

Appendix G

Noise and Vibration Calculation Worksheets

Wilshire and Cloverdale Project

Noise Calculations Worksheets

Provided by Acoustical Engineering Services

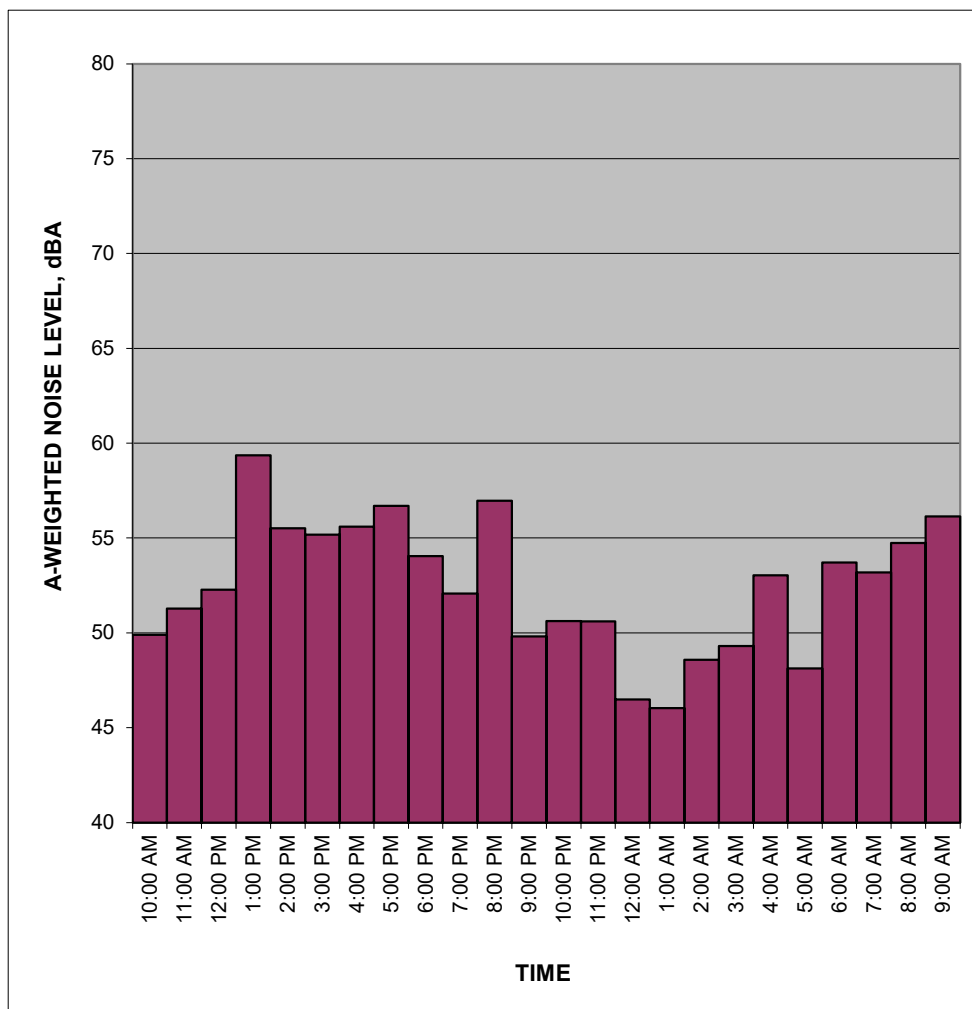
Ambient Noise Measurements

Measured Ambient Noise Levels

Project: Wilshire & Cloverdale
Location: R1
Sources: Ambient

Date: 11/29 - 11/30/2023

TIME	HNL, dB(A)
10:00 AM	49.9
11:00 AM	51.3
12:00 PM	52.3
1:00 PM	59.4
2:00 PM	55.5
3:00 PM	55.2
4:00 PM	55.6
5:00 PM	56.7
6:00 PM	54.0
7:00 PM	52.1
8:00 PM	57.0
9:00 PM	49.8
10:00 PM	50.6
11:00 PM	50.6
12:00 AM	46.5
1:00 AM	46.0
2:00 AM	48.6
3:00 AM	49.3
4:00 AM	53.0
5:00 AM	48.1
6:00 AM	53.7
7:00 AM	53.2
8:00 AM	54.7
9:00 AM	56.1
CNEL, dB(A):	58.3



NOTES:

Daytime average 55.0 dBA Leq
Nighttime average 50.3 dBA Leq

Location: R2
Date: 11/29/2023

Time	Leq
10:22:48 AM	48.7
10:22:58 AM	54.3
10:23:08 AM	53.5
10:23:18 AM	52.3
10:23:28 AM	50.8
10:23:38 AM	52.7
10:23:48 AM	51.4
10:23:58 AM	58.5
10:24:08 AM	56.6
10:24:18 AM	49
10:24:28 AM	59.4
10:24:38 AM	49.4
10:24:48 AM	47.8
10:24:58 AM	50.5
10:25:08 AM	57.2
10:25:18 AM	56.9
10:25:28 AM	53.9
10:25:38 AM	50.6
10:25:48 AM	52.8
10:25:58 AM	51.1
10:26:08 AM	51.9
10:26:18 AM	49.4
10:26:28 AM	47.2
10:26:38 AM	57.1
10:26:48 AM	62.3
10:26:58 AM	52.4
10:27:08 AM	47.7
10:27:18 AM	50.1
10:27:28 AM	53.9
10:27:38 AM	51.3
10:27:48 AM	49.4
10:27:58 AM	49.1
10:28:08 AM	50.9
10:28:18 AM	49.5
10:28:28 AM	47.6
10:28:38 AM	52.3
10:28:48 AM	51.1
10:28:58 AM	47.8
10:29:08 AM	50.3
10:29:18 AM	50.1
10:29:28 AM	50.4
10:29:38 AM	49.7
10:29:48 AM	52.4
10:29:58 AM	49.2

10:30:08 AM	49.1
10:30:18 AM	52.6
10:30:28 AM	50.2
10:30:38 AM	50
10:30:48 AM	48.3
10:30:58 AM	51.8
10:31:08 AM	59.1
10:31:18 AM	61.2
10:31:28 AM	47.6
10:31:38 AM	48
10:31:48 AM	50.8
10:31:58 AM	48.5
10:32:08 AM	53.4
10:32:18 AM	49
10:32:28 AM	58.4
10:32:38 AM	48.3
10:32:48 AM	50.4
10:32:58 AM	48.1
10:33:08 AM	47.7
10:33:18 AM	47
10:33:28 AM	51.2
10:33:38 AM	52.9
10:33:48 AM	48.8
10:33:58 AM	48.6
10:34:08 AM	47.9
10:34:18 AM	46.5
10:34:28 AM	48.5
10:34:38 AM	55.6
10:34:48 AM	60.6
10:34:58 AM	50.4
10:35:08 AM	48.4
10:35:18 AM	48.5
10:35:28 AM	49.4
10:35:38 AM	59.7
10:35:48 AM	57.3
10:35:58 AM	59
10:36:08 AM	56.5
10:36:18 AM	49.2
10:36:28 AM	58.5
10:36:38 AM	71.2
10:36:48 AM	65.4
10:36:58 AM	53.8
10:37:08 AM	54.1
10:37:18 AM	53.2
10:37:28 AM	49.8
10:37:38 AM	45.1

56.2

Time	Leq
10:01:39 PM	46.2
10:01:49 PM	62.3
10:01:59 PM	49.2
10:02:09 PM	47
10:02:19 PM	45.8
10:02:29 PM	44.1
10:02:39 PM	44.9
10:02:49 PM	46.7
10:02:59 PM	47.5
10:03:09 PM	44.2
10:03:19 PM	44.6
10:03:29 PM	44.8
10:03:39 PM	47.4
10:03:49 PM	47.5
10:03:59 PM	47.1
10:04:09 PM	45
10:04:19 PM	44.7
10:04:29 PM	46.4
10:04:39 PM	49.9
10:04:49 PM	52.6
10:04:59 PM	53.4
10:05:09 PM	48.4
10:05:19 PM	48.2
10:05:29 PM	46.8
10:05:39 PM	44.9
10:05:49 PM	48.3
10:05:59 PM	47.5
10:06:09 PM	47.7
10:06:19 PM	45.4
10:06:29 PM	44.3
10:06:39 PM	44.8
10:06:49 PM	43.7
10:06:59 PM	43.7
10:07:09 PM	43.9
10:07:19 PM	45.5
10:07:29 PM	45.5
10:07:39 PM	44.9
10:07:49 PM	46.1
10:07:59 PM	49.8
10:08:09 PM	58.7
10:08:19 PM	47.7
10:08:29 PM	46.5
10:08:39 PM	46.6
10:08:49 PM	54.7
10:08:59 PM	50.3
10:09:09 PM	45.4
10:09:19 PM	45.2

10:09:29 PM	44.8
10:09:39 PM	45.5
10:09:49 PM	50.1
10:09:59 PM	56.5
10:10:09 PM	46.2
10:10:19 PM	44.6
10:10:29 PM	46.8
10:10:39 PM	47.6
10:10:49 PM	46.9
10:10:59 PM	43.3
10:11:09 PM	44.4
10:11:19 PM	44.9
10:11:29 PM	52.2
10:11:39 PM	43.8
10:11:49 PM	43.4
10:11:59 PM	49.9
10:12:09 PM	51
10:12:19 PM	44.8
10:12:29 PM	44.6
10:12:39 PM	44.1
10:12:49 PM	56.5
10:12:59 PM	45.9
10:13:09 PM	43.3
10:13:19 PM	43.7
10:13:29 PM	47.5
10:13:39 PM	45.1
10:13:49 PM	44.9
10:13:59 PM	43.2
10:14:09 PM	45.1
10:14:19 PM	48.3
10:14:29 PM	47.6
10:14:39 PM	48.4
10:14:49 PM	47.5
10:14:59 PM	43.8
10:15:09 PM	47.6
10:15:19 PM	59.1
10:15:29 PM	52.2
10:15:39 PM	47.6
10:15:49 PM	50
10:15:59 PM	48.4
10:16:09 PM	52.2
10:16:19 PM	48
10:16:29 PM	45.2

50.0

Project: Wilshire & Cloverdale Project
 Location: R3
 Date: 11/29/2023

Time	Leq
10:52:42 AM	60.6
10:52:52 AM	60.6
10:53:02 AM	61.4
10:53:12 AM	60.2
10:53:22 AM	69.7
10:53:32 AM	69.8
10:53:42 AM	64.6
10:53:52 AM	69.5
10:54:02 AM	72.7
10:54:12 AM	72.7
10:54:22 AM	68.5
10:54:32 AM	70.7
10:54:42 AM	64.5
10:54:52 AM	61.9
10:55:02 AM	60.2
10:55:12 AM	59.2
10:55:22 AM	60.6
10:55:32 AM	59.8
10:55:42 AM	66.1
10:55:52 AM	77.3
10:56:02 AM	74.7
10:56:12 AM	73.3
10:56:22 AM	70.7
10:56:32 AM	68.1
10:56:42 AM	66.5
10:56:52 AM	63.5
10:57:02 AM	62.5
10:57:12 AM	61.5
10:57:22 AM	65
10:57:32 AM	61.1
10:57:42 AM	62.6
10:57:52 AM	70.1
10:58:02 AM	73
10:58:12 AM	72.5
10:58:22 AM	70.7
10:58:32 AM	68.1
10:58:42 AM	64.5
10:58:52 AM	60.9
10:59:02 AM	62.4
10:59:12 AM	60
10:59:22 AM	58.1
10:59:32 AM	57.5
10:59:42 AM	62.2

10:59:52 AM	72.3
11:00:02 AM	72.4
11:00:12 AM	68.7
11:00:22 AM	66.8
11:00:32 AM	64.7
11:00:42 AM	62.1
11:00:52 AM	61.5
11:01:02 AM	59.8
11:01:12 AM	61.5
11:01:22 AM	59.7
11:01:32 AM	63.4
11:01:42 AM	65.2
11:01:52 AM	62.6
11:02:02 AM	67.1
11:02:12 AM	72.8
11:02:22 AM	74.1
11:02:32 AM	78.2
11:02:42 AM	68.3
11:02:52 AM	64.6
11:03:02 AM	66.1
11:03:12 AM	66.6
11:03:22 AM	64.2
11:03:32 AM	74.1
11:03:42 AM	71.8
11:03:52 AM	71.6
11:04:02 AM	71.1
11:04:12 AM	67.4
11:04:22 AM	71.2
11:04:32 AM	67.5
11:04:42 AM	78.2
11:04:52 AM	67.6
11:05:02 AM	67.5
11:05:12 AM	74.5
11:05:22 AM	68.9
11:05:32 AM	67.4
11:05:42 AM	67.7
11:05:52 AM	75.9
11:06:02 AM	70.4
11:06:12 AM	69.4
11:06:22 AM	68.6
11:06:32 AM	60.9
11:06:42 AM	59.4
11:06:52 AM	57.8
11:07:02 AM	56.7
11:07:12 AM	58.7
11:07:22 AM	60.2
11:07:32 AM	61.4
	69.5

Time	Leq
10:21:04 PM	54.1
10:21:14 PM	68.1
10:21:24 PM	64.5
10:21:34 PM	53.7
10:21:44 PM	56.3
10:21:54 PM	70.6
10:22:04 PM	73.4
10:22:14 PM	74.6
10:22:24 PM	70
10:22:34 PM	66
10:22:44 PM	54.9
10:22:54 PM	60.7
10:23:04 PM	68.8
10:23:14 PM	62
10:23:24 PM	53.6
10:23:34 PM	67.6
10:23:44 PM	70.4
10:23:54 PM	70
10:24:04 PM	62.7
10:24:14 PM	56.9
10:24:24 PM	58.3
10:24:34 PM	57.6
10:24:44 PM	62.9
10:24:54 PM	65.5
10:25:04 PM	52.1
10:25:14 PM	52.6
10:25:24 PM	55.4
10:25:34 PM	55.6
10:25:44 PM	68.1
10:25:54 PM	73.1
10:26:04 PM	72.5
10:26:14 PM	60.3
10:26:24 PM	59.6
10:26:34 PM	56.8
10:26:44 PM	52.6
10:26:54 PM	65.7
10:27:04 PM	68.7
10:27:14 PM	59.5
10:27:24 PM	64
10:27:34 PM	67.1
10:27:44 PM	60.8
10:27:54 PM	72.4
10:28:04 PM	72.9
10:28:14 PM	67.6
10:28:24 PM	57
10:28:34 PM	53

