

APPENDIX G

NOISE MODELING

FHWA Highway Noise Prediction Model (FHWA-RD-77-108) with California Vehicle Noise (CALVENO) Emission Levels

Project Name: Fairlynn Village
Project Number: 194451001
Scenario: Existing
Ldn/CNEL: CNEL

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

#	Roadway	Segment	Median		ADT Volume	Speed (mph)	Alpha Factor	Vehicle Mix		Distance from Centerline of Roadway				
			Lanes	Width				Medium Trucks	Heavy Trucks	CNEL at 100 Feet	Distance to Contour			
										70 CNEL	65 CNEL	60 CNEL	55 CNEL	
1	Esperanza Road	SR-90 to Fairmont Boulevard	4	12	13000	50	0	1.0%	0.1%	64.3	-	84	267	844

FHWA Highway Noise Prediction Model (FHWA-RD-77-108) with California Vehicle Noise (CALVENO) Emission Levels

Project Name: Fairlynn Village
Project Number: 194451001
Scenario: Existing Plus Project
Ldn/CNEL: CNEL

Assumed 24-Hour Traffic Distribution:

	Day	Evening	Night
Total ADT Volumes	77.70%	12.70%	9.60%
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Heavy-Duty Trucks	89.10%	2.84%	8.06%

#	Roadway	Segment	Lanes	Median Width	ADT Volume	Speed (mph)	Alpha Factor	Vehicle Mix		Distance from Centerline of Roadway				
								Medium Trucks	Heavy Trucks	CNEL at 100 Feet	70 CNEL	65 CNEL	60 CNEL	55 CNEL
1	Esperanza Road	SR-90 to Fairmont Boulevard	4	12	12269	50	0	1.0%	0.1%	64.0	-	80	252	797

Noise Measurement Field Data

Project:	Esperanza Village	Job Number:	194451001
Site No.:	ST-1	Date:	4/13/2022
Analyst:	Serena Lin, Kiana Graham	Time:	8:21 - 8:31 AM
Location:	North of Fairgreen Avenue, northwest of the Project site		
Noise Sources:	Birds, landscaping (windblower), residents, barking dogs, cars		

Results (dBA):				
	Leq:	Lmin:	Lmax:	Peak:
	53.5	49.0	60.6	78.9

Equipment	
Sound Level Meter:	LD SoundExpert LxT
Calibrator:	CAL200
Response Time:	Slow
Weighting:	A
Microphone Height:	5 feet

Weather	
Temp. (degrees F):	54
Wind (mph):	<5
Sky:	Clear
Bar. Pressure:	30.10 inHG
Humidity:	34%

Photo:



Measurement Report

Report Summary

Meter's File Name	ESP_001.s	Computer's File Name	LxTse_-20220413 082147-ESP_001.ldbin
Meter	LxT SE	0005586	
Firmware	2.404		
User			Location
Job Description			
Note			
Start Time	2022-04-13 08:21:47	Duration	0:10:00.0
End Time	2022-04-13 08:31:47	Run Time	0:10:00.0
		Pause Time	0:00:00.0

Results

Overall Metrics

LA _{eq}	53.5 dB		
LAE	81.3 dB	SEA	--- dB
EA	15.0 μPa ² h		
LA _{peak}	78.9 dB	2022-04-13 08:30:49	
LAS _{max}	60.6 dB	2022-04-13 08:21:47	
LAS _{min}	49.0 dB	2022-04-13 08:24:40	
LA _{eq}	53.5 dB		
LC _{eq}	62.1 dB	LC _{eq} - LA _{eq}	8.6 dB
LAI _{eq}	55.4 dB	LAI _{eq} - LA _{eq}	1.8 dB

Exceedances

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

Community Noise

LDN	LDay	LNight	
53.5 dB	53.5 dB	0.0 dB	
LDEN	LDay	LEve	LNight
53.5 dB	53.5 dB	--- dB	--- dB

Any Data

	A		C		Z	
	Level	Time Stamp	Level	Time Stamp	Level	Time Stamp
L _{eq}	53.5 dB		62.1 dB		--- dB	
L _{S(max)}	60.6 dB	2022-04-13 08:21:47	--- dB		--- dB	
L _{S(min)}	49.0 dB	2022-04-13 08:24:40	--- dB		--- dB	
L _{Peak(max)}	78.9 dB	2022-04-13 08:30:49	--- dB		--- dB	

