

Table 4-11: Estimated Peak Activity Daytime Noise Impacts - Residential Receptors

Construction Phases	Normal Acceptance Criteria – General Plan Policy EC-1.1			
	Modeled Noise Level (L _{eq} dBA) ^a	CalEEMod Duration (days)	Significance Threshold (CNEL dBA) ^b	Exceeds Threshold (Yes/No)?
Background	62	-	-	No
Demolition	65	10	70	No
Site Preparation	64	3	70	No
Grading	65	5	70	No
Building Construction	64	121	70	No
Paving	66	7	70	No
Architectural Coating	63	7	70	No
Long-Term Impact	62	-	-	No

Sources: CalEEMod v2013.2.2, FHWA 2006, Broch 1971, Plog 1988, SJGP 2020 (EC-1.1)

Notes:

^a Includes existing street traffic and ambient noise sources (cumulative impacts)

^b Refer to applicable City or County General Plan Noise Element and Municipal Code Noise Ordinance for thresholds

Site Prep (2)



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Estimated Attenuated Sound Levels at Receptor (dBA)															
Construction Equipment and Vehicles	Ref.	Usage	L_{REF}	D	TC	IL	WL	Sound Level in Decibels, A-weighted (dBA)							
		Factor	dBA	m	dBA/m	dBA	dBA	L_{MAX}	L₀₂	L₀₈	L₁₀	L₂₅	L₅₀	L₉₀	L_{EQ}
AAmbient 40 dBA (set D = Reference, m)	2,6	100%	40	15	0.000	0	0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0
Grader	1	40%	85	135	0.000	5	0	60.9	60.2	60.0	59.9	59.4	58.6	57.3	56.9
Backhoe (with loader)	1	40%	80	135	0.000	5	0	55.9	55.2	55.0	54.9	54.4	53.6	52.3	51.9
Traffic C (moderate, stable flow)	2	60%	75	50	0.000	0	0	64.5	64.5	64.5	64.5	64.5	64.0	62.7	62.3
AAABlank (null value)	--	100%	0	15	0.000	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AAABlank (null value)	--	100%	0	15	0.000	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AAABlank (null value)	--	100%	0	15	0.000	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AAABlank (null value)	--	100%	0	15	0.000	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AAABlank (null value)	--	100%	0	15	0.000	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AAABlank (null value)	--	100%	0	15	0.000	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AAABlank (null value)	--	100%	0	15	0.000	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AAABlank (null value)	--	100%	0	15	0.000	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AAABlank (null value)	--	100%	0	15	0.000	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AAABlank (null value)	--	100%	0	15	0.000	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AAABlank (null value)	--	100%	0	15	0.000	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AAABlank (null value)	--	100%	0	15	0.000	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AAABlank (null value)	--	100%	0	15	0.000	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AAABlank (null value)	--	100%	0	15	0.000	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AAABlank (null value)	--	100%	0	15	0.000	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AAABlank (null value)	--	100%	0	15	0.000	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AAABlank (null value)	--	100%	0	15	0.000	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AAABlank (null value)	--	100%	0	15	0.000	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AAABlank (null value)	--	100%	0	15	0.000	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AAABlank (null value)	--	100%	0	15	0.000	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AAABlank (null value)	--	100%	0	15	0.000	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AAABlank (null value)	--	100%	0	15	0.000	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AAABlank (null value)	--	100%	0	15	0.000	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AAABlank (null value)	--	100%	0	15	0.000	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AAABlank (null value)	--	100%	0	15	0.000	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AAABlank (null value)	--	100%	0	15	0.000	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AAABlank (null value)	--	100%	0	15	0.000	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AAABlank (null value)	--	100%	0	15	0.000	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Combined Effects of all Equipment and Vehicles on Receptor								66.5	66.3	66.2	66.2	66.0	65.4	64.1	63.7

Sources: (1) DOT FHWA 2006, (2) Broch 1971, (3) Kenai 2007, (4) EPA 1971, (5) Brueck 2008, (6) Plog 1988, (7) Rogers 2006, (8) T&M 1986, (9) DH 2010, (10) Viracon 2020

Grading (3)



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Estimated Attenuated Sound Levels at Receptor (dBA)															
Construction Equipment and Vehicles	Ref.	Usage	L _{REF}	D	TC	IL	WL	Sound Level in Decibels, A-weighted (dBA)							
		Factor	dBA	m	dBA/m	dBA	dBA	L _{MAX}	L ₀₂	L ₀₈	L ₁₀	L ₂₅	L ₅₀	L ₉₀	L _{EQ}
AAmbient 40 dBA (set D = Reference, m)	2,6	100%	40	15	0.000	0	0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0
Tractor (rubber tire)	1	40%	84	135	0.000	5	0	59.9	59.2	59.0	58.9	58.4	57.6	56.3	55.9
Backhoe (with loader)	1	40%	80	135	0.000	5	0	55.9	55.2	55.0	54.9	54.4	53.6	52.3	51.9
Backhoe (with loader)	1	40%	80	135	0.000	5	0	55.9	55.2	55.0	54.9	54.4	53.6	52.3	51.9
Concrete Saw	1	20%	90	135	0.000	5	0	65.9	62.2	62.0	61.9	61.4	60.6	59.3	58.9
Traffic C (moderate, stable flow)	2	60%	75	50	0.000	0	0	64.5	64.5	64.5	64.5	64.5	64.0	62.7	62.3
AAABlank (null value)	--	100%	0	15	0.000	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AAABlank (null value)	--	100%	0	15	0.000	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AAABlank (null value)	--	100%	0	15	0.000	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AAABlank (null value)	--	100%	0	15	0.000	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AAABlank (null value)	--	100%	0	15	0.000	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AAABlank (null value)	--	100%	0	15	0.000	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AAABlank (null value)	--	100%	0	15	0.000	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AAABlank (null value)	--	100%	0	15	0.000	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AAABlank (null value)	--	100%	0	15	0.000	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AAABlank (null value)	--	100%	0	15	0.000	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AAABlank (null value)	--	100%	0	15	0.000	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AAABlank (null value)	--	100%	0	15	0.000	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AAABlank (null value)	--	100%	0	15	0.000	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AAABlank (null value)	--	100%	0	15	0.000	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AAABlank (null value)	--	100%	0	15	0.000	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AAABlank (null value)	--	100%	0	15	0.000	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AAABlank (null value)	--	100%	0	15	0.000	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AAABlank (null value)	--	100%	0	15	0.000	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AAABlank (null value)	--	100%	0	15	0.000	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AAABlank (null value)	--	100%	0	15	0.000	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AAABlank (null value)	--	100%	0	15	0.000	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AAABlank (null value)	--	100%	0	15	0.000	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AAABlank (null value)	--	100%	0	15	0.000	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AAABlank (null value)	--	100%	0	15	0.000	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AAABlank (null value)	--	100%	0	15	0.000	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Combined Effects of all Equipment and Vehicles on Receptor								69.3	67.8	67.7	67.6	67.4	66.7	65.4	65.1

