

# Appendix H-1

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## Construction Noise Modeling Worksheets



To User: bordered cells are inputs, unbordered cells have formulae

noise level limit for construction phase, per City of El Segundo = **65**  
allowable hours over which Leq is to be averaged = **1**

Construction Phase	Equipment Type (or FHWA RCNM Comparable)	Total Equipment Qty	AUF % (from FHWA RCNM)	Reference Lmax @ 50 ft. from FHWA RCNM	Client Equipment Description, Data Source and/or Notes	Source to Rcvr. Distance (ft.)	Equipment NR (dB)	Distance-Adjusted Lmax	Allowable Operation Time (hours)	Allowable Operation Time (minutes)	Predicted 1-hour Leq
Demolition	Concrete Saw	1	20	90		58	10	78.7	1	60	72
	Excavator	0	40	81		58	0	79.7	1	60	0
	Dozer	0	40	82		58	0	80.7	1	60	0
Total for Demolition Phase:											<b>71.7</b>
Site Preparation	Dozer	1	40	82		58	0	80.7	1	60	77
	Backhoe	0	40	78		58	0	76.7	1	60	0
	Front End Loader	0	40	79		58	0	77.7	1	60	0
Total for Site Preparation Phase:											<b>76.7</b>
Grading	Excavator	1	40	81		58	0	79.7	1	60	76
	Grader	0	40	85		58	0	83.7	1	60	0
	Dozer	0	40	82		58	0	80.7	1	60	0
	Backhoe	1	40	78		58	0	76.7	1	60	73
Total for Grading Phase:											<b>77.5</b>
Building Construction	Crane	0	16	81		58	0	79.7	1	60	0
	Man Lift	0	20	75		58	0	73.7	1	60	0
	Generator	0	50	72		58	0	70.7	1	60	0
	Backhoe	1	40	78		58	0	76.7	1	60	73
	Welder / Torch	0	40	73		58	0	71.7	1	60	0
Total for Building Construction Phase:											<b>72.7</b>
Paving	Concrete Mixer Truck	1	40	79		58	0	77.7	1	60	74
	Paver	1	50	77		58	0	75.7	1	60	73
	Roller	1	20	80		58	0	78.7	1	60	72
Total for Paving Phase:											<b>77.6</b>
Architectural Coating	Compressor (air)	1	40	78		58	0	76.7	1	60	73
Total for Architectural Coating Phase:											<b>72.7</b>

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Demolition	Concrete Saw	1	20	90		170	10	69.4	1	60	62
	Excavator	3	40	81		170	0	70.4	1	60	71
	Dozer	2	40	82		170	0	71.4	1	60	70
Total for Demolition Phase:											<b>74.1</b>
Site Preparation	Dozer	3	40	82		170	0	71.4	1	60	72
	Backhoe	2	40	78		170	0	67.4	1	60	66
	Front End Loader	2	40	79		170	0	68.4	1	60	67
Total for Site Preparation Phase:											<b>74.2</b>
Grading	Excavator	1	40	81		170	0	70.4	1	60	66
	Grader	1	40	85		170	0	74.4	1	60	70
	Dozer	1	40	82		170	0	71.4	1	60	67
	Backhoe	3	40	78		170	0	67.4	1	60	68
Total for Grading Phase:											<b>74.4</b>
Building Construction	Crane	1	16	81		170	0	70.4	1	60	62
	Man Lift	3	20	75		170	0	64.4	1	60	62
	Generator	1	50	72		170	0	61.4	1	60	58
	Backhoe	3	40	78		170	0	67.4	1	60	68
	Welder / Torch	1	40	73		170	0	62.4	1	60	58
Total for Building Construction Phase:											<b>70.5</b>
Paving	Concrete Mixer Truck	2	40	79		170	0	68.4	1	60	67
	Paver	2	50	77		170	0	66.4	1	60	66
	Roller	2	20	80		170	0	69.4	1	60	65
Total for Paving Phase:											<b>71.2</b>
Architectural Coating	Compressor (air)	1	40	78		170	0	67.4	1	60	63
Total for Architectural Coating Phase:											<b>63.4</b>

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noise level limit for construction phase, per City of El Segundo = **65**  
allowable hours over which Leq is to be averaged = **1**

