Appendix J

Noise Calculation Worksheets

Metro TCN (AllVision) Project

Noise Calculations Worksheets

Provided by Acoustical Engineering Services

Ambient Noise Measurements

AES
Acoustical Engineering Services

Project: Metro TCN AllVision Project
Location: R5
Date: 7/13/2022

Time	Leq
12:12:33 PM	58.2
12:12:43 PM	57.1
12:12:53 PM	58.3
12:13:03 PM	59.7
12:13:13 PM	63.8
12:13:23 PM	62.4
12:13:33 PM	56.5
12:13:43 PM	60
12:13:53 PM	54.3
12:14:03 PM	51.1
12:14:13 PM	49.4
12:14:23 PM	51.9
12:14:33 PM	51.3
12:14:43 PM	53
12:14:53 PM	57.1
12:15:03 PM	59.8
12:15:13 PM	60.3
12:15:23 PM	58.1
12:15:33 PM	57.9
12:15:43 PM	62.6
12:15:53 PM	59.7
12:16:03 PM	64.3
12:16:13 PM	64.5
12:16:23 PM	68.2
12:16:33 PM	67.2
12:16:43 PM	57
12:16:53 PM	53.9
12:17:03 PM	59.4
12:17:13 PM	55.5
12:17:23 PM	57.5
12:17:33 PM	58.9
12:17:43 PM	63.8
12:17:53 PM	59
12:18:03 PM	55.5
12:18:13 PM	56
12:18:23 PM	51.6
12:18:33 PM	58.6
12:18:43 PM	56.7
12:18:53 PM	53.8
12:19:03 PM	61.3

12:19:13 PM	51.1
12:19:23 PM	62.6
12:19:33 PM	62
12:19:43 PM	56.3
12:19:53 PM	54.7
12:20:03 PM	50.1
12:20:13 PM	52.2
12:20:23 PM	50.5
12:20:33 PM	52
12:20:43 PM	57.4
12:20:53 PM	53.8
12:21:03 PM	63.8
12:21:13 PM	64.8
12:21:23 PM	63.7
12:21:33 PM	60.4
12:21:43 PM	57
12:21:53 PM	59.3
12:22:03 PM	51.5
12:22:13 PM	52.6
12:22:23 PM	55.4
12:22:33 PM	54.6
12:22:43 PM	62.1
12:22:53 PM	58.8
12:23:03 PM	59.7
12:23:13 PM	62.1
12:23:23 PM	61.1
12:23:33 PM	61
12:23:43 PM	60.6
12:23:53 PM	68.6
12:24:03 PM	62.5
12:24:13 PM	58.6
12:24:23 PM	57.9
12:24:33 PM	52.6
12:24:43 PM	57.9
12:24:53 PM	54.4
12:25:03 PM	60.7
12:25:13 PM	56.5
12:25:23 PM	60
12:25:33 PM	64.6
12:25:43 PM	53
12:25:53 PM	50.9
12:26:03 PM	52.8
12:26:13 PM	58.2
12:26:23 PM	63.2
12:26:33 PM	58.1

12:26:43 PM	58
12:26:53 PM	62
12:27:03 PM	66.6
12:27:13 PM	62.5
12:27:23 PM	63.1
	60.5

AES
Acoustical Engineering Services

Location: R7, also applied to R8, R25 and R26
Date: 7/13/2022

Time	Leq
11:28:24 PM	56
11:28:34 PM	56.8
11:28:44 PM	53.9
11:28:54 PM	56.4
11:29:04 PM	56.4
11:29:14 PM	57.7
11:29:24 PM	57.5
11:29:34 PM	58.9
11:29:44 PM	63.4
11:29:54 PM	69.6
11:30:04 PM	59.3
11:30:14 PM	57.4
11:30:24 PM	55.4
11:30:34 PM	57.4
11:30:44 PM	56.9
11:30:54 PM	53.2
11:31:04 PM	56.4
11:31:14 PM	61.7
11:31:24 PM	61.7
11:31:34 PM	59.2
11:31:44 PM	58.9
11:31:54 PM	58.7
11:32:04 PM	56.2
11:32:14 PM	56.2
11:32:24 PM	56.5
11:32:34 PM	58.1
11:32:44 PM	57.3
11:32:54 PM	60.7
11:33:04 PM	59.4
11:33:14 PM	56.4
11:33:24 PM	55.7
11:33:34 PM	57.2
11:33:44 PM	60.2
11:33:54 PM	55.8
11:34:04 PM	57.2
11:34:14 PM	59.2
11:34:24 PM	59.4
11:34:34 PM	56.6
11:34:44 PM	56.8
11:34:54 PM	62.7
11:35:04 PM	64.6

11:35:14 PM	58.8
11:35:24 PM	59.1
11:35:34 PM	57.7
11:35:44 PM	61.4
11:35:54 PM	60.2
11:36:04 PM	58.5
11:36:14 PM	57.8
11:36:24 PM	59.2
11:36:34 PM	58.3
11:36:44 PM	55.5
11:36:54 PM	59.9
11:37:04 PM	59.2
11:37:14 PM	58.6
11:37:24 PM	62.3
11:37:34 PM	63.7
11:37:44 PM	57.3
11:37:54 PM	57.9
11:38:04 PM	56.9
11:38:14 PM	56.3
11:38:24 PM	59.8
11:38:34 PM	62.1
11:38:44 PM	59.9
11:38:54 PM	57.5
11:39:04 PM	56.1
11:39:14 PM	55.9
11:39:24 PM	57.5
11:39:34 PM	59.4
11:39:44 PM	58.4
11:39:54 PM	55.9
11:40:04 PM	57.5
11:40:14 PM	56.3
11:40:24 PM	53.5
11:40:34 PM	53.6
11:40:44 PM	57.2
11:40:54 PM	58.5
11:41:04 PM	59.4
11:41:14 PM	60.9
11:41:24 PM	56.7
11:41:34 PM	55.1
11:41:44 PM	58
11:41:54 PM	56.7
11:42:04 PM	58.2
11:42:14 PM	60.9
11:42:24 PM	61.8
11:42:34 PM	58.4

11:42:44 PM	57.4
11:42:54 PM	56.2
11:43:04 PM	57.4
11:43:14 PM	56.2
	59.3

Time	Leq
1:23:50 PM	59.4
1:24:00 PM	60.4
1:24:10 PM	61.2
1:24:20 PM	63.5
1:24:30 PM	62.5
1:24:40 PM	63.6
1:24:50 PM	65.1
1:25:00 PM	63
1:25:10 PM	63.8
1:25:20 PM	64.4
1:25:30 PM	63.2
1:25:40 PM	63.7
1:25:50 PM	61.9
1:26:00 PM	62.2
1:26:10 PM	60.9
1:26:20 PM	59.6
1:26:30 PM	59.5
1:26:40 PM	64.3
1:26:50 PM	61.9
1:27:00 PM	61.5
1:27:10 PM	63.9
1:27:20 PM	61.6
1:27:30 PM	64
1:27:40 PM	62.8
1:27:50 PM	59.4
1:28:00 PM	58.6
1:28:10 PM	60.9
1:28:20 PM	63.7
1:28:30 PM	60.5
1:28:40 PM	60.9
1:28:50 PM	62.2
1:29:00 PM	60.9
1:29:10 PM	63.8
1:29:20 PM	62.7
1:29:30 PM	59.9
1:29:40 PM	59.1
1:29:50 PM	58.9
1:30:00 PM	59.4

1:30:10 PM	60.4
1:30:20 PM	59.9
1:30:30 PM	65.7
1:30:40 PM	63.9
1:30:50 PM	68
1:31:00 PM	78.7
1:31:10 PM	65.4
1:31:20 PM	64.7
1:31:30 PM	64.5
1:31:40 PM	62.9
1:31:50 PM	62.2
1:32:00 PM	60.7
1:32:10 PM	61.7
1:32:20 PM	64.2
1:32:30 PM	64.1
1:32:40 PM	60.4
1:32:50 PM	62.2
1:33:00 PM	62.7
1:33:10 PM	63.6
1:33:20 PM	62.1
1:33:30 PM	60.8
1:33:40 PM	59.8
1:33:50 PM	61
1:34:00 PM	62.1
1:34:10 PM	59.8
1:34:20 PM	59.6
1:34:30 PM	65.9
1:34:40 PM	70.3
1:34:50 PM	69.7
1:35:00 PM	61.9
1:35:10 PM	62.3
1:35:20 PM	65.8
1:35:30 PM	61
1:35:40 PM	61.9
1:35:50 PM	61.4
1:36:00 PM	59.5
1:36:10 PM	57.4
1:36:20 PM	58.4
1:36:30 PM	62
1:36:40 PM	65.6
1:36:50 PM	63.6
1:37:00 PM	63
1:37:10 PM	63.8
1:37:20 PM	73.9
1:37:30 PM	65.9

1:37:40 PM	64.6
1:37:50 PM	62.3
1:38:00 PM	62.9
1:38:10 PM	61.4
1:38:20 PM	58.5
1:38:30 PM	58.7
1:38:40 PM	60.9
	64.9

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Metro TCN AllVision Project
Location: R10
Date: 7/13/2022

Time	Leq
11:15:41 AM	59.3
11:15:51 AM	59.7
11:16:01 AM	60.1
11:16:11 AM	54.9
11:16:21 AM	55.7
11:16:31 AM	59.4
11:16:41 AM	58
11:16:51 AM	58.1
11:17:01 AM	57.7
11:17:11 AM	58.4
11:17:21 AM	59.8
11:17:31 AM	61.1
11:17:41 AM	61.2
11:17:51 AM	60.6
11:18:01 AM	60.8
11:18:11 AM	60.8
11:18:21 AM	60.6
11:18:31 AM	62.8
11:18:41 AM	63.6
11:18:51 AM	62.8
11:19:01 AM	62.5
11:19:11 AM	62.9
11:19:21 AM	64.1
11:19:31 AM	63.2
11:19:41 AM	64.3
11:19:51 AM	65.6
11:20:01 AM	63.9
11:20:11 AM	61.8
11:20:21 AM	63.1
11:20:31 AM	65.5
11:20:41 AM	65.8
11:20:51 AM	65.2
11:21:01 AM	65.4
11:21:11 AM	68.3
11:21:21 AM	66.9
11:21:31 AM	67.6
11:21:41 AM	64
11:21:51 AM	58.2
11:22:01 AM	59.2
11:22:11 AM	57.6

