

Appendix E

Noise

Appendix E.1

Noise Calculations Worksheets

8th, Grand and Hope Project

Noise Calculations Worksheets

Provided by Acoustical Engineering Services

Ambient Noise Measurements

Location: R1
Date: 7/15/2019

Time	Overload	Leq	Lmax	L10	L90
10:03:32 AM	No	64.5	70.4	66.6	62
10:04:32 AM	No	64	68.1	66.3	61.1
10:05:32 AM	No	65.8	73.4	68.2	62.1
10:06:32 AM	No	64.4	69.9	66.3	62.1
10:07:32 AM	No	67.4	76.6	70.3	60.8
10:08:32 AM	No	66.3	74.4	69.4	61.3
10:09:32 AM	No	64.3	68.5	66.5	60.9
10:10:32 AM	No	69.4	79.5	71.6	64.5
10:11:32 AM	No	65.2	70.2	66.8	62.2
10:12:32 AM	No	66	73.1	68.2	63.3
10:13:32 AM	No	67.6	73	70.5	64.4
10:14:32 AM	No	68.3	73.8	71.5	64.6
10:15:32 AM	No	66.2	75.1	69.1	62.5
10:16:32 AM	No	65.9	72.3	67.9	62
10:17:32 AM	No	67.9	74.1	72	64.1
		66.5			

Time	Overload	Leq	Lmax	L10	L90
10:01:26 PM	No	63.6	70.6	67.3	59.1
10:02:26 PM	No	62.5	66.8	65	60.3
10:03:26 PM	No	63	67	65.2	60.4
10:04:26 PM	No	66.6	74.9	70.2	62.9
10:05:26 PM	No	67.7	74.3	70.7	63.3
10:06:26 PM	No	71	77.3	74.3	65.4
10:07:26 PM	No	73.9	83.5	77.9	64.1
10:08:26 PM	No	63.4	69.4	65.8	59.9
10:09:26 PM	No	63.4	69.8	65	60.6
10:10:26 PM	No	65.9	79.2	65.7	60.1
10:11:26 PM	No	64.8	76.3	66.7	60.5
10:12:26 PM	No	63.9	68.5	66	61.1
10:13:26 PM	No	66	72.8	69.6	60.8
10:14:26 PM	No	66.2	72.5	68.9	62.3
10:15:26 PM	No	64.8	69.6	66.9	62.6
		65.9			

Location: R2
Date: 7/15/2019

Time	Overload	Leq	Lmax	L10	L90
10:22:38 AM	No	66.2	71.8	68.5	63.6
10:23:38 AM	No	65.8	72.8	69.4	60.9
10:24:38 AM	No	67.9	74.4	71	62.1
10:25:38 AM	No	68.3	75	72	63.4
10:26:38 AM	No	64.7	68.6	66.8	61.2
10:27:38 AM	No	66.2	68.9	67.9	64.5
10:28:38 AM	No	65.9	72.2	68.6	62.5
10:29:38 AM	No	64.1	68.9	67.8	60.3
10:30:38 AM	No	65.1	71.2	67	60.8
10:31:38 AM	No	66.1	73	67.7	63.7
10:32:38 AM	No	65.2	69.8	68.7	62
10:33:38 AM	No	64.7	68.5	67	61.4
10:34:38 AM	No	63.3	67.5	66.4	60
10:35:38 AM	No	64.7	70.1	67.9	59.6
10:36:38 AM	No	66.3	73.6	69.7	61.3
		65.8			

Time	Overload	Leq	Lmax	L10	L90
10:19:30 PM	No	64.7	68.6	67.4	62.9
10:20:30 PM	No	66.4	72.7	68.5	63.8
10:21:30 PM	No	70.4	75.2	73.2	67.5
10:22:30 PM	No	64.7	73.1	67	61.1
10:23:30 PM	No	63.7	73.1	66.7	59.1
10:24:30 PM	No	65.9	75.1	71.4	58.8
10:25:30 PM	No	63.6	70.5	65.8	59.7
10:26:30 PM	No	64.3	69.9	67.1	60.2
10:27:30 PM	No	65.2	70.5	67.5	59.8
10:28:30 PM	No	67.3	74.6	72.1	60
10:29:30 PM	No	61.6	66.1	63.2	59.1
10:30:30 PM	No	63.2	67.5	66.4	59.6
10:31:30 PM	No	64.2	71.2	67.1	60.5
10:32:30 PM	No	61.9	65.4	64.1	58.5
10:33:30 PM	No	64.1	71.7	67.2	60.2
		65.4			

Location: R3
Date: 7/15/2019

Time	Overload	Leq	Lmax	L10	L90
10:42:00 AM	No	66.2	73.6	68.8	61.7
10:43:00 AM	No	65.3	71.9	68.1	60.1
10:44:00 AM	No	61.5	66.8	64.3	58.6
10:45:00 AM	No	61.9	68.1	65.4	58.1
10:46:00 AM	No	65.6	75.9	69.5	56.5
10:47:00 AM	No	62	66.3	64.4	58.5
10:48:00 AM	No	66.6	71	69.3	59.9
10:49:00 AM	No	65.3	72.4	68.9	60.8
10:50:00 AM	No	69.2	77.3	74.5	62.9
10:51:00 AM	No	62.4	67.4	66	57.5
10:52:00 AM	No	70.3	80.4	75.5	58.7
10:53:00 AM	No	66.9	74.4	70.9	57.8
10:54:00 AM	No	65.1	69.4	68	60
10:55:00 AM	No	67	75.6	71	61.2
10:56:00 AM	No	63.4	72	66.5	57.2

66

Time	Overload	Leq	Lmax	L10	L90
10:39:38 PM	No	69.2	84.4	68.5	55.2
10:40:38 PM	No	60.9	70.3	61.5	57.3
10:41:38 PM	No	61.9	67.7	65.6	56.2
10:42:38 PM	No	60.2	67.2	63.8	55.3
10:43:38 PM	No	59.4	66	61.8	55.3
10:44:38 PM	No	57.9	61.7	60.5	55
10:45:38 PM	No	60.7	68.9	65.7	54.3
10:46:38 PM	No	65.2	71.7	69.1	57.5
10:47:38 PM	No	62.9	67.8	66	57.7
10:48:38 PM	No	60.6	64.7	63.2	57.7
10:49:38 PM	No	65.8	71.2	69.7	57.5
10:50:38 PM	No	58.6	62.6	60.7	55.8
10:51:38 PM	No	60.7	67.9	65.3	55.8
10:52:38 PM	No	59.5	64.1	62.2	56.1
10:53:38 PM	No	61.9	69.9	65	57.2

62.9

Location: R4
Date: 7/15/2019

Time	Overload	Leq	Lmax	L10	L90
10:58:53 AM	No	66.9	76.8	71.1	59.2
10:59:53 AM	No	69.7	79.3	72.9	60.2
11:00:53 AM	No	66.5	74.1	71.1	58.8
11:01:53 AM	No	70.8	82.1	74.7	59.2
11:02:53 AM	No	64.7	70.3	68.5	58.8
11:03:53 AM	No	66.7	75.3	71.8	58.8
11:04:53 AM	No	64.9	77.1	67.2	60.5
11:05:53 AM	No	65.6	71.1	69.7	58.8
11:06:53 AM	No	67.2	73.3	71.5	60.3
11:07:53 AM	No	64.4	71.5	68.9	59.5
11:08:53 AM	No	65.9	73.5	70.7	59.8
11:09:53 AM	No	65.4	71.3	68.7	59.6
11:10:53 AM	No	63.0	69.6	65.2	59.3
11:11:53 AM	No	70.7	82.6	74.3	59.3
11:12:53 AM	No	68.4	76.9	70.6	62.7
		67.4			

Time	Overload	Leq	Lmax	L10	L90
10:56:39 PM	No	65.0	76.9	67.8	56.1
10:57:39 PM	No	62.5	70.1	67.2	56
10:58:39 PM	No	63.9	71.1	69.2	56.4
10:59:39 PM	No	65.8	74.1	71.2	56.4
11:00:39 PM	No	60.1	66.8	62.9	55.9
11:01:39 PM	No	60.2	68.1	63.7	55.6
11:02:39 PM	No	63.3	72.6	67.1	56.5
11:03:39 PM	No	62.5	68.6	66	57.9
11:04:39 PM	No	66.8	78.9	70.6	55.9
11:05:39 PM	No	58.2	63.8	60.2	56.6
11:06:39 PM	No	59.1	65.3	61.7	55.8
11:07:39 PM	No	62.8	68.7	66.2	58.6
11:08:39 PM	No	59.3	66.6	62.3	56.1
11:09:39 PM	No	68.6	78.4	74.5	57.7
11:10:39 PM	No	64.9	73.6	69.6	58.6
		63.9			

Location: R5
Date: 7/15/2019

Time	Overload	Leq	Lmax	L10	L90
11:15:53 AM	No	65.7	73.3	68.5	61.9
11:16:53 AM	No	66.8	69.8	68.9	62.8
11:17:53 AM	No	69.3	76.7	71.7	63.9
11:18:53 AM	No	67.4	72.7	70.1	62.9
11:19:53 AM	No	67.5	72.8	70.2	63.2
11:20:53 AM	No	65.9	71.7	69.3	61.7
11:21:53 AM	No	70	77.1	73	66.8
11:22:53 AM	No	66.1	70.1	68.9	61.2
11:23:53 AM	No	63.7	70.4	66.8	59.1
11:24:53 AM	No	68.7	73.2	71.7	61.1
11:25:53 AM	No	65.2	72.7	67.2	61.4
11:26:53 AM	No	66.4	72	69.7	62.3
11:27:53 AM	No	64.3	67.3	66.1	62.5
11:28:53 AM	No	66.6	69.3	68.7	64
11:29:53 AM	No	69.8	74.3	72.6	64.1

67.3

Time	Overload	Leq	Lmax	L10	L90
11:14:42 PM	No	65	71.7	68.9	59.2
11:15:42 PM	No	65.2	72.9	67.3	59.3
11:16:42 PM	No	63.1	70.3	66.2	58.3
11:17:42 PM	No	63.1	69	67	59.3
11:18:42 PM	No	61.3	66.7	64	58.8
11:19:42 PM	No	64.3	70.2	67.1	59.8
11:20:42 PM	No	63.6	71.5	67.1	59.9
11:21:42 PM	No	64.7	70.3	68.1	59.5
11:22:42 PM	No	63.9	69.3	66	60.2
11:23:42 PM	No	61.9	68.9	63.9	58.5
11:24:42 PM	No	64.1	71.3	68.5	58.3
11:25:42 PM	No	62.9	67.5	65.4	60.2
11:26:42 PM	No	64.7	67.7	66	63.3
11:27:42 PM	No	63.2	66	64.2	62.6
11:28:42 PM	No	64.7	69.1	67.1	62.3

63.8

Location: R6
Date: 7/15/2019

Time	Overload	Leq	Lmax	L10	L90
11:38:15 AM	No	71.4	82.2	75.1	65.1
11:39:15 AM	No	68	71.7	69.9	65.5
11:40:15 AM	No	72.3	79.8	76.5	65.5
11:41:15 AM	No	70.6	78.2	73.3	65.5
11:42:15 AM	No	72.2	79	76	67.2
11:43:15 AM	No	70	74.1	71.9	67.5
11:44:15 AM	No	69.6	72.7	71	67.8
11:45:15 AM	No	71.5	78.7	75.7	67.8
11:46:15 AM	No	69.3	76.6	71.2	65.5
11:47:15 AM	No	68.8	72.1	71	65.2
11:48:15 AM	No	70.3	77.6	73.1	62.5
11:49:15 AM	No	68.1	70.7	69.7	66.2
11:50:15 AM	No	76.5	88.5	79.9	68.5
11:51:15 AM	No	68.7	74.3	71.4	65.4
11:52:15 AM	No	67.1	72.6	70.9	64.1

70.1

Time	Overload	Leq	Lmax	L10	L90
11:34:31 PM	No	64.7	70.5	69.3	57.9
11:35:31 PM	No	65.1	72.7	68.4	59.5
11:36:31 PM	No	64.7	72.2	69.5	58.4
11:37:31 PM	No	65.5	71.6	68.8	61.5
11:38:31 PM	No	62.1	68.3	64.9	57.7
11:39:31 PM	No	62.5	67.9	66.4	57.3
11:40:31 PM	No	63.1	68.3	65.6	58.9
11:41:31 PM	No	65.2	71.7	70.1	59
11:42:31 PM	No	78.9	90.7	81.9	62.2
11:43:31 PM	No	65.0	70.2	68.7	59.7
11:44:31 PM	No	68.4	74	71.9	63.6
11:45:31 PM	No	69.1	75.8	74	61.8
11:46:31 PM	No	67.1	76.3	71.2	60.9
11:47:31 PM	No	63.9	71.3	67.6	58.9
11:48:31 PM	No	64.6	69.8	68.2	59.5

65.5

Location: R7
Date: 7/15/2019

Time	Overload	Leq	Lmax	L10	L90
11:54:45 AM	No	89.3	100.6	94.5	71.6
11:55:45 AM	No	69.6	74.7	72.2	67.2
11:56:45 AM	No	73	85.4	76.5	63.1
11:57:45 AM	No	70.8	78.4	74.9	63.3
11:58:45 AM	No	69.9	80.2	74.3	60.9
11:59:45 AM	No	67.5	73.4	71.8	61.2
12:00:45 PM	No	70.8	75.1	73.3	62.7
12:01:45 PM	No	78.3	87.5	84.6	64.7
12:02:45 PM	No	68.6	74.4	71.8	63.7
12:03:45 PM	No	74.5	83.3	79	68.1
12:04:45 PM	No	66.2	74	71.2	61.7
12:05:45 PM	No	69.9	78.8	74.2	60.6
12:06:45 PM	No	68.6	78.2	71	61.5
12:07:45 PM	No	66.5	74	69.9	61.8
12:08:45 PM	No	72.6	79.2	76.7	63.4
		71.9			

Time	Overload	Leq	Lmax	L10	L90
11:51:54 PM	No	67.3	77.3	71.3	59.5
11:52:54 PM	No	65.3	73.4	70.5	59.1
11:53:54 PM	No	64.4	70.7	68.1	59.1
11:54:54 PM	No	67.8	78.2	70	61.9
11:55:54 PM	No	63.4	69.8	66.3	58.7
11:56:54 PM	No	68	73	71.7	60.4
11:57:54 PM	No	66.4	72.8	69.5	57.9
11:58:54 PM	No	62	68.3	66.5	57.5
11:59:54 PM	No	64	70.6	67.4	57.3
12:00:54 AM	No	62.1	67.6	65.6	57.1
12:01:54 AM	No	62.9	69.2	66.7	57.9
12:02:54 AM	No	66	72.6	69	61
12:03:54 AM	No	67.6	73.7	72.4	58.4
12:04:54 AM	No	62.5	69.1	66.2	57.6
12:05:54 AM	No	66.6	76.4	71.3	58.7
		65.6			

Location: R8
Date: 7/15/2019

Time	Overload	Leq	Lmax	L10	L90
12:13:01 PM	No	85.7	94.9	92.6	63.7
12:14:01 PM	No	64.9	71.5	66.6	62.6
12:15:01 PM	No	63.6	69.5	65.4	61.6
12:16:01 PM	No	64.1	66.9	65.7	62
12:17:01 PM	No	66.7	71.4	68	63.6
12:18:01 PM	No	66	68.4	67.8	64.1
12:19:01 PM	No	65.1	69.8	67	60.3
12:20:01 PM	No	65.3	69.2	66.6	63.7
12:21:01 PM	No	66.3	77.9	67.4	62.3
12:22:01 PM	No	65.1	68.6	67.2	62.1
12:23:01 PM	No	64.1	66.6	65.6	62.7
12:24:01 PM	No	66.3	69	67.8	63.9
12:25:01 PM	No	66.3	70.2	68	64.6
12:26:01 PM	No	63.6	67	65.3	61.2
12:27:01 PM	No	63.5	66.9	65.5	60.6

65.2

Time	Overload	Leq	Lmax	L10	L90
12:10:42 AM	No	63.9	73.1	68.3	58.4
12:11:42 AM	No	60.3	69.1	62.9	58
12:12:42 AM	No	62.8	69.7	66.7	58.8
12:13:42 AM	No	60.1	62.5	61.4	58.6
12:14:42 AM	No	60.6	66.9	63.1	58.4
12:15:42 AM	No	60.3	64	62.5	58
12:16:42 AM	No	59.9	64.7	63.2	57.5
12:17:42 AM	No	61.6	66.8	64.9	58.3
12:18:42 AM	No	69.1	85.3	66.4	57.7
12:19:42 AM	No	62.6	68.3	64.5	60.2
12:20:42 AM	No	59.2	68.9	60.5	57.2
12:21:42 AM	No	60	67.9	62.2	58.1
12:22:42 AM	No	63.7	78.6	61.5	58.1
12:23:42 AM	No	58.4	62.2	59.4	57.5
12:24:42 AM	No	58.9	63.9	61.4	57.4

62.5

Location: R9
Date: 7/15/2019

Time	Overload	Leq	Lmax	L10	L90
12:29:17 PM	No	67.1	74.9	69.6	62.4
12:30:17 PM	No	66.1	72.2	68.1	63.4
12:31:17 PM	No	64.8	68.5	66.2	63.3
12:32:17 PM	No	65.5	71.4	68.7	62.6
12:33:17 PM	No	67.4	77	70.4	62.3
12:34:17 PM	No	64.7	67.6	66.4	62.5
12:35:17 PM	No	66.7	74.3	70.6	62.4
12:36:17 PM	No	64.9	71.6	66.8	61.6
12:37:17 PM	No	64.7	75.5	66.1	62.3
12:38:17 PM	No	73.2	84.4	77.9	62.1
12:39:17 PM	No	73.1	81.3	78.1	63
12:40:17 PM	No	63.9	68.9	65.2	62.1
12:41:17 PM	No	67.1	74.7	69.9	62.8
12:42:17 PM	No	67.6	73.1	71.2	63.1
12:43:17 PM	No	65.3	69.7	66.6	63.1
		67.9			

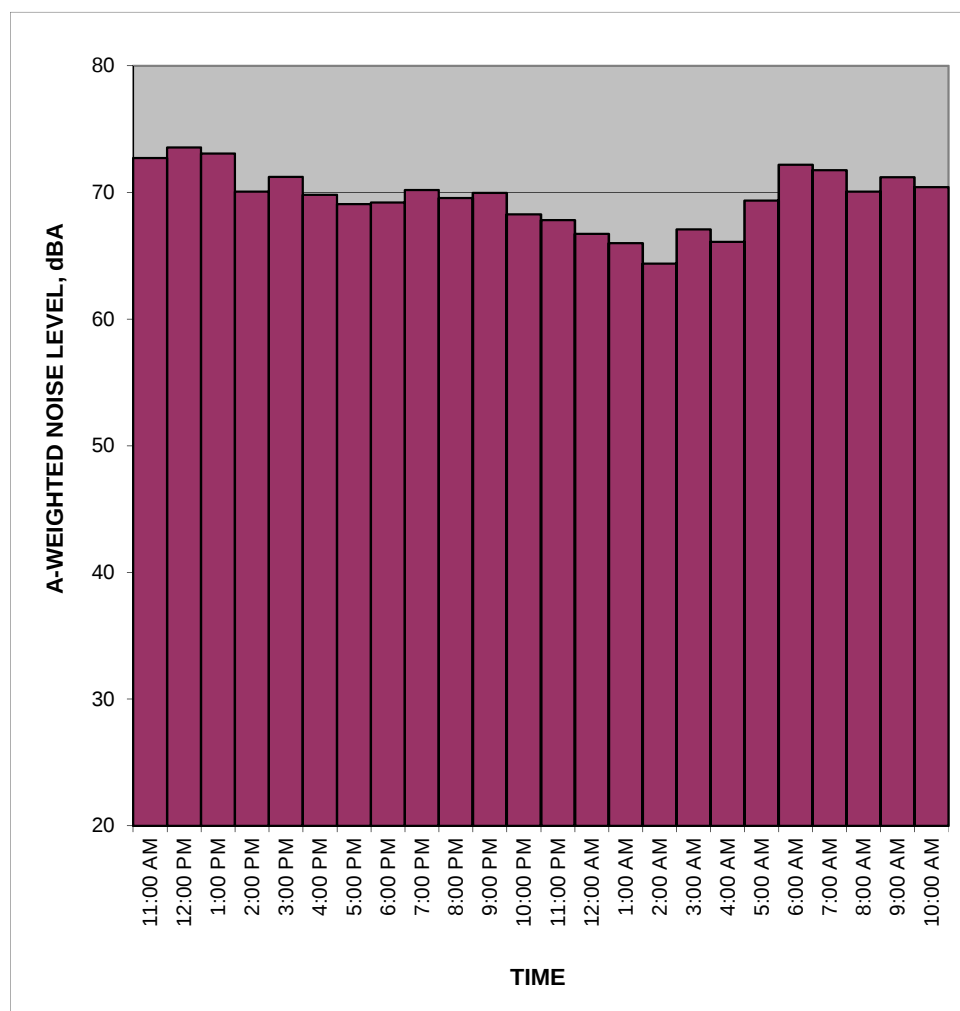
Time	Overload	Leq	Lmax	L10	L90
12:27:58 AM	No	61.1	70	61.5	59.8
12:28:58 AM	No	61.7	70.8	61.8	59
12:29:58 AM	No	61.2	66.4	62.3	60.1
12:30:58 AM	No	64.8	75.3	66.7	60.8
12:31:58 AM	No	62.2	67.8	65.9	59
12:32:58 AM	No	62	66.9	65.6	59
12:33:58 AM	No	60.9	63.7	62.5	59.5
12:34:58 AM	No	67.1	76.8	70.5	59.5
12:35:58 AM	No	64	76.5	65.4	59.8
12:36:58 AM	No	64.1	72.8	67.3	59.1
12:37:58 AM	No	66.2	76.1	70.2	60.4
12:38:58 AM	No	63	68.3	65.6	60.7
12:39:58 AM	No	62.4	69.7	63.5	60.4
12:40:58 AM	No	61	64.1	62.4	59.7
12:41:58 AM	No	62.1	68.3	65	60.2
		63.4			

Measured Ambient Noise Levels

Project: 8th, Grand and Hope
Location: P1
Sources: Ambient

Date: 7/15 - 7/16/2019

TIME	HNL, dB(A)
11:00 AM	72.7
12:00 PM	73.5
1:00 PM	73.1
2:00 PM	70.1
3:00 PM	71.2
4:00 PM	69.8
5:00 PM	69.1
6:00 PM	69.2
7:00 PM	70.2
8:00 PM	69.5
9:00 PM	69.9
10:00 PM	68.3
11:00 PM	67.8
12:00 AM	66.7
1:00 AM	66.0
2:00 AM	64.4
3:00 AM	67.1
4:00 AM	66.1
5:00 AM	69.4
6:00 AM	72.2
7:00 AM	71.8
8:00 AM	70.0
9:00 AM	71.2
10:00 AM	70.4
CNEL, dB(A):	75.4



NOTES:

Daytime Average: 71.0 dBA, Leq
Nighttime Average: 68.1 dBA, Leq

Construction Noise & Vibration Calculations

Project: 8th, Grand and Hope Project

Construction Phase: *Demolition*

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Concrete Saw	1	90	20%	85	0
Tractors/Loaders/Backhoes	1	84	40%	85	0
Water Truck	1	76	40%	105	0
Tractors/Loaders/Backhoes	1	84	40%	105	0
Concrete Saw	1	90	20%	130	0
Air Compressor	1	78	40%	130	0
Air Compressor	1	78	40%	155	0

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Receptor: ***R1***

Results:
1-hour Leq: 82.2

Source for Ref. Noise Levels: FHWA RCNM, 2006

Project: 8th, Grand and Hope Project

Construction Phase: *Grading/Excavation*

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Bore/Drill Rig	1	84	20%	85	0
Excavator	1	81	40%	85	0
Water Truck	1	76	40%	105	0
Rubber Tired Loaders	1	79	40%	105	0
Skid Steer Loaders	1	79	40%	130	0
Bore/Drill Rig	1	84	20%	130	0
Excavator	1	81	40%	155	0
Bore/Drill Rig	1	84	20%	155	0

8

Receptor: *R1*

Results:

1-hour Leq: 78.3

Source for Ref. Noise Levels: FHWA RCNM, 2006

Project: 8th, Grand and Hope Project

Construction Phase: *Foundation*

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Tractors/Loaders/Backhoes	1	84	40%	85	0
Plate Compactor	1	83	20%	85	0
Water Truck	1	76	40%	105	0
Pumps	1	81	50%	105	0
Welders	1	74	40%	130	0
Plate Compactor	1	83	20%	130	0
Pumps	1	81	50%	155	0
Welders	1	74	40%	155	0

8

Receptor: *R1*

Results:

