APPENDIX I

Noise Monitoring and Analysis Worksheets

APPENDIX I.1

Summary of Construction Noise at Nearest Sensitive Receptors

SUMMARY OF CONSTRUCTION NOISE AT NEAREST SENSITIVE RECEPTORS

Table 1
Construction Maximum Noise Estimates at Margo Street Residences

Construction Phase	Distance from Site 2 (feet)	Distance from Site 3 (feet)	Construction Noise Levels (dBA)
Site 2 Demolition	25	N/A[a]	91.6
Site 2 Grading	25	N/A[a]	89.2
Site 2 Building construction/ Site 3 Demolition	25	265	91.2
Site 2 Building construction/ Site 3 Grading	25	265	91.2
Site 2 Paving/ Site 3 Grading	25	265	90.4
Site 2 Paving/ Site 3 Building Construction	25	265	90.4
Site 2 Architectural Coating/ Site 3 Building Construction	25	265	80.1

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Source: FHWA, RCNM, version. 1.1.

*Refer to **Appendix J.3** for Construction Noise Worksheets.*

[a] *Site 3 would not be under construction during the Site 2 demolition and grading phases.*

Table 2
Construction Maximum Noise Estimates at Hill Street Residences

Construction Phase	Distance from Site 2 (feet)	Distance from Site 3 (feet)	Construction Noise Levels (dBA)
Site 2 Building construction/ Site 3 Demolition	490	240	70.2
Site 2 Building construction/ Site 3 Grading	490	240	72.3
Site 2 Paving/ Site 3 Grading	490	240	72.1
Site 2 Paving/ Site 3 Building Construction	490	240	71.4
Site 2 Architectural Coating/ Site 3 Building Construction	490	240	70.5

_____
Source: FHWA, RCNM, version. 1.1.
*Refer to **Appendix J.3** for Construction Noise Worksheets.*

Table 3
Construction Maximum Noise Estimates at Site 2 Residences

Construction Phase	Distance from Site 3 (feet)	Construction Noise Levels (dBA)
Site 3 Building Construction	90	79.0
Site 3 Paving	90	76.5
Site 3 Architectural Coating	90	68.6

_____
Source: FHWA, RCNM, version. 1.1.
*Refer to **Appendix J.3** for Construction Noise Worksheets.*

APPENDIX I.2

Noise Monitoring Worksheets

Monitoring Location: Site 1
Monitoring Date: 1/15/2020

Monitoring Period

Time	LAeq	LASmax	LASmin
14:02:13	60.7	64.8	55.3
14:03:00	58.3	66.1	55.2
14:04:00	62.5	67.1	56.3
14:05:00	59.9	63.5	54.9
14:06:00	62.9	68.5	55.2
14:07:00	66.0	74.6	59.1
14:08:00	61.9	65.1	58.0
14:09:00	60.3	64.8	56.4
14:10:00	69.7	79.4	56.7
14:11:00	60.2	65.8	55.6
14:12:00	59.8	65.7	56.1
14:13:00	62.6	69.1	58.7
14:14:00	60.9	66.5	56.5
14:15:00	62.4	67.1	56.9
14:16:00	63.2	69.5	56.7
14:17:00	64.0	67.0	59.3

15-minute LAeq **63.3**

Monitoring Location: Site 2
Monitoring Date: 1/15/2020

Monitoring Period

Time	LAeq	LASmax	LASmin
14:18:53	71.3	72.7	69.3
14:19:00	64.8	71.3	56.1
14:20:00	70.5	76.3	57.9
14:21:00	66.3	74.0	55.5
14:22:00	69.0	77.6	62.3
14:23:00	69.5	75.1	58.7
14:24:00	64.5	71.6	56.5
14:25:00	66.8	72.0	56.8
14:26:00	69.3	77.4	57.3
14:27:00	65.4	73.4	56.3
14:28:00	65.6	73.8	56.6
14:29:00	69.6	76.1	57.0
14:30:00	70.9	83.0	60.9
14:31:00	69.7	81.8	55.6
14:32:00	72.4	79.1	56.2
14:33:00	64.7	72.7	57.1