Construction Phase	Equipment Type (or FHWA RCNM Comparable)	Total Equipment Qty	AUF % (from FHWA RCNM)	Reference Lmax @ 50 ft. from FHWA RCNM	Client Equipment Description, Data Source and/or Notes	Source to Rcvr. Distance (ft.)	Equipment NR (dB)	Distance-Adjusted Lmax	Allowable Operation Time (hours)	Allowable Operation Time (minutes)	Predicted 1-hour Leq
Demolition	Concrete Saw	1	20	90		15	10	90.5	1	60	83
	Excavator	0	40	81		15	0	91.5	1	60	0
	Dozer	0	40	82		15	0	92.5	1	60	0
Total for Demolition Phase:											<b>83.5</b>
Site Preparation	Dozer	0	40	82		20	0	90.0	1	60	0
	Backhoe	1	40	78		20	0	86.0	1	60	82
	Front End Loader	0	40	79		20	0	87.0	1	60	0
Total for Site Preparation Phase:											<b>82.0</b>
Grading	Excavator	1	40	81		20	0	89.0	1	60	85
	Grader	0	40	85		20	0	93.0	1	60	0
	Dozer	0	40	82		20	0	90.0	1	60	0
	Backhoe	0	40	78		20	0	86.0	1	60	0
Total for Grading Phase:											<b>85.0</b>
Building Construction	Crane	0	16	81		41	0	82.7	1	60	0
	Man Lift	0	20	75		41	0	76.7	1	60	0
	Generator	0	50	72		41	0	73.7	1	60	0
	Backhoe	1	40	78		41	0	79.7	1	60	76
	Welder / Torch	0	40	73		41	0	74.7	1	60	0
Total for Building Construction Phase:											<b>75.7</b>
Paving	Concrete Mixer Truck	0	40	79		20	0	87.0	1	60	0
	Paver	0	50	77		20	0	85.0	1	60	0
	Roller	1	20	80		20	0	88.0	1	60	81
Total for Paving Phase:											<b>81.0</b>
Architectural Coating	Compressor (air)	1	40	78		41	0	79.7	1	60	76
Total for Architectural Coating Phase:											<b>75.7</b>

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Construction Phase	Equipment Type (or FHWA RCNM Comparable)	Total Equipment Qty	AUF % (from FHWA RCNM)	Reference Lmax @ 50 ft. from FHWA RCNM	Client Equipment Description, Data Source and/or Notes	Source to Rcvr. Distance (ft.)	Equipment NR (dB)	Distance-Adjusted Lmax	Allowable Operation Time (hours)	Allowable Operation Time (minutes)	Predicted 1-hour Leq
Demolition	Concrete Saw	1	20	90		62	10	78.1	1	60	71
	Excavator	0	40	81		62	0	79.1	1	60	0
	Dozer	0	40	82		62	0	80.1	1	60	0
Total for Demolition Phase:											<b>71.1</b>
Site Preparation	Dozer	1	40	82		62	0	80.1	1	60	76
	Backhoe	0	40	78		62	0	76.1	1	60	0
	Front End Loader	0	40	79		62	0	77.1	1	60	0
Total for Site Preparation Phase:											<b>76.2</b>
Grading	Excavator	1	40	81		62	0	79.1	1	60	75
	Grader	0	40	85		62	0	83.1	1	60	0
	Dozer	0	40	82		62	0	80.1	1	60	0
	Backhoe	1	40	78		62	0	76.1	1	60	72
Total for Grading Phase:											<b>76.9</b>
Building Construction	Crane	0	16	81		62	0	79.1	1	60	0
	Man Lift	0	20	75		62	0	73.1	1	60	0
	Generator	0	50	72		62	0	70.1	1	60	0
	Backhoe	1	40	78		62	0	76.1	1	60	72
	Welder / Torch	0	40	73		62	0	71.1	1	60	0
Total for Building Construction Phase:											<b>72.2</b>
Paving	Concrete Mixer Truck	1	40	79		62	0	77.1	1	60	73
	Paver	1	50	77		62	0	75.1	1	60	72
	Roller	1	20	80		62	0	78.1	1	60	71
Total for Paving Phase:											<b>77.0</b>
Architectural Coating	Compressor (air)	1	40	78		62	0	76.1	1	60	72
Total for Architectural Coating Phase:											<b>72.2</b>