1-hour Leq: 79.1

Source for Ref. Noise Levels: FHWA RCNM, 2006

Project: 8th, Grand and Hope Project

Construction Phase: *Building Construction*

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Tractors/Loaders/Backhoes	1	84	40%	85	0
Rough Terrain Forklifts	1	83	40%	85	0
Air Compressor	1	78	40%	105	0
Aerial Lift	1	75	20%	105	0
Fork Lift	1	75	20%	130	0
Welders	1	74	40%	130	0
Generator Sets	1	81	50%	155	0
Cement and Mortar Mixer	1	80	50%	155	0
Signal Boards	2	73	50%	180	0
Crane (tower)	1	81	16%	180	0
Cement and Mortar Mixer	1	80	50%	205	0
Air Compressor	1	78	40%	205	0
Aerial Lift	1	75	20%	205	0
Welders	1	74	40%	205	0
Crane (mobile)	1	81	16%	205	0

16

Receptor: *R1*

Results:

1-hour Leq: 79.7

Source for Ref. Noise Levels: FHWA RCNM, 2006

Project: 8th, Grand and Hope Project

Construction Phase: Paving

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Surfacing Equipment	1	85	50%	85	0
Tractor/Loader/Backhoe	1	84	40%	85	0
Roller	1	80	20%	105	0
Skid Steer Loaders	1	79	40%	105	0
Cement and Mortar Mixer	1	80	50%	130	0
Plate Compactors	1	83	20%	130	0
Paving Equipment	1	77	50%	155	0
Water Truck	1	76	40%	155	0
Skid Steer Loaders	1	79	40%	180	0

9

Receptor: ***R1***

Results:
1-hour Leq: 80.8

Source for Ref. Noise Levels: FHWA RCNM, 2006

Project: 8th, Grand and Hope Project

Construction Phase: *Demolition*

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Concrete Saw	1	90	20%	275	0
Tractors/Loaders/Backhoes	1	84	40%	275	0
Water Truck	1	76	40%	295	0
Tractors/Loaders/Backhoes	1	84	40%	295	0
Concrete Saw	1	90	20%	320	0
Air Compressor	1	78	40%	320	0
Air Compressor	1	78	40%	345	0

7

Receptor: *R2*

Results:

1-hour Leq: 72.9

Source for Ref. Noise Levels: FHWA RCNM, 2006

Project: 8th, Grand and Hope Project

Construction Phase: *Grading/Excavation*

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Bore/Drill Rig	1	84	20%	275	0
Excavator	1	81	40%	275	0
Water Truck	1	76	40%	295	0
Rubber Tired Loaders	1	79	40%	295	0
Skid Steer Loaders	1	79	40%	320	0
Bore/Drill Rig	1	84	20%	320	0
Excavator	1	81	40%	345	0
Bore/Drill Rig	1	84	20%	345	0

8

Receptor: *R2*

Results:

1-hour Leq: 69.5

Source for Ref. Noise Levels: FHWA RCNM, 2006

Project: 8th, Grand and Hope Project

Construction Phase: *Foundation*

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Tractors/Loaders/Backhoes	1	84	40%	275	0
Plate Compactor	1	83	20%	275	0
Water Truck	1	76	40%	295	0
Pumps	1	81	50%	295	0
Welders	1	74	40%	320	0
Plate Compactor	1	83	20%	320	0
Pumps	1	81	50%	345	0
Welders	1	74	40%	345	0

8

Receptor: *R2*

Results:

1-hour Leq: 69.8

Source for Ref. Noise Levels: FHWA RCNM, 2006

Project: 8th, Grand and Hope Project

Construction Phase: *Building Construction*

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Tractors/Loaders/Backhoes	1	84	40%	275	0
Rough Terrain Forklifts	1	83	40%	275	0
Air Compressor	1	78	40%	295	0
Aerial Lift	1	75	20%	295	0
Fork Lift	1	75	20%	320	0
Welders	1	74	40%	320	0
Generator Sets	1	81	50%	345	0
Cement and Mortar Mixer	1	80	50%	345	0
Signal Boards	2	73	50%	370	0
Crane (tower)	1	81	16%	370	0
Cement and Mortar Mixer	1	80	50%	395	0
Air Compressor	1	78	40%	395	0
Aerial Lift	1	75	20%	395	0
Welders	1	74	40%	395	0
Crane (mobile)	1	81	16%	395	0

16

Receptor: *R2*

Results:

1-hour Leq: 70.8

Source for Ref. Noise Levels: FHWA RCNM, 2006

Project: 8th, Grand and Hope Project

Construction Phase: Paving

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Surfacing Equipment	1	85	50%	275	0
Tractor/Loader/Backhoe	1	84	40%	275	0
Roller	1	80	20%	295	0
Skid Steer Loaders	1	79	40%	295	0
Cement and Mortar Mixer	1	80	50%	320	0
Plate Compactors	1	83	20%	320	0
Paving Equipment	1	77	50%	345	0
Water Truck	1	76	40%	345	0
Skid Steer Loaders	1	79	40%	370	0

9

Receptor: **R2**

Results:
1-hour Leq: 71.4

Source for Ref. Noise Levels: FHWA RCNM, 2006

Project: 8th, Grand and Hope Project

Construction Phase: *Demolition*

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Concrete Saw	1	90	20%	425	0
Tractors/Loaders/Backhoes	1	84	40%	425	0
Water Truck	1	76	40%	445	0
Tractors/Loaders/Backhoes	1	84	40%	445	0
Concrete Saw	1	90	20%	465	0
Air Compressor	1	78	40%	465	0
Air Compressor	1	78	40%	485	0

7

Receptor: *R3*

Results:

1-hour Leq: 69.3

Source for Ref. Noise Levels: FHWA RCNM, 2006

Project: 8th, Grand and Hope Project

Construction Phase: *Grading/Excavation*

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Bore/Drill Rig	1	84	20%	425	0
Excavator	1	81	40%	425	0
Water Truck	1	76	40%	445	0
Rubber Tired Loaders	1	79	40%	445	0
Skid Steer Loaders	1	79	40%	465	0
Bore/Drill Rig	1	84	20%	465	0
Excavator	1	81	40%	485	0
Bore/Drill Rig	1	84	20%	485	0

8

Receptor: *R3*

Results:

1-hour Leq: 66.0

Source for Ref. Noise Levels: FHWA RCNM, 2006

Project: 8th, Grand and Hope Project

Construction Phase: *Foundation*

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Tractors/Loaders/Backhoes	1	84	40%	425	0
Plate Compactor	1	83	20%	425	0
Water Truck	1	76	40%	445	0
Pumps	1	81	50%	445	0
Welders	1	74	40%	465	0
Plate Compactor	1	83	20%	465	0
Pumps	1	81	50%	485	0
Welders	1	74	40%	485	0

8

Receptor: *R3*

Results:

1-hour Leq: 66.3

Source for Ref. Noise Levels: FHWA RCNM, 2006

Project: 8th, Grand and Hope Project

Construction Phase: *Building Construction*

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Tractors/Loaders/Backhoes	1	84	40%	425	0
Rough Terrain Forklifts	1	83	40%	425	0
Air Compressor	1	78	40%	445	0
Aerial Lift	1	75	20%	445	0
Fork Lift	1	75	20%	465	0
Welders	1	74	40%	465	0
Generator Sets	1	81	50%	485	0
Cement and Mortar Mixer	1	80	50%	485	0
Signal Boards	2	73	50%	505	0
Crane (tower)	1	81	16%	505	0
Cement and Mortar Mixer	1	80	50%	525	0
Air Compressor	1	78	40%	525	0
Aerial Lift	1	75	20%	525	0
Welders	1	74	40%	525	0
Crane (mobile)	1	81	16%	525	0

16

Receptor: *R3*

Results:

1-hour Leq: 67.6

Source for Ref. Noise Levels: FHWA RCNM, 2006

Project: 8th, Grand and Hope Project

Construction Phase: Paving

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Surfacing Equipment	1	85	50%	425	0
Tractor/Loader/Backhoe	1	84	40%	425	0
Roller	1	80	20%	445	0
Skid Steer Loaders	1	79	40%	445	0
Cement and Mortar Mixer	1	80	50%	465	0
Plate Compactors	1	83	20%	465	0
Paving Equipment	1	77	50%	485	0
Water Truck	1	76	40%	485	0
Skid Steer Loaders	1	79	40%	505	0

9

Receptor: **R3**

Results:
1-hour Leq: 67.8

Source for Ref. Noise Levels: FHWA RCNM, 2006

Project: 8th, Grand and Hope Project

Construction Phase: *Demolition*

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Concrete Saw	1	90	20%	235	0
Tractors/Loaders/Backhoes	1	84	40%	235	0
Water Truck	1	76	40%	255	0
Tractors/Loaders/Backhoes	1	84	40%	255	0
Concrete Saw	1	90	20%	275	0
Air Compressor	1	78	40%	275	0
Air Compressor	1	78	40%	295	0

7

Receptor: ***R4***

Results:

1-hour Leq: 74.2

Source for Ref. Noise Levels: FHWA RCNM, 2006

Project: 8th, Grand and Hope Project

Construction Phase: *Grading/Excavation*

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Bore/Drill Rig	1	84	20%	235	0
Excavator	1	81	40%	235	0
Water Truck	1	76	40%	255	0
Rubber Tired Loaders	1	79	40%	255	0
Skid Steer Loaders	1	79	40%	275	0
Bore/Drill Rig	1	84	20%	275	0
Excavator	1	81	40%	295	0
Bore/Drill Rig	1	84	20%	295	0

8

Receptor: *R4*

Results:

1-hour Leq: 70.8

Source for Ref. Noise Levels: FHWA RCNM, 2006

Project: 8th, Grand and Hope Project

Construction Phase: *Foundation*

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Tractors/Loaders/Backhoes	1	84	40%	235	0
Plate Compactor	1	83	20%	235	0
Water Truck	1	76	40%	255	0
Pumps	1	81	50%	255	0
Welders	1	74	40%	275	0
Plate Compactor	1	83	20%	275	0
Pumps	1	81	50%	295	0
Welders	1	74	40%	295	0

8

Receptor: *R4*

Results:

1-hour Leq: 71.2

Source for Ref. Noise Levels: FHWA RCNM, 2006

Project: 8th, Grand and Hope Project

Construction Phase: *Building Construction*

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Tractors/Loaders/Backhoes	1	84	40%	235	0
Rough Terrain Forklifts	1	83	40%	235	0
Air Compressor	1	78	40%	255	0
Aerial Lift	1	75	20%	255	0
Fork Lift	1	75	20%	275	0
Welders	1	74	40%	275	0
Generator Sets	1	81	50%	295	0
Cement and Mortar Mixer	1	80	50%	295	0
Signal Boards	2	73	50%	315	0
Crane (tower)	1	81	16%	315	0
Cement and Mortar Mixer	1	80	50%	335	0
Air Compressor	1	78	40%	335	0
Aerial Lift	1	75	20%	355	0
Welders	1	74	40%	355	0
Crane (mobile)	1	81	16%	355	0

16

Receptor: *R4*

Results:

1-hour Leq: 72.2

Source for Ref. Noise Levels: FHWA RCNM, 2006

Project: 8th, Grand and Hope Project

Construction Phase: Paving

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Surfacing Equipment	1	85	50%	235	0
Tractor/Loader/Backhoe	1	84	40%	235	0
Roller	1	80	20%	255	0
Skid Steer Loaders	1	79	40%	255	0
Cement and Mortar Mixer	1	80	50%	275	0
Plate Compactors	1	83	20%	275	0
Paving Equipment	1	77	50%	295	0
Water Truck	1	76	40%	295	0
Skid Steer Loaders	1	79	40%	315	0

9

Receptor: ***R4***

Results:
1-hour Leq: 72.7

Source for Ref. Noise Levels: FHWA RCNM, 2006

Project: 8th, Grand and Hope Project

Construction Phase: *Demolition*

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Concrete Saw	1	90	20%	78	0
Tractors/Loaders/Backhoes	1	84	40%	78	0
Water Truck	1	76	40%	98	0
Tractors/Loaders/Backhoes	1	84	40%	98	0
Concrete Saw	1	90	20%	118	0
Air Compressor	1	78	40%	118	0
Air Compressor	1	78	40%	138	0

7

Receptor: ***R5***

Results:
1-hour Leq: 83.0

Source for Ref. Noise Levels: FHWA RCNM, 2006

Project: 8th, Grand and Hope Project

Construction Phase: *Grading/Excavation*

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Bore/Drill Rig	1	84	20%	78	0
Excavator	1	81	40%	78	0
Water Truck	1	76	40%	98	0
Rubber Tired Loaders	1	79	40%	98	0
Skid Steer Loaders	1	79	40%	118	0
Bore/Drill Rig	1	84	20%	118	0
Excavator	1	81	40%	138	0
Bore/Drill Rig	1	84	20%	138	0

8

Receptor: *R5*

Results:

1-hour Leq: 79.1

Source for Ref. Noise Levels: FHWA RCNM, 2006

Project: 8th, Grand and Hope Project

Construction Phase: *Foundation*

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Tractors/Loaders/Backhoes	1	84	40%	78	0
Plate Compactor	1	83	20%	78	0
Water Truck	1	76	40%	98	0
Pumps	1	81	50%	98	0
Welders	1	74	40%	118	0
Plate Compactor	1	83	20%	118	0
Pumps	1	81	50%	138	0
Welders	1	74	40%	138	0

8

Receptor: *R5*

Results:

1-hour Leq: 79.9

Source for Ref. Noise Levels: FHWA RCNM, 2006

Project: 8th, Grand and Hope Project

Construction Phase: *Building Construction*

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Tractors/Loaders/Backhoes	1	84	40%	78	0
Rough Terrain Forklifts	1	83	40%	78	0
Air Compressor	1	78	40%	98	0
Aerial Lift	1	75	20%	98	0
Fork Lift	1	75	20%	118	0
Welders	1	74	40%	118	0
Generator Sets	1	81	50%	138	0
Cement and Mortar Mixer	1	80	50%	138	0
Signal Boards	2	73	50%	158	0
Crane (tower)	1	81	16%	158	0
Cement and Mortar Mixer	1	80	50%	178	0
Air Compressor	1	78	40%	178	0
Aerial Lift	1	75	20%	198	0
Welders	1	74	40%	198	0
Crane (mobile)	1	81	16%	198	0

16

Receptor: *R5*

Results:

1-hour Leq: 80.5

Source for Ref. Noise Levels: FHWA RCNM, 2006

Project: 8th, Grand and Hope Project

Construction Phase: Paving

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Surfacing Equipment	1	85	50%	78	0
Tractor/Loader/Backhoe	1	84	40%	78	0
Roller	1	80	20%	98	0
Skid Steer Loaders	1	79	40%	98	0
Cement and Mortar Mixer	1	80	50%	118	0
Plate Compactors	1	83	20%	118	0
Paving Equipment	1	77	50%	138	0
Water Truck	1	76	40%	138	0
Skid Steer Loaders	1	79	40%	158	0

9

Receptor: R5

Results:

1-hour Leq: 81.6

Source for Ref. Noise Levels: FHWA RCNM, 2006

Project: 8th, Grand and Hope Project

Construction Phase: *Demolition*

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Concrete Saw	1	90	20%	110	0
Tractors/Loaders/Backhoes	1	84	40%	110	0
Water Truck	1	76	40%	130	0
Tractors/Loaders/Backhoes	1	84	40%	130	0
Concrete Saw	1	90	20%	150	0
Air Compressor	1	78	40%	150	0
Air Compressor	1	78	40%	170	0

7

Receptor: *R6*

Results:

1-hour Leq: 80.3

Source for Ref. Noise Levels: FHWA RCNM, 2006

Project: 8th, Grand and Hope Project

Construction Phase: *Grading/Excavation*

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Bore/Drill Rig	1	84	20%	110	0
Excavator	1	81	40%	110	0
Water Truck	1	76	40%	130	0
Rubber Tired Loaders	1	79	40%	130	0
Skid Steer Loaders	1	79	40%	150	0
Bore/Drill Rig	1	84	20%	150	0
Excavator	1	81	40%	170	0
Bore/Drill Rig	1	84	20%	170	0

8

Receptor: *R6*

Results:

1-hour Leq: 76.6

Source for Ref. Noise Levels: FHWA RCNM, 2006

Project: 8th, Grand and Hope Project

Construction Phase: *Foundation*

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Tractors/Loaders/Backhoes	1	84	40%	110	0
Plate Compactor	1	83	20%	110	0
Water Truck	1	76	40%	130	0
Pumps	1	81	50%	130	0
Welders	1	74	40%	150	0
Plate Compactor	1	83	20%	150	0
Pumps	1	81	50%	170	0
Welders	1	74	40%	170	0

8

Receptor: *R6*

Results:

1-hour Leq: 77.2

Source for Ref. Noise Levels: FHWA RCNM, 2006

Project: 8th, Grand and Hope Project

Construction Phase: *Building Construction*

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Tractors/Loaders/Backhoes	1	84	40%	110	0
Rough Terrain Forklifts	1	83	40%	110	0
Air Compressor	1	78	40%	130	0
Aerial Lift	1	75	20%	130	0
Fork Lift	1	75	20%	150	0
Welders	1	74	40%	150	0
Generator Sets	1	81	50%	170	0
Cement and Mortar Mixer	1	80	50%	170	0
Signal Boards	2	73	50%	190	0
Crane (tower)	1	81	16%	190	0
Cement and Mortar Mixer	1	80	50%	210	0
Air Compressor	1	78	40%	210	0
Aerial Lift	1	75	20%	230	0
Welders	1	74	40%	230	0
Crane (mobile)	1	81	16%	230	0

16

Receptor: R6

Results:

1-hour Leq: 77.9

Source for Ref. Noise Levels: FHWA RCNM, 2006

Project: 8th, Grand and Hope Project

Construction Phase: Paving

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Surfacing Equipment	1	85	50%	110	0
Tractor/Loader/Backhoe	1	84	40%	110	0
Roller	1	80	20%	130	0
Skid Steer Loaders	1	79	40%	130	0
Cement and Mortar Mixer	1	80	50%	150	0
Plate Compactors	1	83	20%	150	0
Paving Equipment	1	77	50%	170	0
Water Truck	1	76	40%	170	0
Skid Steer Loaders	1	79	40%	190	0

9

Receptor: **R6**

Results:
1-hour Leq: 78.9

Source for Ref. Noise Levels: FHWA RCNM, 2006

Project: 8th, Grand and Hope Project

Construction Phase: *Demolition*

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Concrete Saw	1	90	20%	265	0
Tractors/Loaders/Backhoes	1	84	40%	265	0
Water Truck	1	76	40%	285	0
Tractors/Loaders/Backhoes	1	84	40%	285	0
Concrete Saw	1	90	20%	305	0
Air Compressor	1	78	40%	305	0
Air Compressor	1	78	40%	325	0

7

Receptor: ***R7***

Results:
1-hour Leq: 73.2

Source for Ref. Noise Levels: FHWA RCNM, 2006

Project: 8th, Grand and Hope Project

Construction Phase: *Grading/Excavation*

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Bore/Drill Rig	1	84	20%	265	0
Excavator	1	81	40%	265	0
Water Truck	1	76	40%	285	0
Rubber Tired Loaders	1	79	40%	285	0
Skid Steer Loaders	1	79	40%	305	0
Bore/Drill Rig	1	84	20%	305	0
Excavator	1	81	40%	325	0
Bore/Drill Rig	1	84	20%	325	0

8

Receptor: *R7*

Results:

1-hour Leq: 69.8

Source for Ref. Noise Levels: FHWA RCNM, 2006

Project: 8th, Grand and Hope Project

Construction Phase: *Foundation*

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Tractors/Loaders/Backhoes	1	84	40%	265	0
Plate Compactor	1	83	20%	265	0
Water Truck	1	76	40%	285	0
Pumps	1	81	50%	285	0
Welders	1	74	40%	305	0
Plate Compactor	1	83	20%	305	0
Pumps	1	81	50%	325	0
Welders	1	74	40%	325	0

8

Receptor: ***R7***

Results:

1-hour Leq: 70.2

Source for Ref. Noise Levels: FHWA RCNM, 2006

Project: 8th, Grand and Hope Project

Construction Phase: *Building Construction*

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Tractors/Loaders/Backhoes	1	84	40%	265	0
Rough Terrain Forklifts	1	83	40%	265	0
Air Compressor	1	78	40%	285	0
Aerial Lift	1	75	20%	285	0
Fork Lift	1	75	20%	305	0
Welders	1	74	40%	305	0
Generator Sets	1	81	50%	325	0
Cement and Mortar Mixer	1	80	50%	325	0
Signal Boards	2	73	50%	345	0
Crane (tower)	1	81	16%	345	0
Cement and Mortar Mixer	1	80	50%	365	0
Air Compressor	1	78	40%	365	0
Aerial Lift	1	75	20%	385	0
Welders	1	74	40%	385	0
Crane (mobile)	1	81	16%	385	0

16

Receptor: *R7*

Results:

1-hour Leq: 71.3

Source for Ref. Noise Levels: FHWA RCNM, 2006

Project: 8th, Grand and Hope Project

Construction Phase: Paving

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Surfacing Equipment	1	85	50%	265	0
Tractor/Loader/Backhoe	1	84	40%	265	0
Roller	1	80	20%	285	0
Skid Steer Loaders	1	79	40%	285	0
Cement and Mortar Mixer	1	80	50%	305	0
Plate Compactors	1	83	20%	305	0
Paving Equipment	1	77	50%	325	0
Water Truck	1	76	40%	325	0
Skid Steer Loaders	1	79	40%	345	0

9

Receptor: **R7**

Results:

1-hour Leq: 71.7

Source for Ref. Noise Levels: FHWA RCNM, 2006

Project: 8th, Grand and Hope Project

Construction Phase: *Demolition*

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Concrete Saw	1	90	20%	150	15
Tractors/Loaders/Backhoes	1	84	40%	150	15
Water Truck	1	76	40%	170	15
Tractors/Loaders/Backhoes	1	84	40%	170	15
Concrete Saw	1	90	20%	190	15
Air Compressor	1	78	40%	190	15
Air Compressor	1	78	40%	210	15

7

Receptor: *R8*

Results:

1-hour Leq: 62.8

Source for Ref. Noise Levels: FHWA RCNM, 2006

Project: 8th, Grand and Hope Project

Construction Phase: *Grading/Excavation*

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Bore/Drill Rig	1	84	20%	150	15
Excavator	1	81	40%	150	15
Water Truck	1	76	40%	170	15
Rubber Tired Loaders	1	79	40%	170	15
Skid Steer Loaders	1	79	40%	190	15
Bore/Drill Rig	1	84	20%	190	15
Excavator	1	81	40%	210	15
Bore/Drill Rig	1	84	20%	210	15

8

Receptor: *R8*

Results:

1-hour Leq: 59.3

Source for Ref. Noise Levels: FHWA RCNM, 2006

Project: 8th, Grand and Hope Project

Construction Phase: *Foundation*

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Tractors/Loaders/Backhoes	1	84	40%	150	15
Plate Compactor	1	83	20%	150	15
Water Truck	1	76	40%	170	15
Pumps	1	81	50%	170	15
Welders	1	74	40%	190	15
Plate Compactor	1	83	20%	190	15
Pumps	1	81	50%	210	15
Welders	1	74	40%	210	15

8

Receptor: *R8*

Results:

1-hour Leq: 59.8

Source for Ref. Noise Levels: FHWA RCNM, 2006

Project: 8th, Grand and Hope Project

Construction Phase: *Building Construction*

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Tractors/Loaders/Backhoes	1	84	40%	150	15
Rough Terrain Forklifts	1	83	40%	150	15
Air Compressor	1	78	40%	170	15
Aerial Lift	1	75	20%	170	15
Fork Lift	1	75	20%	190	15
Welders	1	74	40%	190	15
Generator Sets	1	81	50%	210	15
Cement and Mortar Mixer	1	80	50%	210	15
Signal Boards	2	73	50%	230	15
Crane (tower)	1	81	16%	230	15
Cement and Mortar Mixer	1	80	50%	250	15
Air Compressor	1	78	40%	250	15
Aerial Lift	1	75	20%	270	15
Welders	1	74	40%	270	15
Crane (mobile)	1	81	16%	270	15

16

Receptor: *R8*

Results:

1-hour Leq: 60.6

Source for Ref. Noise Levels: FHWA RCNM, 2006

Project: 8th, Grand and Hope Project

Construction Phase: Paving

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Surfacing Equipment	1	85	50%	150	15
Tractor/Loader/Backhoe	1	84	40%	150	15
Roller	1	80	20%	170	15
Skid Steer Loaders	1	79	40%	170	15
Cement and Mortar Mixer	1	80	50%	190	15
Plate Compactors	1	83	20%	190	15
Paving Equipment	1	77	50%	210	15
Water Truck	1	76	40%	210	15
Skid Steer Loaders	1	79	40%	230	15

9

Receptor: **R8**

Results:
1-hour Leq: 61.4

Source for Ref. Noise Levels: FHWA RCNM, 2006

Project: 8th, Grand and Hope Project

Construction Phase: *Demolition*

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Concrete Saw	1	90	20%	280	0
Tractors/Loaders/Backhoes	1	84	40%	280	0
Water Truck	1	76	40%	300	0
Tractors/Loaders/Backhoes	1	84	40%	300	0
Concrete Saw	1	90	20%	320	0
Air Compressor	1	78	40%	320	0
Air Compressor	1	78	40%	340	0

7

Receptor: *R9*

Results:
1-hour Leq: 72.8

Source for Ref. Noise Levels: FHWA RCNM, 2006

Project: 8th, Grand and Hope Project

Construction Phase: *Grading/Excavation*

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Bore/Drill Rig	1	84	20%	280	0
Excavator	1	81	40%	280	0
Water Truck	1	76	40%	300	0
Rubber Tired Loaders	1	79	40%	300	0
Skid Steer Loaders	1	79	40%	320	0
Bore/Drill Rig	1	84	20%	320	0
Excavator	1	81	40%	340	0
Bore/Drill Rig	1	84	20%	340	0

8

Receptor: *R9*

Results:

1-hour Leq: 69.4

Source for Ref. Noise Levels: FHWA RCNM, 2006

Project: 8th, Grand and Hope Project

Construction Phase: *Foundation*

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Tractors/Loaders/Backhoes	1	84	40%	280	0
Plate Compactor	1	83	20%	280	0
Water Truck	1	76	40%	300	0
Pumps	1	81	50%	300	0
Welders	1	74	40%	320	0
Plate Compactor	1	83	20%	320	0
Pumps	1	81	50%	340	0
Welders	1	74	40%	340	0

8

Receptor: *R9*

Results:

1-hour Leq: 69.8

Source for Ref. Noise Levels: FHWA RCNM, 2006

Project: 8th, Grand and Hope Project

Construction Phase: *Building Construction*

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Tractors/Loaders/Backhoes	1	84	40%	280	0
Rough Terrain Forklifts	1	83	40%	280	0
Air Compressor	1	78	40%	300	0
Aerial Lift	1	75	20%	300	0
Fork Lift	1	75	20%	320	0
Welders	1	74	40%	320	0
Generator Sets	1	81	50%	340	0
Cement and Mortar Mixer	1	80	50%	340	0
Signal Boards	2	73	50%	360	0
Crane (tower)	1	81	16%	360	0
Cement and Mortar Mixer	1	80	50%	380	0
Air Compressor	1	78	40%	380	0
Aerial Lift	1	75	20%	400	0
Welders	1	74	40%	400	0
Crane (mobile)	1	81	16%	400	0

16

Receptor: *R9*

Results:

1-hour Leq: 70.8

Source for Ref. Noise Levels: FHWA RCNM, 2006

Project: 8th, Grand and Hope Project

Construction Phase: Paving

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Surfacing Equipment	1	85	50%	280	0
Tractor/Loader/Backhoe	1	84	40%	280	0
Roller	1	80	20%	300	0
Skid Steer Loaders	1	79	40%	300	0
Cement and Mortar Mixer	1	80	50%	320	0
Plate Compactors	1	83	20%	320	0
Paving Equipment	1	77	50%	340	0
Water Truck	1	76	40%	340	0
Skid Steer Loaders	1	79	40%	360	0

9

Receptor: **R9**

Results:
1-hour Leq: 71.3

Source for Ref. Noise Levels: FHWA RCNM, 2006

Project: 8th, Grand and Hope Project

Off-Site Haul Trucks

Phase	Maximum Number of Truck One Way Trips (delivery/haul)		Worker Trips	
	Per Day	Per Hour (8-hr day)	Daily Trips	Trips during Pk Hr.
1. Demolition	58	4	40	16
2. Grading/Excavation	220	19	60	24
3. Building Foundation	300	19	100	40
4. Building Construction	20	2	550	220
5. Paving/Landscape	10	1	40	16

Grading - 6 hours per day

Other phases - 8 hours per day

Trucks are on one-way streets, therefore, trips divided by two.