10:28:44 PM	51.8
10:28:54 PM	57.4
10:29:04 PM	69.2
10:29:14 PM	63.4
10:29:24 PM	51.4
10:29:34 PM	64.3
10:29:44 PM	70.2
10:29:54 PM	69.4
10:30:04 PM	70.9
10:30:14 PM	64.6
10:30:24 PM	57.2
10:30:34 PM	52.2
10:30:44 PM	52.9
10:30:54 PM	55.1
10:31:04 PM	63.5
10:31:14 PM	66.2
10:31:24 PM	51.4
10:31:34 PM	55.6
10:31:44 PM	56.6
10:31:54 PM	71.8
10:32:04 PM	73.5
10:32:14 PM	71.5
10:32:24 PM	56.7
10:32:34 PM	53.7
10:32:44 PM	52.7
10:32:54 PM	52.8
10:33:04 PM	56.4
10:33:14 PM	62.9
10:33:24 PM	53.8
10:33:34 PM	65
10:33:44 PM	71.1
10:33:54 PM	70.3
10:34:04 PM	71.8
10:34:14 PM	68.5
10:34:24 PM	52.5
10:34:34 PM	52.9
10:34:44 PM	54.4
10:34:54 PM	69.2
10:35:04 PM	68.7
10:35:14 PM	64.1
10:35:24 PM	52.7
10:35:34 PM	51.8
10:35:44 PM	64.6
10:35:54 PM	72.1

67.0

Project: Wilshire & Cloverdale Project
 Location: R4
 Date: 11/29/2023

Time	Leq
11:12:57 AM	68.7
11:13:07 AM	69.9
11:13:17 AM	64.6
11:13:27 AM	57.5
11:13:37 AM	55.8
11:13:47 AM	60.4
11:13:57 AM	60.6
11:14:07 AM	66.4
11:14:17 AM	69.3
11:14:27 AM	62.9
11:14:37 AM	59.5
11:14:47 AM	58
11:14:57 AM	56
11:15:07 AM	55.5
11:15:17 AM	59.1
11:15:27 AM	63.7
11:15:37 AM	69
11:15:47 AM	67.5
11:15:57 AM	61.9
11:16:07 AM	62.8
11:16:17 AM	60
11:16:27 AM	54
11:16:37 AM	53.7
11:16:47 AM	55.2
11:16:57 AM	65.2
11:17:07 AM	67.7
11:17:17 AM	68.7
11:17:27 AM	69.5
11:17:37 AM	66.7
11:17:47 AM	63.6
11:17:57 AM	58.8
11:18:07 AM	58.6
11:18:17 AM	54.6
11:18:27 AM	61
11:18:37 AM	59.2
11:18:47 AM	58.2
11:18:57 AM	61.9
11:19:07 AM	65.2
11:19:17 AM	64.5
11:19:27 AM	55.7
11:19:37 AM	55.8
11:19:47 AM	58.7
11:19:57 AM	62.2

11:20:07 AM	65.8
11:20:17 AM	62.9
11:20:27 AM	57.1
11:20:37 AM	61
11:20:47 AM	60.2
11:20:57 AM	55.1
11:21:07 AM	54.8
11:21:17 AM	64.9
11:21:27 AM	71.3
11:21:37 AM	74.1
11:21:47 AM	68.5
11:21:57 AM	63.7
11:22:07 AM	61.7
11:22:17 AM	57.4
11:22:27 AM	54.2
11:22:37 AM	55.3
11:22:47 AM	55.9
11:22:57 AM	63
11:23:07 AM	65.9
11:23:17 AM	68.4
11:23:27 AM	67
11:23:37 AM	66.1
11:23:47 AM	64.1
11:23:57 AM	60.3
11:24:07 AM	57.8
11:24:17 AM	58.4
11:24:27 AM	63.5
11:24:37 AM	62.5
11:24:47 AM	61.5
11:24:57 AM	64.5
11:25:07 AM	72
11:25:17 AM	64.5
11:25:27 AM	55.1
11:25:37 AM	56.7
11:25:47 AM	60.7
11:25:57 AM	64
11:26:07 AM	67.5
11:26:17 AM	64.2
11:26:27 AM	63.4
11:26:37 AM	61.5
11:26:47 AM	60
11:26:57 AM	59.3
11:27:07 AM	58.6
11:27:17 AM	56.9
11:27:27 AM	74.2
11:27:37 AM	75.5
11:27:47 AM	69.3

65.5

Time	Leq
10:45:01 PM	68.3
10:45:11 PM	62.5
10:45:21 PM	59.3
10:45:31 PM	61.5
10:45:41 PM	63.5
10:45:51 PM	63
10:46:01 PM	62.9
10:46:11 PM	63.8
10:46:21 PM	65.6
10:46:31 PM	65.2
10:46:41 PM	64.2
10:46:51 PM	64.2
10:47:01 PM	63.4
10:47:11 PM	64.9
10:47:21 PM	64.3
10:47:31 PM	63
10:47:41 PM	62.9
10:47:51 PM	64.1
10:48:01 PM	65.4
10:48:11 PM	64.5
10:48:21 PM	64.5
10:48:31 PM	63.9
10:48:41 PM	63.8
10:48:51 PM	64.8
10:49:01 PM	65
10:49:11 PM	73.4
10:49:21 PM	66.9
10:49:31 PM	63
10:49:41 PM	59.9
10:49:51 PM	54.1
10:50:01 PM	64.1
10:50:11 PM	61.1
10:50:21 PM	49.7
10:50:31 PM	50.1
10:50:41 PM	57
10:50:51 PM	52.9
10:51:01 PM	60.6
10:51:11 PM	59.7
10:51:21 PM	53.7
10:51:31 PM	64.7
10:51:41 PM	58.9
10:51:51 PM	63.8
10:52:01 PM	58.7
10:52:11 PM	59.4
10:52:21 PM	65.3
10:52:31 PM	57.9

10:52:41 PM	52.4
10:52:51 PM	52.7
10:53:01 PM	63.4
10:53:11 PM	62.5
10:53:21 PM	63.2
10:53:31 PM	51.5
10:53:41 PM	57.2
10:53:51 PM	55.1
10:54:01 PM	52.1
10:54:11 PM	57.4
10:54:21 PM	61.8
10:54:31 PM	61
10:54:41 PM	69.7
10:54:51 PM	68.2
10:55:01 PM	60.8
10:55:11 PM	57.3
10:55:21 PM	56
10:55:31 PM	61.6
10:55:41 PM	55.4
10:55:51 PM	66
10:56:01 PM	68.8
10:56:11 PM	64.5
10:56:21 PM	63.3
10:56:31 PM	53.4
10:56:41 PM	53.5
10:56:51 PM	52.7
10:57:01 PM	56.9
10:57:11 PM	61.9
10:57:21 PM	56.7
10:57:31 PM	61.9
10:57:41 PM	66.3
10:57:51 PM	65
10:58:01 PM	60.8
10:58:11 PM	57.7
10:58:21 PM	58.7
10:58:31 PM	55.2
10:58:41 PM	63
10:58:51 PM	62.4
10:59:01 PM	63.2
10:59:11 PM	61.5
10:59:21 PM	58.3
10:59:31 PM	51.3
10:59:41 PM	51
10:59:51 PM	52.1

63.2

Project: Wilshire & Cloverdale Project
 Location: R5
 Date: 11/29/2023

Time	Leq
11:30:38 AM	60.8
11:30:48 AM	58.6
11:30:58 AM	53.8
11:31:08 AM	57.5
11:31:18 AM	55.2
11:31:28 AM	51.4
11:31:38 AM	50.6
11:31:48 AM	49.4
11:31:58 AM	50.9
11:32:08 AM	59.9
11:32:18 AM	56.3
11:32:28 AM	57.5
11:32:38 AM	51.9
11:32:48 AM	55.1
11:32:58 AM	58.4
11:33:08 AM	51
11:33:18 AM	52.1
11:33:28 AM	53.1
11:33:38 AM	54.2
11:33:48 AM	50.2
11:33:58 AM	49.6
11:34:08 AM	54.4
11:34:18 AM	52.2
11:34:28 AM	53
11:34:38 AM	49.9
11:34:48 AM	55.7
11:34:58 AM	55
11:35:08 AM	54.9
11:35:18 AM	56.5
11:35:28 AM	54.5
11:35:38 AM	71
11:35:48 AM	72.9
11:35:58 AM	53
11:36:08 AM	50.5
11:36:18 AM	58.3
11:36:28 AM	56.6
11:36:38 AM	58
11:36:48 AM	62.8
11:36:58 AM	65.6
11:37:08 AM	60.3
11:37:18 AM	55
11:37:28 AM	51.8
11:37:38 AM	54.5

11:37:48 AM	54.1
11:37:58 AM	53.1
11:38:08 AM	56.5
11:38:18 AM	54.3
11:38:28 AM	58.4
11:38:38 AM	52.4
11:38:48 AM	47.7
11:38:58 AM	54.8
11:39:08 AM	52.5
11:39:18 AM	51.8
11:39:28 AM	56.4
11:39:38 AM	54.7
11:39:48 AM	51.8
11:39:58 AM	56
11:40:08 AM	60.5
11:40:18 AM	51.4
11:40:28 AM	62.2
11:40:38 AM	56.4
11:40:48 AM	47.7
11:40:58 AM	49.8
11:41:08 AM	52.4
11:41:18 AM	53.2
11:41:28 AM	54.4
11:41:38 AM	56.4
11:41:48 AM	59.7
11:41:58 AM	55.4
11:42:08 AM	64.5
11:42:18 AM	54.5
11:42:28 AM	55.2
11:42:38 AM	50.3
11:42:48 AM	48.3
11:42:58 AM	51.2
11:43:08 AM	54
11:43:18 AM	50.7
11:43:28 AM	48.9
11:43:38 AM	51.7
11:43:48 AM	50.1
11:43:58 AM	52.2
11:44:08 AM	55.3
11:44:18 AM	55.7
11:44:28 AM	52.2
11:44:38 AM	56.3
11:44:48 AM	58.3
11:44:58 AM	51.1
11:45:08 AM	50.4
11:45:18 AM	59.6
11:45:28 AM	50.5

58.9

Time	Leq
11:02:03 PM	45.3
11:02:13 PM	48.2
11:02:23 PM	43.1
11:02:33 PM	44.2
11:02:43 PM	45.6
11:02:53 PM	43.2
11:03:03 PM	44.7
11:03:13 PM	44.6
11:03:23 PM	45.9
11:03:33 PM	42.9
11:03:43 PM	42.3
11:03:53 PM	43.3
11:04:03 PM	46.6
11:04:13 PM	44.9
11:04:23 PM	43.9
11:04:33 PM	49.2
11:04:43 PM	43.4
11:04:53 PM	48.3
11:05:03 PM	46.1
11:05:13 PM	52.1
11:05:23 PM	48.2
11:05:33 PM	44
11:05:43 PM	50.2
11:05:53 PM	43.4
11:06:03 PM	41.6
11:06:13 PM	41.2
11:06:23 PM	42.3
11:06:33 PM	47.2
11:06:43 PM	55.8
11:06:53 PM	47.6
11:07:03 PM	54.4
11:07:13 PM	50.5
11:07:23 PM	42.7
11:07:33 PM	48.3
11:07:43 PM	44.4
11:07:53 PM	42.5
11:08:03 PM	44
11:08:13 PM	43.3
11:08:23 PM	42.8
11:08:33 PM	43.5
11:08:43 PM	49
11:08:53 PM	45
11:09:03 PM	48.5
11:09:13 PM	45.4
11:09:23 PM	48.2
11:09:33 PM	54

11:09:43 PM	55.6
11:09:53 PM	50
11:10:03 PM	47.1
11:10:13 PM	49.7
11:10:23 PM	48.2
11:10:33 PM	51.1
11:10:43 PM	44.1
11:10:53 PM	46.5
11:11:03 PM	55.1
11:11:13 PM	50.9
11:11:23 PM	54.6
11:11:33 PM	52.2
11:11:43 PM	52.9
11:11:53 PM	59.4
11:12:03 PM	64.9
11:12:13 PM	61.9
11:12:23 PM	60.2
11:12:33 PM	47.1
11:12:43 PM	45
11:12:53 PM	48.2
11:13:03 PM	54.8
11:13:13 PM	48.4
11:13:23 PM	56.8
11:13:33 PM	49.5
11:13:43 PM	43.4
11:13:53 PM	43.5
11:14:03 PM	49.1
11:14:13 PM	54.5
11:14:23 PM	44.7
11:14:33 PM	44.7
11:14:43 PM	47.4
11:14:53 PM	51.8
11:15:03 PM	55.9
11:15:13 PM	43.7
11:15:23 PM	45.7
11:15:33 PM	53.3
11:15:43 PM	46.6
11:15:53 PM	48.5
11:16:03 PM	45.6
11:16:13 PM	44.9
11:16:23 PM	50
11:16:33 PM	43.6
11:16:43 PM	46.1
11:16:53 PM	52.4