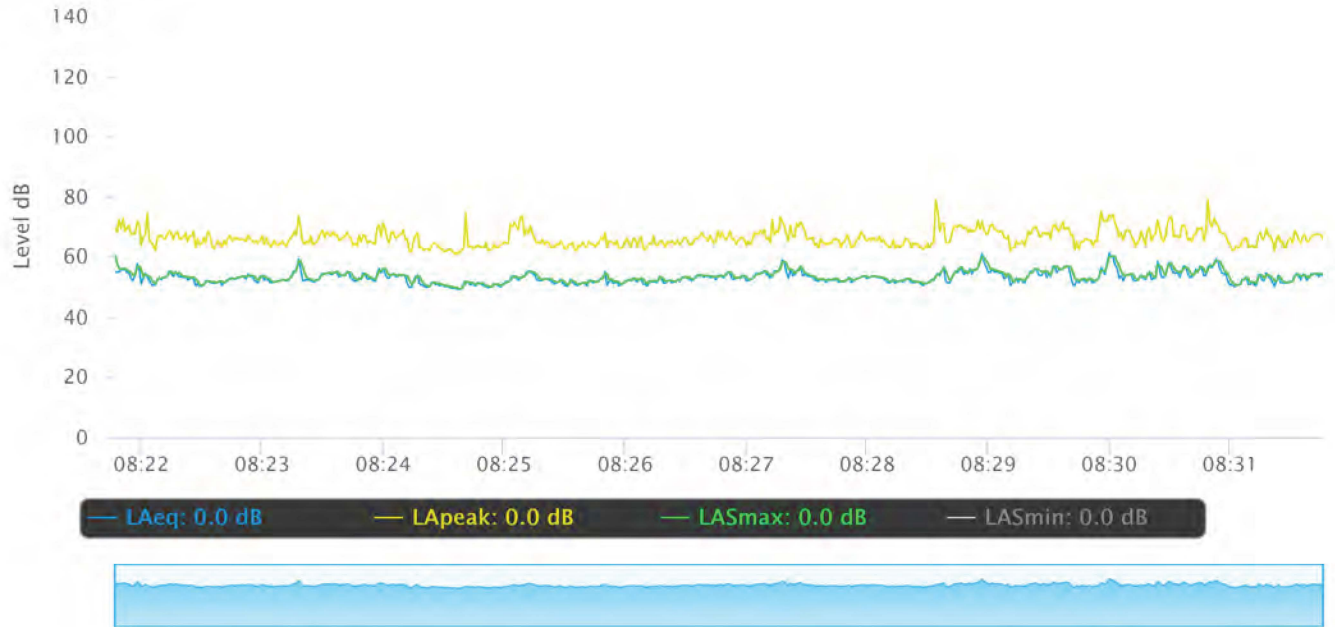
Overloads

Count	Duration	OBA Count	OBA Duration
0	0:00:00.0	0	0:00:00.0

Statistics

LAS 5.0	56.4 dB
LAS 10.0	55.5 dB
LAS 33.3	53.7 dB
LAS 50.0	52.8 dB
LAS 66.6	52.1 dB
LAS 90.0	51.0 dB

Time History



Noise Measurement Field Data

Project:	Esperanza Village	Job Number:	194451001
Site No.:	ST-2	Date:	4/13/2022
Analyst:	Serena Lin, Kiana Graham	Time:	8:39 - 8:49 AM
Location:	Northeast corner of the Woodgate Drive and Fairlynn Boulevard intersection		
Noise Sources:	Cars on Fairlynn Boulevard, landscaping (windblower)		

Results (dBA):				
	Leq:	Lmin:	Lmax:	Peak:
	70.9	55.1	77.3	91.3

Equipment	
Sound Level Meter:	LD SoundExpert LxT
Calibrator:	CAL200
Response Time:	Slow
Weighting:	A
Microphone Height:	5 feet

Weather	
Temp. (degrees F):	56
Wind (mph):	<5
Sky:	Clear
Bar. Pressure:	30.10 inHG
Humidity:	32%

Photo:



Measurement Report

Report Summary

Meter's File Name	ESP_002.s	Computer's File Name	LxTse_-20220413 083907-ESP_002.ldbin
Meter	LxT SE	0005586	
Firmware	2.404		
User			Location
Job Description			
Note			
Start Time	2022-04-13 08:39:07	Duration	0:10:00.0
End Time	2022-04-13 08:49:07	Run Time	0:10:00.0
		Pause Time	0:00:00.0