Phase	Estimated Project Noise Levels, dBA Leq		
	8th Street	9th Street	Olive Street
1. Demolition	60.0	60.7	60.0
2. Grading/Excavation	66.3	67.0	66.3
3. Building Foundation	66.4	67.2	66.4
4. Building Construction	63.9	64.7	63.9
5. Paving/Landscape	55.6	56.3	55.6
Ambient	67.3	66.4	66.7
Ambient + 5 dBA	72.3	71.4	71.7

Phase	Project Construction + Ambient, dBA Leq		
	8th Street	9th Street	Olive Street
1. Demolition	68.0	67.4	67.5
2. Grading/Excavation	69.8	69.7	69.5
3. Building Foundation	69.9	69.8	69.6
4. Building Construction	68.9	68.6	68.5
5. Paving/Landscape	67.6	66.8	67.0

Phase	Increase above Ambient, dBA Leq		
	8th Street	9th Street	Olive Street
1. Demolition	0.7	1.0	0.8
2. Grading/Excavation	2.5	3.3	2.8
3. Building Foundation	2.6	3.4	2.9
4. Building Construction	1.6	2.2	1.8
5. Paving/Landscape	0.3	0.4	0.3

INPUT: ROADWAYS
8th, Grand and Hope

Eyestone Environmental						30 December 2019					
Sean Bui						TNM 2.5					
INPUT: ROADWAYS PROJECT/CONTRACT: 8th, Grand and Hope RUN: Demo											
Average pavement type shall be used unless a State highway agency substantiates the use of a different type with the approval of FHWA											
Roadway		Points									
Name	Width	Name	No.	Coordinates (pavement)			Flow Control			Segment	
				X	Y	Z	Control	Speed	Percent	Pvmt	On
							Device	Constraint	Vehicles	Type	Struct?
									Affected		
	ft			ft	ft	ft		mph	%		
Haul Route	12.0	point1	1	0.0	0.0	0.00	Signal	0.00	100	Average	
		point2	2	1,000.0	0.0	0.00					

INPUT: TRAFFIC FOR LAeq1h Volumes

8th, Grand and Hope

Eyestone Environmental													
Sean Bui													
INPUT: TRAFFIC FOR LAeq1h Volumes													
PROJECT/CONTRACT:	8th, Grand and Hope												
RUN:	Demo												
Roadway	Points												
Name	Name	No.	Segment										
			Autos		MTrucks		HTrucks		Buses		Motorcycles		
			V	S	V	S	V	S	V	S	V	S	
			veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph	
Haul Route	point1	1	16	35	0	0	4	35	0	0	0	0	
	point2	2											

INPUT: RECEIVERS

8th, Grand and Hope

Eyestone Environmental											
Sean Bui											
INPUT: RECEIVERS											
PROJECT/CONTRACT:	8th, Grand and Hope										
RUN:	Demo										
Receiver											
Name	No.	#DUs	Coordinates (ground)			Height	Input Sound Levels and Criteria				Active
			X	Y	Z	above	Existing	Impact Criteria		NR	in
						Ground	L _{Aeq} 1h	L _{Aeq} 1h	Sub'l	Goal	Calc.
			ft	ft	ft	ft	dBA	dBA	dB	dB	
At 25 feet from roadway CL	8	1	250.0	25.0	0.00	4.92	0.00	66	10.0	8.0	Y
At 30 feet from roadway CL	11	1	250.0	30.0	0.00	4.92	0.00	66	10.0	8.0	Y

RESULTS: SOUND LEVELS
8th, Grand and Hope

Eyestone Environmental												
Sean Bui												
RESULTS: SOUND LEVELS												
PROJECT/CONTRACT:												
8th, Grand and Hope												
RUN:												
Demo												
BARRIER DESIGN:												
INPUT HEIGHTS												
Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.												
ATMOSPHERICS:												
68 deg F, 50% RH												
Receiver												
Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h Calculated	Crit'n	Increase over existing Calculated	Crit'n Sub'l Inc	With Barrier				
								Type Impact	Calculated LAeq1h	Noise Reduction		
										Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
At 25 feet from roadway CL	8	1	0.0	60.7	66	60.7	10	----	60.7	0.0	8	-8.0
At 30 feet from roadway CL	11	1	0.0	60.0	66	60.0	10	----	60.0	0.0	8	-8.0
Dwelling Units		# DUs	Noise Reduction									
			Min dB	Avg dB	Max dB							
All Selected		2	0.0	0.0	0.0							
All Impacted		0	0.0	0.0	0.0							
All that meet NR Goal		0	0.0	0.0	0.0							

INPUT: ROADWAYS
8th, Grand and Hope

Eyestone Environmental											
Sean Bui											
INPUT: ROADWAYS							Average pavement type shall be used unless				
PROJECT/CONTRACT:				8th, Grand and Hope			a State highway agency substantiates the use				
RUN:				Grading			of a different type with the approval of FHWA				
Roadway		Points									
Name	Width	Name	No.	Coordinates (pavement)			Flow Control			Segment	
				X	Y	Z	Control	Speed	Percent	Pvmt	On
							Device	Constraint	Vehicles	Type	Struct?
									Affected		
	ft			ft	ft	ft		mph	%		
Haul Route	12.0	point1	1	0.0	0.0	0.00	Signal	0.00	100	Average	
		point2	2	1,000.0	0.0	0.00					

INPUT: TRAFFIC FOR LAeq1h Volumes
8th, Grand and Hope

Eyestone Environmental					14 January 2021							
Sean Bui					TNM 2.5							
INPUT: TRAFFIC FOR LAeq1h Volumes												
PROJECT/CONTRACT:	8th, Grand and Hope											
RUN:	Grading											
Roadway	Points											
Name	Name	No.	Segment									
			Autos		MTrucks		HTrucks		Buses		Motorcycles	
			V	S	V	S	V	S	V	S	V	S
			veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph
Haul Route	point1	1	24	35	0	0	19	35	0	0	0	0
	point2	2										

INPUT: RECEIVERS
8th, Grand and Hope

Eyestone Environmental						14 January 2021					
Sean Bui						TNM 2.5					
INPUT: RECEIVERS											
PROJECT/CONTRACT:		8th, Grand and Hope									
RUN:		Grading									
Receiver											
Name	No.	#DUs	Coordinates (ground)			Height	Input Sound Levels and Criteria				Active
			X	Y	Z	above	Existing	Impact Criteria		NR	in
						Ground	LAeq1h	LAeq1h	Sub'l	Goal	Calc.
			ft	ft	ft	ft	dBA	dBA	dB	dB	
At 25 feet from roadway CL	8	1	250.0	25.0	0.00	4.92	0.00	66	10.0	8.0	Y
At 30 feet from roadway CL	11	1	250.0	30.0	0.00	4.92	0.00	66	10.0	8.0	Y

RESULTS: SOUND LEVELS
8th, Grand and Hope

Eyestone Environmental												
Sean Bui												
RESULTS: SOUND LEVELS												
PROJECT/CONTRACT:												
RUN:												
BARRIER DESIGN:												
ATMOSPHERICS:												
Receiver												
Name	No.	#DUs	Existing	No Barrier					With Barrier			
			LAeq1h	LAeq1h		Increase over existing		Type	Calculated	Noise Reduction		
				Calculated	Crit'n	Calculated	Crit'n	Impact	LAeq1h	Calculated	Goal	Calculated
							Sub'l Inc					minus
												Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
At 25 feet from roadway CL	8	1	0.0	67.0	66	67.0	10	Snd Lvl	67.0	0.0	8	-8.0
At 30 feet from roadway CL	11	1	0.0	66.3	66	66.3	10	Snd Lvl	66.3	0.0	8	-8.0
Dwelling Units		# DUs	Noise Reduction									
			Min	Avg	Max							
			dB	dB	dB							
All Selected		2	0.0	0.0	0.0							
All Impacted		2	0.0	0.0	0.0							
All that meet NR Goal		0	0.0	0.0	0.0							

INPUT: ROADWAYS
8th, Grand and Hope

Eyestone Environmental						30 December 2019					
Sean Bui						TNM 2.5					
Average pavement type shall be used unless a State highway agency substantiates the use of a different type with the approval of FHWA											
PROJECT/CONTRACT:		8th, Grand and Hope									
RUN:		Building Foundation									
Roadway		Points									
Name	Width	Name	No.	Coordinates (pavement)			Flow Control			Segment	
				X	Y	Z	Control	Speed	Percent	Pvmt	On
							Device	Constraint	Vehicles	Type	Struct?
									Affected		
	ft			ft	ft	ft		mph	%		
Haul Route	12.0	point1	1	0.0	0.0	0.00	Signal	0.00	100	Average	
		point2	2	1,000.0	0.0	0.00					

INPUT: TRAFFIC FOR LAeq1h Volumes

8th, Grand and Hope

Eyestone Environmental													
Sean Bui													
INPUT: TRAFFIC FOR LAeq1h Volumes													
PROJECT/CONTRACT:	8th, Grand and Hope												
RUN:	Building Foundation												
Roadway	Points												
Name	Name	No.	Segment										
			Autos		MTrucks		HTrucks		Buses		Motorcycles		
			V	S	V	S	V	S	V	S	V	S	
			veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph	
Haul Route	point1	1	40	35	0	0	19	35	0	0	0	0	
	point2	2											

INPUT: RECEIVERS
8th, Grand and Hope

Eyestone Environmental											
Sean Bui											
INPUT: RECEIVERS											
PROJECT/CONTRACT:	8th, Grand and Hope										
RUN:	Building Foundation										
Receiver											
Name	No.	#DUs	Coordinates (ground)			Height	Input Sound Levels and Criteria				Active
			X	Y	Z	above	Existing	Impact Criteria		NR	in
						Ground	L_{Aeq}1h	L_{Aeq}1h	Sub'l	Goal	Calc.
			ft	ft	ft	ft	dBA	dBA	dB	dB	
At 25 feet from roadway CL	8	1	250.0	25.0	0.00	4.92	0.00	66	10.0	8.0	Y
At 30 feet from roadway CL	11	1	250.0	30.0	0.00	4.92	0.00	66	10.0	8.0	Y

RESULTS: SOUND LEVELS
8th, Grand and Hope

Eyestone Environmental												
Sean Bui												
RESULTS: SOUND LEVELS												
PROJECT/CONTRACT:												
RUN:												
BARRIER DESIGN:												
ATMOSPHERICS:												
Receiver												
Name	No.	#DUs	Existing	No Barrier	Crit'n	Increase over existing		With Barrier				
			LAeq1h	LAeq1h		Calculated	Crit'n	Type	Calculated	Noise Reduction		
				Calculated			Sub'l Inc	Impact	LAeq1h	Calculated	Goal	Calculated
												minus
												Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
At 25 feet from roadway CL	8	1	0.0	67.2	66	67.2	10	Snd Lvl	67.2	0.0	8	-8.0
At 30 feet from roadway CL	11	1	0.0	66.4	66	66.4	10	Snd Lvl	66.4	0.0	8	-8.0
Dwelling Units												
		# DUs	Noise Reduction									
			Min	Avg	Max							
			dB	dB	dB							
All Selected		2	0.0	0.0	0.0							
All Impacted		2	0.0	0.0	0.0							
All that meet NR Goal		0	0.0	0.0	0.0							

INPUT: ROADWAYS
8th, Grand and Hope

Eyestone Environmental						30 December 2019					
Sean Bui						TNM 2.5					
INPUT: ROADWAYS PROJECT/CONTRACT: 8th, Grand and Hope RUN: Building Construction											
Average pavement type shall be used unless a State highway agency substantiates the use of a different type with the approval of FHWA											
Roadway		Points									
Name	Width	Name	No.	Coordinates (pavement)			Flow Control			Segment	
				X	Y	Z	Control	Speed	Percent	Pvmt	On
							Device	Constraint	Vehicles	Type	Struct?
									Affected		
	ft			ft	ft	ft		mph	%		
Haul Route	12.0	point1	1	0.0	0.0	0.00	Signal	0.00	100	Average	
		point2	2	1,000.0	0.0	0.00					

INPUT: TRAFFIC FOR LAeq1h Volumes

8th, Grand and Hope

Eyestone Environmental													
Sean Bui													
INPUT: TRAFFIC FOR LAeq1h Volumes													
PROJECT/CONTRACT:	8th, Grand and Hope												
RUN:	Building Construction												
Roadway	Points												
Name	Name	No.	Segment										
			Autos		MTrucks		HTrucks		Buses		Motorcycles		
			V	S	V	S	V	S	V	S	V	S	
			veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph	
Haul Route	point1	1	220	35	0	0	2	35	0	0	0	0	
	point2	2											

INPUT: RECEIVERS
8th, Grand and Hope

Eyestone Environmental											
Sean Bui											
INPUT: RECEIVERS											
PROJECT/CONTRACT:	8th, Grand and Hope										
RUN:	Building Construction										
Receiver											
Name	No.	#DUs	Coordinates (ground)			Height	Input Sound Levels and Criteria				Active
			X	Y	Z	above	Existing	Impact Criteria		NR	in
						Ground	L _{Aeq} 1h	L _{Aeq} 1h	Sub'l	Goal	Calc.
			ft	ft	ft	ft	dBA	dBA	dB	dB	
At 25 feet from roadway CL	8	1	250.0	25.0	0.00	4.92	0.00	66	10.0	8.0	Y
At 30 feet from roadway CL	11	1	250.0	30.0	0.00	4.92	0.00	66	10.0	8.0	Y

8th, Grand and Hope

Q:\EE - Hope & 8th\Analysis\Construction\Trucks - 4 Building Construction

INPUT: ROADWAYS

8th, Grand and Hope

Eyestone Environmental					30 December 2019					
Sean Bui					TNM 2.5					
INPUT: ROADWAYS PROJECT/CONTRACT: 8th, Grand and Hope RUN: Paving/Landscape										
Average pavement type shall be used unless a State highway agency substantiates the use of a different type with the approval of FHWA										
Roadway		Points								
Name	Width	Name	No.	Coordinates (pavement)		Flow Control			Segment	
				X	Y	Z	Control	Speed	Percent	Pvmt
							Device	Constraint	Vehicles	Type
									Affected	
	ft			ft	ft	ft		mph	%	
Haul Route	12.0	point1	1	0.0	0.0	0.00	Signal	0.00	100	Average
		point2	2	1,000.0	0.0	0.00				

INPUT: TRAFFIC FOR LAeq1h Volumes

8th, Grand and Hope

Eyestone Environmental													
Sean Bui													
INPUT: TRAFFIC FOR LAeq1h Volumes													
PROJECT/CONTRACT:	8th, Grand and Hope												
RUN:	Paving/Landscape												
Roadway	Points												
Name	Name	No.	Segment										
			Autos		MTrucks		HTrucks		Buses		Motorcycles		
			V	S	V	S	V	S	V	S	V	S	
			veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph	
Haul Route	point1	1	16	35	0	0	1	35	0	0	0	0	
	point2	2											

INPUT: RECEIVERS

8th, Grand and Hope

Eyestone Environmental											
Sean Bui											
INPUT: RECEIVERS											
PROJECT/CONTRACT:	8th, Grand and Hope										
RUN:	Paving/Landscape										
Receiver											
Name	No.	#DUs	Coordinates (ground)			Height	Input Sound Levels and Criteria				Active
			X	Y	Z	above	Existing	Impact Criteria		NR	in
						Ground	L _{Aeq} 1h	L _{Aeq} 1h	Sub'l	Goal	Calc.
			ft	ft	ft	ft	dBA	dBA	dB	dB	
At 25 feet from roadway CL	8	1	250.0	25.0	0.00	4.92	0.00	66	10.0	8.0	Y
At 30 feet from roadway CL	11	1	250.0	30.0	0.00	4.92	0.00	66	10.0	8.0	Y

RESULTS: SOUND LEVELS
8th, Grand and Hope

Eyestone Environmental												
Sean Bui												
RESULTS: SOUND LEVELS												
PROJECT/CONTRACT:												
RUN:												
BARRIER DESIGN:												
ATMOSPHERICS:												
Receiver												
Name	No.	#DUs	Existing	No Barrier	Crit'n	With Barrier						
			LAeq1h	LAeq1h		Increase over existing	Type	Calculated	Noise Reduction			
				Calculated		Calculated	Crit'n					
						Sub'l Inc	Impact					Calculated
												minus
												Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
At 25 feet from roadway CL	8	1	0.0	56.3	66	56.3	10	----	56.3	0.0	8	-8.0
At 30 feet from roadway CL	11	1	0.0	55.6	66	55.6	10	----	55.6	0.0	8	-8.0
Dwelling Units		# DUs	Noise Reduction									
			Min	Avg	Max							
			dB	dB	dB							
All Selected		2	0.0	0.0	0.0							
All Impacted		0	0.0	0.0	0.0							
All that meet NR Goal		0	0.0	0.0	0.0							

Project: 8th, Grand and Hope Project

Construction Vibration Impacts

Reference Levels at 25 feet are based on FTA, 2006 (Transit Noise and Vibration Impact Assessment)

Calculations using FTA procedure with n= 1.5 (for receptors 25 feet or greater)
n= 1.1 (for receptors less than 25 feet, per Caltrans procedure)

ON-SITE CONSTRUCTION ACTIVITIES

Table 1: Construction Equipment Vibration Levels (PPV) - Building Damages

Equipment	Reference Vibration Levels at 25 ft., PPV	Estimated Vibration Levels at nearest off-site building structures (distance in feet), PPV							
		Multi-Story Parking Structure to the North	Multi-Story Residential Building the South	7-Story Residential building to the east	12 Story Commercial Building to the west	Historic Structure to the north			
		5	78	85	85	250			
Large Bulldozer	0.089	0.523	0.016	0.014	0.014	0.003			
Caisson Drilling	0.089	0.523	0.016	0.014	0.014	0.003			
Loaded Trucks	0.076	0.446	0.014	0.012	0.012	0.002			
Jackhammer	0.035	0.206	0.006	0.006	0.006	0.001			
Small bulldozer	0.003	0.018	0.001	0.001	0.001	0.000			
Significance Threshold, PPV		0.5	0.5	0.5	0.5	0.12			

Table 2: Construction Equipment Vibration Levels (VdB) - Human Annoyance

Equipment	Reference Vibration Levels at 25 ft., VdB	Estimated Vibration Levels at Off-Site Receptors (at note distance in feet), VdB								
		R1	R2	R3	R4	R5	R6	R7	R8	R9
		85	275	425	235	78	110	265	150	280
Large Bulldozer	87	71.1	55.8	50.1	57.8	72.2	67.7	56.2	63.7	55.5
Caisson Drilling	87	71.1	55.8	50.1	57.8	72.2	67.7	56.2	63.7	55.5
Loaded Trucks	86	70.1	54.8	49.1	56.8	71.2	66.7	55.2	62.7	54.5
Jackhammer	79	63.1	47.8	42.1	49.8	64.2	59.7	48.2	55.7	47.5
Small bulldozer	58	42.1	26.8	21.1	28.8	43.2	38.7	27.2	34.7	26.5
Significance Threshold, VdB		72	72	72	72	72	72	72	72	72

OFF-SITE CONSTRUCTION HAUL TRUCKS

Table 3: Off-Site Haul Trucks - Building Damage

Equipment	Reference Vibration Levels at 50 ft., PPV	Estimated Vibration Levels at noted distance in feet, PPV							
		20							
Typical road surface	0.00565	0.022							
Significance Threshold, PPV		0.12							

Ref. Levels based on FTA Figure 7-3 (converted from VdB to PPV)

Table 4: Off-Site Haul Trucks - Human Annoyance

Equipment	Reference Vibration Levels at 50 ft., VdB	Estimated Vibration Levels at noted distance in feet, VdB							
		24							
Typical road surface	63	72.6							
Significance Threshold, VdB		72							

Ref. Levels based on FTA Figure 7-3

Operation Noise Calculations

Project Composite Noise Calculations (CNEL)

Project: 8th, Grand and Hope Project EIR

Receptor	Ambient	Traffic ^a	Mechanical	Parking	Loading	Outdoor		Project Composite	Ambient + Project	Increase
R1	70.7	57.4	49.0	43.3	51.8	55.4		60.6	71.1	0.4
R1U	70.7	53.0	48.2	46.3	43.1	55.6		58.4	70.9	0.2
R2	70.2	54.5	44.1	41.5	44.1	49.0		56.3	70.4	0.2
R2U	70.2	44.1	52.8	40.7	25.8	52.6		56.1	70.4	0.2
R3	68.4	54.8	44.2	32.3	24.7	45.7		55.6	68.6	0.2
R3U	68.4	48.7	46.3	34.0	23.3	49.1		53.0	68.5	0.1
R4	69.5	54.8	45.1	45.5	44.6	51.9		57.4	69.8	0.3
R4U	69.5	49.5	45.9	45.6	33.1	50.1		54.3	69.6	0.1
R5	69.4	54.5	47.7	52.9	47.7	57.2		60.5	69.9	0.5
R5U	69.4	45.2	49.9	48.3	28.6	68.4		68.5	72.0	2.6
R6	71.5	54.5	53.5	50.4	40.7	52.1		59.0	71.7	0.2
R6U	71.5	45.7	52.2	46.8	23.1	67.3		67.5	73.0	1.5
R7	72.4	54.5	46.5	47.7	22.1	51.1		57.1	72.5	0.1
R7U	72.4	47.7	47.4	51.1	19.6	63.4		63.9	73.0	0.6
R8	67.8	53.0	51.3	46.1	27.4	52.0		57.3	68.2	0.4
R9	69.4	53.0	48.2	41.3	37.8	51.6		56.3	69.6	0.2
R9U	69.4	44.1	50.7	44.6	40.7	61.4		61.9	70.1	0.7

^a - Project traffic noise levels at each receptor is based on the traffic noise analysis for the roadway segment in front of the receptor.