15-minute LAeq **68.9**

Monitoring Location: Site 3
Monitoring Date: 1/15/2020

Monitoring Period

Time	LAeq	LASmax	LASmin
14:37:45	60.5	62.7	58.9
14:38:00	60.1	65.4	55.0
14:39:00	65.0	70.2	56.9
14:40:00	62.9	71.8	55.7
14:41:00	61.1	66.6	54.9
14:42:00	61.6	65.3	54.3
14:43:00	59.6	63.4	53.6
14:44:00	57.9	62.5	53.3
14:45:00	57.8	62.6	54.3
14:46:00	58.0	60.4	52.8
14:47:00	59.7	65.0	52.6
14:48:00	59.7	64.6	53.6
14:49:00	60.0	65.2	52.8
14:50:00	58.2	63.9	52.5
14:51:00	65.5	72.2	57.6
14:52:00	63.3	70.6	58.7

15-minute LAeq **61.4**

APPENDIX I.3

Roadway Construction Noise Modeling Worksheets

Roadway Construction Noise Model (RCNM),Version 1.1

Report dat ########
Case Descr Site 2 - Demolition

		Baselines (dBA)			---- Receptor #1 ----
Description	Land Use	Daytime	Evening	Night	
Margo St. I	Residentia	63.3	63.3	63.3	

			Equipment			
			Spec	Actual	Receptor	Estimated
	Impact		Lmax	Lmax	Distance	Shielding
Description	Device	Usage(%)	(dBA)	(dBA)	(feet)	(dBA)
Concrete Saw	No	20		89.6	25	0
Dozer	No	40		81.7	25	0
Backhoe	No	40		77.6	25	0
Tractor	No	40	84		25	0

			Results					
	Calculated (dBA)		Noise Limits (dBA)					
			Day		Evening		Night	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Concrete Saw	95.6	88.6	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	87.7	83.7	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe	83.6	79.6	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	90	86	N/A	N/A	N/A	N/A	N/A	N/A
Total	95.6	91.6	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

	Noise Limit Exceedance (dBA)				
Day		Evening		Night	
Lmax	Leq	Lmax	Leq	Lmax	Leq
N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report dat ########
Case Descr Site 2 - Grading

		---- Receptor #1 ----		
		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Margo St. I	Residentia	63.3	63.3	63.3

			Equipment				
			Spec	Actual	Receptor	Estimated	
	Impact		Lmax	Lmax	Distance	Shielding	
Description	Device	Usage(%)	(dBA)	(dBA)	(feet)	(dBA)	
Grader	No	40	85		25	0	
Dozer	No	40		81.7	25	0	
Backhoe	No	40		77.6	25	0	

			Results					
	Calculated (dBA)		Noise Limits (dBA)					
			Day		Evening		Night	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Grader	91	87	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	87.7	83.7	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe	83.6	79.6	N/A	N/A	N/A	N/A	N/A	N/A
Total	91	89.2	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

	Noise Limit Exceedance (dBA)				
Day		Evening		Night	
Lmax	Leq	Lmax	Leq	Lmax	Leq
N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report dat ########
Case Descr Site 2 - Building Construction + Site 3 Demolition

---- Receptor #1 ----

	Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Margo St. I	Residentia	63.3	63.3	63.3

Equipment Description	Impact Device	Usage(%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Crane	No	16		80.6	25	0
Forklift	No	40		85	25	0
Forklift	No	40		85	25	0
Backhoe	No	40		77.6	25	0
Front End Loader	No	40		79.1	25	0
Concrete Pump Truck	No	20		81.4	265	0
Dozer	No	40		81.7	265	0
Backhoe	No	40		77.6	265	0
Front End Loader	No	40		79.1	265	0
Backhoe	No	40		77.6	265	0

Results

	Calculated (dBA)		Noise Limits (dBA)					
			Day		Evening		Night	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Crane	86.6	78.7	N/A	N/A	N/A	N/A	N/A	N/A
Forklift	91	87	N/A	N/A	N/A	N/A	N/A	N/A
Forklift	91	87	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe	83.6	79.6	N/A	N/A	N/A	N/A	N/A	N/A
Front End Loader	85.1	81.1	N/A	N/A	N/A	N/A	N/A	N/A
Concrete Pump Truck	66.9	59.9	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	67.2	63.2	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe	63.1	59.1	N/A	N/A	N/A	N/A	N/A	N/A
Front End Loader	64.6	60.6	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe	63.1	59.1	N/A	N/A	N/A	N/A	N/A	N/A
Total	91	91.2	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #2 ----

	Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Hill St. Resi	Residentia	61.4	61.4	61.4