11:22:21 AM	57.7
11:22:31 AM	58.7
11:22:41 AM	58.9
11:22:51 AM	65.1
11:23:01 AM	76.1
11:23:11 AM	64.2
11:23:21 AM	61.3
11:23:31 AM	61.5
11:23:41 AM	61.2
11:23:51 AM	62.4
11:24:01 AM	60.9
11:24:11 AM	59.4
11:24:21 AM	58.9
11:24:31 AM	57.7
11:24:41 AM	56.7
11:24:51 AM	60
11:25:01 AM	57.8
11:25:11 AM	57
11:25:21 AM	57.8
11:25:31 AM	58.6
11:25:41 AM	56.1
11:25:51 AM	56.5
11:26:01 AM	59
11:26:11 AM	57.5
11:26:21 AM	56.9
11:26:31 AM	56
11:26:41 AM	54.6
11:26:51 AM	59
11:27:01 AM	58.5
11:27:11 AM	57.7
11:27:21 AM	57.1
11:27:31 AM	56.2
11:27:41 AM	53.8
11:27:51 AM	55.1
11:28:01 AM	55
11:28:11 AM	56.4
11:28:21 AM	57.4
11:28:31 AM	54.9
11:28:41 AM	58.4
11:28:51 AM	57.8
11:29:01 AM	57.4
11:29:11 AM	58.1
11:29:21 AM	58.6
11:29:31 AM	58.8
11:29:41 AM	58

11:29:51 AM	57.9
11:30:01 AM	56.7
11:30:11 AM	59.4
11:30:21 AM	58.2
11:30:31 AM	58.9
	62.4

AES
Acoustical Engineering Services

Project: Metro TCN AllVision Project
Location: R11
Date: 7/13/2022

Time	Leq
11:35:42 AM	82.7
11:35:52 AM	74.6
11:36:02 AM	71.7
11:36:12 AM	73.1
11:36:22 AM	74.1
11:36:32 AM	64.8
11:36:42 AM	63.3
11:36:52 AM	61.8
11:37:02 AM	65.3
11:37:12 AM	69.3
11:37:22 AM	68.7
11:37:32 AM	71.9
11:37:42 AM	74.4
11:37:52 AM	71.4
11:38:02 AM	67.2
11:38:12 AM	61.6
11:38:22 AM	60.9
11:38:32 AM	65.9
11:38:42 AM	71.3
11:38:52 AM	73
11:39:02 AM	69.2
11:39:12 AM	68.7
11:39:22 AM	68.9
11:39:32 AM	67.9
11:39:42 AM	62.9
11:39:52 AM	61.1
11:40:02 AM	67.5
11:40:12 AM	70.4
11:40:22 AM	72.2
11:40:32 AM	74.7
11:40:42 AM	75.2
11:40:52 AM	73.7
11:41:02 AM	68.1
11:41:12 AM	65.1
11:41:22 AM	60.6
11:41:32 AM	67.6
11:41:42 AM	68.7
11:41:52 AM	72.6
11:42:02 AM	73.5
11:42:12 AM	73.5

11:42:22 AM	71.2
11:42:32 AM	68
11:42:42 AM	66.1
11:42:52 AM	65.3
11:43:02 AM	63.8
11:43:12 AM	70.3
11:43:22 AM	70.8
11:43:32 AM	71.2
11:43:42 AM	71.4
11:43:52 AM	71
11:44:02 AM	69.3
11:44:12 AM	73.3
11:44:22 AM	75.2
11:44:32 AM	80.9
11:44:42 AM	78.7
11:44:52 AM	79.3
11:45:02 AM	78.5
11:45:12 AM	79.9
11:45:22 AM	74.6
11:45:32 AM	67.9
11:45:42 AM	62
11:45:52 AM	60.5
11:46:02 AM	62.8
11:46:12 AM	72.6
11:46:22 AM	74.8
11:46:32 AM	73.7
11:46:42 AM	72.2
11:46:52 AM	74.5
11:47:02 AM	69.9
11:47:12 AM	64.6
11:47:22 AM	60.1
11:47:32 AM	62.2
11:47:42 AM	67.7
11:47:52 AM	68.7
11:48:02 AM	71.8
11:48:12 AM	70
11:48:22 AM	73.3
11:48:32 AM	70.2
11:48:42 AM	68.7
11:48:52 AM	67.2
11:49:02 AM	68.2
11:49:12 AM	70.8
11:49:22 AM	74
11:49:32 AM	73.4
11:49:42 AM	72.8

11:49:52 AM	74.7
11:50:02 AM	66.6
11:50:12 AM	61.1
11:50:22 AM	61.5
11:50:32 AM	66.5
	72.6

AES
Acoustical Engineering Services

Project: Metro TCN AllVision Project
Location: R12
Date: 7/13/2022

Time	Leq
10:47:09 AM	56.7
10:47:19 AM	57.3
10:47:29 AM	57.7
10:47:39 AM	58.3
10:47:49 AM	58.9
10:47:59 AM	60.9
10:48:09 AM	60.9
10:48:19 AM	61.2
10:48:29 AM	57.9
10:48:39 AM	60
10:48:49 AM	63.6
10:48:59 AM	60.2
10:49:09 AM	63.1
10:49:19 AM	60.4
10:49:29 AM	58.9
10:49:39 AM	60.9
10:49:49 AM	62.2
10:49:59 AM	65.3
10:50:09 AM	60.2
10:50:19 AM	63.4
10:50:29 AM	61.9
10:50:39 AM	59.6
10:50:49 AM	61.8
10:50:59 AM	61.6
10:51:09 AM	61.6
10:51:19 AM	64.7
10:51:29 AM	57.8
10:51:39 AM	54.7
10:51:49 AM	63.9
10:51:59 AM	55
10:52:09 AM	53.2
10:52:19 AM	54.1
10:52:29 AM	57.8
10:52:39 AM	55.3
10:52:49 AM	60
10:52:59 AM	57.3
10:53:09 AM	54.5
10:53:19 AM	63.9
10:53:29 AM	59
10:53:39 AM	52.4

10:53:49 AM	54.9
10:53:59 AM	60.5
10:54:09 AM	63.2
10:54:19 AM	61.2
10:54:29 AM	67.8
10:54:39 AM	67.4
10:54:49 AM	54.4
10:54:59 AM	55.8
10:55:09 AM	54.2
10:55:19 AM	56.7
10:55:29 AM	59.8
10:55:39 AM	63.7
10:55:49 AM	64
10:55:59 AM	61.2
10:56:09 AM	59.9
10:56:19 AM	62.5
10:56:29 AM	64.6
10:56:39 AM	62
10:56:49 AM	61.5
10:56:59 AM	62
10:57:09 AM	59.4
10:57:19 AM	58.4
10:57:29 AM	61.9
10:57:39 AM	56.8
10:57:49 AM	62.4
10:57:59 AM	53.3
10:58:09 AM	54.8
10:58:19 AM	53.5
10:58:29 AM	59.8
10:58:39 AM	61.9
10:58:49 AM	64.1
10:58:59 AM	60.6
10:59:09 AM	54.4
10:59:19 AM	54.7
10:59:29 AM	59.3
10:59:39 AM	56.4
10:59:49 AM	57.3
10:59:59 AM	60.9
11:00:09 AM	63.1
11:00:19 AM	62.5
11:00:29 AM	61.3
11:00:39 AM	56.9
11:00:49 AM	55.1
11:00:59 AM	64.3
11:01:09 AM	61.4

11:01:19 AM	55.1
11:01:29 AM	59.7
11:01:39 AM	60.7
11:01:49 AM	61.5
11:01:59 AM	59.9
	60.9

AES
Acoustical Engineering Services

Project: Metro TCN AllVision Project
Location: R18
Date: 7/13/2022

Time	Leq
12:14:12 PM	63.5
12:14:22 PM	64.8
12:14:32 PM	62.8
12:14:42 PM	63.4
12:14:52 PM	64.7
12:15:02 PM	64.1
12:15:12 PM	63.9
12:15:22 PM	63.4
12:15:32 PM	63.1
12:15:42 PM	62.1
12:15:52 PM	62.4
12:16:02 PM	63.2
12:16:12 PM	63.7
12:16:22 PM	62.9
12:16:32 PM	63
12:16:42 PM	64.3
12:16:52 PM	63.5
12:17:02 PM	64.3
12:17:12 PM	64.3
12:17:22 PM	65.3
12:17:32 PM	63.9
12:17:42 PM	63.3
12:17:52 PM	61.9
12:18:02 PM	63.4
12:18:12 PM	65.2
12:18:22 PM	63.4
12:18:32 PM	63.8
12:18:42 PM	62.8
12:18:52 PM	63.4
12:19:02 PM	65
12:19:12 PM	64
12:19:22 PM	63.6
12:19:32 PM	64.6
12:19:42 PM	66.5
12:19:52 PM	63.8
12:20:02 PM	63.6
12:20:12 PM	63.1
12:20:22 PM	64.3
12:20:32 PM	65.1
12:20:42 PM	65.9