Project traffic noise level is equal to "Baseline+Project" minus "Baseline" traffic noise levels, as provided in the table below.

U - Represents upper levels.

Receptor	Roadway Segment	Traffic Noise Levels, CNEL			distance to roadway, ft	Baseline	Baseline + Project	barrier	distance to Center Line	adj. for distance
		Existing	Existing + Project	Project Only						
R1	Grand Ave.	70.7	70.9	57.4	10	70.7	70.9	0	35	0.0
R1U	Grand Ave.	66.3	66.5	53.0	72	70.7	70.9	0	35	-4.4
R2	8th Street	70.8	70.9	54.5	10	70.8	70.9	0	35	0.0
R2U	8th Street	60.4	60.5	44.1	358	70.8	70.9	0	35	-10.4
R3	Grand Ave.	71.1	71.2	54.8	10	71.1	71.2	0	35	0.0
R3U	Grand Ave.	65.0	65.1	48.7	116	71.1	71.2	0	35	-6.1
R4	Grand Ave.	71.1	71.2	54.8	10	71.1	71.2	0	35	0.0
R4U	Grand Ave.	65.8	65.9	49.5	94	71.1	71.2	0	35	-5.3
R5	8th Street	70.8	70.9	54.5	10	70.8	70.9	0	35	0.0
R5U	8th Street	61.5	61.6	45.2	270	70.8	70.9	0	35	-9.3
R6	8th Street	70.8	70.9	54.5	10	70.8	70.9	0	35	0.0
R6U	8th Street	62.1	62.2	45.7	237	70.8	70.9	0	35	-8.7
R7	8th Street	70.8	70.9	54.5	10	70.8	70.9	0	35	0.0
R7U	8th Street	64.0	64.1	47.7	143	70.8	70.9	0	35	-6.8
R8	Hope St.	69.3	69.4	53.0	10	69.3	69.4	0	35	0.0
R9	Hope St.	69.3	69.4	53.0	10	69.3	69.4	0	35	0.0
R9U	Hope St.	60.5	60.6	44.1	242	69.3	69.4	0	35	-8.8

Receptor	Ambient	Traffic	Mechanical	Parking	Loading	Outdoor		Project Composite	Ambient + Project	Increase
R1	70.7	57.4	49.0	43.3	51.8	55.4		60.6	71.1	0.4
R2	70.2	44.1	52.8	40.7	25.8	52.6		56.1	70.4	0.2
R3	68.4	54.8	44.2	32.3	24.7	45.7		55.6	68.6	0.2
R4	69.5	54.8	45.1	45.5	44.6	51.9		57.4	69.8	0.3
R5	69.4	45.2	49.9	48.3	28.6	68.4		68.5	72.0	2.6
R6	71.5	45.7	52.2	46.8	23.1	67.3		67.5	73.0	1.5
R7	72.4	47.7	47.4	51.1	19.6	63.4		63.9	73.0	0.6
R8	67.8	53.0	51.3	46.1	27.4	52.0		57.3	68.2	0.4
R9	69.4	44.1	50.7	44.6	40.7	61.4		61.9	70.1	0.7

Outdoor Mechanical Equipment Noise Calculations

Project: 8th, Grand and Hope Project EIR

Hours of Operations

Estimated Noise Levels, Leq from SOUNDPLAN		Hours of Operations			
Receptor	Leq	CNEL	Ld (7am to 7pm)	Le (7pm to 10pm)	Ln (10pm to 7am)
R1	42.3	49.0	42.3	42.3	42.3
R1U	41.5	48.2	41.5	41.5	41.5
R2	37.4	44.1	37.4	37.4	37.4
R2U	46.1	52.8	46.1	46.1	46.1
R3	37.5	44.2	37.5	37.5	37.5
R3U	39.6	46.3	39.6	39.6	39.6
R4	38.4	45.1	38.4	38.4	38.4
R4U	39.2	45.9	39.2	39.2	39.2
R5	41.0	47.7	41.0	41.0	41.0
R5U	43.2	49.9	43.2	43.2	43.2
R6	46.8	53.5	46.8	46.8	46.8
R6U	45.5	52.2	45.5	45.5	45.5
R7	39.8	46.5	39.8	39.8	39.8
R7U	40.7	47.4	40.7	40.7	40.7
R8	44.6	51.3	44.6	44.6	44.6
R9	41.5	48.2	41.5	41.5	41.5
R9U	44.0	50.7	44.0	44.0	44.0

Receptor	Ambient CNEL	Ambient + Project (CNEL)	Increase (CNEL)	ambient (Leq)	Ambient + Project (Leq)
R1	70.7	70.7	0.0	65.9	65.9
R1U	70.7	70.7	0.0	65.9	65.9
R2	70.2	70.2	0.0	65.4	65.4
R2U	70.2	70.3	0.1	65.4	65.5
R3	68.4	68.4	0.0	62.9	62.9
R3U	68.4	68.4	0.0	62.9	62.9
R4	69.5	69.5	0.0	63.9	63.9
R4U	69.5	69.5	0.0	63.9	63.9
R5	69.4	69.4	0.0	63.8	63.8
R5U	69.4	69.4	0.0	63.8	63.8
R6	71.5	71.6	0.1	65.5	65.6
R6U	71.5	71.6	0.1	65.5	65.5
R7	72.4	72.4	0.0	65.6	65.6
R7U	72.4	72.4	0.0	65.6	65.6
R8	67.8	67.9	0.1	62.5	62.6
R9	69.4	69.4	0.0	63.4	63.4
R9U	69.4	69.5	0.1	63.4	63.4

Receptor	Ambient	Project	Amb+Project	Criteria	Exceedance
R1	65.9	42.3	65.9	70.9	0.0
R2	65.4	46.1	65.5	70.4	0.0
R3	62.9	39.6	62.9	67.9	0.0
R4	63.9	39.2	63.9	68.9	0.0
R5	63.8	43.2	63.8	68.8	0.0
R6	65.5	46.8	65.6	70.5	0.0
R7	65.6	40.7	65.6	70.6	0.0
R8	62.5	44.6	62.6	67.5	0.0
R9	63.4	44.0	63.4	68.4	0.0

Parking Structure Noise Calculations

Project: 8th, Grand and Hope Project EIR

Hours of Operations

Estimated Noise Levels, Leq from SOUNDPLAN		Hours of Operations			
Receptor	Leq	CNEL	Ld (7am to 7pm)	Le (7pm to 10pm)	Ln (10pm to 7am)
R1	36.6	43.3	36.6	36.6	36.6
R1U	39.6	46.3	39.6	39.6	39.6
R2	34.8	41.5	34.8	34.8	34.8
R2U	34.0	40.7	34.0	34.0	34.0
R3	25.6	32.3	25.6	25.6	25.6
R3U	27.3	34.0	27.3	27.3	27.3
R4	38.8	45.5	38.8	38.8	38.8
R4U	38.9	45.6	38.9	38.9	38.9
R5	46.2	52.9	46.2	46.2	46.2
R5U	41.6	48.3	41.6	41.6	41.6
R6	43.7	50.4	43.7	43.7	43.7
R6U	40.1	46.8	40.1	40.1	40.1
R7	41.0	47.7	41.0	41.0	41.0
R7U	44.4	51.1	44.4	44.4	44.4
R8	39.4	46.1	39.4	39.4	39.4
R9	34.6	41.3	34.6	34.6	34.6
R9U	37.9	44.6	37.9	37.9	37.9

Receptor	Ambient CNEL	Ambient + Project (CNEL)	Increase (CNEL)	nighttime ambient (Leq)	Ambient + Project (Leq)
R1	70.7	70.7	0.0	65.9	65.9
R1U	70.7	70.7	0.0	65.9	65.9
R2	70.2	70.2	0.0	65.4	65.4
R2U	70.2	70.2	0.0	65.4	65.4
R3	68.4	68.4	0.0	62.9	62.9
R3U	68.4	68.4	0.0	62.9	62.9
R4	69.5	69.5	0.0	63.9	63.9
R4U	69.5	69.5	0.0	63.9	63.9
R5	69.4	69.5	0.1	63.8	63.9
R5U	69.4	69.4	0.0	63.8	63.8
R6	71.5	71.5	0.0	65.5	65.5
R6U	71.5	71.5	0.0	65.5	65.5
R7	72.4	72.4	0.0	65.6	65.6
R7U	72.4	72.4	0.0	65.6	65.6
R8	67.8	67.8	0.0	62.5	62.5
R9	69.4	69.4	0.0	63.4	63.4
R9U	69.4	69.4	0.0	63.4	63.4

Receptor	Ambient	Project	Amb+Project	Criteria	Exceedance
R1	65.9	39.6	65.9	70.9	0.0
R2	65.4	34.8	65.4	70.4	0.0
R3	62.9	27.3	62.9	67.9	0.0
R4	63.9	38.9	63.9	68.9	0.0
R5	63.8	46.2	63.9	68.8	0.0
R6	65.5	43.7	65.5	70.5	0.0
R7	65.6	44.4	65.6	70.6	0.0
R8	62.5	39.4	62.5	67.5	0.0
R9	63.4	37.9	63.4	68.4	0.0

Outdoor Noise Calculations

Project: 8th, Grand and Hope Project EIR

ALL LEVEL

					Hours of Operations		
Estimated noise levels, Leq (FROM SOUNDPLAN)					Ld (7am to 7pm)	Le (7pm to 10pm)	Ln (10pm to 7am)
Receptor	Sound System	Occupants	Total, Leq	CNEL	12	3	3
R1	44.4	51.2	52.0	55.3	52.0	52.0	47.2
R1U	48.6	49.5	52.1	55.4	52.1	52.1	47.3
R2	41.9	43.3	45.7	49.0	45.7	45.7	40.9
R2U	47.8	44.0	49.3	52.6	49.3	49.3	44.5
R3	35.3	41.4	42.4	45.7	42.4	42.4	37.6
R3U	44.1	41.0	45.8	49.1	45.8	45.8	41.0
R4	40.0	48.0	48.6	51.9	48.6	48.6	43.8
R4U	38.5	46.1	46.8	50.1	46.8	46.8	42.0
R5	48.0	52.6	53.9	57.2	53.9	53.9	49.1
R5U	64.4	56.8	65.1	68.4	65.1	65.1	60.3
R6	47.7	42.5	48.8	52.1	48.8	48.8	44.0
R6U	63.6	53.9	64.0	67.3	64.0	64.0	59.2
R7	47.0	40.1	47.8	51.1	47.8	47.8	43.0
R7U	59.8	49.0	60.1	63.4	60.1	60.1	55.3
R8	48.1	39.3	48.6	51.9	48.6	48.6	43.8
R9	47.8	38.1	48.2	51.5	48.2	48.2	43.4
R9U	57.5	48.5	58.0	61.3	58.0	58.0	53.2

Dog Run on Level 3

					Hours of Operations		
Estimated noise levels, Leq (FROM SOUNDPLAN)					Ld (7am to 7pm)	Le (7pm to 10pm)	Ln (10pm to 7am)
Receptor		Dog	Total, Leq	CNEL	12	3	3
R1	0.0	36.8	36.8	40.1	36.8	36.8	32.0
R1U	0.0	38.3	38.3	41.6	38.3	38.3	33.5
R2	0.0	16.2	16.3	19.6	16.3	16.3	11.5
R2U	0.0	13.7	13.9	17.2	13.9	13.9	9.1
R3	0.0	13.4	13.6	16.9	13.6	13.6	8.8
R3U	0.0	13.3	13.5	16.8	13.5	13.5	8.7
R4	0.0	17.4	17.5	20.8	17.5	17.5	12.7
R4U	0.0	17.3	17.4	20.7	17.4	17.4	12.6
R5	0.0	23.9	23.9	27.2	23.9	23.9	19.1
R5U	0.0	19.5	19.5	22.8	19.5	19.5	14.7
R6	0.0	24.8	24.8	28.1	24.8	24.8	20.0
R6U	0.0	16.7	16.8	20.1	16.8	16.8	12.0
R7	0.0	25.2	25.2	28.5	25.2	25.2	20.4
R7U	0.0	18.7	18.8	22.1	18.8	18.8	14.0
R8	0.0	30.7	30.7	34.0	30.7	30.7	25.9
R9	0.0	28.1	28.1	31.4	28.1	28.1	23.3
R9U	0.0	38.3	38.3	41.6	38.3	38.3	33.5

TOTAL COMBINED

Receptor	Project (CNEL)	Ambient (CNEL)	Ambient + Project (CNEL)	Increase (CNEL)	Project Noise, (Leq)	Ambient (Leq)	Ambient + Project (Leq)
R1	55.4	70.7	70.8	0.1	52.1	65.9	66.1
R1U	55.6	70.7	70.8	0.1	52.3	65.9	66.1
R2	49.0	70.2	70.2	0.0	45.7	65.4	65.4
R2U	52.6	70.2	70.3	0.1	49.3	65.4	65.5
R3	45.7	68.4	68.4	0.0	42.4	62.9	62.9
R3U	49.1	68.4	68.5	0.1	45.8	62.9	63.0
R4	51.9	69.5	69.6	0.1	48.6	63.9	64.0
R4U	50.1	69.5	69.5	0.0	46.8	63.9	64.0
R5	57.2	69.4	69.7	0.3	53.9	63.8	64.2
R5U	68.4	69.4	71.9	2.5	65.1	63.8	67.5
R6	52.1	71.5	71.5	0.0	48.8	65.5	65.6
R6U	67.3	71.5	72.9	1.4	64.0	65.5	67.8
R7	51.1	72.4	72.4	0.0	47.8	65.6	65.7
R7U	63.4	72.4	72.9	0.5	60.1	65.6	66.7
R8	52.0	67.8	67.9	0.1	48.7	62.5	62.7
R9	51.6	69.4	69.5	0.1	48.2	63.4	63.5
R9U	61.4	69.4	70.0	0.6	58.0	63.4	64.5

Receptor	Ambient	Project	Amb+Project	Criteria	Exceedance
R1	65.9	52.3	66.1	70.9	0.0
R2	65.4	49.3	65.5	70.4	0.0
R3	62.9	45.8	63.0	67.9	0.0
R4	63.9	48.6	64.0	68.9	0.0
R5	63.8	65.1	67.5	68.8	0.0
R6	65.5	64.0	67.8	70.5	0.0
R7	65.6	60.1	66.7	70.6	0.0
R8	62.5	48.7	62.7	67.5	0.0
R9	63.4	58.0	64.5	68.4	0.0

Loading and Trash Compactor Noise Calculations

Project: 8th, Grand and Hope Project EIR

LOADING

Estimated Noise Levels, Leq from SOUNDPLAN			Ld (7am to 7pm)	Le (7pm to 10pm)	Ln (10pm to 7am)
Receptor	Leq	CNEL	3	3	0
R1	54.4	51.6	48.4	54.4	0.0
R1U	45.7	42.9	39.7	45.7	0.0
R2	46.7	43.9	40.7	46.7	0.0
R2U	28.2	25.4	22.2	28.2	0.0
R3	27.2	24.4	21.2	27.2	0.0
R3U	25.7	22.9	19.7	25.7	0.0
R4	46.8	44.0	40.8	46.8	0.0
R4U	35.8	33.0	29.8	35.8	0.0
R5	50.4	47.6	44.4	50.4	0.0
R5U	31.2	28.4	25.2	31.2	0.0
R6	43.3	40.5	37.3	43.3	0.0
R6U	25.6	22.8	19.6	25.6	0.0
R7	24.5	21.8	18.5	24.5	0.0
R7U	21.8	19.2	15.8	21.8	0.0
R8	29.9	27.1	23.9	29.9	0.0
R9	40.6	37.8	34.6	40.6	0.0
R9U	43.3	40.5	37.3	43.3	0.0

TRASH COMPACTOR

Estimated Noise Levels, Leq from SOUNDPLAN			Ld (7am to 7pm)	Le (7pm to 10pm)	Ln (10pm to 7am)
Receptor	Leq	CNEL	3	3	0
R1	42.2	39.4	36.2	42.2	0.0
R1U	33.5	30.7	27.5	33.5	0.0
R2	34.2	31.4	28.2	34.2	0.0
R2U	17.8	15.5	11.8	17.8	0.0
R3	14.5	12.7	8.5	14.5	0.0
R3U	13.1	11.6	7.1	13.1	0.0
R4	39.0	36.2	33.0	39.0	0.0
R4U	21.8	19.2	15.8	21.8	0.0
R5	33.7	30.9	27.7	33.7	0.0
R5U	16.8	14.6	10.8	16.8	0.0
R6	30.4	27.6	24.4	30.4	0.0
R6U	12.6	11.2	6.6	12.6	0.0
R7	12.3	11.0	6.3	12.3	0.0
R7U	8.9	8.9	2.9	8.9	0.0
R8	18.1	15.7	12.1	18.1	0.0
R9	18.9	16.4	12.9	18.9	0.0
R9U	30.6	27.8	24.6	30.6	0.0

TOTAL COMBINED

Receptor	Project CNEL	Ambient CNEL	Ambient + Project (CNEL)	Increase (CNEL)	Project Noise, (Leq)	Ambient (Leq)	Ambient + Project (Leq)
R1	51.8	70.7	70.8	0.1	54.7	66.5	66.8
R1U	43.1	70.7	70.7	0.0	46.0	66.5	66.5
R2	44.1	70.2	70.2	0.0	46.9	65.8	65.9
R2U	25.8	70.2	70.2	0.0	28.6	65.8	65.8
R3	24.7	68.4	68.4	0.0	27.4	66.0	66.0
R3U	23.3	68.4	68.4	0.0	25.9	66.0	66.0
R4	44.6	69.5	69.5	0.0	47.5	67.4	67.4
R4U	33.1	69.5	69.5	0.0	36.0	67.4	67.4
R5	47.7	69.4	69.4	0.0	50.5	67.3	67.4
R5U	28.6	69.4	69.4	0.0	31.4	67.3	67.3
R6	40.7	71.5	71.5	0.0	43.5	70.1	70.1
R6U	23.1	71.5	71.5	0.0	25.8	70.1	70.1
R7	22.1	72.4	72.4	0.0	24.8	71.9	71.9
R7U	19.6	72.4	72.4	0.0	22.0	71.9	71.9
R8	27.4	67.8	67.8	0.0	30.2	65.2	65.2
R9	37.8	69.4	69.4	0.0	40.6	67.9	67.9
R9U	40.7	69.4	69.4	0.0	43.5	67.9	67.9

Receptor	Ambient	Project	Amb+Project	Criteria	Exceedance
R1	66.5	54.7	66.8	71.5	0.0
R2	65.8	46.9	65.9	70.8	0.0
R3	66.0	27.4	66.0	71.0	0.0
R4	67.4	47.5	67.4	72.4	0.0
R5	67.3	50.5	67.4	72.3	0.0
R6	70.1	43.5	70.1	75.1	0.0
R7	71.9	24.8	71.9	76.9	0.0
R8	65.2	30.2	65.2	70.2	0.0
R9	67.9	43.5	67.9	72.9	0.0

8th, Grand and Hope Source Levels in dB(A) - Mechanical

Name	Source type	Lw dB(A)	
Exhaust Fan - Ground Level	Point	80.0	
Exhaust Fan - Parking L2-1	Point	80.0	
Exhaust Fan - Parking L2-2	Point	80.0	
Exhaust Fan - Parking L3-1	Point	80.0	
Exhaust Fan - Parking L3-2	Point	80.0	
Exhaust Fan - Parking L4-1	Point	80.0	
Exhaust Fan - Parking L4-2	Point	80.0	
Exhaust Fan - Parking L5-1	Point	80.0	
Exhaust Fan - Parking L5-2	Point	80.0	
Exhaust Fan - Parking L6-1	Point	80.0	
Exhaust Fan - Parking L6-2	Point	80.0	
Exhaust Fan - Parking L7-1	Point	80.0	
Exhaust Fan - Parking L7-2	Point	80.0	
Exhaust Fan - Parking L8-1	Point	80.0	
Exhaust Fan - Parking L8-2	Point	80.0	
Exhaust Fan - Parking L9-1	Point	80.0	
Exhaust Fan - Parking L9-2	Point	80.0	
Mechanical Roof 1	Point	100.0	
Mechanical Roof 2	Point	100.0	
Mechanical Roof 3	Point	100.0	
Mechanical Roof 4	Point	100.0	
Mechanical Roof 5	Point	100.0	
Mechanical Roof 6	Point	100.0	
Mechanical Roof 7	Point	100.0	
Mechanical Roof 8	Point	100.0	
Mechanical Roof 9	Point	100.0	

8th, Grand and Hope Assessed contribution level - Mechanical

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Source	Leq,d dB(A)	
Receiver R1 FI G Leq,d 42.3 dB(A)		
Exhaust Fan - Ground Level	35.5	
Exhaust Fan - Parking L2-1	30.8	
Exhaust Fan - Parking L2-2	25.1	
Exhaust Fan - Parking L3-1	25.6	
Exhaust Fan - Parking L3-2	23.6	
Exhaust Fan - Parking L4-1	21.2	
Exhaust Fan - Parking L4-2	21.4	
Exhaust Fan - Parking L5-1	21.2	
Exhaust Fan - Parking L5-2	19.3	
Exhaust Fan - Parking L6-1	21.9	
Exhaust Fan - Parking L6-2	17.8	
Exhaust Fan - Parking L7-1	23.6	
Exhaust Fan - Parking L7-2	16.8	
Exhaust Fan - Parking L8-1	28.8	
Exhaust Fan - Parking L8-2	16.0	
Exhaust Fan - Parking L9-1	28.8	
Exhaust Fan - Parking L9-2	15.5	
Mechanical Roof 1	30.6	
Mechanical Roof 2	30.1	
Mechanical Roof 3	30.3	
Mechanical Roof 4	26.8	
Mechanical Roof 5	24.6	
Mechanical Roof 6	25.3	
Mechanical Roof 7	31.9	
Mechanical Roof 8	31.5	
Mechanical Roof 9	31.6	
Receiver R1 FI F2 Leq,d 41.5 dB(A)		
Exhaust Fan - Ground Level	17.3	
Exhaust Fan - Parking L2-1	24.6	
Exhaust Fan - Parking L2-2	17.9	
Exhaust Fan - Parking L3-1	30.0	
Exhaust Fan - Parking L3-2	19.0	
Exhaust Fan - Parking L4-1	29.2	
Exhaust Fan - Parking L4-2	19.6	
Exhaust Fan - Parking L5-1	29.2	
Exhaust Fan - Parking L5-2	19.7	
Exhaust Fan - Parking L6-1	29.4	
Exhaust Fan - Parking L6-2	21.8	
Exhaust Fan - Parking L7-1	28.3	

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8th, Grand and Hope
Assessed contribution level - Mechanical

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Source	Leq,d dB(A)	
Exhaust Fan - Parking L7-2	19.6	
Exhaust Fan - Parking L8-1	27.6	
Exhaust Fan - Parking L8-2	14.1	
Exhaust Fan - Parking L9-1	27.4	
Exhaust Fan - Parking L9-2	13.8	
Mechanical Roof 1	30.6	
Mechanical Roof 2	29.1	
Mechanical Roof 3	29.4	
Mechanical Roof 4	28.1	
Mechanical Roof 5	24.1	
Mechanical Roof 6	25.0	
Mechanical Roof 7	31.7	
Mechanical Roof 8	30.5	
Mechanical Roof 9	30.9	
Receiver R2 FI G Leq,d 37.4 dB(A)		
Exhaust Fan - Ground Level	2.3	
Exhaust Fan - Parking L2-1	6.4	
Exhaust Fan - Parking L2-2	4.1	
Exhaust Fan - Parking L3-1	3.9	
Exhaust Fan - Parking L3-2	3.8	
Exhaust Fan - Parking L4-1	4.0	
Exhaust Fan - Parking L4-2	3.8	
Exhaust Fan - Parking L5-1	3.9	
Exhaust Fan - Parking L5-2	3.8	
Exhaust Fan - Parking L6-1	3.9	
Exhaust Fan - Parking L6-2	3.8	
Exhaust Fan - Parking L7-1	3.8	
Exhaust Fan - Parking L7-2	3.9	
Exhaust Fan - Parking L8-1	3.9	
Exhaust Fan - Parking L8-2	4.0	
Exhaust Fan - Parking L9-1	3.9	
Exhaust Fan - Parking L9-2	4.2	
Mechanical Roof 1	26.7	
Mechanical Roof 2	26.6	
Mechanical Roof 3	28.9	
Mechanical Roof 4	21.4	
Mechanical Roof 5	22.6	
Mechanical Roof 6	28.0	
Mechanical Roof 7	29.0	
Mechanical Roof 8	29.4	
Mechanical Roof 9	30.4	

