Appendix IS-10

Noise

1811 Sacramento Project

Noise Calculations Worksheets

Provided by Acoustical Engineering Services

Ambient Noise Measurements

AES
ACOUSTICAL ENGINEERING SERVICES

Project: 1811 Sacramento Project
Location: R1
Date: 3/2/2023

Time	Leq
11:02:07 AM	59.7
11:02:17 AM	58.7
11:02:27 AM	67.2
11:02:37 AM	60.9
11:02:47 AM	65.7
11:02:57 AM	67.3
11:03:07 AM	69.6
11:03:17 AM	65.8
11:03:27 AM	64.5
11:03:37 AM	69.7
11:03:47 AM	62.1
11:03:57 AM	63.1
11:04:07 AM	74.8
11:04:17 AM	64.4
11:04:27 AM	61.2
11:04:37 AM	67.6
11:04:47 AM	64.8
11:04:57 AM	60.5
11:05:07 AM	67.4
11:05:17 AM	64.6
11:05:27 AM	63.6
11:05:37 AM	67.7
11:05:47 AM	65.6
11:05:57 AM	62.2
11:06:07 AM	55.2
11:06:17 AM	56.2
11:06:27 AM	60.3
11:06:37 AM	64.5
11:06:47 AM	69.7
11:06:57 AM	67.7
11:07:07 AM	72.3
11:07:17 AM	68.1
11:07:27 AM	66.7
11:07:37 AM	61.8
11:07:47 AM	63.5
11:07:57 AM	62.0
11:08:07 AM	63.9
11:08:17 AM	73.2
11:08:27 AM	62.8
11:08:37 AM	55.9
11:08:47 AM	54.1
11:08:57 AM	60.5
11:09:07 AM	57.0

11:09:17 AM	56.9
11:09:27 AM	65.3
11:09:37 AM	61.2
11:09:47 AM	68.7
11:09:57 AM	71.0
11:10:07 AM	70.0
11:10:17 AM	64.6
11:10:27 AM	65.9
11:10:37 AM	69.5
11:10:47 AM	67.2
11:10:57 AM	63.5
11:11:07 AM	66.8
11:11:17 AM	66.7
11:11:27 AM	64.9
11:11:37 AM	62.7
11:11:47 AM	74.4
11:11:57 AM	68.0
11:12:07 AM	65.2
11:12:17 AM	64.9
11:12:27 AM	57.3
11:12:37 AM	63.3
11:12:47 AM	67.8
11:12:57 AM	57.4
11:13:07 AM	69.7
11:13:17 AM	68.6
11:13:27 AM	53.4
11:13:37 AM	53.1
11:13:47 AM	59.4
11:13:57 AM	65.7
11:14:07 AM	55.9
11:14:17 AM	59.5
11:14:27 AM	65.7
11:14:37 AM	70.6
11:14:47 AM	60.9
11:14:57 AM	70.6
11:15:07 AM	70.8
11:15:17 AM	69.6
11:15:27 AM	63.9
11:15:37 AM	62.8
11:15:47 AM	64.1
11:15:57 AM	62.9
11:16:07 AM	72.5
11:16:17 AM	63.6
11:16:27 AM	63.6
11:16:37 AM	55.8
11:16:47 AM	69.2
11:16:57 AM	70.4
	66.9

Time	Leq
10:43:07 PM	68.8
10:43:17 PM	61.9
10:43:27 PM	60.6
10:43:37 PM	64.5
10:43:47 PM	58.6
10:43:57 PM	57.5
10:44:07 PM	53.9
10:44:17 PM	54.5
10:44:27 PM	53.5
10:44:37 PM	58.5
10:44:47 PM	63.5
10:44:57 PM	65.2
10:45:07 PM	51.2
10:45:17 PM	63.7
10:45:27 PM	58.0
10:45:37 PM	59.1
10:45:47 PM	68.7
10:45:57 PM	65.5
10:46:07 PM	63.2
10:46:17 PM	56.0
10:46:27 PM	57.5
10:46:37 PM	66.5
10:46:47 PM	69.1
10:46:57 PM	71.1
10:47:07 PM	60.8
10:47:17 PM	64.5
10:47:27 PM	63.2
10:47:37 PM	61.1
10:47:47 PM	61.7
10:47:57 PM	66.8
10:48:07 PM	67.1
10:48:17 PM	55.5
10:48:27 PM	52.2
10:48:37 PM	54.7
10:48:47 PM	64.9
10:48:57 PM	65.7
10:49:07 PM	62.2
10:49:17 PM	62.3
10:49:27 PM	69.3
10:49:37 PM	60.2
10:49:47 PM	66.9
10:49:57 PM	63.9
10:50:07 PM	58.8
10:50:17 PM	62.8
10:50:27 PM	64.9
10:50:37 PM	67.6

10:50:47 PM	66.6
10:50:57 PM	58.1
10:51:07 PM	51.7
10:51:17 PM	51.8
10:51:27 PM	53.0
10:51:37 PM	63.2
10:51:47 PM	56.7
10:51:57 PM	64.9
10:52:07 PM	56.1
10:52:17 PM	54.1
10:52:27 PM	58.6
10:52:37 PM	65.1
10:52:47 PM	65.3
10:52:57 PM	66.4
10:53:07 PM	53.5
10:53:17 PM	68.7
10:53:27 PM	59.8
10:53:37 PM	69.8
10:53:47 PM	66.8
10:53:57 PM	61.2
10:54:07 PM	65.9
10:54:17 PM	68.0
10:54:27 PM	60.1
10:54:37 PM	52.7
10:54:47 PM	53.4
10:54:57 PM	58.6
10:55:07 PM	66.6
10:55:17 PM	68.4
10:55:27 PM	56.7
10:55:37 PM	53.2
10:55:47 PM	56.1
10:55:57 PM	58.3
10:56:07 PM	52.6
10:56:17 PM	52.5
10:56:27 PM	52.6
10:56:37 PM	61.2
10:56:47 PM	61.8
10:56:57 PM	53.2
10:57:07 PM	54.1
10:57:17 PM	67.9
10:57:27 PM	60.2
10:57:37 PM	66.9
10:57:47 PM	64.0
10:57:57 PM	62.0
	63.8

AES
Acoustical Engineering Services

Project: 1811 Sacramento Project
Location: R2
Date: 3/2/2023

Time	Leq
10:41:53 AM	63.9
10:42:03 AM	67.2
10:42:13 AM	63.2
10:42:23 AM	62.5
10:42:33 AM	57.9
10:42:43 AM	55.0
10:42:53 AM	54.8
10:43:03 AM	61.0
10:43:13 AM	64.3
10:43:23 AM	54.9
10:43:33 AM	56.5
10:43:43 AM	59.0
10:43:53 AM	69.4
10:44:03 AM	71.5
10:44:13 AM	63.2
10:44:23 AM	58.6
10:44:33 AM	67.7
10:44:43 AM	62.1
10:44:53 AM	60.2
10:45:03 AM	57.5
10:45:13 AM	56.4
10:45:23 AM	59.3
10:45:33 AM	63.5
10:45:43 AM	56.0
10:45:53 AM	59.9
10:46:03 AM	63.7
10:46:13 AM	60.8
10:46:23 AM	64.0
10:46:33 AM	62.4
10:46:43 AM	66.7
10:46:53 AM	73.2
10:47:03 AM	63.2
10:47:13 AM	58.4
10:47:23 AM	65.6
10:47:33 AM	56.2
10:47:43 AM	58.0
10:47:53 AM	60.3
10:48:03 AM	63.2
10:48:13 AM	61.0
10:48:23 AM	59.2
10:48:33 AM	59.0
10:48:43 AM	60.4
10:48:53 AM	58.2

10:49:03 AM	59.2
10:49:13 AM	70.4
10:49:23 AM	59.9
10:49:33 AM	56.7
10:49:43 AM	66.9
10:49:53 AM	61.9
10:50:03 AM	62.5
10:50:13 AM	69.2
10:50:23 AM	67.7
10:50:33 AM	67.1
10:50:43 AM	65.1
10:50:53 AM	62.1
10:51:03 AM	60.9
10:51:13 AM	63.6
10:51:23 AM	61.0
10:51:33 AM	57.5
10:51:43 AM	61.2
10:51:53 AM	63.2
10:52:03 AM	74.8
10:52:13 AM	72.1
10:52:23 AM	62.4
10:52:33 AM	61.9
10:52:43 AM	61.2
10:52:53 AM	58.1
10:53:03 AM	57.5
10:53:13 AM	58.7
10:53:23 AM	60.3
10:53:33 AM	62.6
10:53:43 AM	70.3
10:53:53 AM	75.9
10:54:03 AM	73.2
10:54:13 AM	70.2
10:54:23 AM	62.5
10:54:33 AM	59.5
10:54:43 AM	59.3
10:54:53 AM	62.2
10:55:03 AM	57.2
10:55:13 AM	61.9
10:55:23 AM	58.6
10:55:33 AM	57.8
10:55:43 AM	61.5
10:55:53 AM	57.0
10:56:03 AM	68.3
10:56:13 AM	67.1
10:56:23 AM	60.2
10:56:33 AM	60.9
10:56:43 AM	59.7
	65.6

Time	Leq
10:24:01 PM	54.4
10:24:11 PM	53.5
10:24:21 PM	54.0
10:24:31 PM	54.6
10:24:41 PM	56.2
10:24:51 PM	57.1
10:25:01 PM	60.8
10:25:11 PM	64.3
10:25:21 PM	66.6
10:25:31 PM	66.7
10:25:41 PM	60.7
10:25:51 PM	57.0
10:26:01 PM	55.6
10:26:11 PM	54.5
10:26:21 PM	55.6
10:26:31 PM	55.5
10:26:41 PM	59.2
10:26:51 PM	53.5
10:27:01 PM	53.0
10:27:11 PM	56.4
10:27:21 PM	68.3
10:27:31 PM	59.1
10:27:41 PM	55.4
10:27:51 PM	57.9
10:28:01 PM	60.5
10:28:11 PM	56.5
10:28:21 PM	53.8
10:28:31 PM	54.6
10:28:41 PM	55.5
10:28:51 PM	57.0
10:29:01 PM	63.4
10:29:11 PM	72.0
10:29:21 PM	58.1
10:29:31 PM	53.3
10:29:41 PM	53.3
10:29:51 PM	53.5
10:30:01 PM	51.7
10:30:11 PM	51.4
10:30:21 PM	50.7
10:30:31 PM	52.5
10:30:41 PM	52.2
10:30:51 PM	52.3
10:31:01 PM	55.8
10:31:11 PM	60.4
10:31:21 PM	70.3
10:31:31 PM	60.5

10:31:41 PM	52.7
10:31:51 PM	52.6
10:32:01 PM	52.8
10:32:11 PM	55.3
10:32:21 PM	61.9
10:32:31 PM	71.4
10:32:41 PM	70.3
10:32:51 PM	61.8
10:33:01 PM	65.7
10:33:11 PM	63.1
10:33:21 PM	57.1
10:33:31 PM	55.9
10:33:41 PM	57.7
10:33:51 PM	58.4
10:34:01 PM	61.7
10:34:11 PM	63.6
10:34:21 PM	54.0
10:34:31 PM	54.1
10:34:41 PM	61.0
10:34:51 PM	68.0
10:35:01 PM	75.5
10:35:11 PM	62.2
10:35:21 PM	58.4
10:35:31 PM	56.3
10:35:41 PM	62.8
10:35:51 PM	56.1
10:36:01 PM	57.3
10:36:11 PM	66.0
10:36:21 PM	71.6
10:36:31 PM	57.4
10:36:41 PM	53.2
10:36:51 PM	57.1
10:37:01 PM	52.1
10:37:11 PM	51.2
10:37:21 PM	51.5
10:37:31 PM	55.9
10:37:41 PM	58.3
10:37:51 PM	51.3
10:38:01 PM	52.7
10:38:11 PM	54.7
10:38:21 PM	62.0
10:38:31 PM	70.8
10:38:41 PM	65.8
10:38:51 PM	61.8
	63.4

AES
Acoustical Engineering Services

Project: 1811 Sacramento Project
Location: R3
Date: 3/2/2023

Time	Leq
11:22:45 AM	60.2
11:22:55 AM	58.7
11:23:05 AM	62.8
11:23:15 AM	65.2
11:23:25 AM	65.1
11:23:35 AM	58.5
11:23:45 AM	57.8
11:23:55 AM	58.0
11:24:05 AM	58.8
11:24:15 AM	58.0
11:24:25 AM	61.6
11:24:35 AM	63.3
11:24:45 AM	66.0
11:24:55 AM	78.1
11:25:05 AM	65.8
11:25:15 AM	57.8
11:25:25 AM	56.3
11:25:35 AM	56.3
11:25:45 AM	58.9
11:25:55 AM	59.6
11:26:05 AM	61.0
11:26:15 AM	60.5
11:26:25 AM	57.2
11:26:35 AM	57.5
11:26:45 AM	58.4
11:26:55 AM	57.3
11:27:05 AM	57.0
11:27:15 AM	57.9
11:27:25 AM	57.7
11:27:35 AM	58.1
11:27:45 AM	58.5
11:27:55 AM	59.1
11:28:05 AM	64.1
11:28:15 AM	63.3
11:28:25 AM	69.0
11:28:35 AM	60.6
11:28:45 AM	60.4
11:28:55 AM	58.7
11:29:05 AM	57.9
11:29:15 AM	63.6
11:29:25 AM	59.6
11:29:35 AM	59.4
11:29:45 AM	58.6

