 78 fe	eet			icleTvpe		Dav	Evenina	Night	Dailv
Site Data							77.5%		9.6%	
Barrier Height	: 0.0 f	ioot		Me	edium Tr	ucks:	84.8%	4.9%	10.3%	1.849
Barrier Type (0-Wall, 1-Berm)		ool		ŀ	leavy Tr		86.5%		10.8%	
Centerline Dist. to Barrier		eet								
Centerline Dist. to Observer				Noise Sc				eet)		
Barrier Distance to Observer					Autos		000			
Observer Height (Above Pad)					n Trucks		297			
Pad Elevation		eet		Heav	y Trucks	: 8.0	006	Grade Ad	justment.	0.0
Road Elevation	: 0.0 f	eet		Lane Eq	uivalent	Distand	ce (in i	feet)		
Road Grade	: 0.0%	5			Autos	65.4	422			
Left View	: -90.0 d	degrees		Mediur	n Trucks	: 65.2	286			
Right View	90.0 0	degrees		Heav	y Trucks	65.3	300			
FHWA Noise Model Calculati										
VehicleType REMEL	Traffic F		listance	Finite		Fresn		Barrier Att	en Ber	m Atter
Autos: 68.4		-2.27	-1.8		-1.20		-4.73		000	0.00
Medium Trucks: 79.4		19.50	-1.8		-1.20		-4.88		000	0.00
Heavy Trucks: 84.	25 -2	23.46	-1.8	84	-1.20		-5.25	0.0	000	0.00
Unmitigated Noise Levels (w				<u> </u>						
VehicleType Leq Peak H		eq Day		Evening	Leq I			Ldn		VEL
	63.1	61.2		59.5		53.4		62.0		62
	56.9	55.4		49.0		47.5		56.0		56
	57.7	56.3		47.3		48.5		56.9		57
	65.0	63.2		60.1		55.4	•	64.0)	64
Centerline Distance to Noise	Contour (in	n feet)			07				5-	10.4
				dBA	65 0		6	60 dBA		dBA
		Ldn: CNFL		30 32	6			139 150		00 22

Scenario: Existing With Pr	oiect		F	Project Na	me: P	olopol	us		
Road Name: Citrus St.	0,000		,	Job Num			45		
Road Segment: w/o Hamner Av.				000 1101		1000			
SITE SPECIFIC INPUT	DATA			NO	ISE M	ODEL		5	
Highway Data		S	ite Cond	itions (H	ard = 1	10, So	ft = 15)		
Average Daily Traffic (Adt): 17,70	0 vehicles				A	utos:	15		
Peak Hour Percentage: 1	0%		Medi	ium Truck	s (2 A	des):	15		
Peak Hour Volume: 1,77	0 vehicles		Hea	vy Trucks	(3+ A	des):	15		
Vehicle Speed: 4	5 mph	L.	ehicle M	iv					
Near/Far Lane Distance: 3	6 feet			leType	1	Dav	Evening	Night	Daily
Site Data				Aut	os: 7	7.5%	12.9%	9.6%	
Barrier Height:).0 feet		Med	dium Truc	ks: 8	4.8%	4.9%	10.3%	1.84%
	0.0		He	eavy Truc	ks: 8	6.5%	2.7%	10.8%	0.74%
Centerline Dist. to Barrier: 50	0.0 feet		loise Sou	irce Elev	ations	(in fe	et)		
Centerline Dist. to Observer: 50	0.0 feet	Ë	0.00 000	Autos:	0.0	•			
Barrier Distance to Observer: 0	0.0 feet		Medium		2.2				
Observer Height (Above Pad):	5.0 feet			Trucks:	8.0		Grade Adj	ustment	0.0
Pad Elevation: (0.0 feet								
	0.0 feet	L	ane Equ				eet)		
	0.0%			Autos:	46.9				
	0.0 degrees		Medium		46.7				
Right View: 90	0.0 degrees		Heavy	Trucks:	46.7	44			
FHWA Noise Model Calculations									
VehicleType REMEL Tra	ffic Flow Dista	nce	Finite R		Fresne	el E	Barrier Atte	en Ber	m Atten
Autos: 68.46	0.53	0.31		-1.20		4.65	0.0		0.00
Medium Trucks: 79.45	-16.71	0.34		-1.20		4.87	0.0		0.00
Heavy Trucks: 84.25	-20.67	0.34		-1.20	-	5.43	0.0	00	0.00
Unmitigated Noise Levels (without 1									
	Leg Day L	.eq Ev		Leq Nig			Ldn		NEL
VehicleType Leq Peak Hour			64.4		58.4		67.0		67.
Autos: 68.1	66.2		-		52.5		60.9		61
Autos: 68.1 Medium Trucks: 61.9	66.2 60.4		54.0						62.
Autos: 68.1 Medium Trucks: 61.9 Heavy Trucks: 62.7	66.2 60.4 61.3		52.3		53.5		61.9		
Autos: 68.1 Medium Trucks: 61.9	66.2 60.4						61.9 68.9		
Autos: 68.1 Medium Trucks: 61.9 Heavy Trucks: 62.7 Vehicle Noise: 69.9	66.2 60.4 61.3 68.2		52.3 65.0		53.5 60.4		68.9		69.
Autos: 68.1 Medium Trucks: 61.9 Heavy Trucks: 62.7	66.2 60.4 61.3 68.2 <i>Ir (in feet)</i>	70 d	52.3 65.0 BA	65 dB	53.5 60.4		68.9 0 dBA	55	69. dBA
Autos: 68.1 Medium Trucks: 61.9 Heavy Trucks: 62.7 Vehicle Noise: 69.9	66.2 60.4 61.3 68.2	70 di 42 45	52.3 65.0 BA	65 dB 91 98	53.5 60.4		68.9	55 4	69.

	FHV	VA-RD-77-108 H	IGHWAY	NOISE P	REDICTI	ON MO	DEL			
Road Nam	io: Existing Wit ne: Citrus St. nt: e/o Hamner					Name: I umber:		lus		
SITE	SPECIFIC IN	PUT DATA			N	OISE N	IODE	L INPUT	s	
Highway Data				Site Cor	nditions	(Hard =	10, So	oft = 15)		
Average Daily	Traffic (Adt):	2,800 vehicles				,	Autos:	15		
Peak Hour	Percentage:	10%		Me	edium Tru	icks (2 A	xles):	15		
Peak H	lour Volume:	280 vehicles		He	avy Truc	:ks (3+ A	xles):	15		
Ve	hicle Speed:	45 mph		Vehicle	Mix					
Near/Far La	ne Distance:	36 feet			nicleType		Day	Evening	Night	Daily
Site Data							77.5%	12.9%	9.6%	
Ba	rier Height:	0.0 feet		м	Iedium Tr		84.8%	4.9%	10.3%	
Barrier Type (0-W		0.0 1001			Heavy Tr	ucks:	86.5%	2.7%	10.8%	0.74%
Centerline Di	. ,	50.0 feet						-1		
Centerline Dist.		50.0 feet		Noise S				et)		
Barrier Distance	to Observer:	0.0 feet			Autos		000			
Observer Height (Above Pad):	5.0 feet			m Trucks		297	Grade Ad	iustmont	H 0.0
Pa	ad Elevation:	0.0 feet		Hea	vy Trucks	5: 8.0	006	Graue Au	Jusunen	. 0.0
Roa	ad Elevation:	0.0 feet		Lane Eq	uivalent	Distand	e (in t	'eet)		
	Road Grade:	0.0%			Autos	s: 46.9	915			
	Left View:	-90.0 degrees			m Trucks		726			
	Right View:	90.0 degrees		Hea	vy Trucks	8: 46.	744			
FHWA Noise Mod	el Calculations	s		1						
VehicleType	REMEL		Distance	Finite	Road	Fresn		Barrier Att	en Ber	rm Atten
Autos:	68.46	-7.48	0.	•••	-1.20		-4.65		000	0.000
Medium Trucks:	79.45	-24.72	0.		-1.20		-4.87		000	0.000
Heavy Trucks:	84.25	-28.67	0.	34	-1.20		-5.43	0.0	000	0.000
Unmitigated Noise	e Levels (with	out Topo and ba	arrier atte	nuation)						
VehicleType	Leq Peak Hou	r Leq Day	Leq	Evening	Leq	Night		Ldn		NEL
Autos:	60.			56.4		50.4		59.0		59.6
Medium Trucks:	53.			46.0		44.5		52.9		53.1
Heavy Trucks:	54.		-	44.3		45.5		53.9		54.0
Vehicle Noise:	61.	.9 60	.2	57.0		52.4		60.9	9	61.4
Centerline Distant	ce to Noise Co	ontour (in feet)								
) dBA	65 0		6	0 dBA		dBA
		La		12	-	7		57		124
		CNE	E:	13	2	9		62	1	133

Wednesday, January 17, 2018

Wednesday, January 17, 2018

Scenario: OY 2019 Wit Road Name: Scholar Wy.	hout Project								
Road Name: Scholar Wy.	nout Fioject			Project Na	ame: F	Polopo	lus		
				Job Num	ber: 1	1336			
Road Segment: n/o Schleism	an Rd.								
SITE SPECIFIC INF	PUT DATA						L INPUTS	5	
Highway Data			Site Con	ditions (H	ard =	10, So	ft = 15)		
Average Daily Traffic (Adt): 7	,900 vehicles				A	Autos:	15		
Peak Hour Percentage:	10%		Me	dium Truck	(2 A	xles):	15		
Peak Hour Volume:	790 vehicles		He	avy Trucks	(3+ A	xles):	15		
Vehicle Speed:	45 mph	-	Vehicle I	Mix					
Near/Far Lane Distance:	36 feet	F		cleType		Dav	Evening	Night	Daily
Site Data				Aut	os: 1	77.5%	12.9%	9.6%	,
Barrier Height:	0.0 feet		Me	edium Truc	ks: t	34.8%	4.9%	10.3%	1.84%
Barrier Type (0-Wall, 1-Berm):	0.0		ŀ	łeavy Truc	ks: t	86.5%	2.7%	10.8%	0.74%
Centerline Dist. to Barrier:	50.0 feet		Noise Sc	urce Elev	ations	; (in fe	et)		
Centerline Dist. to Observer:	50.0 feet	F		Autos:	0.0	00	,		
Barrier Distance to Observer:	0.0 feet		Mediur	n Trucks:	2.2	97			
Observer Height (Above Pad):	5.0 feet		Heav	v Trucks:	8.0	06	Grade Adj	ustment	: 0.0
Pad Elevation:	0.0 feet	-							
Road Elevation:	0.0 feet	-	Lane Eq	uivalent D			eet)		
Road Grade:	0.0%			Autos:	46.9				
Left View:	-90.0 degrees			n Trucks:	46.7				
Right View:	90.0 degrees		Heav	y Trucks:	46.7	'44			
FHWA Noise Model Calculations									
		istance	Finite		Fresn		Barrier Atte		rm Atten
Autos: 68.46	-2.97	0.3		-1.20		4.65	0.0		0.000
Medium Trucks: 79.45	-20.21	0.3		-1.20		4.87	0.0		0.000
Heavy Trucks: 84.25	-24.17	0.3		-1.20		-5.43	0.0	00	0.000
Unmitigated Noise Levels (without			<u> </u>					r	
VehicleType Leq Peak Hour		Leq E	vening	Leq Nig			Ldn		NEL
Autos: 64.6			60.9		54.9		63.5		64.
Medium Trucks: 58.4			50.5		49.0		57.4		57.
Heavy Trucks: 59.2			48.8		50.0		58.4		58.
Vehicle Noise: 66.4	0		61.5		56.9		65.4		65.9
Centerline Distance to Noise Cor	ntour (in feet)	70	dBA	65 dB	٨	6	0 dBA	55	dBA
	I dn:		и <i>БА</i> 25	53	-	0	115		47
	CNEL:	_	20	57			123	-	247
	CIVEL.	2	- /	57			120	4	.00

	FHW	/A-RD-77-108 H	IGHWA	Y NOISE P	REDICTIO		DEL			
Road Nam	io: OY 2019 Wi e: Scholar Wy. nt: s/o Schleisn				Project I Job Nu	Vame: I mber:				
SITE	SPECIFIC IN	PUT DATA			N	DISE N	/ODE	L INPUT	s	
Highway Data				Site Cor	nditions (Hard =	10, Sc	oft = 15)		
Average Daily	Traffic (Adt):	7,900 vehicles				/	Autos:	15		
Peak Hour	Percentage:	10%		Me	dium Tru	cks (2 A	(xles):	15		
Peak H	our Volume:	790 vehicles		He	avy Truci	ks (3+ A	(xles):	15		
Ve	hicle Speed:	45 mph		Vehicle	Mix					
Near/Far La	ne Distance:	36 feet		-	icleType		Dav	Evening	Night	Daily
Site Data				10.			77.5%		9.6%	
	rier Heiaht:	0.0 feet		м	edium Tru		84.8%		10.3%	
вал Barrier Type (0-W		0.0 reet			Heavy Tru		86.5%		10.8%	
Centerline Dis		50.0 feet								
Centerline Dist.		50.0 feet		Noise S	ource Ele			eet)		
Barrier Distance		0.0 feet			Autos		000			
Observer Height (5.0 feet			m Trucks		297	Over etc. A et		
	ad Elevation:	0.0 feet		Hear	/y Trucks	: 8.0	006	Grade Ad	ustment	0.0
Roa	ad Elevation:	0.0 feet		Lane Eq	uivalent	Distand	ce (in i	feet)		
1	Road Grade:	0.0%			Autos.	46.9	915			
	Left View:	-90.0 degrees		Mediu	m Trucks	46.	726			
	Right View:	90.0 degrees		Hea	/y Trucks	46.	744			
FHWA Noise Mode				1	Т					
VehicleType	REMEL	Traffic Flow	Distanc		Road	Fresn		Barrier Att		m Atten
Autos:	68.46	-2.97		0.31	-1.20		-4.65		000	0.00
Medium Trucks:	79.45	-20.21		0.34	-1.20		-4.87		000	0.00
Heavy Trucks:	84.25	-24.17		0.34	-1.20		-5.43	0.0	000	0.00
Unmitigated Noise			- T	,						
VehicleType Autos:	Leq Peak Hour		Lec 2.7	Evening	Leq N	·		Ldn	-	VEL
Medium Trucks:	64. 58.		2.7 3.9	60.9 50.5		54.9 49.0		63.5 57.4		64. 57.
Heavy Trucks:	59.		7.8	48.8		49.0 50.0		57.4		57.
Vehicle Noise:	66.		.0 1.7	61.5		56.9		65.4		65.
Centerline Distand	e to Noise Co	ntour (in feet)								
				70 dBA	65 d	BA	6	60 dBA	55	dBA
		Lo	ın:	25	53	3		115	2	47
			L:	27	57			123		65

Scenario: OY 2019 Without Project				Project	Name: F	Poloro	lus		
Road Name: Hamner Av.					umber: 1		ius		
Road Segment: n/o Limonite Av.				000710		1000			
SITE SPECIFIC INPUT DATA				N	OISE N	10DE		5	
Highway Data		Sit	e Cond	ditions	(Hard =	10, So	oft = 15)		
Average Daily Traffic (Adt): 36,000 vehicles					1	Autos:	15		
Peak Hour Percentage: 10%			Med	lium Tru	icks (2 A	xles):	15		
Peak Hour Volume: 3,600 vehicles			Hea	avy Truc	ks (3+ A	xles):	15		
Vehicle Speed: 45 mph		Va	hicle N	<i>Ni</i> v					
Near/Far Lane Distance: 78 feet				cleType		Day	Evening	Night	Daily
Site Data						77.5%	•	9.6%	
Barrier Height: 0.0 feet			Me	dium Tr	ucks:	84.8%	4.9%	10.3%	1.849
Barrier Type (0-Wall, 1-Berm): 0.0			н	leavy Tr	ucks:	86.5%	2.7%	10.8%	0.749
Centerline Dist. to Barrier: 76.0 feet		No	ise So	urce Eli	evations	: (in fe	pet)		
Centerline Dist. to Observer: 76.0 feet				Autos			,01)		
Barrier Distance to Observer: 0.0 feet			Mediun	n Trucks					
Observer Height (Above Pad): 5.0 feet				v Trucks			Grade Adj	ustment	: 0.0
Pad Elevation: 0.0 feet		-							
Road Elevation: 0.0 feet		La	ne Equ		Distand		teet)		
Road Grade: 0.0%				Autos					
Left View: -90.0 degree				n Trucks					
Right View: 90.0 degree	S		Heavy	/ Trucks	65.3	300			
FHWA Noise Model Calculations									
VehicleType REMEL Traffic Flow	Distan		Finite I		Fresn		Barrier Atte	en Ber	m Atter
Autos: 68.46 3.61		-1.85		-1.20		4.73	0.0		0.00
Medium Trucks: 79.45 -13.63		-1.84		-1.20		-4.88	0.0		0.00
Heavy Trucks: 84.25 -17.58		-1.84		-1.20		-5.25	0.0	00	0.00
Unmitigated Noise Levels (without Topo and I									
VehicleType Leq Peak Hour Leq Day		eq Ever	~	Leq I	· ·		Ldn		NEL
	7.1		65.4		59.3		67.9		68
	1.3		54.9		53.4		61.8		62
	2.2		53.2		54.4		62.8		62
	9.1		66.0		61.3		69.8		70.
Centerline Distance to Noise Contour (in feet)	_								
		70 dB,	4	65 0		6	60 dBA		dBA
	.dn: IEL:	74 79		15 17			344 369		'40 '94

	FHW	A-RD-77-108 HIG	HWAY	NOISE PI	REDICTI		EL		
Road Nam	io: OY 2019 Wi ne: Hamner Av. nt: s/o Limonite	,				Name: Po Imber: 11			
SITE	SPECIFIC INF	PUT DATA			N	OISE M	DDEL INPU	JTS	
Highway Data				Site Cor			0, Soft = 15)		
Average Daily	Traffic (Adt): 30	0,100 vehicles				AL	itos: 15		
Peak Hour	Percentage:	10%		Ме	dium Tru	cks (2 Ax	les): 15		
Peak H	lour Volume:	3,010 vehicles		He	avy Truc	ks (3+ Ax	les): 15		
Ve	hicle Speed:	45 mph		Vehicle	Mix				
Near/Far La	ne Distance:	78 feet			icleType	D	ay Evenin	g Nig	t Daily
Site Data							7.5% 12.9	• •	.6% 97.42%
Ba	rier Height:	0.0 feet		М	edium Tru		4.8% 4.9		.3% 1.84%
Barrier Type (0-W		0.0			Heavy Tru	ucks: 8	6.5% 2.7	% 10	.8% 0.74%
Centerline Di	. ,	76.0 feet		N-1 0			(In f = = 4)		
Centerline Dist.	to Observer:	76.0 feet		NOISE S	Autos	evations	· · ·		
Barrier Distance	to Observer:	0.0 feet		11-16	Autos m Trucks	. 0.00			
Observer Height (Above Pad):	5.0 feet			m Trucks vy Trucks			Δdiustr	nent: 0.0
Pa	ad Elevation:	0.0 feet		near	y mucks	. 0.00	0/2001	најази	1011L 0.0
Roa	ad Elevation:	0.0 feet		Lane Eq	uivalent	Distance	(in feet)		
	Road Grade:	0.0%			Autos				
	Left View:	-90.0 degrees			m Trucks		-		
	Right View:	90.0 degrees		Heav	ry Trucks	65.30	00		
FHWA Noise Mod	el Calculations								
VehicleType	REMEL	Traffic Flow D	listance	Finite	Road	Fresne	Barrier.	Atten	Berm Atten
Autos:	68.46	2.83	-1.8	35	-1.20	-4	1.73	0.000	0.000
Medium Trucks:	79.45	-14.40	-1.8		-1.20			0.000	0.000
Heavy Trucks:	84.25	-18.36	-1.8	34	-1.20	-5	5.25	0.000	0.000
Unmitigated Noise	e Levels (witho	ut Topo and bar	rier atte	nuation)					
VehicleType	Leq Peak Hour	Leq Day	Leq E	vening	Leq N	light	Ldn		CNEL
Autos:	68.2			64.6		58.5		57.1	67.7
Medium Trucks:	62.0			54.1		52.6		51.1	61.3
Heavy Trucks:	62.9	-		52.4		53.6		62.0	62.1
Vehicle Noise:	70.1	68.3		65.2		60.5	6	9.1	69.5
Centerline Distant	ce to Noise Col	ntour (in feet)							
				dBA	65 a		60 dBA		55 dBA
		Ldn.		66	14	-	305		657
		CNEL.		70	15	2	327		705