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8th, Grand and Hope
Assessed contribution level - Mechanical

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Source	Leq,d dB(A)	
Receiver R2 FI F2 Leq,d 46.1 dB(A)		
Exhaust Fan - Ground Level	1.1	
Exhaust Fan - Parking L2-1	8.0	
Exhaust Fan - Parking L2-2	1.9	
Exhaust Fan - Parking L3-1	10.4	
Exhaust Fan - Parking L3-2	2.0	
Exhaust Fan - Parking L4-1	10.4	
Exhaust Fan - Parking L4-2	2.1	
Exhaust Fan - Parking L5-1	10.5	
Exhaust Fan - Parking L5-2	2.2	
Exhaust Fan - Parking L6-1	10.6	
Exhaust Fan - Parking L6-2	2.1	
Exhaust Fan - Parking L7-1	10.6	
Exhaust Fan - Parking L7-2	2.3	
Exhaust Fan - Parking L8-1	10.7	
Exhaust Fan - Parking L8-2	2.4	
Exhaust Fan - Parking L9-1	10.7	
Exhaust Fan - Parking L9-2	5.0	
Mechanical Roof 1	34.7	
Mechanical Roof 2	35.0	
Mechanical Roof 3	36.4	
Mechanical Roof 4	28.8	
Mechanical Roof 5	28.5	
Mechanical Roof 6	34.9	
Mechanical Roof 7	39.1	
Mechanical Roof 8	39.1	
Mechanical Roof 9	39.6	
Receiver R3 FI G Leq,d 37.5 dB(A)		
Exhaust Fan - Ground Level	3.7	
Exhaust Fan - Parking L2-1	5.4	
Exhaust Fan - Parking L2-2	1.8	
Exhaust Fan - Parking L3-1	3.9	
Exhaust Fan - Parking L3-2	1.7	
Exhaust Fan - Parking L4-1	3.9	
Exhaust Fan - Parking L4-2	1.6	
Exhaust Fan - Parking L5-1	3.9	
Exhaust Fan - Parking L5-2	1.5	
Exhaust Fan - Parking L6-1	3.9	
Exhaust Fan - Parking L6-2	1.5	
Exhaust Fan - Parking L7-1	3.9	

8th, Grand and Hope
Assessed contribution level - Mechanical

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Source	Leq,d dB(A)	
Exhaust Fan - Parking L7-2	1.5	
Exhaust Fan - Parking L8-1	3.9	
Exhaust Fan - Parking L8-2	1.5	
Exhaust Fan - Parking L9-1	3.8	
Exhaust Fan - Parking L9-2	1.5	
Mechanical Roof 1	25.6	
Mechanical Roof 2	26.5	
Mechanical Roof 3	29.2	
Mechanical Roof 4	24.2	
Mechanical Roof 5	25.5	
Mechanical Roof 6	30.4	
Mechanical Roof 7	27.4	
Mechanical Roof 8	27.7	
Mechanical Roof 9	30.3	
Receiver R3 FI F2 Leq,d 39.6 dB(A)		
Exhaust Fan - Ground Level	1.5	
Exhaust Fan - Parking L2-1	5.3	
Exhaust Fan - Parking L2-2	1.9	
Exhaust Fan - Parking L3-1	3.8	
Exhaust Fan - Parking L3-2	1.8	
Exhaust Fan - Parking L4-1	3.9	
Exhaust Fan - Parking L4-2	1.8	
Exhaust Fan - Parking L5-1	3.9	
Exhaust Fan - Parking L5-2	1.7	
Exhaust Fan - Parking L6-1	3.9	
Exhaust Fan - Parking L6-2	0.9	
Exhaust Fan - Parking L7-1	3.9	
Exhaust Fan - Parking L7-2	0.9	
Exhaust Fan - Parking L8-1	3.9	
Exhaust Fan - Parking L8-2	1.8	
Exhaust Fan - Parking L9-1	4.0	
Exhaust Fan - Parking L9-2	2.9	
Mechanical Roof 1	27.1	
Mechanical Roof 2	28.2	
Mechanical Roof 3	31.4	
Mechanical Roof 4	26.2	
Mechanical Roof 5	28.0	
Mechanical Roof 6	33.5	
Mechanical Roof 7	28.7	
Mechanical Roof 8	29.4	
Mechanical Roof 9	32.3	

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8th, Grand and Hope Assessed contribution level - Mechanical

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Source	Leq,d dB(A)	
Receiver R4 FI G Leq,d 38.4 dB(A)		
Exhaust Fan - Ground Level	10.1	
Exhaust Fan - Parking L2-1	8.6	
Exhaust Fan - Parking L2-2	18.7	
Exhaust Fan - Parking L3-1	6.6	
Exhaust Fan - Parking L3-2	18.5	
Exhaust Fan - Parking L4-1	7.5	
Exhaust Fan - Parking L4-2	17.8	
Exhaust Fan - Parking L5-1	7.5	
Exhaust Fan - Parking L5-2	17.2	
Exhaust Fan - Parking L6-1	7.5	
Exhaust Fan - Parking L6-2	16.6	
Exhaust Fan - Parking L7-1	7.4	
Exhaust Fan - Parking L7-2	16.2	
Exhaust Fan - Parking L8-1	7.4	
Exhaust Fan - Parking L8-2	14.1	
Exhaust Fan - Parking L9-1	7.3	
Exhaust Fan - Parking L9-2	14.1	
Mechanical Roof 1	26.7	
Mechanical Roof 2	27.1	
Mechanical Roof 3	28.5	
Mechanical Roof 4	25.0	
Mechanical Roof 5	26.1	
Mechanical Roof 6	31.7	
Mechanical Roof 7	28.4	
Mechanical Roof 8	28.6	
Mechanical Roof 9	30.6	
Receiver R4 FI F2 Leq,d 39.2 dB(A)		
Exhaust Fan - Ground Level	2.8	
Exhaust Fan - Parking L2-1	8.2	
Exhaust Fan - Parking L2-2	10.2	
Exhaust Fan - Parking L3-1	7.3	
Exhaust Fan - Parking L3-2	12.9	
Exhaust Fan - Parking L4-1	7.3	
Exhaust Fan - Parking L4-2	12.0	
Exhaust Fan - Parking L5-1	7.4	
Exhaust Fan - Parking L5-2	6.7	
Exhaust Fan - Parking L6-1	7.4	
Exhaust Fan - Parking L6-2	8.0	
Exhaust Fan - Parking L7-1	7.4	

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8th, Grand and Hope
Assessed contribution level - Mechanical

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Source	Leq,d dB(A)	
Exhaust Fan - Parking L7-2	15.0	
Exhaust Fan - Parking L8-1	7.4	
Exhaust Fan - Parking L8-2	14.9	
Exhaust Fan - Parking L9-1	7.4	
Exhaust Fan - Parking L9-2	4.6	
Mechanical Roof 1	27.9	
Mechanical Roof 2	28.4	
Mechanical Roof 3	30.1	
Mechanical Roof 4	26.6	
Mechanical Roof 5	27.4	
Mechanical Roof 6	31.5	
Mechanical Roof 7	29.7	
Mechanical Roof 8	29.9	
Mechanical Roof 9	32.0	
Receiver R5 FI G Leq,d 41.0 dB(A)		
Exhaust Fan - Ground Level	35.7	
Exhaust Fan - Parking L2-1	18.8	
Exhaust Fan - Parking L2-2	28.9	
Exhaust Fan - Parking L3-1	16.0	
Exhaust Fan - Parking L3-2	27.8	
Exhaust Fan - Parking L4-1	14.6	
Exhaust Fan - Parking L4-2	27.2	
Exhaust Fan - Parking L5-1	14.5	
Exhaust Fan - Parking L5-2	26.2	
Exhaust Fan - Parking L6-1	14.4	
Exhaust Fan - Parking L6-2	26.0	
Exhaust Fan - Parking L7-1	14.3	
Exhaust Fan - Parking L7-2	25.6	
Exhaust Fan - Parking L8-1	14.1	
Exhaust Fan - Parking L8-2	25.6	
Exhaust Fan - Parking L9-1	14.0	
Exhaust Fan - Parking L9-2	25.3	
Mechanical Roof 1	22.1	
Mechanical Roof 2	23.0	
Mechanical Roof 3	28.9	
Mechanical Roof 4	26.6	
Mechanical Roof 5	26.9	
Mechanical Roof 6	29.3	
Mechanical Roof 7	27.1	
Mechanical Roof 8	27.0	
Mechanical Roof 9	29.1	

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8th, Grand and Hope
Assessed contribution level - Mechanical

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Source	Leq,d dB(A)	
Receiver R5 FI F2 Leq,d 43.2 dB(A)		
Exhaust Fan - Ground Level	14.6	
Exhaust Fan - Parking L2-1	12.3	
Exhaust Fan - Parking L2-2	26.4	
Exhaust Fan - Parking L3-1	11.0	
Exhaust Fan - Parking L3-2	28.7	
Exhaust Fan - Parking L4-1	10.4	
Exhaust Fan - Parking L4-2	29.1	
Exhaust Fan - Parking L5-1	10.7	
Exhaust Fan - Parking L5-2	29.2	
Exhaust Fan - Parking L6-1	10.9	
Exhaust Fan - Parking L6-2	29.4	
Exhaust Fan - Parking L7-1	11.2	
Exhaust Fan - Parking L7-2	29.4	
Exhaust Fan - Parking L8-1	11.5	
Exhaust Fan - Parking L8-2	24.1	
Exhaust Fan - Parking L9-1	11.7	
Exhaust Fan - Parking L9-2	20.9	
Mechanical Roof 1	26.6	
Mechanical Roof 2	28.7	
Mechanical Roof 3	33.9	
Mechanical Roof 4	31.8	
Mechanical Roof 5	31.7	
Mechanical Roof 6	35.6	
Mechanical Roof 7	31.5	
Mechanical Roof 8	31.7	
Mechanical Roof 9	34.0	
Receiver R6 FI G Leq,d 46.8 dB(A)		
Exhaust Fan - Ground Level	35.2	
Exhaust Fan - Parking L2-1	10.3	
Exhaust Fan - Parking L2-2	38.3	
Exhaust Fan - Parking L3-1	8.1	
Exhaust Fan - Parking L3-2	38.2	
Exhaust Fan - Parking L4-1	7.8	
Exhaust Fan - Parking L4-2	38.1	
Exhaust Fan - Parking L5-1	7.8	
Exhaust Fan - Parking L5-2	38.0	
Exhaust Fan - Parking L6-1	7.8	
Exhaust Fan - Parking L6-2	35.6	
Exhaust Fan - Parking L7-1	7.7	

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8th, Grand and Hope
Assessed contribution level - Mechanical

9

Source	Leq,d dB(A)	
Exhaust Fan - Parking L7-2	35.4	
Exhaust Fan - Parking L8-1	7.7	
Exhaust Fan - Parking L8-2	35.3	
Exhaust Fan - Parking L9-1	7.6	
Exhaust Fan - Parking L9-2	35.2	
Mechanical Roof 1	22.9	
Mechanical Roof 2	23.2	
Mechanical Roof 3	26.0	
Mechanical Roof 4	29.3	
Mechanical Roof 5	29.0	
Mechanical Roof 6	30.2	
Mechanical Roof 7	22.5	
Mechanical Roof 8	22.9	
Mechanical Roof 9	26.0	
Receiver R6 FI F2 Leq,d 45.5 dB(A)		
Exhaust Fan - Ground Level	15.9	
Exhaust Fan - Parking L2-1	7.6	
Exhaust Fan - Parking L2-2	34.8	
Exhaust Fan - Parking L3-1	5.6	
Exhaust Fan - Parking L3-2	35.0	
Exhaust Fan - Parking L4-1	6.6	
Exhaust Fan - Parking L4-2	35.3	
Exhaust Fan - Parking L5-1	6.9	
Exhaust Fan - Parking L5-2	33.2	
Exhaust Fan - Parking L6-1	7.1	
Exhaust Fan - Parking L6-2	33.4	
Exhaust Fan - Parking L7-1	7.4	
Exhaust Fan - Parking L7-2	33.7	
Exhaust Fan - Parking L8-1	7.7	
Exhaust Fan - Parking L8-2	33.9	
Exhaust Fan - Parking L9-1	8.3	
Exhaust Fan - Parking L9-2	34.2	
Mechanical Roof 1	26.3	
Mechanical Roof 2	26.1	
Mechanical Roof 3	29.2	
Mechanical Roof 4	34.2	
Mechanical Roof 5	34.0	
Mechanical Roof 6	37.4	
Mechanical Roof 7	25.5	
Mechanical Roof 8	25.8	
Mechanical Roof 9	29.2	

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8th, Grand and Hope

Assessed contribution level - Mechanical

9

Source	Leq,d dB(A)	
Receiver R7 FI G Leq,d 39.8 dB(A)		
Exhaust Fan - Ground Level	25.5	
Exhaust Fan - Parking L2-1	5.3	
Exhaust Fan - Parking L2-2	28.8	
Exhaust Fan - Parking L3-1	2.9	
Exhaust Fan - Parking L3-2	28.2	
Exhaust Fan - Parking L4-1	2.8	
Exhaust Fan - Parking L4-2	28.0	
Exhaust Fan - Parking L5-1	2.8	
Exhaust Fan - Parking L5-2	27.8	
Exhaust Fan - Parking L6-1	2.8	
Exhaust Fan - Parking L6-2	27.8	
Exhaust Fan - Parking L7-1	2.8	
Exhaust Fan - Parking L7-2	27.7	
Exhaust Fan - Parking L8-1	2.7	
Exhaust Fan - Parking L8-2	27.7	
Exhaust Fan - Parking L9-1	2.6	
Exhaust Fan - Parking L9-2	27.6	
Mechanical Roof 1	22.5	
Mechanical Roof 2	22.2	
Mechanical Roof 3	24.9	
Mechanical Roof 4	29.7	
Mechanical Roof 5	29.3	
Mechanical Roof 6	30.3	
Mechanical Roof 7	21.6	
Mechanical Roof 8	21.7	
Mechanical Roof 9	24.7	
Receiver R7 FI F2 Leq,d 40.7 dB(A)		
Exhaust Fan - Ground Level	19.0	
Exhaust Fan - Parking L2-1	5.1	
Exhaust Fan - Parking L2-2	26.9	
Exhaust Fan - Parking L3-1	2.7	
Exhaust Fan - Parking L3-2	27.0	
Exhaust Fan - Parking L4-1	2.7	
Exhaust Fan - Parking L4-2	27.0	
Exhaust Fan - Parking L5-1	2.8	
Exhaust Fan - Parking L5-2	27.1	
Exhaust Fan - Parking L6-1	2.8	
Exhaust Fan - Parking L6-2	27.3	
Exhaust Fan - Parking L7-1	2.9	

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8th, Grand and Hope
Assessed contribution level - Mechanical

9

Source	Leq,d dB(A)	
Exhaust Fan - Parking L7-2	27.6	
Exhaust Fan - Parking L8-1	2.9	
Exhaust Fan - Parking L8-2	22.2	
Exhaust Fan - Parking L9-1	3.0	
Exhaust Fan - Parking L9-2	26.7	
Mechanical Roof 1	23.6	
Mechanical Roof 2	23.3	
Mechanical Roof 3	26.1	
Mechanical Roof 4	32.1	
Mechanical Roof 5	33.2	
Mechanical Roof 6	33.9	
Mechanical Roof 7	23.0	
Mechanical Roof 8	22.9	
Mechanical Roof 9	26.0	
Receiver R8 FI G Leq,d 44.6 dB(A)		
Exhaust Fan - Ground Level	25.8	
Exhaust Fan - Parking L2-1	19.6	
Exhaust Fan - Parking L2-2	34.3	
Exhaust Fan - Parking L3-1	18.1	
Exhaust Fan - Parking L3-2	34.3	
Exhaust Fan - Parking L4-1	20.5	
Exhaust Fan - Parking L4-2	34.2	
Exhaust Fan - Parking L5-1	21.5	
Exhaust Fan - Parking L5-2	34.1	
Exhaust Fan - Parking L6-1	23.0	
Exhaust Fan - Parking L6-2	34.3	
Exhaust Fan - Parking L7-1	23.7	
Exhaust Fan - Parking L7-2	34.6	
Exhaust Fan - Parking L8-1	24.6	
Exhaust Fan - Parking L8-2	34.7	
Exhaust Fan - Parking L9-1	25.4	
Exhaust Fan - Parking L9-2	34.8	
Mechanical Roof 1	28.3	
Mechanical Roof 2	22.7	
Mechanical Roof 3	22.1	
Mechanical Roof 4	31.2	
Mechanical Roof 5	28.5	
Mechanical Roof 6	27.3	
Mechanical Roof 7	30.5	
Mechanical Roof 8	23.6	
Mechanical Roof 9	21.8	

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8th, Grand and Hope

Assessed contribution level - Mechanical

9

Source	Leq,d dB(A)	
Receiver R9 FI G Leq,d 41.5 dB(A)		
Exhaust Fan - Ground Level	13.8	
Exhaust Fan - Parking L2-1	15.5	
Exhaust Fan - Parking L2-2	24.9	
Exhaust Fan - Parking L3-1	14.5	
Exhaust Fan - Parking L3-2	24.9	
Exhaust Fan - Parking L4-1	19.0	
Exhaust Fan - Parking L4-2	24.9	
Exhaust Fan - Parking L5-1	19.7	
Exhaust Fan - Parking L5-2	25.4	
Exhaust Fan - Parking L6-1	22.2	
Exhaust Fan - Parking L6-2	30.6	
Exhaust Fan - Parking L7-1	24.9	
Exhaust Fan - Parking L7-2	32.2	
Exhaust Fan - Parking L8-1	27.2	
Exhaust Fan - Parking L8-2	32.1	
Exhaust Fan - Parking L9-1	28.4	
Exhaust Fan - Parking L9-2	32.0	
Mechanical Roof 1	26.9	
Mechanical Roof 2	21.9	
Mechanical Roof 3	21.2	
Mechanical Roof 4	31.5	
Mechanical Roof 5	28.3	
Mechanical Roof 6	28.0	
Mechanical Roof 7	29.2	
Mechanical Roof 8	25.2	
Mechanical Roof 9	21.1	
Receiver R9 FI F2 Leq,d 44.0 dB(A)		
Exhaust Fan - Ground Level	9.2	
Exhaust Fan - Parking L2-1	15.9	
Exhaust Fan - Parking L2-2	23.5	
Exhaust Fan - Parking L3-1	19.4	
Exhaust Fan - Parking L3-2	23.7	
Exhaust Fan - Parking L4-1	27.9	
Exhaust Fan - Parking L4-2	24.3	
Exhaust Fan - Parking L5-1	28.8	
Exhaust Fan - Parking L5-2	28.2	
Exhaust Fan - Parking L6-1	28.9	
Exhaust Fan - Parking L6-2	31.0	
Exhaust Fan - Parking L7-1	29.0	

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8th, Grand and Hope
Assessed contribution level - Mechanical

9

Source	Leq,d dB(A)	
Exhaust Fan - Parking L7-2	31.2	
Exhaust Fan - Parking L8-1	29.1	
Exhaust Fan - Parking L8-2	31.3	
Exhaust Fan - Parking L9-1	29.2	
Exhaust Fan - Parking L9-2	31.5	
Mechanical Roof 1	30.3	
Mechanical Roof 2	25.2	
Mechanical Roof 3	23.7	
Mechanical Roof 4	36.8	
Mechanical Roof 5	33.0	
Mechanical Roof 6	32.9	
Mechanical Roof 7	33.7	
Mechanical Roof 8	28.9	
Mechanical Roof 9	24.0	

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**8th, Grand and Hope
Source Levels in dB(A) - Loading**

Name	Source type	Lw dB(A)	
Loading	Point	101.9	

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8th, Grand and Hope Assessed contribution level - Loading

Source	Leq,d dB(A)	
Receiver R1 FI G Leq,d 54.4 dB(A)		
Loading	54.4	
Receiver R1 FI F2 Leq,d 45.7 dB(A)		
Loading	45.7	
Receiver R2 FI G Leq,d 46.7 dB(A)		
Loading	46.7	
Receiver R2 FI F2 Leq,d 28.2 dB(A)		
Loading	28.2	
Receiver R3 FI G Leq,d 27.2 dB(A)		
Loading	27.2	
Receiver R3 FI F2 Leq,d 25.7 dB(A)		
Loading	25.7	
Receiver R4 FI G Leq,d 46.8 dB(A)		
Loading	46.8	
Receiver R4 FI F2 Leq,d 35.8 dB(A)		
Loading	35.8	
Receiver R5 FI G Leq,d 50.4 dB(A)		
Loading	50.4	
Receiver R5 FI F2 Leq,d 31.2 dB(A)		
Loading	31.2	
Receiver R6 FI G Leq,d 43.3 dB(A)		
Loading	43.3	
Receiver R6 FI F2 Leq,d 25.6 dB(A)		
Loading	25.6	
Receiver R7 FI G Leq,d 24.5 dB(A)		
Loading	24.5	
Receiver R7 FI F2 Leq,d 21.8 dB(A)		
Loading	21.8	
Receiver R8 FI G Leq,d 29.9 dB(A)		
Loading	29.9	
Receiver R9 FI G Leq,d 40.6 dB(A)		
Loading	40.6	
Receiver R9 FI F2 Leq,d 43.3 dB(A)		
Loading	43.3	

**8th, Grand and Hope
Source Levels in dB(A) - Trash Compactor**

Name	Source type	Lw dB(A)	
Trash Compactor	Point	87.7	

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8th, Grand and Hope

Assessed contribution level - Trash Compactor

Source	Leq,d dB(A)	
Receiver R1 FI G Leq,d 42.2 dB(A)		
Trash Compactor	42.2	
Receiver R1 FI F2 Leq,d 33.5 dB(A)		
Trash Compactor	33.5	
Receiver R2 FI G Leq,d 34.2 dB(A)		
Trash Compactor	34.2	
Receiver R2 FI F2 Leq,d 17.8 dB(A)		
Trash Compactor	17.8	
Receiver R3 FI G Leq,d 14.5 dB(A)		
Trash Compactor	14.5	
Receiver R3 FI F2 Leq,d 13.1 dB(A)		
Trash Compactor	13.1	
Receiver R4 FI G Leq,d 39.0 dB(A)		
Trash Compactor	39.0	
Receiver R4 FI F2 Leq,d 21.8 dB(A)		
Trash Compactor	21.8	
Receiver R5 FI G Leq,d 33.7 dB(A)		
Trash Compactor	33.7	
Receiver R5 FI F2 Leq,d 16.8 dB(A)		
Trash Compactor	16.8	
Receiver R6 FI G Leq,d 30.4 dB(A)		
Trash Compactor	30.4	
Receiver R6 FI F2 Leq,d 12.6 dB(A)		
Trash Compactor	12.6	
Receiver R7 FI G Leq,d 12.3 dB(A)		
Trash Compactor	12.3	
Receiver R7 FI F2 Leq,d 8.9 dB(A)		
Trash Compactor	8.9	
Receiver R8 FI G Leq,d 18.1 dB(A)		
Trash Compactor	18.1	
Receiver R9 FI G Leq,d 18.9 dB(A)		
Trash Compactor	18.9	
Receiver R9 FI F2 Leq,d 30.6 dB(A)		
Trash Compactor	30.6	

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8th, Grand and Hope Source Levels in dB(A) - Parking

Name	Source type	Lw dB(A)	
Parking Level 1	PLot	73.5	
Parking Level 2	PLot	88.3	
Parking Level 03	PLot	89.4	
Parking Level 04	PLot	89.4	
Parking Level 05	PLot	89.4	
Parking Level 06	PLot	89.4	
Parking Level 07	PLot	89.4	
Parking Level 08	PLot	89.4	
Parking Level 09	PLot	89.4	

8th, Grand and Hope
Input data parking lots - Parking

Parking lot	Parking Spaces	
Parking Level 1	4	
Parking Level 2	48	
Parking Level 03	58	
Parking Level 04	58	
Parking Level 05	58	
Parking Level 06	58	
Parking Level 07	58	
Parking Level 08	58	
Parking Level 09	58	

8th, Grand and Hope
Assessed contribution level - Parking

9

Source	Leq,d dB(A)	
Receiver R1 FI G Leq,d 36.6 dB(A)		
Parking Level 1	28.7	
Parking Level 2	30.1	
Parking Level 03	28.9	
Parking Level 04	27.0	
Parking Level 05	26.0	
Parking Level 06	25.3	
Parking Level 07	24.5	
Parking Level 08	24.1	
Parking Level 09	23.4	
Receiver R1 FI F2 Leq,d 39.6 dB(A)		
Parking Level 1	20.3	
Parking Level 2	31.5	
Parking Level 03	32.4	
Parking Level 04	32.6	
Parking Level 05	31.4	
Parking Level 06	30.4	
Parking Level 07	28.0	
Parking Level 08	27.4	
Parking Level 09	26.4	
Receiver R2 FI G Leq,d 34.8 dB(A)		
Parking Level 1	13.7	
Parking Level 2	24.9	
Parking Level 03	27.8	
Parking Level 04	26.3	
Parking Level 05	25.7	
Parking Level 06	25.8	
Parking Level 07	25.4	
Parking Level 08	24.3	
Parking Level 09	25.1	
Receiver R2 FI F2 Leq,d 34.0 dB(A)		
Parking Level 1	6.9	
Parking Level 2	21.7	
Parking Level 03	24.9	
Parking Level 04	25.4	
Parking Level 05	25.8	
Parking Level 06	26.2	
Parking Level 07	25.5	
Parking Level 08	24.7	
Parking Level 09	24.2	