Equipment

Description	Impact Device	Usage(%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Crane	No	16		80.6	490	0
Forklift	No	40		85	490	0
Forklift	No	40		85	490	0
Backhoe	No	40		77.6	490	0
Front End Loader	No	40		79.1	490	0
Concrete Pump Truck	No	20		81.4	240	0
Dozer	No	40		81.7	240	0
Backhoe	No	40		77.6	240	0
Front End Loader	No	40		79.1	240	0
Backhoe	No	40		77.6	240	0

Results

	Calculated (dBA)		Noise Limits (dBA)					
			Day		Evening		Night	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Crane	60.8	52.8	N/A	N/A	N/A	N/A	N/A	N/A
Forklift	65.2	61.2	N/A	N/A	N/A	N/A	N/A	N/A
Forklift	65.2	61.2	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe	57.8	53.8	N/A	N/A	N/A	N/A	N/A	N/A
Front End Loader	59.3	55.3	N/A	N/A	N/A	N/A	N/A	N/A
Concrete Pump Truck	67.8	60.8	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	68.1	64.1	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe	64	60	N/A	N/A	N/A	N/A	N/A	N/A
Front End Loader	65.5	61.5	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe	64	60	N/A	N/A	N/A	N/A	N/A	N/A
Total	68.1	70.2	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

	Noise Limit Exceedance (dBA)				
Day		Evening		Night	
Lmax	Leq	Lmax	Leq	Lmax	Leq
N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A

	Noise Limit Exceedance (dBA)				
Day		Evening		Night	
Lmax	Leq	Lmax	Leq	Lmax	Leq
N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report dat ########
Case Descr Site 2 - Building Construction + Site 3 Grading

---- Receptor #1 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Margo St. I	Residential	63.3	63.3	63.3

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Crane	No	16		80.6	25	0
Forklift	No	40		85	25	0
Forklift	No	40		85	25	0
Backhoe	No	40		77.6	25	0
Front End Loader	No	40		79.1	25	0
Grader	No	40	85		265	0
Dozer	No	40		81.7	265	0
Backhoe	No	40		77.6	265	0
Tractor	No	40	84		265	0

	Calculated (dBA)		Results Noise Limits (dBA)					
			Day		Evening		Night	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Crane	86.6	78.6	N/A	N/A	N/A	N/A	N/A	N/A
Forklift	91	87	N/A	N/A	N/A	N/A	N/A	N/A
Forklift	91	87	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe	83.6	79.6	N/A	N/A	N/A	N/A	N/A	N/A
Front End Loader	85.1	81.2	N/A	N/A	N/A	N/A	N/A	N/A
Grader	70.5	66.5	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	67.2	63.2	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe	63.1	59.1	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	69.5	65.5	N/A	N/A	N/A	N/A	N/A	N/A
Total	91	91.2	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #2 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Hill St. Resi	Residential	61.4	61.4	61.4

			Equipment Spec	Actual	Receptor	Estimated

Description	Impact Device	Usage(%)	Lmax (dBA)	Lmax (dBA)	Distance (feet)	Shielding (dBA)
Crane	No	16		80.6	490	0
Forklift	No	40		85	490	0
Forklift	No	40		85	490	0
Backhoe	No	40		77.6	490	0
Front End Loader	No	40		79.1	490	0
Grader	No	40	85		240	0
Dozer	No	40		81.7	240	0
Backhoe	No	40		77.6	240	0
Tractor	No	40	84		240	0

Results

	Calculated (dBA)		Noise Limits (dBA)					
			Day		Evening		Night	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Crane	60.7	52.8	N/A	N/A	N/A	N/A	N/A	N/A
Forklift	65.2	61.2	N/A	N/A	N/A	N/A	N/A	N/A
Forklift	65.2	61.2	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe	57.7	53.8	N/A	N/A	N/A	N/A	N/A	N/A
Front End Loader	59.3	55.3	N/A	N/A	N/A	N/A	N/A	N/A
Grader	71.4	67.4	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	68	64.1	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe	63.9	60	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	70.4	66.4	N/A	N/A	N/A	N/A	N/A	N/A
Total	71.4	72.3	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

	Noise Limit Exceedance (dBA)				
Day		Evening		Night	
Lmax	Leq	Lmax	Leq	Lmax	Leq
N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A

