

Appendix 3.10-1
Noise Appendix

Construction Noise Modeling

Table 1. Construction Noise Analysis, Construction Noise Level Summary, by Phase

Phase	Noise Level (dBA Leq) by Distance (feet)									
	Reference Distance of 50 Feet	100	150	200	300	400	500	750	1000	2000
Make Ready - Install Off Site Utilities	83	77	73	71	67	65	63	59	57	51
Make Ready - Cinema Demolition/Access to Target	81	75	71	69	65	63	61	57	55	49
Make Ready - Cinema Renovation	79	73	70	67	64	61	59	56	53	47
Make Ready - Abatement	80	74	71	68	65	62	60	57	54	48
Make Ready - Demo Existing Mall and Parking (Phase 1-4)	82	76	72	70	66	64	62	58	56	50
Make Ready - Rough Grade, Site Utilities, Roads (include PG&E, JT), & Roads Phase 1-4 (Grade Site)	85	79	76	73	70	67	65	62	59	53
Make Ready - Rough Grade, Site Utilities, Roads (include PG&E, JT), & Roads Phase 1-4 (Roads)	84	78	74	72	68	66	64	60	58	52
Phase 1 - Resi 1, Shoring/Excavation	81	75	72	69	66	63	61	58	55	49
Phase 1 - Resi 1, Construction	82	76	73	70	67	64	62	59	56	50
Phase 1 - Resi 2, Construction	81	75	71	69	65	63	61	57	55	49
Phase 1 - Resi 3, Shoring/Excavation	81	75	72	69	66	63	61	58	55	49
Phase 1 - Resi 3, Construction	82	76	73	70	67	64	62	59	56	50
Phase 2 - Retail Construction	83	77	73	71	67	65	63	59	57	51
Phase 3 - Parking Structure 1/Field House 1, Shoring/Excavation	81	75	72	69	66	63	61	58	55	49
Phase 3 - Parking Structure 1/Field House 1, Construction	81	75	72	69	66	63	61	58	55	49
Phase 3 - Building 3, Shoring/Excavation	81	75	72	69	66	63	61	58	55	49
Phase 3 - Building 3, Construction	81	75	72	69	66	63	61	58	55	49
Phase 3 - Building 1, Shoring/Excavation	82	76	73	70	67	64	62	59	56	50
Phase 3 - Building 1, Construction	81	75	72	69	66	63	61	58	55	49
Phase 3 - Building 2, Shoring/Excavation	82	76	73	70	67	64	62	59	56	50
Phase 3 - Building 2, Construction	81	75	72	69	66	63	61	58	55	49
Phase 4 Flex 1 - Parking Structure 2/Field House 2, Shoring/Excavation	82	76	73	70	67	64	62	59	56	50
Phase 4 Flex 1 - Parking Structure 2/Field House 2, Construction	81	75	72	69	66	63	61	58	55	49
Phase 4 Flex 1 - Building 4, Shoring/Excavation	82	76	73	70	67	64	62	59	56	50
Phase 4 Flex 1 - Building 4, Construction	81	75	72	69	66	63	61	58	55	49
Phase 4 Flex 1 - Building 5, Construction	81	75	71	69	65	63	61	57	55	49
Phase 4 Flex 1 - Building 6, Shoring/Excavation	82	76	73	70	67	64	62	59	56	50
Phase 4 Flex 1 - Building 6, Construction	81	75	72	69	66	63	61	58	55	49
Phase 4 Flex 2 - Parking Structure 3/Field House 3, Construction	80	74	71	68	65	62	60	57	54	48
Phase 4 Flex 2 - Building 7, Shoring/Excavation	82	76	73	70	67	64	62	59	56	50
Phase 4 Flex 2 - Building 7, Construction	81	75	72	69	66	63	61	58	55	49
Phase 4 Flex 2 - Building 8, Shoring/Excavation	82	76	73	70	67	64	62	59	56	50
Phase 4 Flex 2 - Building 8, Construction	81	75	72	69	66	63	61	58	55	49

Table 2. Detailed Construction Noise Analysis, Make Ready - Install Off Site Utilities

		Maximum Sound Level (dBA) ¹	Utilization Factor ^{1,2}	Leq Sound Level (dBA)
Source Data:				
Source 1: Excavator - Sound level (dBA) at 50 feet =		81	40%	77.0
Source 2: Compactor (Ground) - Sound level (dBA) at 50 feet =		83	20%	76.0
Source 3: Scraper - Sound level (dBA) at 50 feet =		84	40%	80.0
Calculated Data:				
All Sources Combined - Lmax sound level (dBA) at 50 feet =				88
All Sources Combined - Leq sound level (dBA) at 50 feet =				83

Distance Between Source and Receiver (ft.)	Geometric Attenuation (dB)	Ground Effect Attenuation (dB)	Calculated Lmax Sound Level (dBA)	Calculated Leq Sound Level (dBA)
15	10	0.0	98	93
25	6	0.0	94	89
50	0	0.0	88	83
80	-4	0.0	84	79
100	-6	0.0	82	77
150	-10	0.0	78	73
200	-12	0.0	76	71
250	-14	0.0	74	69
300	-16	0.0	72	67
350	-17	0.0	71	66
400	-18	0.0	70	65
500	-20	0.0	68	63
600	-22	0.0	66	61
700	-23	0.0	65	60
800	-24	0.0	64	59
1000	-26	0.0	62	57
2000	-32	0.0	56	51

1. Obtained or estimated from:

FHWA Roadway Construction Noise Model (RCNM), Version 1.1, December 8, 2008; and/or

"Transit Noise and Vibration Impact Assessment Manual", FTA Report No. 0123, September 2018; and/or

"Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances," BBN/EPA, December 31, 1971

2. Usage Factor = percentage of time equipment is operating in noisiest mode while in use

Geometric attenuation based on 6 dB per doubling of distance.

Note: This calculation does not include the effects, if any, of local shielding from walls, topography or other barriers which may reduce sound levels further.

Table 3. Detailed Construction Noise Analysis, Make Ready - Cinema Demolition/Access to Target

Source Data:	Maximum Sound Level (dBA) ¹	Utilization Factor ^{1,2}	Leq Sound Level (dBA)
Source 1: Excavator - Sound level (dBA) at 50 feet =	81	40%	77.0
Source 2: Backhoe - Sound level (dBA) at 50 feet =	78	40%	74.0
Source 3: Excavator - Sound level (dBA) at 50 feet =	81	40%	77.0
Calculated Data:			
All Sources Combined - Lmax sound level (dBA) at 50 feet =			85
All Sources Combined - Leq sound level (dBA) at 50 feet =			81

Distance Between Source and Receiver (ft.)	Geometric Attenuation (dB)	Ground Effect Attenuation (dB)	Calculated Lmax Sound Level (dBA)	Calculated Leq Sound Level (dBA)
15	10	0.0	95	91
25	6	0.0	91	87
50	0	0.0	85	81
80	-4	0.0	81	77
100	-6	0.0	79	75
150	-10	0.0	75	71
200	-12	0.0	73	69
250	-14	0.0	71	67
300	-16	0.0	69	65
350	-17	0.0	68	64
400	-18	0.0	67	63
500	-20	0.0	65	61
600	-22	0.0	63	59
700	-23	0.0	62	58
800	-24	0.0	61	57
1000	-26	0.0	59	55
2000	-32	0.0	53	49

1. Obtained or estimated from:

FHWA Roadway Construction Noise Model (RCNM), Version 1.1, December 8, 2008; and/or
 "Transit Noise and Vibration Impact Assessment Manual", FTA Report No. 0123, September 2018; and/or
 "Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances," BBN/EPA, December 31, 1971

2. Usage Factor = percentage of time equipment is operating in noisiest mode while in use

Geometric attenuation based on 6 dB per doubling of distance.

Note: This calculation does not include the effects, if any, of local shielding from walls, topography or other barriers which may reduce sound levels further.

Table 4. Detailed Construction Noise Analysis, Make Ready - Cinema Renovation

Source Data:	Maximum Sound Level (dBA) ¹	Utilization Factor ^{1,2}	Leq Sound Level (dBA)
Source 1: Concrete Pump Truck - Sound level (dBA) at 50 feet =	81	20%	74.0
Source 2: Front End Loader - Sound level (dBA) at 50 feet =	79	40%	75.0
Source 3: Front End Loader - Sound level (dBA) at 50 feet =	79	40%	75.0
Calculated Data:			
All Sources Combined - Lmax sound level (dBA) at 50 feet =			85
All Sources Combined - Leq sound level (dBA) at 50 feet =			79

Distance Between Source and Receiver (ft.)	Geometric Attenuation (dB)	Ground Effect Attenuation (dB)	Calculated Lmax Sound Level (dBA)	Calculated Leq Sound Level (dBA)
15	10	0.0	95	90
25	6	0.0	91	86
50	0	0.0	85	79
80	-4	0.0	80	75
100	-6	0.0	79	73
150	-10	0.0	75	70
200	-12	0.0	73	67
250	-14	0.0	71	66
300	-16	0.0	69	64
350	-17	0.0	68	63
400	-18	0.0	66	61
500	-20	0.0	65	59
600	-22	0.0	63	58
700	-23	0.0	62	57
800	-24	0.0	60	55
1000	-26	0.0	59	53
2000	-32	0.0	53	47

1. Obtained or estimated from:

FHWA Roadway Construction Noise Model (RCNM), Version 1.1, December 8, 2008; and/or

"Transit Noise and Vibration Impact Assessment Manual", FTA Report No. 0123, September 2018; and/or

"Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances," BBN/EPA, December 31, 1971

2. Usage Factor = percentage of time equipment is operating in noisiest mode while in use

Geometric attenuation based on 6 dB per doubling of distance.

Note: This calculation does not include the effects, if any, of local shielding from walls, topography or other barriers which may reduce sound levels further.

Table 5. Detailed Construction Noise Analysis, Make Ready - Abatement

		Maximum Sound Level (dBA) ¹	Utilization Factor ^{1,2}	Leq Sound Level (dBA)
Source Data:				
Source 1: Excavator - Sound level (dBA) at 50 feet =		81	40%	77.0
Source 2: Backhoe - Sound level (dBA) at 50 feet =		78	40%	74.0
Source 3: Front End Loader - Sound level (dBA) at 50 feet =		79	40%	75.0
Calculated Data:				
All Sources Combined - Lmax sound level (dBA) at 50 feet =				84
All Sources Combined - Leq sound level (dBA) at 50 feet =				80

Distance Between Source and Receiver (ft.)	Geometric Attenuation (dB)	Ground Effect Attenuation (dB)	Calculated Lmax Sound Level (dBA)	Calculated Leq Sound Level (dBA)
15	10	0.0	95	91
25	6	0.0	90	86
50	0	0.0	84	80
80	-4	0.0	80	76
100	-6	0.0	78	74
150	-10	0.0	75	71
200	-12	0.0	72	68
250	-14	0.0	70	66
300	-16	0.0	69	65
350	-17	0.0	67	63
400	-18	0.0	66	62
500	-20	0.0	64	60
600	-22	0.0	63	59
700	-23	0.0	61	57
800	-24	0.0	60	56
1000	-26	0.0	58	54
2000	-32	0.0	52	48

1. Obtained or estimated from:

FHWA Roadway Construction Noise Model (RCNM), Version 1.1, December 8, 2008; and/or
 "Transit Noise and Vibration Impact Assessment Manual", FTA Report No. 0123, September 2018; and/or
 "Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances," BBN/EPA, December 31, 1971

2. Usage Factor = percentage of time equipment is operating in noisiest mode while in use

Geometric attenuation based on 6 dB per doubling of distance.

Note: This calculation does not include the effects, if any, of local shielding from walls, topography or other barriers which may reduce sound levels further.

Table 6. Detailed Construction Noise Analysis, Make Ready - Demo Existing Mall and Parking (Phase 1-4)

		Maximum Sound Level (dBA) ¹	Utilization Factor ^{1,2}	Leq Sound Level (dBA)
Source Data:				
Source 1: Excavator - Sound level (dBA) at 50 feet =		81	40%	77.0
Source 2: Excavator - Sound level (dBA) at 50 feet =		81	40%	77.0
Source 3: Excavator - Sound level (dBA) at 50 feet =		81	40%	77.0
Calculated Data:				
All Sources Combined - Lmax sound level (dBA) at 50 feet =				86
All Sources Combined - Leq sound level (dBA) at 50 feet =				82

Distance Between Source and Receiver (ft.)	Geometric Attenuation (dB)	Ground Effect Attenuation (dB)	Calculated Lmax Sound Level (dBA)	Calculated Leq Sound Level (dBA)
15	10	0.0	96	92
25	6	0.0	92	88
50	0	0.0	86	82
80	-4	0.0	82	78
100	-6	0.0	80	76
150	-10	0.0	76	72
200	-12	0.0	74	70
250	-14	0.0	72	68
300	-16	0.0	70	66
350	-17	0.0	69	65
400	-18	0.0	68	64
500	-20	0.0	66	62
600	-22	0.0	64	60
700	-23	0.0	63	59
800	-24	0.0	62	58
1000	-26	0.0	60	56
2000	-32	0.0	54	50

1. Obtained or estimated from:

FHWA Roadway Construction Noise Model (RCNM), Version 1.1, December 8, 2008; and/or

"Transit Noise and Vibration Impact Assessment Manual", FTA Report No. 0123, September 2018; and/or

"Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances," BBN/EPA, December 31, 1971

2. Usage Factor = percentage of time equipment is operating in noisiest mode while in use

Geometric attenuation based on 6 dB per doubling of distance.

Note: This calculation does not include the effects, if any, of local shielding from walls, topography or other barriers which may reduce sound levels further.

Table 7. Detailed Construction Noise Analysis, Make Ready - Rough Grade, Site Utilities, Roads (include PG&E, JT), & Roads Phase 1-4 (Grade Site)

		Maximum Sound Level (dBA) ¹	Utilization Factor ^{1,2}	Leq Sound Level (dBA)
Source Data:				
Source 1: Grader - Sound level (dBA) at 50 feet =		85	40%	81.0
Source 2: Scraper - Sound level (dBA) at 50 feet =		84	40%	80.0
Source 3: Scraper - Sound level (dBA) at 50 feet =		84	40%	80.0
Calculated Data:				
All Sources Combined - Lmax sound level (dBA) at 50 feet =				89
All Sources Combined - Leq sound level (dBA) at 50 feet =				85

Distance Between Source and Receiver (ft.)	Geometric Attenuation (dB)	Ground Effect Attenuation (dB)	Calculated Lmax Sound Level (dBA)	Calculated Leq Sound Level (dBA)
15	10	0.0	100	96
25	6	0.0	95	91
50	0	0.0	89	85
80	-4	0.0	85	81
100	-6	0.0	83	79
150	-10	0.0	80	76
200	-12	0.0	77	73
250	-14	0.0	75	71
300	-16	0.0	74	70
350	-17	0.0	72	68
400	-18	0.0	71	67
500	-20	0.0	69	65
600	-22	0.0	68	64
700	-23	0.0	66	62
800	-24	0.0	65	61
1000	-26	0.0	63	59
2000	-32	0.0	57	53

1. Obtained or estimated from:

FHWA Roadway Construction Noise Model (RCNM), Version 1.1, December 8, 2008; and/or

"Transit Noise and Vibration Impact Assessment Manual", FTA Report No. 0123, September 2018; and/or

"Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances," BBN/EPA, December 31, 1971

2. Usage Factor = percentage of time equipment is operating in noisiest mode while in use

Geometric attenuation based on 6 dB per doubling of distance.

Note: This calculation does not include the effects, if any, of local shielding from walls, topography or other barriers which may reduce sound levels further.

Table 8. Detailed Construction Noise Analysis, Make Ready - Rough Grade, Site Utilities, Roads (include PG&E, JT), & Roads Phase 1-4 (Roads)

		Maximum Sound Level (dBA) ¹	Utilization Factor ^{1,2}	Leq Sound Level (dBA)
Source Data:				
Source 1: Grader - Sound level (dBA) at 50 feet =		85	40%	81.0
Source 2: Compactor (Ground) - Sound level (dBA) at 50 feet =		83	20%	76.0
Source 3: Dozer - Sound level (dBA) at 50 feet =		82	40%	78.0
Calculated Data:				
All Sources Combined - Lmax sound level (dBA) at 50 feet =				88
All Sources Combined - Leq sound level (dBA) at 50 feet =				84

Distance Between Source and Receiver (ft.)	Geometric Attenuation (dB)	Ground Effect Attenuation (dB)	Calculated Lmax Sound Level (dBA)	Calculated Leq Sound Level (dBA)
15	10	0.0	99	94
25	6	0.0	94	90
50	0	0.0	88	84
80	-4	0.0	84	80
100	-6	0.0	82	78
150	-10	0.0	79	74
200	-12	0.0	76	72
250	-14	0.0	74	70
300	-16	0.0	73	68
350	-17	0.0	71	67
400	-18	0.0	70	66
500	-20	0.0	68	64
600	-22	0.0	67	62
700	-23	0.0	65	61
800	-24	0.0	64	60
1000	-26	0.0	62	58
2000	-32	0.0	56	52

1. Obtained or estimated from:

FHWA Roadway Construction Noise Model (RCNM), Version 1.1, December 8, 2008; and/or

"Transit Noise and Vibration Impact Assessment Manual", FTA Report No. 0123, September 2018; and/or

"Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances," BBN/EPA, December 31, 1971

2. Usage Factor = percentage of time equipment is operating in noisiest mode while in use

Geometric attenuation based on 6 dB per doubling of distance.

Note: This calculation does not include the effects, if any, of local shielding from walls, topography or other barriers which may reduce sound levels further.

Table 9. Detailed Construction Noise Analysis, Phase 1 - Resi 1, Shoring/Excavation

		Maximum Sound Level (dBA) ¹	Utilization Factor ^{1,2}	Leq Sound Level (dBA)
Source Data:				
Source 1: Crane - Sound level (dBA) at 50 feet =		81	16%	73.0
Source 2: Excavator - Sound level (dBA) at 50 feet =		81	40%	77.0
Source 3: Dozer - Sound level (dBA) at 50 feet =		82	40%	78.0
Calculated Data:				
All Sources Combined - Lmax sound level (dBA) at 50 feet =				86
All Sources Combined - Leq sound level (dBA) at 50 feet =				81

Distance Between Source and Receiver (ft.)	Geometric Attenuation (dB)	Ground Effect Attenuation (dB)	Calculated Lmax Sound Level (dBA)	Calculated Leq Sound Level (dBA)
15	10	0.0	97	92
25	6	0.0	92	87
50	0	0.0	86	81
80	-4	0.0	82	77
100	-6	0.0	80	75
150	-10	0.0	77	72
200	-12	0.0	74	69
250	-14	0.0	72	67
300	-16	0.0	71	66
350	-17	0.0	69	64
400	-18	0.0	68	63
500	-20	0.0	66	61
600	-22	0.0	65	60
700	-23	0.0	63	58
800	-24	0.0	62	57
1000	-26	0.0	60	55
2000	-32	0.0	54	49

1. Obtained or estimated from:

FHWA Roadway Construction Noise Model (RCNM), Version 1.1, December 8, 2008; and/or

"Transit Noise and Vibration Impact Assessment Manual", FTA Report No. 0123, September 2018; and/or

"Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances," BBN/EPA, December 31, 1971

2. Usage Factor = percentage of time equipment is operating in noisiest mode while in use

Geometric attenuation based on 6 dB per doubling of distance.

Note: This calculation does not include the effects, if any, of local shielding from walls, topography or other barriers which may reduce sound levels further.

Table 10. Detailed Construction Noise Analysis, Phase 1 - Resi 1, Construction

		Maximum Sound Level (dBA) ¹	Utilization Factor ^{1,2}	Leq Sound Level (dBA)
Source Data:				
Source 1: Compactor (Ground) - Sound level (dBA) at 50 feet =		83	20%	76.0
Source 2: Dozer - Sound level (dBA) at 50 feet =		82	40%	78.0
Source 3: Dozer - Sound level (dBA) at 50 feet =		82	40%	78.0
Calculated Data:				
All Sources Combined - Lmax sound level (dBA) at 50 feet =				87
All Sources Combined - Leq sound level (dBA) at 50 feet =				82

Distance Between Source and Receiver (ft.)	Geometric Attenuation (dB)	Ground Effect Attenuation (dB)	Calculated Lmax Sound Level (dBA)	Calculated Leq Sound Level (dBA)
15	10	0.0	98	93
25	6	0.0	93	88
50	0	0.0	87	82
80	-4	0.0	83	78
100	-6	0.0	81	76
150	-10	0.0	78	73
200	-12	0.0	75	70
250	-14	0.0	73	68
300	-16	0.0	72	67
350	-17	0.0	70	65
400	-18	0.0	69	64
500	-20	0.0	67	62
600	-22	0.0	66	61
700	-23	0.0	64	59
800	-24	0.0	63	58
1000	-26	0.0	61	56
2000	-32	0.0	55	50

1. Obtained or estimated from:

FHWA Roadway Construction Noise Model (RCNM), Version 1.1, December 8, 2008; and/or

"Transit Noise and Vibration Impact Assessment Manual", FTA Report No. 0123, September 2018; and/or

"Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances," BBN/EPA, December 31, 1971

2. Usage Factor = percentage of time equipment is operating in noisiest mode while in use

Geometric attenuation based on 6 dB per doubling of distance.

Note: This calculation does not include the effects, if any, of local shielding from walls, topography or other barriers which may reduce sound levels further.

Table 11. Detailed Construction Noise Analysis, Phase 1 - Resi 2, Construction

		Maximum Sound Level (dBA) ¹	Utilization Factor ^{1,2}	Leq Sound Level (dBA)
Source Data:				
Source 1: Excavator - Sound level (dBA) at 50 feet =		81	40%	77.0
Source 2: Compactor (Ground) - Sound level (dBA) at 50 feet =		83	20%	76.0
Source 3: Front End Loader - Sound level (dBA) at 50 feet =		79	40%	75.0
Calculated Data:				
All Sources Combined - Lmax sound level (dBA) at 50 feet =				86
All Sources Combined - Leq sound level (dBA) at 50 feet =				81

Distance Between Source and Receiver (ft.)	Geometric Attenuation (dB)	Ground Effect Attenuation (dB)	Calculated Lmax Sound Level (dBA)	Calculated Leq Sound Level (dBA)
15	10	0.0	97	91
25	6	0.0	92	87
50	0	0.0	86	81
80	-4	0.0	82	77
100	-6	0.0	80	75
150	-10	0.0	77	71
200	-12	0.0	74	69
250	-14	0.0	72	67
300	-16	0.0	71	65
350	-17	0.0	69	64
400	-18	0.0	68	63
500	-20	0.0	66	61
600	-22	0.0	64	59
700	-23	0.0	63	58
800	-24	0.0	62	57
1000	-26	0.0	60	55
2000	-32	0.0	54	49

1. Obtained or estimated from:

FHWA Roadway Construction Noise Model (RCNM), Version 1.1, December 8, 2008; and/or

"Transit Noise and Vibration Impact Assessment Manual", FTA Report No. 0123, September 2018; and/or

"Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances," BBN/EPA, December 31, 1971

2. Usage Factor = percentage of time equipment is operating in noisiest mode while in use

Geometric attenuation based on 6 dB per doubling of distance.

Note: This calculation does not include the effects, if any, of local shielding from walls, topography or other barriers which may reduce sound levels further.

Table 12. Detailed Construction Noise Analysis, Phase 1 - Resi 3, Shoring/Excavation

Source Data:	Maximum Sound Level (dBA) ¹	Utilization Factor ^{1,2}	Leq Sound Level (dBA)
Source 1: Crane - Sound level (dBA) at 50 feet =	81	16%	73.0
Source 2: Excavator - Sound level (dBA) at 50 feet =	81	40%	77.0
Source 3: Dozer - Sound level (dBA) at 50 feet =	82	40%	78.0
Calculated Data:			
All Sources Combined - Lmax sound level (dBA) at 50 feet =			86
All Sources Combined - Leq sound level (dBA) at 50 feet =			81

Distance Between Source and Receiver (ft.)	Geometric Attenuation (dB)	Ground Effect Attenuation (dB)	Calculated Lmax Sound Level (dBA)	Calculated Leq Sound Level (dBA)
15	10	0.0	97	92
25	6	0.0	92	87
50	0	0.0	86	81
80	-4	0.0	82	77
100	-6	0.0	80	75
150	-10	0.0	77	72
200	-12	0.0	74	69
250	-14	0.0	72	67
300	-16	0.0	71	66
350	-17	0.0	69	64
400	-18	0.0	68	63
500	-20	0.0	66	61
600	-22	0.0	65	60
700	-23	0.0	63	58
800	-24	0.0	62	57
1000	-26	0.0	60	55
2000	-32	0.0	54	49

1. Obtained or estimated from:

FHWA Roadway Construction Noise Model (RCNM), Version 1.1, December 8, 2008; and/or

"Transit Noise and Vibration Impact Assessment Manual", FTA Report No. 0123, September 2018; and/or

"Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances;" BBN/EPA, December 31, 1971

2. Usage Factor = percentage of time equipment is operating in noisiest mode while in use

Geometric attenuation based on 6 dB per doubling of distance.

Note: This calculation does not include the effects, if any, of local shielding from walls, topography or other barriers which may reduce sound levels further.

Table 13. Detailed Construction Noise Analysis, Phase 1 -Resi 3, Construction

Source Data:	Maximum Sound Level (dBA) ¹	Utilization Factor ^{1,2}	Leq Sound Level (dBA)
Source 1: Compactor (Ground) - Sound level (dBA) at 50 feet =	83	20%	76.0
Source 2: Dozer - Sound level (dBA) at 50 feet =	82	40%	78.0
Source 3: Dozer - Sound level (dBA) at 50 feet =	82	40%	78.0
Calculated Data:			
All Sources Combined - Lmax sound level (dBA) at 50 feet =			87
All Sources Combined - Leq sound level (dBA) at 50 feet =			82

Distance Between Source and Receiver (ft.)	Geometric Attenuation (dB)	Ground Effect Attenuation (dB)	Calculated Lmax Sound Level (dBA)	Calculated Leq Sound Level (dBA)
15	10	0.0	98	93
25	6	0.0	93	88
50	0	0.0	87	82
80	-4	0.0	83	78
100	-6	0.0	81	76
150	-10	0.0	78	73
200	-12	0.0	75	70
250	-14	0.0	73	68
300	-16	0.0	72	67
350	-17	0.0	70	65
400	-18	0.0	69	64
500	-20	0.0	67	62
600	-22	0.0	66	61
700	-23	0.0	64	59
800	-24	0.0	63	58
1000	-26	0.0	61	56
2000	-32	0.0	55	50

1. Obtained or estimated from:

FHWA Roadway Construction Noise Model (RCNM), Version 1.1, December 8, 2008; and/or
 "Transit Noise and Vibration Impact Assessment Manual", FTA Report No. 0123, September 2018; and/or
 "Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances," BBN/EPA, December 31, 1971

2. Usage Factor = percentage of time equipment is operating in noisiest mode while in use

Geometric attenuation based on 6 dB per doubling of distance.

Note: This calculation does not include the effects, if any, of local shielding from walls, topography or other barriers which may reduce sound levels further.

Table 14. Detailed Construction Noise Analysis, Phase 2 - Retail Construction

		Maximum Sound Level (dBA) ¹	Utilization Factor ^{1,2}	Leq Sound Level (dBA)
Source Data:				
Source 1: Compactor (Ground) - Sound level (dBA) at 50 feet =		83	20%	76.0
Source 2: Grader - Sound level (dBA) at 50 feet =		85	40%	81.0
Source 3: Front End Loader - Sound level (dBA) at 50 feet =		79	40%	75.0
Calculated Data:				
All Sources Combined - Lmax sound level (dBA) at 50 feet =				88
All Sources Combined - Leq sound level (dBA) at 50 feet =				83

Distance Between Source and Receiver (ft.)	Geometric Attenuation (dB)	Ground Effect Attenuation (dB)	Calculated Lmax Sound Level (dBA)	Calculated Leq Sound Level (dBA)
15	10	0.0	98	93
25	6	0.0	94	89
50	0	0.0	88	83
80	-4	0.0	84	79
100	-6	0.0	82	77
150	-10	0.0	78	73
200	-12	0.0	76	71
250	-14	0.0	74	69
300	-16	0.0	72	67
350	-17	0.0	71	66
400	-18	0.0	70	65
500	-20	0.0	68	63
600	-22	0.0	66	61
700	-23	0.0	65	60
800	-24	0.0	64	59
1000	-26	0.0	62	57
2000	-32	0.0	56	51

1. Obtained or estimated from:

FHWA Roadway Construction Noise Model (RCNM), Version 1.1, December 8, 2008; and/or

"Transit Noise and Vibration Impact Assessment Manual", FTA Report No. 0123, September 2018; and/or

"Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances," BBN/EPA, December 31, 1971

2. Usage Factor = percentage of time equipment is operating in noisiest mode while in use

Geometric attenuation based on 6 dB per doubling of distance.

Note: This calculation does not include the effects, if any, of local shielding from walls, topography or other barriers which may reduce sound levels further.

Table 15. Detailed Construction Noise Analysis, Phase 3 - Parking Structure 1/Field House 1, Shoring/Excavation

		Maximum Sound Level (dBA) ¹	Utilization Factor ^{1,2}	Leq Sound Level (dBA)
Source Data:				
Source 1: Crane - Sound level (dBA) at 50 feet =		81	16%	73.0
Source 2: Excavator - Sound level (dBA) at 50 feet =		81	40%	77.0
Source 3: Dozer - Sound level (dBA) at 50 feet =		82	40%	78.0
Calculated Data:				
All Sources Combined - Lmax sound level (dBA) at 50 feet =				86
All Sources Combined - Leq sound level (dBA) at 50 feet =				81

Distance Between Source and Receiver (ft.)	Geometric Attenuation (dB)	Ground Effect Attenuation (dB)	Calculated Lmax Sound Level (dBA)	Calculated Leq Sound Level (dBA)
15	10	0.0	97	92
25	6	0.0	92	87
50	0	0.0	86	81
80	-4	0.0	82	77
100	-6	0.0	80	75
150	-10	0.0	77	72
200	-12	0.0	74	69
250	-14	0.0	72	67
300	-16	0.0	71	66
350	-17	0.0	69	64
400	-18	0.0	68	63
500	-20	0.0	66	61
600	-22	0.0	65	60
700	-23	0.0	63	58
800	-24	0.0	62	57
1000	-26	0.0	60	55
2000	-32	0.0	54	49

1. Obtained or estimated from:

FHWA Roadway Construction Noise Model (RCNM), Version 1.1, December 8, 2008; and/or

"Transit Noise and Vibration Impact Assessment Manual", FTA Report No. 0123, September 2018; and/or

"Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances," BBN/EPA, December 31, 1971

2. Usage Factor = percentage of time equipment is operating in noisiest mode while in use

Geometric attenuation based on 6 dB per doubling of distance.

Note: This calculation does not include the effects, if any, of local shielding from walls, topography or other barriers which may reduce sound levels further.

Table 16. Detailed Construction Noise Analysis, Phase 3 - Parking Structure 1/Field House 1, Construction

		Maximum Sound Level (dBA) ¹	Utilization Factor ^{1,2}	Leq Sound Level (dBA)
Source Data:				
Source 1: Compactor (Ground) - Sound level (dBA) at 50 feet =		83	20%	76.0
Source 2: Dozer - Sound level (dBA) at 50 feet =		82	40%	78.0
Source 3: Front End Loader - Sound level (dBA) at 50 feet =		79	40%	75.0
Calculated Data:				
All Sources Combined - Lmax sound level (dBA) at 50 feet =				86
All Sources Combined - Leq sound level (dBA) at 50 feet =				81

Distance Between Source and Receiver (ft.)	Geometric Attenuation (dB)	Ground Effect Attenuation (dB)	Calculated Lmax Sound Level (dBA)	Calculated Leq Sound Level (dBA)
15	10	0.0	97	92
25	6	0.0	92	87
50	0	0.0	86	81
80	-4	0.0	82	77
100	-6	0.0	80	75
150	-10	0.0	77	72
200	-12	0.0	74	69
250	-14	0.0	72	67
300	-16	0.0	71	66
350	-17	0.0	70	64
400	-18	0.0	68	63
500	-20	0.0	66	61
600	-22	0.0	65	60
700	-23	0.0	63	58
800	-24	0.0	62	57
1000	-26	0.0	60	55
2000	-32	0.0	54	49

1. Obtained or estimated from:

FHWA Roadway Construction Noise Model (RCNM), Version 1.1, December 8, 2008; and/or

"Transit Noise and Vibration Impact Assessment Manual", FTA Report No. 0123, September 2018; and/or

"Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances," BBN/EPA, December 31, 1971

2. Usage Factor = percentage of time equipment is operating in noisiest mode while in use

Geometric attenuation based on 6 dB per doubling of distance.

Note: This calculation does not include the effects, if any, of local shielding from walls, topography or other barriers which may reduce sound levels further.

Table 17. Detailed Construction Noise Analysis, Phase 3 - Building 3, Shoring/Excavation

		Maximum Sound Level (dBA) ¹	Utilization Factor ^{1,2}	Leq Sound Level (dBA)
Source Data:				
Source 1: Crane - Sound level (dBA) at 50 feet =		81	16%	73.0
Source 2: Excavator - Sound level (dBA) at 50 feet =		81	40%	77.0
Source 3: Dozer - Sound level (dBA) at 50 feet =		82	40%	78.0
Calculated Data:				
All Sources Combined - Lmax sound level (dBA) at 50 feet =				86
All Sources Combined - Leq sound level (dBA) at 50 feet =				81

Distance Between Source and Receiver (ft.)	Geometric Attenuation (dB)	Ground Effect Attenuation (dB)	Calculated Lmax Sound Level (dBA)	Calculated Leq Sound Level (dBA)
15	10	0.0	97	92
25	6	0.0	92	87
50	0	0.0	86	81
80	-4	0.0	82	77
100	-6	0.0	80	75
150	-10	0.0	77	72
200	-12	0.0	74	69
250	-14	0.0	72	67
300	-16	0.0	71	66
350	-17	0.0	69	64
400	-18	0.0	68	63
500	-20	0.0	66	61
600	-22	0.0	65	60
700	-23	0.0	63	58
800	-24	0.0	62	57
1000	-26	0.0	60	55
2000	-32	0.0	54	49

1. Obtained or estimated from:

FHWA Roadway Construction Noise Model (RCNM), Version 1.1, December 8, 2008; and/or

"Transit Noise and Vibration Impact Assessment Manual", FTA Report No. 0123, September 2018; and/or

"Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances," BBN/EPA, December 31, 1971

2. Usage Factor = percentage of time equipment is operating in noisiest mode while in use

Geometric attenuation based on 6 dB per doubling of distance.

Note: This calculation does not include the effects, if any, of local shielding from walls, topography or other barriers which may reduce sound levels further.

Table 18. Detailed Construction Noise Analysis, Phase 3 - Building 3, Construction

Source Data:	Maximum Sound Level (dBA) ¹	Utilization Factor ^{1,2}	Leq Sound Level (dBA)
Source 1: Dozer - Sound level (dBA) at 50 feet =	82	40%	78.0
Source 2: Compactor (Ground) - Sound level (dBA) at 50 feet =	83	20%	76.0
Source 3: Front End Loader - Sound level (dBA) at 50 feet =	79	40%	75.0
Calculated Data:			
All Sources Combined - Lmax sound level (dBA) at 50 feet =			86
All Sources Combined - Leq sound level (dBA) at 50 feet =			81

Distance Between Source and Receiver (ft.)	Geometric Attenuation (dB)	Ground Effect Attenuation (dB)	Calculated Lmax Sound Level (dBA)	Calculated Leq Sound Level (dBA)
15	10	0.0	97	92
25	6	0.0	92	87
50	0	0.0	86	81
80	-4	0.0	82	77
100	-6	0.0	80	75
150	-10	0.0	77	72
200	-12	0.0	74	69
250	-14	0.0	72	67
300	-16	0.0	71	66
350	-17	0.0	70	64
400	-18	0.0	68	63
500	-20	0.0	66	61
600	-22	0.0	65	60
700	-23	0.0	63	58
800	-24	0.0	62	57
1000	-26	0.0	60	55
2000	-32	0.0	54	49

1. Obtained or estimated from:

FHWA Roadway Construction Noise Model (RCNM), Version 1.1, December 8, 2008; and/or

"Transit Noise and Vibration Impact Assessment Manual", FTA Report No. 0123, September 2018; and/or

"Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances," BBN/EPA, December 31, 1971

2. Usage Factor = percentage of time equipment is operating in noisiest mode while in use

Geometric attenuation based on 6 dB per doubling of distance.

Note: This calculation does not include the effects, if any, of local shielding from walls, topography or other barriers which may reduce sound levels further.

Table 19. Detailed Construction Noise Analysis, Phase 3 - Building 1, Shoring/Excavation

		Maximum Sound Level (dBA) ¹	Utilization Factor ^{1,2}	Leq Sound Level (dBA)
Source Data:				
Source 1: Excavator - Sound level (dBA) at 50 feet =		81	40%	77.0
Source 2: Excavator - Sound level (dBA) at 50 feet =		81	40%	77.0
Source 3: Dozer - Sound level (dBA) at 50 feet =		82	40%	78.0
Calculated Data:				
All Sources Combined - Lmax sound level (dBA) at 50 feet =				86
All Sources Combined - Leq sound level (dBA) at 50 feet =				82

Distance Between Source and Receiver (ft.)	Geometric Attenuation (dB)	Ground Effect Attenuation (dB)	Calculated Lmax Sound Level (dBA)	Calculated Leq Sound Level (dBA)
15	10	0.0	97	93
25	6	0.0	92	88
50	0	0.0	86	82
80	-4	0.0	82	78
100	-6	0.0	80	76
150	-10	0.0	77	73
200	-12	0.0	74	70
250	-14	0.0	72	68
300	-16	0.0	71	67
350	-17	0.0	69	65
400	-18	0.0	68	64
500	-20	0.0	66	62
600	-22	0.0	65	61
700	-23	0.0	63	59
800	-24	0.0	62	58
1000	-26	0.0	60	56
2000	-32	0.0	54	50

1. Obtained or estimated from:

FHWA Roadway Construction Noise Model (RCNM), Version 1.1, December 8, 2008; and/or

"Transit Noise and Vibration Impact Assessment Manual", FTA Report No. 0123, September 2018; and/or

"Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances," BBN/EPA, December 31, 1971

2. Usage Factor = percentage of time equipment is operating in noisiest mode while in use

Geometric attenuation based on 6 dB per doubling of distance.

Note: This calculation does not include the effects, if any, of local shielding from walls, topography or other barriers which may reduce sound levels further.

Table 20. Detailed Construction Noise Analysis, Phase 3 - Building 1, Construction

		Maximum Sound Level (dBA) ¹	Utilization Factor ^{1,2}	Leq Sound Level (dBA)
Source Data:				
Source 1: Dozer - Sound level (dBA) at 50 feet =		82	40%	78.0
Source 2: Compactor (Ground) - Sound level (dBA) at 50 feet =		83	20%	76.0
Source 3: Front End Loader - Sound level (dBA) at 50 feet =		79	40%	75.0
Calculated Data:				
All Sources Combined - Lmax sound level (dBA) at 50 feet =				86
All Sources Combined - Leq sound level (dBA) at 50 feet =				81

Distance Between Source and Receiver (ft.)	Geometric Attenuation (dB)	Ground Effect Attenuation (dB)	Calculated Lmax Sound Level (dBA)	Calculated Leq Sound Level (dBA)
15	10	0.0	97	92
25	6	0.0	92	87
50	0	0.0	86	81
80	-4	0.0	82	77
100	-6	0.0	80	75
150	-10	0.0	77	72
200	-12	0.0	74	69
250	-14	0.0	72	67
300	-16	0.0	71	66
350	-17	0.0	70	64
400	-18	0.0	68	63
500	-20	0.0	66	61
600	-22	0.0	65	60
700	-23	0.0	63	58
800	-24	0.0	62	57
1000	-26	0.0	60	55
2000	-32	0.0	54	49

1. Obtained or estimated from:

FHWA Roadway Construction Noise Model (RCNM), Version 1.1, December 8, 2008; and/or

"Transit Noise and Vibration Impact Assessment Manual", FTA Report No. 0123, September 2018; and/or

"Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances," BBN/EPA, December 31, 1971

2. Usage Factor = percentage of time equipment is operating in noisiest mode while in use

Geometric attenuation based on 6 dB per doubling of distance.