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**8th, Grand and Hope
Assessed contribution level - Parking**

9

Source	Leq,d dB(A)	
Receiver R3 FI G Leq,d 25.6 dB(A)		
Parking Level 1	4.1	
Parking Level 2	12.8	
Parking Level 03	17.3	
Parking Level 04	17.5	
Parking Level 05	17.4	
Parking Level 06	16.7	
Parking Level 07	16.7	
Parking Level 08	16.2	
Parking Level 09	15.9	
Receiver R3 FI F2 Leq,d 27.3 dB(A)		
Parking Level 1	2.0	
Parking Level 2	17.2	
Parking Level 03	17.9	
Parking Level 04	16.9	
Parking Level 05	17.6	
Parking Level 06	17.6	
Parking Level 07	18.4	
Parking Level 08	19.2	
Parking Level 09	20.3	
Receiver R4 FI G Leq,d 38.8 dB(A)		
Parking Level 1	18.5	
Parking Level 2	30.1	
Parking Level 03	31.8	
Parking Level 04	30.7	
Parking Level 05	30.0	
Parking Level 06	29.2	
Parking Level 07	27.7	
Parking Level 08	28.7	
Parking Level 09	27.9	
Receiver R4 FI F2 Leq,d 38.9 dB(A)		
Parking Level 1	12.8	
Parking Level 2	29.5	
Parking Level 03	30.6	
Parking Level 04	30.4	
Parking Level 05	30.8	
Parking Level 06	31.0	
Parking Level 07	29.4	
Parking Level 08	27.6	
Parking Level 09	27.8	

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**8th, Grand and Hope
Assessed contribution level - Parking**

9

Source	Leq,d dB(A)	
Receiver R5 FI G Leq,d 46.2 dB(A)		
Parking Level 1	34.0	
Parking Level 2	39.5	
Parking Level 03	39.0	
Parking Level 04	37.9	
Parking Level 05	36.7	
Parking Level 06	35.7	
Parking Level 07	34.8	
Parking Level 08	33.9	
Parking Level 09	33.2	
Receiver R5 FI F2 Leq,d 41.6 dB(A)		
Parking Level 1	12.1	
Parking Level 2	29.8	
Parking Level 03	31.2	
Parking Level 04	32.0	
Parking Level 05	32.6	
Parking Level 06	33.2	
Parking Level 07	33.6	
Parking Level 08	33.4	
Parking Level 09	33.2	
Receiver R6 FI G Leq,d 43.7 dB(A)		
Parking Level 1	25.6	
Parking Level 2	35.9	
Parking Level 03	36.7	
Parking Level 04	35.4	
Parking Level 05	34.2	
Parking Level 06	33.8	
Parking Level 07	33.1	
Parking Level 08	33.0	
Parking Level 09	32.5	
Receiver R6 FI F2 Leq,d 40.1 dB(A)		
Parking Level 1	9.4	
Parking Level 2	28.9	
Parking Level 03	30.2	
Parking Level 04	30.8	
Parking Level 05	31.2	
Parking Level 06	31.7	
Parking Level 07	32.1	
Parking Level 08	31.8	
Parking Level 09	31.2	

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**8th, Grand and Hope
Assessed contribution level - Parking**

9

Source	Leq,d dB(A)	
Receiver R7 FI G Leq,d 41.0 dB(A)		
Parking Level 1	20.0	
Parking Level 2	32.7	
Parking Level 03	33.5	
Parking Level 04	32.9	
Parking Level 05	32.4	
Parking Level 06	31.2	
Parking Level 07	31.2	
Parking Level 08	30.8	
Parking Level 09	29.5	
Receiver R7 FI F2 Leq,d 44.4 dB(A)		
Parking Level 1	11.2	
Parking Level 2	31.1	
Parking Level 03	34.2	
Parking Level 04	34.9	
Parking Level 05	35.3	
Parking Level 06	35.8	
Parking Level 07	36.2	
Parking Level 08	36.7	
Parking Level 09	36.2	
Receiver R8 FI G Leq,d 39.4 dB(A)		
Parking Level 1	22.9	
Parking Level 2	30.4	
Parking Level 03	31.7	
Parking Level 04	31.2	
Parking Level 05	30.5	
Parking Level 06	30.1	
Parking Level 07	29.5	
Parking Level 08	28.8	
Parking Level 09	28.5	
Receiver R9 FI G Leq,d 34.6 dB(A)		
Parking Level 1	13.2	
Parking Level 2	23.8	
Parking Level 03	27.1	
Parking Level 04	26.0	
Parking Level 05	25.8	
Parking Level 06	24.8	
Parking Level 07	25.7	
Parking Level 08	25.6	
Parking Level 09	25.3	

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**8th, Grand and Hope
Assessed contribution level - Parking**

9

Source	Leq,d dB(A)	
Receiver R9 FI F2 Leq,d 37.9 dB(A)		
Parking Level 1	4.8	
Parking Level 2	23.2	
Parking Level 03	25.2	
Parking Level 04	27.3	
Parking Level 05	29.1	
Parking Level 06	29.7	
Parking Level 07	30.1	
Parking Level 08	30.9	
Parking Level 09	30.5	

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8th, Grand and Hope Source Levels in dB(A) - Speakers

Name	Source type	Lw dB(A)	
Speakers Level 10	Point	108.6	
Speakers Level 10	Point	108.6	
Speakers Level 10	Point	108.6	
Speakers Level 10	Point	108.6	
Speakers Level 10	Point	108.6	
Speakers Level 10	Point	108.6	
Speakers Level 10	Point	108.6	
Speakers Level 10	Point	108.6	
Speakers Level 10	Point	108.6	
Speakers Level 10	Point	108.6	
Speakers Level 10	Point	108.6	
Speakers Level 21	Point	108.6	
Speakers Level 21	Point	108.6	
Speakers Level 21	Point	108.6	
Speakers Level 21	Point	108.6	
Speakers Level 21	Point	108.6	
Speakers Level 35	Point	108.6	
Speakers Level 35	Point	108.6	
Speakers Level 35	Point	108.6	
Speakers Level 35	Point	108.6	
Speakers Level 35	Point	108.6	
Speakers Level 35	Point	108.6	

8th, Grand and Hope Assessed contribution level - Speakers

Source	Leq,d dB(A)	
Receiver R1 FI G	Leq,d 44.4 dB(A)	
Speakers Level 10	17.0	
Speakers Level 10	27.6	
Speakers Level 10	31.4	
Speakers Level 10	32.6	
Speakers Level 10	32.6	
Speakers Level 10	22.4	
Speakers Level 10	16.3	
Speakers Level 10	28.0	
Speakers Level 10	42.0	
Speakers Level 10	25.2	
Speakers Level 21	29.7	
Speakers Level 21	32.3	
Speakers Level 21	27.6	
Speakers Level 21	17.7	
Speakers Level 21	26.4	
Speakers Level 35	22.3	
Speakers Level 35	25.3	
Speakers Level 35	16.1	
Speakers Level 35	15.9	
Speakers Level 35	25.9	
Speakers Level 35	26.2	
Receiver R1 FI F2	Leq,d 48.6 dB(A)	
Speakers Level 10	16.4	
Speakers Level 10	29.1	
Speakers Level 10	39.1	
Speakers Level 10	32.1	
Speakers Level 10	31.7	
Speakers Level 10	22.0	
Speakers Level 10	16.8	
Speakers Level 10	32.1	
Speakers Level 10	47.1	
Speakers Level 10	27.6	
Speakers Level 21	29.7	
Speakers Level 21	33.1	
Speakers Level 21	29.2	
Speakers Level 21	18.0	
Speakers Level 21	28.0	
Speakers Level 35	23.9	
Speakers Level 35	25.2	

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8th, Grand and Hope Assessed contribution level - Speakers

Source	Leq,d dB(A)	
Speakers Level 35	15.3	
Speakers Level 35	15.0	
Speakers Level 35	26.3	
Speakers Level 35	26.7	
Receiver R2 FI G Leq,d 41.9 dB(A)		
Speakers Level 10	14.3	
Speakers Level 10	18.4	
Speakers Level 10	20.8	
Speakers Level 10	27.4	
Speakers Level 10	33.7	
Speakers Level 10	36.4	
Speakers Level 10	23.2	
Speakers Level 10	23.6	
Speakers Level 10	37.0	
Speakers Level 10	13.5	
Speakers Level 21	30.1	
Speakers Level 21	25.7	
Speakers Level 21	17.2	
Speakers Level 21	11.9	
Speakers Level 21	18.9	
Speakers Level 35	15.8	
Speakers Level 35	26.6	
Speakers Level 35	9.8	
Speakers Level 35	12.7	
Speakers Level 35	22.0	
Speakers Level 35	24.8	
Receiver R2 FI F2 Leq,d 47.8 dB(A)		
Speakers Level 10	8.5	
Speakers Level 10	16.9	
Speakers Level 10	16.0	
Speakers Level 10	27.2	
Speakers Level 10	34.7	
Speakers Level 10	36.2	
Speakers Level 10	17.7	
Speakers Level 10	17.4	
Speakers Level 10	31.5	
Speakers Level 10	13.2	
Speakers Level 21	45.2	
Speakers Level 21	30.2	
Speakers Level 21	22.1	

8th, Grand and Hope **Assessed contribution level - Speakers**

Source	Leq,d dB(A)	
Speakers Level 21	11.0	
Speakers Level 21	28.5	
Speakers Level 35	22.0	
Speakers Level 35	38.0	
Speakers Level 35	15.7	
Speakers Level 35	20.8	
Speakers Level 35	30.7	
Speakers Level 35	39.4	
Receiver R3 FI G Leq,d 35.3 dB(A)		
Speakers Level 10	19.1	
Speakers Level 10	23.0	
Speakers Level 10	21.6	
Speakers Level 10	29.5	
Speakers Level 10	20.2	
Speakers Level 10	12.2	
Speakers Level 10	21.1	
Speakers Level 10	12.6	
Speakers Level 10	22.3	
Speakers Level 10	11.4	
Speakers Level 21	25.1	
Speakers Level 21	23.8	
Speakers Level 21	25.9	
Speakers Level 21	20.5	
Speakers Level 21	24.5	
Speakers Level 35	19.7	
Speakers Level 35	14.5	
Speakers Level 35	9.8	
Speakers Level 35	10.2	
Speakers Level 35	16.5	
Speakers Level 35	17.1	
Receiver R3 FI F2 Leq,d 44.1 dB(A)		
Speakers Level 10	33.7	
Speakers Level 10	23.3	
Speakers Level 10	22.7	
Speakers Level 10	25.9	
Speakers Level 10	21.0	
Speakers Level 10	23.4	
Speakers Level 10	33.2	
Speakers Level 10	23.7	
Speakers Level 10	27.6	

8th, Grand and Hope Assessed contribution level - Speakers

Source	Leq,d dB(A)	
Speakers Level 10	12.9	
Speakers Level 21	31.8	
Speakers Level 21	27.5	
Speakers Level 21	27.9	
Speakers Level 21	36.4	
Speakers Level 21	40.4	
Speakers Level 35	22.3	
Speakers Level 35	27.2	
Speakers Level 35	10.8	
Speakers Level 35	11.4	
Speakers Level 35	21.5	
Speakers Level 35	24.6	
Receiver R4 FI G Leq,d 40.0 dB(A)		
Speakers Level 10	15.0	
Speakers Level 10	25.2	
Speakers Level 10	30.4	
Speakers Level 10	30.0	
Speakers Level 10	31.3	
Speakers Level 10	32.8	
Speakers Level 10	16.0	
Speakers Level 10	16.5	
Speakers Level 10	29.1	
Speakers Level 10	14.0	
Speakers Level 21	30.6	
Speakers Level 21	29.8	
Speakers Level 21	23.1	
Speakers Level 21	19.3	
Speakers Level 21	25.5	
Speakers Level 35	18.9	
Speakers Level 35	20.4	
Speakers Level 35	10.2	
Speakers Level 35	12.6	
Speakers Level 35	20.8	
Speakers Level 35	24.0	
Receiver R4 FI F2 Leq,d 38.5 dB(A)		
Speakers Level 10	14.4	
Speakers Level 10	24.1	
Speakers Level 10	22.6	
Speakers Level 10	31.3	
Speakers Level 10	30.5	

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8th, Grand and Hope Assessed contribution level - Speakers

Source	Leq,d dB(A)	
Speakers Level 10	23.1	
Speakers Level 10	15.2	
Speakers Level 10	18.4	
Speakers Level 10	28.4	
Speakers Level 10	15.9	
Speakers Level 21	30.2	
Speakers Level 21	29.4	
Speakers Level 21	22.8	
Speakers Level 21	19.7	
Speakers Level 21	23.2	
Speakers Level 35	20.7	
Speakers Level 35	22.0	
Speakers Level 35	11.1	
Speakers Level 35	14.8	
Speakers Level 35	20.2	
Speakers Level 35	24.7	
Receiver R5 FI G Leq,d 48.0 dB(A)		
Speakers Level 10	24.4	
Speakers Level 10	36.8	
Speakers Level 10	38.9	
Speakers Level 10	39.2	
Speakers Level 10	38.9	
Speakers Level 10	42.1	
Speakers Level 10	28.5	
Speakers Level 10	27.8	
Speakers Level 10	38.9	
Speakers Level 10	20.4	
Speakers Level 21	32.8	
Speakers Level 21	30.9	
Speakers Level 21	31.7	
Speakers Level 21	25.6	
Speakers Level 21	28.2	
Speakers Level 35	26.1	
Speakers Level 35	32.5	
Speakers Level 35	15.3	
Speakers Level 35	20.5	
Speakers Level 35	21.4	
Speakers Level 35	27.4	
Receiver R5 FI F2 Leq,d 64.4 dB(A)		
Speakers Level 10	25.6	

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8th, Grand and Hope

Assessed contribution level - Speakers

Source	Leq,d dB(A)	
Speakers Level 10	34.8	
Speakers Level 10	35.2	
Speakers Level 10	36.6	
Speakers Level 10	55.8	
Speakers Level 10	45.7	
Speakers Level 10	36.2	
Speakers Level 10	32.1	
Speakers Level 10	47.7	
Speakers Level 10	32.4	
Speakers Level 21	59.5	
Speakers Level 21	56.9	
Speakers Level 21	57.6	
Speakers Level 21	41.8	
Speakers Level 21	54.5	
Speakers Level 35	30.6	
Speakers Level 35	40.1	
Speakers Level 35	21.9	
Speakers Level 35	25.4	
Speakers Level 35	31.1	
Speakers Level 35	34.9	
Receiver R6 FI G Leq,d 47.7 dB(A)		
Speakers Level 10	34.2	
Speakers Level 10	33.3	
Speakers Level 10	37.0	
Speakers Level 10	36.7	
Speakers Level 10	34.6	
Speakers Level 10	41.1	
Speakers Level 10	39.4	
Speakers Level 10	27.4	
Speakers Level 10	35.1	
Speakers Level 10	16.8	
Speakers Level 21	35.6	
Speakers Level 21	35.7	
Speakers Level 21	30.9	
Speakers Level 21	30.1	
Speakers Level 21	30.5	
Speakers Level 35	26.4	
Speakers Level 35	28.4	
Speakers Level 35	26.0	
Speakers Level 35	27.6	
Speakers Level 35	32.5	

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8th, Grand and Hope Assessed contribution level - Speakers

Source	Leq,d dB(A)	
Speakers Level 35	32.8	
Receiver R6 FI F2 Leq,d 63.6 dB(A)		
Speakers Level 10	37.2	
Speakers Level 10	50.3	
Speakers Level 10	54.1	
Speakers Level 10	52.1	
Speakers Level 10	44.2	
Speakers Level 10	44.8	
Speakers Level 10	53.7	
Speakers Level 10	36.5	
Speakers Level 10	36.4	
Speakers Level 10	24.3	
Speakers Level 21	45.2	
Speakers Level 21	47.4	
Speakers Level 21	54.8	
Speakers Level 21	56.3	
Speakers Level 21	57.9	
Speakers Level 35	35.2	
Speakers Level 35	36.7	
Speakers Level 35	34.3	
Speakers Level 35	37.4	
Speakers Level 35	39.9	
Speakers Level 35	40.1	
Receiver R7 FI G Leq,d 47.0 dB(A)		
Speakers Level 10	34.3	
Speakers Level 10	31.1	
Speakers Level 10	36.3	
Speakers Level 10	37.6	
Speakers Level 10	38.8	
Speakers Level 10	38.8	
Speakers Level 10	36.3	
Speakers Level 10	24.8	
Speakers Level 10	33.0	
Speakers Level 10	13.1	
Speakers Level 21	32.5	
Speakers Level 21	34.4	
Speakers Level 21	30.6	
Speakers Level 21	31.5	
Speakers Level 21	28.6	
Speakers Level 35	27.1	

8th, Grand and Hope **Assessed contribution level - Speakers**

Source	Leq,d dB(A)	
Speakers Level 35	26.9	
Speakers Level 35	26.9	
Speakers Level 35	28.3	
Speakers Level 35	33.2	
Speakers Level 35	33.3	
Receiver R7 FI F2 Leq,d 59.8 dB(A)		
Speakers Level 10	54.0	
Speakers Level 10	49.2	
Speakers Level 10	49.2	
Speakers Level 10	43.6	
Speakers Level 10	43.9	
Speakers Level 10	42.9	
Speakers Level 10	56.0	
Speakers Level 10	40.8	
Speakers Level 10	39.7	
Speakers Level 10	16.7	
Speakers Level 21	39.5	
Speakers Level 21	40.2	
Speakers Level 21	37.9	
Speakers Level 21	39.2	
Speakers Level 21	35.6	
Speakers Level 35	30.0	
Speakers Level 35	30.1	
Speakers Level 35	30.6	
Speakers Level 35	32.0	
Speakers Level 35	35.8	
Speakers Level 35	36.3	
Receiver R8 FI G Leq,d 48.1 dB(A)		
Speakers Level 10	38.2	
Speakers Level 10	38.5	
Speakers Level 10	37.2	
Speakers Level 10	36.4	
Speakers Level 10	35.9	
Speakers Level 10	38.6	
Speakers Level 10	35.0	
Speakers Level 10	35.9	
Speakers Level 10	33.5	
Speakers Level 10	35.3	
Speakers Level 21	33.1	
Speakers Level 21	34.4	

8th, Grand and Hope **Assessed contribution level - Speakers**

Source	Leq,d dB(A)	
Speakers Level 21	36.4	
Speakers Level 21	32.5	
Speakers Level 21	26.6	
Speakers Level 35	31.6	
Speakers Level 35	30.0	
Speakers Level 35	27.8	
Speakers Level 35	26.8	
Speakers Level 35	31.7	
Speakers Level 35	32.2	
Receiver R9 FI G Leq,d 47.8 dB(A)		
Speakers Level 10	26.6	
Speakers Level 10	38.4	
Speakers Level 10	35.4	
Speakers Level 10	38.3	
Speakers Level 10	32.2	
Speakers Level 10	36.0	
Speakers Level 10	35.9	
Speakers Level 10	35.3	
Speakers Level 10	27.3	
Speakers Level 10	42.5	
Speakers Level 21	30.9	
Speakers Level 21	33.6	
Speakers Level 21	32.5	
Speakers Level 21	31.0	
Speakers Level 21	20.8	
Speakers Level 35	30.7	
Speakers Level 35	27.8	
Speakers Level 35	25.8	
Speakers Level 35	23.5	
Speakers Level 35	29.9	
Speakers Level 35	30.2	
Receiver R9 FI F2 Leq,d 57.5 dB(A)		
Speakers Level 10	32.1	
Speakers Level 10	42.3	
Speakers Level 10	38.4	
Speakers Level 10	40.7	
Speakers Level 10	40.2	
Speakers Level 10	53.6	
Speakers Level 10	45.5	
Speakers Level 10	45.4	

**8th, Grand and Hope
Assessed contribution level - Speakers**

Source	Leq,d dB(A)	
Speakers Level 10	33.2	
Speakers Level 10	48.3	
Speakers Level 21	39.9	
Speakers Level 21	40.5	
Speakers Level 21	39.8	
Speakers Level 21	49.0	
Speakers Level 21	39.1	
Speakers Level 35	36.0	
Speakers Level 35	36.6	
Speakers Level 35	36.9	
Speakers Level 35	30.8	
Speakers Level 35	35.1	
Speakers Level 35	35.8	

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**8th, Grand and Hope
Source Levels in dB(A) - People**

Name	Source type	Lw dB(A)	
People Level 1	Area	88.5	
People Level 3	Area	86.7	
People Level 10	Area	97.7	
People Level 21	Area	95.8	
People Level 35	Area	93.8	

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8th, Grand and Hope Assessed contribution level - People

Source	Leq,d dB(A)	
Receiver R1 FI G Leq,d 51.2 dB(A)		
People Level 1	50.9	
People Level 10	34.4	
People Level 21	29.5	
People Level 35	21.5	
People Level 3	35.6	
Receiver R1 FI F2 Leq,d 49.5 dB(A)		
People Level 1	49.0	
People Level 10	38.0	
People Level 21	30.3	
People Level 35	22.4	
People Level 3	34.2	
Receiver R2 FI G Leq,d 43.3 dB(A)		
People Level 1	43.0	
People Level 10	31.1	
People Level 21	25.3	
People Level 35	18.9	
People Level 3	11.9	
Receiver R2 FI F2 Leq,d 44.0 dB(A)		
People Level 1	39.5	
People Level 10	36.4	
People Level 21	40.2	
People Level 35	30.6	
People Level 3	10.5	
Receiver R3 FI G Leq,d 41.4 dB(A)		
People Level 1	41.3	
People Level 10	23.1	
People Level 21	23.3	
People Level 35	15.0	
People Level 3	10.5	
Receiver R3 FI F2 Leq,d 41.0 dB(A)		
People Level 1	39.9	
People Level 10	29.6	
People Level 21	32.3	
People Level 35	20.5	
People Level 3	10.4	
Receiver R4 FI G Leq,d 48.0 dB(A)		
People Level 1	47.8	
People Level 10	34.3	

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8th, Grand and Hope Assessed contribution level - People

Source	Leq,d dB(A)	
People Level 21	29.8	
People Level 35	20.0	
People Level 3	14.2	
Receiver R4 FI F2 Leq,d 46.1 dB(A)		
People Level 1	45.3	
People Level 10	37.7	
People Level 21	31.5	
People Level 35	20.5	
People Level 3	14.4	
Receiver R5 FI G Leq,d 52.6 dB(A)		
People Level 1	52.3	
People Level 10	39.4	
People Level 21	33.7	
People Level 35	25.7	
People Level 3	20.0	
Receiver R5 FI F2 Leq,d 56.8 dB(A)		
People Level 1	45.3	
People Level 10	50.4	
People Level 21	55.3	
People Level 35	32.0	
People Level 3	16.1	
Receiver R6 FI G Leq,d 42.5 dB(A)		
People Level 1	40.6	
People Level 10	36.3	
People Level 21	31.4	
People Level 35	26.8	
People Level 3	21.1	
Receiver R6 FI F2 Leq,d 53.9 dB(A)		
People Level 1	38.0	
People Level 10	51.8	
People Level 21	49.4	
People Level 35	34.0	
People Level 3	13.4	
Receiver R7 FI G Leq,d 40.1 dB(A)		
People Level 1	36.9	
People Level 10	35.9	
People Level 21	30.2	
People Level 35	26.2	
People Level 3	20.9	

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8th, Grand and Hope
Assessed contribution level - People

Source	Leq,d dB(A)	
Receiver R7 FI F2 Leq,d 49.0 dB(A)		
People Level 1	35.3	
People Level 10	48.5	
People Level 21	36.1	
People Level 35	29.3	
People Level 3	13.9	
Receiver R8 FI G Leq,d 39.3 dB(A)		
People Level 1	19.6	
People Level 10	37.8	
People Level 21	31.3	
People Level 35	27.7	
People Level 3	26.6	
Receiver R9 FI G Leq,d 38.1 dB(A)		
People Level 1	22.0	
People Level 10	36.9	
People Level 21	28.7	
People Level 35	25.3	
People Level 3	24.1	
Receiver R9 FI F2 Leq,d 48.5 dB(A)		
People Level 1	29.4	
People Level 10	47.0	
People Level 21	42.1	
People Level 35	32.8	
People Level 3	34.5	

**8th, Grand and Hope
Source Levels in dB(A) - Dog Run**

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Name	Source type	Lw dB(A)	
Dog run	Area	90.8	