11:29:55 AM	58.3
11:30:05 AM	62.5
11:30:15 AM	58.8
11:30:25 AM	59.3
11:30:35 AM	58.1
11:30:45 AM	57.9
11:30:55 AM	59.1
11:31:05 AM	60.7
11:31:15 AM	63.3
11:31:25 AM	65.2
11:31:35 AM	64.6
11:31:45 AM	66.6
11:31:55 AM	60.4
11:32:05 AM	61.8
11:32:15 AM	60.2
11:32:25 AM	61.9
11:32:35 AM	77.8
11:32:45 AM	76.8
11:32:55 AM	76.9
11:33:05 AM	68.3
11:33:15 AM	59.3
11:33:25 AM	58.6
11:33:35 AM	58.1
11:33:45 AM	57.6
11:33:55 AM	61.6
11:34:05 AM	63.6
11:34:15 AM	68.8
11:34:25 AM	60.6
11:34:35 AM	57.9
11:34:45 AM	58.7
11:34:55 AM	60.7
11:35:05 AM	58.0
11:35:15 AM	67.9
11:35:25 AM	62.0
11:35:35 AM	59.0
11:35:45 AM	61.4
11:35:55 AM	67.4
11:36:05 AM	73.5
11:36:15 AM	58.6
11:36:25 AM	60.1
11:36:35 AM	58.8
11:36:45 AM	58.3
11:36:55 AM	59.5
11:37:05 AM	58.9
11:37:15 AM	60.4
11:37:25 AM	69.2
11:37:35 AM	65.0
	66.3

Time	Leq
11:02:38 PM	58.9
11:02:48 PM	58.1
11:02:58 PM	59.1
11:03:08 PM	58.7
11:03:18 PM	58.9
11:03:28 PM	59.0
11:03:38 PM	59.1
11:03:48 PM	58.5
11:03:58 PM	58.8
11:04:08 PM	58.5
11:04:18 PM	58.4
11:04:28 PM	58.6
11:04:38 PM	58.3
11:04:48 PM	58.7
11:04:58 PM	58.3
11:05:08 PM	58.1
11:05:18 PM	58.7
11:05:28 PM	58.7
11:05:38 PM	59.0
11:05:48 PM	59.1
11:05:58 PM	59.2
11:06:08 PM	59.4
11:06:18 PM	59.1
11:06:28 PM	59.6
11:06:38 PM	60.6
11:06:48 PM	59.8
11:06:58 PM	62.0
11:07:08 PM	58.9
11:07:18 PM	58.5
11:07:28 PM	58.4
11:07:38 PM	59.2
11:07:48 PM	60.8
11:07:58 PM	61.5
11:08:08 PM	58.3
11:08:18 PM	59.4
11:08:28 PM	63.0
11:08:38 PM	58.7
11:08:48 PM	58.2
11:08:58 PM	58.1
11:09:08 PM	58.3
11:09:18 PM	62.7
11:09:28 PM	61.4
11:09:38 PM	60.4
11:09:48 PM	64.2
11:09:58 PM	60.4
11:10:08 PM	61.1

11:10:18 PM	58.7
11:10:28 PM	59.0
11:10:38 PM	66.6
11:10:48 PM	59.4
11:10:58 PM	58.6
11:11:08 PM	59.3
11:11:18 PM	59.4
11:11:28 PM	61.1
11:11:38 PM	60.1
11:11:48 PM	62.6
11:11:58 PM	61.2
11:12:08 PM	61.6
11:12:18 PM	59.2
11:12:28 PM	59.4
11:12:38 PM	59.3
11:12:48 PM	63.5
11:12:58 PM	59.2
11:13:08 PM	59.2
11:13:18 PM	58.6
11:13:28 PM	58.4
11:13:38 PM	58.2
11:13:48 PM	58.4
11:13:58 PM	58.9
11:14:08 PM	62.0
11:14:18 PM	58.6
11:14:28 PM	58.4
11:14:38 PM	58.6
11:14:48 PM	58.4
11:14:58 PM	58.5
11:15:08 PM	58.2
11:15:18 PM	58.0
11:15:28 PM	58.7
11:15:38 PM	58.7
11:15:48 PM	58.7
11:15:58 PM	59.2
11:16:08 PM	58.5
11:16:18 PM	58.5
11:16:28 PM	58.3
11:16:38 PM	59.6
11:16:48 PM	59.4
11:16:58 PM	58.3
11:17:08 PM	59.2
11:17:18 PM	58.4
11:17:28 PM	58.5
	59.8

Construction Noise & Vibration Calculations

AES
ACOUSTICAL ENGINEERING SERVICES

Project: 1811 Sacramento Project

Construction Phase: ***Demolition***

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Concrete Saw	1	90	20%	635	5
Excavators	1	81	40%	635	5
Signal Boards	1	73	50%	660	5
Water Truck	1	76	40%	660	5
Rubber Tired Loaders	1	79	40%	685	5
Skid Steer Loaders	1	79	40%	685	5
Pumps	3	81	50%	710	5
Air Compressor	1	78	40%	710	5
Cranes (Mobile)	1	81	16%	735	5
Crawler Tractor	1	84	40%	735	5
Crushing/Proc. Equipment	1	85	50%	760	5
Generator Set	3	81	50%	760	5
Excavators	2	81	40%	785	5
Concrete Saw	2	90	20%	785	5
Welders	1	74	40%	785	5
	21				

Receptor: ***R1***

Results:

1-hour Leq: 63.6

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: 1811 Sacramento Project

Construction Phase: ***Grading / Excavation***

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Bore/Drill Rig	1	84	20%	635	5
Excavators	1	81	40%	635	5
Signal Boards	1	73	50%	660	5
Water Truck	1	76	40%	660	5
Rubber Tired Loaders	1	79	40%	685	5
Skid Steer Loaders	1	79	40%	685	5
Pumps	3	81	50%	710	5
Air Compressor	1	78	40%	710	5
Rollers	1	80	20%	735	5
Crawler Tractor	2	84	40%	735	5
Grader	1	85	40%	760	5
Generator Set	3	81	50%	760	5
Excavators	1	81	40%	785	5
	18				

Receptor: ***R1***

Results:

1-hour Leq: 61.8

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: 1811 Sacramento Project

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
Cranes (Tower)	1	81	16%	635	5
Pumps	1	81	50%	635	5
Forklift	1	76	40%	660	5
Air Compressor	2	78	40%	660	5
Aerial Lifts	2	76	40%	685	5
Generator Set	1	81	50%	685	5
Signal Boards	1	73	50%	710	5
Skid Steer Loaders	1	79	40%	710	5
Welders	1	74	40%	735	5
Cranes (Tower)	1	81	16%	735	5
Pumps	2	81	50%	760	5
	14				

Receptor: ***R1***

Results:

1-hour Leq: 58.6

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: 1811 Sacramento Project

Construction Phase: ***Building Foundation***

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Cranes (Tower)	1	81	16%	635	5
Pumps	1	81	50%	635	5
Forklift	1	76	40%	660	5
Air Compressor	2	78	40%	660	5
Aerial Lifts	2	76	40%	685	5
Generator Set	1	81	50%	685	5
Signal Boards	1	73	50%	710	5
Skid Steer Loaders	1	79	40%	710	5
Welders	1	74	40%	735	5
Cranes (Tower)	1	81	16%	735	5
Pumps	2	81	50%	760	5
	14				

Receptor: ***R1***

Results:

1-hour Leq: 58.6

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: 1811 Sacramento Project

Construction Phase: ***Building Construction***

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Cranes (Tower)	1	81	16%	635	5
Welders	1	74	40%	635	5
Forklift	1	76	40%	660	5
Air Compressor	2	78	40%	660	5
Aerial Lifts	2	76	40%	685	5
Generator Set	1	81	50%	685	5
Signal Boards	1	73	50%	710	5
Skid Steer Loaders	1	79	40%	710	5
Welders	4	74	40%	735	5
Cranes (Tower)	1	81	16%	735	5
Cranes (Mobile)	1	81	16%	760	5
	16				

Receptor: ***R1***

Results:

1-hour Leq: 57.2

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: 1811 Sacramento Project

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
Cement and Motar Mixers	1	80	50%	635	5
Concrete Saw	1	90	20%	635	5
Forklifts	1	76	40%	660	5
Generator Set	1	81	50%	660	5
Pavers	1	77	50%	685	5
Paving Equipment	1	77	50%	685	5
Plate Compactors	1	83	20%	710	5
Rollers	1	80	20%	710	5
Signal Boards	1	73	50%	735	5
Skid Steer Loaders	1	79	40%	735	5
	10				

Receptor: ***R1***

Results:

1-hour Leq: 59.4

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: 1811 Sacramento Project

Construction Phase: ***Demolition***

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Concrete Saw	1	90	20%	545	10
Excavators	1	81	40%	545	10
Signal Boards	1	73	50%	570	10
Water Truck	1	76	40%	570	10
Rubber Tired Loaders	1	79	40%	595	10
Skid Steer Loaders	1	79	40%	595	10
Pumps	3	81	50%	620	10
Air Compressor	1	78	40%	620	10
Cranes (Mobile)	1	81	16%	645	10
Crawler Tractor	1	84	40%	645	10
Crushing/Proc. Equipment	1	85	50%	670	10
Generator Set	3	81	50%	670	10
Excavators	2	81	40%	695	10
Concrete Saw	2	90	20%	695	10
Welders	1	74	40%	695	10
	21				

Receptor: ***R2***

Results:

1-hour Leq: 59.8

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: 1811 Sacramento Project

Construction Phase: ***Grading / Excavation***

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Bore/Drill Rig	1	84	20%	545	10
Excavators	1	81	40%	545	10
Signal Boards	1	73	50%	570	10
Water Truck	1	76	40%	570	10
Rubber Tired Loaders	1	79	40%	595	10
Skid Steer Loaders	1	79	40%	595	10
Pumps	3	81	50%	620	10
Air Compressor	1	78	40%	620	10
Rollers	1	80	20%	645	10
Crawler Tractor	2	84	40%	645	10
Grader	1	85	40%	670	10
Generator Set	3	81	50%	670	10
Excavators	1	81	40%	695	10
	18				

Receptor: ***R2***

Results:

1-hour Leq: 57.9

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: 1811 Sacramento Project

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
Cranes (Tower)	1	81	16%	545	10
Pumps	1	81	50%	545	10
Forklift	1	76	40%	570	10
Air Compressor	2	78	40%	570	10
Aerial Lifts	2	76	40%	595	10
Generator Set	1	81	50%	595	10
Signal Boards	1	73	50%	620	10
Skid Steer Loaders	1	79	40%	620	10
Welders	1	74	40%	645	10
Cranes (Tower)	1	81	16%	645	10
Pumps	2	81	50%	670	10
	14				

Receptor: ***R2***

Results:

1-hour Leq: 54.8

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: 1811 Sacramento Project

Construction Phase: ***Building Foundation***

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Cranes (Tower)	1	81	16%	545	10
Pumps	1	81	50%	545	10
Forklift	1	76	40%	570	10
Air Compressor	2	78	40%	570	10
Aerial Lifts	2	76	40%	595	10
Generator Set	1	81	50%	595	10
Signal Boards	1	73	50%	620	10
Skid Steer Loaders	1	79	40%	620	10
Welders	1	74	40%	645	10
Cranes (Tower)	1	81	16%	645	10
Pumps	2	81	50%	670	10

14

Receptor: ***R2***

Results:

1-hour Leq: 54.8

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: 1811 Sacramento Project

Construction Phase: ***Building Construction***

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Cranes (Tower)	1	81	16%	545	10
Welders	1	74	40%	545	10
Forklift	1	76	40%	570	10
Air Compressor	2	78	40%	570	10
Aerial Lifts	2	76	40%	595	10
Generator Set	1	81	50%	595	10
Signal Boards	1	73	50%	620	10
Skid Steer Loaders	1	79	40%	620	10
Welders	4	74	40%	645	10
Cranes (Tower)	1	81	16%	645	10
Cranes (Mobile)	1	81	16%	670	10
	16				

Receptor: ***R2***

Results:

1-hour Leq: 53.4

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: 1811 Sacramento Project

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
Cement and Motar Mixers	1	80	50%	545	10
Concrete Saw	1	90	20%	545	10
Forklifts	1	76	40%	570	10
Generator Set	1	81	50%	570	10
Pavers	1	77	50%	595	10
Paving Equipment	1	77	50%	595	10
Plate Compactors	1	83	20%	620	10
Rollers	1	80	20%	620	10
Signal Boards	1	73	50%	645	10
Skid Steer Loaders	1	79	40%	645	10
	10				

Receptor: ***R2***

Results:

1-hour Leq: 55.7

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: 1811 Sacramento Project

Construction Phase: ***Demolition***

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Concrete Saw	1	90	20%	990	15
Excavators	1	81	40%	990	15
Signal Boards	1	73	50%	1015	15
Water Truck	1	76	40%	1015	15
Rubber Tired Loaders	1	79	40%	1040	15
Skid Steer Loaders	1	79	40%	1040	15
Pumps	3	81	50%	1065	15
Air Compressor	1	78	40%	1065	15
Cranes (Mobile)	1	81	16%	1090	15
Crawler Tractor	1	84	40%	1090	15
Crushing/Proc. Equipment	1	85	50%	1115	15
Generator Set	3	81	50%	1115	15
Excavators	2	81	40%	1140	15
Concrete Saw	2	90	20%	1140	15
Welders	1	74	40%	1140	15
	21				

Receptor: ***R3***

Results:

1-hour Leq: 50.1

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: 1811 Sacramento Project

Construction Phase: ***Grading / Excavation***

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Bore/Drill Rig	1	84	20%	990	15
Excavators	1	81	40%	990	15
Signal Boards	1	73	50%	1015	15
Water Truck	1	76	40%	1015	15
Rubber Tired Loaders	1	79	40%	1040	15
Skid Steer Loaders	1	79	40%	1040	15
Pumps	3	81	50%	1065	15
Air Compressor	1	78	40%	1065	15
Rollers	1	80	20%	1090	15
Crawler Tractor	2	84	40%	1090	15
Grader	1	85	40%	1115	15
Generator Set	3	81	50%	1115	15
Excavators	1	81	40%	1140	15
	18				