	Noise Limit Exceedance (dBA)				
Day		Evening		Night	
Lmax	Leq	Lmax	Leq	Lmax	Leq
N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report dat ########
Case Descr Site 2 - Paving + Site 3 - Grading

---- Receptor #1 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Margo St. I	Residential	63.3	63.3	63.3

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Drum Mixer	No	50		80	25	0
Drum Mixer	No	50		80	25	0
Drum Mixer	No	50		80	25	0
Drum Mixer	No	50		80	25	0
Paver	No	50		77.2	25	0
Roller	No	20		80	25	0
Backhoe	No	40		77.6	25	0
Grader	No	40	85		265	0
Dozer	No	40		81.7	265	0
Backhoe	No	40		77.6	265	0
Tractor	No	40	84		265	0

	Calculated (dBA)		Results Noise Limits (dBA)					
			Day		Evening		Night	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Drum Mixer	86	83	N/A	N/A	N/A	N/A	N/A	N/A
Drum Mixer	86	83	N/A	N/A	N/A	N/A	N/A	N/A
Drum Mixer	86	83	N/A	N/A	N/A	N/A	N/A	N/A
Drum Mixer	86	83	N/A	N/A	N/A	N/A	N/A	N/A
Paver	83.2	80.2	N/A	N/A	N/A	N/A	N/A	N/A
Roller	86	79	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe	83.6	79.6	N/A	N/A	N/A	N/A	N/A	N/A
Grader	70.5	66.5	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	67.2	63.2	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe	63.1	59.1	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	69.5	65.5	N/A	N/A	N/A	N/A	N/A	N/A
Total	86	90.4	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #2 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night

Hill St. Resi	Residential	61.4	61.4	61.4

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Drum Mixer	No	50		80	490	0
Drum Mixer	No	50		80	490	0
Drum Mixer	No	50		80	490	0
Drum Mixer	No	50		80	490	0
Paver	No	50		77.2	490	0
Roller	No	20		80	490	0
Backhoe	No	40		77.6	490	0
Grader	No	40	85		240	0
Dozer	No	40		81.7	240	0
Backhoe	No	40		77.6	240	0
Tractor	No	40	84		240	0

Results

	Calculated (dBA)		Noise Limits (dBA)					
			Day		Evening		Night	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Drum Mixer	60.2	57.2	N/A	N/A	N/A	N/A	N/A	N/A
Drum Mixer	60.2	57.2	N/A	N/A	N/A	N/A	N/A	N/A
Drum Mixer	60.2	57.2	N/A	N/A	N/A	N/A	N/A	N/A
Drum Mixer	60.2	57.2	N/A	N/A	N/A	N/A	N/A	N/A
Paver	57.4	54.4	N/A	N/A	N/A	N/A	N/A	N/A
Roller	60.2	53.2	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe	57.7	53.8	N/A	N/A	N/A	N/A	N/A	N/A
Grader	71.4	67.4	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	68	64.1	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe	63.9	60	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	70.4	66.4	N/A	N/A	N/A	N/A	N/A	N/A
Total	71.4	72.1	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

	Noise Limit Exceedance (dBA)				
Day		Evening		Night	
Lmax	Leq	Lmax	Leq	Lmax	Leq
N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A

	Noise Limit Exceedance (dBA)				
Day		Evening		Night	
Lmax	Leq	Lmax	Leq	Lmax	Leq
N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report dat ########
Case Descr Site 2 - Paving + Site 3 - Building Construction

---- Receptor #1 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Margo St. I	Residentia	63.3	63.3	63.3

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Drum Mixer	No	50		80	25	0
Drum Mixer	No	50		80	25	0
Drum Mixer	No	50		80	25	0
Drum Mixer	No	50		80	25	0
Paver	No	50		77.2	25	0
Roller	No	20		80	25	0
Backhoe	No	40		77.6	25	0
Crane	No	16		80.6	265	0
Forklift	No	40		85	265	0
Generator	No	50		80.6	265	0
Backhoe	No	40		77.6	265	0
Welder / Torch	No	40		74	265	0
Welder / Torch	No	40		74	265	0
Welder / Torch	No	40		74	265	0