12:20:52 PM	64.1
12:21:02 PM	62.1
12:21:12 PM	63.2
12:21:22 PM	68.9
12:21:32 PM	62.9
12:21:42 PM	64.2
12:21:52 PM	65.1
12:22:02 PM	64.2
12:22:12 PM	65.4
12:22:22 PM	62.7
12:22:32 PM	62.3
12:22:42 PM	61.2
12:22:52 PM	60.9
12:23:02 PM	61.4
12:23:12 PM	62.3
12:23:22 PM	67.2
12:23:32 PM	63.6
12:23:42 PM	63.1
12:23:52 PM	61.4
12:24:02 PM	63
12:24:12 PM	62.9
12:24:22 PM	63.8
12:24:32 PM	64.8
12:24:42 PM	62.7
12:24:52 PM	63.8
12:25:02 PM	71.3
12:25:12 PM	69.7
12:25:22 PM	66.2
12:25:32 PM	64.4
12:25:42 PM	64.4
12:25:52 PM	64.7
12:26:02 PM	63.4
12:26:12 PM	64.2
12:26:22 PM	64.8
12:26:32 PM	63
12:26:42 PM	63.5
12:26:52 PM	62.2
12:27:02 PM	63
12:27:12 PM	63.7
12:27:22 PM	63.5
12:27:32 PM	62.5
12:27:42 PM	64.7
12:27:52 PM	62.3
12:28:02 PM	60.7
12:28:12 PM	61.9

12:28:22 PM	60.8
12:28:32 PM	62.4
12:28:42 PM	63.4
12:28:52 PM	63.7
12:29:02 PM	63.4
	64.2

AES
Acoustical Engineering Services

Project: Metro TCN AllVision Project
Location: R19
Date: 7/13/2022

Time	Leq
12:37:44 PM	59.9
12:37:54 PM	60.2
12:38:04 PM	61
12:38:14 PM	60.9
12:38:24 PM	57.7
12:38:34 PM	58.9
12:38:44 PM	62.6
12:38:54 PM	62.1
12:39:04 PM	62.7
12:39:14 PM	62
12:39:24 PM	62.7
12:39:34 PM	59
12:39:44 PM	61.5
12:39:54 PM	61
12:40:04 PM	62.2
12:40:14 PM	62.1
12:40:24 PM	62.1
12:40:34 PM	64.4
12:40:44 PM	63.7
12:40:54 PM	62.6
12:41:04 PM	59.2
12:41:14 PM	59.8
12:41:24 PM	62.1
12:41:34 PM	62.7
12:41:44 PM	59.5
12:41:54 PM	62.6
12:42:04 PM	61.8
12:42:14 PM	63.5
12:42:24 PM	63.6
12:42:34 PM	61.3
12:42:44 PM	63
12:42:54 PM	61.7
12:43:04 PM	63.7
12:43:14 PM	61.4
12:43:24 PM	60.2
12:43:34 PM	63
12:43:44 PM	59.8
12:43:54 PM	60.9
12:44:04 PM	62.6
12:44:14 PM	63.3

12:44:24 PM	62.5
12:44:34 PM	63.7
12:44:44 PM	62.5
12:44:54 PM	61.9
12:45:04 PM	64.3
12:45:14 PM	59.8
12:45:24 PM	61.2
12:45:34 PM	60.4
12:45:44 PM	64.3
12:45:54 PM	62.9
12:46:04 PM	61.5
12:46:14 PM	62.4
12:46:24 PM	62.3
12:46:34 PM	63.9
12:46:44 PM	61.5
12:46:54 PM	61.4
12:47:04 PM	62.8
12:47:14 PM	61.9
12:47:24 PM	62.8
12:47:34 PM	62.7
12:47:44 PM	62
12:47:54 PM	64.3
12:48:04 PM	61.3
12:48:14 PM	60.7
12:48:24 PM	64.9
12:48:34 PM	62.4
12:48:44 PM	60.5
12:48:54 PM	62.3
12:49:04 PM	64.8
12:49:14 PM	63.7
12:49:24 PM	62.4
12:49:34 PM	60.5
12:49:44 PM	60
12:49:54 PM	61.1
12:50:04 PM	63
12:50:14 PM	62.1
12:50:24 PM	60.4
12:50:34 PM	61.5
12:50:44 PM	61.4
12:50:54 PM	59.5
12:51:04 PM	62.4
12:51:14 PM	61.7
12:51:24 PM	62.5
12:51:34 PM	63.6
12:51:44 PM	61.2

12:51:54 PM	63.3
12:52:04 PM	63.7
12:52:14 PM	63.2
12:52:24 PM	62.6
12:52:34 PM	59.9
	62.2

AES
Acoustical Engineering Services

Location: R20, also applied to R21
Date: 7/13/2022

Time	Leq
10:11:58 AM	61.2
10:12:08 AM	61.3
10:12:18 AM	61.3
10:12:28 AM	62.1
10:12:38 AM	61.8
10:12:48 AM	61.5
10:12:58 AM	62
10:13:08 AM	60.9
10:13:18 AM	60.3
10:13:28 AM	61.9
10:13:38 AM	62.3
10:13:48 AM	62.7
10:13:58 AM	61.3
10:14:08 AM	61
10:14:18 AM	62.9
10:14:28 AM	59.9
10:14:38 AM	76.5
10:14:48 AM	77.8
10:14:58 AM	62.2
10:15:08 AM	62.2
10:15:18 AM	60.9
10:15:28 AM	62.9
10:15:38 AM	63.8
10:15:48 AM	60.8
10:15:58 AM	62.1
10:16:08 AM	60.6
10:16:18 AM	60.7
10:16:28 AM	63.4
10:16:38 AM	63.5
10:16:48 AM	61.2
10:16:58 AM	62.1
10:17:08 AM	60.3
10:17:18 AM	61.2
10:17:28 AM	59.8
10:17:38 AM	60
10:17:48 AM	60.3
10:17:58 AM	61.4
10:18:08 AM	60.8
10:18:18 AM	61.1
10:18:28 AM	60.5
10:18:38 AM	59.1

10:18:48 AM	59.5
10:18:58 AM	59.9
10:19:08 AM	60.4
10:19:18 AM	61.2
10:19:28 AM	64.5
10:19:38 AM	63.4
10:19:48 AM	60.8
10:19:58 AM	61.4
10:20:08 AM	60.6
10:20:18 AM	62.6
10:20:28 AM	63
10:20:38 AM	61.4
10:20:48 AM	62
10:20:58 AM	62.2
10:21:08 AM	61.2
10:21:18 AM	64.6
10:21:28 AM	62.8
10:21:38 AM	62.2
10:21:48 AM	62.1
10:21:58 AM	60.2
10:22:08 AM	60.6
10:22:18 AM	60.8
10:22:28 AM	60.5
10:22:38 AM	61.1
10:22:48 AM	61.2
10:22:58 AM	61
10:23:08 AM	61.3
10:23:18 AM	58.7
10:23:28 AM	60.6
10:23:38 AM	60.6
10:23:48 AM	70.6
10:23:58 AM	71.3
10:24:08 AM	61.8
10:24:18 AM	63.4
10:24:28 AM	61.5
10:24:38 AM	62.1
10:24:48 AM	63
10:24:58 AM	60.9
10:25:08 AM	66.6
10:25:18 AM	61.2
10:25:28 AM	60.4
10:25:38 AM	61.3
10:25:48 AM	61.3
10:25:58 AM	60.5
10:26:08 AM	61.5

10:26:18 AM	60.8
10:26:28 AM	60.7
10:26:38 AM	61.9
10:26:48 AM	72.9
	64.9

Time	Leq
10:15:08 PM	58.8
10:15:18 PM	57.2
10:15:28 PM	57.8
10:15:38 PM	57.7
10:15:48 PM	58.1
10:15:58 PM	61.4
10:16:08 PM	59.8
10:16:18 PM	60.1
10:16:28 PM	59.9
10:16:38 PM	59.5
10:16:48 PM	59.3
10:16:58 PM	59.3
10:17:08 PM	61
10:17:18 PM	58.7
10:17:28 PM	58.7
10:17:38 PM	59.2
10:17:48 PM	57.7
10:17:58 PM	57.2
10:18:08 PM	58.1
10:18:18 PM	61
10:18:28 PM	62.2
10:18:38 PM	64.9
10:18:48 PM	63.7
10:18:58 PM	60.2
10:19:08 PM	56.3
10:19:18 PM	58.8
10:19:28 PM	60.7
10:19:38 PM	61.4
10:19:48 PM	60.2
10:19:58 PM	60.7
10:20:08 PM	59.9
10:20:18 PM	59.3
10:20:28 PM	61.2
10:20:38 PM	60
10:20:48 PM	60.7
10:20:58 PM	61.6
10:21:08 PM	59.4
10:21:18 PM	60.7

10:21:28 PM	61.6
10:21:38 PM	62
10:21:48 PM	61.8
10:21:58 PM	60.9
10:22:08 PM	60.6
10:22:18 PM	60.2
10:22:28 PM	60.3
10:22:38 PM	60.4
10:22:48 PM	61.6
10:22:58 PM	61.5
10:23:08 PM	59.9
10:23:18 PM	57.8
10:23:28 PM	60
10:23:38 PM	60
10:23:48 PM	59.4
10:23:58 PM	59.6
10:24:08 PM	59.9
10:24:18 PM	60
10:24:28 PM	62.3
10:24:38 PM	61.4
10:24:48 PM	59.8
10:24:58 PM	60.9
10:25:08 PM	62.5
10:25:18 PM	56.4
10:25:28 PM	55.1
10:25:38 PM	58.7
10:25:48 PM	58.2
10:25:58 PM	57.6
10:26:08 PM	58.8
10:26:18 PM	57.3
10:26:28 PM	58.4
10:26:38 PM	61.4
10:26:48 PM	60
10:26:58 PM	58.7
10:27:08 PM	59.8
10:27:18 PM	57.6
10:27:28 PM	57.9
10:27:38 PM	56.8
10:27:48 PM	59.1
10:27:58 PM	57.5
10:28:08 PM	59.5
10:28:18 PM	60.2
10:28:28 PM	60.2
10:28:38 PM	61.2
10:28:48 PM	56.6

10:28:58 PM	59.5
10:29:08 PM	58.3
10:29:18 PM	58.4
10:29:28 PM	60.4
10:29:38 PM	61.4
10:29:48 PM	62.8
10:29:58 PM	59.5
	60.1