Receptor: ***R3***

Results:

1-hour Leq: 48.3

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: 1811 Sacramento Project

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
Cranes (Tower)	1	81	16%	990	15
Pumps	1	81	50%	990	15
Forklift	1	76	40%	1015	15
Air Compressor	2	78	40%	1015	15
Aerial Lifts	2	76	40%	1040	15
Generator Set	1	81	50%	1040	15
Signal Boards	1	73	50%	1065	15
Skid Steer Loaders	1	79	40%	1065	15
Welders	1	74	40%	1090	15
Cranes (Tower)	1	81	16%	1090	15
Pumps	2	81	50%	1115	15
	14				

Receptor: ***R3***

Results:

1-hour Leq: **45.0**

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: 1811 Sacramento Project

Construction Phase: ***Building Foundation***

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Cranes (Tower)	1	81	16%	990	15
Pumps	1	81	50%	990	15
Forklift	1	76	40%	1015	15
Air Compressor	2	78	40%	1015	15
Aerial Lifts	2	76	40%	1040	15
Generator Set	1	81	50%	1040	15
Signal Boards	1	73	50%	1065	15
Skid Steer Loaders	1	79	40%	1065	15
Welders	1	74	40%	1090	15
Cranes (Tower)	1	81	16%	1090	15
Pumps	2	81	50%	1115	15
	14				

Receptor: ***R3***

Results:

1-hour Leq: 45.0

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: 1811 Sacramento Project

Construction Phase: ***Building Construction***

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Cranes (Tower)	1	81	16%	990	15
Welders	1	74	40%	990	15
Forklift	1	76	40%	1015	15
Air Compressor	2	78	40%	1015	15
Aerial Lifts	2	76	40%	1040	15
Generator Set	1	81	50%	1040	15
Signal Boards	1	73	50%	1065	15
Skid Steer Loaders	1	79	40%	1065	15
Welders	4	74	40%	1090	15
Cranes (Tower)	1	81	16%	1090	15
Cranes (Mobile)	1	81	16%	1115	15
	16				

Receptor: ***R3***

Results:

1-hour Leq: 43.6

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: 1811 Sacramento Project

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
Cement and Motar Mixers	1	80	50%	990	15
Concrete Saw	1	90	20%	990	15
Forklifts	1	76	40%	1015	15
Generator Set	1	81	50%	1015	15
Pavers	1	77	50%	1040	15
Paving Equipment	1	77	50%	1040	15
Plate Compactors	1	83	20%	1065	15
Rollers	1	80	20%	1065	15
Signal Boards	1	73	50%	1090	15
Skid Steer Loaders	1	79	40%	1090	15
	10				

Receptor: ***R3***

Results:

1-hour Leq: 45.7

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: 1811 Sacramento Project

Off-Site Haul Trucks

	Maximum Number of Truck One Way Trips			Estimated Noise Levels, dBA (From TNM Model)	
Phase	Per Day	Per Hour (8-hr day)		Sacramento St.	Mateo St.
1. Demolition	26	5		57.6	58.5
2. Grading	96	16		62.7	63.5
3. Mat Foundation	150	13		61.8	62.6
4. Building to Foundation	50	7		59.1	59.9
5. Building Construction	110	14		62.1	63.0
6. Paving/Landscape	24	3		55.4	56.3
6 hrs for demo/site prep/grading; 12 hrs for mat foundation			Ambient, dBA	66.9	66.9
8hrs for other phases			Significance Criteria, dBA	71.9	71.9

	Project + Ambient Noise Levels, dBA			Noise Increase over Ambient, dBA	
	Sacramento St.	Mateo St.		Sacramento St.	Mateo St.
1. Demolition	67.4	67.5		0.5	0.6
2. Grading	68.3	68.5		1.4	1.6
3. Mat Foundation	68.1	68.3		1.2	1.4
4. Building to Foundation	67.6	67.7		0.7	0.8
5. Building Construction	68.1	68.4		1.2	1.5
6. Paving/Landscape	67.2	67.3		0.3	0.4
			Maximum Noise Increase	1.4	1.6
			Significant Noise Impact?	No	No

Eyestone Environmental 10 August 2023
Sean Bui TNM 2.5

INPUT: ROADWAYS
PROJECT/CONTRACT: 1811 Sacramento Project
RUN: Construction - Demo Phase

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with the approval of FHWA

Roadway Name	Width	Points Name	No.	Coordinates (pavement) X	Y	Z	Flow Control Control Device	Speed Constraint	Percent Vehicles Affected	Segment Pvmt Type	On Struct?
	ft			ft	ft	ft		mph	%		
Haul Route	12.0	point1	1	0.0	0.0	0.00	Signal	0.00	50	Average	
		point2	2	1,000.0	0.0	0.00					

Eyestone Environmental **10 August 2023**
Sean Bui **TNM 2.5**

INPUT: TRAFFIC FOR LAeq1h Volumes
PROJECT/CONTRACT: 1811 Sacramento Project
RUN: Construction - Demo Phase

Roadway	Points											
Name	Name	No.	Segment									
			Autos		MTrucks		HTrucks		Buses		Motorcycles	
			V	S	V	S	V	S	V	S	V	S
			veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph
Haul Route	point1	1	0	0	0	0	5	35	0	0	0	0
	point2	2										

Eyestone Environmental **10 August 2023**
Sean Bui **TNM 2.5**

INPUT: RECEIVERS
PROJECT/CONTRACT: 1811 Sacramento Project
RUN: Construction - Demo Phase

Receiver Name	No.	#DUs	Coordinates (ground) X	Y	Z	Height above Ground	Input Sound Levels and Criteria: Existing LAeq1h	Impact Criteria LAeq1h	Impact Criteria Sub'l	NR Goal	Active in Calc.
			ft	ft	ft	ft	dBA	dBA	dB	dB	
Along Mateo & 8th St.	1	1	250.0	30.0	0.00	4.92	0.00	71	5.0	0.0	Y
Along Sacramento St.	8	1	250.0	35.0	0.00	4.92	0.00	66	10.0	8.0	Y
Receptor R2	10	1	250.0	40.0	0.00	4.92	0.00	66	10.0	8.0	Y

Eyestone Environmental
Sean Bui

10 August 2023
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS

PROJECT/CONTRACT: 1811 Sacramento Project
RUN: Construction - Demo Phase
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h Calculated	Crit'n	Increase over existing Calculated	Increase over existing Crit'n Sub'l Inc	Type Impact	With Barrier Calculated LAeq1h	Noise Reduction Calculated	Noise Reduction Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
Along Mateo & 8th St.	1	1	0.0	58.5	71	58.5	5	----	58.5	0.0	0	0.0
Along Sacramento St.	8	1	0.0	57.6	66	57.6	10	----	57.6	0.0	8	-8.0
Receptor R2	10	1	0.0	57.1	66	57.1	10	----	57.1	0.0	8	-8.0

Dwelling Units	# DUs	Noise Reduction Min	Noise Reduction Avg	Noise Reduction Max
		dB	dB	dB
All Selected	3	0.0	0.0	0.0
All Impacted	0	0.0	0.0	0.0
All that meet NR Goal	1	0.0	0.0	0.0

Eyestone Environmental	10 August 2023
Sean Bui	TNM 2.5

INPUT: ROADWAYS	Average pavement type shall be used unless
PROJECT/CONTRACT:	1811 Sacramento Project	a State highway agency substantiates the use
RUN:	Construction - Grading Phase	of a different type with the approval of FHWA

Roadway		Points									
Name	Width	Name	No.	Coordinates (pavement)			Flow Control			Segment	
				X	Y	Z	Control Device	Speed Constraint	Percent Vehicles Affected	Pvmt Type	On Struct?
	ft			ft	ft	ft		mph	%		
Haul Route	12.0	point1	1	0.0	0.0	0.00	Signal	0.00	50	Average	
		point2	2	1,000.0	0.0	0.00					

Eyestone Environmental **10 August 2023**
Sean Bui **TNM 2.5**

INPUT: TRAFFIC FOR LAeq1h Volumes
PROJECT/CONTRACT: **1811 Sacramento Project**
RUN: **Construction - Grading Phase**

Roadway	Points											
Name	Name	No.	Segment									
			Autos		MTrucks		HTrucks		Buses		Motorcycles	
			V	S	V	S	V	S	V	S	V	S
			veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph
Haul Route	point1	1	0	0	0	0	16	35	0	0	0	0
	point2	2										

Eyestone Environmental 10 August 2023
Sean Bui TNM 2.5

INPUT: RECEIVERS
PROJECT/CONTRACT: 1811 Sacramento Project
RUN: Construction - Grading Phase

Receiver Name	No.	#DUs	Coordinates (ground) X	Y	Z	Height above Ground	Input Sound Levels and Criteria: Existing LAeq1h	Impact Criteria LAeq1h	Impact Criteria Sub'l	NR Goal	Active in Calc.
			ft	ft	ft	ft	dBA	dBA	dB	dB	
Along Mateo & 8th St.	1	1	250.0	30.0	0.00	4.92	0.00	71	5.0	0.0	Y
Along Sacramento St.	8	1	250.0	35.0	0.00	4.92	0.00	66	10.0	8.0	Y
Receptor R2	10	1	250.0	40.0	0.00	4.92	0.00	66	10.0	8.0	Y

Eyestone Environmental
Sean Bui

10 August 2023
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS

PROJECT/CONTRACT: 1811 Sacramento Project
RUN: Construction - Grading Phase
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h Calculated	Crit'n	Increase over existing Calculated	Increase over existing Crit'n Sub'l Inc	Type Impact	With Barrier Calculated LAeq1h	Noise Reduction Calculated	Noise Reduction Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
Along Mateo & 8th St.	1	1	0.0	63.5	71	63.5	5	----	63.5	0.0	0	0.0
Along Sacramento St.	8	1	0.0	62.7	66	62.7	10	----	62.7	0.0	8	-8.0
Receptor R2	10	1	0.0	62.1	66	62.1	10	----	62.1	0.0	8	-8.0

Dwelling Units	# DUs	Noise Reduction Min	Noise Reduction Avg	Noise Reduction Max
		dB	dB	dB
All Selected	3	0.0	0.0	0.0
All Impacted	0	0.0	0.0	0.0
All that meet NR Goal	1	0.0	0.0	0.0

Eyestone Environmental 10 August 2023
Sean Bui TNM 2.5

INPUT: ROADWAYS
PROJECT/CONTRACT: 1811 Sacramento Project
RUN: Construction - Mat Foundation

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with the approval of FHWA

Roadway		Points									
Name	Width	Name	No.	Coordinates (pavement)			Flow Control			Segment	
				X	Y	Z	Control Device	Speed Constraint	Percent Vehicles Affected	Pvmt Type	On Struct?
	ft			ft	ft	ft		mph	%		
Haul Route	12.0	point1	1	0.0	0.0	0.00	Signal	0.00	50	Average	
		point2	2	1,000.0	0.0	0.00					

Eyestone Environmental **10 August 2023**
Sean Bui **TNM 2.5**

INPUT: TRAFFIC FOR LAeq1h Volumes
PROJECT/CONTRACT: 1811 Sacramento Project
RUN: Construction - Mat Foundation

Roadway	Points											
Name	Name	No.	Segment									
			Autos		MTrucks		HTrucks		Buses		Motorcycles	
			V	S	V	S	V	S	V	S	V	S
			veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph
Haul Route	point1	1	0	0	0	0	13	35	0	0	0	0
	point2	2										

Eyestone Environmental 10 August 2023
Sean Bui TNM 2.5

INPUT: RECEIVERS
PROJECT/CONTRACT: 1811 Sacramento Project
RUN: Construction - Mat Foundation

Receiver Name	No.	#DUs	Coordinates (ground) X	Y	Z	Height above Ground	Input Sound Levels and Criteria: Existing LAeq1h	Impact Criteria LAeq1h	Impact Criteria Sub'l	NR Goal	Active in Calc.
			ft	ft	ft	ft	dBA	dBA	dB	dB	
Along Mateo & 8th St.	1	1	250.0	30.0	0.00	4.92	0.00	71	5.0	0.0	Y
Along Sacramento St.	8	1	250.0	35.0	0.00	4.92	0.00	66	10.0	8.0	Y
Receptor R2	10	1	250.0	40.0	0.00	4.92	0.00	66	10.0	8.0	Y

Eyestone Environmental
Sean Bui

10 August 2023
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS

PROJECT/CONTRACT: 1811 Sacramento Project
RUN: Construction - Mat Foundation
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h Calculated	Crit'n	Increase over existing Calculated	Increase over existing Crit'n Sub'l Inc	Type Impact	With Barrier Calculated LAeq1h	Noise Reduction Calculated	Noise Reduction Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
Along Mateo & 8th St.	1	1	0.0	62.6	71	62.6	5	----	62.6	0.0	0	0.0
Along Sacramento St.	8	1	0.0	61.8	66	61.8	10	----	61.8	0.0	8	-8.0
Receptor R2	10	1	0.0	61.2	66	61.2	10	----	61.2	0.0	8	-8.0

Dwelling Units	# DUs	Noise Reduction Min	Noise Reduction Avg	Noise Reduction Max
		dB	dB	dB
All Selected	3	0.0	0.0	0.0
All Impacted	0	0.0	0.0	0.0
All that meet NR Goal	1	0.0	0.0	0.0

Eyestone Environmental 10 August 2023
Sean Bui TNM 2.5

INPUT: ROADWAYS
PROJECT/CONTRACT: 1811 Sacramento Project
RUN: Construction - Building Foundation