Results

Equipment	Calculated (dBA) *Lmax	Leq	Noise Limits (dBA) Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq
Drum Mixer	86	83	N/A	N/A	N/A	N/A	N/A	N/A
Drum Mixer	86	83	N/A	N/A	N/A	N/A	N/A	N/A
Drum Mixer	86	83	N/A	N/A	N/A	N/A	N/A	N/A
Drum Mixer	86	83	N/A	N/A	N/A	N/A	N/A	N/A
Paver	83.2	80.2	N/A	N/A	N/A	N/A	N/A	N/A
Roller	86	79	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe	83.6	79.6	N/A	N/A	N/A	N/A	N/A	N/A
Crane	66.1	58.1	N/A	N/A	N/A	N/A	N/A	N/A
Forklift	70.5	66.5	N/A	N/A	N/A	N/A	N/A	N/A
Generator	66.1	63.1	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe	63.1	59.1	N/A	N/A	N/A	N/A	N/A	N/A
Welder / Torch	59.5	55.5	N/A	N/A	N/A	N/A	N/A	N/A
Welder / Torch	59.5	55.5	N/A	N/A	N/A	N/A	N/A	N/A
Welder / Torch	59.5	55.5	N/A	N/A	N/A	N/A	N/A	N/A

Total	86	90.4	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #2 ----

	Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Hill St. Resi	Residential	61.4	61.4	61.4

Equipment

Description	Impact Device	Usage(%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Drum Mixer	No	50		80	490	0
Drum Mixer	No	50		80	490	0
Drum Mixer	No	50		80	490	0
Drum Mixer	No	50		80	490	0
Paver	No	50		77.2	490	0
Roller	No	20		80	490	0
Backhoe	No	40		77.6	490	0
Crane	No	16		80.6	240	0
Forklift	No	40		85	240	0
Generator	No	50		80.6	240	0
Backhoe	No	40		77.6	240	0
Welder / Torch	No	40		74	240	0
Welder / Torch	No	40		74	240	0
Welder / Torch	No	40		74	240	0

Results

	Calculated (dBA)		Noise Limits (dBA)					
			Day		Evening		Night	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Drum Mixer	60.2	57.2	N/A	N/A	N/A	N/A	N/A	N/A
Drum Mixer	60.2	57.2	N/A	N/A	N/A	N/A	N/A	N/A
Drum Mixer	60.2	57.2	N/A	N/A	N/A	N/A	N/A	N/A
Drum Mixer	60.2	57.2	N/A	N/A	N/A	N/A	N/A	N/A
Paver	57.4	54.4	N/A	N/A	N/A	N/A	N/A	N/A
Roller	60.2	53.2	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe	57.7	53.8	N/A	N/A	N/A	N/A	N/A	N/A
Crane	66.9	59	N/A	N/A	N/A	N/A	N/A	N/A
Forklift	71.4	67.4	N/A	N/A	N/A	N/A	N/A	N/A
Generator	67	64	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe	63.9	60	N/A	N/A	N/A	N/A	N/A	N/A
Welder / Torch	60.4	56.4	N/A	N/A	N/A	N/A	N/A	N/A
Welder / Torch	60.4	56.4	N/A	N/A	N/A	N/A	N/A	N/A
Welder / Torch	60.4	56.4	N/A	N/A	N/A	N/A	N/A	N/A
Total	71.4	71.4	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

	Noise Limit Exceedance (dBA)				
Day		Evening		Night	
Lmax	Leq	Lmax	Leq	Lmax	Leq
N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A

N/A	N/A	N/A	N/A	N/A	N/A

	Noise Limit Exceedance (dBA)				
Day		Evening		Night	
Lmax	Leq	Lmax	Leq	Lmax	Leq
N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report dat ########
Case Descr Site 2 - Architectural Coating + Site 3 - Building Construction

---- Receptor #1 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Margo St. I	Residentia	63.3	63.3	63.3

			Equipment			
			Spec	Actual	Receptor	Estimated
	Impact		Lmax	Lmax	Distance	Shielding
Description	Device	Usage(%)	(dBA)	(dBA)	(feet)	(dBA)
Compressor (air)	No	40		77.7	25	0
Crane	No	16		80.6	265	0
Forklift	No	40		85	265	0
Generator	No	50		80.6	265	0
Backhoe	No	40		77.6	265	0
Welder / Torch	No	40		74	265	0
Welder / Torch	No	40		74	265	0
Welder / Torch	No	40		74	265	0