Results

Overall Metrics

LA _{eq}	70.9 dB		
LAE	98.6 dB	SEA	--- dB
EA	812.7 μPa²h		
LA _{peak}	91.3 dB	2022-04-13 08:40:37	
LAS _{max}	77.3 dB	2022-04-13 08:40:37	
LAS _{min}	55.1 dB	2022-04-13 08:41:38	
LA _{eq}	70.9 dB		
LC _{eq}	73.6 dB	LC _{eq} - LA _{eq}	2.8 dB
LAI _{eq}	71.7 dB	LAI _{eq} - LA _{eq}	0.9 dB

Exceedances

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

Community Noise

LDN	LDay	LNight	
70.9 dB	70.9 dB	0.0 dB	
LDEN	LDay	LEve	LNight
70.9 dB	70.9 dB	--- dB	--- dB

Any Data

	A		C		Z	
	Level	Time Stamp	Level	Time Stamp	Level	Time Stamp
L _{eq}	70.9 dB		73.6 dB		--- dB	
L _{S(max)}	77.3 dB	2022-04-13 08:40:37	--- dB		--- dB	
L _{S(min)}	55.1 dB	2022-04-13 08:41:38	--- dB		--- dB	
L _{Peak(max)}	91.3 dB	2022-04-13 08:40:37	--- dB		--- dB	

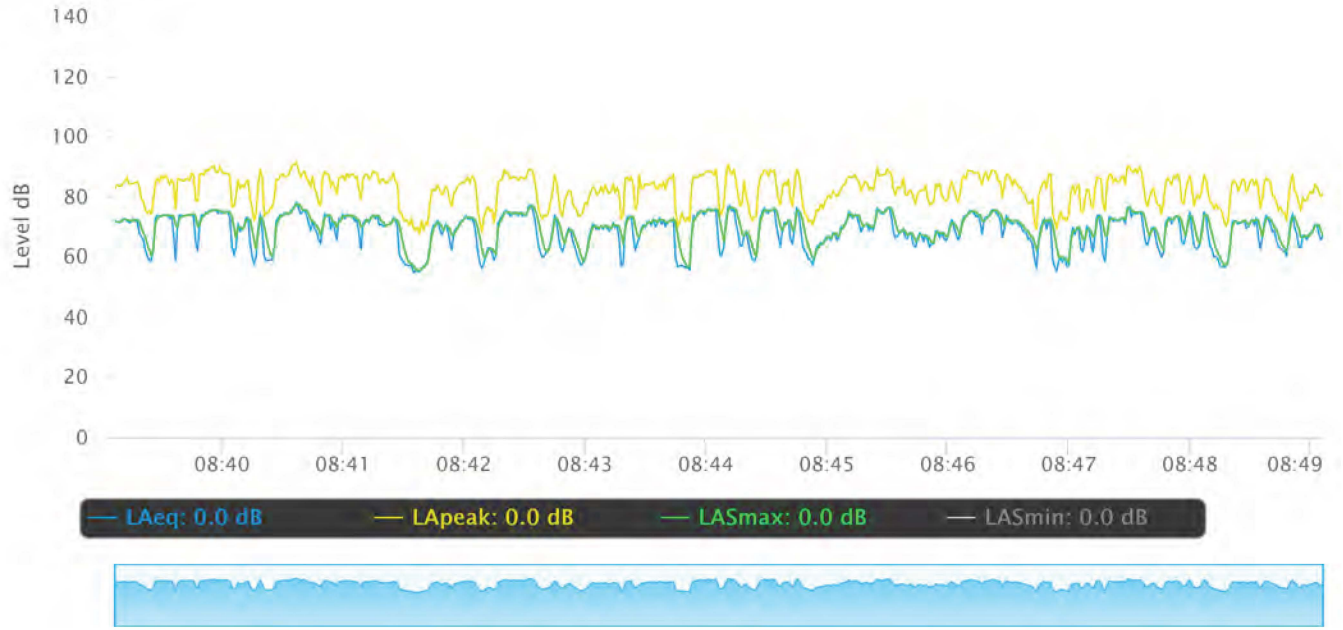
Overloads

Count	Duration	OBA Count	OBA Duration
0	0:00:00.0	0	0:00:00.0

Statistics

LAS 5.0	75.0 dB
LAS 10.0	74.4 dB
LAS 33.3	71.7 dB
LAS 50.0	69.9 dB
LAS 66.6	67.5 dB
LAS 90.0	61.4 dB