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with the approval of FHWA

Roadway		Points									
Name	Width	Name	No.	Coordinates (pavement)			Flow Control			Segment	
				X	Y	Z	Control Device	Speed Constraint	Percent Vehicles Affected	Pvmt Type	On Struct?
	ft			ft	ft	ft		mph	%		
Haul Route	12.0	point1	1	0.0	0.0	0.00	Signal	0.00	50	Average	
		point2	2	1,000.0	0.0	0.00					

Eyestone Environmental **10 August 2023**
Sean Bui **TNM 2.5**

INPUT: TRAFFIC FOR LAeq1h Volumes
PROJECT/CONTRACT: **1811 Sacramento Project**
RUN: **Construction - Building Foundation**

Roadway	Points											
Name	Name	No.	Segment									
			Autos		MTrucks		HTrucks		Buses		Motorcycles	
			V	S	V	S	V	S	V	S	V	S
			veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph
Haul Route	point1	1	0	0	0	0	7	35	0	0	0	0
	point2	2										

Eyestone Environmental 10 August 2023
Sean Bui TNM 2.5

INPUT: RECEIVERS
PROJECT/CONTRACT: 1811 Sacramento Project
RUN: Construction - Building Foundation

Receiver Name	No.	#DUs	Coordinates (ground) X	Y	Z	Height above Ground	Input Sound Levels and Criteria: Existing LAeq1h	Impact Criteria LAeq1h	Impact Criteria Sub'l	NR Goal	Active in Calc.
			ft	ft	ft	ft	dBA	dBA	dB	dB	
Along Mateo & 8th St.	1	1	250.0	30.0	0.00	4.92	0.00	71	5.0	0.0	Y
Along Sacramento St.	8	1	250.0	35.0	0.00	4.92	0.00	66	10.0	8.0	Y
Receptor R2	10	1	250.0	40.0	0.00	4.92	0.00	66	10.0	8.0	Y

Eyestone Environmental
Sean Bui

10 August 2023
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS

PROJECT/CONTRACT: 1811 Sacramento Project
RUN: Construction - Building Foundation
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h Calculated	Crit'n	Increase over existing Calculated	Crit'n Sub'l Inc	Type Impact	With Barrier Calculated LAeq1h	Noise Reduction Calculated	Noise Reduction Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
Along Mateo & 8th St.	1	1	0.0	59.9	71	59.9	5	----	59.9	0.0	0	0.0
Along Sacramento St.	8	1	0.0	59.1	66	59.1	10	----	59.1	0.0	8	-8.0
Receptor R2	10	1	0.0	58.5	66	58.5	10	----	58.5	0.0	8	-8.0

Dwelling Units	# DUs	Noise Reduction Min	Noise Reduction Avg	Noise Reduction Max
		dB	dB	dB
All Selected	3	0.0	0.0	0.0
All Impacted	0	0.0	0.0	0.0
All that meet NR Goal	1	0.0	0.0	0.0

Eyestone Environmental 10 August 2023
Sean Bui TNM 2.5

INPUT: ROADWAYS
PROJECT/CONTRACT: 1811 Sacramento Project
RUN: Construction - Building Construction

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with the approval of FHWA

Roadway		Points									
Name	Width	Name	No.	Coordinates (pavement)			Flow Control			Segment	
				X	Y	Z	Control Device	Speed Constraint	Percent Vehicles Affected	Pvmt Type	On Struct?
	ft			ft	ft	ft		mph	%		
Haul Route	12.0	point1	1	0.0	0.0	0.00	Signal	0.00	50	Average	
		point2	2	1,000.0	0.0	0.00					

Eyestone Environmental **10 August 2023**
Sean Bui **TNM 2.5**

INPUT: TRAFFIC FOR LAeq1h Volumes
PROJECT/CONTRACT: 1811 Sacramento Project
RUN: Construction - Building Construction

Roadway	Points											
Name	Name	No.	Segment									
			Autos		MTrucks		HTrucks		Buses		Motorcycles	
			V	S	V	S	V	S	V	S	V	S
			veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph
Haul Route	point1	1	0	0	0	0	14	35	0	0	0	0
	point2	2										

Eyestone Environmental **10 August 2023**
Sean Bui **TNM 2.5**

INPUT: RECEIVERS
PROJECT/CONTRACT: 1811 Sacramento Project
RUN: Construction - Building Construction

Receiver Name	No.	#DUs	Coordinates (ground) X	Y	Z	Height above Ground	Input Sound Levels and Criteria: Existing LAeq1h	Impact Criteria LAeq1h	Impact Criteria Sub'l	NR Goal	Active in Calc.
			ft	ft	ft	ft	dBA	dBA	dB	dB	
Along Mateo & 8th St.	1	1	250.0	30.0	0.00	4.92	0.00	71	5.0	0.0	Y
Along Sacramento St.	8	1	250.0	35.0	0.00	4.92	0.00	66	10.0	8.0	Y
Receptor R2	10	1	250.0	40.0	0.00	4.92	0.00	66	10.0	8.0	Y

Eyestone Environmental
Sean Bui

10 August 2023
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS

PROJECT/CONTRACT: 1811 Sacramento Project
RUN: Construction - Building Construction
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h Calculated	Crit'n	Increase over existing Calculated	Crit'n Sub'l Inc	Type Impact	With Barrier Calculated LAeq1h	Noise Reduction Calculated	Noise Reduction Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
Along Mateo & 8th St.	1	1	0.0	63.0	71	63.0	5	----	63.0	0.0	0	0.0
Along Sacramento St.	8	1	0.0	62.1	66	62.1	10	----	62.1	0.0	8	-8.0
Receptor R2	10	1	0.0	61.5	66	61.5	10	----	61.5	0.0	8	-8.0

Dwelling Units	# DUs	Noise Reduction Min	Noise Reduction Avg	Noise Reduction Max
		dB	dB	dB
All Selected	3	0.0	0.0	0.0
All Impacted	0	0.0	0.0	0.0
All that meet NR Goal	1	0.0	0.0	0.0

Eyestone Environmental	10 August 2023
Sean Bui	TNM 2.5

INPUT: ROADWAYS	Average pavement type shall be used unless
PROJECT/CONTRACT:	1811 Sacramento Project a State highway agency substantiates the use
RUN:	Construction - Paving of a different type with the approval of FHWA

Roadway		Points									
Name	Width	Name	No.	Coordinates (pavement)			Flow Control			Segment	
				X	Y	Z	Control Device	Speed Constraint	Percent Vehicles Affected	Pvmt Type	On Struct?
	ft			ft	ft	ft		mph	%		
Haul Route	12.0	point1	1	0.0	0.0	0.00	Signal	0.00	50	Average	
		point2	2	1,000.0	0.0	0.00					

Eyestone Environmental **10 August 2023**
Sean Bui **TNM 2.5**

INPUT: TRAFFIC FOR LAeq1h Volumes
PROJECT/CONTRACT: 1811 Sacramento Project
RUN: Construction - Paving

Roadway	Points											
Name	Name	No.	Segment									
			Autos		MTrucks		HTrucks		Buses		Motorcycles	
			V	S	V	S	V	S	V	S	V	S
			veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph
Haul Route	point1	1	0	0	0	0	3	35	0	0	0	0
	point2	2										

Eyestone Environmental 10 August 2023
Sean Bui TNM 2.5

INPUT: RECEIVERS
PROJECT/CONTRACT: 1811 Sacramento Project
RUN: Construction - Paving

Receiver Name	No.	#DUs	Coordinates (ground) X	Y	Z	Height above Ground	Input Sound Levels and Criteria: Existing LAeq1h	Impact Criteria LAeq1h	Impact Criteria Sub'l	NR Goal	Active in Calc.
			ft	ft	ft	ft	dBA	dBA	dB	dB	
Along Mateo & 8th St.	1	1	250.0	30.0	0.00	4.92	0.00	71	5.0	0.0	Y
Along Sacramento St.	8	1	250.0	35.0	0.00	4.92	0.00	66	10.0	8.0	Y
Receptor R2	10	1	250.0	40.0	0.00	4.92	0.00	66	10.0	8.0	Y

Eyestone Environmental
Sean Bui

10 August 2023
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS

PROJECT/CONTRACT: 1811 Sacramento Project
RUN: Construction - Paving
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h Calculated	Crit'n	Increase over existing Calculated	Increase over existing Crit'n Sub'l Inc	Type Impact	With Barrier Calculated LAeq1h	Noise Reduction Calculated	Noise Reduction Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
Along Mateo & 8th St.	1	1	0.0	56.3	71	56.3	5	----	56.3	0.0	0	0.0
Along Sacramento St.	8	1	0.0	55.4	66	55.4	10	----	55.4	0.0	8	-8.0
Receptor R2	10	1	0.0	54.9	66	54.9	10	----	54.9	0.0	8	-8.0

Dwelling Units	# DUs	Noise Reduction Min	Noise Reduction Avg	Noise Reduction Max
		dB	dB	dB
All Selected	3	0.0	0.0	0.0
All Impacted	0	0.0	0.0	0.0
All that meet NR Goal	1	0.0	0.0	0.0

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Project: 1811 Sacramento Project

Construction Vibration Impacts

Reference Levels at 25 feet are based on FTA, 2006 (Transit Noise and Vibration Impact Assessment)
Calculations using FTA procedure with n= **1.5** (for receptors 25 feet or greater)
n= **1.1** (for receptors less than 25 feet, per Caltrans procedure)

ON-SITE CONSTRUCTION ACTIVITIES

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

Equipment	Reference Vibration Levels at 25 ft., PPV	Estimated Vibration Levels at nearest off-site building structures (distance in feet), PPV						
		Industrial Buildings to the North	Industrial Buildings to the South	Industrial Building to the East	Industrial Building to the West	1910 Bay St. to the NE, historic		
		15	**15**	**65**	**90**	**140**		
Large Bulldozer	0.089	0.156	0.156	0.021	0.013	0.007		
Caisson Drilling	0.089	0.156	0.156	0.021	0.013	0.007		
Loaded Trucks	0.076	0.133	0.133	0.018	0.011	0.006		
Jackhammer	0.035	0.061	0.061	0.008	0.005	0.003		
Small bulldozer	0.003	0.005	0.005	0.001	0.000	0.000		
Significance Threshold, PPV		0.5	0.5	0.5	0.5	0.12		

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

Equipment	Reference Vibration Levels at 25 ft., VdB	Estimated Vibration Levels at Off-Site Receptors (at note distance in feet), VdB						
		R1	R2	R3				
		635	**545**	**990**				
Large Bulldozer	87	45	47	39				
Caisson Drilling	87	45	47	39				
Loaded Trucks	86	44	46	38				
Jackhammer	79	37	39	31				
Small bulldozer	58	16	18	10				
Significance Threshold, VdB		72	72	75				

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						
		40						
Typical road surface	63	66						
Significance Threshold, VdB		72						

Ref. Levels based on FTA Figure 7-3

Operation Noise Calculations

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Project Composite Noise Calculations (CNEL)

Project: 1811 Sacramento Project

Receptor	Ambient	Traffic[a]	Mechanical	Outdoor	Parking	Loading		Project Composite	Ambient + Project	Increase
R1	69.3	56.9	48.5	61.3	38.8	26.8		62.8	70.2	0.9
R2	68.6	54.4	49.9	60.3	44.7	23.2		61.7	69.4	0.8
R3	66.7	45.3	50.0	59.2	41.0	25.6		59.9	67.5	0.8

[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.

		Traffic Noise Levels, CNEL								
Receptor	Roadway Segment	Existing	Existing + Project	Project Only	distance to roadway, ft	Existing	Existing + Project	barrier	distance to Center Line	adj. for distance
R1	Mateo St.	66.0	66.5	56.9	10	66.0	66.5	0	30	0.0
R2	8th Street	61.3	62.1	54.4	10	61.3	62.1	0	30	0.0
R3	7th Street	58.6	58.8	45.3	380	69.2	69.4	0	35	-10.6

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Outdoor Mechanical Equipment Noise Calculations

Project: 1811 Sacramento 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	41.8	48.5	41.8	41.8	41.8	
R2	43.2	49.9	43.2	43.2	43.2	
R3	43.3	50.0	43.3	43.3	43.3	
Receptor	Ambient CNEL	Ambient + Project (CNEL)	Increase (CNEL)	ambient (Leq)	Ambient + Project (Leq)	Increase (Leq)
R1	69.3	69.3	0.0	63.8	63.8	0.0
R2	68.6	68.7	0.1	63.4	63.4	0.0
R3	66.7	66.8	0.1	59.8	59.9	0.1

8/10/2023

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Outdoor Noise Calculations

Project: 1811 Sacramento Project

	Estimated noise levels, Leq (FROM SOUNDPLAN)				Hours of Operations Ld (7am to 7pm)	Le (7pm to 10pm)	Ln (10pm to 7am)
Receptor	Sound System	Occupants	Total, Leq	CNEL	12	3	4
R1	57.0	44.2	57.2	61.3	57.2	57.2	53.7
R2	56.0	42.8	56.2	60.3	56.2	56.2	52.7
R3	55.0	39.8	55.1	59.2	55.1	55.1	51.6

Receptor	Project (CNEL)	Ambient (CNEL)	Ambient + Project (CNEL)	Increase (CNEL)	Project Noise, (Leq)	Ambient (Leq)	Ambient + Project (Leq)
R1	61.3	69.3	69.9	0.6	57.2	63.8	64.7
R2	60.3	68.6	69.2	0.6	56.2	63.4	64.2
R3	59.2	66.7	67.4	0.7	55.1	59.8	61.1

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Parking Structure Noise Calculations

Project: 1811 Sacramento 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	32.1	38.8	32.1	32.1	32.1
R2	38.0	44.7	38.0	38.0	38.0
R3	34.3	41.0	34.3	34.3	34.3