52.0

Project: Wilshire & Cloverdale Project
 Location: R6
 Date: 11/29/2023

Time	Leq
11:49:21 AM	47
11:49:31 AM	44.4
11:49:41 AM	43.4
11:49:51 AM	51.6
11:50:01 AM	53.6
11:50:11 AM	58.1
11:50:21 AM	54.9
11:50:31 AM	46.1
11:50:41 AM	46.3
11:50:51 AM	43.9
11:51:01 AM	53.1
11:51:11 AM	59.4
11:51:21 AM	53.1
11:51:31 AM	54.1
11:51:41 AM	50.4
11:51:51 AM	55.9
11:52:01 AM	59.2
11:52:11 AM	61
11:52:21 AM	57.4
11:52:31 AM	45.1
11:52:41 AM	46.5
11:52:51 AM	51.2
11:53:01 AM	63.4
11:53:11 AM	59.5
11:53:21 AM	52.2
11:53:31 AM	59.3
11:53:41 AM	59.9
11:53:51 AM	49.8
11:54:01 AM	57.9
11:54:11 AM	66
11:54:21 AM	63.6
11:54:31 AM	59.3
11:54:41 AM	52.1
11:54:51 AM	49.8
11:55:01 AM	57.3
11:55:11 AM	61.4
11:55:21 AM	48.7
11:55:31 AM	57.8
11:55:41 AM	57.2
11:55:51 AM	55.6
11:56:01 AM	58.9
11:56:11 AM	58.7
11:56:21 AM	62.1

11:56:31 AM	59.2
11:56:41 AM	58.2
11:56:51 AM	59
11:57:01 AM	57.5
11:57:11 AM	66.5
11:57:21 AM	56
11:57:31 AM	48.4
11:57:41 AM	55.8
11:57:51 AM	51.6
11:58:01 AM	57.5
11:58:11 AM	57.8
11:58:21 AM	47
11:58:31 AM	57.1
11:58:41 AM	61.4
11:58:51 AM	60.2
11:59:01 AM	58.3
11:59:11 AM	56.8
11:59:21 AM	60.2
11:59:31 AM	58.7
11:59:41 AM	51.8
11:59:51 AM	49
12:00:01 PM	61.2
12:00:11 PM	59.6
12:00:21 PM	60.1
12:00:31 PM	54.1
12:00:41 PM	56.7
12:00:51 PM	50
12:01:01 PM	52.4
12:01:11 PM	54.7
12:01:21 PM	55.9
12:01:31 PM	56.3
12:01:41 PM	61
12:01:51 PM	54.2
12:02:01 PM	53.1
12:02:11 PM	56.9
12:02:21 PM	57.2
12:02:31 PM	58.9
12:02:41 PM	51.7
12:02:51 PM	56.9
12:03:01 PM	60.1
12:03:11 PM	67
12:03:21 PM	56.3
12:03:31 PM	48
12:03:41 PM	55.7
12:03:51 PM	53.4
12:04:01 PM	57.9
12:04:11 PM	64

58.4

Time	Leq
11:22:45 PM	48.1
11:22:55 PM	57.1
11:23:05 PM	53.8
11:23:15 PM	48.6
11:23:25 PM	55.3
11:23:35 PM	50.9
11:23:45 PM	45.6
11:23:55 PM	46.1
11:24:05 PM	48.1
11:24:15 PM	47.1
11:24:25 PM	46.5
11:24:35 PM	51.2
11:24:45 PM	47.4
11:24:55 PM	47.7
11:25:05 PM	44.1
11:25:15 PM	44.2
11:25:25 PM	45.8
11:25:35 PM	49
11:25:45 PM	41.9
11:25:55 PM	43.1
11:26:05 PM	42.8
11:26:15 PM	42.1
11:26:25 PM	42.1
11:26:35 PM	42.3
11:26:45 PM	41.3
11:26:55 PM	41
11:27:05 PM	41.3
11:27:15 PM	42.4
11:27:25 PM	42.6
11:27:35 PM	42.7
11:27:45 PM	54.1
11:27:55 PM	45.8
11:28:05 PM	40.1
11:28:15 PM	41.6
11:28:25 PM	40.9
11:28:35 PM	39.9
11:28:45 PM	42
11:28:55 PM	41.9
11:29:05 PM	43.4
11:29:15 PM	55
11:29:25 PM	59.2
11:29:35 PM	44.1
11:29:45 PM	52.6
11:29:55 PM	50.1
11:30:05 PM	44
11:30:15 PM	45.8

11:30:25 PM	44.4
11:30:35 PM	41.5
11:30:45 PM	43
11:30:55 PM	45.1
11:31:05 PM	40.4
11:31:15 PM	44.1
11:31:25 PM	46.6
11:31:35 PM	47.2
11:31:45 PM	54.3
11:31:55 PM	45.3
11:32:05 PM	45.3
11:32:15 PM	39.8
11:32:25 PM	39.6
11:32:35 PM	43.8
11:32:45 PM	50.6
11:32:55 PM	57.1
11:33:05 PM	42.2
11:33:15 PM	40.4
11:33:25 PM	40.7
11:33:35 PM	41.7
11:33:45 PM	43
11:33:55 PM	46.4
11:34:05 PM	40.3
11:34:15 PM	41.4
11:34:25 PM	46.7
11:34:35 PM	40.7
11:34:45 PM	47.5
11:34:55 PM	43
11:35:05 PM	41.5
11:35:15 PM	42.6
11:35:25 PM	41.6
11:35:35 PM	55.7
11:35:45 PM	50.2
11:35:55 PM	54.3
11:36:05 PM	47.6
11:36:15 PM	47.3
11:36:25 PM	42.2
11:36:35 PM	43.1
11:36:45 PM	42.3
11:36:55 PM	42
11:37:05 PM	40
11:37:15 PM	38.5
11:37:25 PM	38.2
11:37:35 PM	40.4

48.7

Construction Noise & Vibration Calculations

Project: Wilshire & Cloverdale
On-Site Construction

Without Mitigation Measures

Estimated Construction Noise Levels, dBA Leq								
Rec.	Closest Distance	Demolition	Grading/Excavation	Mat Foundation	Foundation	Building Construction	Paving/Landscape	Building Renovation
R1	10	97.1	91.5	89.2	97.1	97.1	94.3	59.8
R2	65	82.5	79.9	80.2	82.8	82.8	81.1	72.5
R3	405	57.3	56.8	57.5	58.6	59.1	56.6	55.0
R4	235	56.9	55.8	56.5	57.9	58.2	56.0	76.1
R5	400	57.4	56.8	57.5	58.7	59.2	56.7	66.4
R6	410	67.2	66.7	67.4	68.5	69.0	66.5	63.1

Overlapping Construction

Estimated Construction Noise Levels, dBA Leq			
Rec.	Closest Distance	Demo + Building Renovation	Grading + Building Renovation
R1	10	97.1	91.5
R2	65	82.9	80.6
R3	405	59.3	59.0
R4	235	76.2	76.1
R5	400	66.9	66.9
R6	410	68.6	68.3

Nighttime Construction

Estimated Construction Noise Levels, dBA Leq		
Rec.	Closest Distance	Mat Foundation
R1	10	89.2
R2	65	80.2
R3	405	57.5
R4	235	56.5
R5	400	57.5
R6	410	67.4

With Mitigation Measures

Rec.	Noise Mitigation, Noise Reduction, dBA	Closest Distance	Demolition	Grading/Excavation	Mat Foundation	Foundation	Building Construction	Paving/Landscape	Building Renovation
R1	20	10	77.1	71.5	69.2	77.1	77.1	74.3	39.8
R2	20	65	62.5	59.9	60.2	62.8	62.8	61.1	52.5
R3	0	405	57.3	56.8	57.5	58.6	59.1	56.6	55.0
R4	6	235	50.9	49.8	50.5	51.9	52.2	50.0	70.1
R5	5	400	52.4	51.8	52.5	53.7	54.2	51.7	61.4
R6	6	410	61.2	60.7	61.4	62.5	63.0	60.5	57.1

Overlapping Construction

Rec.	Noise Mitigation, Noise Reduction, dBA	Closest Distance	Demo + Building Renovation	Grading + Building Renovation
R1	20	10	77.1	71.5
R2	20	65	62.9	60.6
R3	0	405	59.3	59.0
R4	6	235	70.2	70.1
R5	5	400	61.9	61.9
R6	6	410	62.6	62.3

Nighttime Construction

Rec.	Noise Mitigation, Noise Reduction, dBA	Closest Distance	Mat Foundation
R1	20	10	69.2
R2	20	65	60.2
R3	0	405	57.5
R4	6	235	50.5
R5	5	400	52.5
R6	6	410	61.4

Project: Wilshire & Cloverdale
Off-Site Construction

Without Mitigation Measures		Estimated Construction Noise Levels, dBA Leq			
Rec.	Closest Distance	Off-Site Water Main Improvements - Excavation	Off-Site Water Main Improvements - Drainage	Off-Site Water Main Improvements - Paving	Off-Site Fire Hydrant Installation
R1	40	81.8	81.8	80.3	66.3
R2	40	84.2	84.2	83.4	45.4
R3	360	55.7	55.7	55.0	46.0
R4	50	82.4	82.4	81.5	69.9
R5	440	54.0	54.0	53.3	54.6
R6	600	51.3	51.3	50.6	50.0

With Mitigation Measures						
	Noise Mitigation, Noise Reduction, dBA	Closest Distance	Off-Site Water Main Improvements - Excavation	Off-Site Water Main Improvements - Drainage	Off-Site Water Main Improvements - Paving	Off-Site Fire Hydrant Installation
Rec.						
R1	10	40	71.8	71.8	70.3	56.3
R2	10	40	74.2	74.2	73.4	45.4
R3	0	360	55.7	55.7	55.0	46.0
R4	10	50	72.4	72.4	71.5	69.9
R5	0	440	54.0	54.0	53.3	54.6
R6	0	600	51.3	51.3	50.6	50.0

Construction Phase: *Demolition*

Description	No. of Equip.	Reference	Acoustical Usage Factor	Distance to Receptor, ft	Estimated
		Noise Level at 50ft, Lmax			Noise Shielding, dBA
Concrete/Industrial Saws	1	90	20%	10	0
Excavators	1	81	40%	35	0
Air Compressor	1	78	40%	60	0
Water Truck	1	82	10%	60	0
Rubber-Tired Loaders	1	79	40%	85	0
Excavators	1	81	40%	85	0

Receptor: *R1*

Results:

1-hour Leq:	97.1
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Source for Ref. Noise Levels: FHWA RCNM, 2006

Project: Wilshire & Cloverdale

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%	10	0
Excavator	1	81	40%	35	0
Cranes (mobile)	1	81	16%	60	0
Forklift	1	75	20%	60	0
Water Truck	1	82	10%	85	0
Pumps	1	81	20%	85	0
Rubber-Tired Dozer	1	82	40%	110	0
Rubber-Tired Loaders	1	79	40%	110	0
Welders	1	74	40%	135	0
Excavator	1	81	40%	135	0
Pumps	1	81	20%	160	0
Welders	1	74	40%	160	0
Pumps	1	81	20%	185	0
Pumps	1	81	20%	185	0

14

Receptor: *R1*

Results:

1-hour Leq: 91.5

Source for Ref. Noise Levels: FHWA RCNM, 2006

Project: Wilshire & Cloverdale

Construction Phase: *Mat Foundation*

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Pumps	1	81	20%	10	0
Cement and Mortar Mixer	1	80	50%	35	0
Plate Compactors	1	83	20%	60	0
Pumps	1	81	20%	60	0
Plate Compactors	1	83	20%	85	0
Cement and Mortar Mixer	1	80	50%	85	0
Pumps	1	81	20%	110	0
Plate Compactors	1	83	20%	110	0
Pumps	1	81	20%	135	0
Plate Compactors	1	83	20%	135	0
Pumps	1	81	20%	160	0
Plate Compactors	1	83	20%	160	0
Pumps	1	81	20%	185	0
Plate Compactors	1	83	20%	185	0

14

Receptor: *R1*

Results:

1-hour Leq: 89.2

Source for Ref. Noise Levels: FHWA RCNM, 2006

Project: Wilshire & Cloverdale

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
Concrete/Industrial Saws	1	90	20%	10	0
Cement and Mortar Mixer	1	80	50%	35	0
Cranes (tower)	1	81	16%	60	0
Pumps	1	81	20%	60	0
Forklifts	1	75	20%	85	0
Plate Compactors	1	83	20%	85	0
Welders	1	74	40%	110	0
Cement and Mortar Mixer	1	80	50%	110	0
Cranes (tower)	1	81	16%	135	0
Pumps	1	81	20%	135	0
Forklifts	1	75	20%	160	0
Plate Compactors	1	83	20%	160	0
Welders	1	74	40%	185	0
Plate Compactors	1	83	20%	185	0
Plate Compactors	1	83	20%	185	0

15

Receptor: *R1*

Results:

1-hour Leq: 97.1

Source for Ref. Noise Levels: FHWA RCNM, 2006

Project: Wilshire & Cloverdale

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
Concrete/Industrial Saws	1	90	20%	10	0
Air Compressor	1	78	40%	35	0
Cranes (Tower)	1	81	16%	60	0
Cement and Mortar Mixer	1	80	50%	60	0
Aerial Lifts	1	75	20%	85	0
Plate Compactors	1	83	20%	85	0
Skid Steer Loaders	1	79	40%	110	0
Pumps	1	81	20%	110	0
Forklifts	2	75	20%	135	0
Welders	2	74	40%	135	0
Air Compressor	3	78	40%	160	0
Cranes (Tower)	1	81	16%	160	0
Aerial Lifts	3	75	20%	185	0
Plate Compactors	3	83	20%	185	0
Pumps	1	81	20%	185	0

23

Receptor: *R1*

Results:

1-hour Leq: 97.1

Source for Ref. Noise Levels: FHWA RCNM, 2006

Project: Wilshire & Cloverdale

Construction Phase: *Paving/Landscape*

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Tractors/Loaders/Backhoe	1	84	40%	10	0
Cement and Mortar Mixer	1	80	50%	35	0
Paver	1	77	50%	60	0
Paving Equipment	1	77	50%	60	0
Plate Compactors	2	83	20%	85	0
Rollers	1	80	20%	85	0
Skid Steer Loaders	1	79	40%	110	0