AES
Acoustical Engineering Services

Project: Metro TCN AllVision Project
Location: R22
Date: 7/13/2022

Time	Leq
11:37:32 AM	62.7
11:37:42 AM	62.9
11:37:52 AM	63.1
11:38:02 AM	64.1
11:38:12 AM	64.1
11:38:22 AM	68.7
11:38:32 AM	66
11:38:42 AM	63.2
11:38:52 AM	65.8
11:39:02 AM	68.4
11:39:12 AM	62.8
11:39:22 AM	63.2
11:39:32 AM	62.4
11:39:42 AM	62.4
11:39:52 AM	62.9
11:40:02 AM	61
11:40:12 AM	63.9
11:40:22 AM	68.5
11:40:32 AM	63.3
11:40:42 AM	66.5
11:40:52 AM	66.3
11:41:02 AM	68.4
11:41:12 AM	65
11:41:22 AM	64.8
11:41:32 AM	63.2
11:41:42 AM	62.3
11:41:52 AM	61.4
11:42:02 AM	66.5
11:42:12 AM	67.5
11:42:22 AM	67.3
11:42:32 AM	63.9
11:42:42 AM	65.7
11:42:52 AM	65.8
11:43:02 AM	62.9
11:43:12 AM	62.4
11:43:22 AM	62.5
11:43:32 AM	65
11:43:42 AM	62.9
11:43:52 AM	63.1
11:44:02 AM	62.1

11:44:12 AM	62.9
11:44:22 AM	62.3
11:44:32 AM	64
11:44:42 AM	68.3
11:44:52 AM	64.7
11:45:02 AM	66.7
11:45:12 AM	65.9
11:45:22 AM	66.6
11:45:32 AM	64.7
11:45:42 AM	64.9
11:45:52 AM	63.2
11:46:02 AM	63.9
11:46:12 AM	64.5
11:46:22 AM	66.2
11:46:32 AM	65.5
11:46:42 AM	67.7
11:46:52 AM	62.8
11:47:02 AM	65.4
11:47:12 AM	67.1
11:47:22 AM	72.3
11:47:32 AM	70.4
11:47:42 AM	67
11:47:52 AM	64.8
11:48:02 AM	65
11:48:12 AM	65.5
11:48:22 AM	65.6
11:48:32 AM	65.6
11:48:42 AM	68.5
11:48:52 AM	62.6
11:49:02 AM	64.5
11:49:12 AM	68.3
11:49:22 AM	63.1
11:49:32 AM	63.7
11:49:42 AM	63.4
11:49:52 AM	63.1
11:50:02 AM	63.3
11:50:12 AM	64.4
11:50:22 AM	62.8
11:50:32 AM	65.2
11:50:42 AM	68.1
11:50:52 AM	62.5
11:51:02 AM	68.6
11:51:12 AM	69.6
11:51:22 AM	67.3
11:51:32 AM	65.9

11:51:42 AM	63.5
11:51:52 AM	65.8
11:52:02 AM	64.4
11:52:12 AM	64.6
11:52:22 AM	64.4
	65.6

AES
Acoustical Engineering Services

Project: Metro TCN AllVision Project
Location: R24
Date: 7/13/2022

Time	Leq
9:21:11 AM	59.6
9:21:21 AM	58.4
9:21:31 AM	60.7
9:21:41 AM	60.2
9:21:51 AM	61.3
9:22:01 AM	59.9
9:22:11 AM	61.2
9:22:21 AM	61.4
9:22:31 AM	62.1
9:22:41 AM	60.7
9:22:51 AM	60.6
9:23:01 AM	60.6
9:23:11 AM	61.7
9:23:21 AM	61.8
9:23:31 AM	60.7
9:23:41 AM	61.7
9:23:51 AM	60.7
9:24:01 AM	61.8
9:24:11 AM	62.4
9:24:21 AM	62.6
9:24:31 AM	59.9
9:24:41 AM	61.6
9:24:51 AM	59
9:25:01 AM	60
9:25:11 AM	60.6
9:25:21 AM	61.9
9:25:31 AM	61.5
9:25:41 AM	59.9
9:25:51 AM	60
9:26:01 AM	59.2
9:26:11 AM	60.7
9:26:21 AM	62.6
9:26:31 AM	62.5
9:26:41 AM	62.1
9:26:51 AM	59.7
9:27:01 AM	60.9
9:27:11 AM	62
9:27:21 AM	60.8
9:27:31 AM	60.4
9:27:41 AM	61.1

9:27:51 AM	61.2
9:28:01 AM	59.8
9:28:11 AM	61.3
9:28:21 AM	60.4
9:28:31 AM	60.7
9:28:41 AM	60.9
9:28:51 AM	60.4
9:29:01 AM	60.2
9:29:11 AM	61.4
9:29:21 AM	60.4
9:29:31 AM	60.8
9:29:41 AM	60.6
9:29:51 AM	60.3
9:30:01 AM	60.8
9:30:11 AM	60.7
9:30:21 AM	60.9
9:30:31 AM	59.9
9:30:41 AM	57.4
9:30:51 AM	59.4
9:31:01 AM	60
9:31:11 AM	63.3
9:31:21 AM	62.2
9:31:31 AM	63.9
9:31:41 AM	69.5
9:31:51 AM	65.1
9:32:01 AM	60.6
9:32:11 AM	60
9:32:21 AM	61.5
9:32:31 AM	61.6
9:32:41 AM	61.6
9:32:51 AM	60.2
9:33:01 AM	60.5
9:33:11 AM	60.6
9:33:21 AM	60.4
9:33:31 AM	60.7
9:33:41 AM	67.5
9:33:51 AM	61.4
9:34:01 AM	60.7
9:34:11 AM	61.2
9:34:21 AM	60.5
9:34:31 AM	62
9:34:41 AM	61.7
9:34:51 AM	60.5
9:35:01 AM	60.3
9:35:11 AM	59.1

9:35:21 AM	59.4
9:35:31 AM	61.5
9:35:41 AM	61.4
9:35:51 AM	62.6
9:36:01 AM	61.8
	61.5

AES
Acoustical Engineering Services

Location: R27
Date: 7/13/2022

Time	Leq
10:58:35 PM	59.3
10:58:45 PM	59.9
10:58:55 PM	61.2
10:59:05 PM	61.9
10:59:15 PM	60.4
10:59:25 PM	65.4
10:59:35 PM	62.4
10:59:45 PM	61.6
10:59:55 PM	59.8
11:00:05 PM	64.8
11:00:15 PM	59.5
11:00:25 PM	60
11:00:35 PM	60.9
11:00:45 PM	59.8
11:00:55 PM	60.8
11:01:05 PM	61
11:01:15 PM	61.1
11:01:25 PM	61
11:01:35 PM	74.8
11:01:45 PM	64.9
11:01:55 PM	62.5
11:02:05 PM	60.9
11:02:15 PM	62.1
11:02:25 PM	61.7
11:02:35 PM	60
11:02:45 PM	64.2
11:02:55 PM	61.3
11:03:05 PM	60.6
11:03:15 PM	59.8
11:03:25 PM	63.1
11:03:35 PM	60.8
11:03:45 PM	57.8
11:03:55 PM	59.7
11:04:05 PM	63.7
11:04:15 PM	62.5
11:04:25 PM	58.8
11:04:35 PM	59.5
11:04:45 PM	59.7
11:04:55 PM	61.3
11:05:05 PM	61.9
11:05:15 PM	60.7

11:05:25 PM	59.9
11:05:35 PM	60.6
11:05:45 PM	59.3
11:05:55 PM	60.3
11:06:05 PM	60.2
11:06:15 PM	62.2
11:06:25 PM	59.1
11:06:35 PM	58.5
11:06:45 PM	59.5
11:06:55 PM	59.6
11:07:05 PM	61.4
11:07:15 PM	60.2
11:07:25 PM	59
11:07:35 PM	61.2
11:07:45 PM	60.2
11:07:55 PM	60.3
11:08:05 PM	62.6
11:08:15 PM	63.6
11:08:25 PM	59.3
11:08:35 PM	62.9
11:08:45 PM	59.6
11:08:55 PM	61.3
11:09:05 PM	60.8
11:09:15 PM	59.9
11:09:25 PM	59.2
11:09:35 PM	60.9
11:09:45 PM	60.4
11:09:55 PM	59.9
11:10:05 PM	59.9
11:10:15 PM	59.8
11:10:25 PM	60.9
11:10:35 PM	60.6
11:10:45 PM	60.9
11:10:55 PM	60.6
11:11:05 PM	60.4
11:11:15 PM	59.4
11:11:25 PM	58.6
11:11:35 PM	59.8
11:11:45 PM	61.9
11:11:55 PM	60.3
11:12:05 PM	61.8
11:12:15 PM	59.9
11:12:25 PM	64.5
11:12:35 PM	61.2
11:12:45 PM	61.7

11:12:55 PM	67.4
11:13:05 PM	61.3
11:13:15 PM	71.1
11:13:25 PM	79.2
	64.3

Time	Leq
12:54:04 PM	59.1
12:54:14 PM	63.5
12:54:24 PM	60.8
12:54:34 PM	60.3
12:54:44 PM	65.8
12:54:54 PM	67.6
12:55:04 PM	66.1
12:55:14 PM	64
12:55:24 PM	64.6
12:55:34 PM	61.2
12:55:44 PM	61.2
12:55:54 PM	61.4
12:56:04 PM	61.5
12:56:14 PM	61
12:56:24 PM	62.1
12:56:34 PM	63.1
12:56:44 PM	61
12:56:54 PM	69.7
12:57:04 PM	66.1
12:57:14 PM	63.2
12:57:24 PM	66.9
12:57:34 PM	59.1
12:57:44 PM	59.2
12:57:54 PM	60.9
12:58:04 PM	59.5
12:58:14 PM	61.7
12:58:24 PM	70.8
12:58:34 PM	72.8
12:58:44 PM	65.4
12:58:54 PM	61.9
12:59:04 PM	62.6
12:59:14 PM	64
12:59:24 PM	64.5
12:59:34 PM	62.1
12:59:44 PM	62.9
12:59:54 PM	62.4
1:00:04 PM	63.5
1:00:14 PM	64.7