Receptor	Ambient CNEL	Ambient + Project (CNEL)	Increase (CNEL)	nighttime ambient (Leq)	Ambient + Project (Leq)	Increase (Leq)
R1	69.3	69.3	0.0	63.8	63.8	0.0
R2	68.6	68.6	0.0	63.4	63.4	0.0
R3	66.7	66.7	0.0	59.8	59.8	0.0

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Loading and Trash Compactor Noise Calculations

Project: 1811 Sacramento Project

	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	29.6	26.8	23.6	29.6	0.0
R2	26.0	23.2	20.0	26.0	0.0
R3	28.4	25.6	22.4	28.4	0.0

Receptor	Project CNEL	Ambient CNEL	Ambient + Project (CNEL)	Increase (CNEL)	Project Noise, (Leq)	Ambient (Leq)	Ambient + Project (Leq)
R1	26.8	69.3	69.3	0.0	29.6	66.9	66.9
R2	23.2	68.6	68.6	0.0	26.0	65.6	65.6
R3	25.6	66.7	66.7	0.0	28.4	66.3	66.3

1811 Sacramento
Source Levels in dB(A) - Mechanical

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

1811 Sacramento
Calculated Noise Levels - Mechanical

Source	Source type	Leq,d dB(A)	
Receiver R1 Leq,d 41.8 dB(A)			
Mechanical	Point	28.6	
Mechanical	Point	19.1	
Mechanical	Point	18.9	
Mechanical	Point	24.6	
Mechanical	Point	18.9	
Mechanical	Point	31.0	
Mechanical	Point	31.3	
Mechanical	Point	33.8	
Mechanical	Point	35.0	
Mechanical	Point	34.7	
Mechanical	Point	32.4	
Mechanical	Point	29.0	
Receiver R2 Leq,d 43.2 dB(A)			
Mechanical	Point	23.3	
Mechanical	Point	35.5	
Mechanical	Point	36.1	
Mechanical	Point	34.3	
Mechanical	Point	34.2	
Mechanical	Point	24.3	
Mechanical	Point	21.4	
Mechanical	Point	21.3	
Mechanical	Point	21.7	
Mechanical	Point	30.3	
Mechanical	Point	34.0	
Mechanical	Point	35.1	
Receiver R3 Leq,d 43.3 dB(A)			
Mechanical	Point	35.8	
Mechanical	Point	21.7	
Mechanical	Point	25.4	
Mechanical	Point	31.3	
Mechanical	Point	32.9	
Mechanical	Point	35.4	
Mechanical	Point	35.2	
Mechanical	Point	35.2	
Mechanical	Point	32.7	
Mechanical	Point	30.3	
Mechanical	Point	29.4	
Mechanical	Point	20.0	

1811 Sacramento
Source Levels in dB(A) - loading

Name	Source type	Lw dB(A)	
Loading	Point	101.9	
Trash Compactor	Point	97.7	

1811 Sacramento
Calculated Noise Levels - loading

Source	Source type	Leq,d dB(A)	
Receiver R1 Leq,d 29.6 dB(A)			
Loading	Point	29.0	
Trash Compactor	Point	20.6	
Receiver R2 Leq,d 26.0 dB(A)			
Loading	Point	25.9	
Trash Compactor	Point	7.0	
Receiver R3 Leq,d 28.4 dB(A)			
Loading	Point	24.6	
Trash Compactor	Point	26.1	

1811 Sacramento
Source Levels in dB(A) - People

Name	Source type	Lw dB(A)	
People Level 1 Outdoor Cafe	Area	93.8	
People Level 1 Outdoor Lobby	Area	96.4	
People Level 03	Area	87.1	
People Level 04	Area	87.8	
People Level 05	Area	87.8	
People Level 05 Balcony East	Area	87.8	
People Level 06 Balcony North	Area	82.9	
People Level 06 Exterior Office	Area	89.8	
People Level 07 Amenity Deck	Area	98.2	
People Level 07 Balcony East	Area	87.8	
People Level 07 Balcony N	Area	88.7	
People Level 07 Exterior Office	Area	89.9	
People Level 08 Balcony East	Area	91.4	
People Level 08 Balcony North	Area	84.4	
People Level 08 Exterior Office	Area	91.7	
People Level 09 Balcony West	Area	87.6	
People Level 09 Exterior Office North	Area	90.0	
People Level 09 Exterior Office South	Area	87.0	
People Level 10 Balcony West	Area	87.7	
People Level 10 Exterior Office Center	Area	94.0	
People Level 10 Exterior Office East	Area	90.1	
People Level 10 Exterior Office South	Area	86.7	
People Level 11 Balcony East	Area	87.6	
People Level 11 Exterior Office North	Area	90.0	
People Level 11 Exterior Office South	Area	90.1	
People Level 12 Balcony East	Area	87.6	
People Level 12 Balcony North	Area	83.6	
People Level 12 Exterior Office South	Area	91.6	
People Level 12 Exterior Office Southwest	Area	89.9	
People Level 13 Balcony East	Area	87.8	
People Level 13 Balcony North	Area	83.6	
People Level 13 Balcony West	Area	87.7	
People Level 13 Exterior Office Central	Area	86.9	
People Level 13 Exterior Office Southeast	Area	86.7	
People Level 13 Exterior Office Southwest	Area	90.0	
People Level 14 Balcony East	Area	87.7	
People Level 14 Balcony North	Area	84.4	
People Level 14 Balcony West	Area	87.6	
People Level 14 Exterior Office Southeast	Area	86.7	

1811 Sacramento
Source Levels in dB(A) - People

Name	Source type	Lw dB(A)	
People Level 14 Exterior Office Southwest	Area	88.3	
People Level 15 Deck	Area	92.8	

1811 Sacramento
Calculated Noise Levels - People

Source	Source type	Leq,d dB(A)	
Receiver R1 Leq,d 44.2 dB(A)			
People Level 1 Outdoor Cafe	Area	40.4	
People Level 1 Outdoor Lobby	Area	34.8	
People Level 03	Area	26.2	
People Level 04	Area	31.2	
People Level 05	Area	30.7	
People Level 06 Balcony North	Area	21.6	
People Level 06 Exterior Office	Area	3.3	
People Level 05 Balcony East	Area	30.4	
People Level 07 Exterior Office	Area	4.0	
People Level 07 Balcony East	Area	30.2	
People Level 07 Balcony N	Area	26.1	
People Level 07 Amenity Deck	Area	26.6	
People Level 08 Exterior Office	Area	9.9	
People Level 08 Balcony North	Area	23.5	
People Level 08 Balcony East	Area	31.4	
People Level 09 Exterior Office North	Area	19.6	
People Level 09 Exterior Office South	Area	6.4	
People Level 09 Balcony West	Area	9.1	
People Level 10 Exterior Office South	Area	5.2	
People Level 10 Exterior Office East	Area	29.5	
People Level 10 Exterior Office Center	Area	18.4	
People Level 10 Balcony West	Area	9.0	
People Level 11 Exterior Office South	Area	8.6	
People Level 11 Exterior Office North	Area	16.7	
People Level 11 Balcony East	Area	29.0	
People Level 12 Exterior Office Southwest	Area	5.8	
People Level 12 Balcony North	Area	19.3	
People Level 12 Balcony East	Area	28.7	
People Level 12 Exterior Office South	Area	11.0	
People Level 13 Exterior Office Southwest	Area	9.5	
People Level 13 Exterior Office Central	Area	5.4	
People Level 13 Exterior Office Southeast	Area	6.0	
People Level 13 Balcony North	Area	18.4	
People Level 13 Balcony East	Area	28.9	
People Level 13 Balcony West	Area	8.2	
People Level 14 Exterior Office Southeast	Area	7.7	
People Level 14 Balcony North	Area	18.6	
People Level 14 Balcony East	Area	29.0	
People Level 14 Balcony West	Area	9.3	
People Level 14 Exterior Office Southwest	Area	7.5	
People Level 15 Deck	Area	20.9	
Receiver R2 Leq,d 42.8 dB(A)			

1811 Sacramento
Calculated Noise Levels - People

Source	Source type	Leq,d dB(A)	
People Level 1 Outdoor Cafe	Area	26.5	
People Level 1 Outdoor Lobby	Area	37.1	
People Level 03	Area	10.3	
People Level 04	Area	14.8	
People Level 05	Area	12.9	
People Level 06 Balcony North	Area	3.8	
People Level 06 Exterior Office	Area	29.4	
People Level 05 Balcony East	Area	12.3	
People Level 07 Exterior Office	Area	27.4	
People Level 07 Balcony East	Area	11.9	
People Level 07 Balcony N	Area	9.6	
People Level 07 Amenity Deck	Area	36.5	
People Level 08 Exterior Office	Area	29.5	
People Level 08 Balcony North	Area	3.8	
People Level 08 Balcony East	Area	13.6	
People Level 09 Exterior Office North	Area	11.5	
People Level 09 Exterior Office South	Area	23.1	
People Level 09 Balcony West	Area	29.0	
People Level 10 Exterior Office South	Area	27.1	
People Level 10 Exterior Office East	Area	8.6	
People Level 10 Exterior Office Center	Area	22.5	
People Level 10 Balcony West	Area	28.7	
People Level 11 Exterior Office South	Area	25.4	
People Level 11 Exterior Office North	Area	17.5	
People Level 11 Balcony East	Area	15.0	
People Level 12 Exterior Office Southwest	Area	19.6	
People Level 12 Balcony North	Area	8.3	
People Level 12 Balcony East	Area	14.6	
People Level 12 Exterior Office South	Area	29.1	
People Level 13 Exterior Office Southwest	Area	24.8	
People Level 13 Exterior Office Central	Area	26.6	
People Level 13 Exterior Office Southeast	Area	25.0	
People Level 13 Balcony North	Area	4.4	
People Level 13 Balcony East	Area	14.5	
People Level 13 Balcony West	Area	27.4	
People Level 14 Exterior Office Southeast	Area	25.3	
People Level 14 Balcony North	Area	5.8	
People Level 14 Balcony East	Area	14.7	
People Level 14 Balcony West	Area	27.8	
People Level 14 Exterior Office Southwest	Area	16.4	
People Level 15 Deck	Area	22.0	
Receiver R3 Leq,d 39.8 dB(A)			
People Level 1 Outdoor Cafe	Area	30.5	

1811 Sacramento
Calculated Noise Levels - People

Source	Source type	Leq,d dB(A)	
People Level 1 Outdoor Lobby	Area	19.5	
People Level 03	Area	24.5	
People Level 04	Area	23.3	
People Level 05	Area	23.7	
People Level 06 Balcony North	Area	23.4	
People Level 06 Exterior Office	Area	3.5	
People Level 05 Balcony East	Area	23.1	
People Level 07 Exterior Office	Area	3.6	
People Level 07 Balcony East	Area	22.8	
People Level 07 Balcony N	Area	27.9	
People Level 07 Amenity Deck	Area	32.5	
People Level 08 Exterior Office	Area	5.4	
People Level 08 Balcony North	Area	24.6	
People Level 08 Balcony East	Area	25.3	
People Level 09 Exterior Office North	Area	26.8	
People Level 09 Exterior Office South	Area	2.9	
People Level 09 Balcony West	Area	21.5	
People Level 10 Exterior Office South	Area	0.4	
People Level 10 Exterior Office East	Area	23.7	
People Level 10 Exterior Office Center	Area	27.3	
People Level 10 Balcony West	Area	21.6	
People Level 11 Exterior Office South	Area	21.3	
People Level 11 Exterior Office North	Area	24.1	
People Level 11 Balcony East	Area	22.0	
People Level 12 Exterior Office Southwest	Area	11.7	
People Level 12 Balcony North	Area	22.9	
People Level 12 Balcony East	Area	21.9	
People Level 12 Exterior Office South	Area	5.3	
People Level 13 Exterior Office Southwest	Area	3.7	
People Level 13 Exterior Office Central	Area	1.0	
People Level 13 Exterior Office Southeast	Area	0.3	
People Level 13 Balcony North	Area	22.4	
People Level 13 Balcony East	Area	21.8	
People Level 13 Balcony West	Area	21.2	
People Level 14 Exterior Office Southeast	Area	0.7	
People Level 14 Balcony North	Area	23.0	
People Level 14 Balcony East	Area	22.7	
People Level 14 Balcony West	Area	21.8	
People Level 14 Exterior Office Southwest	Area	3.7	
People Level 15 Deck	Area	26.9	

1811 Sacramento
Source Levels in dB(A) - Speakers

Name	Source type	Lw dB(A)	
Speaker Level 04	Point	99.2	
Speaker Level 04	Point	99.2	
Speaker Level 04	Point	99.2	
Speaker Level 04	Point	99.2	
Speaker Level 04	Point	99.2	
Speaker Level 05	Point	99.2	
Speaker Level 05	Point	99.2	
Speaker Level 05	Point	99.2	
Speaker Level 05	Point	99.2	
Speaker Level 05	Point	99.2	
Speaker Level 05	Point	99.2	
Speaker Level 06	Point	99.2	
Speaker Level 06	Point	99.2	
Speaker Level 06	Point	99.2	
Speaker Level 06	Point	99.2	
Speaker Level 06	Point	99.2	
Speaker Level 06	Point	99.2	
Speaker Level 07	Point	99.2	
Speaker Level 07	Point	99.2	
Speaker Level 07	Point	99.2	
Speaker Level 07	Point	99.2	
Speaker Level 07	Point	99.2	
Speaker Level 07	Point	99.2	
Speakers Level 01	Point	104.2	
Speakers Level 01	Point	104.2	
Speakers Level 01	Point	104.2	
Speakers Level 01	Point	104.2	
Speakers Level 01	Point	104.2	
Speakers Level 01	Point	104.2	
Speakers Level 01	Point	104.2	
Speakers Level 01	Point	104.2	
Speakers Level 01	Point	104.2	
Speakers Level 01	Point	104.2	
Speakers Level 01	Point	104.2	
Speakers Level 01	Point	104.2	
Speakers Level 01	Point	104.2	
Speakers Level 01	Point	104.2	
Speakers Level 01	Point	104.2	
Speakers Level 03	Point	99.2	
Speakers Level 03	Point	99.2	