Wednesday, January 17, 2018

Wednesday, January 17, 2018

	FHW	A-RD-77-108 HIG	HWAY N	IOISE PF	REDICTION	N MOD	EL					
	o: OY 2019 Wit e: Hamner Av.	hout Project			Project Na Job Num			JS				
Road Segmen					000 110	007. 1	1000					
SITE S	SPECIFIC INP	UT DATA		NOISE MODEL INPUTS								
Highway Data				Site Con	ditions (H	ard = 1	0, Sof	ť = 15)				
Average Daily	Traffic (Adt): 25	600 vehicles				Α	utos:	15				
Peak Hour	Percentage:	10%		Me	dium Truck	s (2 A)	des):	15				
Peak H	our Volume: 2	,560 vehicles		He	avy Trucks	(3+ A)	des):	15				
Vel	nicle Speed:	45 mph	-	Vehicle I	Mix							
Near/Far Lar	ne Distance:	78 feet	-		icleTvpe	1	av	Evening	Niaht	Dailv		
Site Data					Aut		7.5%	12.9%	9.6%			
Bar	rier Height:	0.0 feet		Me	edium Truc	ks: 8	4.8%	4.9%	10.3%	1.84%		
Barrier Type (0-Wa	•	0.0		ŀ	Heavy Truc	ks: 8	6.5%	2.7%	10.8%	0.74%		
Centerline Dis	t. to Barrier:	76.0 feet		Noise So	ource Elev	ations	(in fee	et)				
Centerline Dist. t		76.0 feet			Autos:	0.00		/				
Barrier Distance t	o Observer:	0.0 feet		Mediur	m Trucks:	2.29	97					
Observer Height (,	5.0 feet		Heav	y Trucks:	8.00	6 (Grade Ad	ustment	: 0.0		
	d Elevation:	0.0 feet	_		-							
	d Elevation:	0.0 feet	1	Lane Eq	uivalent Di			eet)				
F	Road Grade:	0.0%			Autos:	65.4						
		-90.0 degrees			m Trucks:	65.2						
	Right View:	90.0 degrees		Heav	y Trucks:	65.3	00					
FHWA Noise Mode		1										
VehicleType			stance	Finite		Fresne		Barrier Atte		m Atten		
Autos:	68.46	2.13	-1.8	-	-1.20		1.73	0.0		0.000		
Medium Trucks:	79.45	-15.11	-1.8		-1.20		1.88	0.0		0.000		
Heavy Trucks:	84.25	-19.06	-1.8		-1.20	~	5.25	0.0	00	0.000		
Unmitigated Noise		· · ·										
	Leq Peak Hour	Leq Day	Leq E	·	Leq Nig			Ldn	-	NEL		
Autos:	67.5 61.3			63.9 53.4		57.8 51.9		66.4 60.3		67.0		
Medium Trucks:	61.3			53.4 51.7		51.9 52.9				60.0		
Heavy Trucks: Vehicle Noise:	62.1			51.7 64.5		52.9 59.8		61.3		61.4		
				04.5		59.0		00.0	2	00.0		
Centerline Distanc	e to Noise Con	ilour (in feet)	70 ('BA	65 dB	4	60) dBA	55	dBA		
		Ldn:	5		127			274		i90		
		CNEL:	6	-	136			294	-	33		
		OTTLE.	0	-	100							

FH	WA-RD-77-108 H	IIGHWA	Y NOISE P	REDICTIO	N MODEL						
Scenario: OY 2019 Road Name: Hamner A Road Segment: s/o Riverb	v.		Project Name: Polopolus Job Number: 11336								
SITE SPECIFIC I	NPUT DATA		NOISE MODEL INPUTS								
Highway Data			Site Conditions (Hard = 10, Soft = 15)								
Average Daily Traffic (Adt):	33,900 vehicles				Auto	s: 15					
Peak Hour Percentage:	10%		Me	edium Truck	ks (2 Axles): 15					
Peak Hour Volume:	3,390 vehicles		He	avy Trucks	s (3+ Axles): 15					
Vehicle Speed:	45 mph		Vehicle	Miy							
Near/Far Lane Distance:	78 feet			nicleType	Day	Evening	Night	Daily			
Site Data			101		tos: 77.5	•		97.42			
	0.0 feet		м	edium Truc			10.3%				
Barrier Height: Barrier Type (0-Wall, 1-Berm):	0.0 reet			Heavy Truc							
Centerline Dist. to Barrier:	76.0 feet			,							
Centerline Dist. to Observer:	76.0 feet		Noise S	ource Elev		feet)					
Barrier Distance to Observer:	0.0 feet			Autos:	0.000						
Observer Height (Above Pad):	5.0 feet			m Trucks:	2.297	Out de Au					
Pad Elevation:	0.0 feet		Hear	vy Trucks:	8.006	Grade Ad	ijustment	0.0			
Road Elevation:	Road Elevation: 0.0 feet					1 feet)					
Road Grade:	0.0%			Autos:	65.422						
Left View:	-90.0 degrees	3	Mediu	m Trucks:	65.286						
Right View:	90.0 degrees	3	Hea	vy Trucks:	65.300						
FHWA Noise Model Calculatio	-					1					
VehicleType REMEL	Traffic Flow	Distanc			Fresnel	Barrier At		m Atter			
Autos: 68.46			.85	-1.20	-4.73		000	0.00			
Medium Trucks: 79.4			.84	-1.20 -1.20	-4.8		000	0.00			
Heavy Trucks: 84.25			.84	-1.20	-5.2	b 0.	000	0.00			
Unmitigated Noise Levels (with			,	Lee Mi	a de t	1 der	0				
VehicleType Leq Peak Ho Autos: 6		6.9	Evening 65.1	Leq Ni	59.0	Ldn 67.		VEL 68.			
		1.0	54.7		59.0 53.1	61.		61			
		1.9	52.9		54.2	62.		62			
		8.9	65.7		61.0	69.	-	70.			
Centerline Distance to Noise C											
		7	'0 dBA	65 dB	A	60 dBA	55	dBA			
	L	dn:	71	153		330	7	11			
		FL:	76	164		354	_	63			

THRAID-TH-I		AT NUISE P	REDICTION				
Scenario: OY 2019 Without Project	:t		Project Na				
Road Name: Hamner Av.			Job Num	ber: 1133	6		
Road Segment: s/o Schleisman Rd.							
SITE SPECIFIC INPUT DATA	1				EL INPUT	S	
Highway Data		Site Co	nditions (H		,		
Average Daily Traffic (Adt): 29,300 vehic	les			Auto			
Peak Hour Percentage: 10%			edium Truck		/		
Peak Hour Volume: 2,930 vehic	les	H	eavy Trucks	(3+ Axles	<i>:):</i> 15		
Vehicle Speed: 45 mph		Vehicle	Mix				
Near/Far Lane Distance: 78 feet		Ve	hicleType	Day	Evening	Night	Daily
Site Data			Aut	os: 77.5	% 12.9%	9.6%	97.42
Barrier Height: 0.0 feet		٨	ledium Truc	ks: 84.8	% 4.9%	10.3%	1.84
Barrier Type (0-Wall, 1-Berm): 0.0			Heavy Truc	ks: 86.5	% 2.7%	10.8%	0.74
Centerline Dist. to Barrier: 76.0 feet		Noise S	Source Elev	ations (in	feet)		
Centerline Dist. to Observer: 76.0 feet			Autos:	0.000			
Barrier Distance to Observer: 0.0 feet		Medi	im Trucks:	2.297			
Observer Height (Above Pad): 5.0 feet			vv Trucks:	8.006	Grade Ad	liustment	t: 0.0
Pad Elevation: 0.0 feet			,				
Road Elevation: 0.0 feet		Lane E	quivalent Di		n feet)		
Road Grade: 0.0%			Autos:	65.422			
Left View: -90.0 deg			um Trucks:	65.286			
Right View: 90.0 deg	ees	Hea	wy Trucks:	65.300			
FHWA Noise Model Calculations							
VehicleType REMEL Traffic Flow		ice Finit	e Road	Fresnel	Barrier At	ten Bei	rm Atter
Autos: 68.46 2.7	-	-1.85	-1.20	-4.7		000	0.00
Medium Trucks: 79.45 -14.5	-	-1.84	-1.20	-4.8		000	0.00
Heavy Trucks: 84.25 -18.4	8	-1.84	-1.20	-5.2	5 0.	000	0.00
Unmitigated Noise Levels (without Topo an		,					
VehicleType Leq Peak Hour Leq D		eq Evening	Leq Nig		Ldn		NEL
Autos: 68.1	66.2	64.	-	58.4	67.		67
Medium Trucks: 61.9	60.4	54.		52.5	60.		61
Heavy Trucks: 62.7	61.3	52.3		53.5	61.	-	62
Vehicle Noise: 70.0	68.2	65.	1	60.4	68.	9	69
Centerline Distance to Noise Contour (in fe	et)						
	1	70 dBA	65 dB	4	60 dBA	55	i dBA
	Ldn: CNFL:	65 69	139 149		300 321		645 692

Fł	IWA-RD-77-108 HI	GHWAY	NOISE PI	REDICT		DEL			
Scenario: OY 2019 Road Name: Hamner A Road Segment: s/o Citrus	w.				Name: F umber: 1		lus		
SITE SPECIFIC I	NPUT DATA			N	IOISE N	IODE	L INPUT	s	
Highway Data			Site Con	nditions	(Hard =	10, So	oft = 15)		
Average Daily Traffic (Adt):	37,400 vehicles				A	Autos:	15		
Peak Hour Percentage:	10%		Me	dium Tri	ucks (2 A	xles):	15		
Peak Hour Volume:	3.740 vehicles		He	avy Tru	cks (3+ A	xles):	15		
Vehicle Speed:	45 mph		Mahiala			,			
Near/Far Lane Distance:	78 feet		Vehicle			_		NC 1 -	
			ven	icleType		Day	Evening	Night	Daily
Site Data						77.5%		9.6%	
Barrier Height:	0.0 feet			edium T		84.8%		10.3%	1.84%
Barrier Type (0-Wall, 1-Berm):	0.0			Heavy Ti	rucks:	86.5%	2.7%	10.8%	0.74%
Centerline Dist. to Barrier:	76.0 feet		Noise So	ource El	evations	s (in fe	et)		
Centerline Dist. to Observer:	76.0 feet			Auto					
Barrier Distance to Observer:	0.0 feet		Modiu	m Truck	. 0.0				
Observer Height (Above Pad):	5.0 feet			/y Truck			Grade Ad	iustment [.]	0.0
Pad Elevation:	0.0 feet		nour	y maon	3. 0.0	000	,		
Road Elevation:	0.0 feet		Lane Eq	uivalen	t Distanc	e (in t	'eet)		
Road Grade:	0.0%			Auto	s: 65.4	122			
Left View:	-90.0 degrees		Mediu	m Truck	s: 65.2	286			
Right View:	90.0 degrees		Heav	/y Truck	s: 65.3	300			
FHWA Noise Model Calculatio	ns								
VehicleType REMEL	Traffic Flow	Distance		Road	Fresn		Barrier Att	en Ber	m Atten
Autos: 68.4	6 3.78	-1.8	85	-1.20		-4.73	0.0	000	0.000
Medium Trucks: 79.4	5 -13.46	-1.8	84	-1.20		-4.88	0.0	000	0.000
Heavy Trucks: 84.2	5 -17.42	-1.8	84	-1.20		-5.25	0.0	000	0.000
Unmitigated Noise Levels (with	hout Topo and bai	rrier atte	nuation)						
VehicleType Leq Peak He	our Leq Day	Leq I	Evening	Leq	Night		Ldn		VEL
Autos: 6	9.2 67.	3	65.5		59.5		68.1		68.7
Medium Trucks: 6	2.9 61.	4	55.1		53.5		62.0)	62.2
Heavy Trucks: 6	3.8 62.	4	53.3		54.6		62.9)	63.1
Vehicle Noise: 7	1.0 69.	3	66.1		61.5		70.0)	70.5
Centerline Distance to Noise	Contour (in feet)								
		70) dBA	65	dBA	6	0 dBA	55	dBA
	Ldr	n:	76	1	64		352	7	59
	CNEL		81	1	75		378	8	15

Wednesday, January 17, 2018

Wednesday, January 17, 2018

Wednesday, January 17, 2018

FHWA-RD-77-108 HIGH	AY NOISE PREDICTION MODEL								
Scenario: OY 2019 Without Project	Project Name: Polopolus								
Road Name: Limonite Av.	Job Number: 11336								
Road Segment: w/o Hamner Av.									
SITE SPECIFIC INPUT DATA	NOISE MODEL INPUTS								
Highway Data	Site Conditions (Hard = 10, Soft = 15)								
Average Daily Traffic (Adt): 37,300 vehicles	Autos: 15								
Peak Hour Percentage: 10%	Medium Trucks (2 Axles): 15								
Peak Hour Volume: 3,730 vehicles	Heavy Trucks (3+ Axles): 15								
Vehicle Speed: 45 mph	Vehicle Mix								
Near/Far Lane Distance: 78 feet	VehicleType Day Evening Night Da								
Site Data	Autos: 77.5% 12.9% 9.6% 97.								
Barrier Height: 0.0 feet	Medium Trucks: 84.8% 4.9% 10.3% 1.								
Barrier Type (0-Wall, 1-Berm): 0.0	Heavy Trucks: 86.5% 2.7% 10.8% 0.								
Centerline Dist. to Barrier: 76.0 feet	Noise Source Elevations (in feet)								
Centerline Dist. to Observer: 76.0 feet	Autos: 0.000								
Barrier Distance to Observer: 0.0 feet	Medium Trucks: 2,297								
Observer Height (Above Pad): 5.0 feet	Heavy Trucks: 8.006 Grade Adjustment: 0.0								
Pad Elevation: 0.0 feet									
Road Elevation: 0.0 feet	Lane Equivalent Distance (in feet)								
Road Grade: 0.0%	Autos: 65.422								
Left View: -90.0 degrees	Medium Trucks: 65.286								
Right View: 90.0 degrees	Heavy Trucks: 65.300								
FHWA Noise Model Calculations									
VehicleType REMEL Traffic Flow Dist									
Autos: 68.46 3.77	-1.85 -1.20 -4.73 0.000 0								
Medium Trucks: 79.45 -13.47	-1.84 -1.20 -4.88 0.000 0								
Heavy Trucks: 84.25 -17.43	-1.84 -1.20 -5.25 0.000 0								
Unmitigated Noise Levels (without Topo and barrie									
VehicleType Leq Peak Hour Leq Day Autos: 69.2 67.3	eq Evening Leq Night Ldn CNEL 65.5 59.5 68.1								
Medium Trucks: 62.9 61.4	55.1 53.5 62.0								
Heavy Trucks: 63.8 62.4	53.3 54.6 62.9								
Vehicle Noise: 71.0 69.3	66.1 61.4 70.0								
Centerline Distance to Noise Contour (in feet)									
	70 dBA 65 dBA 60 dBA 55 dBA								
	70 dBA 65 dBA 60 dBA 55 dBA 76 163 352 758								

	FHW	/A-RD-77-108 HI	GHWAY	NOISE PI	REDICTI		DEL					
Road Nam	io: OY 2019 Wi e: Limonite Av. nt: e/o Hamner			Project Name: Polopolus Job Number: 11336								
SITE	SPECIFIC INI	PUT DATA		NOISE MODEL INPUTS								
Highway Data				Site Conditions (Hard = 10, Soft = 15)								
Average Daily	Traffic (Adt): 5	1,800 vehicles					Autos:	15				
Peak Hour	Percentage:	10%		Me	dium Tru	cks (2 A	(xles):	15				
Peak H	our Volume:	5,180 vehicles		He	avy Truc	ks (3+ A	xles):	15				
Ve	hicle Speed:	45 mph		Vehicle	Mix							
Near/Far La	ne Distance:	78 feet		-	icleType		Dav	Evening	Night	Daily		
Site Data				Ven			77.5%		9.6%			
				14	edium Tr		84.8%		10.3%			
	rier Height:	0.0 feet			leavy Tr		86.5%		10.3%			
Barrier Type (0-W	. ,	0.0			ioury in	10/10.	00.070	2.170	10.070	0.747		
Centerline Dis		76.0 feet		Noise So	ource Ele	evation	s (in fe	eet)				
Centerline Dist. Barrier Distance		76.0 feet 0.0 feet			Autos	: 0.0	000					
Observer Height (5.0 feet		Mediu	m Trucks	: 2.2	297					
	ad Elevation:	0.0 feet		Heav	ry Trucks	: 8.0	006	Grade Ad	justment	0.0		
	ad Elevation:	0.0 feet		Lane Eq	uivalent	Distand	e (in	feet)				
	Road Grade:	0.0%			Autos							
,	Left View:	-90.0 degrees		Mediu	n Trucks							
	Right View:	90.0 degrees			y Trucks							
FHWA Noise Mode	el Calculations			1								
VehicleType	REMEL		Distance		Road	Fresn		Barrier Att	en Ber	m Atter		
Autos:	68.46	5.19		.85	-1.20		-4.73		000	0.00		
Medium Trucks:	79.45	-12.05		.84	-1.20		-4.88		000	0.00		
Heavy Trucks:	84.25	-16.00		.84	-1.20		-5.25	0.0	000	0.00		
Unmitigated Noise				,								
	Leq Peak Hour			Evening	Leq I	·		Ldn		VEL		
Autos:	70.0			66.9		60.9		69.5		70.		
Medium Trucks:	64.4		-	56.5		54.9		63.4		63.		
Heavy Trucks:	65.3		-	54.8		56.0		64.4		64.		
Vehicle Noise:	72.4		7	67.5		62.9		71.4	1	71.		
Centerline Distant	ce to Noise Co	ntour (in feet)	-							10.4		
		1.4		94 94	65 0		6	60 dBA		dBA 43		
		Ldr CNEL		94 101	20 21			438				
								470		012		

Scenario: OY 2019 Without Project			Project	Name:	Polona	luc		
Road Name: Limonite Av.				lumber: '		ius		
Road Segment: e/o I-15 Fwy.			0007	umber.	11000			
,		1						
SITE SPECIFIC INPUT DATA Highway Data	-	Site	r Conditions			L INPUTS	>	
Average Daily Traffic (Adt): 48,500 vehicles	-	- Child	contantionio		Autos:	15		
Peak Hour Percentage: 10%			Medium Tr			15		
Peak Hour Volume: 4.850 vehicles			Heavy Tru			15		
Vehicle Speed: 45 mph								
Near/Far Lane Distance: 78 feet			cle Mix		0	Constant	Manhat	Delle
		_	VehicleType		Day	Evening	Night	Daily
Site Data		_	, Medium T		77.5%		9.6%	
Barrier Height: 0.0 feet					84.8%		10.3%	
Barrier Type (0-Wall, 1-Berm): 0.0			neavy i	rucks:	00.3%	2.170	10.8%	0.749
Centerline Dist. to Barrier: 76.0 feet		Nois	e Source E	levation	s (in fe	et)		
Centerline Dist. to Observer: 76.0 feet			Auto	s: 0.0	000			
Barrier Distance to Observer: 0.0 feet		M	edium Truck	s: 2.2	297			
Observer Height (Above Pad): 5.0 feet		ŀ	leavy Truck	s: 8.0	006	Grade Adj	ustment	: 0.0
Pad Elevation: 0.0 feet		Land	Equivalen	Distant	o (in f	[a a 4]		
Road Elevation: 0.0 feet Road Grade: 0.0%		Land	Auto			eeij		
0.070		14	Auto dium Truck					
Left View: -90.0 degrees Right View: 90.0 degrees			leavy Truck					
right view. 90.0 degrees			icavy riden	3. 00.0	500			
FHWA Noise Model Calculations								
VehicleType REMEL Traffic Flow	Distanc		inite Road	Fresn		Barrier Atte	en Ber	m Atten
Autos: 68.46 4.91		1.85	-1.20		-4.73	0.0		0.00
Medium Trucks: 79.45 -12.33		1.84	-1.20		-4.88	0.0		0.00
Heavy Trucks: 84.25 -16.29	-	1.84	-1.20		-5.25	0.0	00	0.00
Unmitigated Noise Levels (without Topo and ba	arrier at	ttenuati	on)					
VehicleType Leq Peak Hour Leq Day	Le	q Evenir	ng Leq	Night		Ldn		NEL
	3.4		6.6	60.6		69.2		69.
Medium Trucks: 64.1 62	2.6	ŧ	56.2	54.7		63.1		63.
	3.5	Ę	54.5	55.7		64.1		64
	14	6	67.3	62.6		71.1		71.
Heavy Trucks: 64.9 63 Vehicle Noise: 72.2 70	1.4							
Vehicle Noise: 72.2 70	.4							
Vehicle Noise: 72.2 70		70 dBA	65	dBA	6	0 dBA	55	dBA
Vehicle Noise: 72.2 70 Centerline Distance to Noise Contour (in feet)		70 dBA 90		<i>dBA</i> 95	6	0 dBA 419		<i>dBA</i> 103