1:00:24 PM	63.7
1:00:34 PM	62
1:00:44 PM	64.8
1:00:54 PM	64.5
1:01:04 PM	71.6
1:01:14 PM	62.8
1:01:24 PM	64.3
1:01:34 PM	61.3
1:01:44 PM	63
1:01:54 PM	64.1
1:02:04 PM	61.7
1:02:14 PM	61.3
1:02:24 PM	62.2
1:02:34 PM	61.2
1:02:44 PM	63.2
1:02:54 PM	63.4
1:03:04 PM	61.3
1:03:14 PM	65.7
1:03:24 PM	61.9
1:03:34 PM	64.5
1:03:44 PM	60.8
1:03:54 PM	63.5
1:04:04 PM	61.5
1:04:14 PM	60.5
1:04:24 PM	61.7
1:04:34 PM	58.1
1:04:44 PM	58.4
1:04:54 PM	65.1
1:05:04 PM	63.2
1:05:14 PM	65.9
1:05:24 PM	65.5
1:05:34 PM	76.5
1:05:44 PM	80.8
1:05:54 PM	73.6
1:06:04 PM	62.7
1:06:14 PM	59.4
1:06:24 PM	65.1
1:06:34 PM	60.5
1:06:44 PM	61
1:06:54 PM	59.5
1:07:04 PM	63.9
1:07:14 PM	66.7
1:07:24 PM	60
1:07:34 PM	60.5
1:07:44 PM	59.9

1:07:54 PM	59.6
1:08:04 PM	59.6
1:08:14 PM	62.9
1:08:24 PM	66.4
1:08:34 PM	67.6
1:08:44 PM	73.7
1:08:54 PM	63.9
	66.9

Construction Noise Calculations

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Metro TCN AllVision

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
Tractor/Loader/Backhoe	1	79	40%	250	15

1

Receptor: ***1*** ***(Receptor R1)***

Results:

1-hour Leq: **46.0**

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Metro TCN AllVision

Construction Phase: ***Building Foundations***

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%	250	15
Cement and Mortar Mixer	1	80	50%	250	15
Concrete/Industrial Saws	1	90	20%	275	15
Water Truck	1	82	10%	275	15

4

Receptor: ***1*** ***(Receptor R1)***

Results:

1-hour Leq: 55.5

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Metro TCN AllVision

Construction Phase: ***Construction***

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Trenchers	1	80	50%	250	15
Cranes (mobile)	1	81	16%	250	15
Rubber Tired Loaders	1	79	40%	275	15
Welders	1	74	40%	275	15
Welders	1	74	40%	300	15
Aerial Lift	1	75	20%	300	15
Tractor/Loader/Backhoe	1	79	40%	325	15

7

Receptor: ***1*** ***(Receptor R1)***

Results:

1-hour Leq: 52.3

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Metro TCN AllVision

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
Paving Equipment	1	77	50%	250	15

1

Receptor: ***1*** ***(Receptor R1)***

Results:

1-hour Leq: 45.0

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Metro TCN AllVision

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
Tractor/Loader/Backhoe	1	79	40%	245	0

1

Receptor: ***2*** ***(Receptor R2)***

Results:

1-hour Leq: 61.2

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Metro TCN AllVision

Construction Phase: ***Building Foundations***

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%	245	0
Cement and Mortar Mixer	1	80	50%	245	0
Concrete/Industrial Saws	1	90	20%	270	0
Water Truck	1	82	10%	270	0
	4				

Receptor: ***2*** ***(Receptor R2)***

Results:

1-hour Leq: 70.6

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Metro TCN AllVision

Construction Phase: ***Construction***

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Trenchers	1	80	50%	245	0
Cranes (mobile)	1	81	16%	245	0
Rubber Tired Loaders	1	79	40%	270	0
Welders	1	74	40%	270	0
Welders	1	74	40%	295	0
Aerial Lift	1	75	20%	295	0
Tractor/Loader/Backhoe	1	79	40%	320	0

7

Receptor: ***2*** ***(Receptor R2)***

Results:

1-hour Leq: 67.5

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Metro TCN AllVision

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
Paving Equipment	1	77	50%	245	0

1

Receptor: ***2*** ***(Receptor R2)***

Results:

1-hour Leq: 60.2

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Metro TCN AllVision

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
Tractor/Loader/Backhoe	1	79	40%	300	0

1

Receptor: ***3*** ***(Receptor R3)***

Results:

1-hour Leq: 59.5

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Metro TCN AllVision

Construction Phase: ***Building Foundations***

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%	300	0
Cement and Mortar Mixer	1	80	50%	300	0
Concrete/Industrial Saws	1	90	20%	325	0
Water Truck	1	82	10%	325	0
	4				

Receptor: ***3*** ***(Receptor R3)***

Results:

1-hour Leq: **69.0**

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Metro TCN AllVision

Construction Phase: ***Construction***

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Trenchers	1	80	50%	300	0
Cranes (mobile)	1	81	16%	300	0
Rubber Tired Loaders	1	79	40%	325	0
Welders	1	74	40%	325	0
Welders	1	74	40%	350	0
Aerial Lift	1	75	20%	350	0
Tractor/Loader/Backhoe	1	79	40%	375	0

7

Receptor: ***3*** ***(Receptor R3)***

Results:

1-hour Leq: 65.8

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Metro TCN AllVision

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
Paving Equipment	1	77	50%	300	0

1

Receptor: ***3*** ***(Receptor R3)***

Results:

1-hour Leq: **58.4**

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Metro TCN AllVision

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
Tractor/Loader/Backhoe	1	79	40%	220	0

1

Receptor: ***4*** ***(Receptor R4)***

Results:

1-hour Leq: 62.2

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Metro TCN AllVision

Construction Phase: ***Building Foundations***

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%	220	0
Cement and Mortar Mixer	1	80	50%	220	0
Concrete/Industrial Saws	1	90	20%	245	0
Water Truck	1	82	10%	245	0
	4				

Receptor: ***4*** ***(Receptor R4)***

Results:

1-hour Leq: 71.5

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Metro TCN AllVision

Construction Phase: ***Construction***

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Trenchers	1	80	50%	220	0
Cranes (mobile)	1	81	16%	220	0
Rubber Tired Loaders	1	79	40%	245	0
Welders	1	74	40%	245	0
Welders	1	74	40%	270	0
Aerial Lift	1	75	20%	270	0
Tractor/Loader/Backhoe	1	79	40%	295	0

7

Receptor: ***4*** ***(Receptor R4)***

Results:

1-hour Leq: 68.3

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Metro TCN AllVision

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
Paving Equipment	1	77	50%	220	0

1

Receptor: ***4*** ***(Receptor R4)***

Results:

1-hour Leq: 61.1

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Metro TCN AllVision

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
Tractor/Loader/Backhoe	1	79	40%	260	0

Receptor: 1 ***5*** ***(Receptor R5)***

Results:

1-hour Leq: **60.7**

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Metro TCN AllVision

Construction Phase: ***Building Foundations***

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%	260	0
Cement and Mortar Mixer	1	80	50%	260	0
Concrete/Industrial Saws	1	90	20%	285	0
Water Truck	1	82	10%	285	0
	4				

Receptor: ***5*** ***(Receptor R5)***

Results:

1-hour Leq: 70.1

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Metro TCN AllVision

Construction Phase: ***Construction***

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Trenchers	1	80	50%	260	0
Cranes (mobile)	1	81	16%	260	0
Rubber Tired Loaders	1	79	40%	285	0
Welders	1	74	40%	285	0
Welders	1	74	40%	310	0
Aerial Lift	1	75	20%	310	0
Tractor/Loader/Backhoe	1	79	40%	335	0

7

Receptor: ***5*** ***(Receptor R5)***

Results:

1-hour Leq: 67.0

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Metro TCN AllVision

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
Paving Equipment	1	77	50%	260	0

1

Receptor: ***5*** ***(Receptor R5)***

Results:

1-hour Leq: **59.7**

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Metro TCN AllVision

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
Tractor/Loader/Backhoe	1	79	40%	485	0

Receptor: 1 ***6*** ***(Receptor R6)***

Results:

1-hour Leq: **55.3**

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Metro TCN AllVision

Construction Phase: ***Building Foundations***

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%	485	0
Cement and Mortar Mixer	1	80	50%	485	0
Concrete/Industrial Saws	1	90	20%	510	0
Water Truck	1	82	10%	510	0

4

Receptor: ***6*** ***(Receptor R6)***

Results:

1-hour Leq: 65.0

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Metro TCN AllVision

Construction Phase: ***Construction***

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Trenchers	1	80	50%	485	0
Cranes (mobile)	1	81	16%	485	0
Rubber Tired Loaders	1	79	40%	510	0
Welders	1	74	40%	510	0
Welders	1	74	40%	535	0
Aerial Lift	1	75	20%	535	0
Tractor/Loader/Backhoe	1	79	40%	560	0

7

Receptor: ***6*** ***(Receptor R6)***

Results:

1-hour Leq: 61.9

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Metro TCN AllVision

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
Paving Equipment	1	77	50%	485	0

1

Receptor: ***6*** ***(Receptor R6)***

Results:

1-hour Leq: **54.3**

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Metro TCN AllVision

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
Tractor/Loader/Backhoe	1	79	40%	300	0

1

Receptor: ***7*** ***(Receptor R7)***

Results:

1-hour Leq: 59.5

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Metro TCN AllVision

Construction Phase: ***Building Foundations***

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%	300	0
Cement and Mortar Mixer	1	80	50%	300	0
Concrete/Industrial Saws	1	90	20%	325	0
Water Truck	1	82	10%	325	0
	4				

Receptor: ***7*** ***(Receptor R7)***

Results:

1-hour Leq: 69.0

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Metro TCN AllVision

Construction Phase: ***Construction***

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Trenchers	1	80	50%	300	0
Cranes (mobile)	1	81	16%	300	0
Rubber Tired Loaders	1	79	40%	325	0
Welders	1	74	40%	325	0
Welders	1	74	40%	350	0
Aerial Lift	1	75	20%	350	0
Tractor/Loader/Backhoe	1	79	40%	375	0