1811 Sacramento
Source Levels in dB(A) - Speakers

Name	Source type	Lw dB(A)	
Speakers Level 03	Point	99.2	
Speakers Level 04	Point	99.2	
Speakers Level 06	Point	99.2	
Speakers Level 06	Point	99.2	
Speakers Level 06	Point	99.2	
Speakers Level 06	Point	99.2	
Speakers Level 06	Point	99.2	
Speakers Level 06	Point	99.2	
Speakers Level 06	Point	99.2	
Speakers Level 07	Point	113.6	
Speakers Level 07	Point	113.6	
Speakers Level 07	Point	113.6	
Speakers Level 07	Point	113.6	
Speakers Level 07	Point	99.2	
Speakers Level 07	Point	99.2	
Speakers Level 07	Point	99.2	
Speakers Level 07	Point	99.2	
Speakers Level 07	Point	99.2	
Speakers Level 07	Point	99.2	
Speakers Level 07	Point	99.2	
Speakers Level 07	Point	113.6	
Speakers Level 07	Point	113.6	
Speakers Level 07	Point	99.2	
Speakers Level 08	Point	99.2	
Speakers Level 08	Point	99.2	
Speakers Level 08	Point	99.2	
Speakers Level 08	Point	99.2	
Speakers Level 08	Point	99.2	
Speakers Level 08	Point	99.2	
Speakers Level 08	Point	99.2	
Speakers Level 08	Point	99.2	
Speakers Level 08	Point	99.2	
Speakers Level 08	Point	99.2	
Speakers Level 08	Point	99.2	
Speakers Level 08	Point	99.2	
Speakers Level 08	Point	99.2	
Speakers Level 08	Point	99.2	
Speakers Level 09	Point	99.2	
Speakers Level 09	Point	99.2	
Speakers Level 09	Point	99.2	
Speakers Level 09	Point	99.2	

1811 Sacramento
Source Levels in dB(A) - Speakers

Name	Source type	Lw dB(A)	
Speakers Level 09	Point	99.2	
Speakers Level 09	Point	99.2	
Speakers Level 09	Point	99.2	
Speakers Level 09	Point	99.2	
Speakers Level 09	Point	99.2	
Speakers Level 09	Point	99.2	
Speakers Level 09	Point	99.2	
Speakers Level 09	Point	99.2	
Speakers Level 10	Point	99.2	
Speakers Level 10	Point	99.2	
Speakers Level 10	Point	99.2	
Speakers Level 10	Point	99.2	
Speakers Level 10	Point	99.2	
Speakers Level 10	Point	99.2	
Speakers Level 10	Point	99.2	
Speakers Level 10	Point	99.2	
Speakers Level 10	Point	99.2	
Speakers Level 10	Point	99.2	
Speakers Level 10	Point	99.2	
Speakers Level 10	Point	99.2	
Speakers Level 10	Point	99.2	
Speakers Level 10	Point	99.2	
Speakers Level 10	Point	99.2	
Speakers Level 10	Point	99.2	
Speakers Level 10	Point	99.2	
Speakers Level 10	Point	99.2	
Speakers Level 10	Point	99.2	
Speakers Level 10	Point	99.2	
Speakers Level 10	Point	99.2	
Speakers Level 11	Point	99.2	
Speakers Level 11	Point	99.2	
Speakers Level 11	Point	99.2	
Speakers Level 11	Point	99.2	
Speakers Level 11	Point	99.2	
Speakers Level 11	Point	99.2	
Speakers Level 11	Point	99.2	
Speakers Level 11	Point	99.2	
Speakers Level 11	Point	99.2	
Speakers Level 11	Point	99.2	

1811 Sacramento
Source Levels in dB(A) - Speakers

Name	Source type	Lw dB(A)	
Speakers Level 11	Point	99.2	
Speakers Level 11	Point	99.2	
Speakers Level 11	Point	99.2	
Speakers Level 11	Point	99.2	
Speakers Level 11	Point	99.2	
Speakers Level 11	Point	99.2	
Speakers Level 11	Point	99.2	
Speakers Level 11	Point	99.2	
Speakers Level 11	Point	99.2	
Speakers Level 12	Point	99.2	
Speakers Level 12	Point	99.2	
Speakers Level 12	Point	99.2	
Speakers Level 12	Point	99.2	
Speakers Level 12	Point	99.2	
Speakers Level 12	Point	99.2	
Speakers Level 12	Point	99.2	
Speakers Level 12	Point	99.2	
Speakers Level 12	Point	99.2	
Speakers Level 13	Point	99.2	
Speakers Level 13	Point	99.2	
Speakers Level 13	Point	99.2	
Speakers Level 13	Point	99.2	
Speakers Level 13	Point	99.2	
Speakers Level 13	Point	99.2	
Speakers Level 13	Point	99.2	
Speakers Level 13	Point	99.2	
Speakers Level 13	Point	99.2	
Speakers Level 13	Point	99.2	
Speakers Level 13	Point	99.2	
Speakers Level 13	Point	99.2	
Speakers Level 13	Point	99.2	
Speakers Level 13	Point	99.2	
Speakers Level 13	Point	99.2	
Speakers Level 13	Point	99.2	
Speakers Level 13	Point	99.2	
Speakers Level 13	Point	99.2	
Speakers Level 13	Point	99.2	
Speakers Level 13	Point	99.2	
Speakers Level 13	Point	99.2	

1811 Sacramento
Source Levels in dB(A) - Speakers

Name	Source type	Lw dB(A)	
Speakers Level 13	Point	99.2	
Speakers Level 13	Point	99.2	
Speakers Level 13	Point	99.2	
Speakers Level 13	Point	99.2	
Speakers Level 13	Point	99.2	
Speakers Level 14	Point	99.2	
Speakers Level 14	Point	99.2	
Speakers Level 14	Point	99.2	
Speakers Level 14	Point	99.2	
Speakers Level 14	Point	99.2	
Speakers Level 14	Point	99.2	
Speakers Level 14	Point	99.2	
Speakers Level 14	Point	99.2	
Speakers Level 14	Point	99.2	
Speakers Level 14	Point	99.2	
Speakers Level 14	Point	99.2	
Speakers Level 14	Point	99.2	
Speakers Level 14	Point	99.2	
Speakers Level 14	Point	99.2	
Speakers Level 14	Point	99.2	
Speakers Level 14	Point	99.2	
Speakers Level 14	Point	99.2	
Speakers Level 14	Point	99.2	
Speakers Level 14	Point	99.2	
Speakers Level 14	Point	99.2	
Speakers Level 14	Point	99.2	
Speakers Level 14	Point	99.2	
Speakers Level 14	Point	99.2	
Speakers Level 14	Point	99.2	
Speakers Level 15	Point	113.6	
Speakers Level 15	Point	113.6	
Speakers Level 15	Point	113.6	
Speakers Level 15	Point	113.6	
Speakers Level 15	Point	113.6	
Speakers Level 15	Point	113.6	
Speakers Level 15	Point	113.6	
Speakers Level 15	Point	113.6	

1811 Sacramento
Calculated Noise Levels - Speakers

Source	Source type	Leq,d dB(A)	
Receiver R1 Leq,d 57.0 dB(A)			
Speakers Level 01	Point	45.5	
Speakers Level 01	Point	46.5	
Speakers Level 01	Point	45.3	
Speakers Level 01	Point	45.2	
Speakers Level 01	Point	45.1	
Speakers Level 01	Point	33.0	
Speakers Level 01	Point	22.3	
Speakers Level 01	Point	19.7	
Speakers Level 01	Point	18.4	
Speakers Level 01	Point	20.7	
Speakers Level 01	Point	16.3	
Speakers Level 01	Point	14.5	
Speakers Level 01	Point	14.0	
Speakers Level 01	Point	12.9	
Speakers Level 03	Point	26.5	
Speakers Level 03	Point	28.9	
Speakers Level 03	Point	25.0	
Speakers Level 04	Point	39.5	
Speaker Level 04	Point	37.7	
Speaker Level 04	Point	37.9	
Speaker Level 04	Point	39.6	
Speaker Level 04	Point	34.0	
Speaker Level 04	Point	33.3	
Speaker Level 05	Point	39.5	
Speaker Level 05	Point	37.6	
Speaker Level 05	Point	37.9	
Speaker Level 05	Point	39.6	
Speaker Level 05	Point	33.9	
Speaker Level 05	Point	33.1	
Speaker Level 06	Point	39.5	
Speaker Level 06	Point	37.5	
Speaker Level 06	Point	37.8	
Speaker Level 06	Point	39.5	
Speaker Level 06	Point	33.8	
Speaker Level 06	Point	32.9	
Speakers Level 06	Point	26.5	
Speakers Level 06	Point	24.0	
Speakers Level 06	Point	28.8	
Speakers Level 06	Point	-5.1	
Speakers Level 06	Point	0.1	
Speakers Level 06	Point	-14.0	
Speakers Level 06	Point	-14.1	

1811 Sacramento
Calculated Noise Levels - Speakers

Source	Source type	Leq,d dB(A)	
Speaker Level 07	Point	39.4	
Speaker Level 07	Point	37.4	
Speaker Level 07	Point	37.8	
Speaker Level 07	Point	39.5	
Speaker Level 07	Point	33.7	
Speaker Level 07	Point	32.5	
Speakers Level 07	Point	26.7	
Speakers Level 07	Point	26.3	
Speakers Level 07	Point	26.4	
Speakers Level 07	Point	25.7	
Speakers Level 07	Point	23.6	
Speakers Level 07	Point	18.2	
Speakers Level 07	Point	18.3	
Speakers Level 07	Point	15.0	
Speakers Level 07	Point	13.7	
Speakers Level 07	Point	31.2	
Speakers Level 07	Point	37.1	
Speakers Level 07	Point	8.0	
Speakers Level 07	Point	-14.1	
Speakers Level 07	Point	-14.0	
Speakers Level 08	Point	-0.5	
Speakers Level 08	Point	6.9	
Speakers Level 08	Point	12.7	
Speakers Level 08	Point	7.4	
Speakers Level 08	Point	26.5	
Speakers Level 08	Point	27.2	
Speakers Level 08	Point	25.2	
Speakers Level 08	Point	34.5	
Speakers Level 08	Point	34.3	
Speakers Level 08	Point	34.2	
Speakers Level 08	Point	34.1	
Speakers Level 08	Point	34.8	
Speakers Level 09	Point	22.7	
Speakers Level 09	Point	7.0	
Speakers Level 09	Point		
Speakers Level 09	Point	4.6	
Speakers Level 09	Point	14.4	
Speakers Level 09	Point	8.8	
Speakers Level 09	Point	5.3	
Speakers Level 09	Point	5.0	
Speakers Level 09	Point	1.0	
Speakers Level 09	Point	0.7	
Speakers Level 09	Point	-0.2	
Speakers Level 09	Point	4.9	

1811 Sacramento
Calculated Noise Levels - Speakers

Source	Source type	Leq,d dB(A)	
Speakers Level 10	Point	8.8	
Speakers Level 10	Point	5.3	
Speakers Level 10	Point	4.6	
Speakers Level 10	Point	0.9	
Speakers Level 10	Point	0.6	
Speakers Level 10	Point	-0.3	
Speakers Level 10	Point	4.9	
Speakers Level 10	Point	38.8	
Speakers Level 10	Point	34.2	
Speakers Level 10	Point	34.0	
Speakers Level 10	Point	33.9	
Speakers Level 10	Point	38.0	
Speakers Level 10	Point	-2.7	
Speakers Level 10	Point	1.9	
Speakers Level 10	Point	18.9	
Speakers Level 10	Point	12.3	
Speakers Level 10	Point	10.8	
Speakers Level 10	Point	-14.1	
Speakers Level 10	Point	7.8	
Speakers Level 10	Point	12.7	
Speakers Level 10	Point	21.3	
Speakers Level 11	Point	39.0	
Speakers Level 11	Point	36.8	
Speakers Level 11	Point	37.3	
Speakers Level 11	Point	39.2	
Speakers Level 11	Point	33.3	
Speakers Level 11	Point	28.9	
Speakers Level 11	Point	11.8	
Speakers Level 11	Point	1.5	
Speakers Level 11	Point	3.8	
Speakers Level 11	Point	20.8	
Speakers Level 11	Point	17.3	
Speakers Level 11	Point		
Speakers Level 11	Point	-12.8	
Speakers Level 11	Point	38.9	
Speakers Level 11	Point	36.6	
Speakers Level 11	Point	37.2	
Speakers Level 11	Point	39.1	
Speakers Level 11	Point	33.1	
Speakers Level 11	Point	28.5	
Speakers Level 12	Point	10.6	
Speakers Level 12	Point	10.6	
Speakers Level 12	Point	-5.9	
Speakers Level 12	Point		