	FHW	A-RD-77-108 HIG	HWAY	NOISE PI	REDICT	ION MOI	DEL			
Road Nam	io: OY 2019 Wi le: 68th St. nt: w/o Hamner	,				Name: F umber: 1				
SITE	SPECIFIC INI	PUT DATA			N	IOISE N	IODE	L INPUT	s	
Highway Data				Site Con	ditions	(Hard =	10, S	oft = 15)		
Average Daily	Traffic (Adt):	9,700 vehicles					Autos:	15		
Peak Hour	Percentage:	10%		Me	dium Tri	ucks (2 A	xles):	15		
	lour Volume:	970 vehicles		He	avy Tru	cks (3+ A	xles):	15		
Ve	hicle Speed:	45 mph		Vehicle	Mise	-	-			
Near/Far La	ne Distance:	48 feet			icleType		Day	Evening	Night	Daily
Site Data				Ven			77.5%	•	9.6%	
					, edium T		77.5% 84.8%		9.6%	
	rier Height:	0.0 feet			Heavy Ti		04.0% 86.5%		10.3%	
Barrier Type (0-W		0.0		,	ieavy II	uchs.	00.37	5 2.170	10.076	0.7470
Centerline Di		59.0 feet	[Noise So	ource El	levations	s (in f	eet)		
Centerline Dist.		59.0 feet			Auto	s: 0.0	000			
Barrier Distance		0.0 feet		Mediu	m Truck	s: 2.2	297			
Observer Height (Above Pad): ad Elevation:	5.0 feet		Heav	y Truck	s: 8.0	006	Grade Adj	justment	: 0.0
	ad Elevation: ad Elevation:	0.0 feet		Lane Eq	uivalon		o (in	foot)		
	ad Elevation: Road Grade:	0.0 feet 0.0%		LaneLy	Auto			ieel)		
	Left View:			Modiu	m Truck					
	Right View:	-90.0 degrees			v Truck					
	Right view.	90.0 degrees		near	y much	5. 55.8	902			
FHWA Noise Mod	el Calculations									
VehicleType	REMEL	Traffic Flow D	istance	Finite	Road	Fresn	el	Barrier Att	en Ber	m Atten
Autos:	68.46	-2.08	-0.6	62	-1.20		-4.69	0.0	000	0.000
Medium Trucks:	79.45	-19.32	-0.6	60	-1.20		-4.88	0.0	000	0.000
Heavy Trucks:	84.25	-23.28	-0.6	50	-1.20		-5.35	0.0	000	0.000
Unmitigated Noise	e Levels (witho	ut Topo and bari	rier atte	nuation)						
VehicleType	Leq Peak Hour	Leq Day	Leq E	vening	Leq	Night		Ldn	C	NEL
Autos:	64.6	6 62.7		60.9		54.8		63.5	5	64.1
Medium Trucks:	58.3	3 56.8		50.5		48.9		57.4	1	57.6
Heavy Trucks:	59.3	2 57.8		48.7		50.0		58.3	3	58.4
Vehicle Noise:	66.4	4 64.7		61.5		56.8		65.4	1	65.8
Centerline Distant	ce to Noise Co	ntour (in feet)								
			70	dBA	65	dBA		60 dBA	55	dBA
		Ldn:		29	6	2		135	2	290
		CNEL:	: :	31	6	7		144	3	811

Wednesday, January 17, 2018

Wednesday, January 17, 2018

	FHW	A-RD-77-108 HIG	HWAY N	IOISE PI	REDICTIO	N MODE	L					
Scenari	o: OY 2019 Wi	thout Project			Project Na	ame: Pol	opolus					
Road Nam					Job Nurr	ber: 113	36					
Road Segmer	t: e/o Hamner	Av.										
	SPECIFIC IN	PUT DATA		NOISE MODEL INPUTS Site Conditions (Hard = 10, Soft = 15)								
Highway Data				Site Con	ditions (H	ard = 10	Soft = 15)					
Average Daily	Traffic (Adt): 1	5,100 vehicles				Aut	os: 15					
Peak Hour	Percentage:	10%		Me	dium Truck	is (2 Axle	es <i>):</i> 15					
Peak H	our Volume:	1,510 vehicles		He	avy Trucks	(3+ Axle	es): 15					
Vel	nicle Speed:	45 mph		Vehicle	Mix							
Near/Far Lar	ne Distance:	48 feet	-		icleType	Da	y Evening	Night	Daily			
Site Data					Aut	os: 77	5% 12.9%	9.6%	97.42%			
Bar	rier Height:	0.0 feet		M	edium Truc	ks: 84	8% 4.9%	10.3%	1.84%			
Barrier Type (0-W	•	0.0		ŀ	Heavy Truc	ks: 86	5% 2.7%	10.8%	0.74%			
Centerline Dis	t. to Barrier:	59.0 feet		Noise So	ource Elev	ations (i	n feet)					
Centerline Dist. t		59.0 feet			Autos:	0.000	,					
Barrier Distance t	o Observer:	0.0 feet		Mediu	m Trucks:	2.297						
Observer Height (,	5.0 feet		Heav	y Trucks:	8.006	Grade Ad	djustmen	t: 0.0			
	d Elevation:	0.0 feet			-			·				
	d Elevation:	0.0 feet	1	Lane Eq	uivalent D							
F	Road Grade:	0.0%			Autos:	54.129						
	Left View:	-90.0 degrees			m Trucks:	53.966						
	Right View:	90.0 degrees		Heav	y Trucks:	53.982						
FHWA Noise Mode												
VehicleType	REMEL		istance			Fresnel	Barrier At		rm Atten			
Autos:	68.46	-0.16	-0.62	-	-1.20	-4.		000	0.000			
Medium Trucks:	79.45	-17.40	-0.60	-	-1.20	-4.		000	0.000			
Heavy Trucks:	84.25	-21.36	-0.60	-	-1.20	-5.	35 0.	000	0.000			
Unmitigated Noise				<i></i>								
VehicleType Autos:	Leq Peak Hour	1.1	Leq E		Leq Nig		Ldn 65.		NEL 66.0			
Autos: Medium Trucks:	66. 60.			62.8 52.4		56.8 50.8	65. 59.		59.5			
Heavy Trucks:	60.			52.4 50.6		50.8 51.9	59. 60.		59. 60.4			
Vehicle Noise:	61.			63.4		51.9	67.	-	60.4			
				03.4		30.7	67.		07.1			
Centerline Distanc	e to NOISE CO	niour (in feet)	70 0	/BA	65 dB	A	60 dBA	55	dBA			
		Ldn:	3	9	84		181		389			
		CNEL:		2	90		194	4	418			
		GIVEL.	4	-	90		134	-	10			

	FHV	VA-RD-77-108 H	IIGHWA	Y NOISE P	REDICTIO	ON MOI	DEL					
Road Nan	rio: OY 2019 W ne: Riverboat D ent: w/o Hamne	r.		Project Name: Polopolus Job Number: 11336								
SITE	SPECIFIC IN	PUT DATA		NOISE MODEL INPUTS								
Highway Data				Site Conditions (Hard = 10, Soft = 15)								
Average Daily	Traffic (Adt):	3,900 vehicles				A	Autos:	15				
Peak Hour	Percentage:	10%		Me	edium Truc	:ks (2 A	xles):	15				
Peak H	our Volume:	390 vehicles		He	avy Truck	is (3+ A	xles):	15				
Ve	ehicle Speed:	40 mph		Vehicle	Mix							
Near/Far La	ane Distance:	12 feet			nicleType		Dav	Evening	Night	Daily		
Site Data				Ver			77.5%	•		97.429		
					edium Tru		34.8%		10.3%			
	rrier Height:	0.0 feet			Heavy Tru		36.5%		10.8%			
Barrier Type (0-V	. ,	0.0			nouty nu	0.10.	50.57	2.170	10.070	0.747		
Centerline Di Centerline Dist.	ist. to Barrier:	37.0 feet 37.0 feet		Noise S	ource Ele	vations	s (in f	eet)				
Barrier Distance		0.0 feet			Autos:		00					
Observer Height		5.0 feet			m Trucks:							
	ad Elevation:	0.0 feet		Hea	vy Trucks:	8.0	06	Grade Ad	justment	: 0.0		
	ad Elevation: ad Flevation:	0.0 feet		Lane Ec	uivalent	Distanc	e (in	feet)				
	Road Grade:	0.0%			Autos:							
	Left View:	-90.0 degrees		Mediu	m Trucks:							
	Right View:	90.0 degrees		Hea	vy Trucks:	36.6	634					
FHWA Noise Mod	lel Calculations	s										
VehicleType	REMEL	Traffic Flow	Distanc		Road	Fresn		Barrier Att		m Atten		
Autos:		-5.53		1.88	-1.20		4.56		000	0.00		
Medium Trucks:		-22.77		1.93	-1.20		4.87		000	0.00		
Heavy Trucks:		-26.72		1.92	-1.20		-5.61	0.0	000	0.00		
Unmitigated Nois			-	/								
VehicleType	Leq Peak Hou			q Evening	Leq N	•		Ldn	-	NEL		
Autos:	• · ·		9.8 4.2	58.0		51.9		60.6		61.		
Medium Trucks:			4.2 5.6	47.8 46.5		46.3 47.8		54.7 56.1		55. 56.		
Heavy Trucks:												
Vehicle Noise:			2.0	58.7		54.1		62.7		63.		
Centerline Distan	ce to Noise Co	ontour (in feet)		70 dBA	65 d	RΔ	6	60 dBA	55	dBA		
		,	dn:	12	26			56		20		

FHWA-RD-77-108 HI	GHWAY	NOISE P	REDICTIO	N MÓDEI			
Scenario: OY 2019 Without Project			Project N	ame: Polo	opolus		
Road Name: Schleisman Rd.			Job Nur	nber: 113	36		
Road Segment: w/o Scholar Wy.							
SITE SPECIFIC INPUT DATA					DEL INPUT	s	
Highway Data		Site Cor	ditions (H		Soft = 15)		
Average Daily Traffic (Adt): 10,700 vehicles				Auto			
Peak Hour Percentage: 10%			dium Truc	,	,		
Peak Hour Volume: 1,070 vehicles		He	avy Truck	s (3+ Axle	s): 15		
Vehicle Speed: 45 mph		Vehicle	Mix				
Near/Far Lane Distance: 78 feet		Veh	icleType	Day	/ Evening	Night	Daily
Site Data			Au	tos: 77.	5% 12.9%	9.6%	97.429
Barrier Height: 0.0 feet		М	edium Truc	cks: 84.	8% 4.9%	10.3%	1.849
Barrier Type (0-Wall, 1-Berm): 0.0		1	Heavy Truc	cks: 86.	5% 2.7%	10.8%	0.749
Centerline Dist. to Barrier: 76.0 feet		Noise Se	ource Elev	vations (in	n feet)		
Centerline Dist. to Observer: 76.0 feet			Autos:	0.000	,		
Barrier Distance to Observer: 0.0 feet		Mediu	m Trucks:	2.297			
Observer Height (Above Pad): 5.0 feet			v Trucks:	8.006	Grade Ad	liustmen	t: 0.0
Pad Elevation: 0.0 feet							
Road Elevation: 0.0 feet		Lane Eq	uivalent D				
Road Grade: 0.0%			Autos:	65.422			
Left View: -90.0 degrees			m Trucks:	65.286			
Right View: 90.0 degrees		Heav	/y Trucks:	65.300			
FHWA Noise Model Calculations							
	Distance		Road	Fresnel	Barrier Att		rm Atten
Autos: 68.46 -1.66		.85	-1.20	-4.7		000	0.00
Medium Trucks: 79.45 -18.90		.84	-1.20	-4.8		000	0.00
Heavy Trucks: 84.25 -22.85		.84	-1.20	-5.2	25 0.0	000	0.00
Unmitigated Noise Levels (without Topo and ba		,				1	
VehicleType Leq Peak Hour Leq Day		Evening	Leq Ni	·	Ldn		NEL
Autos: 63.7 61		60.1		54.0	62.		63.
Medium Trucks: 57.5 56 Heavy Trucks: 58.4 56		49.6		48.1 49.2	56. 57.	-	56.
	-	47.9				-	57.
00.0 00	.8	60.7		56.0	64.	ö	65.
Centerline Distance to Noise Contour (in feet)							
		0 dBA 33	65 dE 71	SA	60 dBA 153		i dBA
Ld	n [.]						330
CNE		35	76		164		354

FHWA-RD-77-108 HIGHWAY	NOISE PREDICTION MODEL
Scenario: OY 2019 Without Project Road Name: Schleisman Rd. Road Segment: e/o Scholar Wy.	Project Name: Polopolus Job Number: 11336
SITE SPECIFIC INPUT DATA	NOISE MODEL INPUTS
Highway Data	Site Conditions (Hard = 10, Soft = 15)
Average Daily Traffic (Adt): 9,900 vehicles	Autos: 15
Peak Hour Percentage: 10%	Medium Trucks (2 Axles): 15
Peak Hour Volume: 990 vehicles	Heavy Trucks (3+ Axles): 15
Vehicle Speed: 45 mph	Vehicle Mix
Near/Far Lane Distance: 78 feet	VehicleType Day Evening Night Daily
Site Data	Autos: 77.5% 12.9% 9.6% 97.42%
	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%
Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 76.0 feet	
Centerline Dist. to Diserver: 76.0 feet	Noise Source Elevations (in feet)
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	Heavy Trucks: 8.006 Grade Adjustment: 0.0
Road Elevation: 0.0 feet	Lane Equivalent Distance (in feet)
Road Grade: 0.0%	Autos: 65.422
Left View: -90.0 degrees	Medium Trucks: 65.286
Right View: 90.0 degrees	Heavy Trucks: 65.300
FHWA Noise Model Calculations	
VehicleType REMEL Traffic Flow Distance	Finite Road Fresnel Barrier Atten Berm Atten
Autos: 68.46 -1.99 -1	.85 -1.20 -4.73 0.000 0.000
Medium Trucks: 79.45 -19.23 -1	.84 -1.20 -4.88 0.000 0.000
Heavy Trucks: 84.25 -23.19 -1	.84 -1.20 -5.25 0.000 0.000
Unmitigated Noise Levels (without Topo and barrier atte	enuation)
VehicleType Leq Peak Hour Leq Day Leq	Evening Leq Night Ldn CNEL
Autos: 63.4 61.5	59.7 53.7 62.3 62.9
Medium Trucks: 57.2 55.7	49.3 47.8 56.2 56.5
Heavy Trucks: 58.0 56.6	47.6 48.8 57.2 57.3
Vehicle Noise: 65.2 63.5	60.4 55.7 64.2 64.7
Centerline Distance to Noise Contour (in feet)	
	0 dBA 65 dBA 60 dBA 55 dBA
Ldn:	31 67 145 313
CNEL:	34 72 156 336

Wednesday, January 17, 2018

Wednesday, January 17, 2018

	FH\	VA-RD-77-108	HIGHW	AY NC	DISE PF	REDICTIO	N MO	DEL			
		/ithout Project				Project Na			lus		
	e: Citrus St.					Job Nun	nber:	11336			
Road Segmen	t: w/o Hamne	er Av.									
	SPECIFIC IN	IPUT DATA							L INPUT	S	
Highway Data				Si	te Con	ditions (H	ard =	10, Sc	oft = 15)		
Average Daily 1	raffic (Adt):	18,900 vehicle	s					Autos:	15		
Peak Hour F	Percentage:	10%				dium Trucl	•		15		
Peak Ho	our Volume:	1,890 vehicle	s		He	avy Trucks	s (3+ A	Axles):	15		
Veh	nicle Speed:	45 mph		Ve	ehicle I	Nix					
Near/Far Lan	e Distance:	36 feet		-		cleType		Day	Evening	Night	Daily
Site Data						Au	tos:	77.5%	12.9%	9.6%	97.429
Bari	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			ŀ	leavy Truc	cks:	86.5%	2.7%	10.8%	0.74%
Centerline Dis		50.0 feet		N	oise Sc	ource Elev	ation	s (in fe	et)		
Centerline Dist. t		50.0 feet				Autos:	0.0	000			
Barrier Distance t		0.0 feet			Mediur	n Trucks:	2.	297			
Observer Height (A	,	5.0 feet			Heav	y Trucks:	8.	006	Grade Ad	justment	: 0.0
	d Elevation:	0.0 feet									
	d Elevation:	0.0 feet		Lá	ane Eq	uivalent D			eet)		
F	Road Grade:	0.0%				Autos:	46.				
	Left View:	-90.0 degre				n Trucks:		726			
	Right View:	90.0 degre	es		Heav	y Trucks:	46.	744			
FHWA Noise Mode			r.								
VehicleType	REMEL	Traffic Flow	Distar		Finite		Fresr		Barrier Att		rm Atten
Autos:	68.46	0.81		0.31		-1.20		-4.65		000	0.00
Medium Trucks:	79.45	-16.42		0.34		-1.20		-4.87		000	0.00
Heavy Trucks:	84.25	-20.38		0.34		-1.20		-5.43	0.0	000	0.00
Unmitigated Noise VehicleType	Levels (with Lea Peak Hou				<u> </u>	Leg Ni	aht	1	l dn	0	NFI
Autos:	Leq Реак нос 68	1 .	66.5	eq Eve	ening 64.7	Ley M	grit 58.7	,	Lan 67.3		NEL 67.
Medium Trucks:	62		60.7		54.3		52.7		61.3	-	61
Heavy Trucks:	63		61.6		52.5		53.8		62.2	-	62.
Vehicle Noise:	70		68.5		65.3		60.7		69.2	-	69.
Centerline Distanc	e to Noise Co	ontour (in fee	t)								
				70 dE	BA	65 dE	A	6	0 dBA	55	dBA
			Ldn:	44		95			205	4	142

	FHW	/A-RD-77-108 F	IIGHWA	Y NOISE P	REDICTI		DEL			
Road Nam	io: OY 2019 Wi e: Citrus St. nt: e/o Hamner				Project Job Nu	Name: I Imber:				
SITE	SPECIFIC IN	PUT DATA		1	N	OISE N	/ODE		s	
Highway Data				Site Co	nditions (Hard =	10, Se	oft = 15)		
Average Daily	Traffic (Adt):	3,500 vehicles					Autos:	15		
Peak Hour	Percentage:	10%		M	edium Tru	cks (2 A	(xles):	15		
Peak H	our Volume:	350 vehicles		He	avy Truc	ks (3+ A	(xles):	15		
Ve	hicle Speed:	45 mph		Vehicle	Mix					
Near/Far La	ne Distance:	36 feet			nicleType		Dav	Evening	Night	Daily
Site Data				ver			Day 77.5%	•		97.429
					n Iedium Tr		84.8%		10.3%	
	rier Height:	0.0 feet			Heavy Tr		04.0% 86.5%		10.3%	
Barrier Type (0-W	. ,	0.0			neavy in	uono.	00.37	5 2.170	10.076	0.74
Centerline Di		50.0 feet		Noise S	ource Ele	evation	s (in f	eet)		
Centerline Dist.		50.0 feet			Autos	: 0.0	000			
Barrier Distance		0.0 feet		Mediu	m Trucks	: 2.2	297			
Observer Height (Above Pad): ad Elevation:	5.0 feet		Hea	vy Trucks	: 8.0	006	Grade Ad	justment	0.0
	ad Elevation: ad Elevation:	0.0 feet 0.0 feet		Lano Er	uivalent	Distan	o (in	foot)		
				Lane EC	Autos			ieel)		
1	Road Grade: Left View:	0.0%		Madi	m Trucks					
	Right View:	-90.0 degrees 90.0 degrees			vy Trucks					
FHWA Noise Mod	el Calculations	;		1						
VehicleType	REMEL	Traffic Flow	Distand	e Finite	Road	Fresn	el	Barrier Att	en Ber	m Atten
Autos:	68.46	-6.51		0.31	-1.20		-4.65	0.0	000	0.00
Medium Trucks:	79.45	-23.75		0.34	-1.20		-4.87	0.0	000	0.00
Heavy Trucks:	84.25	-27.70		0.34	-1.20		-5.43	0.0	000	0.00
Unmitigated Nois			arrier at	tenuation)						
VehicleType	Leq Peak Hour			q Evening	Leq I	· ·		Ldn	-	VEL
Autos:	61.		9.2	57.4		51.3		60.0		60.
Medium Trucks:	54.		3.3	47.0		45.4		53.9		54.
Heavy Trucks:	55.		4.3	45.2		46.5		54.8		55.
Vehicle Noise:	62.		1.2	58.0)	53.3		61.9	9	62.
Centerline Distant	ce to Noise Co	ntour (in feet)								
				70 dBA	65 0		6	60 dBA		dBA
			dn:	14 15	3			67		44
			=1 :		33			72		54