Note: This calculation does not include the effects, if any, of local shielding from walls, topography or other barriers which may reduce sound levels further.

Table 21. Detailed Construction Noise Analysis, Phase 3 - Building 2, Shoring/Excavation

		Maximum Sound Level (dBA) ¹	Utilization Factor ^{1,2}	Leq Sound Level (dBA)
Source Data:				
Source 1: Excavator - Sound level (dBA) at 50 feet =		81	40%	77.0
Source 2: Excavator - Sound level (dBA) at 50 feet =		81	40%	77.0
Source 3: Dozer - Sound level (dBA) at 50 feet =		82	40%	78.0
Calculated Data:				
All Sources Combined - Lmax sound level (dBA) at 50 feet =				86
All Sources Combined - Leq sound level (dBA) at 50 feet =				82

Distance Between Source and Receiver (ft.)	Geometric Attenuation (dB)	Ground Effect Attenuation (dB)	Calculated Lmax Sound Level (dBA)	Calculated Leq Sound Level (dBA)
15	10	0.0	97	93
25	6	0.0	92	88
50	0	0.0	86	82
80	-4	0.0	82	78
100	-6	0.0	80	76
150	-10	0.0	77	73
200	-12	0.0	74	70
250	-14	0.0	72	68
300	-16	0.0	71	67
350	-17	0.0	69	65
400	-18	0.0	68	64
500	-20	0.0	66	62
600	-22	0.0	65	61
700	-23	0.0	63	59
800	-24	0.0	62	58
1000	-26	0.0	60	56
2000	-32	0.0	54	50

1. Obtained or estimated from:

FHWA Roadway Construction Noise Model (RCNM), Version 1.1, December 8, 2008; and/or

"Transit Noise and Vibration Impact Assessment Manual", FTA Report No. 0123, September 2018; and/or

"Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances," BBN/EPA, December 31, 1971

2. Usage Factor = percentage of time equipment is operating in noisiest mode while in use

Geometric attenuation based on 6 dB per doubling of distance.

Note: This calculation does not include the effects, if any, of local shielding from walls, topography or other barriers which may reduce sound levels further.

Table 22. Detailed Construction Noise Analysis, Phase 3 - Building 2, Construction

		Maximum Sound Level (dBA) ¹	Utilization Factor ^{1,2}	Leq Sound Level (dBA)
Source Data:				
Source 1: Dozer - Sound level (dBA) at 50 feet =		82	40%	78.0
Source 2: Compactor (Ground) - Sound level (dBA) at 50 feet =		83	20%	76.0
Source 3: Front End Loader - Sound level (dBA) at 50 feet =		79	40%	75.0
Calculated Data:				
All Sources Combined - Lmax sound level (dBA) at 50 feet =				86
All Sources Combined - Leq sound level (dBA) at 50 feet =				81

Distance Between Source and Receiver (ft.)	Geometric Attenuation (dB)	Ground Effect Attenuation (dB)	Calculated Lmax Sound Level (dBA)	Calculated Leq Sound Level (dBA)
15	10	0.0	97	92
25	6	0.0	92	87
50	0	0.0	86	81
80	-4	0.0	82	77
100	-6	0.0	80	75
150	-10	0.0	77	72
200	-12	0.0	74	69
250	-14	0.0	72	67
300	-16	0.0	71	66
350	-17	0.0	70	64
400	-18	0.0	68	63
500	-20	0.0	66	61
600	-22	0.0	65	60
700	-23	0.0	63	58
800	-24	0.0	62	57
1000	-26	0.0	60	55
2000	-32	0.0	54	49

1. Obtained or estimated from:

FHWA Roadway Construction Noise Model (RCNM), Version 1.1, December 8, 2008; and/or

"Transit Noise and Vibration Impact Assessment Manual", FTA Report No. 0123, September 2018; and/or

"Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances," BBN/EPA, December 31, 1971

2. Usage Factor = percentage of time equipment is operating in noisiest mode while in use

Geometric attenuation based on 6 dB per doubling of distance.

Note: This calculation does not include the effects, if any, of local shielding from walls, topography or other barriers which may reduce sound levels further.

Table 23. Detailed Construction Noise Analysis, Phase 4 Flex 1 - Parking Structure 2/Field House 2, Shoring/Excavation

Source Data:	Maximum Sound Level (dBA) ¹	Utilization Factor ^{1,2}	Leq Sound Level (dBA)
Source 1: Excavator - Sound level (dBA) at 50 feet =	81	40%	77.0
Source 2: Excavator - Sound level (dBA) at 50 feet =	81	40%	77.0
Source 3: Dozer - Sound level (dBA) at 50 feet =	82	40%	78.0
Calculated Data:			
All Sources Combined - Lmax sound level (dBA) at 50 feet =			86
All Sources Combined - Leq sound level (dBA) at 50 feet =			82

Distance Between Source and Receiver (ft.)	Geometric Attenuation (dB)	Ground Effect Attenuation (dB)	Calculated Lmax Sound Level (dBA)	Calculated Leq Sound Level (dBA)
15	10	0.0	97	93
25	6	0.0	92	88
50	0	0.0	86	82
80	-4	0.0	82	78
100	-6	0.0	80	76
150	-10	0.0	77	73
200	-12	0.0	74	70
250	-14	0.0	72	68
300	-16	0.0	71	67
350	-17	0.0	69	65
400	-18	0.0	68	64
500	-20	0.0	66	62
600	-22	0.0	65	61
700	-23	0.0	63	59
800	-24	0.0	62	58
1000	-26	0.0	60	56
2000	-32	0.0	54	50

1. Obtained or estimated from:

FHWA Roadway Construction Noise Model (RCNM), Version 1.1, December 8, 2008; and/or

"Transit Noise and Vibration Impact Assessment Manual", FTA Report No. 0123, September 2018; and/or

"Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances," BBN/EPA, December 31, 1971

2. Usage Factor = percentage of time equipment is operating in noisiest mode while in use

Geometric attenuation based on 6 dB per doubling of distance.

Note: This calculation does not include the effects, if any, of local shielding from walls, topography or other barriers which may reduce sound levels further.

Table 24. Detailed Construction Noise Analysis, Phase 4 Flex 1 - Parking Structure 2/Field House 2, Construction

		Maximum Sound Level (dBA) ¹	Utilization Factor ^{1,2}	Leq Sound Level (dBA)
Source Data:				
Source 1: Compactor (Ground) - Sound level (dBA) at 50 feet =		83	20%	76.0
Source 2: Front End Loader - Sound level (dBA) at 50 feet =		79	40%	75.0
Source 3: Dozer - Sound level (dBA) at 50 feet =		82	40%	78.0
Calculated Data:				
All Sources Combined - Lmax sound level (dBA) at 50 feet =				86
All Sources Combined - Leq sound level (dBA) at 50 feet =				81

Distance Between Source and Receiver (ft.)	Geometric Attenuation (dB)	Ground Effect Attenuation (dB)	Calculated Lmax Sound Level (dBA)	Calculated Leq Sound Level (dBA)
15	10	0.0	97	92
25	6	0.0	92	87
50	0	0.0	86	81
80	-4	0.0	82	77
100	-6	0.0	80	75
150	-10	0.0	77	72
200	-12	0.0	74	69
250	-14	0.0	72	67
300	-16	0.0	71	66
350	-17	0.0	70	64
400	-18	0.0	68	63
500	-20	0.0	66	61
600	-22	0.0	65	60
700	-23	0.0	63	58
800	-24	0.0	62	57
1000	-26	0.0	60	55
2000	-32	0.0	54	49

1. Obtained or estimated from:

FHWA Roadway Construction Noise Model (RCNM), Version 1.1, December 8, 2008; and/or

"Transit Noise and Vibration Impact Assessment Manual", FTA Report No. 0123, September 2018; and/or

"Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances," BBN/EPA, December 31, 1971

2. Usage Factor = percentage of time equipment is operating in noisiest mode while in use

Geometric attenuation based on 6 dB per doubling of distance.

Note: This calculation does not include the effects, if any, of local shielding from walls, topography or other barriers which may reduce sound levels further.

Table 25. Detailed Construction Noise Analysis, Phase 4 Flex 1 - Building 4, Shoring/Excavation

		Maximum Sound Level (dBA) ¹	Utilization Factor ^{1,2}	Leq Sound Level (dBA)
Source Data:				
Source 1: Excavator - Sound level (dBA) at 50 feet =		81	40%	77.0
Source 2: Excavator - Sound level (dBA) at 50 feet =		81	40%	77.0
Source 3: Dozer - Sound level (dBA) at 50 feet =		82	40%	78.0
Calculated Data:				
All Sources Combined - Lmax sound level (dBA) at 50 feet =				86
All Sources Combined - Leq sound level (dBA) at 50 feet =				82

Distance Between Source and Receiver (ft.)	Geometric Attenuation (dB)	Ground Effect Attenuation (dB)	Calculated Lmax Sound Level (dBA)	Calculated Leq Sound Level (dBA)
15	10	0.0	97	93
25	6	0.0	92	88
50	0	0.0	86	82
80	-4	0.0	82	78
100	-6	0.0	80	76
150	-10	0.0	77	73
200	-12	0.0	74	70
250	-14	0.0	72	68
300	-16	0.0	71	67
350	-17	0.0	69	65
400	-18	0.0	68	64
500	-20	0.0	66	62
600	-22	0.0	65	61
700	-23	0.0	63	59
800	-24	0.0	62	58
1000	-26	0.0	60	56
2000	-32	0.0	54	50

1. Obtained or estimated from:

FHWA Roadway Construction Noise Model (RCNM), Version 1.1, December 8, 2008; and/or

"Transit Noise and Vibration Impact Assessment Manual", FTA Report No. 0123, September 2018; and/or

"Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances," BBN/EPA, December 31, 1971

2. Usage Factor = percentage of time equipment is operating in noisiest mode while in use

Geometric attenuation based on 6 dB per doubling of distance.

Note: This calculation does not include the effects, if any, of local shielding from walls, topography or other barriers which may reduce sound levels further.

Table 26. Detailed Construction Noise Analysis, Phase 4 Flex 1 - Building 4, Construction

Source Data:	Maximum Sound Level (dBA) ¹	Utilization Factor ^{1,2}	Leq Sound Level (dBA)
Source 1: Dozer - Sound level (dBA) at 50 feet =	82	40%	78.0
Source 2: Compactor (Ground) - Sound level (dBA) at 50 feet =	83	20%	76.0
Source 3: Front End Loader - Sound level (dBA) at 50 feet =	79	40%	75.0
Calculated Data:			
All Sources Combined - Lmax sound level (dBA) at 50 feet =			86
All Sources Combined - Leq sound level (dBA) at 50 feet =			81

Distance Between Source and Receiver (ft.)	Geometric Attenuation (dB)	Ground Effect Attenuation (dB)	Calculated Lmax Sound Level (dBA)	Calculated Leq Sound Level (dBA)
15	10	0.0	97	92
25	6	0.0	92	87
50	0	0.0	86	81
80	-4	0.0	82	77
100	-6	0.0	80	75
150	-10	0.0	77	72
200	-12	0.0	74	69
250	-14	0.0	72	67
300	-16	0.0	71	66
350	-17	0.0	70	64
400	-18	0.0	68	63
500	-20	0.0	66	61
600	-22	0.0	65	60
700	-23	0.0	63	58
800	-24	0.0	62	57
1000	-26	0.0	60	55
2000	-32	0.0	54	49

1. Obtained or estimated from:

FHWA Roadway Construction Noise Model (RCNM), Version 1.1, December 8, 2008; and/or

"Transit Noise and Vibration Impact Assessment Manual", FTA Report No. 0123, September 2018; and/or

"Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances," BBN/EPA, December 31, 1971

2. Usage Factor = percentage of time equipment is operating in noisiest mode while in use

Geometric attenuation based on 6 dB per doubling of distance.

Note: This calculation does not include the effects, if any, of local shielding from walls, topography or other barriers which may reduce sound levels further.

Table 27. Detailed Construction Noise Analysis, Phase 4 Flex 1 - Building 5, Construction

		Maximum Sound Level (dBA) ¹	Utilization Factor ^{1,2}	Leq Sound Level (dBA)
Source Data:				
Source 1: Excavator - Sound level (dBA) at 50 feet =		81	40%	77.0
Source 2: Front End Loader - Sound level (dBA) at 50 feet =		79	40%	75.0
Source 3: Front End Loader - Sound level (dBA) at 50 feet =		79	40%	75.0
Calculated Data:				
All Sources Combined - Lmax sound level (dBA) at 50 feet =				85
All Sources Combined - Leq sound level (dBA) at 50 feet =				81

Distance Between Source and Receiver (ft.)	Geometric Attenuation (dB)	Ground Effect Attenuation (dB)	Calculated Lmax Sound Level (dBA)	Calculated Leq Sound Level (dBA)
15	10	0.0	95	91
25	6	0.0	91	87
50	0	0.0	85	81
80	-4	0.0	80	76
100	-6	0.0	79	75
150	-10	0.0	75	71
200	-12	0.0	73	69
250	-14	0.0	71	67
300	-16	0.0	69	65
350	-17	0.0	68	64
400	-18	0.0	66	63
500	-20	0.0	65	61
600	-22	0.0	63	59
700	-23	0.0	62	58
800	-24	0.0	60	56
1000	-26	0.0	59	55
2000	-32	0.0	53	49

1. Obtained or estimated from:

FHWA Roadway Construction Noise Model (RCNM), Version 1.1, December 8, 2008; and/or

"Transit Noise and Vibration Impact Assessment Manual", FTA Report No. 0123, September 2018; and/or

"Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances," BBN/EPA, December 31, 1971

2. Usage Factor = percentage of time equipment is operating in noisiest mode while in use

Geometric attenuation based on 6 dB per doubling of distance.

Note: This calculation does not include the effects, if any, of local shielding from walls, topography or other barriers which may reduce sound levels further.

Table 28. Detailed Construction Noise Analysis, Phase 4 Flex 1 - Building 6, Shoring/Excavation

		Maximum Sound Level (dBA) ¹	Utilization Factor ^{1,2}	Leq Sound Level (dBA)
Source Data:				
Source 1: Excavator - Sound level (dBA) at 50 feet =		81	40%	77.0
Source 2: Excavator - Sound level (dBA) at 50 feet =		81	40%	77.0
Source 3: Dozer - Sound level (dBA) at 50 feet =		82	40%	78.0
Calculated Data:				
All Sources Combined - Lmax sound level (dBA) at 50 feet =				86
All Sources Combined - Leq sound level (dBA) at 50 feet =				82

Distance Between Source and Receiver (ft.)	Geometric Attenuation (dB)	Ground Effect Attenuation (dB)	Calculated Lmax Sound Level (dBA)	Calculated Leq Sound Level (dBA)
15	10	0.0	97	93
25	6	0.0	92	88
50	0	0.0	86	82
80	-4	0.0	82	78
100	-6	0.0	80	76
150	-10	0.0	77	73
200	-12	0.0	74	70
250	-14	0.0	72	68
300	-16	0.0	71	67
350	-17	0.0	69	65
400	-18	0.0	68	64
500	-20	0.0	66	62
600	-22	0.0	65	61
700	-23	0.0	63	59
800	-24	0.0	62	58
1000	-26	0.0	60	56
2000	-32	0.0	54	50

1. Obtained or estimated from:

FHWA Roadway Construction Noise Model (RCNM), Version 1.1, December 8, 2008; and/or

"Transit Noise and Vibration Impact Assessment Manual", FTA Report No. 0123, September 2018; and/or

"Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances," BBN/EPA, December 31, 1971

2. Usage Factor = percentage of time equipment is operating in noisiest mode while in use

Geometric attenuation based on 6 dB per doubling of distance.

Note: This calculation does not include the effects, if any, of local shielding from walls, topography or other barriers which may reduce sound levels further.

Table 29. Detailed Construction Noise Analysis, Phase 4 Flex 1 - Building 6, Construction

Source Data:	Maximum Sound Level (dBA) ¹	Utilization Factor ^{1,2}	Leq Sound Level (dBA)
Source 1: Dozer - Sound level (dBA) at 50 feet =	82	40%	78.0
Source 2: Compactor (Ground) - Sound level (dBA) at 50 feet =	83	20%	76.0
Source 3: Front End Loader - Sound level (dBA) at 50 feet =	79	40%	75.0
Calculated Data:			
All Sources Combined - Lmax sound level (dBA) at 50 feet =			86
All Sources Combined - Leq sound level (dBA) at 50 feet =			81

Distance Between Source and Receiver (ft.)	Geometric Attenuation (dB)	Ground Effect Attenuation (dB)	Calculated Lmax Sound Level (dBA)	Calculated Leq Sound Level (dBA)
15	10	0.0	97	92
25	6	0.0	92	87
50	0	0.0	86	81
80	-4	0.0	82	77
100	-6	0.0	80	75
150	-10	0.0	77	72
200	-12	0.0	74	69
250	-14	0.0	72	67
300	-16	0.0	71	66
350	-17	0.0	70	64
400	-18	0.0	68	63
500	-20	0.0	66	61
600	-22	0.0	65	60
700	-23	0.0	63	58
800	-24	0.0	62	57
1000	-26	0.0	60	55
2000	-32	0.0	54	49

1. Obtained or estimated from:

FHWA Roadway Construction Noise Model (RCNM), Version 1.1, December 8, 2008; and/or

"Transit Noise and Vibration Impact Assessment Manual", FTA Report No. 0123, September 2018; and/or

"Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances," BBN/EPA, December 31, 1971

2. Usage Factor = percentage of time equipment is operating in noisiest mode while in use

Geometric attenuation based on 6 dB per doubling of distance.

Note: This calculation does not include the effects, if any, of local shielding from walls, topography or other barriers which may reduce sound levels further.

Table 30. Detailed Construction Noise Analysis, Phase 4 Flex 2 - Parking Structure 3/Field House 3, Construction

		Maximum Sound Level (dBA) ¹	Utilization Factor ^{1,2}	Leq Sound Level (dBA)
Source Data:				
Source 1: Excavator - Sound level (dBA) at 50 feet =		81	40%	77.0
Source 2: Front End Loader - Sound level (dBA) at 50 feet =		79	40%	75.0
Source 3: Backhoe - Sound level (dBA) at 50 feet =		78	40%	74.0
Calculated Data:				
All Sources Combined - Lmax sound level (dBA) at 50 feet =				84
All Sources Combined - Leq sound level (dBA) at 50 feet =				80

Distance Between Source and Receiver (ft.)	Geometric Attenuation (dB)	Ground Effect Attenuation (dB)	Calculated Lmax Sound Level (dBA)	Calculated Leq Sound Level (dBA)
15	10	0.0	95	91
25	6	0.0	90	86
50	0	0.0	84	80
80	-4	0.0	80	76
100	-6	0.0	78	74
150	-10	0.0	75	71
200	-12	0.0	72	68
250	-14	0.0	70	66
300	-16	0.0	69	65
350	-17	0.0	67	63
400	-18	0.0	66	62
500	-20	0.0	64	60
600	-22	0.0	63	59
700	-23	0.0	61	57
800	-24	0.0	60	56
1000	-26	0.0	58	54
2000	-32	0.0	52	48

1. Obtained or estimated from:

FHWA Roadway Construction Noise Model (RCNM), Version 1.1, December 8, 2008; and/or

"Transit Noise and Vibration Impact Assessment Manual", FTA Report No. 0123, September 2018; and/or

"Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances," BBN/EPA, December 31, 1971

2. Usage Factor = percentage of time equipment is operating in noisiest mode while in use

Geometric attenuation based on 6 dB per doubling of distance.

Note: This calculation does not include the effects, if any, of local shielding from walls, topography or other barriers which may reduce sound levels further.

Table 31. Detailed Construction Noise Analysis, Phase 4 Flex 2 - Building 7, Shoring/Excavation

		Maximum Sound Level (dBA) ¹	Utilization Factor ^{1,2}	Leq Sound Level (dBA)
Source Data:				
Source 1: Excavator - Sound level (dBA) at 50 feet =		81	40%	77.0
Source 2: Excavator - Sound level (dBA) at 50 feet =		81	40%	77.0
Source 3: Dozer - Sound level (dBA) at 50 feet =		82	40%	78.0
Calculated Data:				
All Sources Combined - Lmax sound level (dBA) at 50 feet =				86
All Sources Combined - Leq sound level (dBA) at 50 feet =				82

Distance Between Source and Receiver (ft.)	Geometric Attenuation (dB)	Ground Effect Attenuation (dB)	Calculated Lmax Sound Level (dBA)	Calculated Leq Sound Level (dBA)
15	10	0.0	97	93
25	6	0.0	92	88
50	0	0.0	86	82
80	-4	0.0	82	78
100	-6	0.0	80	76
150	-10	0.0	77	73
200	-12	0.0	74	70
250	-14	0.0	72	68
300	-16	0.0	71	67
350	-17	0.0	69	65
400	-18	0.0	68	64
500	-20	0.0	66	62
600	-22	0.0	65	61
700	-23	0.0	63	59
800	-24	0.0	62	58
1000	-26	0.0	60	56
2000	-32	0.0	54	50

1. Obtained or estimated from:

FHWA Roadway Construction Noise Model (RCNM), Version 1.1, December 8, 2008; and/or

"Transit Noise and Vibration Impact Assessment Manual", FTA Report No. 0123, September 2018; and/or

"Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances," BBN/EPA, December 31, 1971

2. Usage Factor = percentage of time equipment is operating in noisiest mode while in use

Geometric attenuation based on 6 dB per doubling of distance.

Note: This calculation does not include the effects, if any, of local shielding from walls, topography or other barriers which may reduce sound levels further.

Table 32. Detailed Construction Noise Analysis, Phase 4 Flex 2 - Building 7, Construction

		Maximum Sound Level (dBA) ¹	Utilization Factor ^{1,2}	Leq Sound Level (dBA)
Source Data:				
Source 1: Dozer - Sound level (dBA) at 50 feet =		82	40%	78.0
Source 2: Compactor (Ground) - Sound level (dBA) at 50 feet =		83	20%	76.0
Source 3: Front End Loader - Sound level (dBA) at 50 feet =		79	40%	75.0
Calculated Data:				
All Sources Combined - Lmax sound level (dBA) at 50 feet =				86
All Sources Combined - Leq sound level (dBA) at 50 feet =				81

Distance Between Source and Receiver (ft.)	Geometric Attenuation (dB)	Ground Effect Attenuation (dB)	Calculated Lmax Sound Level (dBA)	Calculated Leq Sound Level (dBA)
15	10	0.0	97	92
25	6	0.0	92	87
50	0	0.0	86	81
80	-4	0.0	82	77
100	-6	0.0	80	75
150	-10	0.0	77	72
200	-12	0.0	74	69
250	-14	0.0	72	67
300	-16	0.0	71	66
350	-17	0.0	70	64
400	-18	0.0	68	63
500	-20	0.0	66	61
600	-22	0.0	65	60
700	-23	0.0	63	58
800	-24	0.0	62	57
1000	-26	0.0	60	55
2000	-32	0.0	54	49

1. Obtained or estimated from:

FHWA Roadway Construction Noise Model (RCNM), Version 1.1, December 8, 2008; and/or

"Transit Noise and Vibration Impact Assessment Manual", FTA Report No. 0123, September 2018; and/or

"Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances," BBN/EPA, December 31, 1971

2. Usage Factor = percentage of time equipment is operating in noisiest mode while in use

Geometric attenuation based on 6 dB per doubling of distance.

Note: This calculation does not include the effects, if any, of local shielding from walls, topography or other barriers which may reduce sound levels further.

Table 33. Detailed Construction Noise Analysis, Phase 4 Flex 2 - Building 8, Shoring/Excavation

Source Data:	Maximum Sound Level (dBA) ¹	Utilization Factor ^{1,2}	Leq Sound Level (dBA)
Source 1: Excavator - Sound level (dBA) at 50 feet =	81	40%	77.0
Source 2: Excavator - Sound level (dBA) at 50 feet =	81	40%	77.0
Source 3: Dozer - Sound level (dBA) at 50 feet =	82	40%	78.0
Calculated Data:			
All Sources Combined - Lmax sound level (dBA) at 50 feet =			86
All Sources Combined - Leq sound level (dBA) at 50 feet =			82

Distance Between Source and Receiver (ft.)	Geometric Attenuation (dB)	Ground Effect Attenuation (dB)	Calculated Lmax Sound Level (dBA)	Calculated Leq Sound Level (dBA)
15	10	0.0	97	93
25	6	0.0	92	88
50	0	0.0	86	82
80	-4	0.0	82	78
100	-6	0.0	80	76
150	-10	0.0	77	73
200	-12	0.0	74	70
250	-14	0.0	72	68
300	-16	0.0	71	67
350	-17	0.0	69	65
400	-18	0.0	68	64
500	-20	0.0	66	62
600	-22	0.0	65	61
700	-23	0.0	63	59
800	-24	0.0	62	58
1000	-26	0.0	60	56
2000	-32	0.0	54	50

1. Obtained or estimated from:

FHWA Roadway Construction Noise Model (RCNM), Version 1.1, December 8, 2008; and/or
 "Transit Noise and Vibration Impact Assessment Manual", FTA Report No. 0123, September 2018; and/or
 "Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances," BBN/EPA, December 31, 1971

2. Usage Factor = percentage of time equipment is operating in noisiest mode while in use

Geometric attenuation based on 6 dB per doubling of distance.

Note: This calculation does not include the effects, if any, of local shielding from walls, topography or other barriers which may reduce sound levels further.

Table 34. Detailed Construction Noise Analysis, Phase 4 Flex 2 - Building 8, Construction

Source Data:	Maximum Sound Level (dBA) ¹	Utilization Factor ^{1,2}	Leq Sound Level (dBA)
Source 1: Dozer - Sound level (dBA) at 50 feet =	82	40%	78.0
Source 2: Compactor (Ground) - Sound level (dBA) at 50 feet =	83	20%	76.0
Source 3: Front End Loader - Sound level (dBA) at 50 feet =	79	40%	75.0
Calculated Data:			
All Sources Combined - Lmax sound level (dBA) at 50 feet =			86
All Sources Combined - Leq sound level (dBA) at 50 feet =			81

Distance Between Source and Receiver (ft.)	Geometric Attenuation (dB)	Ground Effect Attenuation (dB)	Calculated Lmax Sound Level (dBA)	Calculated Leq Sound Level (dBA)
15	10	0.0	97	92
25	6	0.0	92	87
50	0	0.0	86	81
80	-4	0.0	82	77
100	-6	0.0	80	75
150	-10	0.0	77	72
200	-12	0.0	74	69
250	-14	0.0	72	67
300	-16	0.0	71	66
350	-17	0.0	70	64
400	-18	0.0	68	63
500	-20	0.0	66	61
600	-22	0.0	65	60
700	-23	0.0	63	58
800	-24	0.0	62	57
1000	-26	0.0	60	55
2000	-32	0.0	54	49

1. Obtained or estimated from:

FHWA Roadway Construction Noise Model (RCNM), Version 1.1, December 8, 2008; and/or

"Transit Noise and Vibration Impact Assessment Manual", FTA Report No. 0123, September 2018; and/or

"Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances," BBN/EPA, December 31, 1971

2. Usage Factor = percentage of time equipment is operating in noisiest mode while in use

Geometric attenuation based on 6 dB per doubling of distance.

Note: This calculation does not include the effects, if any, of local shielding from walls, topography or other barriers which may reduce sound levels further.

Table 1. Construction Noise Analysis, Construction Noise Level Summary, by Phase

Phase	Noise Level (dBA Leq) by Distance (feet)									
	Reference Distance of 50 Feet	100	150	200	300	400	500	750	1000	2000
Make Ready - Install Off Site Utilities	83	77	73	71	67	65	63	59	57	51
Make Ready - Cinema Demolition/Access to Target	81	75	71	69	65	63	61	57	55	49
Make Ready - Cinema Renovation	79	73	70	67	64	61	59	56	53	47
Make Ready - Abatement	80	74	71	68	65	62	60	57	54	48
Make Ready - Demo Existing Mall and Parking (Phase 1-4)	82	76	72	70	66	64	62	58	56	50
Make Ready - Rough Grade, Site Utilities, Roads (include PG&E, JT), & Roads Phase 1-4 (Grade Site)	85	79	76	73	70	67	65	62	59	53
Make Ready - Rough Grade, Site Utilities, Roads (include PG&E, JT), & Roads Phase 1-4 (Roads)	84	78	74	72	68	66	64	60	58	52
Phase 1 - Resi 1, Shoring/Excavation	81	75	72	69	66	63	61	58	55	49
Phase 1 - Resi 1, Construction	82	76	73	70	67	64	62	59	56	50
Phase 1 - Resi 2, Construction	81	75	71	69	65	63	61	57	55	49
Phase 1 - Resi 3, Shoring/Excavation	81	75	72	69	66	63	61	58	55	49
Phase 1 - Resi 3, Construction	82	76	73	70	67	64	62	59	56	50
Phase 2 - Retail Construction	83	77	73	71	67	65	63	59	57	51
Phase 3 - Parking Structure 1/Field House 1, Shoring/Excavation	81	75	72	69	66	63	61	58	55	49
Phase 3 - Parking Structure 1/Field House 1, Construction	81	75	72	69	66	63	61	58	55	49
Phase 3 - Building 3, Shoring/Excavation	81	75	72	69	66	63	61	58	55	49
Phase 3 - Building 3, Construction	81	75	72	69	66	63	61	58	55	49
Phase 3 - Building 1, Shoring/Excavation	82	76	73	70	67	64	62	59	56	50
Phase 3 - Building 1, Construction	81	75	72	69	66	63	61	58	55	49
Phase 3 - Building 2, Construction	81	75	71	69	65	63	61	57	55	49
Phase 4 Flex 1 - Parking Structure 2, Shoring/Excavation	82	76	73	70	67	64	62	59	56	50
Phase 4 Flex 1 - Parking Structure 2, Construction	81	75	72	69	66	63	61	58	55	49
Phase 4 Flex 1 - LS Building 4, Shoring/Excavation	82	76	73	70	67	64	62	59	56	50
Phase 4 Flex 1 - LS Building 4, Construction	81	75	72	69	66	63	61	58	55	49
Phase 4 Flex 1 - Hotel, Shoring/Excavation	82	76	73	70	67	64	62	59	56	50
Phase 4 Flex 1 - Hotel, Construction	81	75	72	69	66	63	61	58	55	49
Phase 4 Flex 1 - Resi 4, Shoring/Excavation	82	76	73	70	67	64	62	59	56	50
Phase 4 Flex 1 - Resi 4, Construction	81	75	72	69	66	63	61	58	55	49
Phase 4 Flex 2 - Parking Structure 3, Shoring/Excavation	82	76	73	70	67	64	62	59	56	50
Phase 4 Flex 2 - Parking Structure 3, Construction	81	75	72	69	66	63	61	58	55	49
Phase 4 Flex 2 - Resi 5, Shoring/Excavation	82	76	73	70	67	64	62	59	56	50
Phase 4 Flex 2 - Resi 5, Construction	81	75	72	69	66	63	61	58	55	49
Phase 4 Flex 2 - LS Building 5, Construction	81	75	71	69	65	63	61	57	55	49

Table 2. Detailed Construction Noise Analysis, Make Ready - Install Off Site Utilities

Source Data:	Maximum Sound Level (dBA) ¹	Utilization Factor ^{1,2}	Leq Sound Level (dBA)
Source 1: Excavator - Sound level (dBA) at 50 feet =	81	40%	77.0
Source 2: Compactor (Ground) - Sound level (dBA) at 50 feet =	83	20%	76.0
Source 3: Scraper - Sound level (dBA) at 50 feet =	84	40%	80.0
Calculated Data:			
All Sources Combined - Lmax sound level (dBA) at 50 feet =			88
All Sources Combined - Leq sound level (dBA) at 50 feet =			83

Distance Between Source and Receiver (ft.)	Geometric Attenuation (dB)	Ground Effect Attenuation (dB)	Calculated Lmax Sound Level (dBA)	Calculated Leq Sound Level (dBA)
15	10	0.0	98	93
25	6	0.0	94	89
50	0	0.0	88	83
80	-4	0.0	84	79
100	-6	0.0	82	77
150	-10	0.0	78	73
200	-12	0.0	76	71
250	-14	0.0	74	69
300	-16	0.0	72	67
350	-17	0.0	71	66
400	-18	0.0	70	65
500	-20	0.0	68	63
600	-22	0.0	66	61
700	-23	0.0	65	60
800	-24	0.0	64	59
1000	-26	0.0	62	57
2000	-32	0.0	56	51

1. Obtained or estimated from:

FHWA Roadway Construction Noise Model (RCNM), Version 1.1, December 8, 2008; and/or

"Transit Noise and Vibration Impact Assessment Manual", FTA Report No. 0123, September 2018; and/or

"Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances," BBN/EPA, December 31, 1971

2. Usage Factor = percentage of time equipment is operating in noisiest mode while in use

Geometric attenuation based on 6 dB per doubling of distance.

Note: This calculation does not include the effects, if any, of local shielding from walls, topography or other barriers which may reduce sound levels further.

Table 3. Detailed Construction Noise Analysis, Make Ready - Cinema Demolition/Access to Target

Source Data:	Maximum Sound Level (dBA) ¹	Utilization Factor ^{1,2}	Leq Sound Level (dBA)
Source 1: Excavator - Sound level (dBA) at 50 feet =	81	40%	77.0
Source 2: Backhoe - Sound level (dBA) at 50 feet =	78	40%	74.0
Source 3: Excavator - Sound level (dBA) at 50 feet =	81	40%	77.0
Calculated Data:			
All Sources Combined - Lmax sound level (dBA) at 50 feet =			85
All Sources Combined - Leq sound level (dBA) at 50 feet =			81

Distance Between Source and Receiver (ft.)	Geometric Attenuation (dB)	Ground Effect Attenuation (dB)	Calculated Lmax Sound Level (dBA)	Calculated Leq Sound Level (dBA)
15	10	0.0	95	91
25	6	0.0	91	87
50	0	0.0	85	81
80	-4	0.0	81	77
100	-6	0.0	79	75
150	-10	0.0	75	71
200	-12	0.0	73	69
250	-14	0.0	71	67
300	-16	0.0	69	65
350	-17	0.0	68	64
400	-18	0.0	67	63
500	-20	0.0	65	61
600	-22	0.0	63	59
700	-23	0.0	62	58
800	-24	0.0	61	57
1000	-26	0.0	59	55
2000	-32	0.0	53	49

1. Obtained or estimated from:

FHWA Roadway Construction Noise Model (RCNM), Version 1.1, December 8, 2008; and/or

"Transit Noise and Vibration Impact Assessment Manual", FTA Report No. 0123, September 2018; and/or

"Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances," BBN/EPA, December 31, 1971

2. Usage Factor = percentage of time equipment is operating in noisiest mode while in use

Geometric attenuation based on 6 dB per doubling of distance.

Note: This calculation does not include the effects, if any, of local shielding from walls, topography or other barriers which may reduce sound levels further.

Table 4. Detailed Construction Noise Analysis, Make Ready - Cinema Renovation

Source Data:	Maximum Sound Level (dBA) ¹	Utilization Factor ^{1,2}	Leq Sound Level (dBA)
Source 1: Concrete Pump Truck - Sound level (dBA) at 50 feet =	81	20%	74.0
Source 2: Front End Loader - Sound level (dBA) at 50 feet =	79	40%	75.0
Source 3: Front End Loader - Sound level (dBA) at 50 feet =	79	40%	75.0
Calculated Data:			
All Sources Combined - Lmax sound level (dBA) at 50 feet =			85
All Sources Combined - Leq sound level (dBA) at 50 feet =			79

Distance Between Source and Receiver (ft.)	Geometric Attenuation (dB)	Ground Effect Attenuation (dB)	Calculated Lmax Sound Level (dBA)	Calculated Leq Sound Level (dBA)
15	10	0.0	95	90
25	6	0.0	91	86
50	0	0.0	85	79
80	-4	0.0	80	75
100	-6	0.0	79	73
150	-10	0.0	75	70
200	-12	0.0	73	67
250	-14	0.0	71	66
300	-16	0.0	69	64
350	-17	0.0	68	63
400	-18	0.0	66	61
500	-20	0.0	65	59
600	-22	0.0	63	58
700	-23	0.0	62	57
800	-24	0.0	60	55
1000	-26	0.0	59	53
2000	-32	0.0	53	47

1. Obtained or estimated from:

FHWA Roadway Construction Noise Model (RCNM), Version 1.1, December 8, 2008; and/or

"Transit Noise and Vibration Impact Assessment Manual", FTA Report No. 0123, September 2018; and/or

"Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances," BBN/EPA, December 31, 1971

2. Usage Factor = percentage of time equipment is operating in noisiest mode while in use

Geometric attenuation based on 6 dB per doubling of distance.

Note: This calculation does not include the effects, if any, of local shielding from walls, topography or other barriers which may reduce sound levels further.

Table 5. Detailed Construction Noise Analysis, Make Ready - Abatement

Source Data:	Maximum Sound Level (dBA) ¹	Utilization Factor ^{1,2}	Leq Sound Level (dBA)
Source 1: Excavator - Sound level (dBA) at 50 feet =	81	40%	77.0
Source 2: Backhoe - Sound level (dBA) at 50 feet =	78	40%	74.0
Source 3: Front End Loader - Sound level (dBA) at 50 feet =	79	40%	75.0
Calculated Data:			
All Sources Combined - Lmax sound level (dBA) at 50 feet =			84
All Sources Combined - Leq sound level (dBA) at 50 feet =			80

Distance Between Source and Receiver (ft.)	Geometric Attenuation (dB)	Ground Effect Attenuation (dB)	Calculated Lmax Sound Level (dBA)	Calculated Leq Sound Level (dBA)
15	10	0.0	95	91
25	6	0.0	90	86
50	0	0.0	84	80
80	-4	0.0	80	76
100	-6	0.0	78	74
150	-10	0.0	75	71
200	-12	0.0	72	68
250	-14	0.0	70	66
300	-16	0.0	69	65
350	-17	0.0	67	63
400	-18	0.0	66	62
500	-20	0.0	64	60
600	-22	0.0	63	59
700	-23	0.0	61	57
800	-24	0.0	60	56
1000	-26	0.0	58	54
2000	-32	0.0	52	48

1. Obtained or estimated from:

FHWA Roadway Construction Noise Model (RCNM), Version 1.1, December 8, 2008; and/or

"Transit Noise and Vibration Impact Assessment Manual", FTA Report No. 0123, September 2018; and/or

"Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances," BBN/EPA, December 31, 1971

2. Usage Factor = percentage of time equipment is operating in noisiest mode while in use

Geometric attenuation based on 6 dB per doubling of distance.

Note: This calculation does not include the effects, if any, of local shielding from walls, topography or other barriers which may reduce sound levels further.