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8th, Grand and Hope Contribution level - Dog Run

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Source	Source type	Leq,d dB(A)	
Receiver R1 FI G Leq,d 36.8 dB(A)			
Dog run	Area	36.8	
Receiver R1 FI F2 Leq,d 38.3 dB(A)			
Dog run	Area	38.3	
Receiver R2 FI G Leq,d 16.2 dB(A)			
Dog run	Area	16.2	
Receiver R2 FI F2 Leq,d 13.7 dB(A)			
Dog run	Area	13.7	
Receiver R3 FI G Leq,d 13.4 dB(A)			
Dog run	Area	13.4	
Receiver R3 FI F2 Leq,d 13.3 dB(A)			
Dog run	Area	13.3	
Receiver R4 FI G Leq,d 17.4 dB(A)			
Dog run	Area	17.4	
Receiver R4 FI F2 Leq,d 17.3 dB(A)			
Dog run	Area	17.3	
Receiver R5 FI G Leq,d 23.9 dB(A)			
Dog run	Area	23.9	
Receiver R5 FI F2 Leq,d 19.5 dB(A)			
Dog run	Area	19.5	
Receiver R6 FI G Leq,d 24.8 dB(A)			
Dog run	Area	24.8	
Receiver R6 FI F2 Leq,d 16.7 dB(A)			
Dog run	Area	16.7	
Receiver R7 FI G Leq,d 25.2 dB(A)			
Dog run	Area	25.2	
Receiver R7 FI F2 Leq,d 18.7 dB(A)			
Dog run	Area	18.7	
Receiver R8 FI G Leq,d 30.7 dB(A)			
Dog run	Area	30.7	
Receiver R9 FI G Leq,d 28.1 dB(A)			
Dog run	Area	28.1	
Receiver R9 FI F2 Leq,d 38.3 dB(A)			
Dog run	Area	38.3	

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Off-Site Traffic Noise Calculations

Project: 8th, Grand and Hope Project

Traffic Distribution as % of ADT				
Vehicle Type	Day	Eve	Night	Sub total
Auto	77.6%	9.7%	9.7%	97.0%
Medium Truck	1.6%	0.2%	0.2%	2.0%
Heavy Truck	0.8%	0.1%	0.1%	1.0%
	80.0%	10.0%	10.0%	100.0%

PHV to
ADT factor
10%

EXISTING CONDITIONS

Roadway Segment	Roadway Width*, ft	Distance to Edge of Roadway, ft	Distance to Centerline, feet	Speed mph	Traffic Volume PHV	ADT	PHV to ADT factor	Barrier Atten.	Site Adjust., dBA	24-Hour CNEL
Flower Street										
- Between 7th St. and 8th St.	60	10	40	35	2,025	20,250	10%	0	0	71.9
- Between 8th St. and 9th St.	60	10	40	35	1,909	19,090	10%	0	0	71.7
Hope Street										
- Between 7th St. and 8th St.	50	10	35	35	963	9,630	10%	0	0	69.3
- Between 8th St. and 9th St.	50	10	35	35	972	9,720	10%	0	0	69.3
Grand Avenue										
- Between 7th St. and 8th St.	50	10	35	35	1,334	13,340	10%	0	0	70.7
- Between 8th St. and 9th St.	50	10	35	35	1,467	14,670	10%	0	0	71.1
Olive Street										
- Between 7th St. and 8th St.	50	10	35	35	1,026	10,260	10%	0	0	69.6
- Between 8th St. and 9th St.	50	10	35	35	1,181	11,810	10%	0	0	70.2
7th Street										
- Between Hope St. and Grand Avenue	60	10	40	35	1,018	10,180	10%	0	0	68.9
8th Street										
- Between Hope St. and Grand Avenue	50	10	35	35	1,362	13,620	10%	0	0	70.8
9th Street										
- Between Figueroa St. and Hope St.	60	10	40	35	1,137	11,370	10%	0	0	69.4
- Between Hope St. and Grand Avenue	50	10	35	35	1,100	11,000	10%	0	0	69.9

* Estimated based on Google Earth map.

** Calculated using FHWA's TNM Version 2.5 Computer Noise Model.

Off-Site Traffic Noise Calculations

Project: 8th, Grand and Hope Project

Traffic Distribution as % of ADT				
Vehicle Type	Day	Eve	Night	Sub total
Auto	77.6%	9.7%	9.7%	97.0%
Medium Truck	1.6%	0.2%	0.2%	2.0%
Heavy Truck	0.8%	0.1%	0.1%	1.0%
	80.0%	10.0%	10.0%	100.0%

PHV to
ADT factor
10%

EXISTING + PROJECT CONDITIONS

Roadway Segment	Roadway Width*, ft	Distance to Edge of Roadway, ft	Distance to Centerline, feet	Speed mph	Traffic Volume PHV	ADT	PHV to ADT factor	Barrier Atten.	Site Adjust., dBA	24-Hour CNEL
Flower Street										
- Between 7th St. and 8th St.	60	10	40	35	2,032	20,320	10%	0	0	71.9
- Between 8th St. and 9th St.	60	10	40	35	1,914	19,140	10%	0	0	71.7
Hope Street										
- Between 7th St. and 8th St.	50	10	35	35	1,000	10,000	10%	0	0	69.5
- Between 8th St. and 9th St.	50	10	35	35	981	9,810	10%	0	0	69.4
Grand Avenue										
- Between 7th St. and 8th St.	50	10	35	35	1,349	13,490	10%	0	0	70.8
- Between 8th St. and 9th St.	50	10	35	35	1,469	14,690	10%	0	0	71.1
Olive Street										
- Between 7th St. and 8th St.	50	10	35	35	1,031	10,310	10%	0	0	69.6
- Between 8th St. and 9th St.	50	10	35	35	1,186	11,860	10%	0	0	70.2
7th Street										
- Between Hope St. and Grand Avenue	60	10	40	35	1,032	10,320	10%	0	0	69.0
8th Street										
- Between Hope St. and Grand Avenue	50	10	35	35	1,346	13,460	10%	0	0	70.7
9th Street										
- Between Figueroa St. and Hope St.	60	10	40	35	1,143	11,430	10%	0	0	69.4
- Between Hope St. and Grand Avenue	50	10	35	35	1,100	11,000	10%	0	0	69.9

* Estimated based on Google Earth map.

** Calculated using FHWA's TNM Version 2.5 Computer Noise Model.

Off-Site Traffic Noise Calculations

Project: 8th, Grand and Hope Project

Traffic Distribution as % of ADT				
Vehicle Type	Day	Eve	Night	Sub total
Auto	77.6%	9.7%	9.7%	97.0%
Medium Truck	1.6%	0.2%	0.2%	2.0%
Heavy Truck	0.8%	0.1%	0.1%	1.0%
	80.0%	10.0%	10.0%	100.0%

PHV to
ADT factor
10%

FUTURE NO PROJECT CONDITIONS

Roadway Segment	Roadway Width*, ft	Distance to Edge of Roadway, ft	Distance to Centerline, feet	Speed mph	Traffic Volume PHV	ADT	PHV to ADT factor	Barrier Atten.	Site Adjust., dBA	24-Hour CNEL
Flower Street										
- Between 7th St. and 8th St.	60	10	40	35	2,255	22,550	10%	0	0	72.4
- Between 8th St. and 9th St.	60	10	40	35	2,090	20,900	10%	0	0	72.1
Hope Street										
- Between 7th St. and 8th St.	50	10	35	35	986	9,860	10%	0	0	69.4
- Between 8th St. and 9th St.	50	10	35	35	1,155	11,550	10%	0	0	70.1
Grand Avenue										
- Between 7th St. and 8th St.	50	10	35	35	1,513	15,130	10%	0	0	71.3
- Between 8th St. and 9th St.	50	10	35	35	1,663	16,630	10%	0	0	71.7
Olive Street										
- Between 7th St. and 8th St.	50	10	35	35	1,229	12,290	10%	0	0	70.4
- Between 8th St. and 9th St.	50	10	35	35	1,431	14,310	10%	0	0	71.0
7th Street										
- Between Hope St. and Grand Avenue	60	10	40	35	1,111	11,110	10%	0	0	69.3
8th Street										
- Between Hope St. and Grand Avenue	50	10	35	35	1,556	15,560	10%	0	0	71.4
9th Street										
- Between Figueroa St. and Hope St.	60	10	40	35	1,513	15,130	10%	0	0	70.7
- Between Hope St. and Grand Avenue	50	10	35	35	1,360	13,600	10%	0	0	70.8

* Estimated based on Google Earth map.

** Calculated using FHWA's TNM Version 2.5 Computer Noise Model.

Off-Site Traffic Noise Calculations

Project: 8th, Grand and Hope Project

Traffic Distribution as % of ADT				
Vehicle Type	Day	Eve	Night	Sub total
Auto	77.6%	9.7%	9.7%	97.0%
Medium Truck	1.6%	0.2%	0.2%	2.0%
Heavy Truck	0.8%	0.1%	0.1%	1.0%
	80.0%	10.0%	10.0%	100.0%

PHV to
ADT factor
10%

FUTURE + PROJECT CONDITIONS

Roadway Segment	Roadway Width*, ft	Distance to Edge of Roadway, ft	Distance to Centerline, feet	Speed mph	Traffic Volume PHV	ADT	PHV to ADT factor	Barrier Atten.	Site Adjust., dBA	24-Hour CNEL
Flower Street										
- Between 7th St. and 8th St.	60	10	40	35	2,261	22,610	10%	0	0	72.4
- Between 8th St. and 9th St.	60	10	40	35	2,095	20,950	10%	0	0	72.1
Hope Street										
- Between 7th St. and 8th St.	50	10	35	35	1,042	10,420	10%	0	0	69.6
- Between 8th St. and 9th St.	50	10	35	35	1,170	11,700	10%	0	0	70.1
Grand Avenue										
- Between 7th St. and 8th St.	50	10	35	35	1,546	15,460	10%	0	0	71.3
- Between 8th St. and 9th St.	50	10	35	35	1,672	16,720	10%	0	0	71.7
Olive Street										
- Between 7th St. and 8th St.	50	10	35	35	1,236	12,360	10%	0	0	70.4
- Between 8th St. and 9th St.	50	10	35	35	1,440	14,400	10%	0	0	71.0
7th Street										
- Between Hope St. and Grand Avenue	60	10	40	35	1,126	11,260	10%	0	0	69.4
8th Street										
- Between Hope St. and Grand Avenue	50	10	35	35	1,586	15,860	10%	0	0	71.5
9th Street										
- Between Figueroa St. and Hope St.	60	10	40	35	1,522	15,220	10%	0	0	70.7
- Between Hope St. and Grand Avenue	50	10	35	35	1,360	13,600	10%	0	0	70.8

* Estimated based on Google Earth map.

** Calculated using FHWA's TNM Version 2.5 Computer Noise Model.

Project Alternatives Calculations

**Project: 8th, Grand and Hope Project
Alternatives Analysis**

Alternatives to Eliminate Significant Noise and Vibration

Approach (a) - Extended Construction Duration with Reduced Construction Equipment (50% Reduction)

Estimated Construction Noise Levels (Demo Phase), dBA Leq						
Receptor	Project	Alt. Approach (a) - 50% Reduction	Relative to Project	Significance Threshold	Exceed Threshold	Impact
R1	82.2	79.9	-2.3	71.5	8.4	Yes
R2	72.9	70.2	-2.7	70.8	0.0	No
R3	69.3	66.5	-2.8	71.0	0.0	No
R4	74.2	71.5	-2.7	72.4	0.0	No
R5	83.0	80.6	-2.4	72.3	8.3	Yes
R6	80.3	77.8	-2.5	75.1	2.7	Yes
R7	73.2	70.5	-2.7	76.9	0.0	No
R8	62.8	60.3	-2.5	70.2	0.0	No
R9	72.8	70.1	-2.7	72.9	0.0	No

Approach (a) - Extended Construction Duration with Reduced Construction Equipment (One Equipment)

Estimated Construction Noise Levels (Demo Phase), dBA Leq						
Receptor	Project	Alt. Approach (a) - One Equipment	Relative to Project	Significance Threshold	Exceed Threshold	Impact
R1	82.2	78.4	-3.8	71.5	6.9	Yes
R2	72.9	68.2	-4.7	70.8	0.0	No
R3	69.3	64.4	-4.9	71.0	0.0	No
R4	74.2	69.6	-4.6	72.4	0.0	No
R5	83.0	79.1	-3.9	72.3	6.8	Yes
R6	80.3	76.2	-4.1	75.1	1.1	Yes
R7	73.2	68.5	-4.7	76.9	0.0	No
R8	62.8	58.5	-4.3	70.2	0.0	No
R9	72.8	68.0	-4.8	72.9	0.0	No

Approach (b) - Central Location of Development

Estimated Construction Noise Levels (Building Phase), dBA Leq						
Receptor	Project	Alt. Approach (b)	Relative to Project	Significance Threshold	Exceed Threshold	Impact
R1	79.7	77.5	-2.3	71.5	6.0	Yes
R2	70.8	70.0	-0.8	70.8	0.0	No
R3	67.6	67.0	-0.5	71.0	0.0	No
R4	72.2	71.3	-0.9	72.4	0.0	No
R5	80.5	78.1	-2.4	72.3	5.8	Yes
R6	77.9	76.1	-1.8	75.1	1.0	Yes
R7	71.3	70.4	-0.8	76.9	0.0	No
R8	60.6	59.2	-1.4	70.2	0.0	No
R9	70.8	70.0	-0.8	72.9	0.0	No

Project: 8th, Grand and Hope Project

Construction Phase: *Demolition*

Alternative Analysis (Reduced Construction Equipment)

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Concrete Saw	1	90	20%	85	0
Tractors/Loaders/Backhoes		84	40%		
Water Truck	1	76	40%	105	0
Tractors/Loaders/Backhoes	1	84	40%	105	0
Concrete Saw		90	20%		
Air Compressor		78	40%		
Air Compressor	1	78	40%	155	0

4

Receptor: ***R1***

Results:

1-hour Leq: 79.9

Source for Ref. Noise Levels: FHWA RCNM, 2006

Project: 8th, Grand and Hope Project

Construction Phase: *Demolition*

Alternative Analysis (Reduced Construction Equipment)

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Concrete Saw	1	90	20%	275	0
Tractors/Loaders/Backhoes		84	40%		
Water Truck	1	76	40%	295	0
Tractors/Loaders/Backhoes	1	84	40%	295	0
Concrete Saw		90	20%		
Air Compressor		78	40%		
Air Compressor	1	78	40%	345	0

4

Receptor: *R2*

Results:

1-hour Leq: 70.2

Source for Ref. Noise Levels: FHWA RCNM, 2006

Project: 8th, Grand and Hope Project

Construction Phase: *Demolition*

Alternative Analysis (Reduced Construction Equipment)

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Concrete Saw	1	90	20%	425	0
Tractors/Loaders/Backhoes		84	40%		
Water Truck	1	76	40%	445	0
Tractors/Loaders/Backhoes	1	84	40%	445	0
Concrete Saw		90	20%		
Air Compressor		78	40%		
Air Compressor	1	78	40%	485	0

4

Receptor: *R3*

Results:

1-hour Leq: 66.5

Source for Ref. Noise Levels: FHWA RCNM, 2006

Project: 8th, Grand and Hope Project

Construction Phase: *Demolition*

Alternative Analysis (Reduced Construction Equipment)

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Concrete Saw	1	90	20%	235	0
Tractors/Loaders/Backhoes		84	40%		
Water Truck	1	76	40%	255	0
Tractors/Loaders/Backhoes	1	84	40%	255	0
Concrete Saw		90	20%		
Air Compressor		78	40%		
Air Compressor	1	78	40%	295	0

4

Receptor: ***R4***

Results:

1-hour Leq: 71.5

Source for Ref. Noise Levels: FHWA RCNM, 2006

Project: 8th, Grand and Hope Project

Construction Phase: *Demolition*

Alternative Analysis (Reduced Construction Equipment)

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Concrete Saw	1	90	20%	78	0
Tractors/Loaders/Backhoes		84	40%		
Water Truck	1	76	40%	98	0
Tractors/Loaders/Backhoes	1	84	40%	98	0
Concrete Saw		90	20%		
Air Compressor		78	40%		
Air Compressor	1	78	40%	138	0

4

Receptor: ***R5***

Results:

1-hour Leq: 80.6

Source for Ref. Noise Levels: FHWA RCNM, 2006

Project: 8th, Grand and Hope Project

Construction Phase: *Demolition*

Alternative Analysis (Reduced Construction Equipment)

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Concrete Saw	1	90	20%	110	0
Tractors/Loaders/Backhoes		84	40%		
Water Truck	1	76	40%	130	0
Tractors/Loaders/Backhoes	1	84	40%	130	0
Concrete Saw		90	20%		
Air Compressor		78	40%		
Air Compressor	1	78	40%	170	0

4

Receptor: *R6*

Results:

1-hour Leq: 77.8

Source for Ref. Noise Levels: FHWA RCNM, 2006

Project: 8th, Grand and Hope Project

Construction Phase: *Demolition*

Alternative Analysis (Reduced Construction Equipment)

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Concrete Saw	1	90	20%	265	0
Tractors/Loaders/Backhoes		84	40%		
Water Truck	1	76	40%	285	0
Tractors/Loaders/Backhoes	1	84	40%	285	0
Concrete Saw		90	20%		
Air Compressor		78	40%		
Air Compressor	1	78	40%	325	0

4

Receptor: ***R7***

Results:

1-hour Leq: 70.5

Source for Ref. Noise Levels: FHWA RCNM, 2006

Project: 8th, Grand and Hope Project

Construction Phase: *Demolition*

Alternative Analysis (Reduced Construction Equipment)

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Concrete Saw	1	90	20%	150	15
Tractors/Loaders/Backhoes		84	40%		
Water Truck	1	76	40%	170	15
Tractors/Loaders/Backhoes	1	84	40%	170	15
Concrete Saw		90	20%		
Air Compressor		78	40%		
Air Compressor	1	78	40%	210	15

4

Receptor: *R8*

Results:

1-hour Leq: 60.3

Source for Ref. Noise Levels: FHWA RCNM, 2006

Project: 8th, Grand and Hope Project

Construction Phase: *Demolition*

Alternative Analysis (Reduced Construction Equipment)

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Concrete Saw	1	90	20%	280	0
Tractors/Loaders/Backhoes		84	40%		
Water Truck	1	76	40%	300	0
Tractors/Loaders/Backhoes	1	84	40%	300	0
Concrete Saw		90	20%		
Air Compressor		78	40%		
Air Compressor	1	78	40%	340	0

4

Receptor: ***R9***

Results:

1-hour Leq: 70.1

Source for Ref. Noise Levels: FHWA RCNM, 2006

Project: 8th, Grand and Hope Project

Construction Phase: *Demolition*

Alternative Analysis (One Construction Equipment)

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Concrete Saw	1	90	20%	85	0
Tractors/Loaders/Backhoes		84	40%		
Water Truck		76	40%		
Tractors/Loaders/Backhoes		84	40%		
Concrete Saw		90	20%		
Air Compressor		78	40%		
Air Compressor		78	40%		

Receptor: 1
R1

Results:
1-hour Leq: **78.4**

Source for Ref. Noise Levels: FHWA RCNM, 2006

Project: 8th, Grand and Hope Project

Construction Phase: *Demolition*

Alternative Analysis (One Construction Equipment)

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Concrete Saw	1	90	20%	275	0
Tractors/Loaders/Backhoes		84	40%		
Water Truck		76	40%		
Tractors/Loaders/Backhoes		84	40%		
Concrete Saw		90	20%		
Air Compressor		78	40%		
Air Compressor		78	40%		

Receptor: 1
R2

Results:
1-hour Leq: **68.2**

Source for Ref. Noise Levels: FHWA RCNM, 2006

Project: 8th, Grand and Hope Project

Construction Phase: *Demolition*

Alternative Analysis (One Construction Equipment)

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Concrete Saw	1	90	20%	425	0
Tractors/Loaders/Backhoes		84	40%		
Water Truck		76	40%		
Tractors/Loaders/Backhoes		84	40%		
Concrete Saw		90	20%		
Air Compressor		78	40%		
Air Compressor		78	40%		

Receptor: 1 ***R3***

Results: **1-hour Leq:** **64.4**

Source for Ref. Noise Levels: FHWA RCNM, 2006

Project: 8th, Grand and Hope Project

Construction Phase: *Demolition*

Alternative Analysis (One Construction Equipment)

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Concrete Saw	1	90	20%	235	0
Tractors/Loaders/Backhoes		84	40%		
Water Truck		76	40%		
Tractors/Loaders/Backhoes		84	40%		
Concrete Saw		90	20%		
Air Compressor		78	40%		
Air Compressor		78	40%		

Receptor: 1
R4

Results:
1-hour Leq: **69.6**

Source for Ref. Noise Levels: FHWA RCNM, 2006

Project: 8th, Grand and Hope Project

Construction Phase: *Demolition*

Alternative Analysis (One Construction Equipment)

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Concrete Saw	1	90	20%	78	0
Tractors/Loaders/Backhoes		84	40%		
Water Truck		76	40%		
Tractors/Loaders/Backhoes		84	40%		
Concrete Saw		90	20%		
Air Compressor		78	40%		
Air Compressor		78	40%		

Receptor: 1 ***R5***

Results: **1-hour Leq:** **79.1**

Source for Ref. Noise Levels: FHWA RCNM, 2006

Project: 8th, Grand and Hope Project

Construction Phase: *Demolition*

Alternative Analysis (One Construction Equipment)

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Concrete Saw	1	90	20%	110	0
Tractors/Loaders/Backhoes		84	40%		
Water Truck		76	40%		
Tractors/Loaders/Backhoes		84	40%		
Concrete Saw		90	20%		
Air Compressor		78	40%		
Air Compressor		78	40%		

1

Receptor: *R6*

Results:

1-hour Leq: 76.2

Source for Ref. Noise Levels: FHWA RCNM, 2006

Project: 8th, Grand and Hope Project

Construction Phase: *Demolition*

Alternative Analysis (One Construction Equipment)

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Concrete Saw	1	90	20%	265	0
Tractors/Loaders/Backhoes		84	40%		
Water Truck		76	40%		
Tractors/Loaders/Backhoes		84	40%		
Concrete Saw		90	20%		
Air Compressor		78	40%		
Air Compressor		78	40%		

Receptor: 1
R7

Results:
1-hour Leq: **68.5**

Source for Ref. Noise Levels: FHWA RCNM, 2006

Project: 8th, Grand and Hope Project

Construction Phase: *Demolition*

Alternative Analysis (One Construction Equipment)

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Concrete Saw	1	90	20%	150	15
Tractors/Loaders/Backhoes		84	40%		
Water Truck		76	40%		
Tractors/Loaders/Backhoes		84	40%		
Concrete Saw		90	20%		
Air Compressor		78	40%		
Air Compressor		78	40%		

Receptor: 1 ***R8***

Results: **1-hour Leq:** **58.5**

Source for Ref. Noise Levels: FHWA RCNM, 2006

Project: 8th, Grand and Hope Project

Construction Phase: *Demolition*

Alternative Analysis (One Construction Equipment)

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Concrete Saw	1	90	20%	280	0
Tractors/Loaders/Backhoes		84	40%		
Water Truck		76	40%		
Tractors/Loaders/Backhoes		84	40%		
Concrete Saw		90	20%		
Air Compressor		78	40%		
Air Compressor		78	40%		

Receptor: 1
R9

Results:
1-hour Leq: **68.0**

Source for Ref. Noise Levels: FHWA RCNM, 2006

Project: 8th, Grand and Hope Project

Construction Phase: *Building Construction*
Alternative Analysis (Central Location of Development)

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Tractors/Loaders/Backhoes	1	84	40%	115	0
Rough Terrain Forklifts	1	83	40%	115	0
Air Compressor	1	78	40%	135	0
Aerial Lift	1	75	20%	135	0
Fork Lift	1	75	20%	160	0
Welders	1	74	40%	160	0
Generator Sets	1	81	50%	185	0
Cement and Mortar Mixer	1	80	50%	185	0
Signal Boards	2	73	50%	210	0
Crane (tower)	1	81	16%	210	0
Cement and Mortar Mixer	1	80	50%	235	0
Air Compressor	1	78	40%	235	0
Aerial Lift	1	75	20%	235	0
Welders	1	74	40%	235	0
Crane (mobile)	1	81	16%	235	0

16

Receptor: *R1*

Results:

1-hour Leq: 77.5

Source for Ref. Noise Levels: FHWA RCNM, 2006

Project: 8th, Grand and Hope Project

Construction Phase: *Building Construction*
Alternative Analysis (Central Location of Development)