7

Receptor: ***7*** ***(Receptor R7)***

Results:

1-hour Leq: 65.8

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Metro TCN AllVision

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
Paving Equipment	1	77	50%	300	0

1

Receptor: ***7*** ***(Receptor R7)***

Results:

1-hour Leq: 58.4

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Metro TCN AllVision

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
Tractor/Loader/Backhoe	1	79	40%	140	15

1

Receptor: ***8*** ***(Receptor R8)***

Results:

1-hour Leq: 51.1

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Metro TCN AllVision

Construction Phase: ***Building Foundations***

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%	140	15
Cement and Mortar Mixer	1	80	50%	140	15
Concrete/Industrial Saws	1	90	20%	165	15
Water Truck	1	82	10%	165	15
	4				

Receptor: ***8*** ***(Receptor R8)***

Results:

1-hour Leq: 60.1

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Metro TCN AllVision

Construction Phase: ***Construction***

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Trenchers	1	80	50%	140	15
Cranes (mobile)	1	81	16%	140	15
Rubber Tired Loaders	1	79	40%	165	15
Welders	1	74	40%	165	15
Welders	1	74	40%	190	15
Aerial Lift	1	75	20%	190	15
Tractor/Loader/Backhoe	1	79	40%	215	15

7

Receptor: ***8*** ***(Receptor R8)***

Results:

1-hour Leq: 56.9

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Metro TCN AllVision

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
Paving Equipment	1	77	50%	140	15

1

Receptor: ***8*** ***(Receptor R8)***

Results:

1-hour Leq: 50.0

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Metro TCN AllVision

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
Tractor/Loader/Backhoe	1	79	40%	355	0

1

Receptor: ***9*** ***(Receptor R9)***

Results:

1-hour Leq: 58.0

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Metro TCN AllVision

Construction Phase: ***Building Foundations***

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%	355	0
Cement and Mortar Mixer	1	80	50%	355	0
Concrete/Industrial Saws	1	90	20%	380	0
Water Truck	1	82	10%	380	0
	4				

Receptor: ***9*** ***(Receptor R9)***

Results:

1-hour Leq: 67.6

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Metro TCN AllVision

Construction Phase: ***Construction***

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Trenchers	1	80	50%	355	0
Cranes (mobile)	1	81	16%	355	0
Rubber Tired Loaders	1	79	40%	380	0
Welders	1	74	40%	380	0
Welders	1	74	40%	405	0
Aerial Lift	1	75	20%	405	0
Tractor/Loader/Backhoe	1	79	40%	430	0

7

Receptor: ***9*** ***(Receptor R9)***

Results:

1-hour Leq: 64.5

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Metro TCN AllVision

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
Paving Equipment	1	77	50%	355	0

1

Receptor: ***9*** ***(Receptor R9)***

Results:

1-hour Leq: 57.0

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Metro TCN AllVision

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
Tractor/Loader/Backhoe	1	79	40%	275	0

1

Receptor: ***10*** ***(Receptor R10)***

Results:

1-hour Leq: 60.2

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Metro TCN AllVision

Construction Phase: ***Building Foundations***

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
Cement and Mortar Mixer	1	80	50%	275	0
Concrete/Industrial Saws	1	90	20%	300	0
Water Truck	1	82	10%	300	0

4

Receptor: ***10*** ***(Receptor R10)***

Results:

1-hour Leq: 69.7

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Metro TCN AllVision

Construction Phase: ***Construction***

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Trenchers	1	80	50%	275	0
Cranes (mobile)	1	81	16%	275	0
Rubber Tired Loaders	1	79	40%	300	0
Welders	1	74	40%	300	0
Welders	1	74	40%	325	0
Aerial Lift	1	75	20%	325	0
Tractor/Loader/Backhoe	1	79	40%	350	0

7

Receptor: ***10*** ***(Receptor R10)***

Results:

1-hour Leq: 66.5

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Metro TCN AllVision

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
Paving Equipment	1	77	50%	275	0

1

Receptor: ***10*** ***(Receptor R10)***

Results:

1-hour Leq: 59.2

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Metro TCN AllVision

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
Tractor/Loader/Backhoe	1	79	40%	240	0

1

Receptor: ***11*** ***(Receptor R11)***

Results:

1-hour Leq: **61.4**

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Metro TCN AllVision

Construction Phase: ***Building Foundations***

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%	240	0
Cement and Mortar Mixer	1	80	50%	240	0
Concrete/Industrial Saws	1	90	20%	265	0
Water Truck	1	82	10%	265	0
	4				

Receptor: ***11*** ***(Receptor R11)***

Results:

1-hour Leq: 70.8

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Metro TCN AllVision

Construction Phase: ***Construction***

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Trenchers	1	80	50%	240	0
Cranes (mobile)	1	81	16%	240	0
Rubber Tired Loaders	1	79	40%	265	0
Welders	1	74	40%	265	0
Welders	1	74	40%	290	0
Aerial Lift	1	75	20%	290	0
Tractor/Loader/Backhoe	1	79	40%	315	0

7

Receptor: ***11*** ***(Receptor R11)***

Results:

1-hour Leq: 67.6

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Metro TCN AllVision

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
Paving Equipment	1	77	50%	240	0

1

Receptor: ***11*** ***(Receptor R11)***

Results:

1-hour Leq: 60.4

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Metro TCN AllVision

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
Tractor/Loader/Backhoe	1	79	40%	205	0

1

Receptor: ***12*** ***(Receptor R12)***

Results:

1-hour Leq: **62.8**

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Metro TCN AllVision

Construction Phase: ***Building Foundations***

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%	205	0
Cement and Mortar Mixer	1	80	50%	205	0
Concrete/Industrial Saws	1	90	20%	230	0
Water Truck	1	82	10%	230	0
	4				

Receptor: ***12*** ***(Receptor R12)***

Results:

1-hour Leq: 72.1

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Metro TCN AllVision

Construction Phase: ***Construction***

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Trenchers	1	80	50%	205	0
Cranes (mobile)	1	81	16%	205	0
Rubber Tired Loaders	1	79	40%	230	0
Welders	1	74	40%	230	0
Welders	1	74	40%	255	0
Aerial Lift	1	75	20%	255	0
Tractor/Loader/Backhoe	1	79	40%	280	0
	7				

Receptor: ***12*** ***(Receptor R12)***

Results:

1-hour Leq: 68.9

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Metro TCN AllVision

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
Paving Equipment	1	77	50%	205	0

1

Receptor: ***12*** ***(Receptor R12)***

Results:

1-hour Leq: 61.7

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Metro TCN AllVision

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
Tractor/Loader/Backhoe	1	79	40%	55	0

1

Receptor: ***30*** ***(Receptor R12B)***

Results:

1-hour Leq: **74.2**

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Metro TCN AllVision

Construction Phase: ***Building Foundations***

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%	55	0
Cement and Mortar Mixer	1	80	50%	55	0
Concrete/Industrial Saws	1	90	20%	80	0
Water Truck	1	82	10%	80	0
	4				

Receptor: ***30*** ***(Receptor R12B)***

Results:

1-hour Leq: **82.2**

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Metro TCN AllVision

Construction Phase: ***Construction***

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Trenchers	1	80	50%	55	0
Cranes (mobile)	1	81	16%	55	0
Rubber Tired Loaders	1	79	40%	80	0
Welders	1	74	40%	80	0
Welders	1	74	40%	105	0
Aerial Lift	1	75	20%	105	0
Tractor/Loader/Backhoe	1	79	40%	130	0
	7				

Receptor: ***30*** ***(Receptor R12B)***

Results:

1-hour Leq: 79.2

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Metro TCN AllVision

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
Paving Equipment	1	77	50%	55	0

1

Receptor: ***30*** ***(Receptor R12B)***

Results:

1-hour Leq: 73.2

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Metro TCN AllVision

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
Tractor/Loader/Backhoe	1	79	40%	165	0

1

Receptor: ***13*** ***(Receptor R13)***

Results:

1-hour Leq: **64.7**

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Metro TCN AllVision

Construction Phase: ***Building Foundations***

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%	165	0
Cement and Mortar Mixer	1	80	50%	165	0
Concrete/Industrial Saws	1	90	20%	190	0
Water Truck	1	82	10%	190	0
	4				

Receptor: ***13*** ***(Receptor R13)***

Results:

1-hour Leq: 73.8

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Metro TCN AllVision

Construction Phase: ***Construction***

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Trenchers	1	80	50%	165	0
Cranes (mobile)	1	81	16%	165	0
Rubber Tired Loaders	1	79	40%	190	0
Welders	1	74	40%	190	0
Welders	1	74	40%	215	0
Aerial Lift	1	75	20%	215	0
Tractor/Loader/Backhoe	1	79	40%	240	0
	7				

Receptor: ***13*** ***(Receptor R13)***

Results:

1-hour Leq: 70.6

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Metro TCN AllVision

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
Paving Equipment	1	77	50%	165	0

1

Receptor: ***13*** ***(Receptor R13)***

Results:

1-hour Leq: 63.6

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Metro TCN AllVision

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
Tractor/Loader/Backhoe	1	79	40%	315	0

1

Receptor: ***14*** ***(Receptor R14)***

Results:

1-hour Leq: **59.0**

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Metro TCN AllVision

Construction Phase: ***Building Foundations***

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%	315	0
Cement and Mortar Mixer	1	80	50%	315	0
Concrete/Industrial Saws	1	90	20%	340	0
Water Truck	1	82	10%	340	0
	4				

Receptor: ***14*** ***(Receptor R14)***

Results:

1-hour Leq: 68.6

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Metro TCN AllVision

Construction Phase: ***Construction***

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Trenchers	1	80	50%	315	0
Cranes (mobile)	1	81	16%	315	0
Rubber Tired Loaders	1	79	40%	340	0
Welders	1	74	40%	340	0
Welders	1	74	40%	365	0
Aerial Lift	1	75	20%	365	0
Tractor/Loader/Backhoe	1	79	40%	390	0
	7				