Table 6. Detailed Construction Noise Analysis, Make Ready - Demo Existing Mall and Parking (Phase 1-4)

Source Data:	Maximum Sound Level (dBA) ¹	Utilization Factor ^{1,2}	Leq Sound Level (dBA)
Source 1: Excavator - Sound level (dBA) at 50 feet =	81	40%	77.0
Source 2: Excavator - Sound level (dBA) at 50 feet =	81	40%	77.0
Source 3: Excavator - Sound level (dBA) at 50 feet =	81	40%	77.0
Calculated Data:			
All Sources Combined - Lmax sound level (dBA) at 50 feet =			86
All Sources Combined - Leq sound level (dBA) at 50 feet =			82

Distance Between Source and Receiver (ft.)	Geometric Attenuation (dB)	Ground Effect Attenuation (dB)	Calculated Lmax Sound Level (dBA)	Calculated Leq Sound Level (dBA)
15	10	0.0	96	92
25	6	0.0	92	88
50	0	0.0	86	82
80	-4	0.0	82	78
100	-6	0.0	80	76
150	-10	0.0	76	72
200	-12	0.0	74	70
250	-14	0.0	72	68
300	-16	0.0	70	66
350	-17	0.0	69	65
400	-18	0.0	68	64
500	-20	0.0	66	62
600	-22	0.0	64	60
700	-23	0.0	63	59
800	-24	0.0	62	58
1000	-26	0.0	60	56
2000	-32	0.0	54	50

1. Obtained or estimated from:

FHWA Roadway Construction Noise Model (RCNM), Version 1.1, December 8, 2008; and/or

"Transit Noise and Vibration Impact Assessment Manual", FTA Report No. 0123, September 2018; and/or

"Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances;" BBN/EPA, December 31, 1971

2. Usage Factor = percentage of time equipment is operating in noisiest mode while in use

Geometric attenuation based on 6 dB per doubling of distance.

Note: This calculation does not include the effects, if any, of local shielding from walls, topography or other barriers which may reduce sound levels further.

Table 7. Detailed Construction Noise Analysis, Make Ready - Rough Grade, Site Utilities, Roads (include PG&E, JT), & Roads Phase 1-4 (Grade Site)

Source Data:	Maximum Sound Level (dBA) ¹	Utilization Factor ^{1,2}	Leq Sound Level (dBA)
Source 1: Grader - Sound level (dBA) at 50 feet =	85	40%	81.0
Source 2: Scraper - Sound level (dBA) at 50 feet =	84	40%	80.0
Source 3: Scraper - Sound level (dBA) at 50 feet =	84	40%	80.0
Calculated Data:			
All Sources Combined - Lmax sound level (dBA) at 50 feet =			89
All Sources Combined - Leq sound level (dBA) at 50 feet =			85

Distance Between Source and Receiver (ft.)	Geometric Attenuation (dB)	Ground Effect Attenuation (dB)	Calculated Lmax Sound Level (dBA)	Calculated Leq Sound Level (dBA)
15	10	0.0	100	96
25	6	0.0	95	91
50	0	0.0	89	85
80	-4	0.0	85	81
100	-6	0.0	83	79
150	-10	0.0	80	76
200	-12	0.0	77	73
250	-14	0.0	75	71
300	-16	0.0	74	70
350	-17	0.0	72	68
400	-18	0.0	71	67
500	-20	0.0	69	65
600	-22	0.0	68	64
700	-23	0.0	66	62
800	-24	0.0	65	61
1000	-26	0.0	63	59
2000	-32	0.0	57	53

1. Obtained or estimated from:

FHWA Roadway Construction Noise Model (RCNM), Version 1.1, December 8, 2008; and/or

"Transit Noise and Vibration Impact Assessment Manual", FTA Report No. 0123, September 2018; and/or

"Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances;" BBN/EPA, December 31, 1971

2. Usage Factor = percentage of time equipment is operating in noisiest mode while in use

Geometric attenuation based on 6 dB per doubling of distance.

Note: This calculation does not include the effects, if any, of local shielding from walls, topography or other barriers which may reduce sound levels further.

Table 8. Detailed Construction Noise Analysis, Make Ready - Rough Grade, Site Utilities, Roads (include PG&E, JT), & Roads Phase 1-4 (Roads)

Source Data:	Maximum Sound Level (dBA) ¹	Utilization Factor ^{1,2}	Leq Sound Level (dBA)
Source 1: Grader - Sound level (dBA) at 50 feet =	85	40%	81.0
Source 2: Compactor (Ground) - Sound level (dBA) at 50 feet =	83	20%	76.0
Source 3: Dozer - Sound level (dBA) at 50 feet =	82	40%	78.0
Calculated Data:			
All Sources Combined - Lmax sound level (dBA) at 50 feet =			88
All Sources Combined - Leq sound level (dBA) at 50 feet =			84

Distance Between Source and Receiver (ft.)	Geometric Attenuation (dB)	Ground Effect Attenuation (dB)	Calculated Lmax Sound Level (dBA)	Calculated Leq Sound Level (dBA)
15	10	0.0	99	94
25	6	0.0	94	90
50	0	0.0	88	84
80	-4	0.0	84	80
100	-6	0.0	82	78
150	-10	0.0	79	74
200	-12	0.0	76	72
250	-14	0.0	74	70
300	-16	0.0	73	68
350	-17	0.0	71	67
400	-18	0.0	70	66
500	-20	0.0	68	64
600	-22	0.0	67	62
700	-23	0.0	65	61
800	-24	0.0	64	60
1000	-26	0.0	62	58
2000	-32	0.0	56	52

1. Obtained or estimated from:

FHWA Roadway Construction Noise Model (RCNM), Version 1.1, December 8, 2008; and/or

"Transit Noise and Vibration Impact Assessment Manual", FTA Report No. 0123, September 2018; and/or

"Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances," BBN/EPA, December 31, 1971

2. Usage Factor = percentage of time equipment is operating in noisiest mode while in use

Geometric attenuation based on 6 dB per doubling of distance.

Note: This calculation does not include the effects, if any, of local shielding from walls, topography or other barriers which may reduce sound levels further.

Table 9. Detailed Construction Noise Analysis, Phase 1 - Resi 1, Shoring/Excavation

Source Data:	Maximum Sound Level (dBA) ¹	Utilization Factor ^{1,2}	Leq Sound Level (dBA)
Source 1: Crane - Sound level (dBA) at 50 feet =	81	16%	73.0
Source 2: Excavator - Sound level (dBA) at 50 feet =	81	40%	77.0
Source 3: Dozer - Sound level (dBA) at 50 feet =	82	40%	78.0
Calculated Data:			
All Sources Combined - Lmax sound level (dBA) at 50 feet =			86
All Sources Combined - Leq sound level (dBA) at 50 feet =			81

Distance Between Source and Receiver (ft.)	Geometric Attenuation (dB)	Ground Effect Attenuation (dB)	Calculated Lmax Sound Level (dBA)	Calculated Leq Sound Level (dBA)
15	10	0.0	97	92
25	6	0.0	92	87
50	0	0.0	86	81
80	-4	0.0	82	77
100	-6	0.0	80	75
150	-10	0.0	77	72
200	-12	0.0	74	69
250	-14	0.0	72	67
300	-16	0.0	71	66
350	-17	0.0	69	64
400	-18	0.0	68	63
500	-20	0.0	66	61
600	-22	0.0	65	60
700	-23	0.0	63	58
800	-24	0.0	62	57
1000	-26	0.0	60	55
2000	-32	0.0	54	49

1. Obtained or estimated from:

FHWA Roadway Construction Noise Model (RCNM), Version 1.1, December 8, 2008; and/or

"Transit Noise and Vibration Impact Assessment Manual", FTA Report No. 0123, September 2018; and/or

"Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances;" BBN/EPA, December 31, 1971

2. Usage Factor = percentage of time equipment is operating in noisiest mode while in use

Geometric attenuation based on 6 dB per doubling of distance.

Note: This calculation does not include the effects, if any, of local shielding from walls, topography or other barriers which may reduce sound levels further.

Table 10. Detailed Construction Noise Analysis, Phase 1 - Resi 1, Construction

Source Data:	Maximum Sound Level (dBA) ¹	Utilization Factor ^{1,2}	Leq Sound Level (dBA)
Source 1: Compactor (Ground) - Sound level (dBA) at 50 feet =	83	20%	76.0
Source 2: Dozer - Sound level (dBA) at 50 feet =	82	40%	78.0
Source 3: Dozer - Sound level (dBA) at 50 feet =	82	40%	78.0
Calculated Data:			
All Sources Combined - Lmax sound level (dBA) at 50 feet =			87
All Sources Combined - Leq sound level (dBA) at 50 feet =			82

Distance Between Source and Receiver (ft.)	Geometric Attenuation (dB)	Ground Effect Attenuation (dB)	Calculated Lmax Sound Level (dBA)	Calculated Leq Sound Level (dBA)
15	10	0.0	98	93
25	6	0.0	93	88
50	0	0.0	87	82
80	-4	0.0	83	78
100	-6	0.0	81	76
150	-10	0.0	78	73
200	-12	0.0	75	70
250	-14	0.0	73	68
300	-16	0.0	72	67
350	-17	0.0	70	65
400	-18	0.0	69	64
500	-20	0.0	67	62
600	-22	0.0	66	61
700	-23	0.0	64	59
800	-24	0.0	63	58
1000	-26	0.0	61	56
2000	-32	0.0	55	50

1. Obtained or estimated from:

FHWA Roadway Construction Noise Model (RCNM), Version 1.1, December 8, 2008; and/or

"Transit Noise and Vibration Impact Assessment Manual", FTA Report No. 0123, September 2018; and/or

"Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances," BBN/EPA, December 31, 1971

2. Usage Factor = percentage of time equipment is operating in noisiest mode while in use

Geometric attenuation based on 6 dB per doubling of distance.

Note: This calculation does not include the effects, if any, of local shielding from walls, topography or other barriers which may reduce sound levels further.

Table 11. Detailed Construction Noise Analysis, Phase 1 - Resi 2, Construction

Source Data:	Maximum Sound Level (dBA) ¹	Utilization Factor ^{1,2}	Leq Sound Level (dBA)
Source 1: Excavator - Sound level (dBA) at 50 feet =	81	40%	77.0
Source 2: Compactor (Ground) - Sound level (dBA) at 50 feet =	83	20%	76.0
Source 3: Front End Loader - Sound level (dBA) at 50 feet =	79	40%	75.0
Calculated Data:			
All Sources Combined - Lmax sound level (dBA) at 50 feet =			86
All Sources Combined - Leq sound level (dBA) at 50 feet =			81

Distance Between Source and Receiver (ft.)	Geometric Attenuation (dB)	Ground Effect Attenuation (dB)	Calculated Lmax Sound Level (dBA)	Calculated Leq Sound Level (dBA)
15	10	0.0	97	91
25	6	0.0	92	87
50	0	0.0	86	81
80	-4	0.0	82	77
100	-6	0.0	80	75
150	-10	0.0	77	71
200	-12	0.0	74	69
250	-14	0.0	72	67
300	-16	0.0	71	65
350	-17	0.0	69	64
400	-18	0.0	68	63
500	-20	0.0	66	61
600	-22	0.0	64	59
700	-23	0.0	63	58
800	-24	0.0	62	57
1000	-26	0.0	60	55
2000	-32	0.0	54	49

1. Obtained or estimated from:

FHWA Roadway Construction Noise Model (RCNM), Version 1.1, December 8, 2008; and/or

"Transit Noise and Vibration Impact Assessment Manual", FTA Report No. 0123, September 2018; and/or

"Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances," BBN/EPA, December 31, 1971

2. Usage Factor = percentage of time equipment is operating in noisiest mode while in use

Geometric attenuation based on 6 dB per doubling of distance.

Note: This calculation does not include the effects, if any, of local shielding from walls, topography or other barriers which may reduce sound levels further.

Table 12. Detailed Construction Noise Analysis, Phase 1 - Resi 3, Shoring/Excavation

Source Data:	Maximum Sound Level (dBA) ¹	Utilization Factor ^{1,2}	Leq Sound Level (dBA)
Source 1: Crane - Sound level (dBA) at 50 feet =	81	16%	73.0
Source 2: Excavator - Sound level (dBA) at 50 feet =	81	40%	77.0
Source 3: Dozer - Sound level (dBA) at 50 feet =	82	40%	78.0
Calculated Data:			
All Sources Combined - Lmax sound level (dBA) at 50 feet =			86
All Sources Combined - Leq sound level (dBA) at 50 feet =			81

Distance Between Source and Receiver (ft.)	Geometric Attenuation (dB)	Ground Effect Attenuation (dB)	Calculated Lmax Sound Level (dBA)	Calculated Leq Sound Level (dBA)
15	10	0.0	97	92
25	6	0.0	92	87
50	0	0.0	86	81
80	-4	0.0	82	77
100	-6	0.0	80	75
150	-10	0.0	77	72
200	-12	0.0	74	69
250	-14	0.0	72	67
300	-16	0.0	71	66
350	-17	0.0	69	64
400	-18	0.0	68	63
500	-20	0.0	66	61
600	-22	0.0	65	60
700	-23	0.0	63	58
800	-24	0.0	62	57
1000	-26	0.0	60	55
2000	-32	0.0	54	49

1. Obtained or estimated from:

FHWA Roadway Construction Noise Model (RCNM), Version 1.1, December 8, 2008; and/or

"Transit Noise and Vibration Impact Assessment Manual", FTA Report No. 0123, September 2018; and/or

"Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances;" BBN/EPA, December 31, 1971

2. Usage Factor = percentage of time equipment is operating in noisiest mode while in use

Geometric attenuation based on 6 dB per doubling of distance.

Note: This calculation does not include the effects, if any, of local shielding from walls, topography or other barriers which may reduce sound levels further.

Table 13. Detailed Construction Noise Analysis, Phase 1 - Resi 3, Construction

Source Data:	Maximum Sound Level (dBA) ¹	Utilization Factor ^{1,2}	Leq Sound Level (dBA)
Source 1: Compactor (Ground) - Sound level (dBA) at 50 feet =	83	20%	76.0
Source 2: Dozer - Sound level (dBA) at 50 feet =	82	40%	78.0
Source 3: Dozer - Sound level (dBA) at 50 feet =	82	40%	78.0
Calculated Data:			
All Sources Combined - Lmax sound level (dBA) at 50 feet =			87
All Sources Combined - Leq sound level (dBA) at 50 feet =			82

Distance Between Source and Receiver (ft.)	Geometric Attenuation (dB)	Ground Effect Attenuation (dB)	Calculated Lmax Sound Level (dBA)	Calculated Leq Sound Level (dBA)
15	10	0.0	98	93
25	6	0.0	93	88
50	0	0.0	87	82
80	-4	0.0	83	78
100	-6	0.0	81	76
150	-10	0.0	78	73
200	-12	0.0	75	70
250	-14	0.0	73	68
300	-16	0.0	72	67
350	-17	0.0	70	65
400	-18	0.0	69	64
500	-20	0.0	67	62
600	-22	0.0	66	61
700	-23	0.0	64	59
800	-24	0.0	63	58
1000	-26	0.0	61	56
2000	-32	0.0	55	50

1. Obtained or estimated from:

FHWA Roadway Construction Noise Model (RCNM), Version 1.1, December 8, 2008; and/or

"Transit Noise and Vibration Impact Assessment Manual", FTA Report No. 0123, September 2018; and/or

"Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances," BBN/EPA, December 31, 1971

2. Usage Factor = percentage of time equipment is operating in noisiest mode while in use

Geometric attenuation based on 6 dB per doubling of distance.

Note: This calculation does not include the effects, if any, of local shielding from walls, topography or other barriers which may reduce sound levels further.

Table 14. Detailed Construction Noise Analysis, Phase 2 - Retail Construction

Source Data:	Maximum Sound Level (dBA) ¹	Utilization Factor ^{1,2}	Leq Sound Level (dBA)
Source 1: Compactor (Ground) - Sound level (dBA) at 50 feet =	83	20%	76.0
Source 2: Grader - Sound level (dBA) at 50 feet =	85	40%	81.0
Source 3: Front End Loader - Sound level (dBA) at 50 feet =	79	40%	75.0
Calculated Data:			
All Sources Combined - Lmax sound level (dBA) at 50 feet =			88
All Sources Combined - Leq sound level (dBA) at 50 feet =			83

Distance Between Source and Receiver (ft.)	Geometric Attenuation (dB)	Ground Effect Attenuation (dB)	Calculated Lmax Sound Level (dBA)	Calculated Leq Sound Level (dBA)
15	10	0.0	98	93
25	6	0.0	94	89
50	0	0.0	88	83
80	-4	0.0	84	79
100	-6	0.0	82	77
150	-10	0.0	78	73
200	-12	0.0	76	71
250	-14	0.0	74	69
300	-16	0.0	72	67
350	-17	0.0	71	66
400	-18	0.0	70	65
500	-20	0.0	68	63
600	-22	0.0	66	61
700	-23	0.0	65	60
800	-24	0.0	64	59
1000	-26	0.0	62	57
2000	-32	0.0	56	51

1. Obtained or estimated from:

FHWA Roadway Construction Noise Model (RCNM), Version 1.1, December 8, 2008; and/or

"Transit Noise and Vibration Impact Assessment Manual", FTA Report No. 0123, September 2018; and/or

"Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances," BBN/EPA, December 31, 1971

2. Usage Factor = percentage of time equipment is operating in noisiest mode while in use

Geometric attenuation based on 6 dB per doubling of distance.

Note: This calculation does not include the effects, if any, of local shielding from walls, topography or other barriers which may reduce sound levels further.

Table 15. Detailed Construction Noise Analysis, Phase 3 - Parking Structure 1/Field House 1, Shoring/Excavation

Source Data:	Maximum Sound Level (dBA) ¹	Utilization Factor ^{1,2}	Leq Sound Level (dBA)
Source 1: Crane - Sound level (dBA) at 50 feet =	81	16%	73.0
Source 2: Excavator - Sound level (dBA) at 50 feet =	81	40%	77.0
Source 3: Dozer - Sound level (dBA) at 50 feet =	82	40%	78.0
Calculated Data:			
All Sources Combined - Lmax sound level (dBA) at 50 feet =			86
All Sources Combined - Leq sound level (dBA) at 50 feet =			81

Distance Between Source and Receiver (ft.)	Geometric Attenuation (dB)	Ground Effect Attenuation (dB)	Calculated Lmax Sound Level (dBA)	Calculated Leq Sound Level (dBA)
15	10	0.0	97	92
25	6	0.0	92	87
50	0	0.0	86	81
80	-4	0.0	82	77
100	-6	0.0	80	75
150	-10	0.0	77	72
200	-12	0.0	74	69
250	-14	0.0	72	67
300	-16	0.0	71	66
350	-17	0.0	69	64
400	-18	0.0	68	63
500	-20	0.0	66	61
600	-22	0.0	65	60
700	-23	0.0	63	58
800	-24	0.0	62	57
1000	-26	0.0	60	55
2000	-32	0.0	54	49

1. Obtained or estimated from:

FHWA Roadway Construction Noise Model (RCNM), Version 1.1, December 8, 2008; and/or

"Transit Noise and Vibration Impact Assessment Manual", FTA Report No. 0123, September 2018; and/or

"Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances," BBN/EPA, December 31, 1971

2. Usage Factor = percentage of time equipment is operating in noisiest mode while in use

Geometric attenuation based on 6 dB per doubling of distance.

Note: This calculation does not include the effects, if any, of local shielding from walls, topography or other barriers which may reduce sound levels further.

Table 16. Detailed Construction Noise Analysis, Phase 3 - Parking Structure 1/Field House 1, Construction

Source Data:	Maximum Sound Level (dBA) ¹	Utilization Factor ^{1,2}	Leq Sound Level (dBA)
Source 1: Compactor (Ground) - Sound level (dBA) at 50 feet =	83	20%	76.0
Source 2: Dozer - Sound level (dBA) at 50 feet =	82	40%	78.0
Source 3: Front End Loader - Sound level (dBA) at 50 feet =	79	40%	75.0
Calculated Data:			
All Sources Combined - Lmax sound level (dBA) at 50 feet =			86
All Sources Combined - Leq sound level (dBA) at 50 feet =			81

Distance Between Source and Receiver (ft.)	Geometric Attenuation (dB)	Ground Effect Attenuation (dB)	Calculated Lmax Sound Level (dBA)	Calculated Leq Sound Level (dBA)
15	10	0.0	97	92
25	6	0.0	92	87
50	0	0.0	86	81
80	-4	0.0	82	77
100	-6	0.0	80	75
150	-10	0.0	77	72
200	-12	0.0	74	69
250	-14	0.0	72	67
300	-16	0.0	71	66
350	-17	0.0	70	64
400	-18	0.0	68	63
500	-20	0.0	66	61
600	-22	0.0	65	60
700	-23	0.0	63	58
800	-24	0.0	62	57
1000	-26	0.0	60	55
2000	-32	0.0	54	49

1. Obtained or estimated from:

FHWA Roadway Construction Noise Model (RCNM), Version 1.1, December 8, 2008; and/or

"Transit Noise and Vibration Impact Assessment Manual", FTA Report No. 0123, September 2018; and/or

"Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances," BBN/EPA, December 31, 1971

2. Usage Factor = percentage of time equipment is operating in noisiest mode while in use

Geometric attenuation based on 6 dB per doubling of distance.

Note: This calculation does not include the effects, if any, of local shielding from walls, topography or other barriers which may reduce sound levels further.

Table 17. Detailed Construction Noise Analysis, Phase 3 - Building 3, Shoring/Excavation

Source Data:	Maximum Sound Level (dBA) ¹	Utilization Factor ^{1,2}	Leq Sound Level (dBA)
Source 1: Crane - Sound level (dBA) at 50 feet =	81	16%	73.0
Source 2: Excavator - Sound level (dBA) at 50 feet =	81	40%	77.0
Source 3: Dozer - Sound level (dBA) at 50 feet =	82	40%	78.0
Calculated Data:			
All Sources Combined - Lmax sound level (dBA) at 50 feet =			86
All Sources Combined - Leq sound level (dBA) at 50 feet =			81

Distance Between Source and Receiver (ft.)	Geometric Attenuation (dB)	Ground Effect Attenuation (dB)	Calculated Lmax Sound Level (dBA)	Calculated Leq Sound Level (dBA)
15	10	0.0	97	92
25	6	0.0	92	87
50	0	0.0	86	81
80	-4	0.0	82	77
100	-6	0.0	80	75
150	-10	0.0	77	72
200	-12	0.0	74	69
250	-14	0.0	72	67
300	-16	0.0	71	66
350	-17	0.0	69	64
400	-18	0.0	68	63
500	-20	0.0	66	61
600	-22	0.0	65	60
700	-23	0.0	63	58
800	-24	0.0	62	57
1000	-26	0.0	60	55
2000	-32	0.0	54	49

1. Obtained or estimated from:

FHWA Roadway Construction Noise Model (RCNM), Version 1.1, December 8, 2008; and/or

"Transit Noise and Vibration Impact Assessment Manual", FTA Report No. 0123, September 2018; and/or

"Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances;" BBN/EPA, December 31, 1971

2. Usage Factor = percentage of time equipment is operating in noisiest mode while in use

Geometric attenuation based on 6 dB per doubling of distance.

Note: This calculation does not include the effects, if any, of local shielding from walls, topography or other barriers which may reduce sound levels further.

Table 18. Detailed Construction Noise Analysis, Phase 3 - Building 3, Construction

Source Data:	Maximum Sound Level (dBA) ¹	Utilization Factor ^{1,2}	Leq Sound Level (dBA)
Source 1: Dozer - Sound level (dBA) at 50 feet =	82	40%	78.0
Source 2: Compactor (Ground) - Sound level (dBA) at 50 feet =	83	20%	76.0
Source 3: Front End Loader - Sound level (dBA) at 50 feet =	79	40%	75.0
Calculated Data:			
All Sources Combined - Lmax sound level (dBA) at 50 feet =			86
All Sources Combined - Leq sound level (dBA) at 50 feet =			81

Distance Between Source and Receiver (ft.)	Geometric Attenuation (dB)	Ground Effect Attenuation (dB)	Calculated Lmax Sound Level (dBA)	Calculated Leq Sound Level (dBA)
15	10	0.0	97	92
25	6	0.0	92	87
50	0	0.0	86	81
80	-4	0.0	82	77
100	-6	0.0	80	75
150	-10	0.0	77	72
200	-12	0.0	74	69
250	-14	0.0	72	67
300	-16	0.0	71	66
350	-17	0.0	70	64
400	-18	0.0	68	63
500	-20	0.0	66	61
600	-22	0.0	65	60
700	-23	0.0	63	58
800	-24	0.0	62	57
1000	-26	0.0	60	55
2000	-32	0.0	54	49

1. Obtained or estimated from:

FHWA Roadway Construction Noise Model (RCNM), Version 1.1, December 8, 2008; and/or

"Transit Noise and Vibration Impact Assessment Manual", FTA Report No. 0123, September 2018; and/or

"Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances;" BBN/EPA, December 31, 1971

2. Usage Factor = percentage of time equipment is operating in noisiest mode while in use

Geometric attenuation based on 6 dB per doubling of distance.

Note: This calculation does not include the effects, if any, of local shielding from walls, topography or other barriers which may reduce sound levels further.

Table 19. Detailed Construction Noise Analysis, Phase 3 - Building 1, Shoring/Excavation

Source Data:	Maximum Sound Level (dBA) ¹	Utilization Factor ^{1,2}	Leq Sound Level (dBA)
Source 1: Excavator - Sound level (dBA) at 50 feet =	81	40%	77.0
Source 2: Excavator - Sound level (dBA) at 50 feet =	81	40%	77.0
Source 3: Dozer - Sound level (dBA) at 50 feet =	82	40%	78.0
Calculated Data:			
All Sources Combined - Lmax sound level (dBA) at 50 feet =			86
All Sources Combined - Leq sound level (dBA) at 50 feet =			82

Distance Between Source and Receiver (ft.)	Geometric Attenuation (dB)	Ground Effect Attenuation (dB)	Calculated Lmax Sound Level (dBA)	Calculated Leq Sound Level (dBA)
15	10	0.0	97	93
25	6	0.0	92	88
50	0	0.0	86	82
80	-4	0.0	82	78
100	-6	0.0	80	76
150	-10	0.0	77	73
200	-12	0.0	74	70
250	-14	0.0	72	68
300	-16	0.0	71	67
350	-17	0.0	69	65
400	-18	0.0	68	64
500	-20	0.0	66	62
600	-22	0.0	65	61
700	-23	0.0	63	59
800	-24	0.0	62	58
1000	-26	0.0	60	56
2000	-32	0.0	54	50

1. Obtained or estimated from:

FHWA Roadway Construction Noise Model (RCNM), Version 1.1, December 8, 2008; and/or

"Transit Noise and Vibration Impact Assessment Manual", FTA Report No. 0123, September 2018; and/or

"Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances," BBN/EPA, December 31, 1971

2. Usage Factor = percentage of time equipment is operating in noisiest mode while in use

Geometric attenuation based on 6 dB per doubling of distance.

Note: This calculation does not include the effects, if any, of local shielding from walls, topography or other barriers which may reduce sound levels further.

Table 20. Detailed Construction Noise Analysis, Phase 3 - Building 1, Construction

Source Data:	Maximum Sound Level (dBA) ¹	Utilization Factor ^{1,2}	Leq Sound Level (dBA)
Source 1: Dozer - Sound level (dBA) at 50 feet =	82	40%	78.0
Source 2: Compactor (Ground) - Sound level (dBA) at 50 feet =	83	20%	76.0
Source 3: Front End Loader - Sound level (dBA) at 50 feet =	79	40%	75.0
Calculated Data:			
All Sources Combined - Lmax sound level (dBA) at 50 feet =			86
All Sources Combined - Leq sound level (dBA) at 50 feet =			81

Distance Between Source and Receiver (ft.)	Geometric Attenuation (dB)	Ground Effect Attenuation (dB)	Calculated Lmax Sound Level (dBA)	Calculated Leq Sound Level (dBA)
15	10	0.0	97	92
25	6	0.0	92	87
50	0	0.0	86	81
80	-4	0.0	82	77
100	-6	0.0	80	75
150	-10	0.0	77	72
200	-12	0.0	74	69
250	-14	0.0	72	67
300	-16	0.0	71	66
350	-17	0.0	70	64
400	-18	0.0	68	63
500	-20	0.0	66	61
600	-22	0.0	65	60
700	-23	0.0	63	58
800	-24	0.0	62	57
1000	-26	0.0	60	55
2000	-32	0.0	54	49

1. Obtained or estimated from:

FHWA Roadway Construction Noise Model (RCNM), Version 1.1, December 8, 2008; and/or

"Transit Noise and Vibration Impact Assessment Manual", FTA Report No. 0123, September 2018; and/or

"Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances;" BBN/EPA, December 31, 1971

2. Usage Factor = percentage of time equipment is operating in noisiest mode while in use

Geometric attenuation based on 6 dB per doubling of distance.

Note: This calculation does not include the effects, if any, of local shielding from walls, topography or other barriers which may reduce sound levels further.

Table 21. Detailed Construction Noise Analysis, Phase 3 - Building 2, Construction

Source Data:	Maximum Sound Level (dBA) ¹	Utilization Factor ^{1,2}	Leq Sound Level (dBA)
Source 1: Excavator - Sound level (dBA) at 50 feet =	81	40%	77.0
Source 2: Front End Loader - Sound level (dBA) at 50 feet =	79	40%	75.0
Source 3: Front End Loader - Sound level (dBA) at 50 feet =	79	40%	75.0
Calculated Data:			
All Sources Combined - Lmax sound level (dBA) at 50 feet =			85
All Sources Combined - Leq sound level (dBA) at 50 feet =			81

Distance Between Source and Receiver (ft.)	Geometric Attenuation (dB)	Ground Effect Attenuation (dB)	Calculated Lmax Sound Level (dBA)	Calculated Leq Sound Level (dBA)
15	10	0.0	95	91
25	6	0.0	91	87
50	0	0.0	85	81
80	-4	0.0	80	76
100	-6	0.0	79	75
150	-10	0.0	75	71
200	-12	0.0	73	69
250	-14	0.0	71	67
300	-16	0.0	69	65
350	-17	0.0	68	64
400	-18	0.0	66	63
500	-20	0.0	65	61
600	-22	0.0	63	59
700	-23	0.0	62	58
800	-24	0.0	60	56
1000	-26	0.0	59	55
2000	-32	0.0	53	49

1. Obtained or estimated from:

FHWA Roadway Construction Noise Model (RCNM), Version 1.1, December 8, 2008; and/or

"Transit Noise and Vibration Impact Assessment Manual", FTA Report No. 0123, September 2018; and/or

"Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances;" BBN/EPA, December 31, 1971

2. Usage Factor = percentage of time equipment is operating in noisiest mode while in use

Geometric attenuation based on 6 dB per doubling of distance.

Note: This calculation does not include the effects, if any, of local shielding from walls, topography or other barriers which may reduce sound levels further.

Table 22. Detailed Construction Noise Analysis, Phase 4 Flex 1 - Parking Structure 2, Shoring/Excavation

Source Data:	Maximum Sound Level (dBA) ¹	Utilization Factor ^{1,2}	Leq Sound Level (dBA)
Source 1: Excavator - Sound level (dBA) at 50 feet =	81	40%	77.0
Source 2: Excavator - Sound level (dBA) at 50 feet =	81	40%	77.0
Source 3: Dozer - Sound level (dBA) at 50 feet =	82	40%	78.0
Calculated Data:			
All Sources Combined - Lmax sound level (dBA) at 50 feet =			86
All Sources Combined - Leq sound level (dBA) at 50 feet =			82

Distance Between Source and Receiver (ft.)	Geometric Attenuation (dB)	Ground Effect Attenuation (dB)	Calculated Lmax Sound Level (dBA)	Calculated Leq Sound Level (dBA)
15	10	0.0	97	93
25	6	0.0	92	88
50	0	0.0	86	82
80	-4	0.0	82	78
100	-6	0.0	80	76
150	-10	0.0	77	73
200	-12	0.0	74	70
250	-14	0.0	72	68
300	-16	0.0	71	67
350	-17	0.0	69	65
400	-18	0.0	68	64
500	-20	0.0	66	62
600	-22	0.0	65	61
700	-23	0.0	63	59
800	-24	0.0	62	58
1000	-26	0.0	60	56
2000	-32	0.0	54	50

1. Obtained or estimated from:

FHWA Roadway Construction Noise Model (RCNM), Version 1.1, December 8, 2008; and/or

"Transit Noise and Vibration Impact Assessment Manual", FTA Report No. 0123, September 2018; and/or

"Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances," BBN/EPA, December 31, 1971

2. Usage Factor = percentage of time equipment is operating in noisiest mode while in use

Geometric attenuation based on 6 dB per doubling of distance.

Note: This calculation does not include the effects, if any, of local shielding from walls, topography or other barriers which may reduce sound levels further.

Table 23. Detailed Construction Noise Analysis, Phase 4 Flex 1 - Parking Structure 2, Construction

Source Data:	Maximum Sound Level (dBA) ¹	Utilization Factor ^{1,2}	Leq Sound Level (dBA)
Source 1: Compactor (Ground) - Sound level (dBA) at 50 feet =	83	20%	76.0
Source 2: Dozer - Sound level (dBA) at 50 feet =	82	40%	78.0
Source 3: Front End Loader - Sound level (dBA) at 50 feet =	79	40%	75.0
Calculated Data:			
All Sources Combined - Lmax sound level (dBA) at 50 feet =			86
All Sources Combined - Leq sound level (dBA) at 50 feet =			81

Distance Between Source and Receiver (ft.)	Geometric Attenuation (dB)	Ground Effect Attenuation (dB)	Calculated Lmax Sound Level (dBA)	Calculated Leq Sound Level (dBA)
15	10	0.0	97	92
25	6	0.0	92	87
50	0	0.0	86	81
80	-4	0.0	82	77
100	-6	0.0	80	75
150	-10	0.0	77	72
200	-12	0.0	74	69
250	-14	0.0	72	67
300	-16	0.0	71	66
350	-17	0.0	70	64
400	-18	0.0	68	63
500	-20	0.0	66	61
600	-22	0.0	65	60
700	-23	0.0	63	58
800	-24	0.0	62	57
1000	-26	0.0	60	55
2000	-32	0.0	54	49

1. Obtained or estimated from:

FHWA Roadway Construction Noise Model (RCNM), Version 1.1, December 8, 2008; and/or

"Transit Noise and Vibration Impact Assessment Manual", FTA Report No. 0123, September 2018; and/or

"Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances," BBN/EPA, December 31, 1971

2. Usage Factor = percentage of time equipment is operating in noisiest mode while in use

Geometric attenuation based on 6 dB per doubling of distance.

Note: This calculation does not include the effects, if any, of local shielding from walls, topography or other barriers which may reduce sound levels further.

Table 24. Detailed Construction Noise Analysis, Phase 4 Flex 1 - LS Building 4, Shoring/Excavation

Source Data:	Maximum Sound Level (dBA) ¹	Utilization Factor ^{1,2}	Leq Sound Level (dBA)
Source 1: Excavator - Sound level (dBA) at 50 feet =	81	40%	77.0
Source 2: Excavator - Sound level (dBA) at 50 feet =	81	40%	77.0
Source 3: Dozer - Sound level (dBA) at 50 feet =	82	40%	78.0
Calculated Data:			
All Sources Combined - Lmax sound level (dBA) at 50 feet =			86
All Sources Combined - Leq sound level (dBA) at 50 feet =			82

Distance Between Source and Receiver (ft.)	Geometric Attenuation (dB)	Ground Effect Attenuation (dB)	Calculated Lmax Sound Level (dBA)	Calculated Leq Sound Level (dBA)
15	10	0.0	97	93
25	6	0.0	92	88
50	0	0.0	86	82
80	-4	0.0	82	78
100	-6	0.0	80	76
150	-10	0.0	77	73
200	-12	0.0	74	70
250	-14	0.0	72	68
300	-16	0.0	71	67
350	-17	0.0	69	65
400	-18	0.0	68	64
500	-20	0.0	66	62
600	-22	0.0	65	61
700	-23	0.0	63	59
800	-24	0.0	62	58
1000	-26	0.0	60	56
2000	-32	0.0	54	50

1. Obtained or estimated from:

FHWA Roadway Construction Noise Model (RCNM), Version 1.1, December 8, 2008; and/or

"Transit Noise and Vibration Impact Assessment Manual", FTA Report No. 0123, September 2018; and/or

"Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances," BBN/EPA, December 31, 1971

2. Usage Factor = percentage of time equipment is operating in noisiest mode while in use

Geometric attenuation based on 6 dB per doubling of distance.

Note: This calculation does not include the effects, if any, of local shielding from walls, topography or other barriers which may reduce sound levels further.

Table 25. Detailed Construction Noise Analysis, Phase 4 Flex 1 - LS Building 4, Construction

Source Data:	Maximum Sound Level (dBA) ¹	Utilization Factor ^{1,2}	Leq Sound Level (dBA)
Source 1: Dozer - Sound level (dBA) at 50 feet =	82	40%	78.0
Source 2: Compactor (Ground) - Sound level (dBA) at 50 feet =	83	20%	76.0
Source 3: Front End Loader - Sound level (dBA) at 50 feet =	79	40%	75.0
Calculated Data:			
All Sources Combined - Lmax sound level (dBA) at 50 feet =			86
All Sources Combined - Leq sound level (dBA) at 50 feet =			81

Distance Between Source and Receiver (ft.)	Geometric Attenuation (dB)	Ground Effect Attenuation (dB)	Calculated Lmax Sound Level (dBA)	Calculated Leq Sound Level (dBA)
15	10	0.0	97	92
25	6	0.0	92	87
50	0	0.0	86	81
80	-4	0.0	82	77
100	-6	0.0	80	75
150	-10	0.0	77	72
200	-12	0.0	74	69
250	-14	0.0	72	67
300	-16	0.0	71	66
350	-17	0.0	70	64
400	-18	0.0	68	63
500	-20	0.0	66	61
600	-22	0.0	65	60
700	-23	0.0	63	58
800	-24	0.0	62	57
1000	-26	0.0	60	55
2000	-32	0.0	54	49

1. Obtained or estimated from:

FHWA Roadway Construction Noise Model (RCNM), Version 1.1, December 8, 2008; and/or

"Transit Noise and Vibration Impact Assessment Manual", FTA Report No. 0123, September 2018; and/or

"Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances," BBN/EPA, December 31, 1971

2. Usage Factor = percentage of time equipment is operating in noisiest mode while in use

Geometric attenuation based on 6 dB per doubling of distance.

Note: This calculation does not include the effects, if any, of local shielding from walls, topography or other barriers which may reduce sound levels further.

Table 26. Detailed Construction Noise Analysis, Phase 4 Flex 1 - Hotel, Shoring/Excavation

Source Data:	Maximum Sound Level (dBA) ¹	Utilization Factor ^{1,2}	Leq Sound Level (dBA)
Source 1: Excavator - Sound level (dBA) at 50 feet =	81	40%	77.0
Source 2: Excavator - Sound level (dBA) at 50 feet =	81	40%	77.0
Source 3: Dozer - Sound level (dBA) at 50 feet =	82	40%	78.0
Calculated Data:			
All Sources Combined - Lmax sound level (dBA) at 50 feet =			86
All Sources Combined - Leq sound level (dBA) at 50 feet =			82

Distance Between Source and Receiver (ft.)	Geometric Attenuation (dB)	Ground Effect Attenuation (dB)	Calculated Lmax Sound Level (dBA)	Calculated Leq Sound Level (dBA)
15	10	0.0	97	93
25	6	0.0	92	88
50	0	0.0	86	82
80	-4	0.0	82	78
100	-6	0.0	80	76
150	-10	0.0	77	73
200	-12	0.0	74	70
250	-14	0.0	72	68
300	-16	0.0	71	67
350	-17	0.0	69	65
400	-18	0.0	68	64
500	-20	0.0	66	62
600	-22	0.0	65	61
700	-23	0.0	63	59
800	-24	0.0	62	58
1000	-26	0.0	60	56
2000	-32	0.0	54	50

1. Obtained or estimated from:

FHWA Roadway Construction Noise Model (RCNM), Version 1.1, December 8, 2008; and/or

"Transit Noise and Vibration Impact Assessment Manual", FTA Report No. 0123, September 2018; and/or

"Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances," BBN/EPA, December 31, 1971

2. Usage Factor = percentage of time equipment is operating in noisiest mode while in use

Geometric attenuation based on 6 dB per doubling of distance.