1811 Sacramento
Calculated Noise Levels - Speakers

Source	Source type	Leq,d dB(A)	
Speakers Level 12	Point	-0.9	
Speakers Level 12	Point	0.4	
Speakers Level 12	Point	21.2	
Speakers Level 12	Point	22.6	
Speakers Level 12	Point	25.8	
Speakers Level 13	Point	38.8	
Speakers Level 13	Point	36.4	
Speakers Level 13	Point	37.0	
Speakers Level 13	Point	38.9	
Speakers Level 13	Point	32.9	
Speakers Level 13	Point	31.0	
Speakers Level 13	Point	6.0	
Speakers Level 13	Point	5.3	
Speakers Level 13	Point	3.8	
Speakers Level 13	Point	0.5	
Speakers Level 13	Point	0.3	
Speakers Level 13	Point	-0.4	
Speakers Level 13	Point	4.9	
Speakers Level 13	Point	11.8	
Speakers Level 13	Point	4.6	
Speakers Level 13	Point	4.0	
Speakers Level 13	Point	2.8	
Speakers Level 13	Point	6.6	
Speakers Level 13	Point	2.9	
Speakers Level 13	Point	0.3	
Speakers Level 13	Point	21.1	
Speakers Level 13	Point	21.2	
Speakers Level 13	Point	19.6	
Speakers Level 13	Point	22.7	
Speakers Level 13	Point	21.8	
Speakers Level 13	Point	26.6	
Speakers Level 14	Point	39.4	
Speakers Level 14	Point	37.0	
Speakers Level 14	Point	36.8	
Speakers Level 14	Point	39.6	
Speakers Level 14	Point	33.8	
Speakers Level 14	Point	31.0	
Speakers Level 14	Point	9.6	
Speakers Level 14	Point	2.6	
Speakers Level 14	Point	13.2	
Speakers Level 14	Point	23.2	
Speakers Level 14	Point	14.8	
Speakers Level 14	Point	6.7	
Speakers Level 14	Point	17.2	

1811 Sacramento
Calculated Noise Levels - Speakers

Source	Source type	Leq,d dB(A)	
Speakers Level 14	Point	12.5	
Speakers Level 14	Point	3.3	
Speakers Level 14	Point	20.8	
Speakers Level 14	Point	20.9	
Speakers Level 14	Point	19.1	
Speakers Level 14	Point	21.0	
Speakers Level 14	Point	22.5	
Speakers Level 14	Point	26.7	
Speakers Level 14	Point	3.5	
Speakers Level 14	Point	12.1	
Speakers Level 14	Point	3.7	
Speakers Level 15	Point	37.5	
Speakers Level 15	Point	27.6	
Speakers Level 15	Point	31.0	
Speakers Level 15	Point	25.2	
Speakers Level 15	Point	30.1	
Speakers Level 15	Point	37.8	
Speakers Level 15	Point	26.4	
Speakers Level 15	Point	23.4	
Receiver R2 Leq,d 56.0 dB(A)			
Speakers Level 01	Point	6.9	
Speakers Level 01	Point	7.2	
Speakers Level 01	Point	7.9	
Speakers Level 01	Point	8.8	
Speakers Level 01	Point	11.8	
Speakers Level 01	Point	37.6	
Speakers Level 01	Point	38.0	
Speakers Level 01	Point	35.0	
Speakers Level 01	Point	32.4	
Speakers Level 01	Point	31.1	
Speakers Level 01	Point	30.8	
Speakers Level 01	Point	29.9	
Speakers Level 01	Point	29.3	
Speakers Level 01	Point	16.8	
Speakers Level 03	Point	-0.4	
Speakers Level 03	Point	-0.4	
Speakers Level 03	Point	-0.3	
Speakers Level 04	Point	3.3	
Speaker Level 04	Point	8.7	
Speaker Level 04	Point	0.9	
Speaker Level 04	Point	0.6	
Speaker Level 04	Point	12.4	
Speaker Level 04	Point	16.9	

1811 Sacramento
Calculated Noise Levels - Speakers

Source	Source type	Leq,d dB(A)	
Speaker Level 05	Point	3.3	
Speaker Level 05	Point	8.7	
Speaker Level 05	Point	0.9	
Speaker Level 05	Point	0.6	
Speaker Level 05	Point	12.3	
Speaker Level 05	Point	16.9	
Speaker Level 06	Point	3.3	
Speaker Level 06	Point	8.7	
Speaker Level 06	Point	0.8	
Speaker Level 06	Point	0.5	
Speaker Level 06	Point	12.3	
Speaker Level 06	Point	16.9	
Speakers Level 06	Point	-0.3	
Speakers Level 06	Point	0.6	
Speakers Level 06	Point	-0.3	
Speakers Level 06	Point	28.4	
Speakers Level 06	Point	34.6	
Speakers Level 06	Point	30.6	
Speakers Level 06	Point	29.9	
Speaker Level 07	Point	2.4	
Speaker Level 07	Point	8.6	
Speaker Level 07	Point	0.6	
Speaker Level 07	Point	0.3	
Speaker Level 07	Point	12.3	
Speaker Level 07	Point	16.8	
Speakers Level 07	Point	-1.1	
Speakers Level 07	Point	-1.0	
Speakers Level 07	Point	14.3	
Speakers Level 07	Point	3.0	
Speakers Level 07	Point	7.3	
Speakers Level 07	Point	35.4	
Speakers Level 07	Point	43.7	
Speakers Level 07	Point	46.1	
Speakers Level 07	Point	50.2	
Speakers Level 07	Point	34.1	
Speakers Level 07	Point	15.8	
Speakers Level 07	Point	25.4	
Speakers Level 07	Point	26.2	
Speakers Level 07	Point	31.8	
Speakers Level 08	Point	30.3	
Speakers Level 08	Point	21.1	
Speakers Level 08	Point	24.8	
Speakers Level 08	Point	32.9	
Speakers Level 08	Point	1.9	

1811 Sacramento
Calculated Noise Levels - Speakers

Source	Source type	Leq,d dB(A)	
Speakers Level 08	Point	10.2	
Speakers Level 08	Point	-0.8	
Speakers Level 08	Point	0.3	
Speakers Level 08	Point	1.0	
Speakers Level 08	Point	1.8	
Speakers Level 08	Point	2.9	
Speakers Level 08	Point	7.0	
Speakers Level 09	Point	1.8	
Speakers Level 09	Point		
Speakers Level 09	Point	3.6	
Speakers Level 09	Point	17.6	
Speakers Level 09	Point	30.1	
Speakers Level 09	Point	24.3	
Speakers Level 09	Point	24.7	
Speakers Level 09	Point	36.6	
Speakers Level 09	Point	37.0	
Speakers Level 09	Point	37.2	
Speakers Level 09	Point	40.6	
Speakers Level 09	Point	40.7	
Speakers Level 10	Point	23.6	
Speakers Level 10	Point	24.5	
Speakers Level 10	Point	36.5	
Speakers Level 10	Point	36.9	
Speakers Level 10	Point	37.1	
Speakers Level 10	Point	40.6	
Speakers Level 10	Point	40.7	
Speakers Level 10	Point	-0.2	
Speakers Level 10	Point	0.6	
Speakers Level 10	Point	-2.3	
Speakers Level 10	Point	-2.5	
Speakers Level 10	Point	0.9	
Speakers Level 10	Point	32.2	
Speakers Level 10	Point	34.7	
Speakers Level 10	Point	19.6	
Speakers Level 10	Point	16.5	
Speakers Level 10	Point	2.0	
Speakers Level 10	Point	11.0	
Speakers Level 10	Point	19.6	
Speakers Level 10	Point	19.7	
Speakers Level 10	Point	13.4	
Speakers Level 11	Point	1.7	
Speakers Level 11	Point	6.0	
Speakers Level 11	Point	0.0	
Speakers Level 11	Point	0.1	

1811 Sacramento
Calculated Noise Levels - Speakers

Source	Source type	Leq,d dB(A)	
Speakers Level 11	Point	9.5	
Speakers Level 11	Point	2.2	
Speakers Level 11	Point	5.4	
Speakers Level 11	Point	0.7	
Speakers Level 11	Point	25.9	
Speakers Level 11	Point	13.3	
Speakers Level 11	Point	27.5	
Speakers Level 11	Point	9.4	
Speakers Level 11	Point	11.0	
Speakers Level 11	Point	1.6	
Speakers Level 11	Point	5.9	
Speakers Level 11	Point	-0.2	
Speakers Level 11	Point	0.8	
Speakers Level 11	Point	9.2	
Speakers Level 11	Point	2.1	
Speakers Level 12	Point		
Speakers Level 12	Point	19.7	
Speakers Level 12	Point	29.5	
Speakers Level 12	Point	31.6	
Speakers Level 12	Point	26.8	
Speakers Level 12	Point	31.5	
Speakers Level 12	Point	0.3	
Speakers Level 12	Point	14.6	
Speakers Level 12	Point	0.1	
Speakers Level 13	Point	1.7	
Speakers Level 13	Point	5.9	
Speakers Level 13	Point	-0.1	
Speakers Level 13	Point	0.9	
Speakers Level 13	Point	8.9	
Speakers Level 13	Point	2.1	
Speakers Level 13	Point	20.9	
Speakers Level 13	Point	24.2	
Speakers Level 13	Point	36.1	
Speakers Level 13	Point	36.5	
Speakers Level 13	Point	36.8	
Speakers Level 13	Point	40.1	
Speakers Level 13	Point	40.4	
Speakers Level 13	Point	11.3	
Speakers Level 13	Point	14.1	
Speakers Level 13	Point	24.4	
Speakers Level 13	Point	30.6	
Speakers Level 13	Point	33.1	
Speakers Level 13	Point	29.2	
Speakers Level 13	Point	31.1	

1811 Sacramento
Calculated Noise Levels - Speakers

Source	Source type	Leq,d dB(A)	
Speakers Level 13	Point	13.5	
Speakers Level 13	Point	14.6	
Speakers Level 13	Point	-0.1	
Speakers Level 13	Point	7.8	
Speakers Level 13	Point	2.0	
Speakers Level 13	Point	8.7	
Speakers Level 14	Point	21.0	
Speakers Level 14	Point	10.7	
Speakers Level 14	Point	20.5	
Speakers Level 14	Point	25.7	
Speakers Level 14	Point	10.7	
Speakers Level 14	Point	16.9	
Speakers Level 14	Point	21.1	
Speakers Level 14	Point	26.6	
Speakers Level 14	Point	36.0	
Speakers Level 14	Point	36.4	
Speakers Level 14	Point	36.7	
Speakers Level 14	Point	39.8	
Speakers Level 14	Point	40.3	
Speakers Level 14	Point	33.2	
Speakers Level 14	Point	31.8	
Speakers Level 14	Point	13.5	
Speakers Level 14	Point	15.8	
Speakers Level 14	Point	2.1	
Speakers Level 14	Point	7.3	
Speakers Level 14	Point	4.3	
Speakers Level 14	Point	7.6	
Speakers Level 14	Point	16.8	
Speakers Level 14	Point	6.9	
Speakers Level 14	Point	11.7	
Speakers Level 15	Point	31.8	
Speakers Level 15	Point	32.6	
Speakers Level 15	Point	24.9	
Speakers Level 15	Point	39.0	
Speakers Level 15	Point	26.9	
Speakers Level 15	Point	32.2	
Speakers Level 15	Point	38.9	
Speakers Level 15	Point	26.6	
Receiver R3 Leq,d 55.0 dB(A)			
Speakers Level 01	Point	25.0	
Speakers Level 01	Point	24.3	
Speakers Level 01	Point	24.3	
Speakers Level 01	Point	16.6	

1811 Sacramento
Calculated Noise Levels - Speakers

Source	Source type	Leq,d dB(A)	
Speakers Level 01	Point	16.0	
Speakers Level 01	Point	14.0	
Speakers Level 01	Point	5.5	
Speakers Level 01	Point	4.8	
Speakers Level 01	Point	4.5	
Speakers Level 01	Point	4.3	
Speakers Level 01	Point	4.1	
Speakers Level 01	Point	3.9	
Speakers Level 01	Point	7.8	
Speakers Level 01	Point	3.7	
Speakers Level 03	Point	30.2	
Speakers Level 03	Point	30.3	
Speakers Level 03	Point	30.3	
Speakers Level 04	Point	18.7	
Speaker Level 04	Point	30.5	
Speaker Level 04	Point	30.1	
Speaker Level 04	Point	21.8	
Speaker Level 04	Point	6.3	
Speaker Level 04	Point	1.1	
Speaker Level 05	Point	18.7	
Speaker Level 05	Point	31.0	
Speaker Level 05	Point	30.7	
Speaker Level 05	Point	22.7	
Speaker Level 05	Point	6.3	
Speaker Level 05	Point	0.5	
Speaker Level 06	Point	18.7	
Speaker Level 06	Point	31.1	
Speaker Level 06	Point	30.7	
Speaker Level 06	Point	22.3	
Speaker Level 06	Point	5.8	
Speaker Level 06	Point	0.7	
Speakers Level 06	Point	35.0	
Speakers Level 06	Point	35.0	
Speakers Level 06	Point	34.9	
Speakers Level 06	Point	-0.1	
Speakers Level 06	Point	-0.5	
Speakers Level 06	Point	-1.9	
Speakers Level 06	Point	-2.2	
Speaker Level 07	Point	18.7	
Speaker Level 07	Point	31.0	
Speaker Level 07	Point	30.6	
Speaker Level 07	Point	21.9	
Speaker Level 07	Point	5.1	
Speaker Level 07	Point	0.9	

1811 Sacramento
Calculated Noise Levels - Speakers

Source	Source type	Leq,d dB(A)	
Speakers Level 07	Point	34.9	
Speakers Level 07	Point	34.9	
Speakers Level 07	Point	34.9	
Speakers Level 07	Point	34.8	
Speakers Level 07	Point	34.7	
Speakers Level 07	Point	42.2	
Speakers Level 07	Point	33.9	
Speakers Level 07	Point	15.5	
Speakers Level 07	Point	10.5	
Speakers Level 07	Point	43.5	
Speakers Level 07	Point	48.8	
Speakers Level 07	Point	0.6	
Speakers Level 07	Point	-2.4	
Speakers Level 07	Point	-1.0	
Speakers Level 08	Point	-2.4	
Speakers Level 08	Point	-1.9	
Speakers Level 08	Point	-0.1	
Speakers Level 08	Point	-1.0	
Speakers Level 08	Point	34.9	
Speakers Level 08	Point	35.0	
Speakers Level 08	Point	34.9	
Speakers Level 08	Point	23.1	
Speakers Level 08	Point	19.6	
Speakers Level 08	Point	19.2	
Speakers Level 08	Point	18.9	
Speakers Level 08	Point	3.4	
Speakers Level 09	Point	26.0	
Speakers Level 09	Point	30.7	
Speakers Level 09	Point	22.9	
Speakers Level 09	Point	2.2	
Speakers Level 09	Point	5.5	
Speakers Level 09	Point	29.1	
Speakers Level 09	Point	28.2	
Speakers Level 09	Point	21.3	
Speakers Level 09	Point	14.5	
Speakers Level 09	Point	9.0	
Speakers Level 09	Point	-0.2	
Speakers Level 09	Point	-1.2	
Speakers Level 10	Point	29.0	
Speakers Level 10	Point	28.1	
Speakers Level 10	Point	21.0	
Speakers Level 10	Point	13.1	
Speakers Level 10	Point	8.5	
Speakers Level 10	Point	-0.3	