FHWA-	RD-77-108 HIGHV	VAY N	NOISE PR	EDICTIO		٤L	
Scenario: OY 2019 With	Project			Project Na	ame: Po	lopolus	
Road Name: Scholar Wy.				Job Nun	nber: 11	336	
Road Segment: n/o Schleismar	Rd.						
SITE SPECIFIC INPU	T DATA					DEL INPUTS	
Highway Data			Site Cond	ditions (H	ard = 10), Soft = 15)	
Average Daily Traffic (Adt): 8,1	00 vehicles				Au	tos: 15	
Peak Hour Percentage:	10%		Mea	lium Trucl	is (2 Axi	es): 15	
Peak Hour Volume: 8	10 vehicles		Hea	vy Trucks	; (3+ Axi	es): 15	
Vehicle Speed:	45 mph	F	Vehicle N	lix			
Near/Far Lane Distance:	36 feet	-		cleType	Di	ay Evening	Night Daily
Site Data				Au	os: 77	.5% 12.9%	9.6% 97.42
Barrier Height:	0.0 feet		Me	dium Truc	ks: 84	.8% 4.9%	10.3% 1.84%
Barrier Type (0-Wall, 1-Berm):	0.0		н	leavy Truc	:ks: 86	.5% 2.7%	10.8% 0.74%
	0.0 feet	H	Noise So	urce Flev	ations	in foot)	
Centerline Dist. to Observer: 5	0.0 feet	F	10/30 00	Autos:	0.00	,	
Barrier Distance to Observer:	0.0 feet		Modium	1 Trucks:	2.29		
Observer Height (Above Pad):	5.0 feet			/ Trucks:	8.00		stment: 0.0
Pad Elevation:	0.0 feet						
Road Elevation:	0.0 feet		Lane Equ			, ,	
Road Grade:	0.0%			Autos:	46.91	5	
	0.0 degrees			n Trucks:	46.72	-	
Right View: 9	0.0 degrees		Heavy	/ Trucks:	46.74	4	
FHWA Noise Model Calculations							
,,, .	affic Flow Dista		Finite F		Fresnel	Barrier Atte	
Autos: 68.46	-2.87	0.3		-1.20		.65 0.00	
Medium Trucks: 79.45	-20.10	0.3		-1.20		.87 0.00	
Heavy Trucks: 84.25	-24.06	0.3	4	-1.20	-5	.43 0.00	00.00
Unmitigated Noise Levels (without							
VehicleType Leq Peak Hour		Leq E	vening	Leq Ni		Ldn	CNEL
Autos: 64.7	62.8		61.0		55.0	63.6	64
Medium Trucks: 58.5	57.0		50.6		49.1	57.5	57.
			48.9		50.1	58.5	58.
Heavy Trucks: 59.3	57.9					65.5	66.
Heavy Trucks: 59.3 Vehicle Noise: 66.5	64.8		61.7		57.0	65.5	66.
Vehicle Noise: 66.5	64.8						
	64.8 our (in feet)		dBA	65 dE		60 dBA	55 dBA
Vehicle Noise: 66.5	64.8	2		65 dE 54 58			

	FHV	VA-RD-77-108 HIG	HWAY	NOISE PF	REDICTI		DEL			
Road Nam	o: OY 2019 W e: Scholar Wy nt: s/o Schleisi				Project Job Nu	Name: F ımber: 1		lus		
SITE	SPECIFIC IN	PUT DATA							s	
Highway Data				Site Con	ditions (Hard =	10, So	ft = 15)		
Average Daily	Traffic (Adt):	8,100 vehicles				A	Autos:	15		
Peak Hour	Percentage:	10%		Me	dium Tru	cks (2 A	xles):	15		
Peak H	our Volume:	810 vehicles		He	avy Truc	ks (3+ A	xles):	15		
Vei	hicle Speed:	45 mph		Vehicle I	Mix					
Near/Far La	ne Distance:	36 feet			icleType		Day	Evening	Night	Daily
Site Data							77.5%	12.9%	9.6%	
Bar	rier Height:	0.0 feet		Me	edium Tr	ucks:	84.8%	4.9%	10.3%	1.84%
Barrier Type (0-W	•	0.0		F	leavy Tr	ucks:	36.5%	2.7%	10.8%	0.74%
Centerline Dis	. ,	50.0 feet	-	Noise So		wation	(in fo	(of)		
Centerline Dist.	to Observer:	50.0 feet		NUISE SU	Autos			ei)		
Barrier Distance	to Observer:	0.0 feet		Modiu	n Trucks	. 0.0				
Observer Height (Above Pad):	5.0 feet			v Trucks	-		Grade Adj	iustment	· 0.0
Pa	ad Elevation:	0.0 feet							dounion	0.0
Roa	ad Elevation:	0.0 feet		Lane Eq				eet)		
F	Road Grade:	0.0%			Autos		915			
	Left View:	-90.0 degrees			m Trucks					
	Right View:	90.0 degrees		Heav	y Trucks	: 46.7	'44			
FHWA Noise Mode	el Calculation	s								
VehicleType	REMEL	Traffic Flow D	listance	Finite	Road	Fresn	el i	Barrier Atte	en Ber	m Atten
Autos:	68.46	-2.87	0.3	31	-1.20		4.65	0.0	000	0.000
Medium Trucks:	79.45	-20.10	0.3		-1.20		4.87	0.0		0.000
Heavy Trucks:	84.25	-24.06	0.3	34	-1.20		-5.43	0.0	000	0.000
Unmitigated Noise	Levels (with	out Topo and bar	rier atte	nuation)						
VehicleType	Leq Peak Hou	r Leq Day	Leq E	vening	Leq I	Vight		Ldn	C	NEL
Autos:	64			61.0		55.0		63.6		64.2
Medium Trucks:	58			50.6		49.1		57.5		57.8
Heavy Trucks:	59			48.9		50.1		58.5		58.6
Vehicle Noise:	66	.5 64.8	3	61.7		57.0		65.5	5	66.0
Centerline Distance	e to Noise Co	ontour (in feet)								
				dBA	65 0		6	0 dBA		dBA
		Ldn		25	54			117	_	51
		CNEL	: :	27	5	В		125	2	70

Wednesday, January 17, 2018

AY NOISE PREDICTION MODEL
Project Name: Polopolus
Job Number: 11336
NOISE MODEL INPUTS
Site Conditions (Hard = 10, Soft = 15)
Autos: 15
Medium Trucks (2 Axles): 15
Heavy Trucks (3+ Axles): 15
Vehicle Mix
VehicleType Day Evening Night Daily
Autos: 77.5% 12.9% 9.6% 97.42
Medium Trucks: 84.8% 4.9% 10.3% 1.84
Heavy Trucks: 86.5% 2.7% 10.8% 0.74
Noise Source Elevations (in feet)
Autos: 0.000
Medium Trucks: 2,297
Heavy Trucks: 8.006 Grade Adjustment: 0.0
Lane Equivalent Distance (in feet)
Autos: 65.422
Medium Trucks: 65.286
Heavy Trucks: 65.300
nce Finite Road Fresnel Barrier Atten Berm Atten
-1.85 -1.20 -4.73 0.000 0.0
-1.84 -1.20 -4.88 0.000 0.0
-1.84 -1.20 -5.25 0.000 0.0
attenuation) eg Evening Leg Night Ldn CNEL
eq Evening Leq Night Ldn CNEL 65.4 59.3 68.0 68
55.0 53.4 61.9 62
53.2 54.5 62.8 62
66.0 61.3 69.9 70
70 dBA 65 dBA 60 dBA 55 dBA
70 dBA 65 dBA 60 dBA 55 dBA 75 161 346 746
a

	FHW	A-RD-77-108 HIG	HWAY	NOISE PR	REDICTIC	N MOI	DEL			
Road Name	o: OY 2019 Wit e: Hamner Av. ht: s/o Limonite	.,			Project N Job Nu					
SITE S	SPECIFIC INF	PUT DATA			NC	DISE N	IODE	L INPUT	s	
Highway Data				Site Con	ditions (I	lard =	10, So	oft = 15)		
Average Daily	Traffic (Adt): 32	2,300 vehicles					Autos:	15		
Peak Hour	Percentage:	10%		Me	dium Truc	ks (2 A	xles):	15		
Peak He	our Volume: 3	3,230 vehicles		He	avy Truck	s (3+ A	xles):	15		
Vel	hicle Speed:	45 mph		Vehicle I	Mix					
Near/Far Lar	ne Distance:	78 feet			icleType		Day	Evening	Night	Daily
Site Data				1011			77.5%	•	•	97.429
	rier Height:	0.0 feet		Me	edium Tru		84.8%		10.3%	
Barrier Type (0-Wa		0.0 1001		ŀ	leavy Tru		86.5%		10.8%	
Centerline Dis	. ,	76.0 feet								
Centerline Dist. t		76.0 feet		Noise So	ource Ele			eet)		
Barrier Distance t		0.0 feet			Autos:		000			
Observer Height ()	Above Pad):	5.0 feet			m Trucks:		297 006	Grade Ad	iustroont	
Pa	d Elevation:	0.0 feet		Heav	y Trucks:	8.0	006	Grade Adj	usuneni.	0.0
Roa	d Elevation:	0.0 feet		Lane Eq	uivalent l	Distand	e (in :	feet)		
F	Road Grade:	0.0%			Autos:	65.4	122			
	Left View:	-90.0 degrees		Mediur	m Trucks:	65.2	286			
	Right View:	90.0 degrees		Heav	y Trucks:	65.3	300			
FHWA Noise Mode										
VehicleType			listance		Road	Fresn		Barrier Att		m Atter
Autos:	68.46	3.14	-1.8		-1.20		-4.73		000	0.00
Medium Trucks:	79.45	-14.10	-1.8		-1.20		-4.88		000	0.00
Heavy Trucks:	84.25	-18.05	-1.8		-1.20		-5.25	0.0	000	0.00
Unmitigated Noise				,						
,,	Leq Peak Hour			Evening	Leq N	•		Ldn		VEL
Autos: Medium Trucks:	68.5 62.3			64.9 54.4		58.8 52.9		67.4 61.4		68. 61.
Heavy Trucks:	62.3			54.4 52.7		52.9 53.9		61.4		61. 62.
Vehicle Noise:	70.4			65.5		60.8		69.4		69
				05.5		00.0		03	+	03.
Centerline Distanc	e to Noise Coi	ntour (in feet)	70	dBA	65 dl	34	F	60 dBA	55	dBA
		Ldn:		69	148			320		89

		Y NOISE PI						
Scenario: OY 2019 With Project			Project Na			JS		
Road Name: Hamner Av.			Job Nun	nber: 11	336			
Road Segment: s/o 68th St.								
SITE SPECIFIC INPUT DATA			NO	ISE MO	DDEL	INPUTS	5	
Highway Data		Site Con	nditions (H	ard = 10), Sof	t = 15)		
Average Daily Traffic (Adt): 28,400 vehicles				Au	itos:	15		
Peak Hour Percentage: 10%		Me	dium Truck	s (2 Axi	les):	15		
Peak Hour Volume: 2,840 vehicles		He	avy Trucks	; (3+ Axi	les):	15		
Vehicle Speed: 45 mph		Vehicle	Mix					
Near/Far Lane Distance: 78 feet			icleType	Di	ay .	Evening	Night	Daily
Site Data			Aut	os: 77	7.5%	12.9%	9.6%	
Barrier Height: 0.0 feet		М	edium Truc	ks: 84	1.8%	4.9%	10.3%	1.84
Barrier Type (0-Wall, 1-Berm): 0.0		1	Heavy Truc	:ks: 86	6.5%	2.7%	10.8%	0.74
Centerline Dist. to Barrier: 76.0 feet		Noise Se	ource Elev	ations	in fee	et)		
Centerline Dist. to Observer: 76.0 feet			Autos:	0.00		/		
Barrier Distance to Observer: 0.0 feet		Mediu	m Trucks:	2.29	-			
Observer Height (Above Pad): 5.0 feet			v Trucks:	8.00	6 (Grade Adj	ustment	: 0.0
Pad Elevation: 0.0 feet			,		-			
Road Elevation: 0.0 feet		Lane Eq	uivalent D			eet)		
Road Grade: 0.0%			Autos:	65.42	-			
Left View: -90.0 degrees			m Trucks:	65.28	-			
Right View: 90.0 degrees		Heat	/y Trucks:	65.30	0			
FHWA Noise Model Calculations								
	Distanc			Fresnel		Barrier Atte		rm Atter
Autos: 68.46 2.58		1.85	-1.20		.73	0.0		0.00
Medium Trucks: 79.45 -14.66		1.84	-1.20 -1.20		.88	0.0		0.00
		1.84		-5	.25	0.0	00	0.00
Heavy Trucks: 84.25 -18.61			-1.20					
Unmitigated Noise Levels (without Topo and ba	rrier at	tenuation)		aht		ldn	0	
Unmitigated Noise Levels (without Topo and ba VehicleType Leq Peak Hour Leq Day	rrier at	tenuation) Evening	Leq Nię			Ldn		NEL 67
Unmitigated Noise Levels (without Topo and ba VehicleType Leq Peak Hour Leq Day Autos: 68.0 66.	<i>rrier att</i> Leq	tenuation) Evening 64.3	Leq Nig	58.3	1	66.9		67
Unmitigated Noise Levels (without Topo and ba VehicleType Leq Peak Hour Leq Day Autos: 68.0 66 Medium Trucks: 61.8 60	<i>rrier at</i> Leq 1	tenuation) TEvening 64.3 53.9	Leq Nig	58.3 52.3		66.9 60.8		67 61
Unmitigated Noise Levels (without Topo and ba VehicleType Leq Peak Hour Leq Day Autos: 68.0 66.	Leq 1 2	tenuation) Evening 64.3	Leq Ni	58.3		66.9		67 61 61
Unmitigated Noise Levels (without Topo and ba VehicleType Leq Peak Hour Leq Day Autos: 68.0 66. Medium Trucks: 61.8 60. Heavy Trucks: 62.6 61. Vehicle Noise: 69.8 68.	Leq 1 2	tenuation) g Evening 64.3 53.9 52.1	Leq Ni	58.3 52.3 53.4		66.9 60.8 61.7		67 61 61
Unmitigated Noise Levels (without Topo and ba VehicleType Leq Peak Hour Leq Day Autos: 68.0 66. Medium Trucks: 61.8 60. Heavy Trucks: 62.6 61. Vehicle Noise: 69.8 68.	<i>rrier at</i> Leq 1 2 2	tenuation) g Evening 64.3 53.9 52.1	Leq Ni	58.3 52.3 53.4 60.3		66.9 60.8 61.7		67 61 61
Unmitigated Noise Levels (without Topo and ba VehicleType Leq Peak Hour Leq Day Autos: 68.0 66. Medium Trucks: 61.8 60. Heavy Trucks: 62.6 61.	rrier att Leq 1 2 2 1	tenuation) v Evening 64.3 53.9 52.1 64.9	Leq Nig	58.3 52.3 53.4 60.3	60	66.9 60.8 61.7 68.8	55	67 61 61 69

	FHW	A-RD-77-108 HIG	HWAY	NOISE PF	REDICTIO	ON MOE	DEL			
Road Nam	io: OY 2019 Wi e: Hamner Av. nt: s/o Riverboa	,			Project I Job Nu	Vame: F mber: 1		us		
SITE	SPECIFIC INF	PUT DATA							s	
Highway Data				Site Con	ditions (Hard =	10, So	ft = 15)		
Average Daily	Traffic (Adt): 36	6,900 vehicles				A	Autos:	15		
Peak Hour	Percentage:	10%		Me	dium Tru	cks (2 A	xles):	15		
Peak H	our Volume:	3,690 vehicles		He	avy Truci	ks (3+ A	xles):	15		
Ve	hicle Speed:	45 mph	ŀ	Vehicle I	Mix					
Near/Far La	ne Distance:	78 feet	ŀ		icleType	1.7	Day	Evening	Night	Daily
Site Data				ven			77.5%	12.9%	9.6%	
				14	edium Tru		34.8%	4.9%	9.6%	
	rier Height:	0.0 feet			leavy Tru		34.0 % 36.5%	2.7%	10.3%	
Barrier Type (0-W	. ,	0.0		,	leavy III	<i>ichs.</i> 0	50.576	2.1 /0	10.076	0.7470
Centerline Dis		76.0 feet		Noise So	ource Ele	vations	s (in fe	et)		
Centerline Dist.		76.0 feet			Autos.	0.0	00			
Barrier Distance		0.0 feet		Mediur	n Trucks	2.2	97			
Observer Height (Above Pad): ad Elevation:	5.0 feet		Heav	y Trucks	8.0	06	Grade Ad	justmen	t: 0.0
	ad Elevation: ad Elevation:	0.0 feet	F	Lane Eq	uivalont	Distanc	o (in f	oot)		
	ad Elevation: Road Grade:	0.0 feet 0.0%	-	LaneLy	Autos			eel)		
	Left View:			Modiu	n Trucks					
	Right View:	-90.0 degrees			v Trucks					
	Right view.	90.0 degrees		Tieav	y muchs.	00.3	000			
FHWA Noise Mode	el Calculations									
VehicleType	REMEL	Traffic Flow D	istance	Finite	Road	Fresne	el I	Barrier Att	en Be	rm Atten
Autos:	68.46	3.72	-1.8	35	-1.20	-	4.73	0.0	000	0.000
Medium Trucks:	79.45	-13.52	-1.8	34	-1.20	-	4.88	0.0	000	0.000
Heavy Trucks:	84.25	-17.47	-1.8	34	-1.20	-	-5.25	0.0	000	0.000
Unmitigated Noise	e Levels (witho	ut Topo and barr	rier attei	nuation)						
VehicleType	Leg Peak Hour	Leq Day	Leg E	vening	Leg N	light		Ldn	C	NEL
Autos:	69.1	67.2		65.5		59.4		68.0)	68.6
Medium Trucks:	62.9	61.4		55.0		53.5		61.9	Э	62.2
Heavy Trucks:	63.7	62.3		53.3		54.5		62.9	Э	63.0
Vehicle Noise:	71.0) 69.2		66.1		61.4		69.9	Э	70.4
Centerline Distant	ce to Noise Co	ntour (in feet)								
			70	dBA	65 d	BA	6	0 dBA	55	5 dBA
		Ldn:	7	75	16	2		349		753
		CNEL:		31	17	4		375	8	807