Time History



Noise Measurement Field Data

Project:	Esperanza Village	Job Number:	194451001
Site No.:	ST-3	Date:	4/13/2022
Analyst:	Serena Lin, Kiana Graham	Time:	8:53 - 9:03 AM
Location:	Northeast corner of the Fairlynn Boulevard and Esperanza Road intersection		
Noise Sources:	Train, cars on Fairlynn Boulevard and Esperanza Road		

Results (dBA):				
	Leq:	Lmin:	Lmax:	Peak:
	70.7	56.1	85.3	97.8

Equipment	
Sound Level Meter:	LD SoundExpert LxT
Calibrator:	CAL200
Response Time:	Slow
Weighting:	A
Microphone Height:	5 feet

Weather	
Temp. (degrees F):	58
Wind (mph):	<5
Sky:	Clear
Bar. Pressure:	30.10 inHG
Humidity:	31%

Photo:



Measurement Report

Report Summary

Meter's File Name	ESP_003.s	Computer's File Name	LxTse_-20220413 085301-ESP_003.ldbin
Meter	LxT SE	0005586	
Firmware	2.404		
User			Location
Job Description			
Note			
Start Time	2022-04-13 08:53:01	Duration	0:10:00.0
End Time	2022-04-13 09:03:01	Run Time	0:10:00.0
		Pause Time	0:00:00.0

Results

Overall Metrics

LA _{eq}	70.7 dB		
LAE	98.5 dB	SEA	--- dB
EA	785.8 μPa ² h		
LA _{peak}	97.8 dB	2022-04-13 08:53:42	
LAS _{max}	85.3 dB	2022-04-13 08:53:43	
LAS _{min}	56.1 dB	2022-04-13 08:53:11	
LA _{eq}	70.7 dB		
LC _{eq}	83.6 dB	LC _{eq} - LA _{eq}	12.9 dB
LAI _{eq}	71.8 dB	LAI _{eq} - LA _{eq}	1.0 dB

Exceedances

	Count	Duration
LAS > 85.0 dB	1	0:00:04.1
LAS > 115.0 dB	0	0:00:00.0
LAPeak > 135.0 dB	0	0:00:00.0
LAPeak > 137.0 dB	0	0:00:00.0
LAPeak > 140.0 dB	0	0:00:00.0

Community Noise

LDN	LDay	LNight	
70.7 dB	70.7 dB	0.0 dB	
LDEN	LDay	LEve	LNight
70.7 dB	70.7 dB	--- dB	--- dB

Any Data

	A		C		Z	
	Level	Time Stamp	Level	Time Stamp	Level	Time Stamp
L _{eq}	70.7 dB		83.6 dB		--- dB	
L _{S(max)}	85.3 dB	2022-04-13 08:53:43	--- dB		--- dB	
L _{S(min)}	56.1 dB	2022-04-13 08:53:11	--- dB		--- dB	
L _{Peak(max)}	97.8 dB	2022-04-13 08:53:42	--- dB		--- dB	