Note: This calculation does not include the effects, if any, of local shielding from walls, topography or other barriers which may reduce sound levels further.

Table 27. Detailed Construction Noise Analysis, Phase 4 Flex 1 - Hotel, Construction

		Maximum Sound Level (dBA) ¹	Utilization Factor ^{1,2}	Leq Sound Level (dBA)
Source Data:				
Source 1: Dozer - Sound level (dBA) at 50 feet =		82	40%	78.0
Source 2: Compactor (Ground) - Sound level (dBA) at 50 feet =		83	20%	76.0
Source 3: Front End Loader - Sound level (dBA) at 50 feet =		79	40%	75.0
Calculated Data:				
All Sources Combined - Lmax sound level (dBA) at 50 feet =				86
All Sources Combined - Leq sound level (dBA) at 50 feet =				81

Distance Between Source and Receiver (ft.)	Geometric Attenuation (dB)	Ground Effect Attenuation (dB)	Calculated Lmax Sound Level (dBA)	Calculated Leq Sound Level (dBA)
15	10	0.0	97	92
25	6	0.0	92	87
50	0	0.0	86	81
80	-4	0.0	82	77
100	-6	0.0	80	75
150	-10	0.0	77	72
200	-12	0.0	74	69
250	-14	0.0	72	67
300	-16	0.0	71	66
350	-17	0.0	70	64
400	-18	0.0	68	63
500	-20	0.0	66	61
600	-22	0.0	65	60
700	-23	0.0	63	58
800	-24	0.0	62	57
1000	-26	0.0	60	55
2000	-32	0.0	54	49

1. Obtained or estimated from:

FHWA Roadway Construction Noise Model (RCNM), Version 1.1, December 8, 2008; and/or

"Transit Noise and Vibration Impact Assessment Manual", FTA Report No. 0123, September 2018; and/or

"Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances," BBN/EPA, December 31, 1971

2. Usage Factor = percentage of time equipment is operating in noisiest mode while in use

Geometric attenuation based on 6 dB per doubling of distance.

Note: This calculation does not include the effects, if any, of local shielding from walls, topography or other barriers which may reduce sound levels further.

Table 28. Detailed Construction Noise Analysis, Phase 4 Flex 1 - Resi 4, Shoring/Excavation

Source Data:	Maximum Sound Level (dBA) ¹	Utilization Factor ^{1,2}	Leq Sound Level (dBA)
Source 1: Excavator - Sound level (dBA) at 50 feet =	81	40%	77.0
Source 2: Excavator - Sound level (dBA) at 50 feet =	81	40%	77.0
Source 3: Dozer - Sound level (dBA) at 50 feet =	82	40%	78.0
Calculated Data:			
All Sources Combined - Lmax sound level (dBA) at 50 feet =			86
All Sources Combined - Leq sound level (dBA) at 50 feet =			82

Distance Between Source and Receiver (ft.)	Geometric Attenuation (dB)	Ground Effect Attenuation (dB)	Calculated Lmax Sound Level (dBA)	Calculated Leq Sound Level (dBA)
15	10	0.0	97	93
25	6	0.0	92	88
50	0	0.0	86	82
80	-4	0.0	82	78
100	-6	0.0	80	76
150	-10	0.0	77	73
200	-12	0.0	74	70
250	-14	0.0	72	68
300	-16	0.0	71	67
350	-17	0.0	69	65
400	-18	0.0	68	64
500	-20	0.0	66	62
600	-22	0.0	65	61
700	-23	0.0	63	59
800	-24	0.0	62	58
1000	-26	0.0	60	56
2000	-32	0.0	54	50

1. Obtained or estimated from:

FHWA Roadway Construction Noise Model (RCNM), Version 1.1, December 8, 2008; and/or

"Transit Noise and Vibration Impact Assessment Manual", FTA Report No. 0123, September 2018; and/or

"Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances;" BBN/EPA, December 31, 1971

2. Usage Factor = percentage of time equipment is operating in noisiest mode while in use

Geometric attenuation based on 6 dB per doubling of distance.

Note: This calculation does not include the effects, if any, of local shielding from walls, topography or other barriers which may reduce sound levels further.

Table 29. Detailed Construction Noise Analysis, Phase 4 Flex 1 - Resi 4, Construction

		Maximum Sound Level (dBA) ¹	Utilization Factor ^{1,2}	Leq Sound Level (dBA)
Source Data:				
Source 1: Dozer - Sound level (dBA) at 50 feet =		82	40%	78.0
Source 2: Compactor (Ground) - Sound level (dBA) at 50 feet =		83	20%	76.0
Source 3: Front End Loader - Sound level (dBA) at 50 feet =		79	40%	75.0
Calculated Data:				
All Sources Combined - Lmax sound level (dBA) at 50 feet =				86
All Sources Combined - Leq sound level (dBA) at 50 feet =				81

Distance Between Source and Receiver (ft.)	Geometric Attenuation (dB)	Ground Effect Attenuation (dB)	Calculated Lmax Sound Level (dBA)	Calculated Leq Sound Level (dBA)
15	10	0.0	97	92
25	6	0.0	92	87
50	0	0.0	86	81
80	-4	0.0	82	77
100	-6	0.0	80	75
150	-10	0.0	77	72
200	-12	0.0	74	69
250	-14	0.0	72	67
300	-16	0.0	71	66
350	-17	0.0	70	64
400	-18	0.0	68	63
500	-20	0.0	66	61
600	-22	0.0	65	60
700	-23	0.0	63	58
800	-24	0.0	62	57
1000	-26	0.0	60	55
2000	-32	0.0	54	49

1. Obtained or estimated from:

FHWA Roadway Construction Noise Model (RCNM), Version 1.1, December 8, 2008; and/or

"Transit Noise and Vibration Impact Assessment Manual", FTA Report No. 0123, September 2018; and/or

"Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances," BBN/EPA, December 31, 1971

2. Usage Factor = percentage of time equipment is operating in noisiest mode while in use

Geometric attenuation based on 6 dB per doubling of distance.

Note: This calculation does not include the effects, if any, of local shielding from walls, topography or other barriers which may reduce sound levels further.

Table 30. Detailed Construction Noise Analysis, Phase 4 Flex 2 - Parking Structure 3, Shoring/Excavation

Source Data:	Maximum Sound Level (dBA) ¹	Utilization Factor ^{1,2}	Leq Sound Level (dBA)
Source 1: Excavator - Sound level (dBA) at 50 feet =	81	40%	77.0
Source 2: Excavator - Sound level (dBA) at 50 feet =	81	40%	77.0
Source 3: Dozer - Sound level (dBA) at 50 feet =	82	40%	78.0
Calculated Data:			
All Sources Combined - Lmax sound level (dBA) at 50 feet =			86
All Sources Combined - Leq sound level (dBA) at 50 feet =			82

Distance Between Source and Receiver (ft.)	Geometric Attenuation (dB)	Ground Effect Attenuation (dB)	Calculated Lmax Sound Level (dBA)	Calculated Leq Sound Level (dBA)
15	10	0.0	97	93
25	6	0.0	92	88
50	0	0.0	86	82
80	-4	0.0	82	78
100	-6	0.0	80	76
150	-10	0.0	77	73
200	-12	0.0	74	70
250	-14	0.0	72	68
300	-16	0.0	71	67
350	-17	0.0	69	65
400	-18	0.0	68	64
500	-20	0.0	66	62
600	-22	0.0	65	61
700	-23	0.0	63	59
800	-24	0.0	62	58
1000	-26	0.0	60	56
2000	-32	0.0	54	50

1. Obtained or estimated from:

FHWA Roadway Construction Noise Model (RCNM), Version 1.1, December 8, 2008; and/or

"Transit Noise and Vibration Impact Assessment Manual", FTA Report No. 0123, September 2018; and/or

"Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances;" BBN/EPA, December 31, 1971

2. Usage Factor = percentage of time equipment is operating in noisiest mode while in use

Geometric attenuation based on 6 dB per doubling of distance.

Note: This calculation does not include the effects, if any, of local shielding from walls, topography or other barriers which may reduce sound levels further.

Table 31. Detailed Construction Noise Analysis, Phase 4 Flex 2 - Parking Structure 3, Construction

Source Data:	Maximum Sound Level (dBA) ¹	Utilization Factor ^{1,2}	Leq Sound Level (dBA)
Source 1: Compactor (Ground) - Sound level (dBA) at 50 feet =	83	20%	76.0
Source 2: Front End Loader - Sound level (dBA) at 50 feet =	79	40%	75.0
Source 3: Dozer - Sound level (dBA) at 50 feet =	82	40%	78.0
Calculated Data:			
All Sources Combined - Lmax sound level (dBA) at 50 feet =			86
All Sources Combined - Leq sound level (dBA) at 50 feet =			81

Distance Between Source and Receiver (ft.)	Geometric Attenuation (dB)	Ground Effect Attenuation (dB)	Calculated Lmax Sound Level (dBA)	Calculated Leq Sound Level (dBA)
15	10	0.0	97	92
25	6	0.0	92	87
50	0	0.0	86	81
80	-4	0.0	82	77
100	-6	0.0	80	75
150	-10	0.0	77	72
200	-12	0.0	74	69
250	-14	0.0	72	67
300	-16	0.0	71	66
350	-17	0.0	70	64
400	-18	0.0	68	63
500	-20	0.0	66	61
600	-22	0.0	65	60
700	-23	0.0	63	58
800	-24	0.0	62	57
1000	-26	0.0	60	55
2000	-32	0.0	54	49

1. Obtained or estimated from:

FHWA Roadway Construction Noise Model (RCNM), Version 1.1, December 8, 2008; and/or

"Transit Noise and Vibration Impact Assessment Manual", FTA Report No. 0123, September 2018; and/or

"Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances;" BBN/EPA, December 31, 1971

2. Usage Factor = percentage of time equipment is operating in noisiest mode while in use

Geometric attenuation based on 6 dB per doubling of distance.

Note: This calculation does not include the effects, if any, of local shielding from walls, topography or other barriers which may reduce sound levels further.

Table 32. Detailed Construction Noise Analysis, Phase 4 Flex 2 - Resi 5, Shoring/Excavation

Source Data:	Maximum Sound Level (dBA) ¹	Utilization Factor ^{1,2}	Leq Sound Level (dBA)
Source 1: Excavator - Sound level (dBA) at 50 feet =	81	40%	77.0
Source 2: Excavator - Sound level (dBA) at 50 feet =	81	40%	77.0
Source 3: Dozer - Sound level (dBA) at 50 feet =	82	40%	78.0
Calculated Data:			
All Sources Combined - Lmax sound level (dBA) at 50 feet =			86
All Sources Combined - Leq sound level (dBA) at 50 feet =			82

Distance Between Source and Receiver (ft.)	Geometric Attenuation (dB)	Ground Effect Attenuation (dB)	Calculated Lmax Sound Level (dBA)	Calculated Leq Sound Level (dBA)
15	10	0.0	97	93
25	6	0.0	92	88
50	0	0.0	86	82
80	-4	0.0	82	78
100	-6	0.0	80	76
150	-10	0.0	77	73
200	-12	0.0	74	70
250	-14	0.0	72	68
300	-16	0.0	71	67
350	-17	0.0	69	65
400	-18	0.0	68	64
500	-20	0.0	66	62
600	-22	0.0	65	61
700	-23	0.0	63	59
800	-24	0.0	62	58
1000	-26	0.0	60	56
2000	-32	0.0	54	50

1. Obtained or estimated from:

FHWA Roadway Construction Noise Model (RCNM), Version 1.1, December 8, 2008; and/or

"Transit Noise and Vibration Impact Assessment Manual", FTA Report No. 0123, September 2018; and/or

"Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances;" BBN/EPA, December 31, 1971

2. Usage Factor = percentage of time equipment is operating in noisiest mode while in use

Geometric attenuation based on 6 dB per doubling of distance.

Note: This calculation does not include the effects, if any, of local shielding from walls, topography or other barriers which may reduce sound levels further.

Table 33. Detailed Construction Noise Analysis, Phase 4 Flex 2 - Resi 5, Construction

Source Data:	Maximum Sound Level (dBA) ¹	Utilization Factor ^{1,2}	Leq Sound Level (dBA)
Source 1: Compactor (Ground) - Sound level (dBA) at 50 feet =	83	20%	76.0
Source 2: Front End Loader - Sound level (dBA) at 50 feet =	79	40%	75.0
Source 3: Dozer - Sound level (dBA) at 50 feet =	82	40%	78.0
Calculated Data:			
All Sources Combined - Lmax sound level (dBA) at 50 feet =			86
All Sources Combined - Leq sound level (dBA) at 50 feet =			81

Distance Between Source and Receiver (ft.)	Geometric Attenuation (dB)	Ground Effect Attenuation (dB)	Calculated Lmax Sound Level (dBA)	Calculated Leq Sound Level (dBA)
15	10	0.0	97	92
25	6	0.0	92	87
50	0	0.0	86	81
80	-4	0.0	82	77
100	-6	0.0	80	75
150	-10	0.0	77	72
200	-12	0.0	74	69
250	-14	0.0	72	67
300	-16	0.0	71	66
350	-17	0.0	70	64
400	-18	0.0	68	63
500	-20	0.0	66	61
600	-22	0.0	65	60
700	-23	0.0	63	58
800	-24	0.0	62	57
1000	-26	0.0	60	55
2000	-32	0.0	54	49

1. Obtained or estimated from:

FHWA Roadway Construction Noise Model (RCNM), Version 1.1, December 8, 2008; and/or

"Transit Noise and Vibration Impact Assessment Manual", FTA Report No. 0123, September 2018; and/or

"Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances;" BBN/EPA, December 31, 1971

2. Usage Factor = percentage of time equipment is operating in noisiest mode while in use

Geometric attenuation based on 6 dB per doubling of distance.

Note: This calculation does not include the effects, if any, of local shielding from walls, topography or other barriers which may reduce sound levels further.

Table 34. Detailed Construction Noise Analysis, Phase 4 Flex 2 - LS Building 5, Construction

		Maximum Sound Level (dBA) ¹	Utilization Factor ^{1,2}	Leq Sound Level (dBA)
Source Data:				
Source 1: Excavator - Sound level (dBA) at 50 feet =		81	40%	77.0
Source 2: Front End Loader - Sound level (dBA) at 50 feet =		79	40%	75.0
Source 3: Front End Loader - Sound level (dBA) at 50 feet =		79	40%	75.0
Calculated Data:				
All Sources Combined - Lmax sound level (dBA) at 50 feet =				85
All Sources Combined - Leq sound level (dBA) at 50 feet =				81

Distance Between Source and Receiver (ft.)	Geometric Attenuation (dB)	Ground Effect Attenuation (dB)	Calculated Lmax Sound Level (dBA)	Calculated Leq Sound Level (dBA)
15	10	0.0	95	91
25	6	0.0	91	87
50	0	0.0	85	81
80	-4	0.0	80	76
100	-6	0.0	79	75
150	-10	0.0	75	71
200	-12	0.0	73	69
250	-14	0.0	71	67
300	-16	0.0	69	65
350	-17	0.0	68	64
400	-18	0.0	66	63
500	-20	0.0	65	61
600	-22	0.0	63	59
700	-23	0.0	62	58
800	-24	0.0	60	56
1000	-26	0.0	59	55
2000	-32	0.0	53	49

1. Obtained or estimated from:

FHWA Roadway Construction Noise Model (RCNM), Version 1.1, December 8, 2008; and/or

"Transit Noise and Vibration Impact Assessment Manual", FTA Report No. 0123, September 2018; and/or

"Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances," BBN/EPA, December 31, 1971

2. Usage Factor = percentage of time equipment is operating in noisiest mode while in use

Geometric attenuation based on 6 dB per doubling of distance.

Note: This calculation does not include the effects, if any, of local shielding from walls, topography or other barriers which may reduce sound levels further.

Construction Haul Truck Noise Modeling

Haul Truck Noise Analysis, Received Data

Roadway	Segment	Speed Limit	Existing Conditions			Existing and Worst- Case Construction Haul Trucks			
			Total ADT	Heavy Truck %	Heavy Trucks ADT	Construction Haul Trucks ADT	Total Heavy Trucks During Construction	Total ADT During Construction	Heavy Truck %
El Camino Real	North of EB I-380 Ramps	35	34020	2%	680	256	936	34276	3%
El Camino Real	South of EB I-380 Ramps	35	33520	2%	670	256	926	33776	3%
El Camino Real	North of WB I-380 Ramps	35	39980	2%	800	256	1056	40236	3%
El Camino Real	North of Tanforan Way	35	33720	2%	674	256	930	33976	3%
El Camino Real	South of Tanforan Way	35	40030	2%	801	256	1057	40286	3%
Sneath Lane	East of El Camino Real	30	11310	4%	452	256	708	11566	7%
El Camino Real	South of Sneath Lane	35	33540	2%	671	256	927	33796	3%
Sneath Lane	West of Sea Biscuit Avenue	30	11560	3%	347	256	603	11816	6%
Sneath Lane	East of Sea Biscuit Avenue	30	8620	5%	431	256	687	8876	8%
Sneath Lane	West of Marshalls/Cinemark Driveway	30	8620	5%	431	256	687	8876	8%
Sneath Lane	East of Marshalls/Cinemart Driveway	30	8200	5%	410	256	666	8456	8%
Sneath Lane	West of Huntington Avenue/San Bruno BART	30	8040	5%	402	256	658	8296	8%
Huntington Avenue	East of Huntington Avenue/San Bruno BART	30	8080	5%	404	256	660	8336	8%
Huntington Avenue	North of San Bruno BART	30	7530	8%	602	256	858	7786	12%
Huntington Avenue	South of San Bruno BART	30	7240	4%	290	256	546	7496	8%
Huntington Avenue	North of Tanforan Parking Structure	30	8820	2%	176	256	432	9076	5%
Huntington Avenue	South of Tanforan Parking Structure	30	8560	2%	171	256	427	8816	5%
Huntington Avenue	North of Forest Lane	30	9890	2%	198	256	454	10146	5%

Haul Truck Noise Analysis, Modeling Results

			dBA, Ldn at 50 Feet		
Roadway	Segment	Speed Limit	Existing Conditions	Existing and Worst- Case Construction Haul Trucks	Delta dB
El Camino Real	North of EB I-380 Ramps	35	68.3	70.3	2.0
El Camino Real	South of EB I-380 Ramps	35	68.2	70.3	2.1
El Camino Real	North of WB I-380 Ramps	35	70.5	71.0	0.5
El Camino Real	North of Tanforan Way	35	69.8	70.3	0.5
El Camino Real	South of Tanforan Way	35	69.0	71.0	2.0
Sneath Lane	East of El Camino Real	30	64.7	65.7	1.0
El Camino Real	South of Sneath Lane	35	69.7	70.3	0.6
Sneath Lane	West of Sea Biscuit Avenue	30	65.6	65.8	0.2
Sneath Lane	East of Sea Biscuit Avenue	30	65.2	65.4	0.2
Sneath Lane	West of Marshalls/Cinemark Driveway	30	64.0	65.4	1.4
Sneath Lane	East of Marshalls/Cinemart Driveway	30	65.0	65.2	0.2
Sneath Lane	West of Huntington Avenue/San Bruno BART	30	63.7	65.1	1.4
Huntington Avenue	East of Huntington Avenue/San Bruno BART	30	63.8	65.1	1.3
Huntington Avenue	North of San Bruno BART	30	64.7	66.0	1.3
Huntington Avenue	South of San Bruno BART	30	62.8	64.6	1.8
Huntington Avenue	North of Tanforan Parking Structure	30	62.4	64.3	1.9
Huntington Avenue	South of Tanforan Parking Structure	30	62.3	64.1	1.8
Huntington Avenue	North of Forest Lane	30	62.9	64.7	1.8

Traffic Noise Modeling

Traffic Noise Analysis, Received Data

Roadway	Segment	Heavy Truck %	Speed Limit	Baseline, ADT	Baseline + Project, ADT
El Camino Real	North of EB I-380 Ramps	2%	35	37240	46,670
El Camino Real	North of Tanforan Way	2%	35	38390	47760
El Camino Real	North of WB I-380 Ramps	2%	35	44650	58,560
El Camino Real	South of Sneath Lane	2%	35	38210	47,580
El Camino Real	South of Tanforan Way	2%	35	44700	58610
El Camino Real	South of WB I-380 Ramps	2%	35	37300	46730
Huntington Avenue	East of Huntington Avenue/San Bruno BART	5%	30	23400	30260
Huntington Avenue	North of Forest Lane	2%	30	20950	26140
Huntington Avenue	North of San Bruno Avenue	1%	30	22370	27560
Huntington Avenue	North of San Bruno BART	8%	30	18300	24430
Huntington Avenue	North of Tanforan Parking Structure	2%	30	19880	26010
Huntington Avenue	South of Forest Lane	1%	30	22780	27970
Huntington Avenue	South of San Bruno BART	4%	30	18300	24430
Huntington Avenue	South of Tanforan Parking Structure	2%	30	19620	24810
San Bruno Avenue	East of Huntington Avenue	2%	25	19530	23520
San Bruno Avenue	West of San Mateo Avenue	2%	25	19600	23590
Sneath Lane	East of Cherry Avenue	2%	40	19200	26930
Sneath Lane	East of El Camino Real	4%	30	19520	28000
Sneath Lane	East of Marshalls/Cinemart Driveway	5%	30	16660	23870
Sneath Lane	East of National Avenue	2%	40	18800	26530
Sneath Lane	East of NB I-280 Ramps/Cemetary Driveway	2%	30	17770	25500
Sneath Lane	East of Sea Biscuit Avenue	5%	30	17080	27030
Sneath Lane	West of Cherry Avenue	2%	40	17730	25460
Sneath Lane	West of El Camino Real	2%	40	18800	26530
Sneath Lane	West of Huntington Avenue/San Bruno BART	5%	30	16500	23710
Sneath Lane	West of Marshalls/Cinemark Driveway	5%	30	17080	27030
Sneath Lane	West of National Avenue	2%	40	19360	27090
Sneath Lane	West of Rollingwood Drive	1%	40	9340	11730
Sneath Lane	West of Sea Biscuit Avenue	3%	30	19770	28250

Baseline Traffic Noise Analysis

Roadway	Segment	Heavy Truck %	Speed Limit (MPH)	Baseline + Project,			Baseline Traffic Noise Levels (dBA)	Baseline + Project Traffic Noise Levels (dBA)	Change in Sound Level (dBA Ldn)
				Baseline, ADT	ADT	Traffic Increase (%)	Ldn	Ldn	
El Camino Real	North of EB I-380 Ramps	2%	35	37240	46,670	25%	70.2	71.2	1.0
El Camino Real	North of Tanforan Way	2%	35	38390	47760	24%	70.3	71.3	1.0
El Camino Real	North of WB I-380 Ramps	2%	35	44650	58,560	31%	71.0	72.2	1.2
El Camino Real	South of Sneath Lane	2%	35	38210	47,580	25%	70.3	71.3	1.0
El Camino Real	South of Tanforan Way	2%	35	44700	58610	31%	71.0	72.2	1.2
El Camino Real	South of WB I-380 Ramps	2%	35	37300	46730	25%	70.2	71.2	1.0
Huntington Avenue	East of Huntington Avenue/San Bruno BART	5%	30	23400	30260	29%	68.3	69.5	1.2
Huntington Avenue	North of Forest Lane	2%	30	20950	26140	25%	66.2	67.1	0.9
Huntington Avenue	North of San Bruno Avenue	1%	30	22370	27560	23%	65.7	66.6	0.9
Huntington Avenue	North of San Bruno BART	8%	30	18300	24430	33%	68.5	69.7	1.2
Huntington Avenue	North of Tanforan Parking Structure	2%	30	19880	26010	31%	65.9	67.1	1.2
Huntington Avenue	South of Forest Lane	1%	30	22780	27970	23%	65.8	66.7	0.9
Huntington Avenue	South of San Bruno BART	4%	30	18300	24430	33%	66.8	68.0	1.2
Huntington Avenue	South of Tanforan Parking Structure	2%	30	19620	24810	26%	65.9	66.9	1.0
San Bruno Avenue	East of Huntington Avenue	2%	25	19530	23520	20%	64.5	65.3	0.8
San Bruno Avenue	West of San Mateo Avenue	2%	25	19600	23590	20%	64.5	65.3	0.8
Sneath Lane	East of Cherry Avenue	2%	40	19200	26930	40%	68.8	70.3	1.5
Sneath Lane	East of El Camino Real	4%	30	19520	28000	43%	67.1	68.6	1.5
Sneath Lane	East of Marshalls/Cinemart Driveway	5%	30	16660	23870	43%	66.9	68.4	1.5
Sneath Lane	East of National Avenue	2%	40	18800	26530	41%	68.8	70.2	1.4
Sneath Lane	East of NB I-280 Ramps/Cemetary Driveway	2%	30	17770	25500	44%	65.5	67.0	1.5
Sneath Lane	East of Sea Biscuit Avenue	5%	30	17080	27030	58%	67.0	69.0	2.0
Sneath Lane	West of Cherry Avenue	2%	40	17730	25460	44%	68.5	70.1	1.6
Sneath Lane	West of El Camino Real	2%	40	18800	26530	41%	68.8	70.2	1.4
Sneath Lane	West of Huntington Avenue/San Bruno BART	5%	30	16500	23710	44%	66.8	68.4	1.6
Sneath Lane	West of Marshalls/Cinemark Driveway	5%	30	17080	27030	58%	67.0	69.0	2.0
Sneath Lane	West of National Avenue	2%	40	19360	27090	40%	68.9	70.3	1.4
Sneath Lane	West of Rollingwood Drive	1%	40	9340	11730	26%	65.3	66.3	1.0
Sneath Lane	West of Sea Biscuit Avenue	3%	30	19770	28250	43%	66.6	68.1	1.5

Mechanical Equipment Noise Modeling

Mechanical Equipment Noise Modeling - Flex 2 Zone, Max Residential Scenario

			Raw noise (Leq)	Screen or Room?	Attenuation from Room	Attenuation from 80-foot Height	Attenuated Noise	Source	Energy	Number	Total Energy			Notes	
			50 Feet												
Building 5	Distance (feet)														Equipment Used
	1	234	Exhaust Fans	79	79	0	5	74 FHWA	25118864.32	10	251188643.2	84.0			Exhaust Fan
	2	234	Exhaust air heat recovery units	79	79	0	5	74 H&K	25118864.32	2	50237728.63	77.0			Exhaust Fan
	3	234	Air Handling Units	75	75	0	5	70 H&K	10000000	4	40000000	76.0			HVAC
	4	234	Chiller	71	71	10	5	56 H&K	398107.1706	2	796214.3411	59.0			Chiller
	5	234	HHW Pump	81	81	10	5	66 FHWA	3981071.706	3	11943215.12	70.8			Pump
	6	234	CHW Pump	81	81	10	5	66 FHWA	3981071.706	3	11943215.12	70.8			Pump
(hypotenuse)															
										dB Combined	85.6	50 feet			
											-12.9	220 feet	reduction		
											72.8	220 feet	noise level (combined)		
Residential 5															
1	234	HVAC	75	Exterior	0	5	70 H&K	10000000	205	2050000000	93.1			HVAC	
2	234	Exhaust Fans	79	Exterior	0	5	74 FHWA	25118864.32	2	50237728.63	77.0			Exhaust Fan	
										dB Combined	93.2	50 feet			
											-12.9	220 feet	reduction		
											80.4	220 feet	noise level (combined)		
										dB Combined	93.9	50 feet			
											-12.9	220 feet	reduction		
											81.1	220 feet	noise level (combined)		
Grocery Store															
Blocked Line of Site - do not evaluate.															

Generator Noise Modeling

TANFORAN MASTER PLAN | MAX LAB A

CONCEPTUAL GENERATOR LOCATIONS

OFFICE / R&D

	FAR	AREA (GSF)*
BLDG 1	0.13	247,000
BLDG 2	0.11	211,000
BLDG 3	0.14	266,000
BLDG 4	0.10	193,600
BLDG 5	0.09	164,560
BLDG 6	0.10	197,580
BLDG 7	0.12	221,920
BLDG 8	0.12	221,920
FIELD HOUSE 1 (AMENITY)	0.02	35,000
FIELD HOUSE 2 (AMENITY)	0.01	20,000
FIELD HOUSE 3 (AMENITY)	0.01	14,000
TOTAL	0.94	1,792,580

*NOTE: AREA SUBTRACTS 16% OF TOP FLOOR AREA OF EACH BLDG. FOR MEP

RETAIL

	FAR	AREA (GSF)
TARGET	0.10	189,571
CINEMA	0.04	81,500
IN-LINE	0.06	106,250
TOTAL	0.20	377,321

RESIDENTIAL

UNIT MIX	DU	DU	AC	DU/AC	FAR	AREA (GSF)**
RESI 1		630	3.13	201	0.33	640,000
STUDIO (25%)	158					
1-BED (50%)	315					
2-BED+ (25%)	158					
RESI 2		194	1.76	110	0.12	221,000
STUDIO (25%)	49					
1-BED (50%)	97					
2-BED+ (25%)	49					
RESI 3		190	1.42	134	0.10	189,000
STUDIO (25%)	48					
1-BED (50%)	95					
2-BED+ (25%)	48					
TOTAL		1,014	6.32		0.55	1,050,000

TOTAL PROJECT

FAR	AREA (GSF)**
1.68	3,219,901

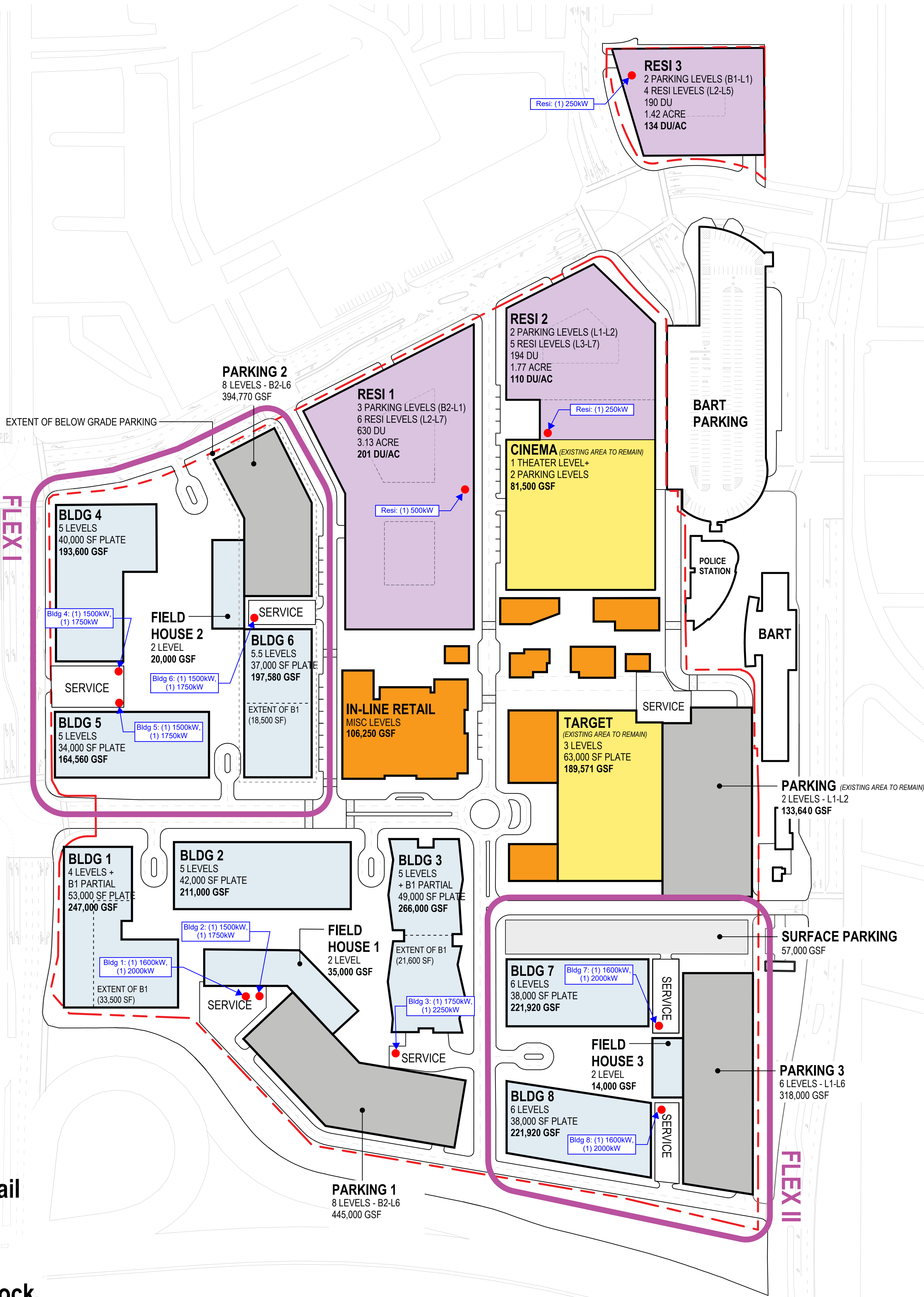
BIKE STALLS & LOCATION
per Table 12.100-3 San Bruno Muni Code

LONG Class I	SHORT Class II	LOCATION (ANTICIPATED)
1 per 10k sf	1 per 20k sf	
25	12	SW PARCEL
21	11	SW PARCEL
27	13	SW PARCEL
19	10	FLEX I
16	8	FLEX I
20	10	FLEX I
22	11	FLEX II
22	11	FLEX II
4	2	SW PARCEL
2	1	FLEX I
1	1	FLEX II
179	90	

1 per 12k sf	1 per 5k sf	
16	38	TARGET
7	16	CINEMA
9	21	RETAIL DIST.
31	75	

1 per 4 DU	1 per 15 DU	
158	42	RESI 1
49	13	RESI 2
48	13	RESI 3
254	68	

- Office
- Retail
- Legacy Retail
- Residential
- Parking
- Flex Use Block



TANFORAN MASTER PLAN | MAX MIXED USE

CONCEPTUAL GENERATOR LOCATIONS

OFFICE / R&D

	FAR	AREA (GSF)**
BLDG 1	0.13	247,000
BLDG 2	0.11	211,000
BLDG 3	0.14	266,000
BLDG 4	0.13	258,180
BLDG 5	0.10	191,820
FIELD HOUSE 1 (AMENITY)	0.02	35,000
AMENITY	0.01	20,000
TOTAL	0.64	1,229,000

*NOTE: AREA SUBTRACTS 16% OF TOP FLOOR AREA OF EACH BLDG. FOR MEP

RETAIL

	FAR	AREA (GSF)
TARGET	0.10	189,571
CINEMA	0.04	81,500
IN-LINE	0.06	106,250
FLEX AREA RETAIL	0.05	100,000
GROCER		35,000
GROCER		25,000
RESI 3 IN-LINE		23,674
RESI 4 IN-LINE		16,326
TOTAL	0.25	477,321

RESIDENTIAL

	UNIT MIX	DU	DU	AC	DU/AC	FAR	AREA (GSF)**
RESI 1			630	3.13	201	0.33	640,000
	STUDIO (25%)	158					
	1-BED (50%)	315					
	2-BED+ (25%)	158					
RESI 2			194	1.76	110	0.12	221,000
	STUDIO (25%)	49					
	1-BED (50%)	97					
	2-BED+ (25%)	49					
RESI 3			190	1.42	134	0.10	189,000
	STUDIO (25%)	48					
	1-BED (50%)	95					
	2-BED+ (25%)	48					
RESI 4			296	1.28	231	0.14	275,000
	STUDIO (25%)	74					
	1-BED (50%)	148					
	2-BED+ (25%)	74					
RESI 5			204	1.03	198	0.12	225,000
	STUDIO (25%)	51					
	1-BED (50%)	102					
	2-BED+ (25%)	51					
TOTAL		1,514		8.63		0.81	1,550,000

HOTEL

	KEYS	FAR	AREA (GSF)
TOTAL	170	0.07	125,000

TOTAL PROJECT

FAR	AREA (GSF)**
1.77	3,381,321

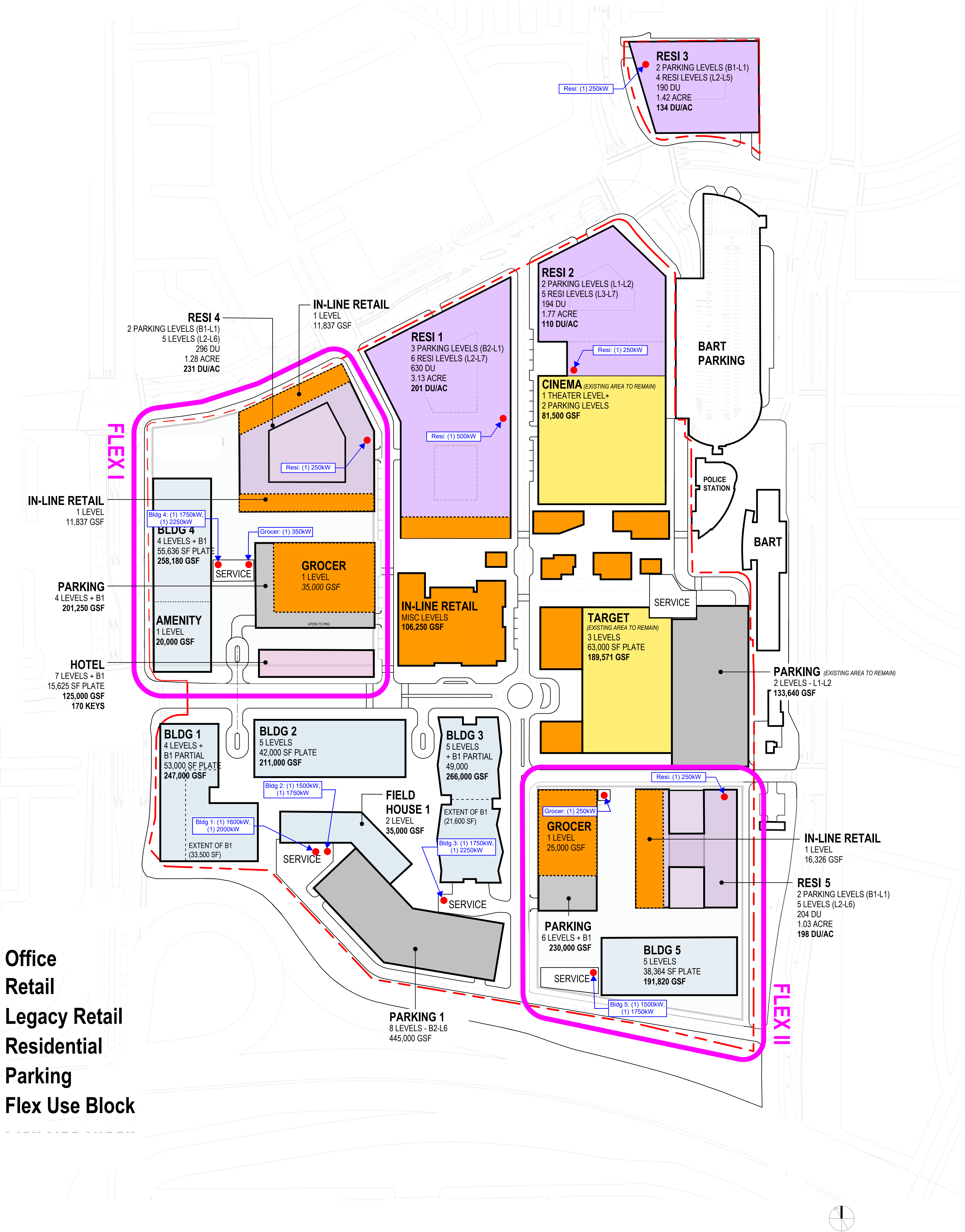
BIKE STALLS & LOCATION
per Table 12.100-3 San Bruno Muni Code

LONG Class I	SHORT Class II	LOCATION (ANTICIPATED)
1 per 10k sf	1 per 20k sf	
25	12	SW PARCEL
21	11	SW PARCEL
27	13	SW PARCEL
26	13	FLEX I
19	10	FLEX II
4	2	SW PARCEL
2	1	FLEX I
123	61	

1 per 12k sf	1 per 5k sf	
16	38	TARGET
7	16	CINEMA
9	21	
8	20	
2	5	FLEX I
2	5	FLEX II
1	3	FLEX I
1	3	FLEX II
40	95	

1 per 4 DU	1 per 15 DU	
158	42	RESI 1
49	13	RESI 2
48	13	RESI 3
74	20	FLEX I
51	14	FLEX II
379	101	

- Office
- Retail
- Legacy Retail
- Residential
- Parking
- Flex Use Block



Maximum Lab Buildout Scenario

Generator Location	Generator Size	Sound Pressure at 50 Feet (combined Engine & Exhaust)	Total Generator Noise per Building ¹	Nearest Receptor Distance ² (feet)	What is the closest Sensative Receptor?	Decibel Attenuation (dB)	Sound Pressure a nearest Receptor
Resi 1	500 kW	101.5	101.5	760	Homes east of Project Site	-23.6	77.9
Resi 2	250 kW	88.8	88.8	600	Homes east of Project Site	-21.6	67.2
Resi 3	250 kW	88.8	88.8	355	Sonesta ES Suites Hotel	-17.0	71.8
Building 1	1600 kW ³	105.6	106.3	730	Avalon Apartments	-23.3	82.3
	2000 kW	98.1		730	Avalon Apartments	-23.3	74.8
Building 2	1500 kW	105.6	106.2	755	Avalon Apartments	-23.6	82.0
	1750 kW	97.1		755	Avalon Apartments	-23.6	73.5
Building 3	1750 kW	97.1	101.2	670	Homes south of Project Site	-22.5	74.6
	2250 kW	99.1		670	Homes south of Project Site	-22.5	76.6
Building 4	1500 kW	105.6	106.2	590	Avalon Apartments	-21.4	84.2
	1750 kW	97.1		590	Avalon Apartments	-21.4	75.7
Building 5	1500 kW	105.6	106.2	555	Avalon Apartments	-20.9	84.7
	1750 kW	97.1		555	Avalon Apartments	-20.9	76.2
Building 6	1500 kW	105.6	106.2	870	Avalon Apartments	-24.8	80.8
	1750 kW	97.1		870	Avalon Apartments	-24.8	72.3
Building 7	1600 kW ³	105.6	106.3	380	Homes east of Project Site	-17.6	88.0
	2000 kW	98.1		380	Homes east of Project Site	-17.6	80.5
Building 8	1600 kW ³	105.6	106.3	375	Homes east of Project Site	-17.5	88.1
	2000 kW	98.1		375	Homes east of Project Site	-17.5	80.6

¹ This is the assumed unattenuated noise level at a distance of 50 feet that would occur during a power emergency; this combined noise level is not used in the assessment of emergency generator testing noise because generators are not proposed to be tested simultaneously

² based on a google earth overlay of available site plans, and measured to the nearest off-site receptor

³ Due to the lack of sound data for 1,600 kW generators, these generators are conservatively modeled using sound data for a 1,500 kW generator.