Wednesday, January 17, 2018

Wednesday, January 17, 2018

Wednesday, January 17, 2018

	FHW	A-RD-77-108 HIG	HWAY N		REDICTION		EL		
Scenari	o: OY 2019 Wi	th Project			Project Na	me: Po	lopolus		
	e: Hamner Av.				Job Num	ber: 11	336		
Road Segmer	nt: s/o Schleism	nan Rd.							
	SPECIFIC IN	PUT DATA					DEL INPL		
Highway Data			1	Site Con	ditions (H	ard = 10), Soft = 15)		
Average Daily	Traffic (Adt): 3	2,200 vehicles				AL	tos: 15		
Peak Hour	Percentage:	10%		Me	dium Truck	s (2 Ax	les): 15		
Peak H	our Volume:	3,220 vehicles		He	avy Trucks	(3+ Ax	les): 15		
Vel	hicle Speed:	45 mph	5	Vehicle I	Mix				
Near/Far Lar	ne Distance:	78 feet	-		icleTvpe	D	ay Evenin	g Night	Dailv
Site Data					Aut		.5% 12.9		
Bar	rier Height:	0.0 feet		Me	edium Truc	ks: 84	.8% 4.99	% 10.39	% 1.84%
Barrier Type (0-W	•	0.0		ŀ	leavy Truc	ks: 86	6.5% 2.79	% 10.89	% 0.74%
Centerline Dis	t. to Barrier:	76.0 feet		Voise Sc	ource Elev	ations	(in feet)		-
Centerline Dist. t	to Observer:	76.0 feet			Autos:	0.00	,		
Barrier Distance t	to Observer:	0.0 feet		Mediur	n Trucks:	2.29	7		
Observer Height (J	Above Pad):	5.0 feet		Heav	y Trucks:	8.00	6 Grade /	Adjustmer	nt: 0.0
	d Elevation:	0.0 feet			-		-	,	
	d Elevation:	0.0 feet	1	ane Equ	uivalent Di		. ,		
F	Road Grade:	0.0%			Autos:	65.42	-		
	Left View:	-90.0 degrees			n Trucks:	65.28	-		
	Right View:	90.0 degrees		Heav	y Trucks:	65.30	0		
FHWA Noise Mode	el Calculations								
VehicleType	REMEL		istance	Finite		Fresnel			erm Atten
Autos:	68.46	3.13	-1.85	-	-1.20			0.000	0.000
Medium Trucks:	79.45	-14.11	-1.84		-1.20			0.000	0.000
Heavy Trucks:	84.25	-18.07	-1.84	-	-1.20	-5	.25	0.000	0.000
Unmitigated Noise		· · ·		<u> </u>					
VehicleType Autos:	Leq Peak Hour		Leq Ev	ening 64.9	Leq Nig		Ldn	7.4	CNEL 68.0
	68. 62.			64.9 54.4		58.8 52.9		7.4 1.3	
Medium Trucks: Heavy Trucks:	62.			54.4 52.7		52.9 53.9	-	1.3 2.3	61.6 62.4
Vehicle Noise:	63. 70			52.7 65.5		53.9 60.8		2.3 9.3	62.4
				05.5		00.0	0	0.0	09.0
Centerline Distanc	e to Noise Co	ntour (in reet)	70 c	1BA	65 dB	4	60 dBA	5	5 dBA
		Ldn:	6		148		319		687
		CNEL:	7	4	159		342		737

FHWA	-RD-77-108 HIGH	HWAY N	OISE PREDICT			
Scenario: OY 2019 With Road Name: Hamner Av. Road Segment: s/o Citrus St.	Project			Name: Polop umber: 1133		
SITE SPECIFIC INP	UT DATA		N	IOISE MOD	EL INPUTS	
Highway Data		S	Site Conditions	(Hard = 10, S	Goft = 15)	
Average Daily Traffic (Adt): 39,	200 vehicles			Autos	: 15	
Peak Hour Percentage:	10%		Medium Tri	ucks (2 Axles,	: 15	
Peak Hour Volume: 3,	920 vehicles		Heavy True	ks (3+ Axles)	: 15	
Vehicle Speed:	45 mph		/ehicle Mix			
Near/Far Lane Distance:	78 feet	v	VehicleType	Dav	Evening	Night Daily
Site Data			,1	Autos: 77.5	•	9.6% 97.42%
			, Medium T			10.3% 1.849
Barrier Height:	0.0 feet		Heavy Ti	01.0		10.8% 0.74%
Barrier Type (0-Wall, 1-Berm):	0.0		neavy n	ucha. 00.0	/0 2.1/0	10.0 % 0.74
Centerline Dist. to Barrier:	76.0 feet	٨	loise Source El	evations (in	feet)	
Centerline Dist. to Observer:	76.0 feet		Auto	s: 0.000		
Barrier Distance to Observer:	0.0 feet		Medium Truck	s: 2.297		
Observer Height (Above Pad):	5.0 feet		Heavy Truck	s: 8.006	Grade Adjı	stment: 0.0
Pad Elevation:	0.0 feet		ane Equivalen	Distance (in	fact	
Road Elevation:	0.0 feet	-	Auto		leel)	
Road Grade:	0.0%		Auto Medium Truck			
Right View:	90.0 degrees		Heavy Truck			
Night view.	90.0 degrees		neavy mack	3. 00.000		
FHWA Noise Model Calculations						
VehicleType REMEL T	raffic Flow Dis	stance	Finite Road	Fresnel	Barrier Atte	n Berm Atten
Autos: 68.46	3.98	-1.85	-1.20	-4.73	0.00	0.00
Medium Trucks: 79.45	-13.26	-1.84	-1.20	-4.88	0.00	0.00
Heavy Trucks: 84.25	-17.21	-1.84	-1.20	-5.25	0.00	0.00
Unmitigated Noise Levels (without	t Topo and barri	ier atteni	uation)			
VehicleType Leq Peak Hour	Leq Day	Leq Ev	ening Leq	Night	Ldn	CNEL
Autos: 69.4	67.5		65.7	59.7	68.3	68.
Medium Trucks: 63.2	61.6		55.3	53.7	62.2	62.
Heavy Trucks: 64.0	62.6		53.5	54.8	63.1	63.
Vehicle Noise: 71.2	69.5		66.3	61.7	70.2	70.
Centerline Distance to Noise Con	tour (in feet)					
		70 d	IBA 65	dBA	60 dBA	55 dBA
	Ldn:	78	3 1	69	364	784

	FH	WA-RD-77-108	HIGHWA	Y NOISE F	REDICTI	ON MODE	ïL	
Scenar	<i>io:</i> OY 2019 V	Vith Project				Name: Po		
	ne: Limonite A				Job Ni	umber: 11	336	
Road Segme	nt: w/o Hamn	er Av.						
	SPECIFIC II	NPUT DATA					DEL INPUTS	5
Highway Data				Site Co	nditions	(Hard = 10)), Soft = 15)	
Average Daily	Traffic (Adt):	37,800 vehicle	s			Au	tos: 15	
Peak Hour	Percentage:	10%		M	edium Tru	icks (2 Axl	es <i>):</i> 15	
Peak H	lour Volume:	3,780 vehicle	s	Н	eavy Truc	ks (3+ Axl	es <i>):</i> 15	
Ve	ehicle Speed:	45 mph		Vehicle	Mix			
Near/Far La	ne Distance:	78 feet			hicleType	Da	y Evening	Night Daily
Site Data							.5% 12.9%	9.6% 97.42%
Ba	rrier Heiaht:	0.0 feet		٨	1edium Tr	ucks: 84	.8% 4.9%	10.3% 1.84%
Barrier Type (0-V		0.0			Heavy Tr	ucks: 86	.5% 2.7%	10.8% 0.74%
,, , ,	ist. to Barrier:	76.0 feet		Noine	ourse El	evations (in fact)	
Centerline Dist.	to Observer:	76.0 feet		NOISe 3	Autos			
Barrier Distance	to Observer:	0.0 feet		Mark	m Trucks	0.000	-	
Observer Height	(Above Pad):	5.0 feet			vy Trucks			ustment: 0.0
P	ad Elevation:	0.0 feet		nea	vy mucks	. 8.000	5 Glade Adj	douncin. 0.0
Ro	ad Elevation:	0.0 feet		Lane E	quivalent	Distance	(in feet)	
	Road Grade:	0.0%			Autos	65.42	2	
	Left View:	-90.0 degre	es		ım Trucks		6	
	Right View:	90.0 degre	es	Hea	vy Trucks	65.30	C	
FHWA Noise Mod	lel Calculation	15						
VehicleType	REMEL	Traffic Flow	Distan		e Road	Fresnel	Barrier Atte	en Berm Atten
Autos:				1.85	-1.20		73 0.0	
Medium Trucks:				1.84	-1.20		88 0.0	00 0.00
Heavy Trucks:	84.25	-17.37	-	1.84	-1.20	-5.	25 0.0	00 0.00
Unmitigated Nois	e Levels (with	hout Topo and	barrier a	ttenuation)				
VehicleType	Leq Peak Ho			q Evening	Leq I		Ldn	CNEL
Autos:		9.2	67.3	65.6		59.5	68.1	68.
Medium Trucks:		3.0	61.5	55.1		53.6	62.0	
Heavy Trucks:		3.8	62.4	53.4		54.6	63.0	
Vehicle Noise:	7'	1.1	69.3	66.2	2	61.5	70.0	70.
	ce to Noise C	ontour (in fee						r
Centerline Distan			1	70 dBA	GE 4	1BA	60 dBA	55 dBA
Centerline Distan								
Centerline Distan			Ldn: NFL:	76 82	16	5	355	765

FHW	A-RD-77-108 HIGI	HWAY I	NOISE PI	REDICT		DEL			
Scenario: OY 2019 Wit Road Name: Limonite Av. Road Segment: e/o Hamner /	,				Name: I umber:		lus		
SITE SPECIFIC INP	UT DATA			N	IOISE N	IODE	L INPUT	s	
Highway Data			Site Con	ditions	(Hard =	10, So	oft = 15)		
Average Daily Traffic (Adt): 53	,100 vehicles				,	Autos:	15		
Peak Hour Percentage:	10%		Me	dium Tri	ucks (2 A	(xles):	15		
Peak Hour Volume: 5	,310 vehicles		He	avy Tru	cks (3+ A	(xles):	15		
Vehicle Speed:	45 mph	ł	Vehicle	Mix					
Near/Far Lane Distance:	78 feet	ŀ		icleType		Day	Evening	Night	Daily
Site Data			1011			77.5%	~	9.6%	,
	0.0 feet		М	edium Ti		84.8%		10.3%	1.84%
Barrier Height: Barrier Type (0-Wall, 1-Berm):	0.0 reet			Heavy T	rucks:	86.5%	2.7%	10.8%	0.74%
Centerline Dist. to Barrier:	76.0 feet								
Centerline Dist. to Observer:	76.0 feet	-	Noise So				et)		
Barrier Distance to Observer:	0.0 feet			Auto		000			
Observer Height (Above Pad):	5.0 feet		Mediu	m Truck		297			
Pad Elevation:	0.0 feet		Heav	ry Truck	s: 8.0	006	Grade Adj	ustment.	0.0
Road Elevation:	0.0 feet	ŀ	Lane Eq	uivalen	t Distand	ce (in f	eet)		
Road Grade:	0.0%	ŀ	,	Auto	s: 65.4	422			
Left View:	-90.0 degrees		Mediu	m Truck	s: 65.2	286			
Right View:	90.0 degrees		Heav	y Truck	s: 65.3	300			
FHWA Noise Model Calculations									
VehicleType REMEL	Traffic Flow Di	stance	Finite	Road	Fresn	el i	Barrier Att	en Ber	m Atten
Autos: 68.46	5.30	-1.8	15	-1.20		-4.73	0.0	000	0.000
Medium Trucks: 79.45	-11.94	-1.8		-1.20		-4.88		000	0.000
Heavy Trucks: 84.25	-15.89	-1.8	34	-1.20		-5.25	0.0	000	0.000
Unmitigated Noise Levels (without	ut Topo and barri	ier atter	nuation)						
VehicleType Leq Peak Hour	Leq Day	Leq E	vening	Leq	Night		Ldn	-	VEL
Autos: 70.7			67.0		61.0		69.6		70.2
Medium Trucks: 64.5			56.6		55.1		63.5		63.7
Heavy Trucks: 65.3			54.9		56.1		64.5		64.6
Vehicle Noise: 72.5	70.8		67.7		63.0		71.5	5	72.0
Centerline Distance to Noise Con	tour (in feet)								
	l		dBA		dBA	6	0 dBA		dBA
	Ldn:		96	_	07		445	-	59
	CNEL:	1	03	2	22		478	1,	029

Wednesday, January 17, 2018

Wednesday, January 17, 2018

	FHV	VA-RD-77-108	HIGHWA	Y NO	ISE PR	EDICTIO	и мог	DEL			
	2: OY 2019 W 2: Limonite Av 2: e/o I-15 Fw	<i>.</i>		Project Name: Polopolus Job Number: 11336							
SITE S	PECIFIC IN	PUT DATA				NO	ISE N	IODE	L INPUT	s	
Highway Data				Si	te Cond	litions (H	ard =	10, Sc	oft = 15)		
Average Daily T	raffic (Adt): 4	18,900 vehicles					A	Autos:	15		
Peak Hour F	Percentage:	10%			Mea	lium Truck	(2 A	xles):	15		
Peak Ho	our Volume:	4,890 vehicles			Hea	vy Trucks	; (3+ A	xles):	15		
Veh	icle Speed:	45 mph		1/4	hicle N	liv.					
Near/Far Lan	e Distance:	78 feet		Ve		leType		Dav	Evening	Night	Dailv
Site Data					Verne	Aut		77.5%	•	9.6%	
	den Helenhet.	0.0 feet		-	Me	dium Truc		34.8%		10.3%	
Barrier Type (0-Wa	ier Height:	0.0 feet			Н	eavy Truc		36.5%		10.8%	
Centerline Dis		76.0 feet									
Centerline Dist. to		76.0 feet		No	oise So	urce Elev			et)		
Barrier Distance to		0.0 feet				Autos:	0.0				
Observer Height (A		5.0 feet				Trucks:	2.2				
U 1	d Flevation:	0.0 feet			Heavy	/ Trucks:	8.0	06	Grade Ad	justment	: 0.0
Roa	d Elevation:	0.0 feet		La	ne Equ	ivalent D	istanc	e (in i	feet)		
R	oad Grade:	0.0%				Autos:	65.4	22			
	Left View:	-90.0 degree	s		Medium	Trucks:	65.2	86			
	Right View:	90.0 degree	s		Heavy	/ Trucks:	65.3	00			
FHWA Noise Mode	l Calculation:	s									
VehicleType	REMEL	Traffic Flow	Distant		Finite F		Fresn		Barrier Att		rm Atten
Autos:	68.46	4.94		1.85		-1.20		4.73		000	0.00
Medium Trucks:	79.45	-12.30		1.84		-1.20		4.88		000	0.00
Heavy Trucks:	84.25	-16.25		1.84		-1.20		-5.25	0.0	000	0.00
Unmitigated Noise											
VehicleType I Autos:	eq Peak Hou 70.	1.1.7	18.4	q Eve	ning 66.7	Leq Nig	9nt 60.6		Ldn 69.3		NEL 69.
Autos: Medium Trucks:	70.		8.4 2.6		56.2		54.7		63.2		63.
Heavy Trucks:	65.		3.5		54.5		55.7		64.1	-	64.
Vehicle Noise:	72		0.4		67.3		62.6		04. 71.2		71.
Centerline Distance	e to Noise Co	ontour (in feet)									
		, ,		70 dB	A	65 dB	A	6	0 dBA	55	dBA
		L	dn:	91		196			421	. 🤅	908

	FHW	A-RD-77-108	HIGHW.	AY N	OISE PR	EDICT	TION MO	DEL						
Scenario: OY	2019 Wit	th Project				Projec	t Name:	Polopo	olus					
Road Name: 68t	h St.					Job I	lumber:	11336						
Road Segment: w/o	Hamner	Av.												
	IFIC INF	PUT DATA							L INPUT	s				
Highway Data				S	Site Con	ditions	; (Hard =	10, So	oft = 15)					
Average Daily Traffic	(Adt): 10	0,100 vehicles						Autos:	15					
Peak Hour Percer	ntage:	10%			Med	dium Ti	rucks (2 A	(xles)	15					
Peak Hour Vo	lume: 1	1,010 vehicles			Hea	avy Tru	icks (3+ A	(xles)	15					
Vehicle S	peed:	45 mph		v	ehicle N	Nix								
Near/Far Lane Dis	Average Daily Traffic (Adt): 10,100 vehicles Peak Hour Percentage: 10% Peak Hour Volume: 1,010 vehicles Vehicle Speed: 45 mph Near/Far Lane Distance: 48 feet e Data Barrier Height: 0.0 feet arrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 55.0 feet Centerline Dist. to Barrier: 55.0 feet Sarrier Distance to Observer: 55.0 feet Barrier Distance to Observer: 55.0 feet Pad Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees WA Noise Model Calculations VehicleType REIMEL Traffic Flow Die Autos: 68.46 -1.91						VehicleType Day Evening Night L							
Site Data						77.5%	•		97.42					
	oiabt:	0.0 foot			Me			84.8%		10.3%				
								86.5%		10.8%				
<i>,</i> , , , , , , , , , , , , , , , , , , ,														
				۸	loise So		levation		eet)					
						Auto		000						
					Mediun			297						
					Heav	y Truck	(S: 8.0	006	Grade Ad	justment	: 0.0			
				L	ane Equ	iivalen	t Distan	ce (in	feet)					
						Auto								
			s		Mediun	n Truck	(s: 53.)	966						
Right	View:	0			Heav	y Truck	(s: 53.	982						
FHWA Noise Model Cald	ulations													
			Distar	се	Finite	Road	Fresn	el	Barrier Att	en Ber	m Atter			
Autos:	68.46	-1.91		-0.62		-1.20		-4.69	0.0	000	0.00			
Medium Trucks:	79.45	-19.15		-0.60		-1.20		-4.88	0.0	000	0.00			
Heavy Trucks:	84.25	-23.10		-0.60		-1.20		-5.35	0.0	000	0.00			
Unmitigated Noise Leve	ls (witho	ut Topo and I	arrier a	attenu	uation)									
VehicleType Leq P	eak Hour	Leq Day	Le	eq Ev	ening	Leq	Night		Ldn	C	NEL			
Autos:	64.7		2.8		61.1		55.0		63.6		64			
Medium Trucks:	58.5		7.0		50.6		49.1		57.5		57			
Heavy Trucks:	59.3		7.9		48.9		50.1		58.5		58			
Vehicle Noise:	66.6	6 6	4.8		61.7		57.0)	65.5	5	66			
Centerline Distance to N	loise Cor	ntour (in feet)												
				70 d			dBA	6	60 dBA		dBA			
			.dn:	30			64		138		98			
		<u></u>	FL:	32	,		69		148	3	19			

	SHWAT		EDICTION							
Scenario: OY 2019 With Project		Project Name: Polopolus Job Number: 11336								
Road Name: 68th St.			Job Numb	er: 11336						
Road Segment: e/o Hamner Av.										
SITE SPECIFIC INPUT DATA					L INPUT	s				
Highway Data		Site Con	ditions (Hai	rd = 10, So	oft = 15)					
Average Daily Traffic (Adt): 15,400 vehicles				Autos:	15					
Peak Hour Percentage: 10%			dium Trucks	, ,						
Peak Hour Volume: 1,540 vehicles		Hea	avy Trucks (3+ Axles):	15					
Vehicle Speed: 45 mph		Vehicle I	<i>lix</i>							
Near/Far Lane Distance: 48 feet		Night	Daily							
Site Data			Autos	s: 77.5%	12.9%	9.6%	97.429			
Barrier Height: 0.0 feet		Me	dium Truck	s: 84.8%	4.9%	10.3%	1.84%			
Barrier Type (0-Wall, 1-Berm): 0.0		H	leavy Truck	s: 86.5%	2.7%	10.8%	0.749			
Centerline Dist. to Barrier: 59.0 feet		Noise So	urce Eleva	tions (in f	eet)					
Centerline Dist. to Observer: 59.0 feet			Autos:	0.000						
Barrier Distance to Observer: 0.0 feet		Mediur	n Trucks:	2.297						
Observer Height (Above Pad): 5.0 feet		Heav	y Trucks:	8.006	Grade Adj	iustment.	0.0			
Pad Elevation: 0.0 feet Road Elevation: 0.0 feet		Lano Equ	ivalent Dis	tanco (in	foot)					
Road Elevation: 0.0 feet Road Grade: 0.0%		Lane Ly	Autos:	54.129	ieei)					
Left View: -90.0 degrees		Modiur	n Trucks:	53.966						
Right View: 90.0 degrees			y Trucks:	53.982						
FHWA Noise Model Calculations										
VehicleType REMEL Traffic Flow L	Distance	Finite	Road F	resnel	Barrier Atte	en Ber	m Atten			
Autos: 68.46 -0.08	-0.6	52	-1.20	-4.69	0.0	000	0.00			
Medium Trucks: 79.45 -17.31	-0.6	60	-1.20	-4.88	0.0	000	0.00			
Heavy Trucks: 84.25 -21.27	-0.6	50	-1.20	-5.35	0.0	000	0.00			
Unmitigated Noise Levels (without Topo and bar				. 1						
VehicleType Leq Peak Hour Leq Day		vening	Leq Nigh		Ldn		VEL			
Autos: 66.6 64. Medium Trucks: 60.3 58.		62.9 52.5		56.8 50.9	65.5 59.4		66. 59			
	-	52.5 50.7		50.9 52.0	59.4 60.3		59. 60.			
Heavy Trucks: 61.2 59.1 Vehicle Noise: 68.4 66.1	•	50.7 63.5		52.0 58.8	67.4	-	67.			
00.1 00.	(63.5		58.8	67.4	+	67.			
Centerline Distance to Noise Contour (in feet)	70	dBA	65 dBA		60 dBA	55	dBA			
	1 70									
Ldr		39	85		183		94			