Receptor: ***14*** ***(Receptor R14)***

Results:

1-hour Leq: 65.4

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Metro TCN AllVision

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
Paving Equipment	1	77	50%	315	0

1

Receptor: ***14*** ***(Receptor R14)***

Results:

1-hour Leq: 58.0

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Metro TCN AllVision

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
Tractor/Loader/Backhoe	1	79	40%	150	0

1

Receptor: ***15*** ***(Receptor R15)***

Results:

1-hour Leq: 65.5

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Metro TCN AllVision

Construction Phase: ***Building Foundations***

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	0
Cement and Mortar Mixer	1	80	50%	150	0
Concrete/Industrial Saws	1	90	20%	175	0
Water Truck	1	82	10%	175	0
	4				

Receptor: ***15*** ***(Receptor R15)***

Results:

1-hour Leq: 74.6

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Metro TCN AllVision

Construction Phase: ***Construction***

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Trenchers	1	80	50%	150	0
Cranes (mobile)	1	81	16%	150	0
Rubber Tired Loaders	1	79	40%	175	0
Welders	1	74	40%	175	0
Welders	1	74	40%	200	0
Aerial Lift	1	75	20%	200	0
Tractor/Loader/Backhoe	1	79	40%	225	0

7

Receptor: ***15*** ***(Receptor R15)***

Results:

1-hour Leq: **71.4**

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Metro TCN AllVision

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
Paving Equipment	1	77	50%	150	0

1

Receptor: ***15*** ***(Receptor R15)***

Results:

1-hour Leq: 64.4

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Metro TCN AllVision

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
Tractor/Loader/Backhoe	1	79	40%	285	0

1

Receptor: ***16*** ***(Receptor R16)***

Results:

1-hour Leq: **59.9**

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Metro TCN AllVision

Construction Phase: ***Building Foundations***

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%	285	0
Cement and Mortar Mixer	1	80	50%	285	0
Concrete/Industrial Saws	1	90	20%	310	0
Water Truck	1	82	10%	310	0
	4				

Receptor: ***16*** ***(Receptor R16)***

Results:

1-hour Leq: 69.4

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Metro TCN AllVision

Construction Phase: ***Construction***

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Trenchers	1	80	50%	285	0
Cranes (mobile)	1	81	16%	285	0
Rubber Tired Loaders	1	79	40%	310	0
Welders	1	74	40%	310	0
Welders	1	74	40%	335	0
Aerial Lift	1	75	20%	335	0
Tractor/Loader/Backhoe	1	79	40%	360	0

7

Receptor: ***16*** ***(Receptor R16)***

Results:

1-hour Leq: **66.3**

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Metro TCN AllVision

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
Paving Equipment	1	77	50%	285	0

1

Receptor: ***16*** ***(Receptor R16)***

Results:

1-hour Leq: 58.9

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Metro TCN AllVision

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
Tractor/Loader/Backhoe	1	79	40%	280	0

1

Receptor: ***17*** ***(Receptor R17)***

Results:

1-hour Leq: **60.1**

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Metro TCN AllVision

Construction Phase: ***Building Foundations***

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
Cement and Mortar Mixer	1	80	50%	280	0
Concrete/Industrial Saws	1	90	20%	305	0
Water Truck	1	82	10%	305	0
	4				

Receptor: ***17*** ***(Receptor R17)***

Results:

1-hour Leq: 69.5

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Metro TCN AllVision

Construction Phase: ***Construction***

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Trenchers	1	80	50%	280	0
Cranes (mobile)	1	81	16%	280	0
Rubber Tired Loaders	1	79	40%	305	0
Welders	1	74	40%	305	0
Welders	1	74	40%	330	0
Aerial Lift	1	75	20%	330	0
Tractor/Loader/Backhoe	1	79	40%	355	0

7

Receptor: ***17*** ***(Receptor R17)***

Results:

1-hour Leq: 66.4

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Metro TCN AllVision

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
Paving Equipment	1	77	50%	280	0

1

Receptor: ***17*** ***(Receptor R17)***

Results:

1-hour Leq: 59.0

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Metro TCN AllVision

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
Tractor/Loader/Backhoe	1	79	40%	300	0

1

Receptor: ***18*** ***(Receptor R18)***

Results:

1-hour Leq: **59.5**

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Metro TCN AllVision

Construction Phase: ***Building Foundations***

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%	300	0
Cement and Mortar Mixer	1	80	50%	300	0
Concrete/Industrial Saws	1	90	20%	325	0
Water Truck	1	82	10%	325	0
	4				

Receptor: ***18*** ***(Receptor R18)***

Results:

1-hour Leq: 69.0

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Metro TCN AllVision

Construction Phase: ***Construction***

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Trenchers	1	80	50%	300	0
Cranes (mobile)	1	81	16%	300	0
Rubber Tired Loaders	1	79	40%	325	0
Welders	1	74	40%	325	0
Welders	1	74	40%	350	0
Aerial Lift	1	75	20%	350	0
Tractor/Loader/Backhoe	1	79	40%	375	0

7

Receptor: ***18*** ***(Receptor R18)***

Results:

1-hour Leq: 65.8

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Metro TCN AllVision

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
Paving Equipment	1	77	50%	300	0
	1				

Receptor: ***18*** ***(Receptor R18)***

Results:

1-hour Leq: 58.4

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Metro TCN AllVision

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
Tractor/Loader/Backhoe	1	79	40%	395	0

1

Receptor: ***19*** ***(Receptor R19)***

Results:

1-hour Leq: **57.1**

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Metro TCN AllVision

Construction Phase: ***Building Foundations***

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%	395	0
Cement and Mortar Mixer	1	80	50%	395	0
Concrete/Industrial Saws	1	90	20%	420	0
Water Truck	1	82	10%	420	0
	4				

Receptor: ***19*** ***(Receptor R19)***

Results:

1-hour Leq: 66.7

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Metro TCN AllVision

Construction Phase: ***Construction***

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Trenchers	1	80	50%	395	0
Cranes (mobile)	1	81	16%	395	0
Rubber Tired Loaders	1	79	40%	420	0
Welders	1	74	40%	420	0
Welders	1	74	40%	445	0
Aerial Lift	1	75	20%	445	0
Tractor/Loader/Backhoe	1	79	40%	470	0
	7				

Receptor: ***19*** ***(Receptor R19)***

Results:

1-hour Leq: 63.6

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Metro TCN AllVision

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
Paving Equipment	1	77	50%	395	0

1

Receptor: ***19*** ***(Receptor R19)***

Results:

1-hour Leq: 56.0

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Metro TCN AllVision

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
Tractor/Loader/Backhoe	1	79	40%	270	0

1

Receptor: ***20*** ***(Receptor R20)***

Results:

1-hour Leq: **60.4**

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Metro TCN AllVision

Construction Phase: ***Building Foundations***

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%	270	0
Cement and Mortar Mixer	1	80	50%	270	0
Concrete/Industrial Saws	1	90	20%	295	0
Water Truck	1	82	10%	295	0

4

Receptor: ***20*** ***(Receptor R20)***

Results:

1-hour Leq: 69.8

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Metro TCN AllVision

Construction Phase: ***Construction***

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Trenchers	1	80	50%	270	0
Cranes (mobile)	1	81	16%	270	0
Rubber Tired Loaders	1	79	40%	295	0
Welders	1	74	40%	295	0
Welders	1	74	40%	320	0
Aerial Lift	1	75	20%	320	0
Tractor/Loader/Backhoe	1	79	40%	345	0

7

Receptor: ***20*** ***(Receptor R20)***

Results:

1-hour Leq: 66.7

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Metro TCN AllVision

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
Paving Equipment	1	77	50%	270	0

1

Receptor: ***20*** ***(Receptor R20)***

Results:

1-hour Leq: 59.3

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Metro TCN AllVision

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
Tractor/Loader/Backhoe	1	79	40%	390	5

1

Receptor: ***21*** ***(Receptor R21)***

Results:

1-hour Leq: **52.2**

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Metro TCN AllVision

Construction Phase: ***Building Foundations***

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%	390	5
Cement and Mortar Mixer	1	80	50%	390	5
Concrete/Industrial Saws	1	90	20%	415	5
Water Truck	1	82	10%	415	5
	4				

Receptor: ***21*** ***(Receptor R21)***

Results:

1-hour Leq: 61.8

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Metro TCN AllVision

Construction Phase: ***Construction***

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Trenchers	1	80	50%	390	5
Cranes (mobile)	1	81	16%	390	5
Rubber Tired Loaders	1	79	40%	415	5
Welders	1	74	40%	415	5
Welders	1	74	40%	440	5
Aerial Lift	1	75	20%	440	5
Tractor/Loader/Backhoe	1	79	40%	465	5

7

Receptor: ***21*** ***(Receptor R21)***

Results:

1-hour Leq: 58.7

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Metro TCN AllVision

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
Paving Equipment	1	77	50%	390	5

1

Receptor: ***21*** ***(Receptor R21)***

Results:

1-hour Leq: 51.1

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Metro TCN AllVision

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
Tractor/Loader/Backhoe	1	79	40%	280	0

1

Receptor: ***22*** ***(Receptor R22)***

Results:

1-hour Leq: **60.1**

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Metro TCN AllVision

Construction Phase: ***Building Foundations***

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
Cement and Mortar Mixer	1	80	50%	280	0
Concrete/Industrial Saws	1	90	20%	305	0
Water Truck	1	82	10%	305	0
	4				

Receptor: ***22*** ***(Receptor R22)***

Results:

1-hour Leq: **69.5**

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Metro TCN AllVision

Construction Phase: ***Construction***

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Trenchers	1	80	50%	280	0
Cranes (mobile)	1	81	16%	280	0
Rubber Tired Loaders	1	79	40%	305	0
Welders	1	74	40%	305	0
Welders	1	74	40%	330	0
Aerial Lift	1	75	20%	330	0
Tractor/Loader/Backhoe	1	79	40%	355	0
	7				