8

Receptor: *R1*

Results:

1-hour Leq: 94.3

Source for Ref. Noise Levels: FHWA RCNM, 2006

Project: Wilshire & Cloverdale

Construction Phase: *Building Renovation*

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Tractors/Loaders/Backhoe	1	84	40%	115	15
Aerial Lift	1	75	20%	140	15
Forklift	1	75	20%	165	15
Tractors/Loaders/Backhoe	1	84	40%	165	15
Welders	1	74	40%	190	15

Receptor: 5
R1

Results:
1-hour Leq: 59.8

Source for Ref. Noise Levels: FHWA RCNM, 2006

Construction Phase: *Off-Site Water Main Improvements - Excavation*

		Reference			Estimated
Description	No. of Equip.	Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Noise Shielding, dBA
Excavator	1	81	40%	40	0
Tractors/Loaders/Backhoe	1	84	40%	65	0
Rubber-Tired Loaders	1	79	40%	90	0
Water Truck	1	82	10%	90	0

4

1-hour Leq: 81.8

Source for Ref. Noise Levels: FHWA RCNM, 2006

Construction Phase: *Off-Site Water Main Improvements - Drainage*

Description	No. of Equip.	Reference	Acoustical Usage Factor	Distance to Receptor, ft	Estimated
		Noise Level at 50ft, Lmax			Noise Shielding, dBA
Excavator	1	81	40%	40	0
Tractors/Loaders/Backhoe	1	84	40%	65	0
Rubber-Tired Loaders	1	79	40%	90	0
Water Truck	1	82	10%	90	0

Results:

1-hour Leq:	81.8
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7/19/2024

Project: Wilshire & Cloverdale

Construction Phase: *Off-Site Water Main Improvements - Paving*

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Rollers	1	80	20%	40	0
Tractors/Loaders/Backhoe	1	84	40%	65	0
Paver	1	77	50%	90	0
Paving Equipment	1	77	50%	90	0

Receptor: 4 ***R1***

Results: **1-hour Leq:** **80.3**

Source for Ref. Noise Levels: FHWA RCNM, 2006

Construction Phase: *Off-Site Fire Hydrant Installation*

[illegible]

Results:

1-hour Leq:	66.3
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7/19/2024

Construction Phase: *Demolition*

Description	No. of Equip.	Reference	Acoustical Usage Factor	Distance to Receptor, ft	Estimated
		Noise Level at 50ft, Lmax			Noise Shielding, dBA
Concrete/Industrial Saws	1	90	20%	65	0
Excavators	1	81	40%	65	0
Air Compressor	1	78	40%	90	0
Water Truck	1	82	10%	90	0
Rubber-Tired Loaders	1	79	40%	115	0
Excavators	1	81	40%	115	0

Receptor: *R2*

Results:

1-hour Leq:	82.5
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Source for Ref. Noise Levels: FHWA RCNM, 2006

Project: Wilshire & Cloverdale

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%	65	0
Excavator	1	81	40%	65	0
Cranes (mobile)	1	81	16%	90	0
Forklift	1	75	20%	90	0
Water Truck	1	82	10%	115	0
Pumps	1	81	20%	115	0
Rubber-Tired Dozer	1	82	40%	140	0
Rubber-Tired Loaders	1	79	40%	140	0
Welders	1	74	40%	165	0
Excavator	1	81	40%	165	0
Pumps	1	81	20%	190	0
Welders	1	74	40%	190	0
Pumps	1	81	20%	215	0
Pumps	1	81	20%	215	0

14

Receptor: R2

Results:

1-hour Leq: 79.9

Source for Ref. Noise Levels: FHWA RCNM, 2006

Project: Wilshire & Cloverdale

Construction Phase: *Mat Foundation*

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Pumps	1	81	20%	65	0
Cement and Mortar Mixer	1	80	50%	65	0
Plate Compactors	1	83	20%	90	0
Pumps	1	81	20%	90	0
Plate Compactors	1	83	20%	115	0
Cement and Mortar Mixer	1	80	50%	115	0
Pumps	1	81	20%	140	0
Plate Compactors	1	83	20%	140	0
Pumps	1	81	20%	165	0
Plate Compactors	1	83	20%	165	0
Pumps	1	81	20%	190	0
Plate Compactors	1	83	20%	190	0
Pumps	1	81	20%	215	0
Plate Compactors	1	83	20%	215	0

14

Receptor: *R2*

Results:

1-hour Leq: 80.2

Source for Ref. Noise Levels: FHWA RCNM, 2006

Project: Wilshire & Cloverdale

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
Concrete/Industrial Saws	1	90	20%	65	0
Cement and Mortar Mixer	1	80	50%	65	0
Cranes (tower)	1	81	16%	90	0
Pumps	1	81	20%	90	0
Forklifts	1	75	20%	115	0
Plate Compactors	1	83	20%	115	0
Welders	1	74	40%	140	0
Cement and Mortar Mixer	1	80	50%	140	0
Cranes (tower)	1	81	16%	165	0
Pumps	1	81	20%	165	0
Forklifts	1	75	20%	190	0
Plate Compactors	1	83	20%	190	0
Welders	1	74	40%	215	0
Plate Compactors	1	83	20%	215	0
Plate Compactors	1	83	20%	215	0

15

Receptor: *R2*

Results:

1-hour Leq: 82.8

Source for Ref. Noise Levels: FHWA RCNM, 2006

Project: Wilshire & Cloverdale

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
Concrete/Industrial Saws	1	90	20%	65	0
Air Compressor	1	78	40%	65	0
Cranes (Tower)	1	81	16%	90	0
Cement and Mortar Mixer	1	80	50%	90	0
Aerial Lifts	1	75	20%	115	0
Plate Compactors	1	83	20%	115	0
Skid Steer Loaders	1	79	40%	140	0
Pumps	1	81	20%	140	0
Forklifts	2	75	20%	165	0
Welders	2	74	40%	165	0
Air Compressor	3	78	40%	190	0
Cranes (Tower)	1	81	16%	190	0
Aerial Lifts	3	75	20%	215	0
Plate Compactors	3	83	20%	215	0
Pumps	1	81	20%	215	0

23

Receptor: *R2*

Results:

1-hour Leq: 82.8

Source for Ref. Noise Levels: FHWA RCNM, 2006

Project: Wilshire & Cloverdale

Construction Phase: *Paving/Landscape*

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Tractors/Loaders/Backhoe	1	84	40%	65	0
Cement and Mortar Mixer	1	80	50%	65	0
Paver	1	77	50%	90	0
Paving Equipment	1	77	50%	90	0
Plate Compactors	2	83	20%	115	0
Rollers	1	80	20%	115	0
Skid Steer Loaders	1	79	40%	140	0

8

Receptor: *R2*

Results:

1-hour Leq: 81.1

Source for Ref. Noise Levels: FHWA RCNM, 2006

Project: Wilshire & Cloverdale

Construction Phase: *Building Renovation*

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Tractors/Loaders/Backhoe	1	84	40%	165	0
Aerial Lift	1	75	20%	165	0
Forklift	1	75	20%	190	0
Tractors/Loaders/Backhoe	1	84	40%	190	0
Welders	1	74	40%	215	0

Receptor: 5
R2

Results:
1-hour Leq: 72.5

Source for Ref. Noise Levels: FHWA RCNM, 2006

Project: Wilshire & Cloverdale

**Construction Phase: *Off-Site Water Main Improvements -
Excavation***

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Excavator	1	81	40%	40	0
Tractors/Loaders/Backhoe	1	84	40%	40	0
Rubber-Tired Loaders	1	79	40%	65	0
Water Truck	1	82	10%	65	0

Receptor: 4 **R2**

Results:
1-hour Leq: **84.2**

Source for Ref. Noise Levels: FHWA RCNM, 2006

Construction Phase: *Off-Site Water Main Improvements - Drainage*

Description	No. of Equip.	Reference	Acoustical Usage Factor	Distance to Receptor, ft	Estimated
		Noise Level at 50ft, Lmax			Noise Shielding, dBA
Excavator	1	81	40%	40	0
Tractors/Loaders/Backhoe	1	84	40%	40	0
Rubber-Tired Loaders	1	79	40%	65	0
Water Truck	1	82	10%	65	0

4

Results:

1-hour Leq:	84.2
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Source for Ref. Noise Levels: FHWA RCNM, 2006

Project: Wilshire & Cloverdale

Construction Phase: *Off-Site Water Main Improvements - Paving*

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Rollers	1	80	20%	40	0
Tractors/Loaders/Backhoe	1	84	40%	40	0
Paver	1	77	50%	65	0
Paving Equipment	1	77	50%	65	0

Receptor: 4 **R2**

Results: **1-hour Leq:** **83.4**

Source for Ref. Noise Levels: FHWA RCNM, 2006

Project: Wilshire & Cloverdale

Construction Phase: *Off-Site Fire Hydrant Installation*

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Rubber-Tired Loaders	1	79	40%	330	15
Water Truck	1	82	10%	330	15

Receptor: ² **R2**

Results:
1-hour Leq: 45.4

Source for Ref. Noise Levels: FHWA RCNM, 2006

Project: Wilshire & Cloverdale

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/Industrial Saws	1	90	20%	405	10
Excavators	1	81	40%	405	10
Air Compressor	1	78	40%	430	10
Water Truck	1	82	10%	430	10
Rubber-Tired Loaders	1	79	40%	455	10
Excavators	1	81	40%	455	10

6

Receptor: *R3*

Results:

1-hour Leq: 57.3

Source for Ref. Noise Levels: FHWA RCNM, 2006

Project: Wilshire & Cloverdale

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%	405	10
Excavator	1	81	40%	405	10
Cranes (mobile)	1	81	16%	430	10
Forklift	1	75	20%	430	10
Water Truck	1	82	10%	455	10
Pumps	1	81	20%	455	10
Rubber-Tired Dozer	1	82	40%	480	10
Rubber-Tired Loaders	1	79	40%	480	10
Welders	1	74	40%	505	10
Excavator	1	81	40%	505	10
Pumps	1	81	20%	530	10
Welders	1	74	40%	530	10
Pumps	1	81	20%	555	10
Pumps	1	81	20%	555	10

14

Receptor: R3

Results:

1-hour Leq: 56.8

Source for Ref. Noise Levels: FHWA RCNM, 2006

Project: Wilshire & Cloverdale

Construction Phase: *Mat Foundation*

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Pumps	1	81	20%	405	10
Cement and Mortar Mixer	1	80	50%	405	10
Plate Compactors	1	83	20%	430	10
Pumps	1	81	20%	430	10
Plate Compactors	1	83	20%	455	10
Cement and Mortar Mixer	1	80	50%	455	10
Pumps	1	81	20%	480	10
Plate Compactors	1	83	20%	480	10
Pumps	1	81	20%	505	10
Plate Compactors	1	83	20%	505	10
Pumps	1	81	20%	530	10
Plate Compactors	1	83	20%	530	10
Pumps	1	81	20%	555	10
Plate Compactors	1	83	20%	555	10

14

Receptor: *R3*

Results:

1-hour Leq: 57.5

Source for Ref. Noise Levels: FHWA RCNM, 2006

Project: Wilshire & Cloverdale

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
Concrete/Industrial Saws	1	90	20%	405	10
Cement and Mortar Mixer	1	80	50%	405	10
Cranes (tower)	1	81	16%	430	10
Pumps	1	81	20%	430	10
Forklifts	1	75	20%	455	10
Plate Compactors	1	83	20%	455	10
Welders	1	74	40%	480	10
Cement and Mortar Mixer	1	80	50%	480	10
Cranes (tower)	1	81	16%	505	10
Pumps	1	81	20%	505	10
Forklifts	1	75	20%	530	10
Plate Compactors	1	83	20%	530	10
Welders	1	74	40%	555	10
Plate Compactors	1	83	20%	555	10
Plate Compactors	1	83	20%	555	10

15

Receptor: R3

Results:

1-hour Leq: 58.6

Source for Ref. Noise Levels: FHWA RCNM, 2006

Project: Wilshire & Cloverdale

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
Concrete/Industrial Saws	1	90	20%	405	10
Air Compressor	1	78	40%	405	10
Cranes (Tower)	1	81	16%	430	10
Cement and Mortar Mixer	1	80	50%	430	10
Aerial Lifts	1	75	20%	455	10
Plate Compactors	1	83	20%	455	10
Skid Steer Loaders	1	79	40%	480	10
Pumps	1	81	20%	480	10
Forklifts	2	75	20%	505	10
Welders	2	74	40%	505	10
Air Compressor	3	78	40%	530	10
Cranes (Tower)	1	81	16%	530	10
Aerial Lifts	3	75	20%	555	10
Plate Compactors	3	83	20%	555	10
Pumps	1	81	20%	555	10

23

Receptor: R3

Results:

1-hour Leq: 59.1

Source for Ref. Noise Levels: FHWA RCNM, 2006

Project: Wilshire & Cloverdale

Construction Phase: *Paving/Landscape*

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Tractors/Loaders/Backhoe	1	84	40%	405	10
Cement and Mortar Mixer	1	80	50%	405	10
Paver	1	77	50%	430	10
Paving Equipment	1	77	50%	430	10
Plate Compactors	2	83	20%	455	10
Rollers	1	80	20%	455	10
Skid Steer Loaders	1	79	40%	480	10

8

Receptor: *R3*

Results:

1-hour Leq: 56.6

Source for Ref. Noise Levels: FHWA RCNM, 2006

Project: Wilshire & Cloverdale

Construction Phase: *Building Renovation*

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Tractors/Loaders/Backhoe	1	84	40%	405	10
Aerial Lift	1	75	20%	405	10
Forklift	1	75	20%	430	10
Tractors/Loaders/Backhoe	1	84	40%	430	10
Welders	1	74	40%	455	10