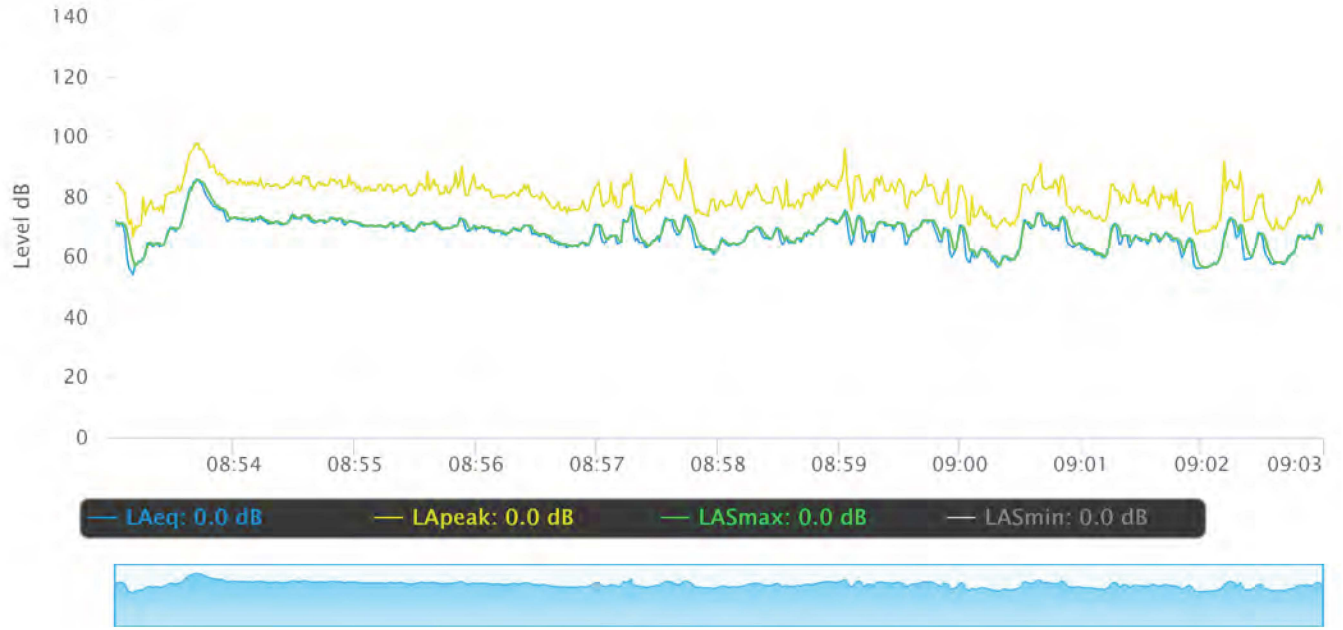
Overloads

Count	Duration	OBA Count	OBA Duration
0	0:00:00.0	0	0:00:00.0

Statistics

LAS 5.0	73.2 dB
LAS 10.0	72.3 dB
LAS 33.3	70.0 dB
LAS 50.0	68.1 dB
LAS 66.6	65.6 dB
LAS 90.0	60.8 dB

Time History



Noise Measurement Field Data

Project:	Esperanza Village	Job Number:	194451001
Site No.:	ST-4	Date:	4/13/2022
Analyst:	Serena Lin, Kiana Graham	Time:	9:10 - 9:20 AM
Location:	North of the 76 Gas Station, west of Fairlynn Boulevard		
Noise Sources:	Train, cars on Fairlynn Boulevard and Esperanza Road		

Results (dBA):				
	Leq:	Lmin:	Lmax:	Peak:
	63.0	54.4	72.8	94.0

Equipment	
Sound Level Meter:	LD SoundExpert LxT
Calibrator:	CAL200
Response Time:	Slow
Weighting:	A
Microphone Height:	5 feet

Weather	
Temp. (degrees F):	59
Wind (mph):	<5
Sky:	Clear
Bar. Pressure:	30.10 inHG
Humidity:	30%

Photo:



Measurement Report

Report Summary

Meter's File Name	ESP_004.s	Computer's File Name	LxTse_-20220413 091032-ESP_004.ldbin
Meter	LxT SE	0005586	
Firmware	2.404		
User			Location
Job Description			
Note			
Start Time	2022-04-13 09:10:32	Duration	0:10:00.0
End Time	2022-04-13 09:20:32	Run Time	0:10:00.0
		Pause Time	0:00:00.0

Results

Overall Metrics

LA _{eq}	63.0 dB		
LAE	90.8 dB	SEA	--- dB
EA	133.3 μPa ² h		
LA _{peak}	94.0 dB	2022-04-13 09:16:49	
LAS _{max}	72.8 dB	2022-04-13 09:16:49	
LAS _{min}	54.4 dB	2022-04-13 09:13:28	
LA _{eq}	63.0 dB		
LC _{eq}	79.0 dB	LC _{eq} - LA _{eq}	16.0 dB
LAI _{eq}	65.8 dB	LAI _{eq} - LA _{eq}	2.8 dB

Exceedances

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

Community Noise

LDN	LDay	LNight	
63.0 dB	63.0 dB	0.0 dB	
LDEN	LDay	LEve	LNight
63.0 dB	63.0 dB	--- dB	--- dB

Any Data

	A		C		Z	
	Level	Time Stamp	Level	Time Stamp	Level	Time Stamp
L _{eq}	63.0 dB		79.0 dB		--- dB	
L _{S(max)}	72.8 dB	2022-04-13 09:16:49	--- dB		--- dB	
L _{S(min)}	54.4 dB	2022-04-13 09:13:28	--- dB		--- dB	
L _{Peak(max)}	94.0 dB	2022-04-13 09:16:49	--- dB		--- dB	