			Results					
	Calculated (dBA)		Noise Limits (dBA)					
			Day		Evening		Night	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Compressor (air)	83.7	79.7	N/A	N/A	N/A	N/A	N/A	N/A
Crane	66.1	58.1	N/A	N/A	N/A	N/A	N/A	N/A
Forklift	70.5	66.5	N/A	N/A	N/A	N/A	N/A	N/A
Generator	66.1	63.1	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe	63.1	59.1	N/A	N/A	N/A	N/A	N/A	N/A
Welder / Torch	59.5	55.5	N/A	N/A	N/A	N/A	N/A	N/A
Welder / Torch	59.5	55.5	N/A	N/A	N/A	N/A	N/A	N/A
Welder / Torch	59.5	55.5	N/A	N/A	N/A	N/A	N/A	N/A
Total	83.7	80.1	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #2 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Hill St. Resi	Residentia	61.4	61.4	61.4

			Equipment			
			Spec	Actual	Receptor	Estimated
	Impact		Lmax	Lmax	Distance	Shielding
Description	Device	Usage(%)	(dBA)	(dBA)	(feet)	(dBA)

Compressor (air)	No	40	77.7	490	0
Crane	No	16	80.6	240	0
Forklift	No	40	85	240	0
Generator	No	50	80.6	240	0
Backhoe	No	40	77.6	240	0
Welder / Torch	No	40	74	240	0
Welder / Torch	No	40	74	240	0
Welder / Torch	No	40	74	240	0

Results

	Calculated (dBA)		Noise Limits (dBA)					
			Day		Evening		Night	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Compressor (air)	57.8	53.9	N/A	N/A	N/A	N/A	N/A	N/A
Crane	66.9	59	N/A	N/A	N/A	N/A	N/A	N/A
Forklift	71.4	67.4	N/A	N/A	N/A	N/A	N/A	N/A
Generator	67	64	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe	63.9	60	N/A	N/A	N/A	N/A	N/A	N/A
Welder / Torch	60.4	56.4	N/A	N/A	N/A	N/A	N/A	N/A
Welder / Torch	60.4	56.4	N/A	N/A	N/A	N/A	N/A	N/A
Welder / Torch	60.4	56.4	N/A	N/A	N/A	N/A	N/A	N/A
Total	71.4	70.5	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

	Noise Limit Exceedance (dBA)				
Day		Evening		Night	
Lmax	Leq	Lmax	Leq	Lmax	Leq
N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A

Noise Limit Exceedance (dBA)					
Day		Evening		Night	
Lmax	Leq	Lmax	Leq	Lmax	Leq
N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report dat ########
Case Descr Site 3 - Building Construction

		---- Receptor #1 ----		
		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Site 2 Resi	Residential	63.3	63.3	63.3

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Crane	No	16		80.6	90	0
Forklift	No	40		85	90	0
Generator	No	50		80.6	90	0
Backhoe	No	40		77.6	90	0
Welder / Torch	No	40		74	90	0
Welder / Torch	No	40		74	90	0
Welder / Torch	No	40		74	90	0

	Results							
	Calculated (dBA)		Noise Limits (dBA)					
			Day		Evening		Night	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Crane	75.4	67.5	N/A	N/A	N/A	N/A	N/A	N/A
Forklift	79.9	75.9	N/A	N/A	N/A	N/A	N/A	N/A
Generator	75.5	72.5	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe	72.5	68.5	N/A	N/A	N/A	N/A	N/A	N/A
Welder / Torch	68.9	64.9	N/A	N/A	N/A	N/A	N/A	N/A
Welder / Torch	68.9	64.9	N/A	N/A	N/A	N/A	N/A	N/A
Welder / Torch	68.9	64.9	N/A	N/A	N/A	N/A	N/A	N/A
Total	79.9	79	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

	Noise Limit Exceedance (dBA)				
Day		Evening		Night	
Lmax	Leq	Lmax	Leq	Lmax	Leq
N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report dat ########
Case Descr Site 3 - Paving

---- Receptor #1 ----

	Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Site 2 Resi	Residential	63.3	63.3	63.3

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Drum Mixer	No	50		80	90	0
Paver	No	50		77.2	90	0
Paver	No	50		77.2	90	0
Roller	No	20		80	90	0
Backhoe	No	40		77.6	90	0