Maximum Mixed-Use Buildout Scenario

Generator Location	Generator Size	Sound Pressure at 50 Feet (combined Engine & Exhaust)	Total Generator Sound Pressure at 50 Feet per Building ¹	Nearest Receptor Distance ² (feet)	What is the closest Sensative Receptor?	Decibel Attenuation (dB)	Sound Pressure a nearest Receptor
Resi 1	500 kW	101.5	101.5	760	Homes east of Project Site	-23.6	77.9
Resi 2	250 kW	88.8	88.8	600	Homes east of Project Site	-21.6	67.2
Resi 3	250 kW	88.8	88.8	355	Sonesta ES Suites Hotel	-17.0	71.8
Resi 4	250 kW	88.8	88.8	1060	Avalon Apartments	-26.5	62.3
Resi 5	250 kW	88.8	88.8	260	Homes east of Project Site	-14.3	74.5
Building 1	1600 kW ³	105.6	106.3	730	Avalon Apartments	-23.3	82.3
	2000 kW	98.1		730	Avalon Apartments	-23.3	74.8
Building 2	1500 kW	105.6	106.2	755	Avalon Apartments	-23.6	82.0
	1750 kW	97.1		755	Avalon Apartments	-23.6	73.5
Building 3	1750 kW	97.1	101.2	670	Homes south of Project Site	-22.5	74.6
	2250 kW	99.1		670	Homes south of Project Site	-22.5	76.6
Building 4	1750 kW	97.1	101.2	630	Avalon Apartments	-22.0	75.1
	2250 kW	99.1		630	Avalon Apartments	-22.0	77.1
Building 5	1500 kW	105.6	106.2	510	Homes south of Project Site	-20.2	85.4
	1750 kW	97.1		510	Homes south of Project Site	-20.2	76.9
Flex Zone 1 Grocer	350 kW ⁴	101.5	101.5	690	Avalon Apartments	-22.8	78.7
Flex Zone 2 Grocer	250 kW	88.8	88.8	530	Homes east of Project Site	-20.5	68.3

¹ This is the assumed unattenuated noise level at a distance of 50 feet that would occur during a power emergency; this combined noise level is not used in the assessment of emergency generator testing noise because generators are not proposed to be tested simultaneously

² based on a google earth overlay of available site plans, and measured to the nearest off-site receptor

³ Due to the lack of sound data for 1,600 kW generators, these generators are conservatively modeled using sound data for a 1,500 kW generator.

⁴ Due to the lack of sound data for 350 kW generators, these generators are conservatively modeled using sound data for a 500 kW generator.

Sound Pressure Level @ 7 meters, dB(A)

See Notes 1-8 listed below

Configuration		Measurement Location Number								Average
		1	2	3	4	5	6	7	8	
Standard - Unhoused	Infinite Exhaust	88.2	91.6	91.3	92.2	89.1	91.6	88.1	91.4	90.7
F200 –Weather	Mounted Muffler	85.5	90.8	90.8	90.6	87.4	91.9	90	91.8	90.3
F201 - Quiet Site II First Stage	Mounted Muffler	90.4	89.3	81	77.5	77.8	76.4	80.9	90.3	86.3
F202 - Quiet Site II Second Stage	Mounted Muffler	70.1	71.4	69.5	71	74.4	72	68.7	71.3	71.4

Sound Power Level, dB(A)

See Notes 2-6, 9, 10 listed below

Configuration		Octave Band Center Frequency (Hz)								Overall Sound Power Level
		63	125	250	500	1000	2000	4000	8000	
Standard - Unhoused	Infinite Exhaust	83.8	95	105.8	109.8	112	111.8	111.1	108.3	118.1
F200 –Weather	Mounted Muffler	89.4	98.1	106.6	109.3	112.7	111.6	109.3	105.3	117.8
F201 - Quiet Site II First Stage	Mounted Muffler	99.7	105.7	107	107.2	108.8	107.5	103.4	96.1	114.9
F202 - Quiet Site II Second Stage	Mounted Muffler	78.4	87.3	92.8	93	93.7	94	91.9	86.4	100.6

Exhaust Sound Pressure Level @ 1 meter, dB(A)

Open Exhaust (No Muffler Rated Load)	Octave Band Center Frequency (Hz)								Sound Pressure Level
	63	125	250	500	1000	2000	4000	8000	
	79.2	90.9	99.9	102.7	109.4	110.9	111	110	

Note:

- Position 1 faces the engine front. The positions proceed around the generator set in a counter-clockwise direction in 45° increments. All positions are at 7m (23 ft) from the surface of the generator set and 1.2m (48") from floor level.
- Sound levels are subject to instrumentation, measurement, installation and manufacturing variability.
- Sound data with remote-cooled generator sets are based on rated loads without cooling fan noise.
- Sound levels for aluminum enclosures are approximately 2 dB(A)s higher than listed sound levels for steel enclosures.
- Sound data for generator set with infinite exhaust do not include exhaust noise.
- Data is based on full rated load with standard radiator-cooling fan package
- Sound Pressure Levels are measured per ANSI S1.13 and ANSI S12.18, as applicable.
- Reference sound pressure is 20 µPa.
- Sound Power Levels per ISO 3744 and ISO 8528-10, as applicable.
- Reference power = 1 pw (10⁻¹² W)
- Exhaust Sound Pressure Levels are per ISO 6798, as applicable.



Sound data

500DFEK

60Hz Diesel

Sound pressure level @ 7 meters, dB(A)

See notes 1-8 listed below

Configuration		Measurement location number								Average
		1	2	3	4	5	6	7	8	
Standard – unhoused	Infinite exhaust	89	92	92	91	88	91	91	93	91
F183 – residential muffler	Mounted muffler	88	90	90	89	88	88	88	90	89
F200 – weather	Mounted muffler	91	90	85	88	89	88	85	91	89
F201 – quiet site II first stage	Mounted muffler	90	89	84	83	79	81	83	90	87
F202 – quiet site II second stage	Mounted muffler	71	73	71	72	73	74	74	73	73

Sound power level, dB(A)

See notes 2-6, 9, 10 listed below

Configuration		Octave band center frequency (Hz)								Overall sound power level
		63	125	250	500	1000	2000	4000	8000	
Standard – unhoused (note 3)	Infinite exhaust	82	98	104	109	112	113	111	113	119
F183 – residential muffler	Mounted muffler	105	114	115	111	108	108	102	101	119
F200 – weather	Mounted muffler	101	108	106	110	112	111	107	102	118
F201 – quiet site II first stage	Mounted muffler	101	108	105	108	111	109	106	99	116
F202 – quiet site II second stage	Mounted muffler	84	93	93	96	98	99	96	89	104

Exhaust sound power level, dB(A)

Open exhaust (no muffler) @ rated load	Octave band center frequency (Hz)								Overall sound power level
	63	125	250	500	1000	2000	4000	8000	
	103	119	125	123	125	126	127	121	133

Note:

- Position 1 faces the engine front. The positions proceed around the generator set in a counter-clockwise direction in 45° increments. All positions are at 7 m (23 ft) from the surface of the generator set and 1.2 m (48 in.) from floor level.
- Sound levels are subject to instrumentation, measurement, installation and manufacturing variability.
- Sound data with remote-cooled generator sets are based on rated loads without cooling fan noise.
- Sound levels for aluminum enclosures are approximately 2 dB(A)s higher than listed sound levels for steel enclosures.
- Sound data for generator set with infinite exhaust do not include exhaust noise.
- Data is based on full rated load with standard radiator-cooling fan package.
- Sound pressure levels are measured per ANSI S1.13 and ANSI S12.18, as applicable.
- Reference sound pressure is 20 µPa.
- Sound power levels per ISO 3744 and ISO 8528-10, as applicable.
- Reference power = 1 pw (10⁻¹² W).
- Exhaust sound power levels are per ISO 6798, as applicable.



Sound pressure level @ 7 meters, dB(A)

See notes 1-8 listed below

Configuration		Measurement location number								Average
		1	2	3	4	5	6	7	8	
Standard - unhooded	Infinite exhaust	100.0	96.4	95.1	96.6	93.2	95.5	93.5	98.1	96.6

Sound power level, dB(A)

See notes 2-6, 9, 10 listed below

Configuration		Octave band center frequency (Hz)								Overall sound power level
		63	125	250	500	1000	2000	4000	8000	
Standard - unhooded	Infinite exhaust	82.4	101.0	119.3	119.4	117.6	114.5	109.3	107.5	124.4

Exhaust sound power level, dB(A)

Open exhaust (No muffler rated load)	Octave band center frequency (Hz)								Sound power level
	63	125	250	500	1000	2000	4000	8000	
	93.7	117.5	120.2	126.3	124.1	126.4	125.2	123.9	133.1

Note:

- Position 1 faces the engine front. The positions proceed around the generator set in a counter-clockwise direction in 45° increments. All positions are at 7 m (23 ft) from the surface of the generator set and 1.2 m (48") from floor level.
- Sound levels are subject to instrumentation, measurement, installation and manufacturing variability.
- Sound data with remote-cooled generator sets are based on rated loads without cooling fan noise.
- Sound levels for aluminum enclosures are approximately 2 dB(A)s higher than listed sound levels for steel enclosures.
- Sound data for generator set with infinite exhaust do not include exhaust noise.
- Data is based on full rated load with standard radiator-cooling fan package.
- Sound pressure levels are measured per ANSI S1.13 and ANSI S12.18, as applicable.
- Reference sound pressure is 20 µPa.
- Sound power levels per ISO 3744 and ISO 8528-10, as applicable.
- Reference power = 1 pw (10⁻¹² W).
- Exhaust sound pressure levels are per ISO 6798, as applicable.



Sound data

1500DQGAF

60 Hz

Sound pressure level @ 7 meters, dB(A)

See Notes 1-6 listed below

Configuration		Position (Note 1)								8 position average
		1	2	3	4	5	6	7	8	
Standard – Unhoused high ambient cooling system	Infinite exhaust	91	93	94	96	98	97	95	94	95
Standard – Unhoused enhanced high ambient cooling system	Infinite exhaust	94	94	94	95	95	94	95	94	94
Standard – Unhoused remote cooled	Infinite exhaust	88	90	92	89	91	90	92	91	90

Sound power level, dB(A)

See Notes 2-4, 7, 8 listed below

Configuration		Octave band center frequency (Hz)									Overall sound power level
		31.5	63	125	250	500	1000	2000	4000	8000	
Standard – Unhoused high ambient cooling system	Infinite exhaust	71	90	109	115	121	120	116	112	109	125
Standard – Unhoused enhanced high ambient cooling system	Infinite exhaust	69	85	104	114	118	117	114	110	108	122
Standard – Unhoused remote cooled	Infinite exhaust	66	83	100	107	113	113	112	107	107	119

Exhaust sound power level, dB(A)

See Notes 2, 9 listed below

Open exhaust (no muffler) @ rated load	Octave band center frequency (Hz)									Overall sound power level
	31.5	63	125	250	500	1000	2000	4000	8000	
	74	97	120	122	128	132	130	130	128	

Note:

- Position 1 faces the generator front per ISO 8528-10. The positions proceed around the generator set in a counter-clockwise direction in 45° increments. All positions are at 7 m (23 ft) from the surface of the generator set and 1.2 m (48") from floor level.
- Sound levels are subject to instrumentation, measurement, installation and manufacturing variability.
- Data based on full rated load. Sound data with remote-cooled generator sets are based on rated loads without cooling fan noise.
- Sound data for generator set with infinite exhaust do not include exhaust noise.
- Sound Pressure Levels are measured per ANSI S1.13 and ANSI S12.18, as applicable.
- Reference sound pressure is 20 µPa.
- Sound power levels per ISO 3744 and ISO 8528-10, as applicable.
- Reference power = 1 pw (10^{-12} W)
- Exhaust sound power levels are per ISO 6798, as applicable.



Sound data

1750DQKAD 60 Hz

Sound pressure level @ 7 meters, dB(A)

See notes 1-6 listed below

Configuration		Position (note 1)								8 Position average
		1	2	3	4	5	6	7	8	
Standard – unhoused high ambient cooling system	Infinite exhaust	89	97	95	96	90	95	96	95	95
Standard – unhoused enhanced high ambient cooling system	Infinite exhaust	90	97	95	97	93	95	97	96	95
Standard – unhoused remote cooled	Infinite exhaust	88	96	93	95	87	93	94	94	93

Sound power level, dB(A)

See notes 2-4, 7, 8 listed below

Configuration		Octave band center frequency (Hz)									Overall sound power level
		31.5	63	125	250	500	1000	2000	4000	8000	
Standard – unhoused high ambient cooling system	Infinite exhaust	72	88	104	110	116	115	114	116	117	123
Standard – unhoused enhanced high ambient cooling system	Infinite exhaust	73	89	105	110	117	116	115	116	119	124
Standard – unhoused remote cooled	Infinite exhaust	70	87	102	106	113	114	113	116	115	122

Exhaust sound power level, dB(A)

See notes 2, 9 listed below

Open exhaust (no muffler) @ rated load	Octave band center frequency (Hz)									Overall sound power level
	31.5	63	125	250	500	1000	2000	4000	8000	
	84	107	115	116	121	119	122	122	105	

Note:

1. Position 1 faces the generator front per ISO 8528-10. The positions proceed around the generator set in a counter-clockwise direction in 45° increments. All positions are at 7 m (23 ft) from the surface of the generator set and 1.2 m (48") from floor level.
2. Sound levels are subject to instrumentation, measurement, installation and manufacturing variability.
3. Data based on full rated load. Sound data with remote-cooled generator sets are based on rated loads without cooling fan noise.
4. Sound data for generator set with infinite exhaust do not include exhaust noise.
5. Sound pressure levels are measured per ANSI S1.13 and ANSI S12.18, as applicable.
6. Reference sound pressure is 20 µPa.
7. Sound power levels per ISO 3744 and ISO 8528-10, as applicable.
8. Reference power = 1 pw (10⁻¹² W).
9. Exhaust sound power levels are per ISO 6798, as applicable.



Sound pressure level @ 7 meters, dB(A)

See notes 1-6 listed below

Configuration		Position (note 1)								8 Position average
		1	2	3	4	5	6	7	8	
Standard – unhoused high ambient cooling system	Infinite exhaust	90	98	97	98	91	97	98	97	97
Standard – unhoused enhanced high ambient cooling system	Infinite exhaust	91	98	97	98	94	96	98	97	97
Standard – unhoused remote cooled	Infinite exhaust	89	98	96	97	88	95	96	96	95

Sound power level, dB(A)

See notes 2-4, 7, 8 listed below

Configuration		Octave band center frequency (Hz)									Overall sound power level
		31.5	63	125	250	500	1000	2000	4000	8000	
Standard – unhoused high ambient cooling system	Infinite exhaust	73	88	104	110	116	115	115	117	120	125
Standard – unhoused enhanced high ambient cooling system	Infinite exhaust	73	89	105	110	117	116	115	118	121	125
Standard – unhoused remote cooled	Infinite exhaust	70	87	103	106	113	114	114	117	118	123

Exhaust sound power level, dB(A)

See notes 2, 9 listed below

Open exhaust (no muffler) @ rated load	Octave band center frequency (Hz)									Overall sound power level
	31.5	63	125	250	500	1000	2000	4000	8000	
	85	109	116	118	121	120	122	122	109	

Note:

1. Position 1 faces the generator front per ISO 8528-10. The positions proceed around the generator set in a counter-clockwise direction in 45° increments. All positions are at 7 m (23 ft) from the surface of the generator set and 1.2 m (48") from floor level.
2. Sound levels are subject to instrumentation, measurement, installation and manufacturing variability.
3. Data based on full rated load. Sound data with remote-cooled generator sets are based on rated loads without cooling fan noise.
4. Sound data for generator set with infinite exhaust do not include exhaust noise.
5. Sound pressure levels are measured per ANSI S1.13 and ANSI S12.18, as applicable.
6. Reference sound pressure is 20 µPa.
7. Sound power levels per ISO 3744 and ISO 8528-10, as applicable.
8. Reference power = 1 pw (10⁻¹² W).
9. Exhaust sound power levels are per ISO 6798, as applicable.



Sound data

2250DQKAF 60 Hz

Sound pressure level @ 7 meters, dB(A)

See notes 1-6 listed below

Configuration		Position (note 1)								8 Position average
		1	2	3	4	5	6	7	8	
Standard – unhoused high ambient cooling system	Infinite exhaust	90	99	97	98	91	97	98	97	97
Standard – unhoused enhanced high ambient cooling system	Infinite exhaust	91	99	98	99	94	98	100	98	98
Standard – unhoused remote cooled	Infinite exhaust	89	98	96	98	88	96	97	96	96

Sound power level, dB(A)

See notes 2-4, 7, 8 listed below

Configuration		Octave band center frequency (Hz)									Overall sound power level
		31.5	63	125	250	500	1000	2000	4000	8000	
Standard – unhoused high ambient cooling system	Infinite exhaust	73	88	104	110	116	116	115	119	121	125
Standard – unhoused enhanced high ambient cooling system	Infinite exhaust	74	89	106	111	117	117	116	119	123	126
Standard – unhoused remote cooled	Infinite exhaust	70	86	103	106	113	115	115	119	119	124

Exhaust sound power level, dB(A)

See notes 2, 9 listed below

Open exhaust (no muffler) @ rated load	Octave band center frequency (Hz)									Overall sound power level
	31.5	63	125	250	500	1000	2000	4000	8000	
	85	109	117	119	122	120	122	122	115	

Note:

1. Position 1 faces the generator front per ISO 8528-10. The positions proceed around the generator set in a counter-clockwise direction in 45° increments. All positions are at 7 m (23 ft) from the surface of the generator set and 1.2 m (48") from floor level.
2. Sound levels are subject to instrumentation, measurement, installation and manufacturing variability.
3. Data based on full rated load. Sound data with remote-cooled generator sets are based on rated loads without cooling fan noise.
4. Sound data for generator set with infinite exhaust do not include exhaust noise.
5. Sound pressure levels are measured per ANSI S1.13 and ANSI S12.18, as applicable.
6. Reference sound pressure is 20 µPa.
7. Sound power levels per ISO 3744 and ISO 8528-10, as applicable.
8. Reference power = 1 pw (10⁻¹² W).
9. Exhaust sound power levels are per ISO 6798, as applicable.

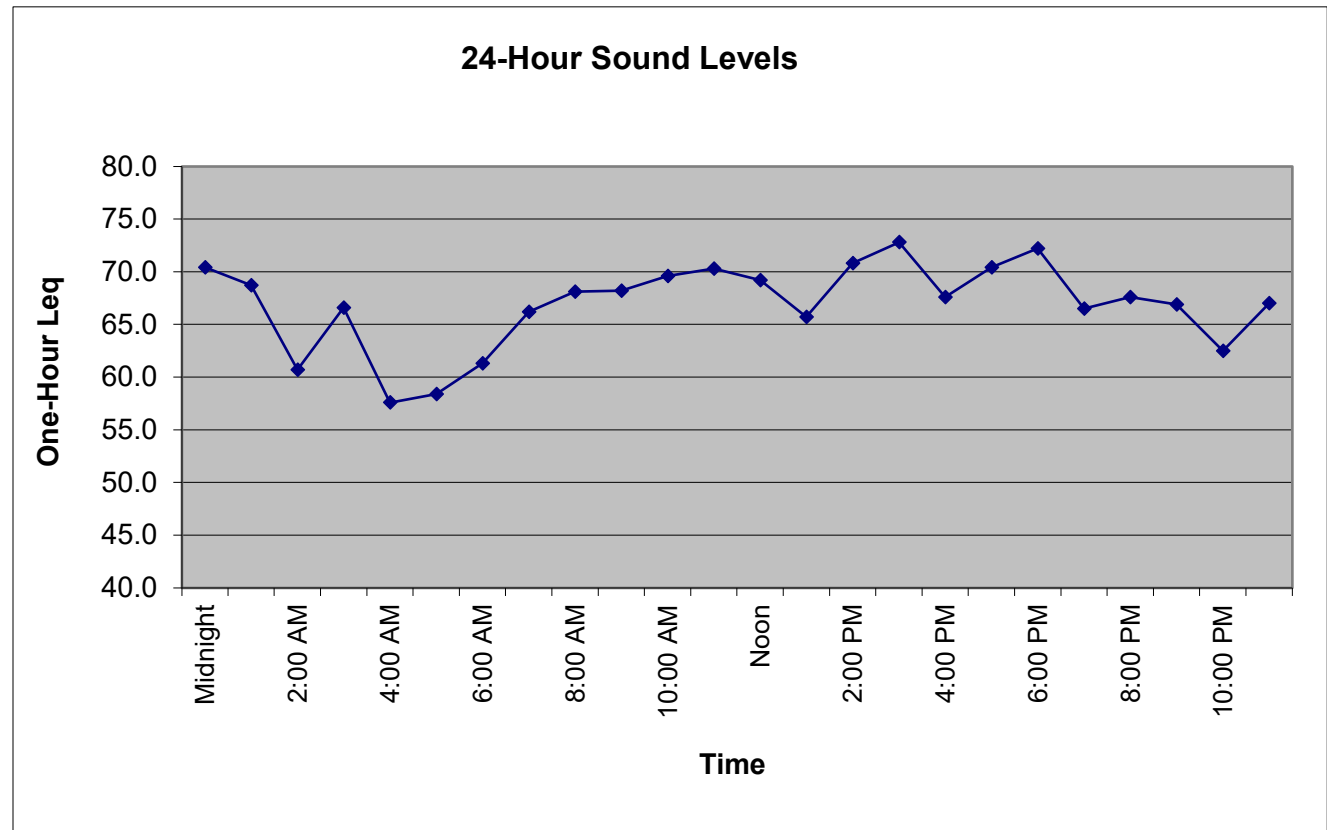
Noise Field Work Appendix
Long Term Measurement Data

Ldn/CNEL Calculation Spreadsheet

Project:	Tanforan, San Bruno			Date:	7/24/2024	Analyst:	Schumaker, N		
Location:	LT-1								
	Wednesday				Worst Hour	Ldn minus	CNEL minus		
Time	7/24/2024	Leq(24)	Ldn	CNEL	Leq	Worst Hour Leq	Ldn	Day	
Midnight	70.4	68.3	72.9	73.2	72.8	0.1	0.3	Evening	
1:00 AM	68.7		6.7	7.0				Night	
2:00 AM	60.7								
3:00 AM	66.6								
4:00 AM	57.6								
5:00 AM	58.4								
6:00 AM	61.3								
7:00 AM	66.2								
8:00 AM	68.1								
9:00 AM	68.2								
10:00 AM	69.6								
11:00 AM	70.3								
Noon	69.2								
1:00 PM	65.7								
2:00 PM	70.8								
3:00 PM	72.8								
4:00 PM	67.6								
5:00 PM	70.4								
6:00 PM	72.2								
7:00 PM	66.5								
8:00 PM	67.6								
9:00 PM	66.9								
10:00 PM	62.5								
11:00 PM	67.0								

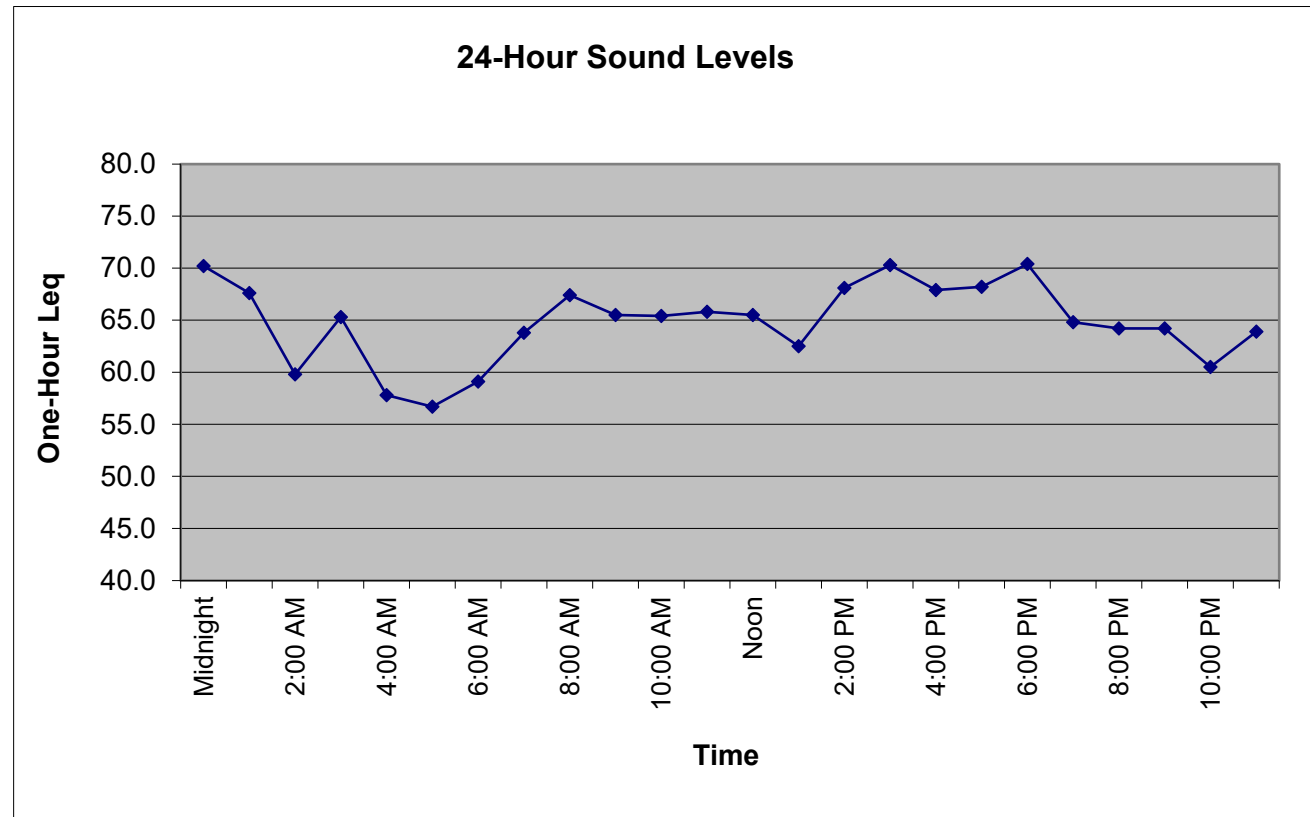
24-Hour Sound Levels

Time	One-Hour Leq
Midnight	70.4
1:00 AM	68.7
2:00 AM	60.7
3:00 AM	66.6
4:00 AM	57.6
5:00 AM	58.4
6:00 AM	61.3
7:00 AM	66.2
8:00 AM	68.1
9:00 AM	68.2
10:00 AM	69.6
11:00 AM	70.3
Noon	69.2
1:00 PM	65.7
2:00 PM	70.8
3:00 PM	72.8
4:00 PM	67.6
5:00 PM	70.4
6:00 PM	72.2
7:00 PM	66.5
8:00 PM	67.6
9:00 PM	66.9
10:00 PM	62.5
11:00 PM	67.0



Ldn/CNEL Calculation Spreadsheet

Project:	Tanforan, San Bruno		Date:	7/24/2024	Analyst:	Schumaker, N	
Location:	LT-2						
	Wednesday						
	7/24/2024						
Time		Leq(24)	Ldn	CNEL	Worst Hour Leq	Ldn minus Worst Hour Leq	CNEL minus Ldn
Midnight	70.2	66.2	71.4	71.7	70.4	1.0	0.2
1:00 AM	67.6		7.6	7.9			
2:00 AM	59.8						
3:00 AM	65.3						
4:00 AM	57.8						
5:00 AM	56.7						
6:00 AM	59.1						
7:00 AM	63.8						
8:00 AM	67.4						
9:00 AM	65.5						
10:00 AM	65.4						
11:00 AM	65.8						
Noon	65.5						
1:00 PM	62.5						
2:00 PM	68.1						
3:00 PM	70.3						
4:00 PM	67.9						
5:00 PM	68.2						
6:00 PM	70.4						
7:00 PM	64.8						
8:00 PM	64.2						
9:00 PM	64.2						
10:00 PM	60.5						
11:00 PM	63.9						



Ldn/CNEL Calculation Spreadsheet

Project:	Tanforan, San Bruno			Date:	7/24/2024	Analyst:	Schumaker, N		
Location:	LT-3								
	Wednesday								
	7/24/2024	Leq(24)	Ldn	CNEL	Worst Hour Leq	Ldn minus Worst Hour Leq	CNEL minus Ldn		
Time								Day	
Midnight	73.5	68.6	74.4	74.6	73.5	0.9	0.2	Evening	
1:00 AM	71.1		9.0	9.2				Night	
2:00 AM	63.5								
3:00 AM	69.0								
4:00 AM	59.2								
5:00 AM	57.2								
6:00 AM	59.0								
7:00 AM	65.4								
8:00 AM	69.5								
9:00 AM	68.1								
10:00 AM	67.5								
11:00 AM	68.1								
Noon	68.0								
1:00 PM	67.7								
2:00 PM	69.9								
3:00 PM	72.5								
4:00 PM	65.7								
5:00 PM	71.0								
6:00 PM	72.6								
7:00 PM	66.3								
8:00 PM	67.6								
9:00 PM	66.9								
10:00 PM	62.3								
11:00 PM	66.5								

24-Hour Sound Levels

One-Hour Leq

Time

80.0

75.0

70.0

65.0

60.0

55.0

50.0

45.0

40.0

Midnight

2:00 AM

4:00 AM

6:00 AM

8:00 AM

10:00 AM

Noon

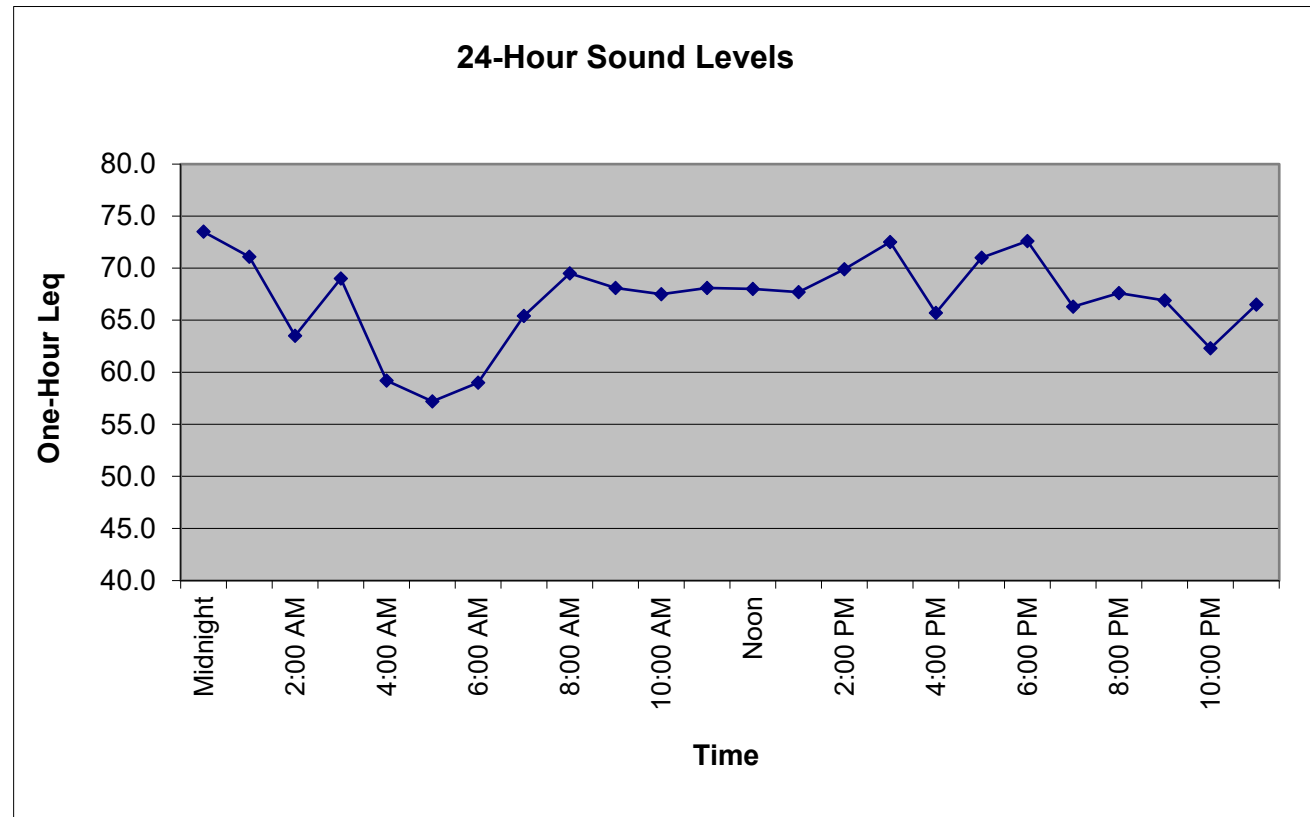
2:00 PM

4:00 PM

6:00 PM

8:00 PM

10:00 PM

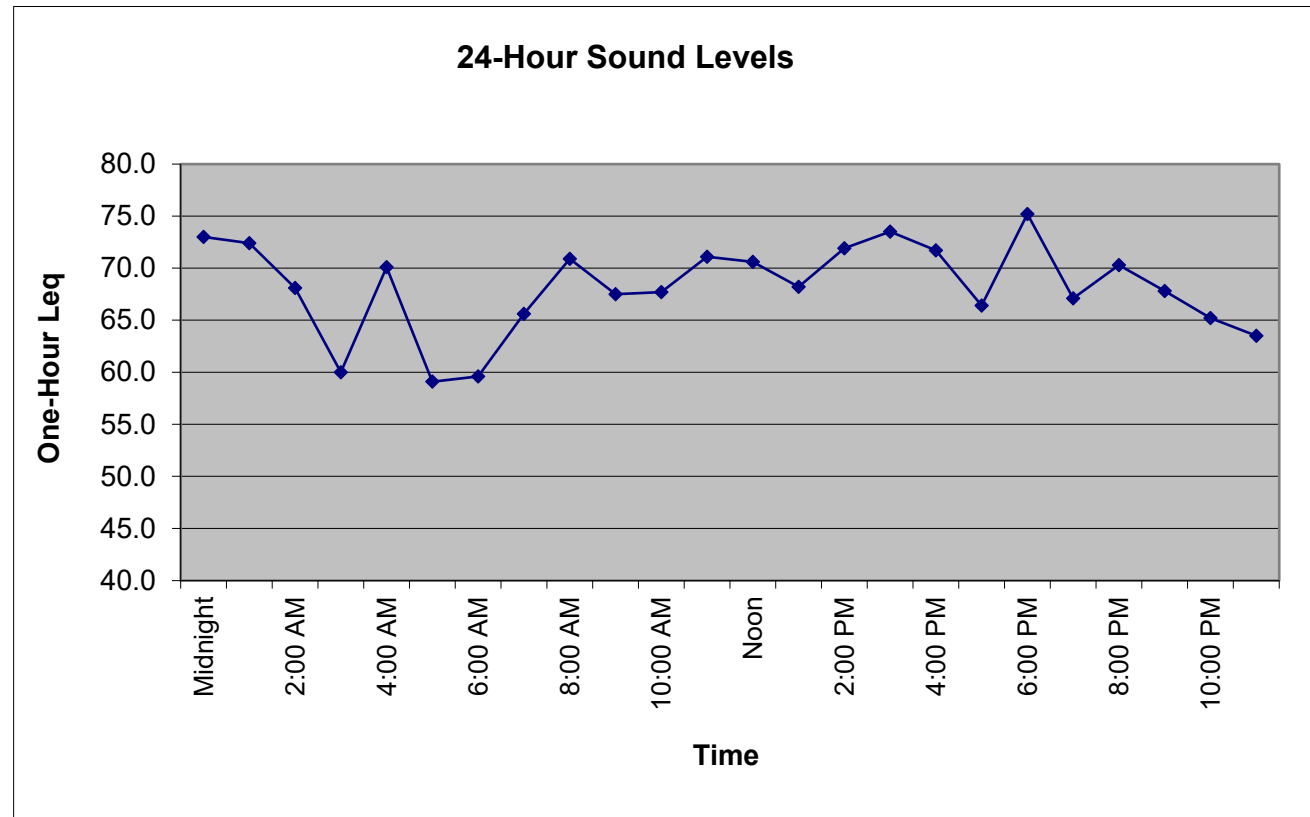


Ldn/CNEL Calculation Spreadsheet

Project:	Tanforan, San Bruno			Date:	7/24/2024	Analyst:	Schumaker, N		
Location:	LT-4								
	Wednesday				Worst Hour	Ldn minus	CNEL minus		
Time	7/24/2024	Leq(24)	Ldn	CNEL	Leq	Worst Hour Leq	Ldn	Day	
Midnight	73.0	69.9	75.2	75.4	75.2	0.0	0.3	Evening	
1:00 AM	72.4		9.6	9.8				Night	
2:00 AM	68.1								
3:00 AM	60.0								
4:00 AM	70.1								
5:00 AM	59.1								
6:00 AM	59.6								
7:00 AM	65.6								
8:00 AM	70.9								
9:00 AM	67.5								
10:00 AM	67.7								
11:00 AM	71.1								
Noon	70.6								
1:00 PM	68.2								
2:00 PM	71.9								
3:00 PM	73.5								
4:00 PM	71.7								
5:00 PM	66.4								
6:00 PM	75.2								
7:00 PM	67.1								
8:00 PM	70.3								
9:00 PM	67.8								
10:00 PM	65.2								
11:00 PM	63.5								