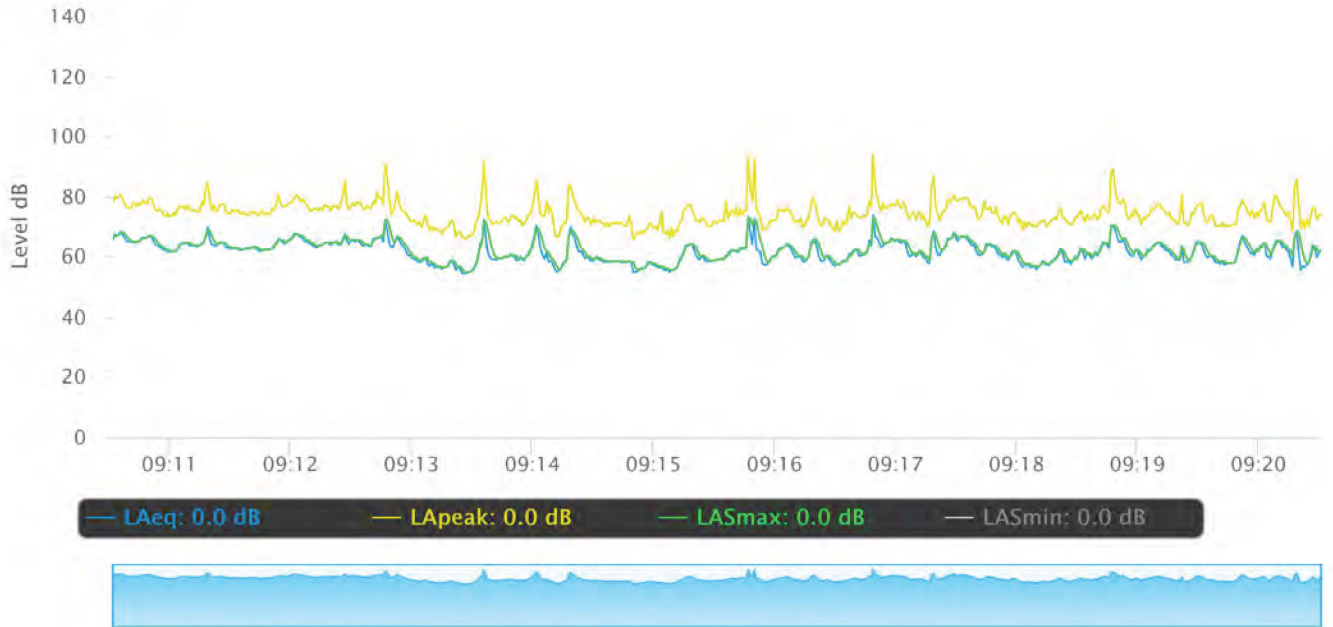
Overloads

Count	Duration	OBA Count	OBA Duration
0	0:00:00.0	0	0:00:00.0

Statistics

LAS 5.0	66.9 dB
LAS 10.0	65.8 dB
LAS 33.3	63.4 dB
LAS 50.0	61.8 dB
LAS 66.6	60.1 dB
LAS 90.0	57.6 dB

Time History



Noise Measurement Field Data

Project:	Esperanza Village	Job Number:	194451001
Site No.:	LT-1	Date:	4/13/2022
Analyst:	Serena Lin, Kiana Graham	Time:	4/13/22, 9:36 AM - 4/14/22, 10:09 AM
Location:	North of Esperanza Road, South of the Project site		
Noise Sources:	Train, cars, landscaping, residential noise, dogs barking		
Results (dBA):			
	Leq:	Lmin:	Lmax:
	71.4	46.5	109.4
			Peak:
			124.4

Equipment	
Sound Level Meter:	LD SoundExpert LxT
Calibrator:	CAL200
Response Time:	Slow
Weighting:	A
Microphone Height:	5 feet

Weather	
Temp. (degrees F):	59
Wind (mph):	<3
Sky:	Clear
Bar. Pressure:	30.10 inHG
Humidity:	30%

Photo:



Measurement Report

Report Summary

Meter's File Name	ESPLT_.001.s	Computer's File Name	LxTse_-20220413 093644-ESPLT_.001.ldbin		
Meter	LxT SE	0005586			
Firmware	2.404				
User	Location				
Job Description					
Note					
Start Time	2022-04-13 09:36:44	Duration	24:32:23.5		
End Time	2022-04-14 10:09:07	Run Time	24:32:23.5	Pause Time	0:00:00.0