Receptor: 5
R3

Results:
1-hour Leq: 55.0

Source for Ref. Noise Levels: FHWA RCNM, 2006

Construction Phase: *Off-Site Water Main Improvements - Excavation*

Description	No. of Equip.	Reference	Acoustical Usage Factor	Distance to Receptor, ft	Estimated
		Noise Level at 50ft, Lmax			Noise Shielding, dBA
Excavator	1	81	40%	360	10
Tractors/Loaders/Backhoe	1	84	40%	360	10
Rubber-Tired Loaders	1	79	40%	385	10
Water Truck	1	82	10%	385	10

Results:

1-hour Leq:	55.7
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7/19/2024

Project: Wilshire & Cloverdale

Construction Phase: *Off-Site Water Main Improvements - Drainage*

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Excavator	1	81	40%	360	10
Tractors/Loaders/Backhoe	1	84	40%	360	10
Rubber-Tired Loaders	1	79	40%	385	10
Water Truck	1	82	10%	385	10

Receptor: 4 **R3**

Results: **1-hour Leq:** **55.7**

Source for Ref. Noise Levels: FHWA RCNM, 2006

Project: Wilshire & Cloverdale

Construction Phase: *Off-Site Water Main Improvements - Paving*

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Rollers	1	80	20%	360	10
Tractors/Loaders/Backhoe	1	84	40%	360	10
Paver	1	77	50%	385	10
Paving Equipment	1	77	50%	385	10

4

Receptor: **R3**

Results:

1-hour Leq: 55.0

Source for Ref. Noise Levels: FHWA RCNM, 2006

Project: Wilshire & Cloverdale

Construction Phase: *Off-Site Fire Hydrant Installation*

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Rubber-Tired Loaders	1	79	40%	545	10
Water Truck	1	82	10%	545	10

Receptor: ² **R3**

Results:
1-hour Leq: 46.0

Source for Ref. Noise Levels: FHWA RCNM, 2006

Project: Wilshire & Cloverdale

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/Industrial Saws	1	90	20%	235	15
Excavators	1	81	40%	235	15
Air Compressor	1	78	40%	260	15
Water Truck	1	82	10%	260	15
Rubber-Tired Loaders	1	79	40%	285	15
Excavators	1	81	40%	285	15

6

Receptor: *R4*

Results:

1-hour Leq: 56.9

Source for Ref. Noise Levels: FHWA RCNM, 2006

Project: Wilshire & Cloverdale

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	15
Excavator	1	81	40%	235	15
Cranes (mobile)	1	81	16%	260	15
Forklift	1	75	20%	260	15
Water Truck	1	82	10%	285	15
Pumps	1	81	20%	285	15
Rubber-Tired Dozer	1	82	40%	310	15
Rubber-Tired Loaders	1	79	40%	310	15
Welders	1	74	40%	335	15
Excavator	1	81	40%	335	15
Pumps	1	81	20%	360	15
Welders	1	74	40%	360	15
Pumps	1	81	20%	385	15
Pumps	1	81	20%	385	15

14

Receptor: R4

Results:

1-hour Leq: 55.8

Source for Ref. Noise Levels: FHWA RCNM, 2006

Project: Wilshire & Cloverdale

Construction Phase: *Mat Foundation*

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Pumps	1	81	20%	235	15
Cement and Mortar Mixer	1	80	50%	235	15
Plate Compactors	1	83	20%	260	15
Pumps	1	81	20%	260	15
Plate Compactors	1	83	20%	285	15
Cement and Mortar Mixer	1	80	50%	285	15
Pumps	1	81	20%	310	15
Plate Compactors	1	83	20%	310	15
Pumps	1	81	20%	335	15
Plate Compactors	1	83	20%	335	15
Pumps	1	81	20%	360	15
Plate Compactors	1	83	20%	360	15
Pumps	1	81	20%	385	15
Plate Compactors	1	83	20%	385	15

14

Receptor: *R4*

Results:

1-hour Leq: 56.5

Source for Ref. Noise Levels: FHWA RCNM, 2006

Project: Wilshire & Cloverdale

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
Concrete/Industrial Saws	1	90	20%	235	15
Cement and Mortar Mixer	1	80	50%	235	15
Cranes (tower)	1	81	16%	260	15
Pumps	1	81	20%	260	15
Forklifts	1	75	20%	285	15
Plate Compactors	1	83	20%	285	15
Welders	1	74	40%	310	15
Cement and Mortar Mixer	1	80	50%	310	15
Cranes (tower)	1	81	16%	335	15
Pumps	1	81	20%	335	15
Forklifts	1	75	20%	360	15
Plate Compactors	1	83	20%	360	15
Welders	1	74	40%	385	15
Plate Compactors	1	83	20%	385	15
Plate Compactors	1	83	20%	385	15

15

Receptor: *R4*

Results:

1-hour Leq: 57.9

Source for Ref. Noise Levels: FHWA RCNM, 2006

Project: Wilshire & Cloverdale

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
Concrete/Industrial Saws	1	90	20%	235	15
Air Compressor	1	78	40%	235	15
Cranes (Tower)	1	81	16%	260	15
Cement and Mortar Mixer	1	80	50%	260	15
Aerial Lifts	1	75	20%	285	15
Plate Compactors	1	83	20%	285	15
Skid Steer Loaders	1	79	40%	310	15
Pumps	1	81	20%	310	15
Forklifts	2	75	20%	335	15
Welders	2	74	40%	335	15
Air Compressor	3	78	40%	360	15
Cranes (Tower)	1	81	16%	360	15
Aerial Lifts	3	75	20%	385	15
Plate Compactors	3	83	20%	385	15
Pumps	1	81	20%	385	15

23

Receptor: *R4*

Results:

1-hour Leq: 58.2

Source for Ref. Noise Levels: FHWA RCNM, 2006

Project: Wilshire & Cloverdale

Construction Phase: *Paving/Landscape*

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Tractors/Loaders/Backhoe	1	84	40%	235	15
Cement and Mortar Mixer	1	80	50%	235	15
Paver	1	77	50%	260	15
Paving Equipment	1	77	50%	260	15
Plate Compactors	2	83	20%	285	15
Rollers	1	80	20%	285	15
Skid Steer Loaders	1	79	40%	310	15

8

Receptor: *R4*

Results:

1-hour Leq: 56.0

Source for Ref. Noise Levels: FHWA RCNM, 2006

Project: Wilshire & Cloverdale

Construction Phase: *Building Renovation*

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Tractors/Loaders/Backhoe	1	84	40%	105	0
Aerial Lift	1	75	20%	105	0
Forklift	1	75	20%	130	0
Tractors/Loaders/Backhoe	1	84	40%	130	0
Welders	1	74	40%	155	0

Receptor: 5
R4

Results:
1-hour Leq: 76.1

Source for Ref. Noise Levels: FHWA RCNM, 2006

Construction Phase: *Off-Site Water Main Improvements - Excavation*

Description	No. of Equip.	Reference	Acoustical Usage Factor	Distance to Receptor, ft	Estimated
		Noise Level at 50ft, Lmax			Noise Shielding, dBA
Excavator	1	81	40%	50	0
Tractors/Loaders/Backhoe	1	84	40%	50	0
Rubber-Tired Loaders	1	79	40%	75	0
Water Truck	1	82	10%	75	0

4

Results:

1-hour Leq:	82.4
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Source for Ref. Noise Levels: FHWA RCNM, 2006

Construction Phase: *Off-Site Water Main Improvements - Drainage*

Description	No. of Equip.	Reference	Acoustical Usage Factor	Distance to Receptor, ft	Estimated
		Noise Level at 50ft, Lmax			Noise Shielding, dBA
Excavator	1	81	40%	50	0
Tractors/Loaders/Backhoe	1	84	40%	50	0
Rubber-Tired Loaders	1	79	40%	75	0
Water Truck	1	82	10%	75	0

4

Results:

1-hour Leq:	82.4
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Source for Ref. Noise Levels: FHWA RCNM, 2006

Project: Wilshire & Cloverdale

Construction Phase: *Off-Site Water Main Improvements - Paving*

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Rollers	1	80	20%	50	0
Tractors/Loaders/Backhoe	1	84	40%	50	0
Paver	1	77	50%	75	0
Paving Equipment	1	77	50%	75	0

Receptor: 4 ***R4***

Results:
1-hour Leq: **81.5**

Source for Ref. Noise Levels: FHWA RCNM, 2006

Project: Wilshire & Cloverdale

Construction Phase: *Off-Site Fire Hydrant Installation*

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Rubber-Tired Loaders	1	79	40%	110	0
Water Truck	1	82	10%	110	0

Receptor: ² ***R4***

Results:
1-hour Leq: 69.9

Source for Ref. Noise Levels: FHWA RCNM, 2006

Project: Wilshire & Cloverdale

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/Industrial Saws	1	90	20%	400	10
Excavators	1	81	40%	400	10
Air Compressor	1	78	40%	425	10
Water Truck	1	82	10%	425	10
Rubber-Tired Loaders	1	79	40%	450	10
Excavators	1	81	40%	450	10

6

Receptor: *R5*

Results:

1-hour Leq: 57.4

Source for Ref. Noise Levels: FHWA RCNM, 2006

Project: Wilshire & Cloverdale

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%	400	10
Excavator	1	81	40%	400	10
Cranes (mobile)	1	81	16%	425	10
Forklift	1	75	20%	425	10
Water Truck	1	82	10%	450	10
Pumps	1	81	20%	450	10
Rubber-Tired Dozer	1	82	40%	475	10
Rubber-Tired Loaders	1	79	40%	475	10
Welders	1	74	40%	500	10
Excavator	1	81	40%	500	10
Pumps	1	81	20%	525	10
Welders	1	74	40%	525	10
Pumps	1	81	20%	550	10
Pumps	1	81	20%	550	10

14

Receptor: *R5*

Results:

1-hour Leq: 56.8

Source for Ref. Noise Levels: FHWA RCNM, 2006

Project: Wilshire & Cloverdale

Construction Phase: *Mat Foundation*

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Pumps	1	81	20%	400	10
Cement and Mortar Mixer	1	80	50%	400	10
Plate Compactors	1	83	20%	425	10
Pumps	1	81	20%	425	10
Plate Compactors	1	83	20%	450	10
Cement and Mortar Mixer	1	80	50%	450	10
Pumps	1	81	20%	475	10
Plate Compactors	1	83	20%	475	10
Pumps	1	81	20%	500	10
Plate Compactors	1	83	20%	500	10
Pumps	1	81	20%	525	10
Plate Compactors	1	83	20%	525	10
Pumps	1	81	20%	550	10
Plate Compactors	1	83	20%	550	10

14

Receptor: *R5*

Results:

1-hour Leq: 57.5

Source for Ref. Noise Levels: FHWA RCNM, 2006

Project: Wilshire & Cloverdale

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
Concrete/Industrial Saws	1	90	20%	400	10
Cement and Mortar Mixer	1	80	50%	400	10
Cranes (tower)	1	81	16%	425	10
Pumps	1	81	20%	425	10
Forklifts	1	75	20%	450	10
Plate Compactors	1	83	20%	450	10
Welders	1	74	40%	475	10
Cement and Mortar Mixer	1	80	50%	475	10
Cranes (tower)	1	81	16%	500	10
Pumps	1	81	20%	500	10
Forklifts	1	75	20%	525	10
Plate Compactors	1	83	20%	525	10
Welders	1	74	40%	550	10
Plate Compactors	1	83	20%	550	10
Plate Compactors	1	83	20%	550	10

15

Receptor: *R5*

Results:

1-hour Leq: 58.7

Source for Ref. Noise Levels: FHWA RCNM, 2006

Project: Wilshire & Cloverdale

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
Concrete/Industrial Saws	1	90	20%	400	10
Air Compressor	1	78	40%	400	10
Cranes (Tower)	1	81	16%	425	10
Cement and Mortar Mixer	1	80	50%	425	10
Aerial Lifts	1	75	20%	450	10
Plate Compactors	1	83	20%	450	10
Skid Steer Loaders	1	79	40%	475	10
Pumps	1	81	20%	475	10
Forklifts	2	75	20%	500	10
Welders	2	74	40%	500	10
Air Compressor	3	78	40%	525	10
Cranes (Tower)	1	81	16%	525	10
Aerial Lifts	3	75	20%	550	10
Plate Compactors	3	83	20%	550	10
Pumps	1	81	20%	550	10

23

Receptor: *R5*

Results:

1-hour Leq: 59.2

Source for Ref. Noise Levels: FHWA RCNM, 2006

Project: Wilshire & Cloverdale

Construction Phase: *Paving/Landscape*

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Tractors/Loaders/Backhoe	1	84	40%	400	10
Cement and Mortar Mixer	1	80	50%	400	10
Paver	1	77	50%	425	10
Paving Equipment	1	77	50%	425	10
Plate Compactors	2	83	20%	450	10
Rollers	1	80	20%	450	10
Skid Steer Loaders	1	79	40%	475	10

8

Receptor: *R5*

Results:

1-hour Leq: 56.7

Source for Ref. Noise Levels: FHWA RCNM, 2006

Project: Wilshire & Cloverdale

Construction Phase: *Building Renovation*

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Tractors/Loaders/Backhoe	1	84	40%	345	0
Aerial Lift	1	75	20%	345	0
Forklift	1	75	20%	370	0
Tractors/Loaders/Backhoe	1	84	40%	370	0
Welders	1	74	40%	395	0

Receptor: 5
R5

Results:
1-hour Leq: 66.4

Source for Ref. Noise Levels: FHWA RCNM, 2006

Project: Wilshire & Cloverdale

**Construction Phase: *Off-Site Water Main Improvements -
Excavation***

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Excavator	1	81	40%	440	10
Tractors/Loaders/Backhoe	1	84	40%	440	10
Rubber-Tired Loaders	1	79	40%	465	10
Water Truck	1	82	10%	465	10