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Demolition	Concrete Saw	1	20	90		175	10	69.1	1	60	62
	Excavator	3	40	81		175	0	70.1	1	60	71
	Dozer	2	40	82		175	0	71.1	1	60	70
Total for Demolition Phase:											<b>73.9</b>
Site Preparation	Dozer	3	40	82		175	0	71.1	1	60	72
	Backhoe	2	40	78		175	0	67.1	1	60	66
	Front End Loader	2	40	79		175	0	68.1	1	60	67
Total for Site Preparation Phase:											<b>74.0</b>
Grading	Excavator	1	40	81		175	0	70.1	1	60	66
	Grader	1	40	85		175	0	74.1	1	60	70
	Dozer	1	40	82		175	0	71.1	1	60	67
	Backhoe	3	40	78		175	0	67.1	1	60	68
Total for Grading Phase:											<b>74.1</b>
Building Construction	Crane	1	16	81		175	0	70.1	1	60	62
	Man Lift	3	20	75		175	0	64.1	1	60	62
	Generator	1	50	72		175	0	61.1	1	60	58
	Backhoe	3	40	78		175	0	67.1	1	60	68
	Welder / Torch	1	40	73		175	0	62.1	1	60	58
Total for Building Construction Phase:											<b>70.3</b>
Paving	Concrete Mixer Truck	2	40	79		175	0	68.1	1	60	67
	Paver	2	50	77		175	0	66.1	1	60	66
	Roller	2	20	80		175	0	69.1	1	60	65
Total for Paving Phase:											<b>71.0</b>
Architectural Coating	Compressor (air)	1	40	78		175	0	67.1	1	60	63
Total for Architectural Coating Phase:											<b>63.1</b>

Equipment Description	Impact Device?	Acoustical Use Factor (%)	Lesser of or available Lmax	Spec. 721 Lmax	Measured L <sub>max</sub> @50ft (dBA, slow)
All Other Equipment > 5 HP	No	50	85	85	-- N/A --
Auger Drill Rig	No	20	84	85	84
Backhoe	No	40	78	80	78
Bar Bender	No	20	80	80	-- N/A --
Blasting	Yes	-- N/A --	94	94	-- N/A --
Boring Jack Power Unit	No	50	80	80	83
Chain Saw	No	20	84	85	84
Clam Shovel (dropping)	Yes	20	87	93	87
Compactor (ground)	No	20	80	80	83
Compressor (air)	No	40	78	80	78
Concrete Batch Plant	No	15	83	83	-- N/A --
Concrete Mixer Truck	No	40	79	85	79
Concrete Pump Truck	No	20	81	82	81
Concrete Saw	No	20	90	90	90
Crane	No	16	81	85	81
Dozer	No	40	82	85	82
Drill Rig Truck	No	20	79	84	79
Drum Mixer	No	50	80	80	80
Dump Truck	No	40	76	84	76
Excavator	No	40	81	85	81
Flat Bed Truck	No	40	74	84	74
Front End Loader	No	40	79	80	79
Generator	No	50	72	72	81
Generator (<25KVA, VMS signs)	No	50	70	70	73
Gradall	No	40	83	85	83
Grader	No	40	85	85	-- N/A --
Grapple (on backhoe)	No	40	85	85	87
Horizontal Boring Hydr. Jack	No	25	80	80	82
Hydra Break Ram	Yes	10	90	90	-- N/A --
Impact Pile Driver	Yes	20	95	95	101
Jackhammer	Yes	20	85	85	89
Man Lift	No	20	75	85	75
Mounted Impact Hammer (hoe ram)	Yes	20	90	90	90
Pavement Scarafier	No	20	85	85	90
Paver	No	50	77	85	77
Pickup Truck	No	40	55	55	75
Pneumatic Tools	No	50	85	85	85
Pumps	No	50	77	77	81
Refrigerator Unit	No	100	73	82	73
Rivit Buster/chipping gun	Yes	20	79	85	79



Rock Drill	No	20	81	85	81
Roller	No	20	80	85	80
Sand Blasting (Single Nozzle)	No	20	85	85	96
Scraper	No	40	84	85	84
Shears (on backhoe)	No	40	85	85	96
Slurry Plant	No	100	78	78	78
Slurry Trenching Machine	No	50	80	82	80
Soil Mix Drill Rig	No	50	80	80	-- N/A --
Tractor	No	40	84	84	-- N/A --
Vacuum Excavator (Vac-truck)	No	40	85	85	85
Vacuum Street Sweeper	No	10	80	80	82
Ventilation Fan	No	100	79	85	79
Vibrating Hopper	No	50	85	85	87
Vibratory Concrete Mixer	No	20	80	80	80
Vibratory Pile Driver	No	20	95	95	101
Warning Horn	No	5	83	85	83
Welder / Torch	No	40	73	73	74