	Calculated (dBA)		Results		Noise Limits (dBA)			
			Day		Evening		Night	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Drum Mixer	74.9	71.9	N/A	N/A	N/A	N/A	N/A	N/A
Paver	72.1	69.1	N/A	N/A	N/A	N/A	N/A	N/A
Paver	72.1	69.1	N/A	N/A	N/A	N/A	N/A	N/A
Roller	74.9	67.9	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe	72.5	68.5	N/A	N/A	N/A	N/A	N/A	N/A
Total	74.9	76.5	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

	Noise Limit Exceedance (dBA)				
Day		Evening		Night	
Lmax	Leq	Lmax	Leq	Lmax	Leq
N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report dat ########
Case Descr Site 3 - Architectural Coating

		Baselines (dBA)		---- Receptor #1 ----
Description	Land Use	Daytime	Evening	Night
Site 2 Resi	Residential	63.3	63.3	63.3

			Equipment			
			Spec	Actual	Receptor	Estimated
	Impact		Lmax	Lmax	Distance	Shielding
Description	Device	Usage(%)	(dBA)	(dBA)	(feet)	(dBA)
Compressor (air)	No	40		77.7	90	0

			Results					
	Calculated (dBA)			Noise Limits (dBA)				
			Day		Evening		Night	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Compressor (air)	72.6	68.6	N/A	N/A	N/A	N/A	N/A	N/A
Total	72.6	68.6	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

	Noise Limit Exceedance (dBA)				
Day		Evening		Night	
Lmax	Leq	Lmax	Leq	Lmax	Leq
N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A

APPENDIX I.4

Construction Vibration Model Worksheets

Equipment		Pieces of Equipment	PPV at 25 feet (in/sec)	Distance from Equipment	PPV at adjusted distance	RMS velocity amplitude in in/sec at adjusted distance[a]	RMS Vibration level in VdB at adjusted distance
Caisson drilling		1	0.089	25	0.089	0.022	87
Jackhammer		1	0.035	25	0.035	0.009	79
Large bulldozer		1	0.089	25	0.089	0.022	87
Loaded trucks		1	0.076	25	0.076	0.019	86
Pile Drive (impact)		1	0.644	25	0.644	0.161	104
Vibratory Roller		1	0.210	25	0.210	0.053	94
Small bulldozer		1	0.003	25	0.003	0.001	58

*** Suggested Vibration Thresholds per the Federal Transit Administration, United States Department of Transportation, Transit Noise and Vibration Impact Assessment (FTA-VA-90-1003-06), May 2006, pg. 12-12.**

-Fragile Buildings- 0.20 in/sec

Equipment		Pieces of Equipment	PPV at 25 feet (in/sec)	Distance from Equipment	PPV at adjusted distance	RMS velocity amplitude in in/sec at adjusted distance[a]	RMS Vibration level in VdB at adjusted distance
Caisson drilling		1	0.089	240	0.003	0.001	57
Jackhammer		1	0.035	240	0.001	0.000	49
Large bulldozer		1	0.089	240	0.003	0.001	57
Loaded trucks		1	0.076	240	0.003	0.001	56
Pile Drive (impact)		1	0.644	240	0.022	0.005	75
Vibratory Roller		1	0.210	240	0.007	0.002	65
Small bulldozer		1	0.003	240	0.000	0.000	28

*** Suggested Vibration Thresholds per the Federal Transit Administration, United States Department of Transportation, Transit Noise and Vibration Impact Assessment (FTA-VA-90-1003-06), May 2006, pg. 12-12.**

-Fragile Buildings- 0.20 in/sec

Equipment		Pieces of Equipment	PPV at 25 feet (in/sec)	Distance from Equipment	PPV at adjusted distance	RMS velocity amplitude in in/sec at adjusted distance[a]	RMS Vibration level in VdB at adjusted distance
Caisson drilling		1	0.089	90	0.013	0.003	70
Jackhammer		1	0.035	90	0.005	0.001	62
Large bulldozer		1	0.089	90	0.013	0.003	70
Loaded trucks		1	0.076	90	0.011	0.003	69
Pile Drive (impact)		1	0.644	90	0.094	0.024	87
Vibratory Roller		1	0.210	90	0.031	0.008	78
Small bulldozer		1	0.003	90	0.000	0.000	41

*** Suggested Vibration Thresholds per the Federal Transit Administration, United States Department of Transportation, Transit Noise and Vibration Impact Assessment (FTA-VA-90-1003-06), May 2006, pg. 12-12.**

-Fragile Buildings- 0.20 in/sec