	FHV	VA-RD-77-108 HI	GHWAY	NOISE P	REDICTIC	ON MOE	DEL						
Scenario: Road Name: Road Segment:		Dr.		Project Name: Polopolus Job Number: 11336									
SITE SF	PECIFIC IN	IPUT DATA		NOISE MODEL INPUTS Site Conditions (Hard = 10, Soft = 15)									
Highway Data				Site Col	nditions (H	Hard =	10, So	ft = 15)					
Average Daily Tra	affic (Adt):	6,300 vehicles				A	utos:	15					
Peak Hour Pe	ercentage:	10%		Me	edium Truc	ks (2 A	xles):	15					
Peak Hou	ır Volume:	630 vehicles		He	eavy Truck	s (3+ A	xles):	15					
Vehic	cle Speed:	40 mph		Vehicle	Mix								
Near/Far Lane	Distance:	12 feet			nicleType		Dav	Evening	Night	Daily			
Site Data							77.5%	12.9%	9.6%				
Barrie	er Heiaht:	0.0 feet		M	ledium Tru	cks: 8	34.8%	4.9%	10.3%				
Barrier Type (0-Wall		0.0 1001			Heavy Tru	cks: 8	36.5%	2.7%	10.8%	0.74%			
Centerline Dist.	. ,	37.0 feet			,								
Centerline Dist. to		37.0 feet		Noise S	ource Ele			et)					
Barrier Distance to	Observer:	0.0 feet			Autos:	0.0							
Observer Height (At		5.0 feet			m Trucks:			0					
0 1	Elevation:	0.0 feet		Hea	vy Trucks:	8.0	06	Grade Ad	ustment	: 0.0			
Road	Elevation:	0.0 feet		Lane Ec	uivalent L	Distanc	e (in f	eet)					
Ro	ad Grade:	0.0%			Autos:	36.8	51						
	Left View:	-90.0 degrees		Mediu	m Trucks:	36.6	10						
R	Right View:	90.0 degrees		Hea	vy Trucks:	36.6	34						
FHWA Noise Model	Calculation	s											
VehicleType	REMEL	Traffic Flow	Distance	Finite	Road	Fresne	el l	Barrier Att	en Ber	m Atten			
Autos:	66.51	-3.45	1.	88	-1.20	-	4.56	0.0	000	0.000			
Medium Trucks:	77.72	-20.68	1.	93	-1.20	-	4.87	0.0	000	0.000			
Heavy Trucks:	82.99	-24.64	1.	92	-1.20	-	5.61	0.0	000	0.000			
Unmitigated Noise L	evels (with	out Topo and ba	rrier atte	nuation)									
VehicleType Le	eq Peak Hou	r Leq Day	Leq	Evening	Leq N	light		Ldn	C	NEL			
Autos:	63		9	60.1		54.0		62.7		63.3			
Medium Trucks:	57	.8 56	3	49.9		48.3		56.8		57.0			
Heavy Trucks:	59	.1 57	7	48.6		49.9		58.2	2	58.4			
Vehicle Noise:	65	.8 64	0	60.8		56.2		64.7	7	65.2			
Centerline Distance	to Noise Co	ontour (in feet)											
) dBA	65 dł		6	0 dBA		dBA			
		Ld		17	36			77		65			
		CNE	L:	18	38			82	1	77			

Wednesday, January 17, 2018

Wednesday, January 17, 2018

Wednesday, January 17, 2018

	FH\	NA-RD-77-108	HIGHW	AY NO	DISE PI	REDICTIO	N МО	DEL			
Scenario	o: OY 2019 W	/ith Project				Project Na	ame:	Polopo	lus		
Road Name	e: Schleismar	n Rd.				Job Nun	nber:	11336			
Road Segmen	it: w/o Schola	r Wy.									
	Road Segment: w/o Scholar Wy. SITE SPECIFIC INPUT DATA ghway Data Average Daily Traffic (Adt): 11,400 vehicles Peak Hour Percentage: 10% Peak Hour Volume: 1,140 vehicles Vehicle Speed: 45 mph Near/Far Lane Distance: 78 feet								L INPUT	s	
Highway Data				S	ite Con	ditions (H	ard =	10, Sc	oft = 15)		
Average Daily	Traffic (Adt):	11,400 vehicles					,	Autos:	15		
Peak Hour I	Percentage:	10%			Me	dium Truck	ks (2 A	(xles)	15		
Peak Ho	our Volume:	1,140 vehicles			He	avy Trucks	s (3+ A	(xles)	15		
Vel	nicle Speed:	45 mph		V	ehicle	Mix					
Near/Far Lar	ne Distance:	78 feet		-	Veh	icleType		Day	Evening	Night	Daily
Site Data						Au	tos:	77.5%	12.9%	9.6%	97.42%
Bar	rier Height:	0.0 feet			M	edium Truc	:ks:	84.8%	4.9%	10.3%	1.84%
	•				ŀ	Heavy Truc	ks:	86.5%	2.7%	10.8%	0.74%
Centerline Dis	t. to Barrier:	76.0 feet		N	oise So	ource Elev	ation	s (in fe	et)		
Centerline Dist. t	o Observer:	76.0 feet		-		Autos:		000	,		
Barrier Distance t	o Observer:	0.0 feet			Mediu	m Trucks:		297			
Observer Height (/	Above Pad):	5.0 feet			Heav	vy Trucks:	8.0	006	Grade Ad	iustment	: 0.0
Pa	d Elevation:	0.0 feet									
	d Elevation:	0.0 feet		L	ane Eq	uivalent D			feet)		
F	Road Grade:	0.0%				Autos:	65.4				
	Left View:	-90.0 degree				m Trucks:	65.3				
	Right View:	90.0 degree	s		Heav	y Trucks:	65.3	300			
FHWA Noise Mode	el Calculation										
VehicleType	REMEL	Traffic Flow	Distar		Finite	Road	Fresn		Barrier Att		rm Atten
Autos:	68.46	-1.38		-1.85		-1.20		-4.73		000	0.000
Medium Trucks:	79.45	-18.62		-1.84		-1.20		-4.88		000	0.000
Heavy Trucks:	84.25	-22.58		-1.84		-1.20		-5.25	0.0	000	0.00
Unmitigated Noise										-	
	Leq Peak Hou	1 1		eq Eve	•	Leq Ni	·		Ldn		NEL
Autos:	64		52.1		60.4		54.3		62.9		63.
Medium Trucks:	57		6.3		49.9		48.4		56.8	-	57.
Heavy Trucks:	58		57.2		48.2		49.4		57.8		57.9
Vehicle Noise:	65		64.1		61.0		56.3	•	64.8	5	65.3
Centerline Distanc	e to Noise Co	ontour (in feet)		70 dł	RA	65 dE	24	6	0 dBA	55	dBA
		,	dn:	34	<i>//</i> 1	05 UE 74	V-1		160		344
			IFI :	37		74			171		369
		Ch		31		15			., .		000

	FHW	/A-RD-77-108 H	GHWA	Y NOISE P	REDICTIO	N MOI	DEL					
	<i>io:</i> OY 2019 Wi			Project Name: Polopolus Job Number: 11336								
	ne: Schleisman				Job Nun	nber: 1	1336					
Road Segme	nt: e/o Scholar											
	SPECIFIC IN	PUT DATA						L INPUT	s			
Highway Data				Site Cor	nditions (H	lard =	10, S	oft = 15)				
Average Daily	Traffic (Adt): 1	1,000 vehicles					Autos:	15				
Peak Hour	Percentage:	10%		Me	dium Truci	ks (2 A	xles):	15				
Peak H	lour Volume:	1,100 vehicles		Heavy Trucks (3+ Axles): 15								
	hicle Speed:		Vehicle	Mix								
Near/Far La	ne Distance:		VehicleType Day Evening Night									
Site Data				Au	tos:	77.5%	5 12.9%	9.6%	97.429			
Ba	rrier Height:	0.0 feet		М	edium Truc	cks:	84.8%	4.9%	10.3%	1.849		
Barrier Type (0-W		0.0		1	Heavy Truc	cks:	86.5%	2.7%	10.8%	0.749		
Centerline Di	. ,	76.0 feet		Noise O				41				
Centerline Dist.	to Observer:	76.0 feet		Noise S	ource Elev			eet)				
Barrier Distance	to Observer:	0.0 feet		Madiu	Autos: m Trucks:	0.0	297					
Observer Height	(Above Pad):	5.0 feet			/y Trucks:		.97)06	Grade Ad	iustmont	. 0.0		
P	ad Elevation:	0.0 feet		Tieat	ly muchs.	0.0	000	Olade Adj	usuncia	0.0		
Ro		Lane Eq	uivalent D	Distand	e (in	feet)						
	Road Grade: 0.0%				Autos:	65.4						
	Left View:	-90.0 degrees			m Trucks:	65.2						
	Right View:	90.0 degrees		Heav	/y Trucks:	65.3	300					
FHWA Noise Mod	el Calculations	;		1								
VehicleType	REMEL	Traffic Flow	Distance		Road	Fresn		Barrier Att		m Atten		
Autos:		-1.54		.85	-1.20		-4.73		000	0.00		
Medium Trucks:	79.45	-18.78		.84	-1.20		-4.88		000	0.00		
Heavy Trucks:	84.25	-22.73	-1	.84	-1.20		-5.25	0.0	000	0.00		
Unmitigated Nois							r					
VehicleType	Leq Peak Hour			Evening	Leq Ni	·		Ldn		NEL		
Autos:	63.			60.2		54.1		62.8		63.		
Medium Trucks:	57.			49.8		48.2		56.7		56.		
Heavy Trucks: Vehicle Noise:	58.			48.0		49.3		57.6		57.		
	65.		.0	60.8		56.1		64.7	·	65.		
Centerline Distan	ce to Noise Co	ntour (in feet)	7	'0 dBA	65 dE	RΔ		60 dBA	55	dBA		
		Ld		34	72	<i>//</i> 1		156		36		

Scenario: OY 2019 With I	Project		Projec	t Name: F	Polonol	110		
Road Name: Citrus St.	Tujeci			Number: 1		us		
Road Segment: w/o Hamner Av			000	101110-011	1000			
SITE SPECIFIC INPU		1		NOISE M		INDUT		
Highway Data		s	te Condition				,	
Average Daily Traffic (Adt): 19,5	00 vehicles			A	lutos:	15		
• • • • •	10%		Medium T	rucks (2 A	xles):	15		
•	50 vehicles			ucks (3+ A		15		
Vehicle Speed:	45 mph				· ·			
Near/Far Lane Distance:	36 feet	V	Vehicle Mix VehicleTyp		Dav	Evening	Night	Daily
Site Data			venicieryp		77.5%	12.9%	9.6%	
			Medium		34.8%	4.9%	10.3%	
	0.0 feet 0.0				36.5%		10.8%	
	0.0 feet						10.070	0.7 1
	0.0 feet	٨	loise Source l	Elevations	in fe	et)		
	0.0 feet		Aut	os: 0.0	00			
	5.0 feet		Medium Truc	ks: 2.2	97			
• (0.0 feet		Heavy Truc	ks: 8.0	06 (Grade Adj	ustment.	: 0.0
	0.0 feet	1	ane Equivale	nt Distanc	e (in fe	pet)		
	0.0%	-	Aut					
	0.0 dearees		Medium Truc					
	0.0 degrees		Heavy Truc					
FHWA Noise Model Calculations								
VehicleType REMEL Tra	affic Flow Dista	ance	Finite Road	Fresne	el E	Barrier Atte	en Ber	m Atten
Autos: 68.46	0.95	0.31	-1.20	-	4.65	0.0	00	0.00
Medium Trucks: 79.45	-16.29	0.34	-1.20	-	4.87	0.0	00	0.00
Heavy Trucks: 84.25	-20.24	0.34	-1.20	-	-5.43	0.0	00	0.00
Unmitigated Noise Levels (without			,					
VehicleType Leq Peak Hour		Leq Ev		n Night		Ldn		NEL
Autos: 68.5	66.6		64.9	58.8		67.4		68.
Medium Trucks: 62.3	60.8		54.4	52.9		61.3		61.
Heavy Trucks: 63.1	61.7		52.7	53.9		62.3		62
Vehicle Noise: 70.4	68.6		65.5	60.8		69.3		69.
	ur (in feet)							
Centerline Distance to Noise Conto							EE	dBA
Centerline Distance to Noise Conto	Ĺ	70 d		5 dBA) dBA		
Centerline Distance to Noise Conto	Ldn: CNFL :	70 d 45 48	5	5 dBA 97 104		210 225	4	152 184

FHW	A-RD-77-108 HIG	HWAY I	NOISE PR	REDICTI	ON MOI	DEL			
Scenario: OY 2019 Wi Road Name: Citrus St. Road Segment: e/o Hamner	,				Name: F umber: 1		lus		
SITE SPECIFIC IN	PUT DATA			N	OISE N	IODE	L INPUTS	5	
Highway Data			Site Con	ditions	(Hard =	10, So	oft = 15)		
Average Daily Traffic (Adt):	4,000 vehicles				A	Autos:	15		
Peak Hour Percentage:	10%		Me	dium Tru	icks (2 A	xles):	15		
Peak Hour Volume:	400 vehicles		He	avy Truc	:ks (3+ A	xles):	15		
Vehicle Speed:	45 mph	ŀ	Vehicle I	Mix					
Near/Far Lane Distance:	36 feet	ŀ		icleType		Day	Evening	Night	Daily
Site Data			ven			77.5%	•	9.6%	
	0.0 feet		Me	edium Tr		34.8%		10.3%	1.84%
Barrier Height: Barrier Type (0-Wall, 1-Berm):	0.0 reet		ŀ	leavy Tr	ucks:	36.5%		10.8%	0.74%
Centerline Dist, to Barrier:	50.0 feet								
Centerline Dist. to Observer:	50.0 feet		Noise So				et)		
Barrier Distance to Observer:	0.0 feet			Autos					
Observer Height (Above Pad):	5.0 feet			m Trucks					
Pad Elevation:	0.0 feet		Heav	y Trucks	s: 8.0	06	Grade Adj	ustment:	0.0
Road Elevation:	0.0 feet		Lane Eq	uivalent	Distanc	e (in f	eet)		
Road Grade:	0.0%	ŀ		Autos	s: 46.9	915	1		
Left View:	-90.0 degrees		Mediu	n Trucks	3: 46.7	26			
Right View:	90.0 degrees		Heav	y Trucks	s: 46.7	'44			
FHWA Noise Model Calculations									
VehicleType REMEL	Traffic Flow D	listance	Finite	Road	Fresn	el .	Barrier Atte	en Ber	m Atten
Autos: 68.46	-5.93	0.3	31	-1.20		4.65	0.0	00	0.000
Medium Trucks: 79.45	-23.17	0.3		-1.20		4.87	0.0		0.000
Heavy Trucks: 84.25	-27.12	0.3	14	-1.20		-5.43	0.0	00	0.000
Unmitigated Noise Levels (witho	ut Topo and barı	rier atter	nuation)						
VehicleType Leq Peak Hour	Leq Day	Leq E	vening	Leq	Night		Ldn	Cl	VEL
Autos: 61.			58.0		51.9		60.5		61.1
Medium Trucks: 55.	4 53.9		47.5		46.0		54.5		54.7
Heavy Trucks: 56.			45.8		47.1		55.4		55.5
Vehicle Noise: 63.	5 61.7		58.6		53.9		62.5		62.9
Centerline Distance to Noise Co	ntour (in feet)								
		70	dBA	65 (dBA	6	0 dBA	55	dBA
				3			73	4	57
	Ldn: CNEL:		16 17	3			78		68

Wednesday, January 17, 2018

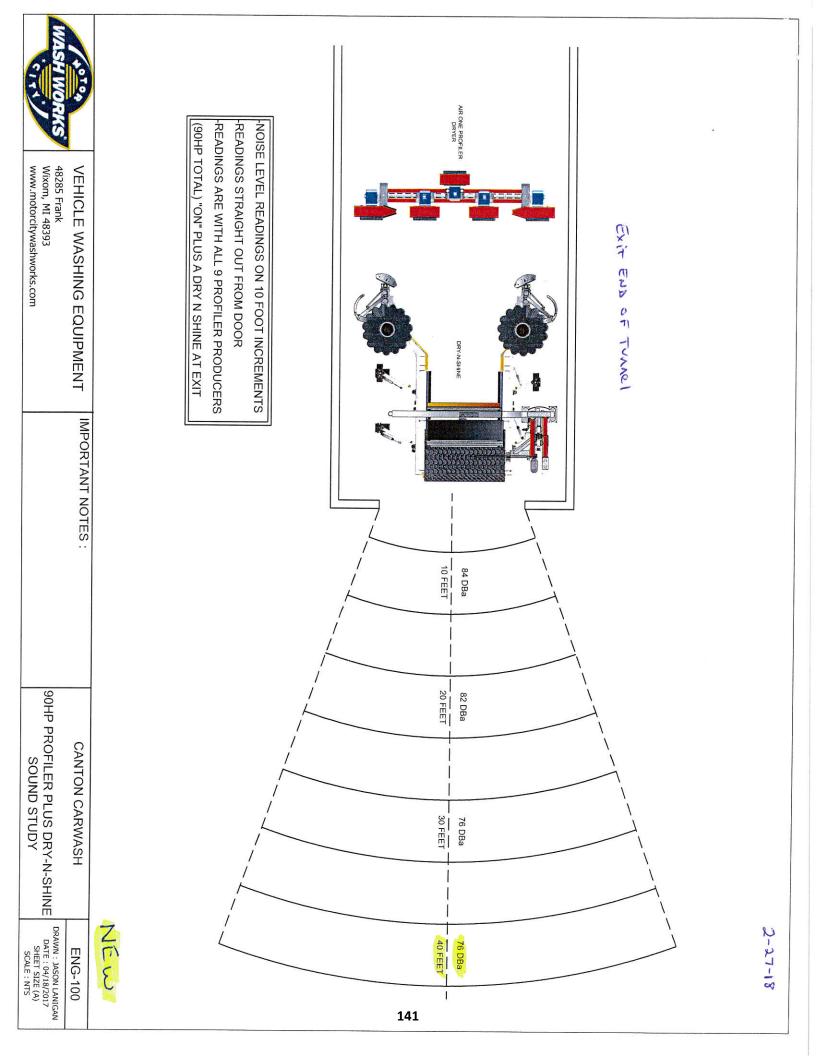
Wednesday, January 17, 2018

APPENDIX 9.1:

MOTOR CITY WASH WORKS REFERENCE NOISE LEVEL DATA









APPENDIX 9.2:

SITE 1 OPERATIONAL NOISE LEVEL CALCULATIONS



Observer Location: R6

Source: Air Conditioning Unit (Roof-Top) *Condition:* Operational

Project Name: Polopolus Site 1 Job Number: 11336 Analyst: A. Wolfe

NOISE MODEL INPUTS								
Noise Distance to Observer	623.0 feet	Barrier Height:	0.0 feet					
Noise Distance to Barrier:	623.0 feet	Noise Source Height:	5.0 feet					
Barrier Distance to Observer:	0.0 feet	Observer Height:	5.0 feet					
Observer Elevation:	0.0 feet	Barrier Type (0-Wall, 1-Berm):	0					
Noise Source Elevation:	20.0 feet	Drop Off Coefficient:	20.0					
Barrier Elevation:	0.0 feet		dBA per doubling of distance .5 dBA per doubling of distance					

NOISE MODEL PROJECTIONS									
Noise Level	Distance (feet)	Leq	L50	L25	L8	L2	Lmax		
Reference (Sample)	5.0	77.2	0.0	0.0	0.0	0.0	0.0		
Distance Attenuation	623.0	-41.9	-41.9	-41.9	-41.9	-41.9	-41.9		
Shielding (Barrier Attenuation)	623.0	0.0	0.0	0.0	0.0	0.0	0.0		
Raw (Distance + Barrier)		35.3	-41.9	-41.9	-41.9	-41.9	-41.9		
39 Minute Hourly Adjustmer	nt	33.4	-43.8	-43.8	-43.8	-43.8	-43.8		