Receptor: 4 **R5**

Results:
1-hour Leq: 54.0

Source for Ref. Noise Levels: FHWA RCNM, 2006

Project: Wilshire & Cloverdale

Construction Phase: *Off-Site Water Main Improvements - Drainage*

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Excavator	1	81	40%	440	10
Tractors/Loaders/Backhoe	1	84	40%	440	10
Rubber-Tired Loaders	1	79	40%	465	10
Water Truck	1	82	10%	465	10

Receptor: 4 **R5**

Results:
1-hour Leq: 54.0

Source for Ref. Noise Levels: FHWA RCNM, 2006

Project: Wilshire & Cloverdale

Construction Phase: *Off-Site Water Main Improvements - Paving*

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Rollers	1	80	20%	440	10
Tractors/Loaders/Backhoe	1	84	40%	440	10
Paver	1	77	50%	465	10
Paving Equipment	1	77	50%	465	10

4

Receptor: **R5**

Results:

1-hour Leq: 53.3

Source for Ref. Noise Levels: FHWA RCNM, 2006

Project: Wilshire & Cloverdale

Construction Phase: *Off-Site Fire Hydrant Installation*

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Rubber-Tired Loaders	1	79	40%	360	5
Water Truck	1	82	10%	360	5

Receptor: ² **R5**

Results:
1-hour Leq: 54.6

Source for Ref. Noise Levels: FHWA RCNM, 2006

Construction Phase: *Demolition*

Description	No. of Equip.	Reference	Acoustical Usage Factor	Distance to Receptor, ft	Estimated
		Noise Level at 50ft, Lmax			Noise Shielding, dBA
Concrete/Industrial Saws	1	90	20%	410	0
Excavators	1	81	40%	410	0
Air Compressor	1	78	40%	435	0
Water Truck	1	82	10%	435	0
Rubber-Tired Loaders	1	79	40%	460	0
Excavators	1	81	40%	460	0

Receptor: *R6*

Results:

1-hour Leq:	67.2
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Source for Ref. Noise Levels: FHWA RCNM, 2006

Project: Wilshire & Cloverdale

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%	410	0
Excavator	1	81	40%	410	0
Cranes (mobile)	1	81	16%	435	0
Forklift	1	75	20%	435	0
Water Truck	1	82	10%	460	0
Pumps	1	81	20%	460	0
Rubber-Tired Dozer	1	82	40%	485	0
Rubber-Tired Loaders	1	79	40%	485	0
Welders	1	74	40%	510	0
Excavator	1	81	40%	510	0
Pumps	1	81	20%	535	0
Welders	1	74	40%	535	0
Pumps	1	81	20%	560	0
Pumps	1	81	20%	560	0

14

Receptor: R6

Results:

1-hour Leq: 66.7

Source for Ref. Noise Levels: FHWA RCNM, 2006

Project: Wilshire & Cloverdale

Construction Phase: *Mat Foundation*

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Pumps	1	81	20%	410	0
Cement and Mortar Mixer	1	80	50%	410	0
Plate Compactors	1	83	20%	435	0
Pumps	1	81	20%	435	0
Plate Compactors	1	83	20%	460	0
Cement and Mortar Mixer	1	80	50%	460	0
Pumps	1	81	20%	485	0
Plate Compactors	1	83	20%	485	0
Pumps	1	81	20%	510	0
Plate Compactors	1	83	20%	510	0
Pumps	1	81	20%	535	0
Plate Compactors	1	83	20%	535	0
Pumps	1	81	20%	560	0
Plate Compactors	1	83	20%	560	0

14

Receptor: *R6*

Results:

1-hour Leq: 67.4

Source for Ref. Noise Levels: FHWA RCNM, 2006

Project: Wilshire & Cloverdale

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
Concrete/Industrial Saws	1	90	20%	410	0
Cement and Mortar Mixer	1	80	50%	410	0
Cranes (tower)	1	81	16%	435	0
Pumps	1	81	20%	435	0
Forklifts	1	75	20%	460	0
Plate Compactors	1	83	20%	460	0
Welders	1	74	40%	485	0
Cement and Mortar Mixer	1	80	50%	485	0
Cranes (tower)	1	81	16%	510	0
Pumps	1	81	20%	510	0
Forklifts	1	75	20%	535	0
Plate Compactors	1	83	20%	535	0
Welders	1	74	40%	560	0
Plate Compactors	1	83	20%	560	0
Plate Compactors	1	83	20%	560	0

15

Receptor: *R6*

Results:

1-hour Leq: 68.5

Source for Ref. Noise Levels: FHWA RCNM, 2006

Project: Wilshire & Cloverdale

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
Concrete/Industrial Saws	1	90	20%	410	0
Air Compressor	1	78	40%	410	0
Cranes (Tower)	1	81	16%	435	0
Cement and Mortar Mixer	1	80	50%	435	0
Aerial Lifts	1	75	20%	460	0
Plate Compactors	1	83	20%	460	0
Skid Steer Loaders	1	79	40%	485	0
Pumps	1	81	20%	485	0
Forklifts	2	75	20%	510	0
Welders	2	74	40%	510	0
Air Compressor	3	78	40%	535	0
Cranes (Tower)	1	81	16%	535	0
Aerial Lifts	3	75	20%	560	0
Plate Compactors	3	83	20%	560	0
Pumps	1	81	20%	560	0

23

Receptor: *R6*

Results:

1-hour Leq: 69.0

Source for Ref. Noise Levels: FHWA RCNM, 2006

Project: Wilshire & Cloverdale

Construction Phase: *Paving/Landscape*

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Tractors/Loaders/Backhoe	1	84	40%	410	0
Cement and Mortar Mixer	1	80	50%	410	0
Paver	1	77	50%	435	0
Paving Equipment	1	77	50%	435	0
Plate Compactors	2	83	20%	460	0
Rollers	1	80	20%	460	0
Skid Steer Loaders	1	79	40%	485	0

8

Receptor: *R6*

Results:

1-hour Leq: 66.5

Source for Ref. Noise Levels: FHWA RCNM, 2006

Project: Wilshire & Cloverdale

Construction Phase: *Building Renovation*

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Tractors/Loaders/Backhoe	1	84	40%	510	0
Aerial Lift	1	75	20%	510	0
Forklift	1	75	20%	535	0
Tractors/Loaders/Backhoe	1	84	40%	535	0
Welders	1	74	40%	560	0

Receptor: 5
R6

Results:
1-hour Leq: 63.1

Source for Ref. Noise Levels: FHWA RCNM, 2006

Project: Wilshire & Cloverdale

Construction Phase: *Off-Site Water Main Improvements - Excavation*

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Excavator	1	81	40%	600	10
Tractors/Loaders/Backhoe	1	84	40%	600	10
Rubber-Tired Loaders	1	79	40%	625	10
Water Truck	1	82	10%	625	10

Receptor: 4 **R6**

Results:
1-hour Leq: **51.3**

Source for Ref. Noise Levels: FHWA RCNM, 2006

Project: Wilshire & Cloverdale

Construction Phase: *Off-Site Water Main Improvements - Drainage*

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Excavator	1	81	40%	600	10
Tractors/Loaders/Backhoe	1	84	40%	600	10
Rubber-Tired Loaders	1	79	40%	625	10
Water Truck	1	82	10%	625	10

Receptor: 4 **R6**

Results:
1-hour Leq: **51.3**

Source for Ref. Noise Levels: FHWA RCNM, 2006

Project: Wilshire & Cloverdale

Construction Phase: *Off-Site Water Main Improvements - Paving*

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Rollers	1	80	20%	600	10
Tractors/Loaders/Backhoe	1	84	40%	600	10
Paver	1	77	50%	625	10
Paving Equipment	1	77	50%	625	10

4

Receptor: ***R6***

Results:

1-hour Leq: 50.6

Source for Ref. Noise Levels: FHWA RCNM, 2006

Project: Wilshire & Cloverdale

Construction Phase: *Off-Site Fire Hydrant Installation*

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Rubber-Tired Loaders	1	79	40%	345	10
Water Truck	1	82	10%	345	10

Receptor: ² **R6**

Results:
1-hour Leq: 50.0

Source for Ref. Noise Levels: FHWA RCNM, 2006

Project: Wilshire & Cloverdale

Off-Site Haul Trucks

Phase	Maximum Number of Truck One Way Trips (delivery/haul)		Estimated Noise Levels, dBA Leq	
	Per Day	Per Hour (8-hr day)	Wilshire (2-way)	Western (2-way)
TNM noise level for 1 trucks		1	49.0	50.1
1. Demolition	40	7	57.5	58.6
2. Grading/Excavation	260	44	65.4	66.5
3. Mat Foundation	1200	50	66.0	67.1
4. Building Foundation	200	25	63.0	64.1
5. Building Construction	30	4	55.0	56.1
6. Paving/Landscape	30	4	55.0	56.1
7. Building Renovation	30	4	55.0	56.1
8. Off-Site Improvements	12	2	52.0	53.1
<u>Overlapping Construction</u>				
9. Demo + Renovation	70	11	59.4	60.5
10. Grading + Renovation	290	48	65.8	66.9
* 8-hours for delivery trucks		Ambient, daytime	65.5	69.5
** 6-hours for haul trucks (grading)		Ambient + 5 dB	70.5	74.5
*** 24-hours for mat foundation				

	Construction + Ambient, dBA Leq	
	Wilshire (2-way)	Western (2-way)
1. Demolition	66.1	69.8
2. Grading/Excavation	68.5	71.3
3. Mat Foundation	68.8	71.5
4. Building Foundation	67.4	70.6
5. Building Construction	65.9	69.7
6. Paving/Landscape	65.9	69.7
7. Building Renovation	65.9	69.7
8. Off-Site Improvements	65.7	69.6
<u>Overlapping Construction</u>		
9. Demo + Renovation	66.5	70.0
10. Grading + Renovation	68.7	71.4

	Noise Exceedance, daytime, dBA Leq	
	Wilshire (2-way)	Western (2-way)
1. Demolition	0.0	0.0
2. Grading/Excavation	0.0	0.0
3. Mat Foundation	0.0	0.0
4. Building Foundation	0.0	0.0
5. Building Construction	0.0	0.0
6. Paving/Landscape	0.0	0.0
7. Building Renovation	0.0	0.0
8. Off-Site Improvements	0.0	0.0
<u>Overlapping Construction</u>		
9. Demo + Renovation	0.0	0.0
10. Grading + Renovation	0.0	0.0
Max Exceedance	0.0	0.0
Ambient, nighttime	63.2	67.0
Ambient + 5 dB	68.2	72.0

Nighttime Concrete Pour for Mat Foundation	Construction + Ambient, dBA Leq	
	Wilshire (2-way)	Western (2-way)
3. Mat Foundation	67.8	70.1

Project: Wilshire & Cloverdale

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

Equipment	Reference Vibration Levels at 25 ft., PPV	Estimated Vibration Levels at nearest off-site building structures (at noted distance in feet), PPV							
		Miracle Mile Historic District	The Dark Room (Historic)	Air Raid Siren No. 37 (Historic)	Ridgeley Drive-Detroit Street MF Historic District	Avenue-Cloverdale Avenue Res. Historic District	South Detroit Street MF Historic District	MF Residential Building to the South	Commercial Buildings to the North
		5	5	130	285	75	65	10	115
Large Bulldozer	0.089	0.523	0.523	0.008	0.002	0.017	0.021	0.244	0.009
Caisson Drilling	0.089	0.523	0.523	0.008	0.002	0.017	0.021	0.244	0.009
Loaded Trucks	0.076	0.446	0.446	0.006	0.002	0.015	0.018	0.208	0.008
Jackhammer	0.035	0.206	0.206	0.003	0.001	0.007	0.008	0.096	0.004
Small bulldozer	0.003	0.018	0.018	0.000	0.000	0.001	0.001	0.008	0.000
Significance Threshold, PPV		0.2	0.2	0.12	0.12	0.12	0.12	0.5	0.5

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

Equipment	Reference Vibration Levels at 25 ft., PPV	Estimated Vibration Levels at nearest off-site building structures (at noted distance in feet), PPV							
		Commercial Building to the East	Commercial Building to the West						
		70	50						
Large Bulldozer	0.089	0.019	0.032						
Caisson Drilling	0.089	0.019	0.032						
Loaded Trucks	0.076	0.016	0.027						
Jackhammer	0.035	0.008	0.012						
Small bulldozer	0.003	0.001	0.001						
Significance Threshold, PPV		0.5	0.5						

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 noted distance in feet), VdB							
		R1	R2	R3	R4	R5	R6		
		10	65	405	235	400	410		
Large Bulldozer	87	98.9	74.6	50.7	57.8	50.9	50.6		
Caisson Drilling	87	98.9	74.6	50.7	57.8	50.9	50.6		
Loaded Trucks	86	97.9	73.6	49.7	56.8	49.9	49.6		
Jackhammer	79	90.9	66.6	42.7	49.8	42.9	42.6		
Small bulldozer	58	69.9	45.6	21.7	28.8	21.9	21.6		
Significance Threshold, VdB		72	72	72	72	72	72		

Project: Wilshire & Cloverdale

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)

OFF-SITE CONSTRUCTION ACTIVITIES

Table 1a: 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							
		Miracle Mile Historic District	The Dark Room (Historic)	Air Raid Siren No. 37 (Historic)	Ridgeley Drive-Detroit Street MF Historic District	Avenue-Cloverdale Avenue Res. Historic District	South Detroit Street MF Historic District	Residential Building to the South	Commercial Buildings to the North
		30	170	50	275	180	40	40	60
Vibratory Roller	0.210	0.160	0.012	0.074	0.006	0.011	0.104	0.104	0.057
Large Bulldozer	0.089	0.068	0.005	0.032	0.002	0.005	0.044	0.044	0.024
Caisson Drilling	0.089	0.068	0.005	0.032	0.002	0.005	0.044	0.044	0.024
Loaded Trucks	0.076	0.058	0.004	0.027	0.002	0.004	0.038	0.038	0.020
Jackhammer	0.035	0.027	0.002	0.012	0.001	0.002	0.017	0.017	0.009
Small bulldozer	0.003	0.002	0.000	0.001	0.000	0.000	0.002	0.002	0.001
Significance Threshold, PPV		0.12	0.12	0.12	0.12	0.12	0.12	0.3	0.5