1811 Sacramento
Calculated Noise Levels - Speakers

Source	Source type	Leq,d dB(A)	
Speakers Level 10	Point	-1.5	
Speakers Level 10	Point	23.2	
Speakers Level 10	Point	19.2	
Speakers Level 10	Point	18.9	
Speakers Level 10	Point	18.7	
Speakers Level 10	Point	3.4	
Speakers Level 10	Point	-2.6	
Speakers Level 10	Point	-1.0	
Speakers Level 10	Point	24.9	
Speakers Level 10	Point	20.6	
Speakers Level 10	Point	19.7	
Speakers Level 10	Point	22.7	
Speakers Level 10	Point	18.6	
Speakers Level 10	Point	-1.2	
Speakers Level 10	Point	22.8	
Speakers Level 11	Point	20.0	
Speakers Level 11	Point	30.8	
Speakers Level 11	Point	30.2	
Speakers Level 11	Point	19.4	
Speakers Level 11	Point	4.9	
Speakers Level 11	Point	0.8	
Speakers Level 11	Point	2.5	
Speakers Level 11	Point	-2.5	
Speakers Level 11	Point	17.0	
Speakers Level 11	Point	22.7	
Speakers Level 11	Point	24.5	
Speakers Level 11	Point	29.3	
Speakers Level 11	Point	22.3	
Speakers Level 11	Point	19.8	
Speakers Level 11	Point	30.8	
Speakers Level 11	Point	30.0	
Speakers Level 11	Point	19.0	
Speakers Level 11	Point	4.6	
Speakers Level 11	Point	0.8	
Speakers Level 12	Point	-12.7	
Speakers Level 12	Point	0.4	
Speakers Level 12	Point	-2.6	
Speakers Level 12	Point	-1.3	
Speakers Level 12	Point	-2.7	
Speakers Level 12	Point	-1.0	
Speakers Level 12	Point	34.3	
Speakers Level 12	Point	34.3	
Speakers Level 12	Point	34.3	
Speakers Level 13	Point	19.6	

1811 Sacramento
Calculated Noise Levels - Speakers

Source	Source type	Leq,d dB(A)	
Speakers Level 13	Point	30.7	
Speakers Level 13	Point	29.8	
Speakers Level 13	Point	18.8	
Speakers Level 13	Point	4.4	
Speakers Level 13	Point	0.7	
Speakers Level 13	Point	28.8	
Speakers Level 13	Point	27.1	
Speakers Level 13	Point	19.7	
Speakers Level 13	Point	10.9	
Speakers Level 13	Point	7.4	
Speakers Level 13	Point	-0.3	
Speakers Level 13	Point	-1.3	
Speakers Level 13	Point	1.1	
Speakers Level 13	Point	-1.5	
Speakers Level 13	Point	-0.6	
Speakers Level 13	Point	-1.6	
Speakers Level 13	Point	-0.3	
Speakers Level 13	Point	-2.7	
Speakers Level 13	Point	-1.0	
Speakers Level 13	Point	34.4	
Speakers Level 13	Point	34.4	
Speakers Level 13	Point	34.4	
Speakers Level 13	Point	34.4	
Speakers Level 13	Point	34.2	
Speakers Level 13	Point	34.5	
Speakers Level 14	Point	20.5	
Speakers Level 14	Point	30.7	
Speakers Level 14	Point	29.7	
Speakers Level 14	Point	18.7	
Speakers Level 14	Point	5.2	
Speakers Level 14	Point	15.7	
Speakers Level 14	Point	28.8	
Speakers Level 14	Point	26.4	
Speakers Level 14	Point	19.5	
Speakers Level 14	Point	11.4	
Speakers Level 14	Point	8.7	
Speakers Level 14	Point	3.9	
Speakers Level 14	Point	17.2	
Speakers Level 14	Point	-1.9	
Speakers Level 14	Point	2.2	
Speakers Level 14	Point	34.3	
Speakers Level 14	Point	34.5	
Speakers Level 14	Point	34.4	
Speakers Level 14	Point	34.5	

1811 Sacramento
Calculated Noise Levels - Speakers

Source	Source type	Leq,d dB(A)	
Speakers Level 14	Point	34.5	
Speakers Level 14	Point	34.5	
Speakers Level 14	Point	-1.1	
Speakers Level 14	Point	5.3	
Speakers Level 14	Point	1.5	
Speakers Level 15	Point	37.9	
Speakers Level 15	Point	43.2	
Speakers Level 15	Point	37.6	
Speakers Level 15	Point	33.3	
Speakers Level 15	Point	34.6	
Speakers Level 15	Point	37.9	
Speakers Level 15	Point	43.4	
Speakers Level 15	Point	43.2	

1811 Sacramento
Input data parking lots - Parking

Parking lot	PLT	# of Parking Spaces	
Parking Level 1	Visitors and staff	24	
Parking Level 02	Visitors and staff	34	
Parking Level 03	Visitors and staff	130	
Parking Level 04	Visitors and staff	130	
Parking Level 05	Visitors and staff	130	
Parking Level 06	Visitors and staff	134	

1811 Sacramento
Calculated Noise Levels - Parking

Source	Source type	Leq,d dB(A)	
Receiver R1 Leq,d 32.1 dB(A)			
Parking Level 1	PLot	8.2	
Parking Level 02	PLot	18.0	
Parking Level 03	PLot	26.6	
Parking Level 04	PLot	25.9	
Parking Level 05	PLot	25.6	
Parking Level 06	PLot	25.3	
Receiver R2 Leq,d 38.0 dB(A)			
Parking Level 1	PLot	10.5	
Parking Level 02	PLot	23.5	
Parking Level 03	PLot	32.7	
Parking Level 04	PLot	32.1	
Parking Level 05	PLot	31.3	
Parking Level 06	PLot	30.8	
Receiver R3 Leq,d 34.3 dB(A)			
Parking Level 1	PLot	18.9	
Parking Level 02	PLot	20.0	
Parking Level 03	PLot	27.7	
Parking Level 04	PLot	28.3	
Parking Level 05	PLot	28.0	
Parking Level 06	PLot	27.8	

AES
ACOUSTICAL ENGINEERING SERVICES

Off-Site Traffic Noise Calculations
Project: 1811 Sacramento 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 AM Pk	PM Pk	ADT	PHV to ADT factor	Barrier Atten.	Site Adjust., dBA	24-Hour CNEL
Alameda Street											
- Between 6th St. and 7th St.	70	10	45	35	1,860	2,013	19,365	10%	0	0	69.7
- Between 7th St. and Bay St.	70	10	45	35	1,846	2,045	19,455	10%	0	0	69.7
- Between Bay St. and 8th St.	70	10	45	35	1,952	1,930	19,410	10%	0	0	69.7
- Between 8th St. and Olympic Blvd.	70	10	45	35	1,818	1,672	17,450	10%	0	0	69.3
Mateo Street											
- Between 6th St. and 7th St.	40	10	30	30	464	478	4,710	10%	0	0	65.0
- Between 7th St. and 8th St.	40	10	30	30	605	586	5,955	10%	0	0	66.0
7th Street											
- Between Central Ave. and Alameda St.	50	10	35	35	1,560	1,778	16,690	10%	0	0	70.3
- Between Alameda St. and Mateo St.	50	10	35	35	1,411	1,672	15,415	10%	0	0	69.9
- Between Mateo St. and Santa Fe Ave.	50	10	35	35	1,299	1,311	13,050	10%	0	0	69.2
8th Street											
- Between Central Ave. and Alameda St.	40	10	30	30	431	221	3,260	10%	0	0	63.4
- Between Alameda St. and Lemon St.	40	10	30	30	255	147	2,010	10%	0	0	61.3

* Estimated based on Google Earth map.

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

Date Printed: 8/10/2023

AES
ACOUSTICAL ENGINEERING SERVICES

Off-Site Traffic Noise Calculations
Project: 1811 Sacramento 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 AM Pk	PM Pk	ADT	PHV to ADT factor	Barrier Atten.	Site Adjust., dBA	24-Hour CNEL
Alameda Street											
- Between 6th St. and 7th St.	70	10	45	35	1,972	2,122	20,470	10%	0	0	70.0
- Between 7th St. and Bay St.	70	10	45	35	1,958	2,154	20,560	10%	0	0	70.0
- Between Bay St. and 8th St.	70	10	45	35	1,975	1,952	19,635	10%	0	0	69.8
- Between 8th St. and Olympic Blvd.	70	10	45	35	1,885	1,737	18,110	10%	0	0	69.4
Mateo Street											
- Between 6th St. and 7th St.	40	10	30	30	487	500	4,935	10%	0	0	65.2
- Between 7th St. and 8th St.	40	10	30	30	672	651	6,615	10%	0	0	66.5
7th Street											
- Between Central Ave. and Alameda St.	50	10	35	35	1,560	1,778	16,690	10%	0	0	70.3
- Between Alameda St. and Mateo St.	50	10	35	35	1,411	1,672	15,415	10%	0	0	69.9
- Between Mateo St. and Santa Fe Ave.	50	10	35	35	1,343	1,354	13,485	10%	0	0	69.4
8th Street											
- Between Central Ave. and Alameda St.	40	10	30	30	431	221	3,260	10%	0	0	63.4
- Between Alameda St. and Lemon St.	40	10	30	30	299	190	2,445	10%	0	0	62.1

* Estimated based on Google Earth map.

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

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AES
ACOUSTICAL ENGINEERING SERVICES

Off-Site Traffic Noise Calculations
Project: 1811 Sacramento 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 AM Pk	PM Pk	ADT	PHV to ADT factor	Barrier Atten.	Site Adjust., dBA	24-Hour CNEL
Alameda Street											
- Between 6th St. and 7th St.	70	10	45	35	2,581	2,917	27,490	10%	0	0	71.2
- Between 7th St. and Bay St.	70	10	45	35	2,391	2,706	25,485	10%	0	0	70.9
- Between Bay St. and 8th St.	70	10	45	35	2,501	2,585	25,430	10%	0	0	70.9
- Between 8th St. and Olympic Blvd.	70	10	45	35	2,272	2,198	22,350	10%	0	0	70.3
Mateo Street											
- Between 6th St. and 7th St.	40	10	30	30	573	609	5,910	10%	0	0	66.0
- Between 7th St. and 8th St.	40	10	30	30	901	979	9,400	10%	0	0	68.0
7th Street											
- Between Central Ave. and Alameda St.	50	10	35	35	1,662	1,891	17,765	10%	0	0	70.6
- Between Alameda St. and Mateo St.	50	10	35	35	1,987	2,383	21,850	10%	0	0	71.5
- Between Mateo St. and Santa Fe Ave.	50	10	35	35	1,781	1,898	18,395	10%	0	0	70.7
8th Street											
- Between Central Ave. and Alameda St.	40	10	30	30	554	360	4,570	10%	0	0	64.9
- Between Alameda St. and Lemon St.	40	10	30	30	305	190	2,475	10%	0	0	62.2

* Estimated based on Google Earth map.

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

Date Printed: 8/10/2023

AES
ACOUSTICAL ENGINEERING SERVICES

Off-Site Traffic Noise Calculations
Project: 1811 Sacramento Project

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

PHV to ADT factor 10%

FUTURE + PROJECT CONDITIONS

Roadway Segment	Roadway Width*, ft	Distance to Edge of Roadway, ft	Distance to Centerline, feet	Speed mph	Traffic Volume AM Pk	PM Pk	ADT	PHV to ADT factor	Barrier Atten.	Site Adjust., dBA	24-Hour CNEL
Alameda Street											
- Between 6th St. and 7th St.	70	10	45	35	2,693	3,026	28,595	10%	0	0	71.4
- Between 7th St. and Bay St.	70	10	45	35	2,503	2,815	26,590	10%	0	0	71.1
- Between Bay St. and 8th St.	70	10	45	35	2,524	2,607	25,655	10%	0	0	70.9
- Between 8th St. and Olympic Blvd.	70	10	45	35	2,339	2,263	23,010	10%	0	0	70.5
Mateo Street											
- Between 6th St. and 7th St.	40	10	30	30	596	631	6,135	10%	0	0	66.1
- Between 7th St. and 8th St.	40	10	30	30	968	1,044	10,060	10%	0	0	68.3
7th Street											
- Between Central Ave. and Alameda St.	50	10	35	35	1,662	1,891	17,765	10%	0	0	70.6
- Between Alameda St. and Mateo St.	50	10	35	35	1,987	2,383	21,850	10%	0	0	71.5
- Between Mateo St. and Santa Fe Ave.	50	10	35	35	1,825	1,941	18,830	10%	0	0	70.8
8th Street											
- Between Central Ave. and Alameda St.	40	10	30	30	554	360	4,570	10%	0	0	64.9
- Between Alameda St. and Lemon St.	40	10	30	30	349	233	2,910	10%	0	0	62.9

* Estimated based on Google Earth map.

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

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