S	TATIONARY SOURCE N	OISE PREDICTION MODEL	1/29/2018				
Observer Location: R6 Source: Drive-Through Speakerphone Condition: Operational		Project Name: Polopolus Site 1 Job Number: 11336 Analyst: A. Wolfe					
NOISE MODEL INPUTS							
Noise Distance to Observer	862.0 feet	Barrier Height:	0.0 feet				
Noise Distance to Barrier:	862.0 feet	Noise Source Height:	3.0 feet				
Barrier Distance to Observer:	0.0 feet	Observer Height:	5.0 feet				
Observer Elevation:	0.0 feet	Barrier Type (0-Wall, 1-Berm):	0				
Noise Source Elevation:	0.0 feet	Drop Off Coefficient:	20.0				
Barrier Elevation:	0.0 feet	20 = 6 dBA per doubling 15 = 4.5 dBA per doubling					

NOISE MODEL PROJECTIONS									
Noise Level	Distance (feet)	Leq	L50	L25	L8	L2	Lmax		
Reference (Sample)	15.0	62.0	0.0	0.0	0.0	0.0	0.0		
Distance Attenuation	862.0	-35.2	-35.2	-35.2	-35.2	-35.2	-35.2		
Shielding (Barrier Attenuation)	862.0	0.0	0.0	0.0	0.0	0.0	0.0		
Raw (Distance + Barrier)		26.8	-35.2	-35.2	-35.2	-35.2	-35.2		
60 Minute Hourly Adjustmer	nt	26.8	-35.2	-35.2	-35.2	-35.2	-35.2		

Observer Location: R6

Source: Parking Lot Vehicle Movements Condition: Operational Project Name: Polopolus Site 1 Job Number: 11336 Analyst: A. Wolfe

NOISE MODEL INPUTS								
Noise Distance to Observer	807.0 feet	Barrier Height:	0.0 feet					
Noise Distance to Barrier:	807.0 feet	Noise Source Height:	5.0 feet					
Barrier Distance to Observer:	0.0 feet	Observer Height:	5.0 feet					
Observer Elevation:	0.0 feet	Barrier Type (0-Wall, 1-Berm):	0					
Noise Source Elevation:	0.0 feet	Drop Off Coefficient:	15.0					
Barrier Elevation:	0.0 feet	20 = 6 dBA per doubling o 15 = 4.5 dBA per doubling						

NOISE MODEL PROJECTIONS									
Noise Level	Distance (feet)	Leq	L50	L25	L8	L2	Lmax		
Reference (Sample)	5.0	60.1	0.0	0.0	0.0	0.0	0.0		
Distance Attenuation	807.0	-33.1	-33.1	-33.1	-33.1	-33.1	-33.1		
Shielding (Barrier Attenuation)	807.0	0.0	0.0	0.0	0.0	0.0	0.0		
Raw (Distance + Barrier)		27.0	-33.1	-33.1	-33.1	-33.1	-33.1		
60 Minute Hourly Adjustmen	nt	27.0	-33.1	-33.1	-33.1	-33.1	-33.1		

5	TATIONARY SOURC	E NOISE PREDICTION MODEL	1/29/2018					
Observer Location: R6 Source: Gas Station Activity Condition: Operational		Project Name: Polopolus Site 1 Job Number: 11336 Analyst: A. Wolfe						
NOISE MODEL INPUTS								
Noise Distance to Observer Noise Distance to Barrier: Barrier Distance to Observer:	640.0 feet 640.0 feet 0.0 feet	<i>Barrier Height:</i> Noise Source Height: Observer Height:	0.0 feet 5.0 feet 5.0 feet					
<i>Observer Elevation: Noise Source Elevation: Barrier Elevation:</i>	0.0 feet 0.0 feet 0.0 feet	Barrier Type (0-Wall, 1-Berm): Drop Off Coefficient: 20 = 6 dBA per doubling o 15 = 4.5 dBA per doubling						

NOISE MODEL PROJECTIONS									
Noise Level	Distance (feet)	Leq	L50	L25	L8	L2	Lmax		
Reference (Sample)	5.0	68.2	0.0	0.0	0.0	0.0	0.0		
Distance Attenuation	640.0	-42.1	-42.1	-42.1	-42.1	-42.1	-42.1		
Shielding (Barrier Attenuation)	640.0	0.0	0.0	0.0	0.0	0.0	0.0		
Raw (Distance + Barrier)		26.1	-42.1	-42.1	-42.1	-42.1	-42.1		
60 Minute Hourly Adjustmer	nt	26.1	-42.1	-42.1	-42.1	-42.1	-42.1		

Observer Location: R7

Source: Air Conditioning Unit (Roof-Top) *Condition:* Operational

Project Name: Polopolus Site 1 Job Number: 11336 Analyst: A. Wolfe

NOISE MODEL INPUTS								
Noise Distance to Observer	56.0 feet	Barrier Height:	6.0 feet					
Noise Distance to Barrier:	46.0 feet	Noise Source Height:	5.0 feet					
Barrier Distance to Observer:	10.0 feet	Observer Height:	5.0 feet					
Observer Elevation:	0.0 feet	Barrier Type (0-Wall, 1-Berm):	0					
Noise Source Elevation:	20.0 feet	Drop Off Coefficient:	20.0					
Barrier Elevation:	0.0 feet	20 = 6 dBA per doubling o 15 = 4.5 dBA per doubling						

NOISE MODEL PROJECTIONS									
Noise Level	Distance (feet)	Leq	L50	L25	L8	L2	Lmax		
Reference (Sample)	5.0	77.2	0.0	0.0	0.0	0.0	0.0		
Distance Attenuation	56.0	-21.0	-21.0	-21.0	-21.0	-21.0	-21.0		
Shielding (Barrier Attenuation)	46.0	-7.7	-7.7	-7.7	-7.7	-7.7	-7.7		
Raw (Distance + Barrier)		48.5	-28.7	-28.7	-28.7	-28.7	-28.7		
39 Minute Hourly Adjustmer	nt	46.6	-30.6	-30.6	-30.6	-30.6	-30.6		

S	TATIONARY SOURCE N	OISE PREDICTION MODEL	1/29/2018					
Observer Location: R7 Source: Drive-Through Speakerphone Condition: Operational		Project Name: Polopolus Site 1 Job Number: 11336 Analyst: A. Wolfe						
NOISE MODEL INPUTS								
Noise Distance to Observer	463.0 feet	Barrier Height:	6.0 feet					
Noise Distance to Barrier:	453.0 feet	Noise Source Height:	3.0 feet					
Barrier Distance to Observer:	10.0 feet	Observer Height:	5.0 feet					
Observer Elevation:	0.0 feet	Barrier Type (0-Wall, 1-Berm):	0					
Noise Source Elevation:	0.0 feet	Drop Off Coefficient:	20.0					
Barrier Elevation:	0.0 feet	20 = 6 dBA per doubling 15 = 4.5 dBA per doubling						

NOISE MODEL PROJECTIONS									
Noise Level	Distance (feet)	Leq	L50	L25	L8	L2	Lmax		
Reference (Sample)	15.0	62.0	0.0	0.0	0.0	0.0	0.0		
Distance Attenuation	463.0	-29.8	-29.8	-29.8	-29.8	-29.8	-29.8		
Shielding (Barrier Attenuation)	453.0	-5.5	-5.5	-5.5	-5.5	-5.5	-5.5		
Raw (Distance + Barrier)		26.7	-35.3	-35.3	-35.3	-35.3	-35.3		
60 Minute Hourly Adjustmer	nt	26.7	-35.3	-35.3	-35.3	-35.3	-35.3		

Observer Location: R7

Source: Parking Lot Vehicle Movements Condition: Operational Project Name: Polopolus Site 1 Job Number: 11336 Analyst: A. Wolfe

NOISE MODEL INPUTS								
Noise Distance to Observer	99.0 feet	Barrier Height:	6.0 feet					
Noise Distance to Barrier:	89.0 feet	Noise Source Height:	5.0 feet					
Barrier Distance to Observer:	10.0 feet	Observer Height:	5.0 feet					
Observer Elevation:	0.0 feet	Barrier Type (0-Wall, 1-Berm):	0					
Noise Source Elevation:	0.0 feet	Drop Off Coefficient:	15.0					
Barrier Elevation:	0.0 feet	20 = 6 dBA per doubling o 15 = 4.5 dBA per doubling						

NOISE MODEL PROJECTIONS									
Noise Level	Distance (feet)	Leq	L50	L25	L8	L2	Lmax		
Reference (Sample)	5.0	60.1	0.0	0.0	0.0	0.0	0.0		
Distance Attenuation	99.0	-19.4	-19.4	-19.4	-19.4	-19.4	-19.4		
Shielding (Barrier Attenuation)	89.0	-5.5	-5.5	-5.5	-5.5	-5.5	-5.5		
Raw (Distance + Barrier)		35.2	-24.9	-24.9	-24.9	-24.9	-24.9		
60 Minute Hourly Adjustmer	nt	35.2	-24.9	-24.9	-24.9	-24.9	-24.9		

5	TATIONARY SOURC	E NOISE PREDICTION MODEL	1/29/2018
Observer Location: R7 Source: Gas Station Activity Condition: Operational		Project Name: Polopolus Site 1 Job Number: 11336 Analyst: A. Wolfe	
	NOISE N	NODEL INPUTS	
Noise Distance to Observer Noise Distance to Barrier: Barrier Distance to Observer:	227.0 feet 217.0 feet 10.0 feet	Barrier Height: Noise Source Height: Observer Height:	6.0 feet 5.0 feet 5.0 feet
Observer Elevation: Noise Source Elevation: Barrier Elevation:	0.0 feet 0.0 feet 0.0 feet	Barrier Type (0-Wall, 1-Berm): Drop Off Coefficient: 20 = 6 dBA per doubling o 15 = 4.5 dBA per doubling	

NOISE MODEL PROJECTIONS									
Noise Level	Distance (feet)	Leq	L50	L25	L8	L2	Lmax		
Reference (Sample)	5.0	68.2	0.0	0.0	0.0	0.0	0.0		
Distance Attenuation	227.0	-33.1	-33.1	-33.1	-33.1	-33.1	-33.1		
Shielding (Barrier Attenuation)	217.0	-5.5	-5.5	-5.5	-5.5	-5.5	-5.5		
Raw (Distance + Barrier)		29.6	-38.6	-38.6	-38.6	-38.6	-38.6		
60 Minute Hourly Adjustmer	nt	29.6	-38.6	-38.6	-38.6	-38.6	-38.6		

Observer Location: R8

Source: Air Conditioning Unit (Roof-Top) *Condition:* Operational

Project Name: Polopolus Site 1 Job Number: 11336 Analyst: A. Wolfe

NOISE MODEL INPUTS								
Noise Distance to Observer	99.0 feet	Barrier Height:	6.0 feet					
Noise Distance to Barrier:	89.0 feet	Noise Source Height:	5.0 feet					
Barrier Distance to Observer:	10.0 feet	Observer Height:	5.0 feet					
Observer Elevation:	0.0 feet	Barrier Type (0-Wall, 1-Berm):	0					
Noise Source Elevation:	20.0 feet	Drop Off Coefficient:	20.0					
Barrier Elevation:	0.0 feet	20 = 6 dBA per doubling o 15 = 4.5 dBA per doubling						

NOISE MODEL PROJECTIONS									
Noise Level	Distance (feet)	Leq	L50	L25	L8	L2	Lmax		
Reference (Sample)	5.0	77.2	0.0	0.0	0.0	0.0	0.0		
Distance Attenuation	99.0	-25.9	-25.9	-25.9	-25.9	-25.9	-25.9		
Shielding (Barrier Attenuation)	89.0	-5.5	-5.5	-5.5	-5.5	-5.5	-5.5		
Raw (Distance + Barrier)		45.8	-31.4	-31.4	-31.4	-31.4	-31.4		
39 Minute Hourly Adjustmer	ht	43.9	-33.3	-33.3	-33.3	-33.3	-33.3		

S	TATIONARY SOURCE N	OISE PREDICTION MODEL	1/29/2018
Observer Location: R8 Source: Drive-Through Speakerphone Condition: Operational		Project Name: Polopolus Site 1 Job Number: 11336 Analyst: A. Wolfe	
	NOISE MO	DEL INPUTS	
Noise Distance to Observer	837.0 feet	Barrier Height:	6.0 feet
Noise Distance to Barrier:	827.0 feet	Noise Source Height:	3.0 feet
Barrier Distance to Observer:	10.0 feet	Observer Height:	5.0 feet
Observer Elevation:	0.0 feet	Barrier Type (0-Wall, 1-Berm):	0
Noise Source Elevation:	0.0 feet	Drop Off Coefficient:	20.0
Barrier Elevation:	0.0 feet	20 = 6 dBA per doubling o 15 = 4.5 dBA per doubling	

NOISE MODEL PROJECTIONS									
Noise Level	Distance (feet)	Leq	L50	L25	L8	L2	Lmax		
Reference (Sample)	15.0	62.0	0.0	0.0	0.0	0.0	0.0		
Distance Attenuation	837.0	-34.9	-34.9	-34.9	-34.9	-34.9	-34.9		
Shielding (Barrier Attenuation)	827.0	-5.5	-5.5	-5.5	-5.5	-5.5	-5.5		
Raw (Distance + Barrier)		21.6	-40.4	-40.4	-40.4	-40.4	-40.4		
60 Minute Hourly Adjustmer	nt	21.6	-40.4	-40.4	-40.4	-40.4	-40.4		

Observer Location: R8

Source: Parking Lot Vehicle Movements Condition: Operational Project Name: Polopolus Site 1 Job Number: 11336 Analyst: A. Wolfe

NOISE MODEL INPUTS								
Noise Distance to Observer	77.0 feet	Barrier Height:	6.0 feet					
Noise Distance to Barrier:	67.0 feet	Noise Source Height:	5.0 feet					
Barrier Distance to Observer:	10.0 feet	Observer Height:	5.0 feet					
Observer Elevation:	0.0 feet	Barrier Type (0-Wall, 1-Berm):	0					
Noise Source Elevation:	0.0 feet	Drop Off Coefficient:	15.0					
Barrier Elevation:	0.0 feet	20 = 6 dBA per doubling o 15 = 4.5 dBA per doubling						

NOISE MODEL PROJECTIONS									
Noise Level	Distance (feet)	Leq	L50	L25	L8	L2	Lmax		
Reference (Sample)	5.0	60.1	0.0	0.0	0.0	0.0	0.0		
Distance Attenuation	77.0	-17.8	-17.8	-17.8	-17.8	-17.8	-17.8		
Shielding (Barrier Attenuation)	67.0	-5.6	-5.6	-5.6	-5.6	-5.6	-5.6		
Raw (Distance + Barrier)		36.7	-23.4	-23.4	-23.4	-23.4	-23.4		
60 Minute Hourly Adjustmer	nt	36.7	-23.4	-23.4	-23.4	-23.4	-23.4		

S	TATIONARY SOURC	E NOISE PREDICTION MODEL	1/29/2018
Observer Location: R8 Source: Gas Station Activity Condition: Operational		Project Name: Polopolus Site 1 Job Number: 11336 Analyst: A. Wolfe	
	NOISE N	NODEL INPUTS	
Noise Distance to Observer Noise Distance to Barrier: Barrier Distance to Observer:	678.0 feet 668.0 feet 10.0 feet	Barrier Height: Noise Source Height: Observer Height:	6.0 feet 5.0 feet 5.0 feet
Observer Elevation: Noise Source Elevation: Barrier Elevation:	0.0 feet 0.0 feet 0.0 feet	Barrier Type (0-Wall, 1-Berm): Drop Off Coefficient: 20 = 6 dBA per doubling 15 = 4.5 dBA per doubling	

NOISE MODEL PROJECTIONS									
Noise Level	Distance (feet)	Leq	L50	L25	L8	L2	Lmax		
Reference (Sample)	5.0	68.2	0.0	0.0	0.0	0.0	0.0		
Distance Attenuation	678.0	-42.6	-42.6	-42.6	-42.6	-42.6	-42.6		
Shielding (Barrier Attenuation)	668.0	-5.5	-5.5	-5.5	-5.5	-5.5	-5.5		
Raw (Distance + Barrier)		20.1	-48.1	-48.1	-48.1	-48.1	-48.1		
60 Minute Hourly Adjustmer	nt	20.1	-48.1	-48.1	-48.1	-48.1	-48.1		

Observer Location: R9

Source: Air Conditioning Unit (Roof-Top) Condition: Operational Project Name: Polopolus Site 1 Job Number: 11336 Analyst: A. Wolfe

NOISE MODEL INPUTS								
Noise Distance to Observer	104.0 feet	Barrier Height:	6.0 feet					
Noise Distance to Barrier:	94.0 feet	Noise Source Height:	5.0 feet					
Barrier Distance to Observer:	10.0 feet	Observer Height:	5.0 feet					
Observer Elevation:	0.0 feet	Barrier Type (0-Wall, 1-Berm):	0					
Noise Source Elevation:	20.0 feet	Drop Off Coefficient:	20.0					
Barrier Elevation:	0.0 feet	20 = 6 dBA per doubling c 15 = 4.5 dBA per doubling						

NOISE MODEL PROJECTIONS									
Noise Level	Distance (feet)	Leq	L50	L25	L8	L2	Lmax		
Reference (Sample)	5.0	77.2	0.0	0.0	0.0	0.0	0.0		
Distance Attenuation	104.0	-26.4	-26.4	-26.4	-26.4	-26.4	-26.4		
Shielding (Barrier Attenuation)	94.0	-5.4	-5.4	-5.4	-5.4	-5.4	-5.4		
Raw (Distance + Barrier)		45.4	-31.8	-31.8	-31.8	-31.8	-31.8		
39 Minute Hourly Adjustmer	nt	43.5	-33.7	-33.7	-33.7	-33.7	-33.7		

STATIO	NARY SOURCE	NOISE PREDICTION MODEL	1/29/2018					
<i>Observer Location:</i> R9 <i>Source:</i> Drive-Through S <i>Condition:</i> Operational	peakerphone	Project Name: Polopolus Site 1 Job Number: 11336 Analyst: A. Wolfe						
NOISE MODEL INPUTS								
Noise Distance to Observer 1,181.0) feet	Barrier Height:	6.0 feet					
Noise Distance to Barrier: 1,171.0) feet	Noise Source Height:	3.0 feet					
Barrier Distance to Observer: 10.0) feet	Observer Height:	5.0 feet					
Observer Elevation: 0.0) feet	Barrier Type (0-Wall, 1-Berm):	0					
) feet	Drop Off Coefficient:	20.0					
) feet	20 = 6 dBA per doubling o 15 = 4.5 dBA per doubling						

NOISE MODEL PROJECTIONS									
Noise Level	Distance (feet)	Leq	L50	L25	L8	L2	Lmax		
Reference (Sample)	15.0	62.0	0.0	0.0	0.0	0.0	0.0		
Distance Attenuation	1,181.0	-37.9	-37.9	-37.9	-37.9	-37.9	-37.9		
Shielding (Barrier Attenuation)	1,171.0	-5.5	-5.5	-5.5	-5.5	-5.5	-5.5		
Raw (Distance + Barrier)		18.6	-43.4	-43.4	-43.4	-43.4	-43.4		
60 Minute Hourly Adjustmer	nt	18.6	-43.4	-43.4	-43.4	-43.4	-43.4		

Observer Location: R9

Source: Parking Lot Vehicle Movements Condition: Operational Project Name: Polopolus Site 1 Job Number: 11336 Analyst: A. Wolfe

NOISE MODEL INPUTS								
Noise Distance to Observer	74.0 feet	Barrier Height:	6.0 feet					
Noise Distance to Barrier:	64.0 feet	Noise Source Height:	5.0 feet					
Barrier Distance to Observer:	10.0 feet	Observer Height:	5.0 feet					
Observer Elevation:	0.0 feet	Barrier Type (0-Wall, 1-Berm):	0					
Noise Source Elevation:	0.0 feet	Drop Off Coefficient:	15.0					
Barrier Elevation:	0.0 feet	20 = 6 dBA per doubling o 15 = 4.5 dBA per doubling						