Table 1b: 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							
		Commercial Building to the East	Residential Building to the West						
		40	40						
Vibratory Roller	0.210	0.104	0.104						
Large Bulldozer	0.089	0.044	0.044						
Caisson Drilling	0.089	0.044	0.044						
Loaded Trucks	0.076	0.038	0.038						
Jackhammer	0.035	0.017	0.017						
Small bulldozer	0.003	0.002	0.002						
Significance Threshold, PPV		0.5	0.3						

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		
		40	40	360	50	440	600		
Vibratory Roller	94	87.9	87.9	59.2	85.0	56.6	52.6		
Large Bulldozer	87	80.9	80.9	52.2	78.0	49.6	45.6		
Caisson Drilling	87	80.9	80.9	52.2	78.0	49.6	45.6		
Loaded Trucks	86	79.9	79.9	51.2	77.0	48.6	44.6		
Jackhammer	79	72.9	72.9	44.2	70.0	41.6	37.6		
Small bulldozer	58	51.9	51.9	23.2	49.0	20.6	16.6		
Significance Threshold, VdB		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: Wilshire and Cloverdale Project

Receptor	Ambient	Traffic ^a	Mechanical	Outdoor	Parking	Loading & Trash Compactor		Project Composite	Ambient + Project	Increase
R1	58.3	44.7	38.7	53.9	59.3	49.7		60.9	62.8	4.5
R2	56.7	50.8	38.7	48.4	45.9	33.1		53.7	58.5	1.8
R3	72.3	45.5	43.2	45.8	38.8	23.9		50.1	72.3	0.0
R4	68.4	51.7	38.2	60.6	45.4	30.2		61.2	69.2	0.8
R5	59.1	42.8	34.7	48.9	37.9	27.4		50.2	59.6	0.5
R6	57.5	40.1	33.9	43.4	40.1	27.8		46.6	57.8	0.3

^a - Project traffic noise levels at each receptor is based on the traffic noise analysis for the roadway segment in front of the receptor, adjusted for distance and barrier (if present), as provided in the table below.

Receptor	Roadway Segment	Traffic Noise Levels, CNEL			distance to roadway, ft	Existing	Existing + Project	barrier	distance to Center Line	adj. for distance
		Existing	Existing + Project	Project Only						
R1	Cloverdale	51.1	52.0	44.7	130	58.7	59.6	0	25	-7.6
R2	Detroit	56.2	57.3	50.8	10	56.2	57.3	0	25	0.0
R3	Wilshire	61.9	62.0	45.5	150	68.0	68.1	0	45	-6.1
R4	Wilshire	68.0	68.1	51.7	10	68.0	68.1	0	45	0.0
R5	Cloverdale	59.1	59.2	42.8	10	59.1	59.2	0	25	0.0
R6	Wilshire	56.4	56.5	40.1	360	68.2	68.3	0	25	-11.8

Outdoor Mechanical Equipment Noise Calculations

Project: Wilshire and Cloverdale Project

Hours of Operations

Estimated Noise Levels, Leq from SOUNDPLAN			Ld (7am to 7pm)	Le (7pm to 10pm)	Ln (10pm to 7am)
Receptor	Leq	CNEL	12	3	9
R1	32.0	38.7	32.0	32.0	32.0
R2	32.0	38.7	32.0	32.0	32.0
R3	36.5	43.2	36.5	36.5	36.5
R4	31.5	38.2	31.5	31.5	31.5
R5	28.0	34.7	28.0	28.0	28.0
R6	27.2	33.9	27.2	27.2	27.2

Receptor	Ambient CNEL	Ambient + Project (CNEL)	Increase (CNEL)	ambient (Leq)	Ambient + Project (Leq)	Increase (Leq)
R1	58.3	58.3	0.0	50.3	50.4	0.1
R2	56.7	56.8	0.1	50.0	50.1	0.1
R3	72.3	72.3	0.0	67.0	67.0	0.0
R4	68.4	68.4	0.0	63.2	63.2	0.0
R5	59.1	59.1	0.0	52.0	52.0	0.0
R6	57.5	57.5	0.0	48.7	48.7	0.0

For Report

Receptor	ambient (Leq)	Project (Leq)	Ambient + Project (Leq)	Increase (Leq)	Threshold
R1	50.3	32.0	50.4	0.1	55.3
R2	50.0	32.0	50.1	0.1	55.0
R3	67.0	36.5	67.0	0.0	72.0
R4	63.2	31.5	63.2	0.0	68.2
R5	52.0	28.0	52.0	0.0	57.0
R6	48.7	27.2	48.7	0.0	53.7

Loading & Trash Compactor Noise Calculations

Project: Wilshire and Cloverdale Project

Hours of Operations					
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	52.5	49.7	46.5	52.5	0.0
R2	35.9	33.1	29.9	35.9	0.0
R3	26.7	23.9	20.7	26.7	0.0
R4	33.0	30.2	27.0	33.0	0.0
R5	30.2	27.4	24.2	30.2	0.0
R6	30.6	27.8	24.6	30.6	0.0

Receptor	Ambient CNEL	Ambient + Project (CNEL)	Increase (CNEL)	ambient (Leq)	Ambient + Project (Leq)	Increase (Leq)
R1	58.3	58.9	0.6	55.0	56.9	1.9
R2	56.7	56.7	0.0	56.2	56.2	0.0
R3	72.3	72.3	0.0	69.5	69.5	0.0
R4	68.4	68.4	0.0	65.5	65.5	0.0
R5	59.1	59.1	0.0	58.9	58.9	0.0
R6	57.5	57.5	0.0	58.4	58.4	0.0

For Report

Receptor	ambient (Leq)	Project (Leq)	Ambient + Project (Leq)	Increase (Leq)	Threshold
R1	55.0	52.5	56.9	1.9	60.0
R2	56.2	35.9	56.2	0.0	61.2
R3	69.5	26.7	69.5	0.0	74.5
R4	65.5	33.0	65.5	0.0	70.5
R5	58.9	30.2	58.9	0.0	63.9
R6	58.4	30.6	58.4	0.0	63.4

Parking Noise Calculations

Project: Wilshire and Cloverdale Project

Hours of Operations					
Estimated Noise Levels, Leq from SOUNDPLAN			Ld (7am to 7pm)	Le (7pm to 10pm)	Ln (10pm to 7am)
Receptor	Leq	CNEL	12	3	9
R1	52.6	59.3	52.6	52.6	52.6
R2	39.2	45.9	39.2	39.2	39.2
R3	32.1	38.8	32.1	32.1	32.1
R4	38.7	45.4	38.7	38.7	38.7
R5	31.2	37.9	31.2	31.2	31.2
R6	33.4	40.1	33.4	33.4	33.4

Receptor	Ambient CNEL	Ambient + Project (CNEL)	Increase (CNEL)	ambient (Leq)	Ambient + Project (Leq)	Increase (Leq)
R1	58.3	61.8	3.5	50.3	54.6	4.3
R2	56.7	57.0	0.3	50.0	50.3	0.3
R3	72.3	72.3	0.0	67.0	67.0	0.0
R4	68.4	68.4	0.0	63.2	63.2	0.0
R5	59.1	59.1	0.0	52.0	52.0	0.0
R6	57.5	57.6	0.1	48.7	48.8	0.1

For Report

Receptor	ambient (Leq)	Project (Leq)	Ambient + Project (Leq)	Increase (Leq)	Threshold
R1	50.3	52.6	54.6	4.3	55.3
R2	50.0	39.2	50.3	0.3	55.0
R3	67.0	32.1	67.0	0.0	72.0
R4	63.2	38.7	63.2	0.0	68.2
R5	52.0	31.2	52.0	0.0	57.0
R6	48.7	33.4	48.8	0.1	53.7

Outdoor Noise Calculations

Project: Wilshire and Cloverdale Project

					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	2
R1	51.5		51.5	53.9	51.5	51.5	45.0
R2	46.0		46.0	48.4	46.0	46.0	39.5
R3	43.4		43.4	45.8	43.4	43.4	36.9
R4	58.2		58.2	60.6	58.2	58.2	51.7
R5	46.5		46.5	48.9	46.5	46.5	40.0
R6	41.0		41.0	43.4	41.0	41.0	34.5

Receptor	Ambient CNEL	Ambient + Project (CNEL)	Increase (CNEL)	ambient (Leq)	Project (Leq)	Ambient + Project (Leq)	Increase (Leq)
R1	58.3	59.6	1.3	50.3	51.5	54.0	3.7
R2	56.7	57.3	0.6	50.0	46.0	51.5	1.5
R3	72.3	72.3	0.0	67.0	43.4	67.0	0.0
R4	68.4	69.1	0.7	63.2	58.2	64.4	1.2
R5	59.1	59.5	0.4	52.0	46.5	53.1	1.1
R6	57.5	57.7	0.2	48.7	41.0	49.4	0.7

For Report

Receptor	ambient (Leq)	Project (Leq)	Ambient + Project (Leq)	Increase (Leq)	Threshold
R1	50.3	51.5	54.0	3.7	55.3
R2	50.0	46.0	51.5	1.5	55.0
R3	67.0	43.4	67.0	0.0	72.0
R4	63.2	58.2	64.4	1.2	68.2
R5	52.0	46.5	53.1	1.1	57.0
R6	48.7	41.0	49.4	0.7	53.7

Wilshire Cloverdale
Source Levels in dB(A) - 01 Mechanical

Name	Source type	Lw dB(A)	
Mechanical	Point	100.0	
Mechanical	Point	100.0	
Mechanical	Point	100.0	
Mechanical	Point	100.0	

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Wilshire Cloverdale

Calculated Noise Levels - 01 Mechanical

Source	Source type	Leq,d dB(A)	
Receiver R1 FI GF Leq,d 30.5 dB(A)			
Mechanical	Point	23.0	
Mechanical	Point	23.0	
Mechanical	Point	25.5	
Mechanical	Point	25.5	
Receiver R1 FI 1.FL Leq,d 32.0 dB(A)			
Mechanical	Point	25.6	
Mechanical	Point	23.1	
Mechanical	Point	28.1	
Mechanical	Point	25.6	
Receiver R2 FI GF Leq,d 32.0 dB(A)			
Mechanical	Point	26.3	
Mechanical	Point	26.8	
Mechanical	Point	25.3	
Mechanical	Point	25.3	
Receiver R3 FI GF Leq,d 36.5 dB(A)			
Mechanical	Point	31.1	
Mechanical	Point	31.0	
Mechanical	Point	29.9	
Mechanical	Point	29.9	
Receiver R4 FI GF Leq,d 31.3 dB(A)			
Mechanical	Point	24.5	
Mechanical	Point	25.9	
Mechanical	Point	23.8	
Mechanical	Point	26.6	
Receiver R4 FI 1.FL Leq,d 31.5 dB(A)			
Mechanical	Point	24.7	
Mechanical	Point	26.0	
Mechanical	Point	24.0	
Mechanical	Point	26.8	
Receiver R5 FI GF Leq,d 28.0 dB(A)			
Mechanical	Point	21.7	
Mechanical	Point	23.4	
Mechanical	Point	21.4	
Mechanical	Point	21.2	
Receiver R6 FI GF Leq,d 27.2 dB(A)			
Mechanical	Point	22.8	
Mechanical	Point	21.0	
Mechanical	Point	20.6	
Mechanical	Point	19.9	

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Wilshire Cloverdale
Source Levels in dB(A) - 02 Loading Dock and Trash Compactor

Name	Source type	Lw dB(A)	
Loading	Point	101.9	
Trash Compactor	Point	67.7	

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Wilshire Cloverdale

Calculated Noise Levels - 02 Loading Dock and Trash Compactor

Source	Source type	Leq,d dB(A)	
Receiver R1 FI GF Leq,d 52.5 dB(A)			
Loading	Point	52.5	
Trash Compactor	Point	32.6	
Receiver R1 FI 1.FL Leq,d 45.1 dB(A)			
Loading	Point	45.1	
Trash Compactor	Point	13.3	
Receiver R2 FI GF Leq,d 35.9 dB(A)			
Loading	Point	35.9	
Trash Compactor	Point	14.7	
Receiver R3 FI GF Leq,d 26.7 dB(A)			
Loading	Point	26.7	
Trash Compactor	Point	-9.8	
Receiver R4 FI GF Leq,d 30.9 dB(A)			
Loading	Point	30.9	
Trash Compactor	Point	-6.7	
Receiver R4 FI 1.FL Leq,d 33.0 dB(A)			
Loading	Point	33.0	
Trash Compactor	Point	-6.8	
Receiver R5 FI GF Leq,d 30.2 dB(A)			
Loading	Point	30.2	
Trash Compactor	Point	-10.1	
Receiver R6 FI GF Leq,d 30.6 dB(A)			
Loading	Point	30.6	
Trash Compactor	Point	1.6	

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Wilshire Cloverdale
Input data parking lots - 03 Parking

Parking lot	Number of Parking Spaces	
Parking Level 1	18	
Parking Level 2	19	
Parking Level 3	41	
Parking Level 4	59	
Parking Level 5	60	