24-Hour Sound Levels

Time	One-Hour Leq
Midnight	73.0
1:00 AM	72.4
2:00 AM	68.1
3:00 AM	60.0
4:00 AM	70.1
5:00 AM	59.1
6:00 AM	59.6
7:00 AM	65.6
8:00 AM	70.9
9:00 AM	67.5
10:00 AM	67.7
11:00 AM	71.1
Noon	70.6
1:00 PM	68.2
2:00 PM	71.9
3:00 PM	73.5
4:00 PM	71.7
5:00 PM	66.4
6:00 PM	75.2
7:00 PM	67.1
8:00 PM	70.3
9:00 PM	67.8
10:00 PM	65.2
11:00 PM	63.5



Ldn/CNEL Calculation Spreadsheet

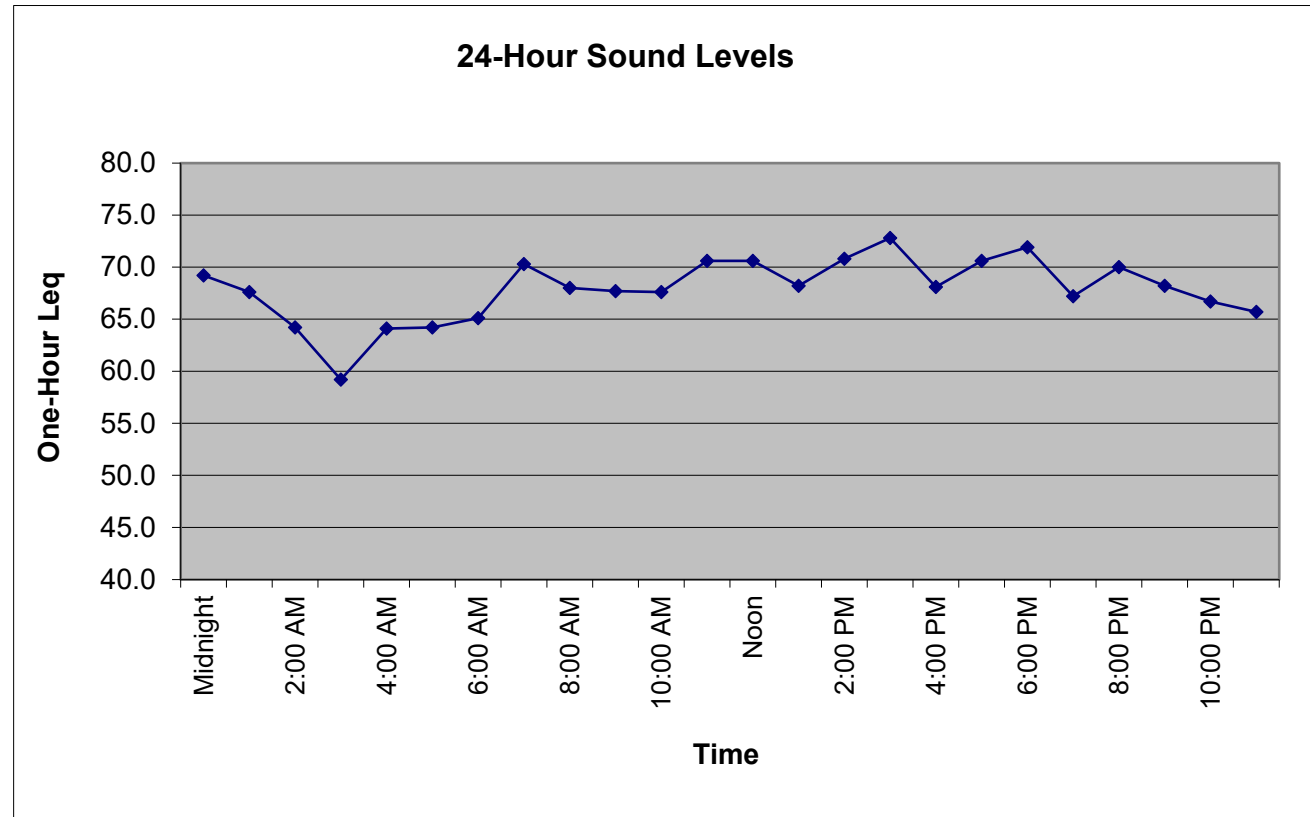
Project:	Tanforan, San Bruno			Date:	7/24/2024	Analyst:	Schumaker, N		
Location:	LT-5								
	Wednesday								
	7/24/2024	Leq(24)	Ldn	CNEL	Worst Hour Leq	Ldn minus Worst Hour Leq	CNEL minus Ldn		
Time								Day	
Midnight	69.2	68.7	73.1	73.5	72.8	0.3	0.4	Evening	
1:00 AM	67.6		2.8	3.2				Night	
2:00 AM	64.2								
3:00 AM	59.2								
4:00 AM	64.1								
5:00 AM	64.2								
6:00 AM	65.1								
7:00 AM	70.3								
8:00 AM	68.0								
9:00 AM	67.7								
10:00 AM	67.6								
11:00 AM	70.6								
Noon	70.6								
1:00 PM	68.2								
2:00 PM	70.8								
3:00 PM	72.8								
4:00 PM	68.1								
5:00 PM	70.6								
6:00 PM	71.9								
7:00 PM	67.2								
8:00 PM	70.0								
9:00 PM	68.2								
10:00 PM	66.7								
11:00 PM	65.7								

24-Hour Sound Levels

One-Hour Leq

Time

Time	One-Hour Leq
Midnight	69.2
1:00 AM	67.6
2:00 AM	64.2
3:00 AM	59.2
4:00 AM	64.1
5:00 AM	64.2
6:00 AM	65.1
7:00 AM	70.3
8:00 AM	68.0
9:00 AM	67.7
10:00 AM	67.6
11:00 AM	70.6
Noon	70.6
1:00 PM	68.2
2:00 PM	70.8
3:00 PM	72.8
4:00 PM	68.1
5:00 PM	70.6
6:00 PM	71.9
7:00 PM	67.2
8:00 PM	70.0
9:00 PM	68.2
10:00 PM	66.7
11:00 PM	65.7

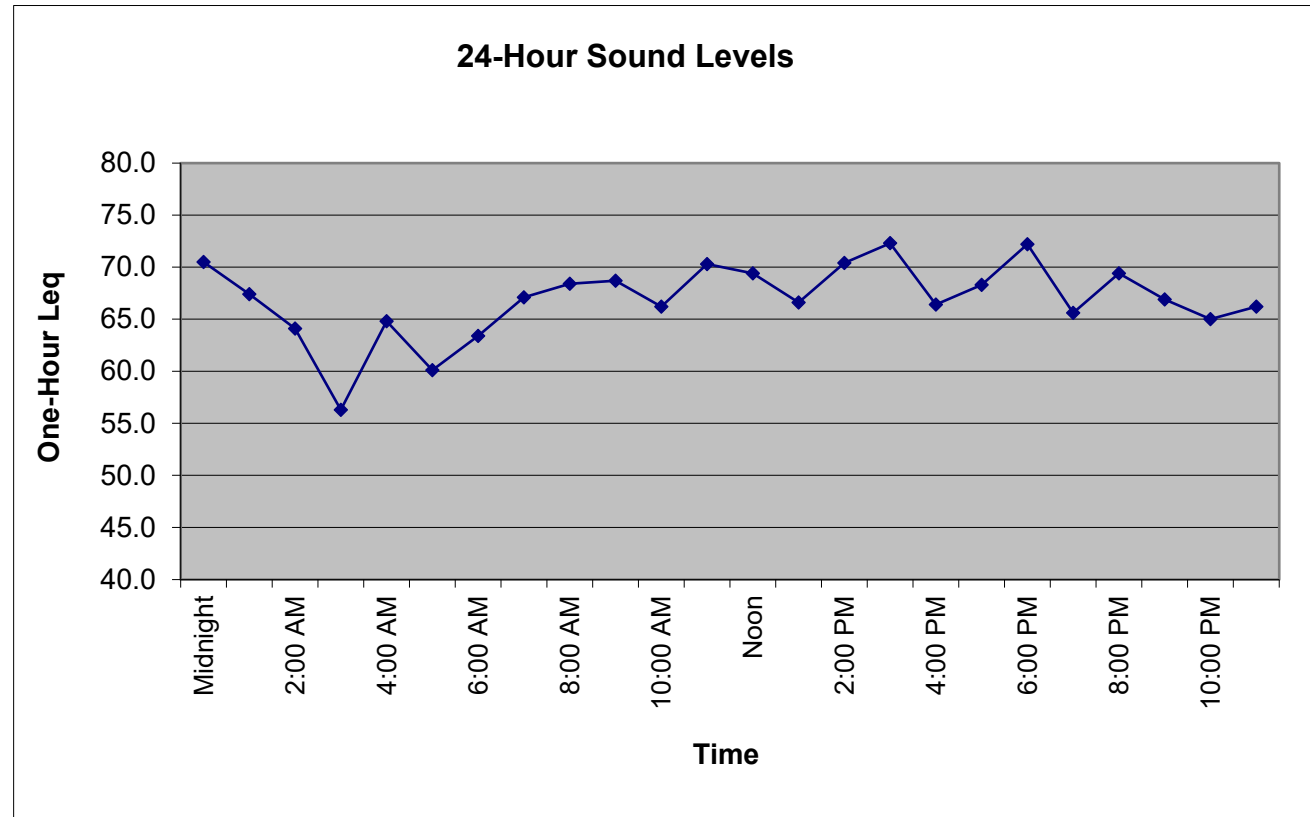


Ldn/CNEL Calculation Spreadsheet

Project:	Tanforan, San Bruno			Date:	7/24/2024	Analyst:	Schumaker, N		
Location:	LT-6								
	Wednesday				Worst Hour	Ldn minus	CNEL minus		
Time	7/24/2024	Leq(24)	Ldn	CNEL	Leq	Worst Hour Leq	Ldn	Day	
Midnight	70.5	68.1	72.8	73.1	72.3	0.5	0.3	Evening	
1:00 AM	67.4		5.7	6.0				Night	
2:00 AM	64.1								
3:00 AM	56.3								
4:00 AM	64.8								
5:00 AM	60.1								
6:00 AM	63.4								
7:00 AM	67.1								
8:00 AM	68.4								
9:00 AM	68.7								
10:00 AM	66.2								
11:00 AM	70.3								
Noon	69.4								
1:00 PM	66.6								
2:00 PM	70.4								
3:00 PM	72.3								
4:00 PM	66.4								
5:00 PM	68.3								
6:00 PM	72.2								
7:00 PM	65.6								
8:00 PM	69.4								
9:00 PM	66.9								
10:00 PM	65.0								
11:00 PM	66.2								

24-Hour Sound Levels

Time	One-Hour Leq
Midnight	70.5
1:00 AM	67.4
2:00 AM	64.1
3:00 AM	56.3
4:00 AM	64.8
5:00 AM	60.1
6:00 AM	63.4
7:00 AM	67.1
8:00 AM	68.4
9:00 AM	68.7
10:00 AM	66.2
11:00 AM	70.3
Noon	69.4
1:00 PM	66.6
2:00 PM	70.4
3:00 PM	72.3
4:00 PM	66.4
5:00 PM	68.3
6:00 PM	72.2
7:00 PM	65.6
8:00 PM	69.4
9:00 PM	66.9
10:00 PM	65.0
11:00 PM	66.2



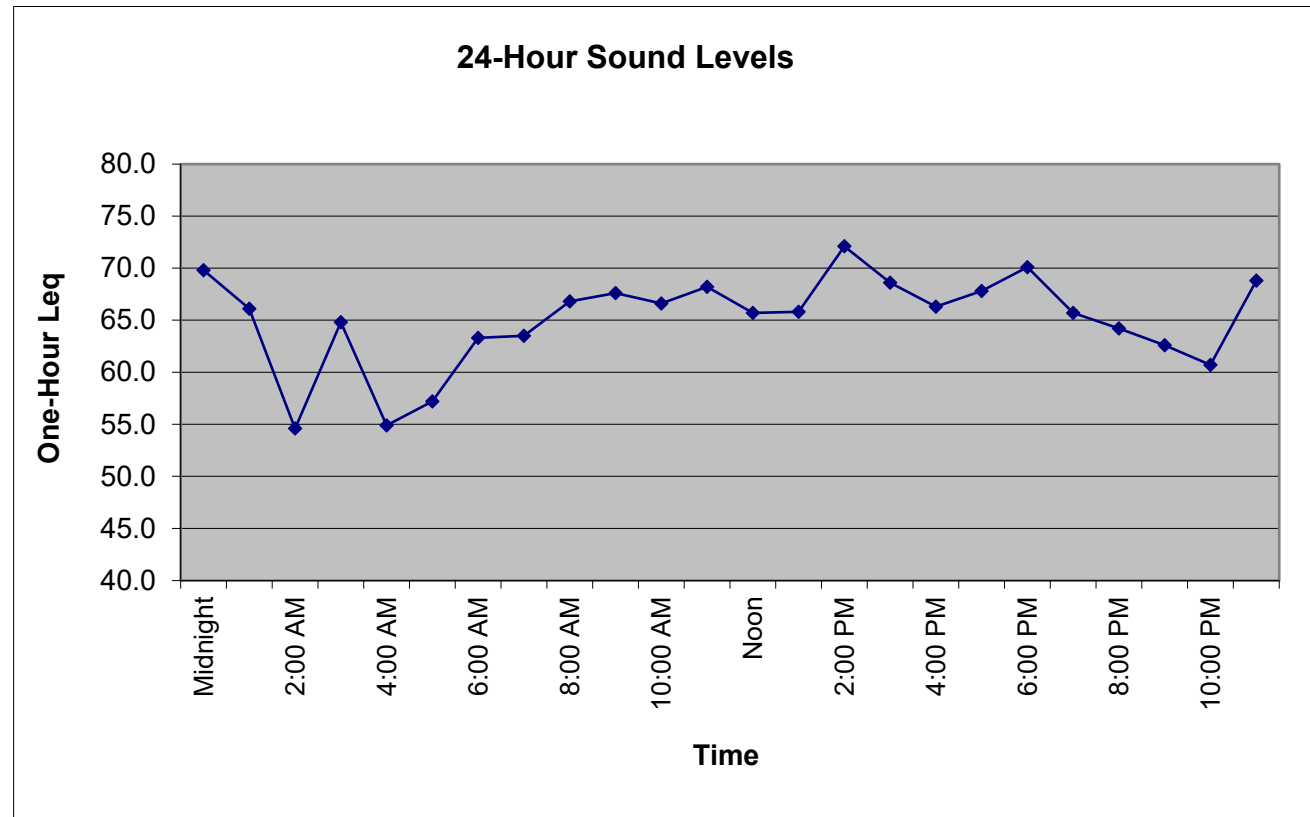
Ldn/CNEL Calculation Spreadsheet

Project:	Tanforan, San Bruno			Date:	7/24/2024	Analyst:	Schumaker, N		
Location:	LT-7								
	Wednesday				Worst Hour	Ldn minus	CNEL minus		
Time	7/24/2024	Leq(24)	Ldn	CNEL	Leq	Worst Hour Leq	Ldn	Day	
Midnight	69.8	66.7	71.9	72.1	72.1	-0.2	0.2	Evening	
1:00 AM	66.1		8.4	8.6				Night	
2:00 AM	54.6								
3:00 AM	64.8								
4:00 AM	54.9								
5:00 AM	57.2								
6:00 AM	63.3								
7:00 AM	63.5								
8:00 AM	66.8								
9:00 AM	67.6								
10:00 AM	66.6								
11:00 AM	68.2								
Noon	65.7								
1:00 PM	65.8								
2:00 PM	72.1								
3:00 PM	68.6								
4:00 PM	66.3								
5:00 PM	67.8								
6:00 PM	70.1								
7:00 PM	65.7								
8:00 PM	64.2								
9:00 PM	62.6								
10:00 PM	60.7								
11:00 PM	68.8								

24-Hour Sound Levels

One-Hour Leq

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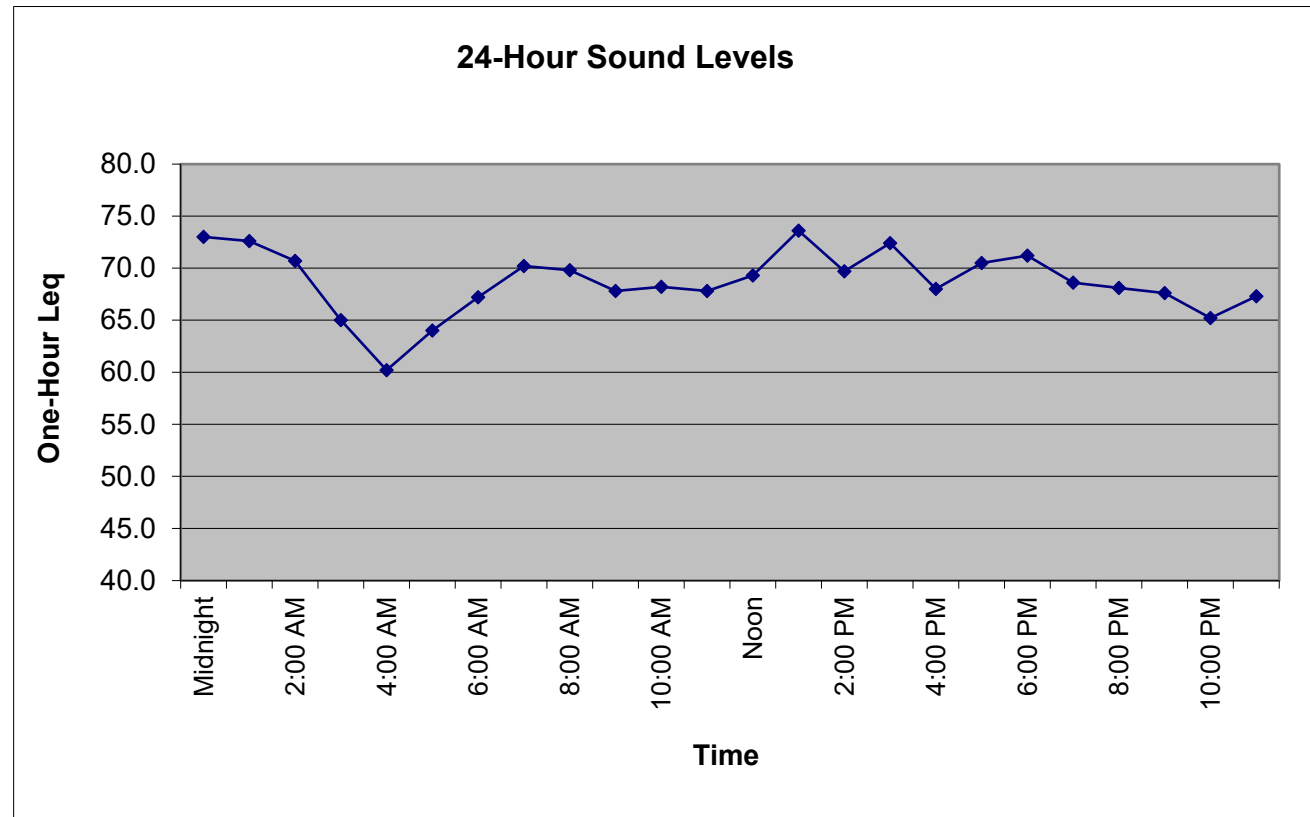
Ldn/CNEL Calculation Spreadsheet

Project:	Tanforan, San Bruno			Date:	7/24/2024	Analyst:	Schumaker, N		
Location:	LT-8								
	Wednesday				Worst Hour	Ldn minus	CNEL minus		
Time	7/24/2024	Leq(24)	Ldn	CNEL	Leq	Worst Hour Leq	Ldn	Day	
Midnight	73.0	69.6	75.5	75.7	73.6	1.9	0.2	Evening	
1:00 AM	72.6		5.3	5.5				Night	
2:00 AM	70.7								
3:00 AM	65.0								
4:00 AM	60.2								
5:00 AM	64.0								
6:00 AM	67.2								
7:00 AM	70.2								
8:00 AM	69.8								
9:00 AM	67.8								
10:00 AM	68.2								
11:00 AM	67.8								
Noon	69.3								
1:00 PM	73.6								
2:00 PM	69.7								
3:00 PM	72.4								
4:00 PM	68.0								
5:00 PM	70.5								
6:00 PM	71.2								
7:00 PM	68.6								
8:00 PM	68.1								
9:00 PM	67.6								
10:00 PM	65.2								
11:00 PM	67.3								

24-Hour Sound Levels

One-Hour Leq

<

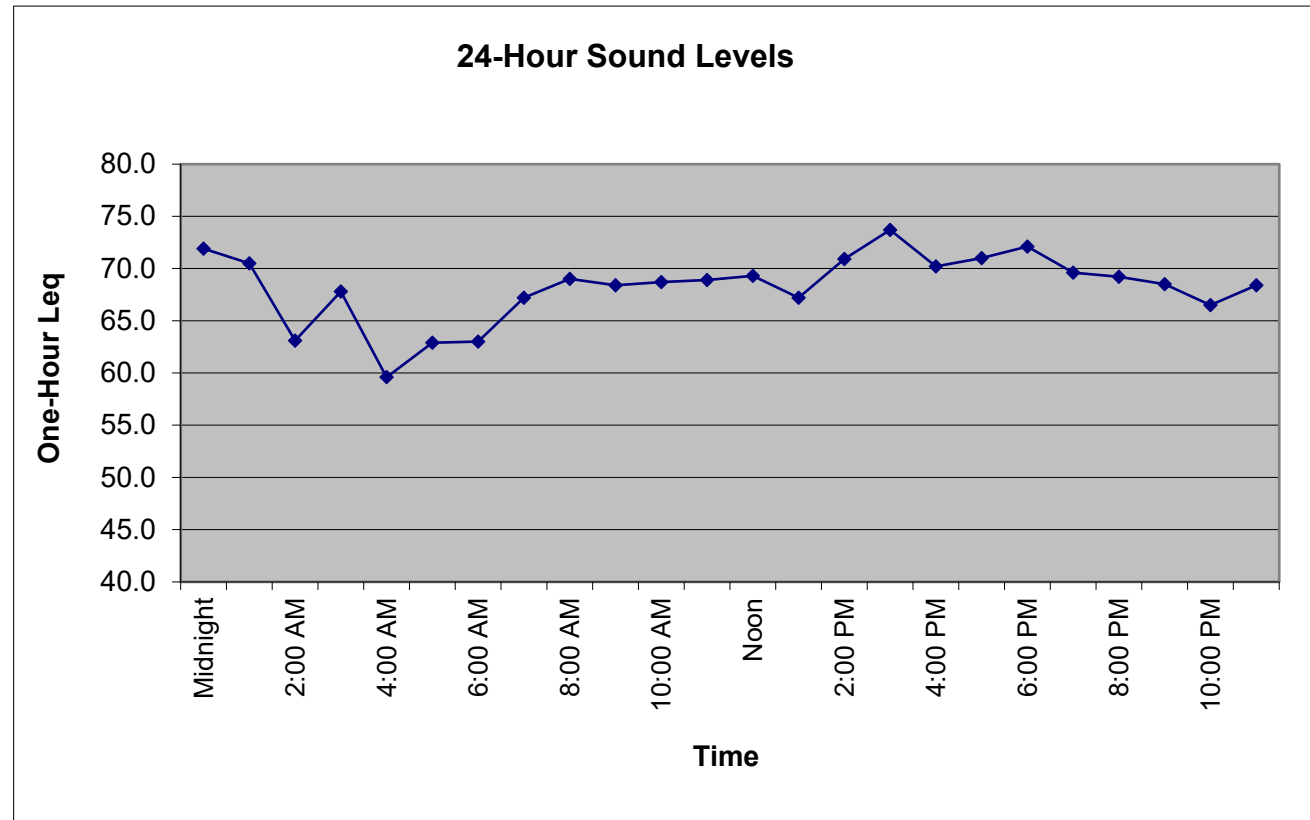


Ldn/CNEL Calculation Spreadsheet

Project:	Tanforan, San Bruno			Date:	7/24/2024	Analyst:	Schumaker, N		
Location:	LT-9								
	Wednesday								
Time	7/24/2024	Leq(24)	Ldn	CNEL	Worst Hour Leq	Ldn minus Worst Hour Leq	CNEL minus Ldn	Day	
Midnight	71.9	69.2	74.4	74.7	73.7	0.7	0.3	Evening	
1:00 AM	70.5		7.2	7.5				Night	
2:00 AM	63.1								
3:00 AM	67.8								
4:00 AM	59.6								
5:00 AM	62.9								
6:00 AM	63.0								
7:00 AM	67.2								
8:00 AM	69.0								
9:00 AM	68.4								
10:00 AM	68.7								
11:00 AM	68.9								
Noon	69.3								
1:00 PM	67.2								
2:00 PM	70.9								
3:00 PM	73.7								
4:00 PM	70.2								
5:00 PM	71.0								
6:00 PM	72.1								
7:00 PM	69.6								
8:00 PM	69.2								
9:00 PM	68.5								
10:00 PM	66.5								
11:00 PM	68.4								

24-Hour Sound Levels

Time	One-Hour Leq
Midnight	71.9
1:00 AM	70.5
2:00 AM	63.1
3:00 AM	67.8
4:00 AM	59.6
5:00 AM	62.9
6:00 AM	63.0
7:00 AM	67.2
8:00 AM	69.0
9:00 AM	68.4
10:00 AM	68.7
11:00 AM	68.9
Noon	69.3
1:00 PM	67.2
2:00 PM	70.9
3:00 PM	73.7
4:00 PM	70.2
5:00 PM	71.0
6:00 PM	72.1
7:00 PM	69.6
8:00 PM	69.2
9:00 PM	68.5
10:00 PM	66.5
11:00 PM	68.4



Start Date	Start Time	Duration	LAeq	LASmax	LASmin	LAS1%	LAS2%	LAS5%	LAS8%	LAS10%	LAS25%	LAS50%	LAS90%	LAS95%	LAS99%
7/24/2024	12:00:00 AM	1:00:00	70.4	93.4	50.1	86.1	80.2	66.7	62.3	61	57.3	55.1	52.2	51.8	51.2
7/24/2024	1:00:00 AM	1:00:00	68.7	92.2	49.1	83	74.3	62.4	59.5	58.5	55.2	53.4	51.5	50.9	50.3
7/24/2024	2:00:00 AM	1:00:00	60.7	83.5	49.1	73.7	65.9	61	59.1	58.1	54.4	52.3	50.7	50.3	49.9
7/24/2024	3:00:00 AM	1:00:00	66.6	94.3	50	66.6	64.5	61.8	60.2	59.4	55.8	53.4	51.6	51.2	50.7
7/24/2024	4:00:00 AM	1:00:00	57.6	78.3	50.2	66.6	64.4	61.7	60	59.3	55.8	53.8	52	51.6	51
7/24/2024	5:00:00 AM	1:00:00	58.4	70.5	52	66.6	65.6	63.6	62.3	61.7	58.8	56.8	54.2	53.6	52.7
7/24/2024	6:00:00 AM	1:00:00	61.3	80.8	54.3	68.5	67.3	65.9	65	64.5	61.8	59.2	56.5	56.1	55.3
7/24/2024	7:00:00 AM	1:00:00	66.2	88.4	53.6	77.1	71.6	67.4	66.3	65.9	63.2	60.1	56.9	56.3	55.3
7/24/2024	8:00:00 AM	1:00:00	68.1	94	51.8	73.9	68.7	66.7	65.9	65.5	63.6	60.6	56.2	55.3	53.7
7/24/2024	9:00:00 AM	1:00:00	68.2	91.4	52.7	83	75.7	67.9	66	65.3	62.6	59.7	55.9	55.1	54.1
7/24/2024	10:00:00 AM	1:00:00	69.6	93.9	52.7	83.5	78.4	68.7	66.7	65.8	62.6	59.8	56.4	55.6	54.3
7/24/2024	11:00:00 AM	1:00:00	70.3	93.1	53.5	84.4	76.2	67	65.5	65	62.5	60	56.9	56.2	55.1
7/24/2024	12:00:00 PM	1:00:00	69.2	91.2	54.9	83.8	78.1	68.8	66.8	66.1	63.3	60.7	57.6	56.9	56
7/24/2024	1:00:00 PM	1:00:00	65.7	89.7	54.3	72.4	69.9	67.1	65.9	65.3	63.2	60.9	57.9	57.2	56.1
7/24/2024	2:00:00 PM	1:00:00	70.8	92.5	55.4	85	80.6	71.5	68.6	67.5	64.5	62.1	59.3	58.6	57.6
7/24/2024	3:00:00 PM	1:00:00	72.8	94	57.2	87.4	81.9	73.2	70.4	69.3	65.9	63.2	60	59.5	58.5
7/24/2024	4:00:00 PM	1:00:00	67.6	90	57.7	77.2	73.9	70.8	69.4	68.7	66.2	63.7	60.5	59.9	58.9
7/24/2024	5:00:00 PM	1:00:00	70.4	92.5	56.9	84.7	78.3	70.1	68.2	67.6	65.3	63.2	60	59.4	58.4
7/24/2024	6:00:00 PM	1:00:00	72.2	93.3	56	86.3	82.1	72.8	69.4	68.4	65.1	62.7	59.4	58.7	57.4
7/24/2024	7:00:00 PM	1:00:00	66.5	88.2	56.7	79.2	73.9	68.2	66.8	66.2	63.9	61.9	59.5	58.9	57.9
7/24/2024	8:00:00 PM	1:00:00	67.6	90.2	55.7	80.5	73.9	67.5	65.7	65	62.1	60	57.7	57.2	56.6
7/24/2024	9:00:00 PM	1:00:00	66.9	90.7	53.7	79.6	71.2	65.8	64.3	63.6	61	59	56.5	56	55
7/24/2024	10:00:00 PM	1:00:00	62.5	87.8	53.2	69.3	65.9	63.6	62.6	62.1	59.6	57.6	55.4	55	54.5
7/24/2024	11:00:00 PM	1:00:00	67	91.1	52.6	80.2	73.1	65.9	64	63.2	60.3	57.8	54.9	54.3	53.5

Start Date	Start Time	Duration	LAeq	LASmax	LASmin	LAS1%	LAS2%	LAS5%	LAS8%	LAS10%	LAS25%	LAS50%	LAS90%	LAS95%	LAS99%
7/24/2024	12:00:00 AM	1:00:00	70.2	92.9	49.6	85.8	80.5	67.8	63	61.5	57.6	54.9	51.8	51.3	50.5
7/24/2024	1:00:00 AM	1:00:00	67.6	90.9	48.3	81.5	75.5	64.9	62.9	62.5	57.1	53.4	50.4	49.9	49.1
7/24/2024	2:00:00 AM	1:00:00	59.8	81.9	47.9	74.1	65.4	58.6	56.5	55.5	52.4	51.1	49.6	49.3	48.7
7/24/2024	3:00:00 AM	1:00:00	65.3	92.6	48.8	64.3	61.3	57.3	55.6	54.9	53	52	50.6	50.2	49.7
7/24/2024	4:00:00 AM	1:00:00	57.8	80.5	49.4	66.6	62.2	59	57.5	56.9	54.7	52.7	50.9	50.5	50.1
7/24/2024	5:00:00 AM	1:00:00	56.7	73.9	50.2	66.2	64.2	61.5	59.9	59.2	56.4	54.7	52.5	52	51.4
7/24/2024	6:00:00 AM	1:00:00	59.1	82.9	52.6	67.4	64.9	62.7	61.6	61.1	59.1	57	54.7	54.2	53.6
7/24/2024	7:00:00 AM	1:00:00	63.8	84.8	51.7	76.7	72.3	66.1	63.9	63.2	60.5	58	54.8	54.2	53.1
7/24/2024	8:00:00 AM	1:00:00	67.4	93.7	51.4	74.2	67.6	64.4	63.3	62.7	60.4	58.1	54.4	53.7	52.7
7/24/2024	9:00:00 AM	1:00:00	65.5	86.3	51.9	80	75.5	66.7	64.4	63.5	61	58.7	54.9	54.1	53.1
7/24/2024	10:00:00 AM	1:00:00	65.4	87.5	51.4	79.5	73.3	65.9	63.6	62.8	60.2	58	54.5	53.7	52.6
7/24/2024	11:00:00 AM	1:00:00	65.8	87.2	50.4	79.2	73	65.2	63.4	62.8	60.2	58.1	55.1	54.2	52.9
7/24/2024	12:00:00 PM	1:00:00	65.5	85.8	51.6	80.2	76.1	67.6	64.2	63.2	60.2	57.9	54.8	54.1	53
7/24/2024	1:00:00 PM	1:00:00	62.5	84.8	51.8	71.1	67.1	63.5	62.5	62	60.1	58.1	55.1	54.3	53
7/24/2024	2:00:00 PM	1:00:00	68.1	87.2	53.8	82.4	78.2	71.7	69.2	68.1	63.8	61	57.1	56.4	55.2
7/24/2024	3:00:00 PM	1:00:00	70.3	89.8	54	84.9	80.4	73.6	71.7	70.8	66.8	63.3	57.6	56.7	55.4
7/24/2024	4:00:00 PM	1:00:00	67.9	85.7	55.4	78	76.1	73.5	72	71.3	67.9	64.6	59.6	58.5	57.1
7/24/2024	5:00:00 PM	1:00:00	68.2	92.8	55.1	81.5	76.5	68.1	65.7	65	62.5	60.4	57.5	56.9	56.1
7/24/2024	6:00:00 PM	1:00:00	70.4	95.4	54.6	83.8	79.7	71.2	68	66.8	63.4	61	57.5	56.9	55.8
7/24/2024	7:00:00 PM	1:00:00	64.8	83.9	53	77	72.8	68.3	67.1	66.5	63.7	61.1	56.9	56	54.6
7/24/2024	8:00:00 PM	1:00:00	64.2	84.6	51.4	78.4	72.9	65.9	63.4	62.5	59.6	57.1	54.4	54	53.1
7/24/2024	9:00:00 PM	1:00:00	64.2	86.2	52.7	78	71.3	65.3	63.7	62.9	59.8	57.3	54.7	54.3	53.6
7/24/2024	10:00:00 PM	1:00:00	60.5	81.6	52	69.6	67.1	64.4	63.1	62.5	59.7	57	53.9	53.4	52.8
7/24/2024	11:00:00 PM	1:00:00	63.9	84.6	49.7	77.5	72.8	65.9	64.2	63.3	60	57	52.2	51.3	50.5

Start Date	Start Time	Duration	LAeq	LASmax	LASmin	LAS1%	LAS2%	LAS5%	LAS8%	LAS10%	LAS25%	LAS50%	LAS90%	LAS95%	LAS99%
7/24/2024	12:00:00 AM	1:00:00	73.5	97	50.4	88.9	82.5	69.9	65.7	64.2	59.3	56.2	52.4	51.9	51.2
7/24/2024	1:00:00 AM	1:00:00	71.1	95.4	48.5	85.3	77.4	65.6	61.5	60	55.6	53	51	50.5	49.9
7/24/2024	2:00:00 AM	1:00:00	63.5	87.2	47.5	76	65.8	58.1	55.9	55	52.4	50.9	49.4	49	48.4
7/24/2024	3:00:00 AM	1:00:00	69	98.8	49.3	64	61	58.5	57.3	56.6	54	52.6	51.2	50.9	50.4
7/24/2024	4:00:00 AM	1:00:00	59.2	85	49.2	62.6	56.7	54.9	54.4	54.1	53	52	50.7	50.4	50
7/24/2024	5:00:00 AM	1:00:00	57.2	76.1	50.8	68.7	64.8	61.4	59.8	59.1	56	54.5	52.7	52.4	51.8
7/24/2024	6:00:00 AM	1:00:00	59	76.8	51.9	69.3	66.2	63.1	61.7	61	58.2	56.5	54.2	53.8	53.1
7/24/2024	7:00:00 AM	1:00:00	65.4	88.3	50.9	79.8	73.2	66.5	64	63	59.4	56.4	53.2	52.7	52.1
7/24/2024	8:00:00 AM	1:00:00	69.5	96.8	50.3	77.8	69.4	65.9	63.9	63	58.9	55.8	53.1	52.6	51.9
7/24/2024	9:00:00 AM	1:00:00	68.1	91.9	48.3	82.5	78.3	68.4	64.5	63.2	58.2	55.1	51.3	50.4	49.3
7/24/2024	10:00:00 AM	1:00:00	67.5	91.6	49.4	82.5	75.6	66.8	63.3	62	57.4	54.5	51.7	51.3	50.7
7/24/2024	11:00:00 AM	1:00:00	68.1	90.8	50.8	82.8	75.3	65	63.4	62.8	60.4	58.1	53.9	53.2	52.4
7/24/2024	12:00:00 PM	1:00:00	68	89.2	51.5	83.3	78.3	68.2	64.3	63.1	59	56.7	54.3	53.8	52.9
7/24/2024	1:00:00 PM	1:00:00	67.7	94.5	51.2	78.5	71.9	65.3	62.6	61.6	58.4	55.9	53.4	52.9	52.1
7/24/2024	2:00:00 PM	1:00:00	69.9	91.1	52.9	84.7	80.7	70.4	65.6	64	59.9	57.8	55.3	54.8	53.8
7/24/2024	3:00:00 PM	1:00:00	72.5	94.8	52.4	87.5	83.2	71.6	65.3	63.1	58.6	56.5	54.4	53.9	53.2
7/24/2024	4:00:00 PM	1:00:00	65.7	89.5	54.1	77.1	73.2	65.8	64	63.4	60.3	58.7	56.6	56	55.3
7/24/2024	5:00:00 PM	1:00:00	71	96.8	54.4	84.5	78.9	66.8	63.5	62.5	59.4	57.7	56.1	55.7	55.2
7/24/2024	6:00:00 PM	1:00:00	72.6	97.6	54.4	86.2	82.5	71.6	65.6	64.3	60.3	58.2	56	55.6	55.1
7/24/2024	7:00:00 PM	1:00:00	66.3	90.7	52.5	79.8	73.7	66.8	65.3	64.8	61.1	58.3	55.9	55.1	53.6
7/24/2024	8:00:00 PM	1:00:00	67.6	90.8	51.8	81.4	76	66.7	63.3	62.2	58.1	55.8	53.9	53.5	52.9
7/24/2024	9:00:00 PM	1:00:00	66.9	90.4	52.5	81.1	73.2	66	63.7	62.6	59	57	55.1	54.7	53.9
7/24/2024	10:00:00 PM	1:00:00	62.3	86.7	52.1	72.3	66.2	63.4	61.8	61	58.1	56.4	54.4	54	53.3
7/24/2024	11:00:00 PM	1:00:00	66.5	89.5	50.2	81.2	76.1	67.2	64.6	63.5	59.9	57.1	53.7	52.9	51.6