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Tractors/Loaders/Backhoes	1	84	40%	305	0
Rough Terrain Forklifts	1	83	40%	305	0
Air Compressor	1	78	40%	325	0
Aerial Lift	1	75	20%	325	0
Fork Lift	1	75	20%	350	0
Welders	1	74	40%	350	0
Generator Sets	1	81	50%	375	0
Cement and Mortar Mixer	1	80	50%	375	0
Signal Boards	2	73	50%	400	0
Crane (tower)	1	81	16%	400	0
Cement and Mortar Mixer	1	80	50%	425	0
Air Compressor	1	78	40%	425	0
Aerial Lift	1	75	20%	425	0
Welders	1	74	40%	425	0
Crane (mobile)	1	81	16%	425	0

16

Receptor: *R2*

Results:

1-hour Leq: 70.0

Source for Ref. Noise Levels: FHWA RCNM, 2006

Project: 8th, Grand and Hope Project

Construction Phase: *Building Construction*
Alternative Analysis (Central Location of Development)

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Tractors/Loaders/Backhoes	1	84	40%	455	0
Rough Terrain Forklifts	1	83	40%	455	0
Air Compressor	1	78	40%	475	0
Aerial Lift	1	75	20%	475	0
Fork Lift	1	75	20%	495	0
Welders	1	74	40%	495	0
Generator Sets	1	81	50%	515	0
Cement and Mortar Mixer	1	80	50%	515	0
Signal Boards	2	73	50%	535	0
Crane (tower)	1	81	16%	535	0
Cement and Mortar Mixer	1	80	50%	555	0
Air Compressor	1	78	40%	555	0
Aerial Lift	1	75	20%	555	0
Welders	1	74	40%	555	0
Crane (mobile)	1	81	16%	555	0

16

Receptor: *R3*

Results:

1-hour Leq: 67.0

Source for Ref. Noise Levels: FHWA RCNM, 2006

Project: 8th, Grand and Hope Project

Construction Phase: *Building Construction*
Alternative Analysis (Central Location of Development)

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Tractors/Loaders/Backhoes	1	84	40%	265	0
Rough Terrain Forklifts	1	83	40%	265	0
Air Compressor	1	78	40%	285	0
Aerial Lift	1	75	20%	285	0
Fork Lift	1	75	20%	305	0
Welders	1	74	40%	305	0
Generator Sets	1	81	50%	325	0
Cement and Mortar Mixer	1	80	50%	325	0
Signal Boards	2	73	50%	345	0
Crane (tower)	1	81	16%	345	0
Cement and Mortar Mixer	1	80	50%	365	0
Air Compressor	1	78	40%	365	0
Aerial Lift	1	75	20%	385	0
Welders	1	74	40%	385	0
Crane (mobile)	1	81	16%	385	0

16

Receptor: *R4*

Results:

1-hour Leq: 71.3

Source for Ref. Noise Levels: FHWA RCNM, 2006

Project: 8th, Grand and Hope Project

Construction Phase: *Building Construction*
Alternative Analysis (Central Location of Development)

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Tractors/Loaders/Backhoes	1	84	40%	108	0
Rough Terrain Forklifts	1	83	40%	108	0
Air Compressor	1	78	40%	128	0
Aerial Lift	1	75	20%	128	0
Fork Lift	1	75	20%	148	0
Welders	1	74	40%	148	0
Generator Sets	1	81	50%	168	0
Cement and Mortar Mixer	1	80	50%	168	0
Signal Boards	2	73	50%	188	0
Crane (tower)	1	81	16%	188	0
Cement and Mortar Mixer	1	80	50%	208	0
Air Compressor	1	78	40%	208	0
Aerial Lift	1	75	20%	228	0
Welders	1	74	40%	228	0
Crane (mobile)	1	81	16%	228	0

16

Receptor: *R5*

Results:

1-hour Leq: 78.1

Source for Ref. Noise Levels: FHWA RCNM, 2006

Project: 8th, Grand and Hope Project

Construction Phase: *Building Construction*
Alternative Analysis (Central Location of Development)

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Tractors/Loaders/Backhoes	1	84	40%	140	0
Rough Terrain Forklifts	1	83	40%	140	0
Air Compressor	1	78	40%	160	0
Aerial Lift	1	75	20%	160	0
Fork Lift	1	75	20%	180	0
Welders	1	74	40%	180	0
Generator Sets	1	81	50%	200	0
Cement and Mortar Mixer	1	80	50%	200	0
Signal Boards	2	73	50%	220	0
Crane (tower)	1	81	16%	220	0
Cement and Mortar Mixer	1	80	50%	240	0
Air Compressor	1	78	40%	240	0
Aerial Lift	1	75	20%	260	0
Welders	1	74	40%	260	0
Crane (mobile)	1	81	16%	260	0

16

Receptor: R6

Results:

1-hour Leq: 76.1

Source for Ref. Noise Levels: FHWA RCNM, 2006

Project: 8th, Grand and Hope Project

Construction Phase: *Building Construction*
Alternative Analysis (Central Location of Development)

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Tractors/Loaders/Backhoes	1	84	40%	295	0
Rough Terrain Forklifts	1	83	40%	295	0
Air Compressor	1	78	40%	315	0
Aerial Lift	1	75	20%	315	0
Fork Lift	1	75	20%	335	0
Welders	1	74	40%	335	0
Generator Sets	1	81	50%	355	0
Cement and Mortar Mixer	1	80	50%	355	0
Signal Boards	2	73	50%	375	0
Crane (tower)	1	81	16%	375	0
Cement and Mortar Mixer	1	80	50%	395	0
Air Compressor	1	78	40%	395	0
Aerial Lift	1	75	20%	415	0
Welders	1	74	40%	415	0
Crane (mobile)	1	81	16%	415	0

16

Receptor: *R7*

Results:

1-hour Leq: 70.4

Source for Ref. Noise Levels: FHWA RCNM, 2006

Project: 8th, Grand and Hope Project

Construction Phase: *Building Construction*
Alternative Analysis (Central Location of Development)

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Tractors/Loaders/Backhoes	1	84	40%	180	15
Rough Terrain Forklifts	1	83	40%	180	15
Air Compressor	1	78	40%	200	15
Aerial Lift	1	75	20%	200	15
Fork Lift	1	75	20%	220	15
Welders	1	74	40%	220	15
Generator Sets	1	81	50%	240	15
Cement and Mortar Mixer	1	80	50%	240	15
Signal Boards	2	73	50%	260	15
Crane (tower)	1	81	16%	260	15
Cement and Mortar Mixer	1	80	50%	280	15
Air Compressor	1	78	40%	280	15
Aerial Lift	1	75	20%	300	15
Welders	1	74	40%	300	15
Crane (mobile)	1	81	16%	300	15

16

Receptor: *R8*

Results:

1-hour Leq: 59.2

Source for Ref. Noise Levels: FHWA RCNM, 2006

Project: 8th, Grand and Hope Project

Construction Phase: *Building Construction*
Alternative Analysis (Central Location of Development)

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Tractors/Loaders/Backhoes	1	84	40%	310	0
Rough Terrain Forklifts	1	83	40%	310	0
Air Compressor	1	78	40%	330	0
Aerial Lift	1	75	20%	330	0
Fork Lift	1	75	20%	350	0
Welders	1	74	40%	350	0
Generator Sets	1	81	50%	370	0
Cement and Mortar Mixer	1	80	50%	370	0
Signal Boards	2	73	50%	390	0
Crane (tower)	1	81	16%	390	0
Cement and Mortar Mixer	1	80	50%	410	0
Air Compressor	1	78	40%	410	0
Aerial Lift	1	75	20%	430	0
Welders	1	74	40%	430	0
Crane (mobile)	1	81	16%	430	0

16

Receptor: *R9*

Results:

1-hour Leq: 70.0

Source for Ref. Noise Levels: FHWA RCNM, 2006

8th, Grand and Hope Project

Off-Site Traffic - Alternatives Analysis

Hope Street (between 7th and 8th)

Scenario	Project	Alternative 2	Alternative 3	Alternative 4
Existing, ADT	9630			
Existing SPL, dBA CNEL	69.3			
Existing With Project, ADT	10040			
EWP SPL, dBA CNEL	69.5			
% Increased	4.3%			
Noise increase, dBA	0.2			
Project Total Trips, ADT	1500	1539	783	908
Project Trip along Roadway, ADT	410			
% to roadway	27.3%	27.3%	27.3%	27.3%
Project Alt, ADT (roadway)		421	214	248
Existing With Project Alt, ADT		10051	9844	9878
% Increased		4.4%	2.2%	2.6%
Noise increase, dBA		0.2	0.1	0.1
Increased Relative to Project		0.0	-0.1	-0.1

Grand Avenue (between 7th and 8th)

Scenario	Project	Alternative 2	Alternative 3	Alternative 4
Existing, ADT	13340			
Existing SPL, dBA CNEL	70.7			
Existing With Project, ADT	13860			
EWP SPL, dBA CNEL	70.9			
% Increased	3.9%			
Noise increase, dBA	0.2			
Project Total Trips, ADT	1500	1539	783	908
Project Trip along Roadway, ADT	520			
% to roadway	34.7%	34.7%	34.7%	34.7%
Project Alt, ADT (roadway)		534	271	315
Existing With Project Alt, ADT		13874	13611	13655
% Increased		4.0%	2.0%	2.4%
Noise increase, dBA		0.2	0.1	0.1
Increased Relative to Project		0.0	-0.1	-0.1

8th Street (between Hope St. and Grand Ave.)

Scenario	Project	Alternative 2	Alternative 3	Alternative 4
Existing, ADT	13620			
Existing SPL, dBA CNEL	70.8			
Existing With Project, ADT	14080			
EWP SPL, dBA CNEL	70.9			
% Increased	3.4%			
Noise increase, dBA	0.1			
Project Total Trips, ADT	1500	1539	783	908
Project Trip along Roadway, ADT	460			
% to roadway	30.7%	30.7%	30.7%	30.7%
Project Alt, ADT (roadway)		472	240	278
Existing With Project Alt, ADT		14092	13860	13898
% Increased		3.5%	1.8%	2.0%
Noise increase, dBA		0.1	0.1	0.1
Increased Relative to Project		0.0	0.0	0.0

Appendix E.2

Traffic Data for Noise

8th, Grand and Hope Project

Traffic Data for Noise Analysis

Provided by The Mobility Group

8GH - Additional Traffic Data for Noise Analysis - Existing

12/30/2020

ID	Intersection	AM Peak Hour												Total
		NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	
5	Figueroa Street & 9th Street	0	1510	141	0	0	0	598	1005	0	0	0	0	3,254
8	Flower Street & Wilshire Blvd	0	0	0	63	756	276	0	310	268	48	225	0	1,946
9	Flower Street & 7th Street	0	0	0	104	809	104	0	260	170	97	511	0	2,055
10	Flower Street & 8th Street	0	0	0	0	522	215	0	0	0	129	1119	0	1,985
11	Flower Street & 9th Street	0	0	0	141	463	0	0	970	138	0	0	0	1,712
14	Hope Street & Wilshire Blvd	90	125	85	47	176	88	43	216	113	38	119	33	1,173
15	Hope Street & 7th Street	65	248	93	22	225	32	0	350	0	0	480	101	1,616
16	Hope Street & 8th Street	152	331	0	0	138	82	0	0	0	51	1136	215	2,105
17	Hope Street & 9th Street	0	309	74	57	145	0	163	860	45	0	0	0	1,653
20	Grand Avenue & Wilshire Blvd	0	0	0	79	675	208	0	28	191	8	9	0	1,198
21	Grand Avenue & 7th Street	0	0	0	112	576	75	0	266	116	104	466	0	1,715
22	Grand Avenue & 8th Street	0	0	0	0	444	217	0	0	0	179	1104	0	1,944
23	Grand Avenue & 9th Street	0	0	0	157	376	0	0	860	100	0	0	0	1,493
26	Olive Street & 7th Street	119	836	40	0	0	0	68	265	0	0	467	179	1,974
27	Olive Street & 8th Street	330	857	0	0	0	0	0	0	0	0	1032	160	2,379
28	Olive Street & 9th Street	0	1014	60	0	0	0	161	826	0	0	0	0	2,061

8GH - Additional Traffic Data for Noise Analysis - Existing

12/30/2020

ID	Intersection	PM Peak Hour												Total
		NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	
5	Figueroa Street & 9th Street	0	1,047	155	0	0	0	397	975	0	0	0	0	2,574
8	Flower Street & Wilshire Blvd	0	0	0	47	1,411	228	0	342	304	61	443	0	2,836
9	Flower Street & 7th Street	0	0	0	83	1,673	108	0	344	177	121	507	0	3,013
10	Flower Street & 8th Street	0	0	0	0	1,787	291	0	0	0	161	1,137	0	3,376
11	Flower Street & 9th Street	0	0	0	233	1,636	0	0	987	199	0	0	0	3,055
14	Hope Street & Wilshire Blvd	160	194	58	14	281	147	48	229	126	73	226	53	1,609
15	Hope Street & 7th Street	85	285	109	30	408	30	0	373	0	0	446	108	1,874
16	Hope Street & 8th Street	112	321	0	0	413	149	0	0	0	119	962	156	2,232
17	Hope Street & 9th Street	0	301	92	101	407	0	170	870	88	0	0	0	2,029
20	Grand Avenue & Wilshire Blvd	0	0	0	10	1,231	145	0	3	304	28	53	0	1,774
21	Grand Avenue & 7th Street	0	0	0	158	1,075	86	0	313	126	100	445	0	2,303
22	Grand Avenue & 8th Street	0	0	0	0	1,123	244	0	0	0	232	911	0	2,510
23	Grand Avenue & 9th Street	0	0	0	254	1,324	0	0	945	191	0	0	0	2,714
26	Olive Street & 7th Street	154	724	108	0	0	0	74	412	0	0	388	109	1,969
27	Olive Street & 8th Street	203	895	0	0	0	0	0	0	0	0	958	161	2,217
28	Olive Street & 9th Street	0	806	267	0	0	0	202	1,066	0	0	0	0	2,341

8GH - Additional Traffic Data for Noise Analysis - Existing with Project

4/9/2021
4/25/2021

ID	Intersection	AM Peak Hour												Total
		NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	
5	Figueroa Street & 9th Street	0	1,510	141	0	0	0	598	1,007	0	0	0	0	3,256
8	Flower Street & Wilshire Blvd	0	0	0	63	756	276	0	311	268	48	227	0	1,949
9	Flower Street & 7th Street	0	0	0	104	809	104	0	260	170	112	532	0	2,091
10	Flower Street & 8th Street	0	0	0	0	533	219	0	0	0	129	1,134	0	2,015
11	Flower Street & 9th Street	0	0	0	141	475	0	0	972	138	0	0	0	1,726
14	Hope Street & Wilshire Blvd	92	143	85	47	179	88	43	216	114	38	119	33	1,197
15	Hope Street & 7th Street	101	269	115	22	229	32	0	350	0	0	480	101	1,699
16	Hope Street & 8th Street	152	331	0	0	138	82	0	0	0	51	1,123	212	2,079
17	Hope Street & 9th Street	0	310	74	57	145	0	165	860	45	0	0	0	1,656
20	Grand Avenue & Wilshire Blvd	0	0	0	79	679	208	0	28	191	8	9	0	1,202
21	Grand Avenue & 7th Street	0	0	0	112	581	75	0	284	120	107	466	0	1,745
22	Grand Avenue & 8th Street	0	0	0	0	443	198	0	0	0	179	1,107	0	1,917
23	Grand Avenue & 9th Street	0	0	0	169	382	0	0	860	100	0	0	0	1,511
26	Olive Street & 7th Street	120	838	40	0	0	0	68	283	0	0	468	179	1,996
27	Olive Street & 8th Street	331	860	0	0	0	0	0	0	0	0	1,036	160	2,387
28	Olive Street & 9th Street	0	1,017	60	0	0	0	163	837	0	0	0	0	2,077

8GH - Additional Traffic Data for Noise Analysis - Existing with Project

4/9/2021
4/25/2021

ID	Intersection	PM Peak Hour												Total
		NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	
5	Figueroa Street & 9th Street	0	1,048	155	0	0	0	397	984	0	0	0	0	2,584
8	Flower Street & Wilshire Blvd	0	0	0	47	1,411	228	0	346	304	61	444	0	2,841
9	Flower Street & 7th Street	0	0	0	83	1,673	108	0	344	177	128	517	0	3,030
10	Flower Street & 8th Street	0	0	0	0	1,792	293	0	0	0	161	1,144	0	3,390
11	Flower Street & 9th Street	0	0	0	233	1,642	0	0	996	199	0	0	0	3,070
14	Hope Street & Wilshire Blvd	161	203	58	14	296	147	48	230	129	73	226	53	1,638
15	Hope Street & 7th Street	103	295	123	30	426	30	0	373	0	0	446	108	1,934
16	Hope Street & 8th Street	112	323	0	0	413	149	0	0	0	119	956	168	2,240
17	Hope Street & 9th Street	0	307	92	101	407	0	179	870	88	0	0	0	2,044
20	Grand Avenue & Wilshire Blvd	0	0	0	10	1,252	145	0	3	305	28	53	0	1,796
21	Grand Avenue & 7th Street	0	0	0	158	1,097	86	0	322	131	113	445	0	2,352
22	Grand Avenue & 8th Street	0	0	0	0	1,118	238	0	0	0	232	924	0	2,512
23	Grand Avenue & 9th Street	0	0	0	260	1,327	0	0	945	191	0	0	0	2,723
26	Olive Street & 7th Street	160	725	108	0	0	0	74	421	0	0	395	109	1,992
27	Olive Street & 8th Street	210	902	0	0	0	0	0	0	0	0	979	162	2,253
28	Olive Street & 9th Street	0	819	267	0	0	0	203	1,071	0	0	0	0	2,360

8GH - Additional Traffic Data for Noise Analysis - Future without Project

12/30/2020

ID	Intersection	AM Peak Hour												Total
		NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	
5	Figueroa Street & 9th Street	0	1,630	153	0	0	0	630	1,141	0	0	0	0	3,554
8	Flower Street & Wilshire Blvd	0	0	0	64	822	285	0	335	317	49	229	0	2,100
9	Flower Street & 7th Street	0	0	0	105	921	105	0	284	184	118	529	0	2,247
10	Flower Street & 8th Street	0	0	0	0	639	241	0	0	0	169	1,373	0	2,422
11	Flower Street & 9th Street	0	0	0	156	605	0	0	1,061	195	0	0	0	2,016
14	Hope Street & Wilshire Blvd	92	128	86	48	178	89	44	240	114	38	120	33	1,210
15	Hope Street & 7th Street	66	251	94	22	228	32	0	376	0	0	519	104	1,692
16	Hope Street & 8th Street	263	336	0	0	140	83	0	0	0	60	1,320	218	2,420
17	Hope Street & 9th Street	0	328	98	129	167	0	194	933	46	0	0	0	1,894
20	Grand Avenue & Wilshire Blvd	0	0	0	80	733	211	0	28	214	8	9	0	1,283
21	Grand Avenue & 7th Street	0	0	0	114	652	76	0	288	120	119	507	0	1,877
22	Grand Avenue & 8th Street	0	0	0	0	517	238	0	0	0	262	1,276	0	2,293
23	Grand Avenue & 9th Street	0	0	0	212	476	0	0	1,008	119	0	0	0	1,815
26	Olive Street & 7th Street	120	1,025	48	0	0	0	69	289	0	0	522	184	2,258
27	Olive Street & 8th Street	449	1,043	0	0	0	0	0	0	0	0	1,169	172	2,834
28	Olive Street & 9th Street	0	1,112	61	0	0	0	234	957	0	0	0	0	2,364

8GH - Additional Traffic Data for Noise Analysis - Future without Project

12/30/2020

ID	Intersection	PM Peak Hour												Total
		NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	
5	Figueroa Street & 9th Street	0	1,277	179	0	0	0	488	1,378	0	0	0	0	3,321
8	Flower Street & Wilshire Blvd	0	0	0	48	1,564	244	0	369	349	62	451	0	3,086
9	Flower Street & 7th Street	0	0	0	87	1,867	109	0	368	187	146	538	0	3,303
10	Flower Street & 8th Street	0	0	0	0	1,938	371	0	0	0	192	1,404	0	3,904
11	Flower Street & 9th Street	0	0	0	284	1,766	0	0	1,278	335	0	0	0	3,663
14	Hope Street & Wilshire Blvd	165	200	59	14	288	149	49	251	132	74	229	54	1,662
15	Hope Street & 7th Street	86	290	113	33	419	30	0	399	0	0	500	114	1,987
16	Hope Street & 8th Street	173	330	0	0	424	151	0	0	0	155	1,195	158	2,586
17	Hope Street & 9th Street	0	366	98	141	429	0	292	1,084	92	0	0	0	2,502
20	Grand Avenue & Wilshire Blvd	0	0	0	10	1,369	147	0	3	327	28	54	0	1,937
21	Grand Avenue & 7th Street	0	0	0	171	1,220	87	0	341	131	131	504	0	2,585
22	Grand Avenue & 8th Street	0	0	0	0	1,243	301	0	0	0	309	1,124	0	2,977
23	Grand Avenue & 9th Street	0	0	0	327	1,447	0	0	1,167	229	0	0	0	3,171
26	Olive Street & 7th Street	156	873	164	0	0	0	75	452	0	0	477	119	2,316
27	Olive Street & 8th Street	288	1,083	0	0	0	0	0	0	0	0	1,163	181	2,715
28	Olive Street & 9th Street	0	1,010	270	0	0	0	359	1,206	0	0	0	0	2,845

8GH - Additional Traffic Data for Noise Analysis - Future with Project

4/9/2021

ID	Intersection	AM Peak Hour												Total
		NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	
5	Figueroa Street & 9th Street	0	1,630	153	0	0	0	630	1,143	0	0	0	0	3,556
8	Flower Street & Wilshire Blvd	0	0	0	64	822	285	0	336	317	49	231	0	2,103
9	Flower Street & 7th Street	0	0	0	105	921	105	0	284	184	133	550	0	2,283
10	Flower Street & 8th Street	0	0	0	0	650	245	0	0	0	169	1,388	0	2,452
11	Flower Street & 9th Street	0	0	0	156	617	0	0	1,063	195	0	0	0	2,030
14	Hope Street & Wilshire Blvd	94	146	86	48	181	89	44	240	115	38	120	33	1,234
15	Hope Street & 7th Street	102	272	116	22	232	32	0	376	0	0	519	104	1,775
16	Hope Street & 8th Street	263	339	0	0	140	83	0	0	0	60	1,335	233	2,453
17	Hope Street & 9th Street	0	329	98	129	167	0	196	933	46	0	0	0	1,897
20	Grand Avenue & Wilshire Blvd	0	0	0	80	737	211	0	28	214	8	9	0	1,287
21	Grand Avenue & 7th Street	0	0	0	114	657	76	0	306	124	122	507	0	1,907
22	Grand Avenue & 8th Street	0	0	0	0	535	262	0	0	0	262	1,282	0	2,341
23	Grand Avenue & 9th Street	0	0	0	224	482	0	0	1,008	119	0	0	0	1,833
26	Olive Street & 7th Street	121	1,027	48	0	0	0	69	307	0	0	523	184	2,280
27	Olive Street & 8th Street	450	1,046	0	0	0	0	0	0	0	0	1,173	172	2,842
28	Olive Street & 9th Street	0	1,115	61	0	0	0	236	968	0	0	0	0	2,380

8GH - Additional Traffic Data for Noise Analysis - Future with Project

4/9/2021

ID	Intersection	PM Peak Hour												Total
		NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	
5	Figueroa Street & 9th Street	0	1,278	179	0	0	0	488	1,387	0	0	0	0	3,331
8	Flower Street & Wilshire Blvd	0	0	0	48	1,564	244	0	373	349	62	452	0	3,091
9	Flower Street & 7th Street	0	0	0	87	1,867	109	0	368	187	153	548	0	3,320
10	Flower Street & 8th Street	0	0	0	0	1,943	373	0	0	0	192	1,411	0	3,918
11	Flower Street & 9th Street	0	0	0	284	1,772	0	0	1,287	335	0	0	0	3,678
14	Hope Street & Wilshire Blvd	166	209	59	14	303	149	49	252	135	74	229	54	1,691
15	Hope Street & 7th Street	104	300	127	33	437	30	0	399	0	0	500	114	2,047
16	Hope Street & 8th Street	173	345	0	0	424	151	0	0	0	155	1,203	195	2,646
17	Hope Street & 9th Street	0	372	98	141	429	0	301	1,084	92	0	0	0	2,517
20	Grand Avenue & Wilshire Blvd	0	0	0	10	1,390	147	0	3	328	28	54	0	1,959
21	Grand Avenue & 7th Street	0	0	0	171	1,242	87	0	350	136	144	504	0	2,634
22	Grand Avenue & 8th Street	0	0	0	0	1,252	318	0	0	0	309	1,152	0	3,031
23	Grand Avenue & 9th Street	0	0	0	333	1,450	0	0	1,167	229	0	0	0	3,180
26	Olive Street & 7th Street	162	874	164	0	0	0	75	461	0	0	484	119	2,339
27	Olive Street & 8th Street	295	1,090	0	0	0	0	0	0	0	0	1,184	182	2,751
28	Olive Street & 9th Street	0	1,023	270	0	0	0	360	1,211	0	0	0	0	2,864