Receptor: ***22*** ***(Receptor R22)***

Results:

1-hour Leq: 66.4

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Metro TCN AllVision

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
Paving Equipment	1	77	50%	280	0

1

Receptor: ***22*** ***(Receptor R22)***

Results:

1-hour Leq: **59.0**

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Metro TCN AllVision

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
Tractor/Loader/Backhoe	1	79	40%	580	0
	1				

Receptor: ***23*** ***(Receptor R23)***

Results:

1-hour Leq: 53.7

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Metro TCN AllVision

Construction Phase: ***Building Foundations***

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%	580	0
Cement and Mortar Mixer	1	80	50%	580	0
Concrete/Industrial Saws	1	90	20%	605	0
Water Truck	1	82	10%	605	0
	4				

Receptor: ***23*** ***(Receptor R23)***

Results:

1-hour Leq: 63.5

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Metro TCN AllVision

Construction Phase: ***Construction***

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Trenchers	1	80	50%	580	0
Cranes (mobile)	1	81	16%	580	0
Rubber Tired Loaders	1	79	40%	605	0
Welders	1	74	40%	605	0
Welders	1	74	40%	630	0
Aerial Lift	1	75	20%	630	0
Tractor/Loader/Backhoe	1	79	40%	655	0

7

Receptor: ***23*** ***(Receptor R23)***

Results:

1-hour Leq: 60.4

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Metro TCN AllVision

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
Paving Equipment	1	77	50%	580	0
	1				

Receptor: ***23*** ***(Receptor R23)***

Results:

1-hour Leq: 52.7

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Metro TCN AllVision

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
Tractor/Loader/Backhoe	1	79	40%	320	15

1

Receptor: ***24*** ***(Receptor R24)***

Results:

1-hour Leq: **43.9**

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Metro TCN AllVision

Construction Phase: ***Building Foundations***

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%	320	15
Cement and Mortar Mixer	1	80	50%	320	15
Concrete/Industrial Saws	1	90	20%	345	15
Water Truck	1	82	10%	345	15
	4				

Receptor: ***24*** ***(Receptor R24)***

Results:

1-hour Leq: 53.4

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Metro TCN AllVision

Construction Phase: ***Construction***

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Trenchers	1	80	50%	320	15
Cranes (mobile)	1	81	16%	320	15
Rubber Tired Loaders	1	79	40%	345	15
Welders	1	74	40%	345	15
Welders	1	74	40%	370	15
Aerial Lift	1	75	20%	370	15
Tractor/Loader/Backhoe	1	79	40%	395	15

7

Receptor: ***24*** ***(Receptor R24)***

Results:

1-hour Leq: **50.3**

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Metro TCN AllVision

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
Paving Equipment	1	77	50%	320	15

1

Receptor: ***24*** ***(Receptor R24)***

Results:

1-hour Leq: 42.9

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Metro TCN AllVision

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
Tractor/Loader/Backhoe	1	79	40%	280	0

1

Receptor: ***25*** ***(Receptor R25)***

Results:

1-hour Leq: **60.1**

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Metro TCN AllVision

Construction Phase: ***Building Foundations***

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
Cement and Mortar Mixer	1	80	50%	280	0
Concrete/Industrial Saws	1	90	20%	305	0
Water Truck	1	82	10%	305	0
	4				

Receptor: ***25*** ***(Receptor R25)***

Results:

1-hour Leq: **69.5**

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Metro TCN AllVision

Construction Phase: ***Construction***

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Trenchers	1	80	50%	280	0
Cranes (mobile)	1	81	16%	280	0
Rubber Tired Loaders	1	79	40%	305	0
Welders	1	74	40%	305	0
Welders	1	74	40%	330	0
Aerial Lift	1	75	20%	330	0
Tractor/Loader/Backhoe	1	79	40%	355	0

7

Receptor: ***25*** ***(Receptor R25)***

Results:

1-hour Leq: **66.4**

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Metro TCN AllVision

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
Paving Equipment	1	77	50%	280	0

1

Receptor: ***25*** ***(Receptor R25)***

Results:

1-hour Leq: 59.0

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Metro TCN AllVision

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
Tractor/Loader/Backhoe	1	79	40%	155	15

1

Receptor: ***26*** ***(Receptor R26)***

Results:

1-hour Leq: **50.2**

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Metro TCN AllVision

Construction Phase: ***Building Foundations***

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%	155	15
Cement and Mortar Mixer	1	80	50%	155	15
Concrete/Industrial Saws	1	90	20%	180	15
Water Truck	1	82	10%	180	15
	4				

Receptor: ***26*** ***(Receptor R26)***

Results:

1-hour Leq: **59.3**

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Metro TCN AllVision

Construction Phase: ***Construction***

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Trenchers	1	80	50%	155	15
Cranes (mobile)	1	81	16%	155	15
Rubber Tired Loaders	1	79	40%	180	15
Welders	1	74	40%	180	15
Welders	1	74	40%	205	15
Aerial Lift	1	75	20%	205	15
Tractor/Loader/Backhoe	1	79	40%	230	15
	7				

Receptor: ***26*** ***(Receptor R26)***

Results:

1-hour Leq: 56.1

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Metro TCN AllVision

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
Paving Equipment	1	77	50%	155	15

1

Receptor: ***26*** ***(Receptor R26)***

Results:

1-hour Leq: **49.2**

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Metro TCN AllVision

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
Tractor/Loader/Backhoe	1	79	40%	145	0

1

Receptor: ***27*** ***(Receptor R27)***

Results:

1-hour Leq: **65.8**

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Metro TCN AllVision

Construction Phase: ***Building Foundations***

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%	145	0
Cement and Mortar Mixer	1	80	50%	145	0
Concrete/Industrial Saws	1	90	20%	170	0
Water Truck	1	82	10%	170	0
	4				

Receptor: ***27*** ***(Receptor R27)***

Results:

1-hour Leq: 74.9

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Metro TCN AllVision

Construction Phase: ***Construction***

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Trenchers	1	80	50%	145	0
Cranes (mobile)	1	81	16%	145	0
Rubber Tired Loaders	1	79	40%	170	0
Welders	1	74	40%	170	0
Welders	1	74	40%	195	0
Aerial Lift	1	75	20%	195	0
Tractor/Loader/Backhoe	1	79	40%	220	0

7

Receptor: ***27*** ***(Receptor R27)***

Results:

1-hour Leq: **71.7**

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Metro TCN AllVision

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
Paving Equipment	1	77	50%	145	0

1

Receptor: ***27*** ***(Receptor R27)***

Results:

1-hour Leq: 64.7

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Metro TCN AllVision

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
Tractor/Loader/Backhoe	1	79	40%	30	0

1

Receptor: ***28*** ***(Receptor R28)***

Results:

1-hour Leq: **79.5**

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Metro TCN AllVision

Construction Phase: ***Building Foundations***

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%	30	0
Cement and Mortar Mixer	1	80	50%	30	0
Concrete/Industrial Saws	1	90	20%	55	0
Water Truck	1	82	10%	55	0
	4				

Receptor: ***28*** ***(Receptor R28)***

Results:

1-hour Leq: 86.6

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Metro TCN AllVision

Construction Phase: ***Construction***

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Trenchers	1	80	50%	30	0
Cranes (mobile)	1	81	16%	30	0
Rubber Tired Loaders	1	79	40%	55	0
Welders	1	74	40%	55	0
Welders	1	74	40%	80	0
Aerial Lift	1	75	20%	80	0
Tractor/Loader/Backhoe	1	79	40%	105	0

7

Receptor: ***28*** ***(Receptor R28)***

Results:

1-hour Leq: **83.9**

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Metro TCN AllVision

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
Paving Equipment	1	77	50%	30	0

1

Receptor: ***28*** ***(Receptor R28)***

Results:

1-hour Leq: 78.4

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Metro TCN AllVision

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
Tractor/Loader/Backhoe	1	79	40%	190	15

1

Receptor: ***29*** ***(Receptor R29)***

Results:

1-hour Leq: **48.4**

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Metro TCN AllVision

Construction Phase: ***Building Foundations***

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%	190	15
Cement and Mortar Mixer	1	80	50%	190	15
Concrete/Industrial Saws	1	90	20%	215	15
Water Truck	1	82	10%	215	15
	4				

Receptor: ***29*** ***(Receptor R29)***

Results:

1-hour Leq: **57.7**

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Metro TCN AllVision

Construction Phase: ***Construction***

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Trenchers	1	80	50%	190	15
Cranes (mobile)	1	81	16%	190	15
Rubber Tired Loaders	1	79	40%	215	15
Welders	1	74	40%	215	15
Welders	1	74	40%	240	15
Aerial Lift	1	75	20%	240	15
Tractor/Loader/Backhoe	1	79	40%	265	15
	7				

Receptor: ***29*** ***(Receptor R29)***

Results:

1-hour Leq: 54.5

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Metro TCN AllVision

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
Paving Equipment	1	77	50%	190	15

1

Receptor: ***29*** ***(Receptor R29)***

Results:

1-hour Leq: **47.4**

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Metro TCN AllVision

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						
		Historic Building						
		25						
Large Bulldozer	0.089	0.089						
Caisson Drilling	0.089	0.089						
Loaded Trucks	0.076	0.076						
Jackhammer	0.035	0.035						
Small bulldozer	0.003	0.003						
Significance Threshold, PPV		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						
		R12B	R28	Zyndera Studios				
		55	30	140				
Large Bulldozer	87	76.7	84.6	64.6				
Caisson Drilling	87	76.7	84.6	64.6				
Loaded Trucks	86	75.7	83.6	63.6				
Jackhammer	79	68.7	76.6	56.6				
Small bulldozer	58	47.7	55.6	35.6				
Significance Threshold, VdB		72	72	65				

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						
		25						
Typical road surface	0.00565	0.016						
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						
		25						
Typical road surface	63	72						
Significance Threshold, VdB		72						

Ref. Levels based on FTA Figure 7-3