Results

Overall Metrics

LA _{eq}	71.4 dB		
LAE	120.9 dB	SEA	144.9 dB
EA	136.7 mPa ² h		
LA _{peak}	124.4 dB	2022-04-13 17:39:45	
LAS _{max}	109.4 dB	2022-04-13 17:39:40	
LAS _{min}	46.5 dB	2022-04-14 08:54:49	
LA _{eq}	71.4 dB		
LC _{eq}	80.5 dB	LC _{eq} - LA _{eq}	9.1 dB
LAI _{eq}	74.1 dB	LAI _{eq} - LA _{eq}	2.7 dB

Exceedances

	Count	Duration
LAS > 85.0 dB	37	0:04:12.5
LAS > 115.0 dB	0	0:00:00.0
LAPeak > 135.0 dB	0	0:00:00.0
LAPeak > 137.0 dB	0	0:00:00.0
LAPeak > 140.0 dB	0	0:00:00.0

Community Noise

LDN	LDay	LNight	
75.6 dB	72.6 dB	0.0 dB	
LDEN	LDay	LEve	LNight
75.8 dB	73.3 dB	67.3 dB	68.3 dB

Any Data

	A		C		Z	
	Level	Time Stamp	Level	Time Stamp	Level	Time Stamp
L _{eq}	71.4 dB		80.5 dB		---	
L _{S(max)}	109.4 dB	2022-04-13 17:39:40	---		---	
L _{S(min)}	46.5 dB	2022-04-14 08:54:49	---		---	
L _{Peak(max)}	124.4 dB	2022-04-13 17:39:45	---		---	

Overloads

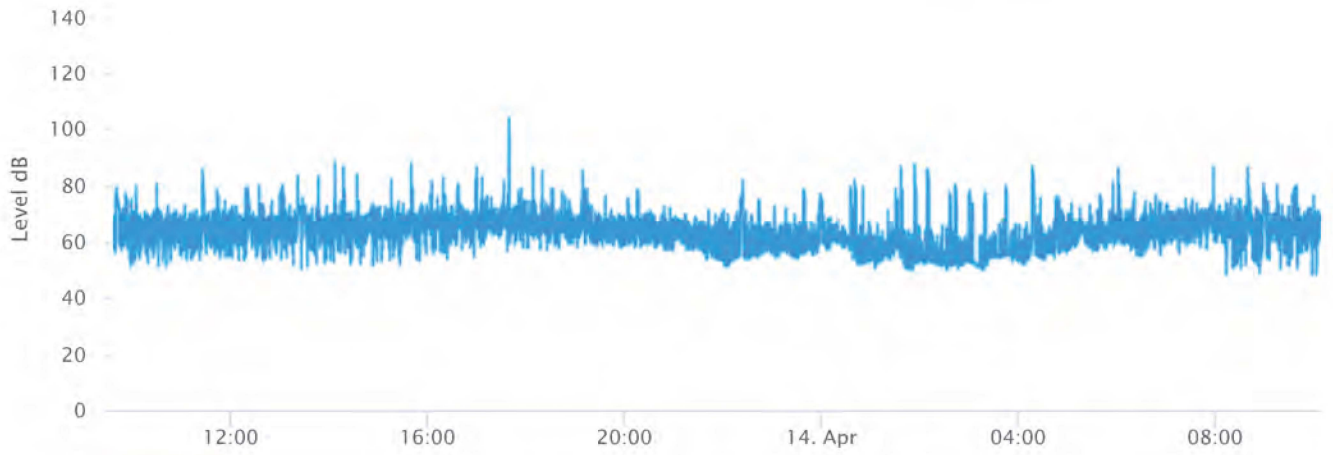
Count	Duration	OBA Count	OBA Duration
3	0:00:21.5	3	0:00:21.5

Statistics

LAS 5.0	74.3 dB
LAS 10.0	70.9 dB
LAS 33.3	65.9 dB
LAS 50.0	62.8 dB
LAS 66.6	59.3 dB
LAS 90.0	54.0 dB

Time History

Zoomed



— LAeq: 0.0 dB — LApeak: 0.0 dB — LASmax: 0.0 dB — LASmin: 0.0 dB