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Wilshire Cloverdale

Calculated Noise Levels - 03 Parking

Source	Source type	Leq,d dB(A)	
Receiver R1 FI GF Leq,d 47.7 dB(A)			
Parking Level 1	PLot	45.9	
Parking Level 2	PLot	39.6	
Parking Level 3	PLot	36.4	
Parking Level 4	PLot	35.9	
Parking Level 5	PLot	34.2	
Receiver R1 FI 1.FL Leq,d 52.6 dB(A)			
Parking Level 1	PLot	36.7	
Parking Level 2	PLot	36.3	
Parking Level 3	PLot	45.9	
Parking Level 4	PLot	50.5	
Parking Level 5	PLot	43.0	
Receiver R2 FI GF Leq,d 39.2 dB(A)			
Parking Level 1	PLot	33.6	
Parking Level 2	PLot	28.2	
Parking Level 3	PLot	32.9	
Parking Level 4	PLot	33.1	
Parking Level 5	PLot	31.5	
Receiver R3 FI GF Leq,d 32.1 dB(A)			
Parking Level 1	PLot	17.3	
Parking Level 2	PLot	20.4	
Parking Level 3	PLot	25.8	
Parking Level 4	PLot	27.6	
Parking Level 5	PLot	27.1	
Receiver R4 FI GF Leq,d 33.2 dB(A)			
Parking Level 1	PLot	13.8	
Parking Level 2	PLot	23.3	
Parking Level 3	PLot	27.1	
Parking Level 4	PLot	28.6	
Parking Level 5	PLot	27.9	
Receiver R4 FI 1.FL Leq,d 38.7 dB(A)			
Parking Level 1	PLot	15.4	
Parking Level 2	PLot	26.6	
Parking Level 3	PLot	31.4	
Parking Level 4	PLot	34.2	
Parking Level 5	PLot	34.7	
Receiver R5 FI GF Leq,d 31.2 dB(A)			
Parking Level 1	PLot	14.1	
Parking Level 2	PLot	19.0	
Parking Level 3	PLot	25.0	
Parking Level 4	PLot	26.8	
Parking Level 5	PLot	26.2	

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Wilshire Cloverdale Calculated Noise Levels - 03 Parking

Source	Source type	Leq,d dB(A)	
Receiver R6 FI GF Leq,d 33.4 dB(A)			
Parking Level 1	PLot	22.9	
Parking Level 2	PLot	22.8	
Parking Level 3	PLot	26.5	
Parking Level 4	PLot	28.5	
Parking Level 5	PLot	28.1	

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Wilshire Cloverdale Source Levels in dB(A) - 05 Speakers



Wilshire Cloverdale

Calculated Noise Levels - 05 Speakers

Source	Source type	Leq,d dB(A)	
Receiver R1 FI GF Leq,d 46.1 dB(A)			
Speakers Level 6	Point	29.4	
Speakers Level 6	Point	29.5	
Speakers Level 6	Point	32.8	
Speakers Level 6	Point	35.9	
Speakers Level 6	Point	34.5	
Speakers Level 6	Point	39.7	
Speakers Level 6	Point	31.9	
Speakers Level 6	Point	31.6	
Speakers Level 6	Point	34.7	
Speakers Level 6	Point	36.9	
Speakers Level 6	Point	38.7	
Speakers Level 6	Point	13.8	
Speakers Level 6	Point	13.8	
Speakers Level 6	Point	34.3	
Receiver R1 FI 1.FL Leq,d 51.5 dB(A)			
Speakers Level 6	Point	36.1	
Speakers Level 6	Point	35.8	
Speakers Level 6	Point	40.1	
Speakers Level 6	Point	43.0	
Speakers Level 6	Point	41.5	
Speakers Level 6	Point	44.0	
Speakers Level 6	Point	39.8	
Speakers Level 6	Point	37.2	
Speakers Level 6	Point	38.1	
Speakers Level 6	Point	39.7	
Speakers Level 6	Point	42.1	
Speakers Level 6	Point	35.3	
Speakers Level 6	Point	35.9	
Speakers Level 6	Point	39.6	
Receiver R2 FI GF Leq,d 46.0 dB(A)			
Speakers Level 6	Point	33.8	
Speakers Level 6	Point	32.1	
Speakers Level 6	Point	36.9	
Speakers Level 6	Point	32.0	
Speakers Level 6	Point	32.2	
Speakers Level 6	Point	39.2	
Speakers Level 6	Point	38.0	
Speakers Level 6	Point	37.8	
Speakers Level 6	Point	33.8	
Speakers Level 6	Point	31.5	
Speakers Level 6	Point	30.0	
Speakers Level 6	Point	12.0	

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Wilshire Cloverdale Calculated Noise Levels - 05 Speakers

Source	Source type	Leq,d dB(A)	
Speakers Level 6	Point	10.4	
Speakers Level 6	Point	32.9	
Receiver R3 FI GF Leq,d 43.4 dB(A)			
Speakers Level 6	Point	34.8	
Speakers Level 6	Point	35.2	
Speakers Level 6	Point	34.3	
Speakers Level 6	Point	30.0	
Speakers Level 6	Point	33.1	
Speakers Level 6	Point	32.3	
Speakers Level 6	Point	30.7	
Speakers Level 6	Point	34.2	
Speakers Level 6	Point	27.8	
Speakers Level 6	Point	26.8	
Speakers Level 6	Point	25.7	
Speakers Level 6	Point	33.0	
Speakers Level 6	Point	29.9	
Speakers Level 6	Point	11.0	
Receiver R4 FI GF Leq,d 49.4 dB(A)			
Speakers Level 6	Point	32.2	
Speakers Level 6	Point	35.1	
Speakers Level 6	Point	29.3	
Speakers Level 6	Point	38.1	
Speakers Level 6	Point	36.7	
Speakers Level 6	Point	27.0	
Speakers Level 6	Point	30.0	
Speakers Level 6	Point	35.2	
Speakers Level 6	Point	32.4	
Speakers Level 6	Point	32.6	
Speakers Level 6	Point	32.4	
Speakers Level 6	Point	43.8	
Speakers Level 6	Point	45.6	
Speakers Level 6	Point	7.7	
Receiver R4 FI 1.FL Leq,d 58.2 dB(A)			
Speakers Level 6	Point	40.6	
Speakers Level 6	Point	40.8	
Speakers Level 6	Point	39.8	
Speakers Level 6	Point	51.1	
Speakers Level 6	Point	51.2	
Speakers Level 6	Point	39.0	
Speakers Level 6	Point	40.7	
Speakers Level 6	Point	41.9	
Speakers Level 6	Point	36.7	
Speakers Level 6	Point	36.7	

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Wilshire Cloverdale Calculated Noise Levels - 05 Speakers

Source	Source type	Leq,d dB(A)	
Speakers Level 6	Point	36.2	
Speakers Level 6	Point	52.6	
Speakers Level 6	Point	51.2	
Speakers Level 6	Point	30.0	
Receiver R5 FI GF Leq,d 46.5 dB(A)			
Speakers Level 6	Point	8.0	
Speakers Level 6	Point	10.5	
Speakers Level 6	Point	5.8	
Speakers Level 6	Point	16.9	
Speakers Level 6	Point	34.1	
Speakers Level 6	Point	32.3	
Speakers Level 6	Point	33.9	
Speakers Level 6	Point	35.2	
Speakers Level 6	Point	27.5	
Speakers Level 6	Point	27.6	
Speakers Level 6	Point	26.5	
Speakers Level 6	Point	39.9	
Speakers Level 6	Point	43.7	
Speakers Level 6	Point	5.5	
Receiver R6 FI GF Leq,d 41.0 dB(A)			
Speakers Level 6	Point	7.4	
Speakers Level 6	Point	5.9	
Speakers Level 6	Point	9.8	
Speakers Level 6	Point	28.3	
Speakers Level 6	Point	27.8	
Speakers Level 6	Point	36.4	
Speakers Level 6	Point	31.5	
Speakers Level 6	Point	24.3	
Speakers Level 6	Point	12.4	
Speakers Level 6	Point	14.3	
Speakers Level 6	Point	15.0	
Speakers Level 6	Point	7.8	
Speakers Level 6	Point	14.7	
Speakers Level 6	Point	37.1	

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Off-Site Traffic Noise Calculations

Project: Wilshire and Cloverdale 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	Traffic Volume ADT	PHV to ADT factor	Barrier Atten.	Site Adjust., dBA	24-Hour CNEL
Cloverdale Avenue										
- Between 6th St. and Wilshire Blvd.	30	10	25	30	210	2,100	10%	0	0	59.1
- Between Wilshire Blvd. and 8th St.	30	10	25	30	193	1,930	10%	0	0	58.7
- Between 8th St. and 9th St.	30	10	25	30	136	1,360	10%	0	0	57.2
Detroit Street										
- Between 6th St. and Wilshire Blvd.	30	10	25	25	180	1,800	10%	0	0	56.8
- Between Wilshire Blvd. and 8th St.	30	10	25	25	158	1,580	10%	0	0	56.2
- Between 8th St. and 9th St.	30	10	25	25	97	970	10%	0	0	54.1
Wilshire Boulevard										
- Between Cochran Ave. and Cloverdale Ave.	70	10	45	35	2,220	22,200	10%	0	0	68.2
- Between Cloverdale Ave. and Detroit St.	70	10	45	35	2,150	21,500	10%	0	0	68.1
- Between Detroit St. and La Brea Ave.	70	10	45	35	2,130	21,300	10%	0	0	68.0
8th Street										
- Between Cochran Ave. and Cloverdale Ave.	40	10	30	35	511	5,110	10%	0	0	63.7
- Between Cloverdale Ave. and Detroit St.	40	10	30	35	520	5,200	10%	0	0	63.8
- Between Detroit St. and La Brea Ave.	40	10	30	35	530	5,300	10%	0	0	63.9

* Estimated based on Google Earth map.

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

Off-Site Traffic Noise Calculations

Project: Wilshire and Cloverdale 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
Cloverdale Avenue										
- Between 6th St. and Wilshire Blvd.	30	10	25	30	215	2,150	10%	0	0	59.2
- Between Wilshire Blvd. and 8th St.	30	10	25	30	235	2,350	10%	0	0	59.6
- Between 8th St. and 9th St.	30	10	25	30	150	1,500	10%	0	0	57.6
Detroit Street										
- Between 6th St. and Wilshire Blvd.	30	10	25	25	182	1,820	10%	0	0	56.9
- Between Wilshire Blvd. and 8th St.	30	10	25	25	200	2,000	10%	0	0	57.3
- Between 8th St. and 9th St.	30	10	25	25	110	1,100	10%	0	0	54.7
Wilshire Boulevard										
- Between Cochran Ave. and Cloverdale Ave.	70	10	45	35	2,243	22,430	10%	0	0	68.3
- Between Cloverdale Ave. and Detroit St.	70	10	45	35	2,183	21,830	10%	0	0	68.1
- Between Detroit St. and La Brea Ave.	70	10	45	35	2,177	21,770	10%	0	0	68.1
8th Street										
- Between Cochran Ave. and Cloverdale Ave.	40	10	30	35	536	5,360	10%	0	0	63.9
- Between Cloverdale Ave. and Detroit St.	40	10	30	35	551	5,510	10%	0	0	64.1
- Between Detroit St. and La Brea Ave.	40	10	30	35	571	5,710	10%	0	0	64.2

* Estimated based on Google Earth map.

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

Off-Site Traffic Noise Calculations

Project: Wilshire and Cloverdale 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
Cloverdale Avenue										
- Between 6th St. and Wilshire Blvd.	30	10	25	30	210	2,100	10%	0	0	59.1
- Between Wilshire Blvd. and 8th St.	30	10	25	30	200	2,000	10%	0	0	58.9
- Between 8th St. and 9th St.	30	10	25	30	160	1,600	10%	0	0	57.9
Detroit Street										
- Between 6th St. and Wilshire Blvd.	30	10	25	25	180	1,800	10%	0	0	56.8
- Between Wilshire Blvd. and 8th St.	30	10	25	25	160	1,600	10%	0	0	56.3
- Between 8th St. and 9th St.	30	10	25	25	90	900	10%	0	0	53.8
Wilshire Boulevard										
- Between Cochran Ave. and Cloverdale Ave.	70	10	45	35	2,440	24,400	10%	0	0	68.6
- Between Cloverdale Ave. and Detroit St.	70	10	45	35	2,370	23,700	10%	0	0	68.5
- Between Detroit St. and La Brea Ave.	70	10	45	35	2,350	23,500	10%	0	0	68.5
8th Street										
- Between Cochran Ave. and Cloverdale Ave.	40	10	30	35	600	6,000	10%	0	0	64.4
- Between Cloverdale Ave. and Detroit St.	40	10	30	35	610	6,100	10%	0	0	64.5
- Between Detroit St. and La Brea Ave.	40	10	30	35	620	6,200	10%	0	0	64.6

* Estimated based on Google Earth map.

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

Off-Site Traffic Noise Calculations

Project: Wilshire and Cloverdale 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 PLUS 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
Cloverdale Avenue										
- Between 6th St. and Wilshire Blvd.	30	10	25	30	215	2,150	10%	0	0	59.2
- Between Wilshire Blvd. and 8th St.	30	10	25	30	242	2,420	10%	0	0	59.7
- Between 8th St. and 9th St.	30	10	25	30	174	1,740	10%	0	0	58.3
Detroit Street										
- Between 6th St. and Wilshire Blvd.	30	10	25	25	182	1,820	10%	0	0	56.9
- Between Wilshire Blvd. and 8th St.	30	10	25	25	202	2,020	10%	0	0	57.3
- Between 8th St. and 9th St.	30	10	25	25	103	1,030	10%	0	0	54.4
Wilshire Boulevard										
- Between Cochran Ave. and Cloverdale Ave.	70	10	45	35	2,463	24,630	10%	0	0	68.7
- Between Cloverdale Ave. and Detroit St.	70	10	45	35	2,403	24,030	10%	0	0	68.6
- Between Detroit St. and La Brea Ave.	70	10	45	35	2,397	23,970	10%	0	0	68.6
8th Street										
- Between Cochran Ave. and Cloverdale Ave.	40	10	30	35	625	6,250	10%	0	0	64.6
- Between Cloverdale Ave. and Detroit St.	40	10	30	35	641	6,410	10%	0	0	64.7
- Between Detroit St. and La Brea Ave.	40	10	30	35	661	6,610	10%	0	0	64.9

* Estimated based on Google Earth map.

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