NOISE MODEL PROJECTIONS									
Noise Level	Distance (feet)	Leq	L50	L25	L8	L2	Lmax		
Reference (Sample)	5.0	60.1	0.0	0.0	0.0	0.0	0.0		
Distance Attenuation	74.0	-17.6	-17.6	-17.6	-17.6	-17.6	-17.6		
Shielding (Barrier Attenuation)	64.0	-5.6	-5.6	-5.6	-5.6	-5.6	-5.6		
Raw (Distance + Barrier)		36.9	-23.2	-23.2	-23.2	-23.2	-23.2		
60 Minute Hourly Adjustmer	nt	36.9	-23.2	-23.2	-23.2	-23.2	-23.2		

STA	TIONARY SOURCE	NOISE PREDICTION MODEL	1/29/2018
Observer Location: R9 Source: Gas Station A Condition: Operational	ctivity	Project Name: Polopolus Site 1 Job Number: 11336 Analyst: A. Wolfe	
	NOISE M	ODEL INPUTS	
Noise Distance to Observer 1,09	93.0 feet	Barrier Height:	6.0 feet
Noise Distance to Barrier: 1,08	33.0 feet	Noise Source Height:	5.0 feet
Barrier Distance to Observer:	10.0 feet	Observer Height:	5.0 feet
Observer Elevation:	0.0 feet	Barrier Type (0-Wall, 1-Berm):	0
Noise Source Elevation:	0.0 feet	Drop Off Coefficient:	20.0
Barrier Elevation:	0.0 feet	20 = 6 dBA per doubling o 15 = 4.5 dBA per doubling	

NOISE MODEL PROJECTIONS									
Noise Level	Distance (feet)	Leq	L50	L25	L8	L2	Lmax		
Reference (Sample)	5.0	68.2	0.0	0.0	0.0	0.0	0.0		
Distance Attenuation	1,093.0	-46.8	-46.8	-46.8	-46.8	-46.8	-46.8		
Shielding (Barrier Attenuation)	1,083.0	-5.5	-5.5	-5.5	-5.5	-5.5	-5.5		
Raw (Distance + Barrier)		15.9	-52.3	-52.3	-52.3	-52.3	-52.3		
60 Minute Hourly Adjustmer	nt	15.9	-52.3	-52.3	-52.3	-52.3	-52.3		

Observer Location: R10

Source: Air Conditioning Unit (Roof-Top) *Condition:* Operational

Project Name: Polopolus Site 1 Job Number: 11336 Analyst: A. Wolfe

NOISE MODEL INPUTS								
Noise Distance to Observer	243.0 feet	Barrier Height:	6.0 feet					
Noise Distance to Barrier:	233.0 feet	Noise Source Height:	5.0 feet					
Barrier Distance to Observer:	10.0 feet	Observer Height:	5.0 feet					
Observer Elevation:	0.0 feet	Barrier Type (0-Wall, 1-Berm):	0					
Noise Source Elevation:	20.0 feet	Drop Off Coefficient:	20.0					
Barrier Elevation:	0.0 feet	20 = 6 dBA per doubling o 15 = 4.5 dBA per doubling						

NOISE MODEL PROJECTIONS									
Noise Level	Distance (feet)	Leq	L50	L25	L8	L2	Lmax		
Reference (Sample)	5.0	77.2	0.0	0.0	0.0	0.0	0.0		
Distance Attenuation	243.0	-33.7	-33.7	-33.7	-33.7	-33.7	-33.7		
Shielding (Barrier Attenuation)	233.0	-4.9	-4.9	-4.9	-4.9	-4.9	-4.9		
Raw (Distance + Barrier)		38.6	-38.6	-38.6	-38.6	-38.6	-38.6		
39 Minute Hourly Adjustmer	nt	36.7	-40.5	-40.5	-40.5	-40.5	-40.5		

S	TATIONARY SOURCE N	OISE PREDICTION MODEL	1/29/2018
Observer Location: R10 Source: Drive-Through Speakerphone Condition: Operational		Project Name: Polopolus Site 1 Job Number: 11336 Analyst: A. Wolfe	
	NOISE MOI	DEL INPUTS	
Noise Distance to Observer	340.0 feet	Barrier Height:	6.0 feet
Noise Distance to Barrier:	330.0 feet	Noise Source Height:	3.0 feet
Barrier Distance to Observer:	10.0 feet	Observer Height:	5.0 feet
Observer Elevation:	0.0 feet	Barrier Type (0-Wall, 1-Berm):	0
Noise Source Elevation:	0.0 feet	Drop Off Coefficient:	20.0
Barrier Elevation:	0.0 feet	20 = 6 dBA per doubling o 15 = 4.5 dBA per doubling	

NOISE MODEL PROJECTIONS									
Noise Level	Distance (feet)	Leq	L50	L25	L8	L2	Lmax		
Reference (Sample)	15.0	62.0	0.0	0.0	0.0	0.0	0.0		
Distance Attenuation	340.0	-27.1	-27.1	-27.1	-27.1	-27.1	-27.1		
Shielding (Barrier Attenuation)	330.0	-5.6	-5.6	-5.6	-5.6	-5.6	-5.6		
Raw (Distance + Barrier)		29.3	-32.7	-32.7	-32.7	-32.7	-32.7		
60 Minute Hourly Adjustmer	nt	29.3	-32.7	-32.7	-32.7	-32.7	-32.7		

Observer Location: R10

Source: Parking Lot Vehicle Movements Condition: Operational Project Name: Polopolus Site 1 Job Number: 11336 Analyst: A. Wolfe

NOISE MODEL INPUTS								
Noise Distance to Observer	220.0 feet	Barrier Height:	6.0 feet					
Noise Distance to Barrier:	210.0 feet	Noise Source Height:	5.0 feet					
Barrier Distance to Observer:	10.0 feet	Observer Height:	5.0 feet					
Observer Elevation:	0.0 feet	Barrier Type (0-Wall, 1-Berm):	0					
Noise Source Elevation:	0.0 feet	Drop Off Coefficient:	15.0					
Barrier Elevation:	0.0 feet	20 = 6 dBA per doubling o 15 = 4.5 dBA per doubling						

NOISE MODEL PROJECTIONS									
Noise Level	Distance (feet)	Leq	L50	L25	L8	L2	Lmax		
Reference (Sample)	5.0	60.1	0.0	0.0	0.0	0.0	0.0		
Distance Attenuation	220.0	-24.7	-24.7	-24.7	-24.7	-24.7	-24.7		
Shielding (Barrier Attenuation)	210.0	-5.5	-5.5	-5.5	-5.5	-5.5	-5.5		
Raw (Distance + Barrier)		29.9	-30.2	-30.2	-30.2	-30.2	-30.2		
60 Minute Hourly Adjustmen	nt	29.9	-30.2	-30.2	-30.2	-30.2	-30.2		

S	TATIONARY SOURC	E NOISE PREDICTION MODEL	1/29/2018
Observer Location: R10 Source: Gas Station Activity Condition: Operational		Project Name: Polopolus Site 1 Job Number: 11336 Analyst: A. Wolfe	
	NOISE N	NODEL INPUTS	
Noise Distance to Observer Noise Distance to Barrier: Barrier Distance to Observer:	315.0 feet 305.0 feet 10.0 feet	Barrier Height: Noise Source Height: Observer Height:	6.0 feet 5.0 feet 5.0 feet
Observer Elevation: Noise Source Elevation: Barrier Elevation:	0.0 feet 0.0 feet 0.0 feet	Barrier Type (0-Wall, 1-Berm): Drop Off Coefficient: 20 = 6 dBA per doubling of 15 = 4.5 dBA per doubling	

NOISE MODEL PROJECTIONS									
Noise Level	Distance (feet)	Leq	L50	L25	L8	L2	Lmax		
Reference (Sample)	5.0	68.2	0.0	0.0	0.0	0.0	0.0		
Distance Attenuation	315.0	-36.0	-36.0	-36.0	-36.0	-36.0	-36.0		
Shielding (Barrier Attenuation)	305.0	-5.5	-5.5	-5.5	-5.5	-5.5	-5.5		
Raw (Distance + Barrier)		26.7	-41.5	-41.5	-41.5	-41.5	-41.5		
60 Minute Hourly Adjustmer	nt	26.7	-41.5	-41.5	-41.5	-41.5	-41.5		

Observer Location: R11

Source: Air Conditioning Unit (Roof-Top) *Condition:* Operational

Project Name: Polopolus Site 1 Job Number: 11336 Analyst: A. Wolfe

NOISE MODEL INPUTS								
Noise Distance to Observer	189.0 feet	Barrier Height:	0.0 feet					
Noise Distance to Barrier:	189.0 feet	Noise Source Height:	5.0 feet					
Barrier Distance to Observer:	0.0 feet	Observer Height:	5.0 feet					
Observer Elevation:	0.0 feet	Barrier Type (0-Wall, 1-Berm):	0					
Noise Source Elevation:	20.0 feet	Drop Off Coefficient:	20.0					
Barrier Elevation:	0.0 feet	20 = 6 dBA per doubling o 15 = 4.5 dBA per doubling						

NOISE MODEL PROJECTIONS									
Noise Level	Distance (feet)	Leq	L50	L25	L8	L2	Lmax		
Reference (Sample)	5.0	77.2	0.0	0.0	0.0	0.0	0.0		
Distance Attenuation	189.0	-31.5	-31.5	-31.5	-31.5	-31.5	-31.5		
Shielding (Barrier Attenuation)	189.0	0.0	0.0	0.0	0.0	0.0	0.0		
Raw (Distance + Barrier)		45.7	-31.5	-31.5	-31.5	-31.5	-31.5		
39 Minute Hourly Adjustmer	nt	43.8	-33.4	-33.4	-33.4	-33.4	-33.4		

S	TATIONARY SOURCE N	OISE PREDICTION MODEL	1/29/2018					
Observer Location: R11 Source: Drive-Through Speakerphone Condition: Operational		Project Name: Polopolus Site 1 Job Number: 11336 Analyst: A. Wolfe						
NOISE MODEL INPUTS								
Noise Distance to Observer	495.0 feet	Barrier Height:	0.0 feet					
Noise Distance to Barrier:	495.0 feet	Noise Source Height:	3.0 feet					
Barrier Distance to Observer:	0.0 feet	Observer Height:	5.0 feet					
Observer Elevation:	0.0 feet	Barrier Type (0-Wall, 1-Berm):	0					
Noise Source Elevation:	0.0 feet	Drop Off Coefficient:	20.0					
Barrier Elevation:	0.0 feet	20 = 6 dBA per doubling 15 = 4.5 dBA per doubling						

NOISE MODEL PROJECTIONS									
Noise Level	Distance (feet)	Leq	L50	L25	L8	L2	Lmax		
Reference (Sample)	15.0	62.0	0.0	0.0	0.0	0.0	0.0		
Distance Attenuation	495.0	-30.4	-30.4	-30.4	-30.4	-30.4	-30.4		
Shielding (Barrier Attenuation)	495.0	0.0	0.0	0.0	0.0	0.0	0.0		
Raw (Distance + Barrier)		31.6	-30.4	-30.4	-30.4	-30.4	-30.4		
60 Minute Hourly Adjustmer	nt	31.6	-30.4	-30.4	-30.4	-30.4	-30.4		

Observer Location: R11

Source: Parking Lot Vehicle Movements Condition: Operational Project Name: Polopolus Site 1 Job Number: 11336 Analyst: A. Wolfe

NOISE MODEL INPUTS								
Noise Distance to Observer	165.0 feet	Barrier Height:	0.0 feet					
Noise Distance to Barrier:	165.0 feet	Noise Source Height:	5.0 feet					
Barrier Distance to Observer:	0.0 feet	Observer Height:	5.0 feet					
Observer Elevation:	0.0 feet	Barrier Type (0-Wall, 1-Berm):	0					
Noise Source Elevation:	0.0 feet	Drop Off Coefficient:	15.0					
Barrier Elevation:	0.0 feet	20 = 6 dBA per doubling o 15 = 4.5 dBA per doubling						

NOISE MODEL PROJECTIONS									
Noise Level	Distance (feet)	Leq	L50	L25	L8	L2	Lmax		
Reference (Sample)	5.0	60.1	0.0	0.0	0.0	0.0	0.0		
Distance Attenuation	165.0	-22.8	-22.8	-22.8	-22.8	-22.8	-22.8		
Shielding (Barrier Attenuation)	165.0	0.0	0.0	0.0	0.0	0.0	0.0		
Raw (Distance + Barrier)		37.3	-22.8	-22.8	-22.8	-22.8	-22.8		
60 Minute Hourly Adjustmer	nt	37.3	-22.8	-22.8	-22.8	-22.8	-22.8		

S	TATIONARY SOURC	E NOISE PREDICTION MODEL	1/29/2018
Observer Location: R11 Source: Gas Station Activity Condition: Operational		Project Name: Polopolus Site 1 Job Number: 11336 Analyst: A. Wolfe	
	NOISE N	NODEL INPUTS	
Noise Distance to Observer Noise Distance to Barrier: Barrier Distance to Observer:	723.0 feet 723.0 feet 0.0 feet	Barrier Height: Noise Source Height: Observer Height:	0.0 feet 5.0 feet 5.0 feet
<i>Observer Elevation: Noise Source Elevation: Barrier Elevation:</i>	0.0 feet 0.0 feet 0.0 feet	Barrier Type (0-Wall, 1-Berm): Drop Off Coefficient: 20 = 6 dBA per doubling 15 = 4.5 dBA per doubling	

NOISE MODEL PROJECTIONS									
Noise Level	Distance (feet)	Leq	L50	L25	L8	L2	Lmax		
Reference (Sample)	5.0	68.2	0.0	0.0	0.0	0.0	0.0		
Distance Attenuation	723.0	-43.2	-43.2	-43.2	-43.2	-43.2	-43.2		
Shielding (Barrier Attenuation)	723.0	0.0	0.0	0.0	0.0	0.0	0.0		
Raw (Distance + Barrier)		25.0	-43.2	-43.2	-43.2	-43.2	-43.2		
60 Minute Hourly Adjustmer	nt	25.0	-43.2	-43.2	-43.2	-43.2	-43.2		

APPENDIX 9.3:

SITE 2 OPERATIONAL CADNAA NOISE MODEL INPUTS AND RESULTS





11336

CadnaA Noise Prediction Model 11336-18 oper contours.cna Date: 28.02.18

Analyst: A.Wolfe

Receiver Noise Levels

Name	ID	Level Lr	Limit. Value		Land	Use	Height	t	Co	oordinates	
		Day	Day	Туре	Auto	Noise Type			Х	Y	Z
		(dBA)	(dBA)				(m)		(m)	(m)	(m)
R1B	1B	50.8	60.0				1.52	а	1879002.09	699760.87	1.52
R2B	2B	47.2	60.0				1.52	а	1879097.14	699762.86	1.52
R3B	3B	56.4	60.0				1.52	а	1878981.91	699721.19	1.52
R4B	4B	57.0	60.0				1.52	а	1878981.79	699700.12	1.52
R5B	5B	56.9	60.0				1.52	а	1878981.68	699680.51	1.52
R6B	6B	58.5	60.0				1.52	а	1878981.56	699657.77	1.52
R7B	7B	49.8	60.0				1.52	а	1879100.51	699677.98	1.52
R8B	8B	53.9	60.0				1.52	а	1879034.66	699601.99	1.52
R1FF	1FF	48.6	60.0				1.52	а	1879002.21	699763.03	1.52
R3FF	3FF	53.7	60.0				1.52	а	1878978.04	699720.92	1.52
R4FF	4FF	54.0	60.0				1.52	а	1878976.92	699700.11	1.52
R5FF	5FF	53.5	60.0				1.52	а	1878974.32	699680.34	1.52
R6FF	6FF	55.5	60.0				1.52	а	1878975.49	699656.45	1.52
R1SF	1SF	53.5	60.0				4.27	а	1879002.21	699763.03	4.27
R4SF	4SF	58.4	60.0				4.27	a	1878976.92	699700.11	4.27
R5SF	5SF	58.3	60.0				4.27	а	1878974.32	699680.34	4.27
R6SF	6SF	59.4	60.0				4.27	а	1878975.49	699656.45	4.27

Vertical Area Source(s)

Name	М.	ID	R	esult. PW	/L	Re	esult. PW	L''		Lw/L	i	Correction S		Sound Reduction Att		Attenuation	Operating Time		К0	Freq.	Direct.		
			Day	Evening	Night	Day	Evening	Night	Туре	Value	norm.	Day	Evening	Night	R	Area		Day	Special	Night			
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)			dB(A)	dB(A)	dB(A)	dB(A)		(m²)		(min)	(min)	(min)	(dB)	(Hz)	
TunnelE	(it	TunnelExit	102.8	102.8	102.8	91.1	91.1	91.1	Lw	102.8		0.0	0.0	0.0				300.00	0.00	0.00	3.0	500	(none)

Area Source(s)

Name	Result	. PWL	Lw / Li				
	Day	Night	Туре	Value			
	(dBA)	(dBA)					
Entrance1	95.4	95.4	Lw	95.4			
Entrance2	95.4	95.4	Lw	95.4			
Vacuums	86.3	86.3	Lw	86.3			

Barrier(s)

Name	М.	ID	Abso	rption	Z-Ext.	Canti	lever	F	lei	ght	
			left	right		horz.	vert.	Begin		End	
					(m)	(m)	(m)	(m)		(m)	
EXISTBARRIER		EXISTBARRIER00001	0.21	0.21				1.83	а		
EXISTBARRIER		EXISTBARRIER00002	0.21	0.21				1.83	а		
EXISTBARRIER		EXISTBARRIER00003	0.21	0.21				1.83	а		
EXISTBARRIER		EXISTBARRIER00004	0.21	0.21				1.83	а		
EXISTBARRIER		EXISTBARRIER00005	0.21	0.21				1.83	а		
EXISTBARRIER		EXISTBARRIER00006	0.21	0.21				1.83	а		
EXISTBARRIER		EXISTBARRIER00007	0.21	0.21				1.83	а		
PLANNEDBARRIERS		0	0.21	0.21				1.83	а		

Building(s)

Name		VI. ID RB Residents Absor		Absorption	Height		
						Begin	
						(m)	
EXISTINGBUILDINGS		0	х	0	0.21	6.10	а
EXISTINGBUILDINGS		0	х	0	0.21	6.10	а
EXISTINGBUILDINGS		0	х	0	0.21	6.10	а
EXISTINGBUILDINGS		0	х	0	0.21	3.05	а
EXISTINGBUILDINGS		0	х	0	0.21	6.10	а
EXISTINGBUILDINGS		0	х	0	0.21	6.10	а
EXISTINGBUILDINGS		0	х	0	0.21	6.10	а
EXISTINGBUILDINGS		0	х	0	0.21	6.10	а
EXISTINGBUILDINGS		0	х	0	0.21	6.10	а
EXISTINGBUILDINGS		0	х	0	0.21	6.10	а
EXISTINGBUILDINGS		0	х	0	0.21	1.83	а
EXISTINGBUILDINGS		0	х	0	0.21	6.10	а

Name	М.	ID	RB	Residents	Absorption	Height	:
						Begin	
						(m)	
EXISTINGBUILDINGS		0	х	0	0.21	3.05	а
EXISTINGBUILDINGS		0	х	0	0.21	6.10	а
EXISTINGBUILDINGS		0	х	0	0.21	6.10	а
EXISTINGBUILDINGS		0	х	0	0.21	6.10	а
EXISTINGBUILDINGS		0	х	0	0.21	6.10	а
EXISTINGBUILDINGS		0	х	0	0.21	6.10	а
EXISTINGBUILDINGS		0		0	0.21	3.05	а
EXISTINGBUILDINGS		0		0	0.21	3.05	а
EXISTINGBUILDINGS		0	х	0	0.21	3.05	а
EXISTINGBUILDINGS		0	х	0	0.21	6.10	а
EXISTINGBUILDINGS		0	х	0	0.21	3.05	а
EXISTINGBUILDINGS		0	х	0	0.21	6.10	а
EXISTINGBUILDINGS		0	х	0	0.21	6.10	а
EXISTINGBUILDINGS		0	х	0	0.21	6.10	а
EXISTINGBUILDINGS		0	х	0	0.21	6.10	а
EXISTINGBUILDINGS		0	х	0	0.21	3.05	а
EXISTINGBUILDINGS		0	х	0	0.21	6.10	а
EXISTINGBUILDINGS		0	х	0	0.21	6.10	а
EXISTINGBUILDINGS		0	х	0	0.21	3.05	а
PROJBUILDING		0		0	0.21	6.10	а