Date	Start Time	Duration	Leq	Lmax	Lmin	L1%	L2%	L5%	L8%	L10%	L25%	L50%	L90%	L95%	L99%
7/24/2024	12:00:00 AM	1.0 hour	73	98.1	49.9	87	79	67	63	61	57	55	51	51	51
7/24/2024	1:00:00 AM	1.0 hour	72.4	96.7	49.1	85	79	63	59	59	53	53	51	51	49
7/24/2024	2:00:00 AM	1.0 hour	68.1	92.6	48.1	81	73	59	55	55	51	51	49	49	47
7/24/2024	3:00:00 AM	1.0 hour	60	87.2	48.6	61	57	55	55	53	53	51	49	49	49
7/24/2024	4:00:00 AM	1.0 hour	70.1	99.7	49.6	67	65	61	59	57	53	51	51	49	49
7/24/2024	5:00:00 AM	1.0 hour	59.1	82.5	50.5	67	63	59	57	57	55	53	51	51	51
7/24/2024	6:00:00 AM	1.0 hour	59.6	80	53.6	69	65	61	61	59	57	55	55	53	53
7/24/2024	7:00:00 AM	1.0 hour	65.6	89.2	53.7	77	71	65	63	61	59	57	55	55	53
7/24/2024	8:00:00 AM	1.0 hour	70.9	98.8	52	81	75	65	63	61	57	55	53	53	53
7/24/2024	9:00:00 AM	1.0 hour	67.5	93	51.9	77	71	65	63	61	57	55	53	53	51
7/24/2024	10:00:00 AM	1.0 hour	67.7	90	51	81	75	67	63	61	55	53	51	51	51
7/24/2024	11:00:00 AM	1.0 hour	71.1	94	51.9	85	77	65	63	61	59	55	53	53	51
7/24/2024	12:00:00 PM	1.0 hour	70.6	93.2	53	85	81	69	65	63	59	55	55	53	53
7/24/2024	1:00:00 PM	1.0 hour	68.2	94.3	53.1	79	71	65	63	61	59	57	53	53	53
7/24/2024	2:00:00 PM	1.0 hour	71.9	94.5	55	85	81	69	65	63	59	59	55	55	55
7/24/2024	3:00:00 PM	1.0 hour	73.5	95.8	55.5	87	83	69	65	63	61	59	57	57	55
7/24/2024	4:00:00 PM	1.0 hour	71.7	96.5	58.4	83	79	73	71	71	65	63	61	59	59
7/24/2024	5:00:00 PM	1.0 hour	66.4	89.9	55.7	77	73	67	65	63	61	59	57	57	55
7/24/2024	6:00:00 PM	1.0 hour	75.2	98	56.1	89	85	77	69	67	61	59	57	57	55
7/24/2024	7:00:00 PM	1.0 hour	67.1	86.8	58	79	73	69	67	67	63	61	59	59	57
7/24/2024	8:00:00 PM	1.0 hour	70.3	93.4	55	83	79	67	63	63	59	57	55	55	55
7/24/2024	9:00:00 PM	1.0 hour	67.8	92.7	55.1	75	69	67	63	63	59	57	55	55	55
7/24/2024	10:00:00 PM	1.0 hour	65.2	87.3	55	77	71	65	63	61	59	57	55	55	55
7/24/2024	11:00:00 PM	1.0 hour	63.5	85.9	54.1	71	67	65	63	63	61	59	57	55	55

Date	Start Time	Duration	Leq	Lmax	Lmin	L1%	L2%	L5%	L8%	L10%	L25%	L50%	L90%	L95%	L99%
7/24/2024	12:00:00 AM	1.0 hour	69.2	89.4	52.6	83	79	67	63	63	59	57	55	53	53
7/24/2024	1:00:00 AM	1.0 hour	67.6	89.5	49.8	81	77	65	61	61	57	57	53	53	51
7/24/2024	2:00:00 AM	1.0 hour	64.2	88.4	48.8	77	69	61	61	59	57	55	53	51	49
7/24/2024	3:00:00 AM	1.0 hour	59.2	69.1	49.5	63	63	61	61	61	59	57	53	53	51
7/24/2024	4:00:00 AM	1.0 hour	64.1	88.9	52.1	65	63	63	61	61	61	59	55	55	53
7/24/2024	5:00:00 AM	1.0 hour	64.2	81.1	56.5	69	67	65	65	65	63	63	59	59	57
7/24/2024	6:00:00 AM	1.0 hour	65.1	75.8	58.1	69	67	67	65	65	65	63	63	61	61
7/24/2024	7:00:00 AM	1.0 hour	70.3	87.7	61.3	79	79	77	75	71	65	65	63	61	61
7/24/2024	8:00:00 AM	1.0 hour	68	91.6	58.6	77	69	67	65	65	63	63	61	61	59
7/24/2024	9:00:00 AM	1.0 hour	67.7	91	57.6	81	71	65	63	63	63	61	59	59	57
7/24/2024	10:00:00 AM	1.0 hour	67.6	88.9	58.5	77	71	65	65	63	63	63	61	61	59
7/24/2024	11:00:00 AM	1.0 hour	70.6	92.9	59.4	83	79	69	65	65	63	63	61	61	59
7/24/2024	12:00:00 PM	1.0 hour	70.6	89.7	60	83	79	75	69	67	65	63	63	61	61
7/24/2024	1:00:00 PM	1.0 hour	68.2	93.1	60.4	79	69	67	65	65	65	63	61	61	61
7/24/2024	2:00:00 PM	1.0 hour	70.8	91.1	60.9	83	79	69	67	67	65	65	63	63	61
7/24/2024	3:00:00 PM	1.0 hour	72.8	94.2	61.6	87	81	69	67	67	65	65	63	63	61
7/24/2024	4:00:00 PM	1.0 hour	68.1	88.4	62.8	75	71	69	67	67	67	65	63	63	63
7/24/2024	5:00:00 PM	1.0 hour	70.6	93.1	59.8	83	79	67	67	67	65	65	63	63	61
7/24/2024	6:00:00 PM	1.0 hour	71.9	93	62.2	85	81	73	69	67	65	65	63	63	63
7/24/2024	7:00:00 PM	1.0 hour	67.2	83.3	61.7	75	71	67	67	67	65	65	63	63	61
7/24/2024	8:00:00 PM	1.0 hour	70	90.6	60.4	83	77	67	65	65	65	63	63	61	61
7/24/2024	9:00:00 PM	1.0 hour	68.2	91.1	61.2	73	69	67	65	65	65	63	63	63	61
7/24/2024	10:00:00 PM	1.0 hour	66.7	87.8	60.1	75	69	67	65	65	65	63	63	61	61
7/24/2024	11:00:00 PM	1.0 hour	65.7	84.5	56.8	75	69	67	65	65	63	63	59	59	57

Date	Start Time	Duration	Leq	Lmax	Lmin	L1%	L2%	L5%	L8%	L10%	L25%	L50%	L90%	L95%	L99%
7/24/2024	12:00:00 AM	1.0 hour	70.5	89.8	53.1	85	81	73	67	65	61	59	55	55	53
7/24/2024	1:00:00 AM	1.0 hour	67.4	89.1	51.6	81	75	65	61	61	57	55	53	53	51
7/24/2024	2:00:00 AM	1.0 hour	64.1	88.4	50.1	77	71	63	59	59	55	53	51	51	49
7/24/2024	3:00:00 AM	1.0 hour	56.3	67.7	50.2	63	61	59	57	57	55	55	51	51	51
7/24/2024	4:00:00 AM	1.0 hour	64.8	89.8	51.8	75	69	63	61	61	57	55	53	53	51
7/24/2024	5:00:00 AM	1.0 hour	60.1	72.6	52.9	67	65	63	63	61	59	57	55	55	55
7/24/2024	6:00:00 AM	1.0 hour	63.4	84.4	55.9	71	69	65	65	65	63	61	57	57	57
7/24/2024	7:00:00 AM	1.0 hour	67.1	87.8	57.1	77	73	69	67	67	63	61	59	59	57
7/24/2024	8:00:00 AM	1.0 hour	68.4	91.6	56.6	77	75	69	67	67	65	63	59	57	57
7/24/2024	9:00:00 AM	1.0 hour	68.7	90.5	55.2	81	77	67	67	65	63	61	57	57	55
7/24/2024	10:00:00 AM	1.0 hour	66.2	87.3	55.4	77	71	67	65	63	61	59	57	57	55
7/24/2024	11:00:00 AM	1.0 hour	70.3	91.2	55.5	83	79	69	67	65	63	61	57	57	55
7/24/2024	12:00:00 PM	1.0 hour	69.4	89.9	55.8	83	79	71	67	65	63	61	57	57	55
7/24/2024	1:00:00 PM	1.0 hour	66.6	90.6	56.3	75	69	65	65	63	61	59	57	57	57
7/24/2024	2:00:00 PM	1.0 hour	70.4	90.7	56.1	85	81	71	65	65	61	59	57	57	57
7/24/2024	3:00:00 PM	1.0 hour	72.3	93.9	56.9	85	83	71	67	65	61	61	57	57	57
7/24/2024	4:00:00 PM	1.0 hour	66.4	88.1	57	77	71	65	65	65	61	61	59	59	57
7/24/2024	5:00:00 PM	1.0 hour	68.3	91.3	55.7	81	75	67	65	65	63	61	57	57	55
7/24/2024	6:00:00 PM	1.0 hour	72.2	92.6	56.8	85	83	75	69	67	63	61	59	57	57
7/24/2024	7:00:00 PM	1.0 hour	65.6	85.8	57.1	77	71	67	67	65	63	61	59	59	57
7/24/2024	8:00:00 PM	1.0 hour	69.4	89.9	56.7	83	79	69	67	65	63	61	59	57	57
7/24/2024	9:00:00 PM	1.0 hour	66.9	89.9	55.9	77	71	65	65	63	61	59	57	57	57
7/24/2024	10:00:00 PM	1.0 hour	65	86.3	54.5	77	71	65	63	63	61	59	57	57	55
7/24/2024	11:00:00 PM	1.0 hour	66.2	87.5	54.2	79	73	67	65	65	61	59	57	55	55

Date	Start Time	Duration	Leq	Lmax	Lmin	L1%	L2%	L5%	L8%	L10%	L25%	L50%	L90%	L95%	L99%
7/24/2024	12:00:00 AM	1.0 hour	69.8	94.2	47.9	83	79	65	59	57	53	51	49	49	47
7/24/2024	1:00:00 AM	1.0 hour	66.1	92.6	45.9	77	73	61	57	57	53	51	47	47	47
7/24/2024	2:00:00 AM	1.0 hour	54.6	79.3	45.4	61	57	53	53	53	51	49	47	47	45
7/24/2024	3:00:00 AM	1.0 hour	64.8	92.6	47.3	63	59	55	53	53	51	51	49	47	47
7/24/2024	4:00:00 AM	1.0 hour	54.9	73	48.7	63	61	57	55	55	53	51	49	49	49
7/24/2024	5:00:00 AM	1.0 hour	57.2	77.3	51.4	65	63	59	57	57	55	55	53	51	51
7/24/2024	6:00:00 AM	1.0 hour	63.3	91.3	52.1	69	67	63	61	61	57	55	53	53	53
7/24/2024	7:00:00 AM	1.0 hour	63.5	84.5	50.7	75	69	65	63	61	57	55	53	53	51
7/24/2024	8:00:00 AM	1.0 hour	66.8	94.1	51.1	69	65	63	61	61	59	57	53	53	51
7/24/2024	9:00:00 AM	1.0 hour	67.6	89.9	50.7	81	77	71	67	65	59	55	53	51	51
7/24/2024	10:00:00 AM	1.0 hour	66.6	89.4	50.4	79	73	65	63	63	59	57	53	51	51
7/24/2024	11:00:00 AM	1.0 hour	68.2	90.9	50.3	81	77	69	65	65	61	57	53	53	51
7/24/2024	12:00:00 PM	1.0 hour	65.7	88.1	51.7	79	73	65	63	63	59	57	53	53	51
7/24/2024	1:00:00 PM	1.0 hour	65.8	89	52	77	71	65	65	63	61	59	55	53	53
7/24/2024	2:00:00 PM	1.0 hour	72.1	90.9	53.7	85	81	77	75	73	67	63	57	55	55
7/24/2024	3:00:00 PM	1.0 hour	68.6	91.6	52.9	81	75	69	67	67	63	57	55	55	53
7/24/2024	4:00:00 PM	1.0 hour	66.3	89.4	52.2	77	71	67	67	67	63	59	55	53	53
7/24/2024	5:00:00 PM	1.0 hour	67.8	94.1	52.8	79	75	67	65	65	59	57	55	53	53
7/24/2024	6:00:00 PM	1.0 hour	70.1	95.4	53.1	81	79	69	65	63	59	57	55	53	53
7/24/2024	7:00:00 PM	1.0 hour	65.7	85.9	52.7	79	75	67	63	61	57	55	53	53	53
7/24/2024	8:00:00 PM	1.0 hour	64.2	87.9	52.8	75	71	65	61	61	57	55	53	53	53
7/24/2024	9:00:00 PM	1.0 hour	62.6	87.6	49.4	73	67	63	59	59	57	55	51	51	51
7/24/2024	10:00:00 PM	1.0 hour	60.7	85.4	50	71	63	59	57	57	55	53	51	51	49
7/24/2024	11:00:00 PM	1.0 hour	68.8	92.7	47.7	81	77	67	61	59	55	53	51	49	49

Start Date	Start Time	Duration	LAeq	LASmax	LASmin	LAS1%	LAS2%	LAS5%	LAS8%	LAS10%	LAS25%	LAS50%	LAS90%	LAS95%	LAS99%
7/24/2024	12:00:00 AM	1:00:00	73	90.7	69.7	84.4	81.8	74.6	72.3	71.9	71.3	71	70.6	70.6	70.4
7/24/2024	1:00:00 AM	1:00:00	72.6	90.2	69.9	82.8	78.8	72.9	72	71.7	71.3	71	70.7	70.6	70.4
7/24/2024	2:00:00 AM	1:00:00	70.7	81.6	51.5	76.3	73	71.8	71.5	71.4	71.1	70.9	70.5	57	53.9
7/24/2024	3:00:00 AM	1:00:00	65	92.1	49.8	71	67.1	63.5	62.2	61.6	59.4	57.4	54.5	53.7	52.3
7/24/2024	4:00:00 AM	1:00:00	60.2	78.8	52.5	67.4	64.9	63.1	62.3	62	60.4	58.7	55.8	55.1	53.7
7/24/2024	5:00:00 AM	1:00:00	64	89.4	55.9	70.8	68.4	66	65.1	64.8	63.5	62.3	59.9	59.1	57.9
7/24/2024	6:00:00 AM	1:00:00	67.2	88.7	59.5	75.3	73.2	70.3	68.9	68.2	66.4	65.1	62.8	62	60.7
7/24/2024	7:00:00 AM	1:00:00	70.2	87.5	59.2	80.6	78.1	76.9	74.3	73.2	69.8	65.2	62.4	61.9	61
7/24/2024	8:00:00 AM	1:00:00	69.8	96.2	57.6	78.9	73.8	68.6	66.8	66.1	64	62.7	60.9	60.3	59.1
7/24/2024	9:00:00 AM	1:00:00	67.8	89.6	55.7	81.6	76.6	69.2	67	66.2	63.4	61.5	59.1	58.5	57.6
7/24/2024	10:00:00 AM	1:00:00	68.2	90	56.7	81.2	76.6	72.2	69.2	67.7	63.7	61.5	59.1	58.7	58
7/24/2024	11:00:00 AM	1:00:00	67.8	89.4	57	81.4	74.9	68.6	66.6	65.8	63.3	61.8	59.5	59	58.1
7/24/2024	12:00:00 PM	1:00:00	69.3	90.6	57.4	83.3	79.1	72.2	68.9	67.6	64.4	62.5	60.6	60.1	59.3
7/24/2024	1:00:00 PM	1:00:00	73.6	93.5	58.1	83.8	83.4	83.1	82.7	75.5	64.8	62.8	60.9	60.5	59.8
7/24/2024	2:00:00 PM	1:00:00	69.7	90.8	58.7	83.7	79.4	70.6	67.8	66.9	64.2	62.6	60.8	60.4	59.8
7/24/2024	3:00:00 PM	1:00:00	72.4	94.2	58.5	87.2	81.9	73	69.3	68.6	66.6	65	61.9	61.2	60.2
7/24/2024	4:00:00 PM	1:00:00	68	89.5	59.8	76.3	72.6	69.9	69.1	68.8	67.5	66.1	62.8	62	60.8
7/24/2024	5:00:00 PM	1:00:00	70.5	93.2	58.1	83.8	78.9	70.2	68.3	67.5	65.3	63.4	61.1	60.5	59.5
7/24/2024	6:00:00 PM	1:00:00	71.2	92.9	59.6	84.8	81.2	72.5	68.9	68.1	66.1	64.3	62	61.5	60.8
7/24/2024	7:00:00 PM	1:00:00	68.6	88.3	60.1	79	74.9	71.3	70.1	69.6	67.9	66.6	64	63	61.7
7/24/2024	8:00:00 PM	1:00:00	68.1	90	58.8	80.7	75.3	68.6	66.9	66.2	64.1	62.8	61.2	60.8	60
7/24/2024	9:00:00 PM	1:00:00	67.6	89.5	58.1	79.5	73.4	68	66.7	66.3	64.5	63.2	61.3	60.9	60.1
7/24/2024	10:00:00 PM	1:00:00	65.2	85.5	59.5	71.2	69.2	67.2	66.6	66.3	65	63.7	61.8	61.4	60.8
7/24/2024	11:00:00 PM	1:00:00	67.3	90.8	56.7	79.1	73.8	67.6	66.6	66.2	64.7	63.2	60.4	59.6	58.5

Start Date	Start Time	Duration	LAeq	LASmax	LASmin	LAS1%	LAS2%	LAS5%	LAS8%	LAS10%	LAS25%	LAS50%	LAS90%	LAS95%	LAS99%
7/24/2024	12:00:00 AM	1:00:00	71.9	94.6	55.5	87.1	82.3	72.6	67.9	66	61.8	60.1	57.7	57.3	56.7
7/24/2024	1:00:00 AM	1:00:00	70.5	93.6	53.5	85.3	78.6	66.7	63.5	62.5	59.8	58.5	56.5	56	55
7/24/2024	2:00:00 AM	1:00:00	63.1	83.9	53.1	76.3	68.1	63	61.8	61.2	59.1	57.4	55.4	54.9	54.2
7/24/2024	3:00:00 AM	1:00:00	67.8	95.4	53.8	69.4	67.3	65.2	64.1	63.6	61.3	59	56.5	55.9	55
7/24/2024	4:00:00 AM	1:00:00	59.6	79.5	54.6	64	62.2	61	60.4	60.1	59.2	58.3	56.7	56.3	55.5
7/24/2024	5:00:00 AM	1:00:00	62.9	83.8	57	73.1	69.1	65.2	63.9	63.5	62.1	61.1	59.4	58.8	57.8
7/24/2024	6:00:00 AM	1:00:00	63	81.3	58.7	67.2	66.2	65.1	64.6	64.4	63.4	62.5	61	60.5	59.8
7/24/2024	7:00:00 AM	1:00:00	67.2	89.5	59.3	79	72.9	67.7	67.1	67	65.4	63.2	61.6	61.2	60.5
7/24/2024	8:00:00 AM	1:00:00	69	94.9	57.1	76.8	69.3	66.8	66.3	66.1	63.5	61.5	59.6	59.2	58.1
7/24/2024	9:00:00 AM	1:00:00	68.4	90.8	55.5	83	76.8	66.7	63.8	63.2	61.1	59.6	57.8	57.3	56.6
7/24/2024	10:00:00 AM	1:00:00	68.7	93.3	56.1	82.3	75.7	68.1	64.7	63.6	60.7	59.2	57.8	57.5	57
7/24/2024	11:00:00 AM	1:00:00	68.9	92.5	56.3	82.6	74.9	66.9	65.2	64.5	62.8	61.2	58.9	58.4	57.6
7/24/2024	12:00:00 PM	1:00:00	69.3	91.8	57.8	83.5	78.6	69.4	67	66.1	63.1	61.4	59.6	59.3	58.7
7/24/2024	1:00:00 PM	1:00:00	67.2	91.5	58.2	75.3	69.2	66.8	66.1	65.8	64.5	63.1	60.6	60.1	59.3
7/24/2024	2:00:00 PM	1:00:00	70.9	93.3	59.3	85.2	80.7	71.9	68.8	67.9	65.3	63.4	61.3	60.9	60.2
7/24/2024	3:00:00 PM	1:00:00	73.7	95.9	60.8	88.1	83.5	75.4	73	72	68	66.1	63.7	63.2	62.1
7/24/2024	4:00:00 PM	1:00:00	70.2	90.9	61	80.3	78	75	73.4	72.6	69.3	67.1	64.1	63.2	62.3
7/24/2024	5:00:00 PM	1:00:00	71	92.7	59.4	84.7	79.9	71.9	70	69.3	66.7	64.7	62.6	62.1	61.2
7/24/2024	6:00:00 PM	1:00:00	72.1	93.5	60.1	86	82.2	73.5	70.6	69.4	66.2	64.7	62.6	62.2	61.5
7/24/2024	7:00:00 PM	1:00:00	69.6	89.3	62.2	80.2	75.9	71.8	70.7	70.3	68.8	67.5	65.1	64.5	63.5
7/24/2024	8:00:00 PM	1:00:00	69.2	90.9	60.1	81.8	75.7	69.3	67.8	67.3	65.5	64.2	62.5	62.1	61.5
7/24/2024	9:00:00 PM	1:00:00	68.5	91.6	59.6	81	73.9	68.4	67.2	66.7	64.9	63.5	61.7	61.3	60.6
7/24/2024	10:00:00 PM	1:00:00	66.5	88.4	60.8	74.3	71.2	68.4	67.4	67.1	65.9	64.9	63.2	62.8	62.2
7/24/2024	11:00:00 PM	1:00:00	68.4	91.6	58.9	81	75.3	69.4	67.8	67.2	65.4	64.1	61.9	61.1	60.1

Noise Appendix
Short Term Measurement Data

Summary									
File Name on Meter		LxT_Data.093.s							
File Name on PC		LxT_0004004-20240724 100000-LxT_Data.093.ldbin							
Serial Number		0004004							
Model		SoundTrack LxT*							
Firmware Version		2.404							
User									
Location									
Job Description									
Note									
Measurement									
Description									
Start		2024-07-24 10:00:00							
Stop		2024-07-24 10:15:00							
Duration		00:15:00.0							
Run Time		00:15:00.0							
Pause		00:00:00.0							
Pre-Calibration		2024-07-24 09:54:27							
Post-Calibration		None							
Calibration Deviation		---							
Overall Settings									
RMS Weight		A Weighting							
Peak Weight		A Weighting							
Detector		Slow							
Preamplifier		PRMLxT1L							
Microphone Correction		Off							
Integration Method		Linear							
Overload		122.8 dB							
		A		C		Z			
Under Range Peak		79.3		76.3		81.3 dB			
Under Range Limit		24.3		25.4		31.6 dB			
Noise Floor		15.2		16.3		22.5 dB			
		First		Second		Third			
Instrument Identification									
Results									
LAeq		66.5 dB							
LAE		96.0 dB							
EA		446.684 µPa²h							
EAB		14.294 mPa²h							
EAB0		71.469 mPa²h							
LAPeak (max)		2024-07-24 10:13:59		98.3 dB					
LASmax		2024-07-24 10:14:06		84.4 dB					
LASmin		2024-07-24 10:05:58		49.6 dB					
SEA		-99.9 dB							
		Exceedance Counts		Duration					
LAS > 85.0 dB		0		0.0 s					
LAS > 90.0 dB		0		0.0 s					
LAPeak > 135.0 dB		0		0.0 s					
LAPeak > 137.0 dB		0		0.0 s					
LAPeak > 140.0 dB		0		0.0 s					
Community Noise		Ldn		LDay 07:00-22:00		LNight 22:00-07:00		Lden	
		66.5		66.5		-99.9		66.5	
								LDay 07:00-19:00	
								66.5	
								LEvening 19:00-22:00	
								-99.9	
LCeq		75.0 dB							
LAeq		66.5 dB							
LCeq - LAeq		8.5 dB							
LAleq		67.9 dB							
LAeq		66.5 dB							
LAleq - LAeq		1.4 dB							
		A		C		Z			
		dB		dB		dB		Time Stamp	
Leq		66.5		75.0					
LS(max)		84.4		2024/07/24 10:14:06					
LS(min)		49.6		2024/07/24 10:05:58					
LPeak(max)		98.3		2024/07/24 10:13:59					
Overload Count		0							
Overload Duration		0.0 s							
Dose Settings									
Dose Name		OSHA-1		OSHA-2					
Exchange Rate		5		5 dB					
Threshold		90		80 dB					
Criterion Level		90		90 dB					
Criterion Duration		8		8 h					
Results									
Dose		-99.94		0.01 %					
Projected Dose		-99.94		0.46 %					
TWA (Projected)		-99.9		51.2 dB					
TWA (t)		-99.9		26.2 dB					
Lep (t)		51.4		51.4 dB					
Statistics									
LA 1.00		81.6 dB							
LA 2.00		73.9 dB							
LA 5.00		68.6 dB							
LA 10.00		66.2 dB							
LA 50.00		59.3 dB							
LA 90.00		52.6 dB							
Calibration History									
Preamp		Date		dB re. 1V/Pa					
PRMLxT1L		2024-07-24 09:54:22		-29.03					
PRMLxT1L		2024-07-24 09:28:32		-29.04					
PRMLxT1L		2024-07-24 09:08:10		-29.05					
PRMLxT1L		2024-07-22 09:17:02		-28.96					
PRMLxT1L		2024-07-22 08:43:31		-29.05					
PRMLxT1L		2024-07-22 07:47:01		-28.93					
PRMLxT1L		2024-07-16 11:30:28		-29.00					
PRMLxT1L		2024-07-16 11:15:03		-29.00					
PRMLxT1L		2024-07-16 10:00:53		-28.99					
PRMLxT1L		2024-06-26 12:07:18		-28.81					
PRMLxT1L		2024-06-26 08:54:18		-28.93					

Summary

File Name on Meter

Serial Number

Model

Firmware Version

User

Location

Job Description

Note

LxT_Data.094.s

LxT_0004004-20240724 103400-LxT_Data.094.ldbin

0004004

SoundTrack LxT*

2.404

Measurement

Description

Start

Stop

Duration

Run Time

Pause

Pre-Calibration

Post-Calibration

Calibration Deviation

2024-07-24 10:34:00

2024-07-24 10:49:00

00:15:00.0

00:15:00.0

00:00:00.0

2024-07-24 10:32:03

None

Overall Settings

RMS Weight

Peak Weight

Detector

Preamplifier

Microphone Correction

Integration Method

Overload

Under Range Peak

Under Range Limit

Noise Floor

A Weighting

A Weighting

Slow

PRMLxT1L

Off

Linear

122.8 dB

A

C

Z

79.3

76.3

81.3 dB

24.3

25.4

31.6 dB

15.2

16.3

22.5 dB

First

Second

Third

Instrument Identification

Results

LAeq

LAE

EA

EA8

EA40

LApeak (max)

LASmax

LASmin

SEA

LAS > 85.0 dB

LAS > 90.0 dB

LApeak > 135.0 dB

LApeak > 137.0 dB

LApeak > 140.0 dB

Community Noise

LCeq

LAeq

LCeq - LAeq

LAeq

LAeq - LAeq

Leq

Ls(max)

Ls(min)

Lpeak(max)

Overload Count

Overload Duration

62.8 dB

92.3 dB

190.546 µPa²h

6.097 mPa²h

30.487 mPa²h

2024-07-24 10:42:54

2024-07-24 10:43:00

2024-07-24 10:36:04

-89.9 dB

0

0

0

0

0

Ldn

62.8

71.9 dB

62.8 dB

9.1 dB

64.8 dB

62.8 dB

2.0 dB

62.8

82.7

49.0

96.9

0

0.0 s

LDay 07:00-22:00

LNight 22:00-07:00

Lden

LDay 07:00-19:00

Levening 19:00-22:00

62.8

-89.9

62.8

62.8

-89.9

A

dB

Time Stamp

C

dB

Time Stamp

Z

dB

Time Stamp

62.8

71.9

82.7

2024/07/24 10:43:00

49.0

2024/07/24 10:36:04

96.9

2024/07/24 10:42:54

Dose Settings

Dose Name

Exchange Rate

Threshold

Criterion Level

Criterion Duration

OSHA-1

5

90

90

8

OSHA-2

5 dB

80 dB

90 dB

8 h

Results

Dose

Projected Dose

TWA (Projected)

TWA (t)

Lep (t)

-99.94

-99.94

-99.9

-99.9

47.7

0.01 %

0.23 %

46.2 dB

21.2 dB

47.7 dB

Statistics

LA 1.00

LA 2.00

LA 5.00

LA 10.00

LA 50.00

LA 90.00

79.1 dB

69.5 dB

59.5 dB

56.6 dB

52.4 dB

50.2 dB

Calibration History

Preamp

PRMLxT1L

PRMLxT1L

PRMLxT1L

PRMLxT1L

PRMLxT1L

PRMLxT1L

PRMLxT1L

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Summary									
File Name on Meter		LxT_Data.095.s							
File Name on PC		LxT_0004004-20240724 110601-LxT_Data.095.ldbin							
Serial Number		0004004							
Model		SoundTrack LxT*							
Firmware Version		2.404							
User									
Location									
Job Description									
Note									
Measurement									
Description									
Start		2024-07-24 11:06:01							
Stop		2024-07-24 11:21:09							
Duration		00:15:06.6							
Run Time		00:15:06.6							
Pause		00:00:00.0							
Pre-Calibration		2024-07-24 10:59:47							
Post-Calibration		2024-07-24 11:22:05							
Calibration Deviation		-0.01 dB							
Overall Settings									
RMS Weight		A Weighting							
Peak Weight		A Weighting							
Detector		Slow							
Preamplifier		PRMLxT1L							
Microphone Correction		Off							
Integration Method		Linear							
Overload		122.8 dB							
		A		C		Z			
Under Range Peak		79.3		76.3		81.3 dB			
Under Range Limit		24.3		25.4		31.6 dB			
Noise Floor		15.2		16.3		22.5 dB			
		First		Second		Third			
Instrument Identification									
Results									
LAeq		67.3 dB							
LAE		96.9 dB							
EA		540.971 µPa²h							
EAB		17.185 mPa²h							
EA40		85.925 mPa²h							
LApeak (max)		2024-07-24 11:09:20		101.3 dB					
LASmax		2024-07-24 11:09:21		86.7 dB					
LASmin		2024-07-24 11:16:10		54.0 dB					
SEA		-99.9 dB							
		Exceedance Counts		Duration					
LAS > 85.0 dB		1		5.0 s					
LAS > 90.0 dB		0		0.0 s					
LApeak > 135.0 dB		0		0.0 s					
LApeak > 137.0 dB		0		0.0 s					
LApeak > 140.0 dB		0		0.0 s					
Community Noise		Ldn		LDay 07:00-22:00		LNight 22:00-07:00		Lden	
		67.3		67.3		-99.9		67.3	
								LDay 07:00-19:00	
								67.3	
								LEvening 19:00-22:00	
								-99.9	
LCeq		75.7 dB							
LAeq		67.3 dB							
LCeq - LAeq		8.4 dB							
LAeq		69.0 dB							
LAeq		67.3 dB							
LAeq - LAeq		1.7 dB							
		A		C		Z			
Leq		dB Time Stamp		dB Time Stamp		dB Time Stamp			
		67.3		75.7					
LS(max)		86.7 2024/07/24 11:09:21							
LS(min)		54.0 2024/07/24 11:16:10							
Lpeak(max)		101.3 2024/07/24 11:09:20							
Overload Count		0							
Overload Duration		0.0 s							
Dose Settings									
Dose Name		OSHA-1		OSHA-2					
Exchange Rate		5		5 dB					
Threshold		90		80 dB					
Criterion Level		90		90 dB					
Criterion Duration		8		8 h					
Results									
Dose		-99.94		0.02 %					
Projected Dose		-99.94		0.51 %					
TWA (Projected)		-99.9		51.9 dB					
TWA (t)		-99.9		27.0 dB					
Lep (t)		52.3		52.3 dB					
Statistics									
LA 1.00		81.4 dB							
LA 2.00		73.7 dB							
LA 5.00		69.3 dB							
LA 10.00		66.7 dB							
LA 50.00		60.3 dB							
LA 90.00		56.7 dB							
Calibration History									
Preamp		Date		dB re. 1V/Pa					
PRMLxT1L		2024-07-24 11:21:55		-29.04					
PRMLxT1L		2024-07-24 10:59:41		-29.02					
PRMLxT1L		2024-07-24 10:49:57		-29.07					
PRMLxT1L		2024-07-24 10:31:55		-29.04					
PRMLxT1L		2024-07-24 10:17:10		-28.96					
PRMLxT1L		2024-07-24 09:54:22		-29.03					
PRMLxT1L		2024-07-24 09:28:32		-29.04					
PRMLxT1L		2024-07-24 09:08:10		-29.05					
PRMLxT1L		2024-07-22 09:17:02		-28.96					
PRMLxT1L		2024-07-22 08:43:31		-29.05					
PRMLxT1L		2024-07-22 07:47:01		-28.93					

Summary						
File Name on Meter	LxT_Data.092.s					
File Name on PC	LxT_0004004-20240724 091000-LxT_Data.092.ldbin					
Serial Number	0004004					
Model	SoundTrack LxT*					
Firmware Version	2.404					
User						
Location						
Job Description						
Note						
Measurement						
Description						
Start	2024-07-24 09:10:00					
Stop	2024-07-24 09:25:00					
Duration	00:15:00.0					
Run Time	00:15:00.0					
Pause	00:00:00.0					
Pre-Calibration	2024-07-24 09:08:44					
Post-Calibration	2024-07-24 09:28:41					
Calibration Deviation	0.01 dB					
Overall Settings						
RMS Weight	A Weighting					
Peak Weight	A Weighting					
Detector	Slow					
Preamplifier	PRMLxT1L					
Microphone Correction	Off					
Integration Method	Linear					
Overload	122.8 dB					
	A	C	Z			
Under Range Peak	79.3	76.3	81.3 dB			
Under Range Limit	24.3	25.4	31.6 dB			
Noise Floor	15.2	16.3	22.5 dB			
	First	Second	Third			
Instrument Identification						
Results						
LAeq	63.3 dB					
LAE	92.8 dB					
EA	213.796 µPa²h					
EA8	6.841 mPa²h					
EA40	34.207 mPa²h					
LApeak (max)	2024-07-24 09:22:32	93.2 dB				
LASmax	2024-07-24 09:22:33	80.1 dB				
LASmin	2024-07-24 09:13:39	55.2 dB				
SEA	-99.9 dB					
	Exceedance Counts		Duration			
LAS > 85.0 dB	0		0.0 s			
LAS > 90.0 dB	0		0.0 s			
LApeak > 135.0 dB	0		0.0 s			
LApeak > 137.0 dB	0		0.0 s			
LApeak > 140.0 dB	0		0.0 s			
Community Noise	Ldn	LDay 07:00-22:00	LNight 22:00-07:00	Lden	LDay 07:00-19:00	LEvening 19:00-22:00
	63.3	63.3	-99.9	63.3	63.3	-99.9
LCeq	74.2 dB					
LAeq	63.3 dB					
LCeq - LAeq	10.9 dB					
LAlaq	64.4 dB					
LAeq	63.3 dB					
LAlaq - LAeq	1.1 dB					
	A	C		Z		
Leq	dB	Time Stamp	dB	Time Stamp	dB	Time Stamp
Ls(max)	80.1	2024/07/24 9:22:33				
Ls(min)	55.2	2024/07/24 9:13:39				
LPeak(max)	93.2	2024/07/24 9:22:32				
Overload Count	0					
Overload Duration	0.0 s					
Dose Settings						
Dose Name	OSHA-1		OSHA-2			
Exchange Rate	5		5 dB			
Threshold	90		80 dB			
Criterion Level	90		90 dB			
Criterion Duration	8		8 h			
Results						
Dose	-99.94		0.00 %			
Projected Dose	-99.94		0.03 %			
TWA (Projected)	-99.9		31.0 dB			
TWA (t)	-99.9		6.0 dB			
Lep (t)	48.2		48.2 dB			
Statistics						
LA 1.00	75.3 dB					
LA 2.00	68.0 dB					
LA 5.00	64.6 dB					
LA 10.00	63.6 dB					
LA 50.00	60.6 dB					
LA 90.00	57.9 dB					
Calibration History						
Preamp	Date		dB re. 1V/Pa			
PRMLxT1L	2024-07-24 09:28:32		-29.04			
PRMLxT1L	2024-07-24 09:08:10		-29.05			
PRMLxT1L	2024-07-22 09:17:02		-28.96			
PRMLxT1L	2024-07-22 08:43:31		-29.05			
PRMLxT1L	2024-07-22 07:47:01		-28.93			
PRMLxT1L	2024-07-16 11:30:28		-29.00			
PRMLxT1L	2024-07-16 11:15:03		-29.00			
PRMLxT1L	2024-07-16 10:00:53		-28.99			
PRMLxT1L	2024-06-26 12:07:18		-28.81			
PRMLxT1L	2024-06-26 08:54:18		-28.93			
PRMLxT1L	2024-06-26 07:49:27		-28.96			

Summary									
File Name on Meter	LxT_Data.096.s								
File Name on PC	LxT_0004004-20240724 113700-LxT_Data.096.ldbin								
Serial Number	0004004								
Model	SoundTrack LxT*								
Firmware Version	2.404								
User									
Location									
Job Description									
Note									
Measurement									
Description									
Start	2024-07-24 11:37:00								
Stop	2024-07-24 11:52:00								
Duration	00:15:00.0								
Run Time	00:15:00.0								
Pause	00:00:00.0								
Pre-Calibration	2024-07-24 11:35:23								
Post-Calibration	2024-07-24 11:53:24								
Calibration Deviation	-0.13 dB								
Overall Settings									
RMS Weight	A Weighting								
Peak Weight	A Weighting								
Detector	Slow								
Preamplifier	PRMLxT1L								
Microphone Correction	Off								
Integration Method	Linear								
Overload	122.8 dB								
	A			C			Z		
Under Range Peak	79.4			76.4			81.4 dB		
Under Range Limit	24.3			25.5			31.7 dB		
Noise Floor	15.2			16.3			22.5 dB		
	First			Second			Third		
Instrument Identification									
Results									
LAeq	64.7 dB								
LAE	94.2 dB								
EA	295.121 µPa²h								
EAB	9.444 mPa²h								
EAB0	47.219 mPa²h								
LAPeak (max)	2024-07-24 11:45:18			101.1 dB					
LASmax	2024-07-24 11:45:18			85.9 dB					
LASmin	2024-07-24 11:49:44			50.9 dB					
SEA	-99.9 dB								
	Exceedance Counts			Duration					
LAS > 85.0 dB	1			2.8 s					
LAS > 90.0 dB	0			0.0 s					
LAPeak > 135.0 dB	0			0.0 s					
LAPeak > 137.0 dB	0			0.0 s					
LAPeak > 140.0 dB	0			0.0 s					
Community Noise	Ldn	LDay 07:00-22:00		LNight 22:00-07:00		Lden	LDay 07:00-19:00		LEvening 19:00-22:00
	64.7	64.7		-99.9		64.7	64.7		-99.9
LCeq	75.2 dB								
LAeq	64.7 dB								
LCeq - LAeq	10.5 dB								
LAeq	66.5 dB								
LAeq	64.7 dB								
LAeq - LAeq	1.8 dB								
	A			C			Z		
Leq	dB	Time Stamp		dB	Time Stamp		dB	Time Stamp	
LS(max)	64.7	2024/07/24 11:45:18			75.2				
LS(min)	85.9	2024/07/24 11:45:18							
LPeak(max)	50.9	2024/07/24 11:49:44							
	101.1	2024/07/24 11:45:18							
Overload Count	0								
Overload Duration	0.0 s								
Dose Settings									
Dose Name	OSHA-1			OSHA-2					
Exchange Rate	5			5 dB					
Threshold	90			80 dB					
Criterion Level	90			90 dB					
Criterion Duration	8			8 h					
Results									
Dose	-99.94			0.01 %					
Projected Dose	-99.94			0.36 %					
TWA (Projected)	-99.9			49.4 dB					
TWA (t)	-99.9			24.4 dB					
Lep (t)	49.6			49.6 dB					
Statistics									
LA 1.00	79.6 dB								
LA 2.00	71.1 dB								
LA 5.00	60.6 dB								
LA 10.00	59.1 dB								
LA 50.00	54.8 dB								
LA 90.00	52.2 dB								
Calibration History									
Preamp	Date			dB re. 1V/Pa					
PRMLxT1L	2024-07-24 11:52:51			-29.09					
PRMLxT1L	2024-07-24 11:35:19			-28.94					
PRMLxT1L	2024-07-24 11:21:55			-29.04					
PRMLxT1L	2024-07-24 10:59:41			-29.02					
PRMLxT1L	2024-07-24 10:49:57			-29.07					
PRMLxT1L	2024-07-24 10:31:55			-29.04					
PRMLxT1L	2024-07-24 10:17:10			-28.96					
PRMLxT1L	2024-07-24 09:54:22			-29.03					
PRMLxT1L	2024-07-24 09:28:32			-29.04					
PRMLxT1L	2024-07-24 09:08:10			-29.05					
PRMLxT1L	2024-07-22 09:17:02			-28.96					

Noise Appendix

Field Sheets

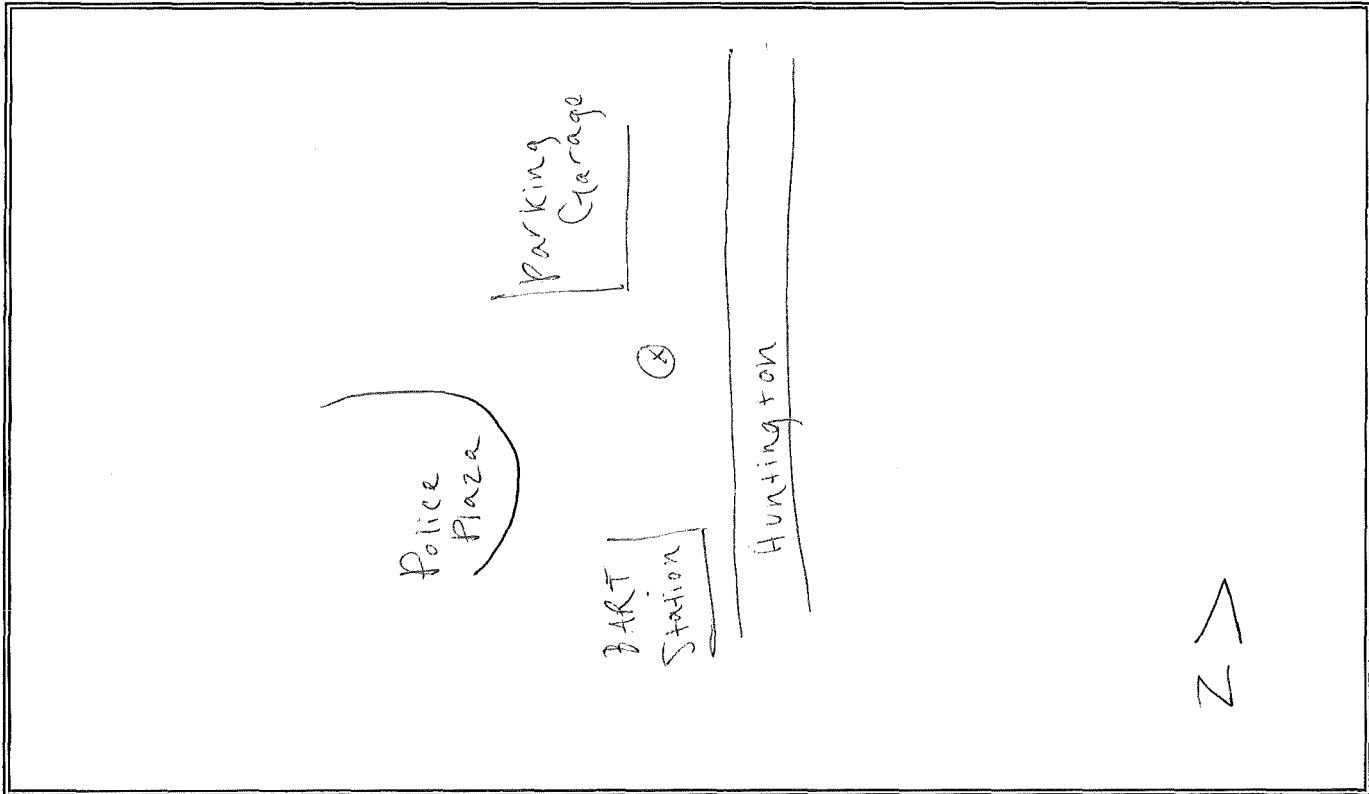
NOISE MEASUREMENT SITE INFORMATION SHEET

Jones & Stokes

PROJECT NAME: Tanforan
 SITE NUMBER: ST-1
 LOCATION/ADDRESS: San Bruno BART Station

PROJECT #: _____
 DATE/TIME: 10:00 AM 07-24-24
 ENGINEERS: Schumaker/Hartfelder

SITE SKETCH: Show microphone location, nearby residences/buildings, potential reflective surfaces, project roadways, local roadways, driveways, ground type, trees. Indicate reference distances between objects, arrows showing wind direction, North, and camera locations/directions. Describe the line-of-sight and topography/elevation changes relative to noise sources.



WEATHER DATA: (temperature, wind speed/direction, sky conditions, relative humidity)

↓ ↓ ↓ ↓
 78.9° 2.3 mph Clear/Sunny 67.1%

EQUIPMENT DATA: (sound level meter, microphone, preamp, calibrator, factory cal. date)

L X T

Precal: 0.01 dB

post-cal: 0.07 dB

Data → 0.93

ESTIMATED CONSTRUCTION DATE OF RESIDENCES: (Pre-1978, or new construction)

POSTED SPEED: _____ COMMENTS: _____

TRAFFIC COUNTS:

Roadway/Direction	Autos	Medium	Heavy	Speed	Start Time	Duration

NOISE MEASUREMENT LOG SHEET (20)


 Jones & Stokes

PROJECT NAME: Tanforan
 SITE NUMBER: ST-1
 LOCATION/ADDRESS: San Bruno BART

PROJECT #: _____
 DATE/TIME: 10:00 AM 07-24-24
 ENGINEERS: _____

#	Minute Starting	Measured Leq (dBA)	O or X	Autos	Medium Trucks	Heavy Trucks	Other Noise Sources/Comments (include SLM equipment, Calibration Data)
1	10:00						Train noise, vehicle traffic
2	10:01						Jet taking off, train horn, traffic noise
3	10:02						vehicle traffic, BART announcements
4	10:03						vehicle traffic, pedestrian/bicyclists on sidewalk
5	10:04						rail activity, vehicle traffic
6	10:05						vehicle traffic, distant train horn
7	10:06						vehicle traffic, jet activity, distant train horn
8	10:07						BART announcements, vehicles in garage, vehicle traffic
9	10:08						BART announcements, vehicle traffic, train noise
10	10:09						Distant train noise, vehicle traffic
11	10:10						bus/vehicle traffic, pedestrians
12	10:11						vehicles, train leaving station, pedestrians, jet activity
13	10:12						bus leaving station, vehicle activity
14	10:13					plane taking off	bus pulling out, vehicle & jet activity
15	10:14						jet take off, bus leaving
16							
17							
18							
19							
20							

Overall Leq (Include "O" minutes, Exclude "X" minutes) =

Subset Leq (Exclude "O" and "X" minutes) =

66.5	dBA
	dBA

"O" = other characteristic sources that contributed to the Leq

"X" = exclude from Leq calculation; a non-typical source contaminated the measurement

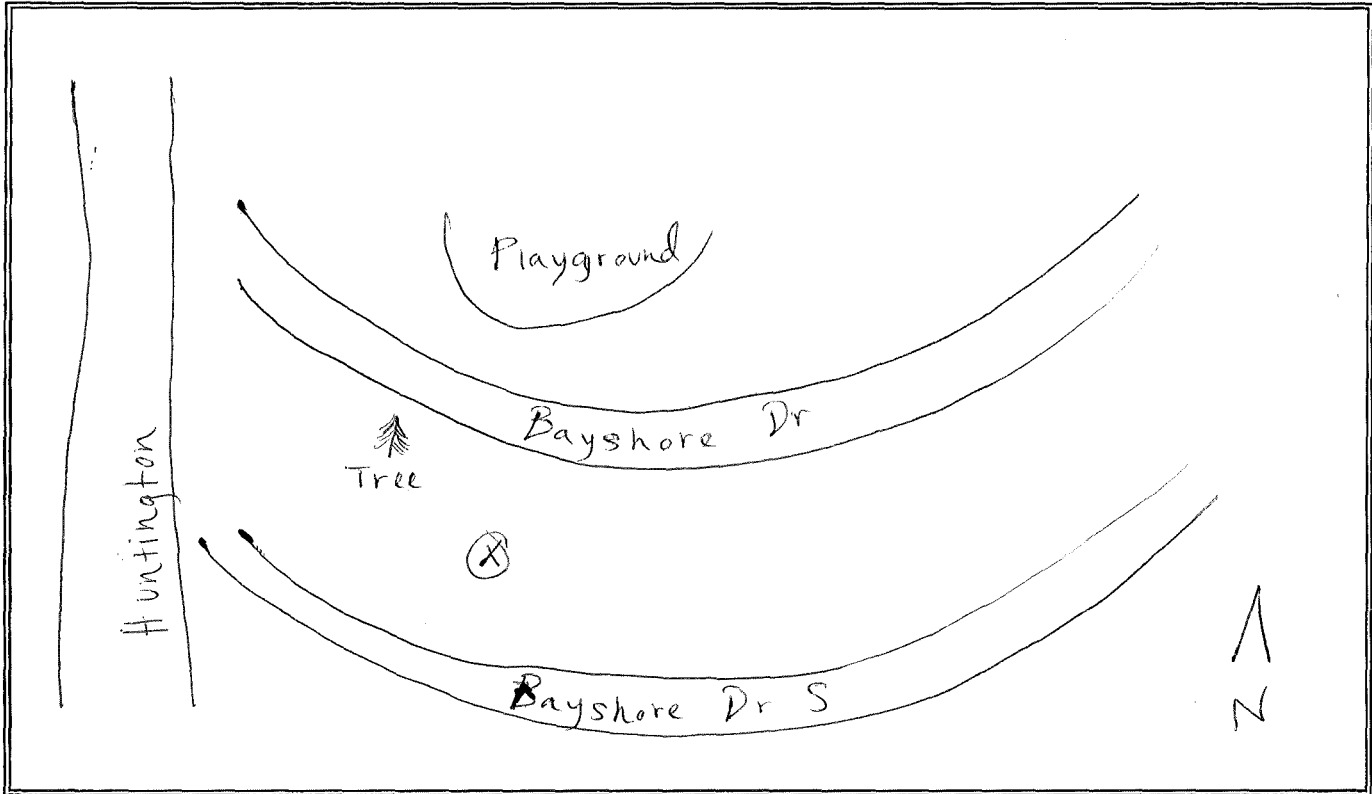
NOISE MEASUREMENT SITE INFORMATION SHEET

Jones & Stokes

PROJECT NAME: Tanforan
 SITE NUMBER: ST-2
 LOCATION/ADDRESS: Bayshore Dr N, South side

PROJECT #:
 DATE/TIME: 10:43 AM 07-24-24
 ENGINEERS: Schumaker / Hartfelder

SITE SKETCH: Show microphone location, nearby residences/buildings, potential reflective surfaces, project roadways, local roadways, driveways, ground type, trees. Indicate reference distances between objects, arrows showing wind direction, North, and camera locations/directions. Describe the line-of-sight and topography/elevation changes relative to noise sources.



WEATHER DATA: (temperature, wind speed/direction, sky conditions, relative humidity)

↓ ↓ ↓ ↓
 76.9° 42 mph clear 61.4 %

EQUIPMENT DATA: (sound level meter, microphone, preamp, calibrator, factory cal. date)

precal: -0.08 dB
 post cal: -0.03 dB

Data: .094

ESTIMATED CONSTRUCTION DATE OF RESIDENCES: (Pre-1978, or new construction)

POSTED SPEED: _____ COMMENTS: _____

TRAFFIC COUNTS:

Roadway/Direction	Autos	Medium	Heavy	Speed	Start Time	Duration

NOISE MEASUREMENT LOG SHEET (20)


Jones & Stokes

PROJECT NAME: Tanforan
SITE NUMBER: SI-2
LOCATION/ADDRESS: South side of Bayshore Dr

PROJECT #: _____
DATE/TIME: 10:31 AM 07-21-24
ENGINEERS: Schumaker/Hartfelder

#	Minute Starting	Measured Leq (dBA)	O or X	Autos	Medium Trucks	Heavy Trucks	Other Noise Sources/Comments (include SLM equipment, Calibration Data)
1	10:34						Jet activity, vehicle traffic
2	10:35						UPS truck, jet activity construction nearby
3	10:36						vehicle traffic on ~~at~~ ~~crossing~~ Huntington
4	10:37						traffic, construction nearby, jet activity
5	10:38						constant sources
6	10:39						train noise, utility truck, constant sources
7	10:40						train noise, constant sources
8	10:41						constant sources, activity @ residences
9	10:42						constant sources, jet construction drilling, take off
10	10:43						plane taking off constant sources
11	10:44						constant sources
12	10:45						constant sources, pedestrians
13	10:46						constant sources, dog barking
14	10:47						constant sources
15	10:48						constant mail sources, truck
16							Leq 62.8
17							Lmax 82.7
18							Lmin 49.0
19							L10 56.6
20							L33
							L50 52.1
							L90 50.2

Overall Leq (Include "O" minutes, Exclude "X" minutes) =

Subset Leq (Exclude "O" and "X" minutes) =

	dBA
	dBA

"O" = other characteristic sources that contributed to the Leq

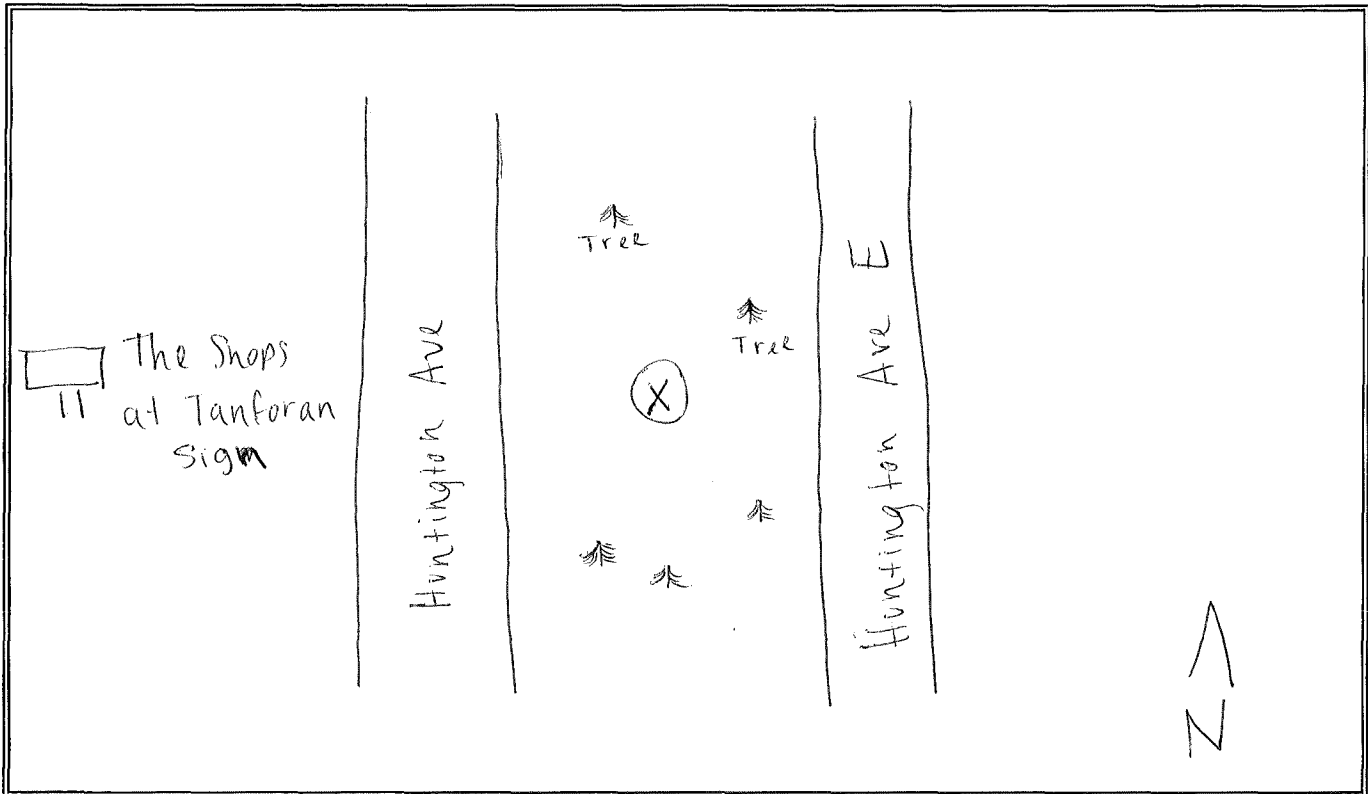
"X" = exclude from Leq calculation; a non-typical source contaminated the measurement

NOISE MEASUREMENT SITE INFORMATION SHEET


Jones & Stokes

PROJECT NAME: Tanforan PROJECT #: _____
 SITE NUMBER: ST-3 Huntington Dr & DATE/TIME: 11:06 AM 07-24-24
 LOCATION/ADDRESS: Median between Huntington Dr & E ENGINEERS: Schumaker / Hartfelder

SITE SKETCH: Show microphone location, nearby residences/buildings, potential reflective surfaces, project roadways, local roadways, driveways, ground type, trees. Indicate reference distances between objects, arrows showing wind direction, North, and camera locations/directions. Describe the line-of-sight and topography/elevation changes relative to noise sources.



WEATHER DATA: (temperature, wind speed/direction, sky conditions, relative humidity)

↓ ↓ ↓ ↓
 77.5° 3.4 mph Clear 62.8%

EQUIPMENT DATA: (sound level meter, microphone, preamp, calibrator, factory cal. date)

Data: 0.095

precal: 0.05 dB

LKT

post cal: -0.02 dB

ESTIMATED CONSTRUCTION DATE OF RESIDENCES: (Pre-1978, or new construction) _____

POSTED SPEED: _____ COMMENTS: _____

TRAFFIC COUNTS:

Roadway/Direction	Autos	Medium	Heavy	Speed	Start Time	Duration

NOISE MEASUREMENT LOG SHEET (20)


Jones & Stokes

PROJECT NAME: Tanforan PROJECT #: _____
 SITE NUMBER: ST-3 Huntington Dr DATE/TIME: 11:06 AM 07/21/24
 LOCATION/ADDRESS: Median between & Huntington Dr E ENGINEERS: Schumaker / Hartfelder

#	Minute Starting	Measured Leq (dBA)	O or X	Autos	Medium Trucks	Heavy Trucks	Other Noise Sources/Comments (include SLM equipment, Calibration Data)
1	11:06						vehicle traffic, jet activity
2	11:07						vehicle traffic, jet activity
3	11:08						vehicle traffic, jet activity, dog barking
4	11:09						plane take off, vehicle traffic
5	11:10						constant sources (vehicle traffic & jet activity), bus
6	11:11						constant sources
7	11:12						constant sources, train noise
8	11:13						constant sources, train noise
9	11:14						constant sources
10	11:15						constant sources
11	11:16						constant sources
12	11:17						constant sources
13	11:18						constant sources
14	11:19						constant loud sources, engine
15	11:20						constant sources, train noise, construction nearby, truck
16							
17							
18							
19							
20							

Overall Leq (Include "O" minutes, Exclude "X" minutes) =

Subset Leq (Exclude "O" and "X" minutes) =

	dBA
	dBA

"O" = other characteristic sources that contributed to the Leq

"X" = exclude from Leq calculation; a non-typical source contaminated the measurement

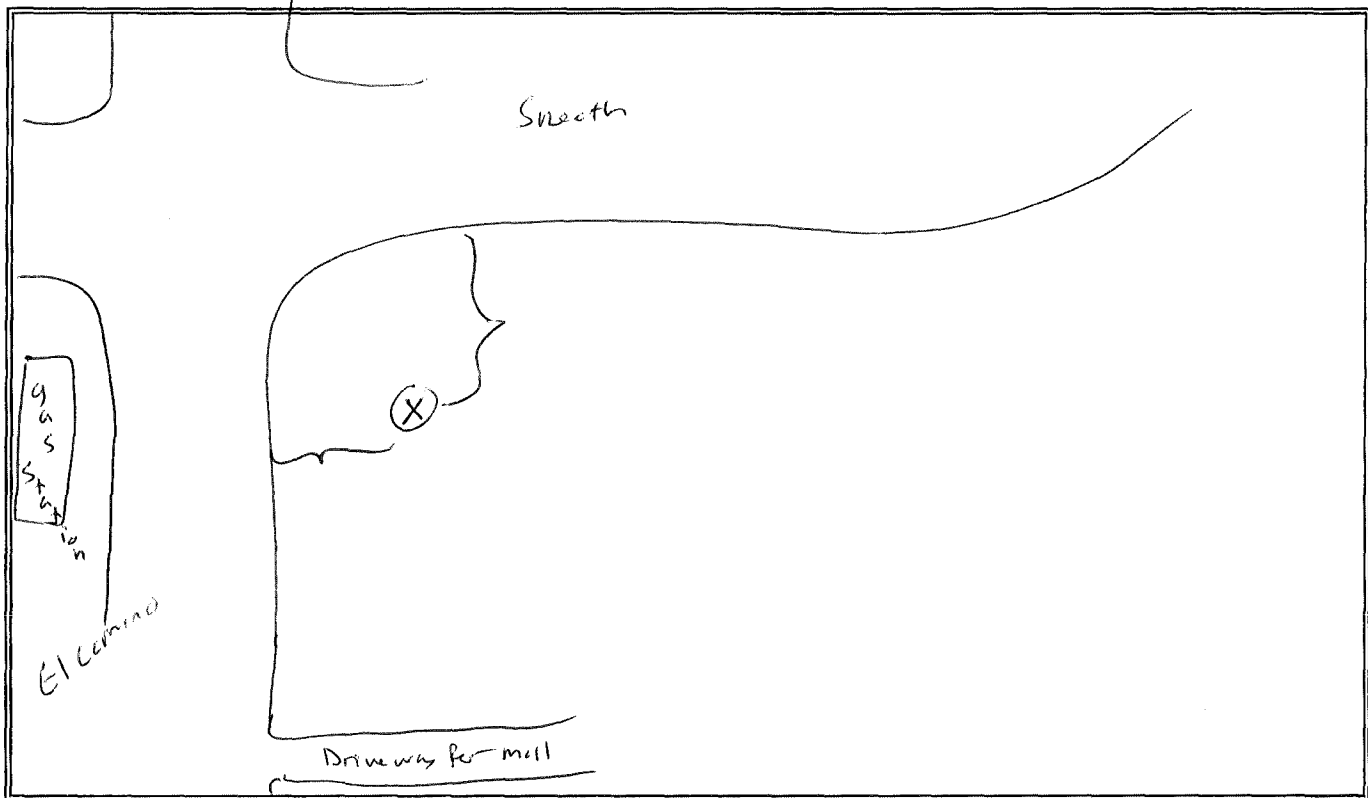
NOISE MEASUREMENT SITE INFORMATION SHEET


Jones & Stokes

PROJECT NAME: Tamferan
SITE NUMBER: ST-4
LOCATION/ADDRESS: NW corner of site

PROJECT #: _____
DATE/TIME: 2024 07 24 9:10 AM
ENGINEERS: Schwartz & Hutzler

SITE SKETCH: Show microphone location, nearby residences/buildings, potential reflective surfaces, project roadways, local roadways, driveways, ground type, trees. Indicate reference distances between objects, arrows showing wind direction, North, and camera locations/directions. Describe the line-of-sight and topography/elevation changes relative to noise sources.



WEATHER DATA: (temperature, wind speed/direction, sky conditions, relative humidity)

68.1°F 4.0 clear skies 73.7%

EQUIPMENT DATA: (sound level meter, microphone, preamp, calibrator, factory cal. date)

LXT

pre cal: -0.09 dB
post cal: +0.01 dB

Data. 092

ESTIMATED CONSTRUCTION DATE OF RESIDENCES: (Pre-1978, or new construction)

POSTED SPEED: _____ COMMENTS: _____

TRAFFIC COUNTS:

Roadway/Direction	Autos	Medium	Heavy	Speed	Start Time	Duration

NOISE MEASUREMENT LOG SHEET (20)

Jones & Stokes

PROJECT NAME: Tan foran
 SITE NUMBER: S-T-4
 LOCATION/ADDRESS: NW corner of project site near El Camino Real + Sneath.

PROJECT #: -
 DATE/TIME: 9:10 AM 2024 07 24
 ENGINEERS: Schumacher D. Hartfelder K.

#	Minute Starting	Measured Leq (dBA)	O or X	Autos	Medium Trucks	Heavy Trucks	Other Noise Sources/Comments (include SLM equipment, Calibration Data)
1	9:10			Traffic on El Camino and Sneath.			Jet take off from SFO.
2	9:11				Jet from SFO		Traffic, music from gas station
3	12			Traffic noise			30 seconds in! Jet noise, music from gas station
4	13			Jet noise	crow caws 2 times		Bus Stop Beeping. (warning?)
5	14			Traffic noise			
6	15			Jet noise			Traffic still active
7	16			Squeaky Large Truck			turning onto Sneath. Traffic + Jet noise
8	17						
9	18			Traffic noise			
10	19			Bus horn in parking lot			Dump Truck? on Sneath. Jet noise.
11	20						
12	21			traffic, jets, music			crow caws
13	22			Big Jet right overhead.			Large peak in data.
14	23			Big diesel truck on Sneath			Jet noise.
15	24			hydraulic trucks on Sneath, El Camino Real traffic			crow, jets.
16							
17				constant noise sources: El Camino Real / Sneath			
18							Traffic, music from gas station
19							intermittent Jet noise.
20							

Leq	63.3
Lmax	80.1
Lmin	55.2
L10	62.6
L33	
L50	60.6
L90	57.4

Overall Leq (Include "O" minutes, Exclude "X" minutes) =

Subset Leq (Exclude "O" and "X" minutes) =

	dBA
	dBA

"O" = other characteristic sources that contributed to the Leq

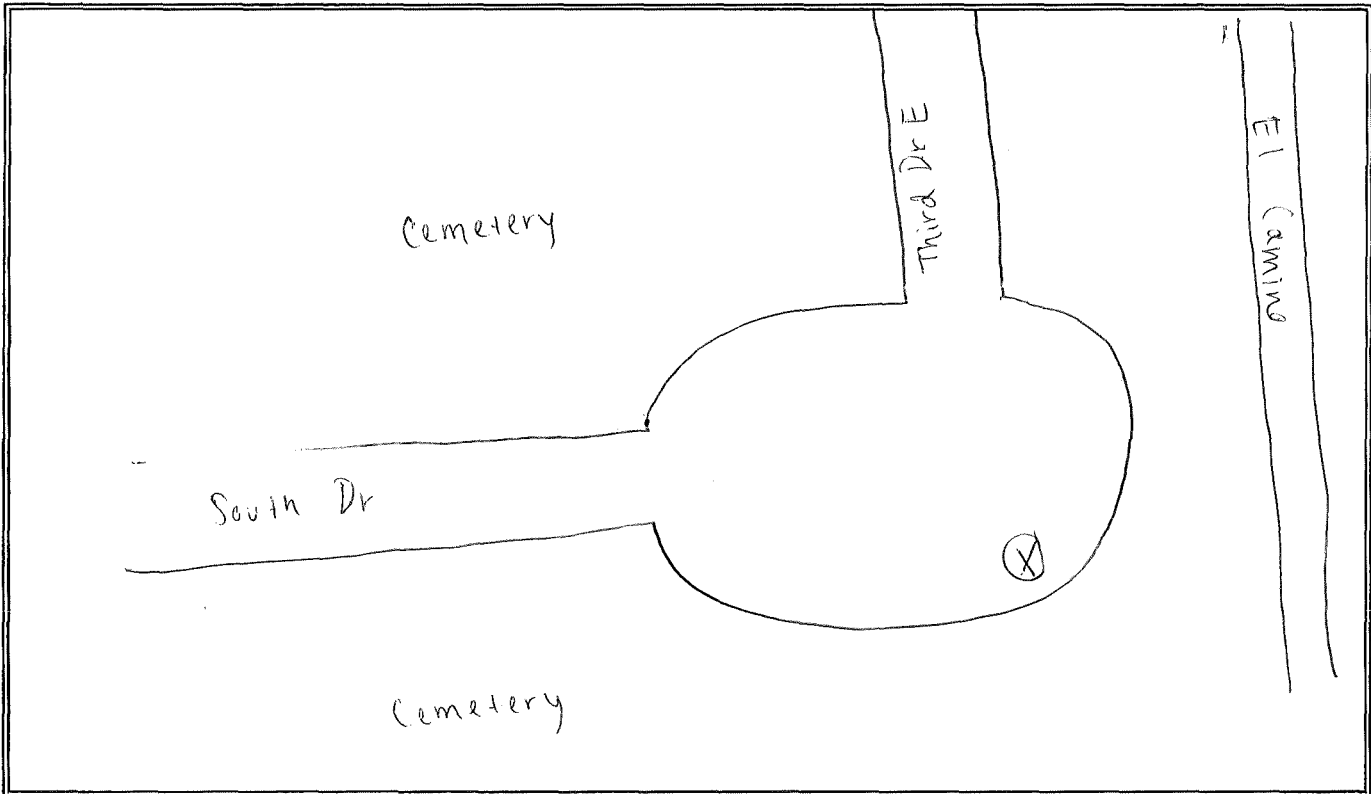
"X" = exclude from Leq calculation; a non-typical source contaminated the measurement

NOISE MEASUREMENT SITE INFORMATION SHEET

 Jones & Stokes

PROJECT NAME: Tan Foran PROJECT #:
 SITE NUMBER: ST-5 DATE/TIME: 11:37 AM 07-24-24
 LOCATION/ADDRESS: South Dr & Third Dr E ENGINEERS: Schumaker/Hartfelder

SITE SKETCH: Show microphone location, nearby residences/buildings, potential reflective surfaces, project roadways, local roadways, driveways, ground type, trees. Indicate reference distances between objects, arrows showing wind direction, North, and camera locations/directions. Describe the line-of-sight and topography/elevation changes relative to noise sources.



WEATHER DATA: (temperature, wind speed/direction, sky conditions, relative humidity)

↓ 76.8° ↓ 7.0 mph ↓ Clear ↓ 67.5%

EQUIPMENT DATA: (sound level meter, microphone, preamp, calibrator, factory cal. date)

LXT

precal: 0.09 dB
 postcal: -0.11 dB

Data: .096

ESTIMATED CONSTRUCTION DATE OF RESIDENCES: (Pre-1978, or new construction) _____

POSTED SPEED: _____ COMMENTS: _____

TRAFFIC COUNTS:

Roadway/Direction	Autos	Medium	Heavy	Speed	Start Time	Duration

NOISE MEASUREMENT LOG SHEET (20)

Jones & Stokes

PROJECT NAME: Tanloran
 SITE NUMBER: ST-5
 LOCATION/ADDRESS: South Dr & Third Dr E

PROJECT #: _____
 DATE/TIME: 11:37 AM 07-24-24
 ENGINEERS: Schumaker / Hartfelder

#	Minute Starting	Measured Leq (dBA)	O or X	Autos	Medium Trucks	Heavy Trucks	Other Noise Sources/Comments (include SLM equipment, Calibration Data)
1	11:37 AM						jet activity, birds, train noise, vehicle traffic, distant construction
2	11:38 AM						train noise, birds, vehicle activity, jet activity
3	11:39 AM						jet activity, vehicle traffic
4	11:40 AM						constant sources (jet & vehicle activity) birds
5	11:41 AM						constant sources, rustling leaves
6	11:42 AM						constant sources, birds chirping
7	11:43 AM						constant sources, rustling leaves
8	11:44 AM						constant sources, plane take off
9	11:45 AM						plane take off, constant sources
10	11:46 AM						constant sources, distant construction
11	11:47 AM						constant sources, distant construction
12	11:48 AM						constant sources
13	11:49 AM						constant sources
14	11:50 AM						constant sources, rustling leaves
15	11:51 AM						constant sources
16							Leq 61.7
17							Lmax 85.9
18							Lmin 50.9
19							L10 59.1
20							L33
							L50 54.8
							L90 52.2

Overall Leq (Include "O" minutes, Exclude "X" minutes) = 61.7 dBA
 Subset Leq (Exclude "O" and "X" minutes) = dBA

"O" = other characteristic sources that contributed to the Leq

"X" = exclude from Leq calculation; a non-typical source contaminated the measurement

Noise Appendix
Field Photographs

Noise Measurement Photographs



LT-1 Looking Southwest



LT-1 Looking Southeast



LT-1 Looking East

Noise Measurement Photographs



LT-2 Looking West



LT-2 Looking South



LT-2 Looking Southeast



LT-2 Looking North

Noise Measurement Photographs



LT-3 Looking east



LT-3 Looking North



LT-3 Looking South



LT-3 Looking West

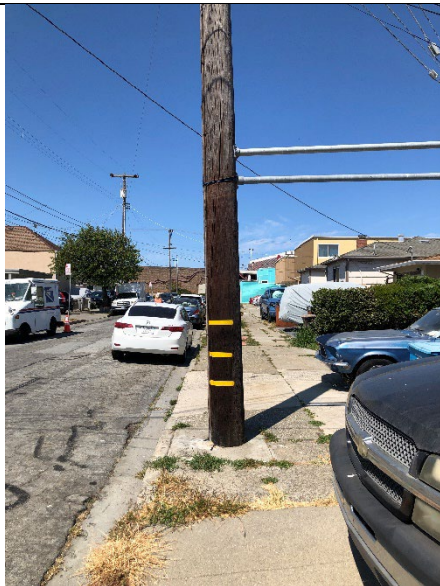
Noise Measurement Photographs



LT-4 Looking East



LT-4 Looking North



LT-4 Looking West

Noise Measurement Photographs



LT-5 Looking North



LT-5 Looking Northeast



LT-5 Looking South



LT-5 Looking Southwest

Noise Measurement Photographs



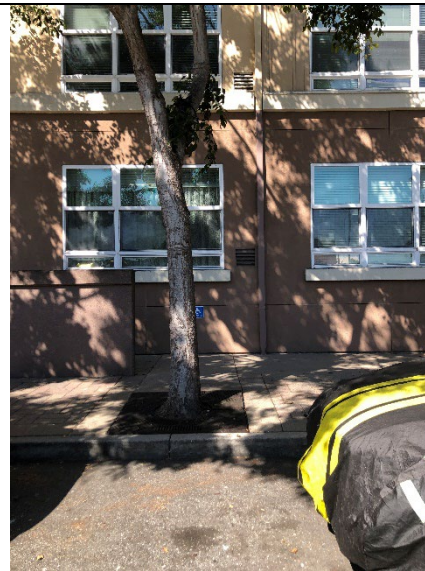
LT-6 Looking East



LT-6 Looking North



LT-6 Looking South

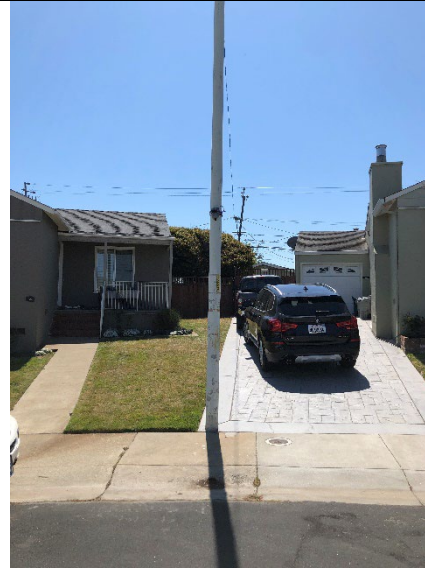


LT-6 Looking West

Noise Measurement Photographs



LT-7 Looking East



LT-7 Looking Southeast



LT-7 Looking Southwest

Noise Measurement Photographs



LT-8 Looking East



LT-8 Looking South



LT-8 Looking West

Noise Measurement Photographs



LT-9 Looking East



LT-9 Looking Northwest



LT-9 Looking Southeast



LT-9 Looking Southwest

Noise Measurement Photographs



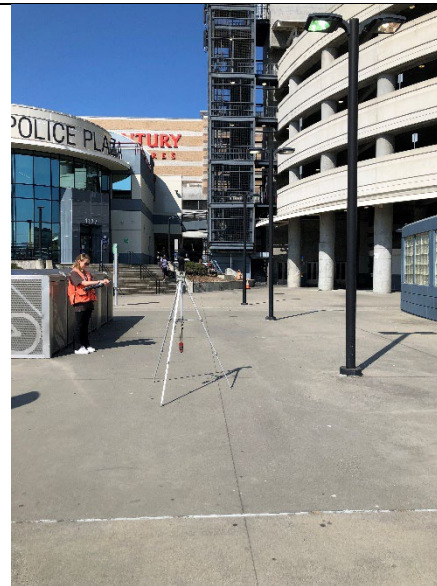
ST-1 Looking East



ST-1 Looking North



ST-1 Looking South



ST-1 Looking West

Noise Measurement Photographs



ST-2 Looking East



ST-2 Looking North



ST-2 Looking South



ST-2 Looking West

Noise Measurement Photographs



ST-3 Looking East



ST-3 Looking North



ST-3 Looking West

Noise Measurement Photographs



ST-4 Looking East



ST-4 Looking North



ST-4 Looking South

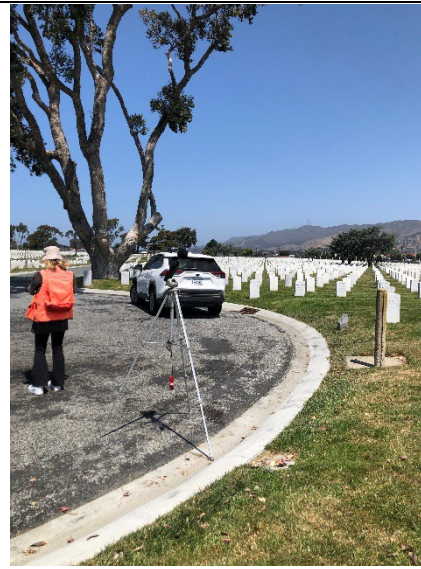


ST-4 Looking West

Noise Measurement Photographs



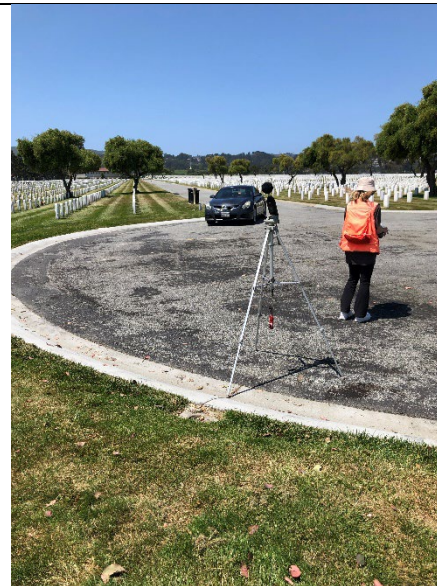
ST-5 Looking East



ST-5 Looking North



ST-5 Looking South



ST-5 Looking West