Sources: (1) DOT FHWA 2006, (2) Broch 1971, (3) Kenai 2007, (4) EPA 1971, (5) Brueck 2008, (6) Plog 1988, (7) Rogers 2006, (8) T&M 1986, (9) DH 2010, (10) Viracon 2020

Building Const (4)



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Estimated Attenuated Sound Levels at Receptor (dBA)															
Construction Equipment and Vehicles	Ref.	Usage	L _{REF}	D	TC	IL	WL	Sound Level in Decibels, A-weighted (dBA)							
		Factor	dBA	m	dBA/m	dBA	dBA	L _{MAX}	L ₀₂	L ₀₈	L ₁₀	L ₂₅	L ₅₀	L ₉₀	L _{EQ}
AAmbient 40 dBA (set D = Reference, m)	2,6	100%	40	15	0.000	0	0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0
Crane	1	16%	85	135	0.000	5	0	60.9	56.2	56.0	56.0	55.5	54.6	53.3	53.0
Forklift	1	40%	80	135	0.000	5	0	55.9	55.2	55.0	54.9	54.4	53.6	52.3	51.9
Forklift	1	40%	80	135	0.000	5	0	55.9	55.2	55.0	54.9	54.4	53.6	52.3	51.9
Backhoe (with loader)	1	40%	80	135	0.000	5	0	55.9	55.2	55.0	54.9	54.4	53.6	52.3	51.9
Backhoe (with loader)	1	40%	80	135	0.000	5	0	55.9	55.2	55.0	54.9	54.4	53.6	52.3	51.9
Traffic C (moderate, stable flow)	2	60%	75	50	0.000	0	0	64.5	64.5	64.5	64.5	64.5	64.0	62.7	62.3
AAABlank (null value)	--	100%	0	15	0.000	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AAABlank (null value)	--	100%	0	15	0.000	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AAABlank (null value)	--	100%	0	15	0.000	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AAABlank (null value)	--	100%	0	15	0.000	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AAABlank (null value)	--	100%	0	15	0.000	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AAABlank (null value)	--	100%	0	15	0.000	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AAABlank (null value)	--	100%	0	15	0.000	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AAABlank (null value)	--	100%	0	15	0.000	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AAABlank (null value)	--	100%	0	15	0.000	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AAABlank (null value)	--	100%	0	15	0.000	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AAABlank (null value)	--	100%	0	15	0.000	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AAABlank (null value)	--	100%	0	15	0.000	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AAABlank (null value)	--	100%	0	15	0.000	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AAABlank (null value)	--	100%	0	15	0.000	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AAABlank (null value)	--	100%	0	15	0.000	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AAABlank (null value)	--	100%	0	15	0.000	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AAABlank (null value)	--	100%	0	15	0.000	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AAABlank (null value)	--	100%	0	15	0.000	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AAABlank (null value)	--	100%	0	15	0.000	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AAABlank (null value)	--	100%	0	15	0.000	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AAABlank (null value)	--	100%	0	15	0.000	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AAABlank (null value)	--	100%	0	15	0.000	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AAABlank (null value)	--	100%	0	15	0.000	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AAABlank (null value)	--	100%	0	15	0.000	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AAABlank (null value)	--	100%	0	15	0.000	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AAABlank (null value)	--	100%	0	15	0.000	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Combined Effects of all Equipment and Vehicles on Receptor								67.5	66.6	66.6	66.5	66.4	65.7	64.4	64.0

Sources: (1) DOT FHWA 2006, (2) Broch 1971, (3) Kenai 2007, (4) EPA 1971, (5) Brueck 2008, (6) Plog 1988, (7) Rogers 2006, (8) T&M 1986, (9) DH 2010, (10) Viracon 2020

Paving (5)



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Estimated Attenuated Sound Levels at Receptor (dBA)															
Construction Equipment and Vehicles	Ref.	Usage	L_{REF}	D	TC	IL	WL	Sound Level in Decibels, A-weighted (dBA)							
		Factor	dBA	m	dBA/m	dBA	dBA	L_{MAX}	L₀₂	L₀₈	L₁₀	L₂₅	L₅₀	L₉₀	L_{EQ}
AAmbient 40 dBA (set D = Reference, m)	2,6	100%	40	15	0.000	0	0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0
All Other Equipment > 5 HP	1	50%	85	170	0.000	5	0	58.9	58.9	58.9	58.9	58.4	57.6	56.2	55.9
All Other Equipment > 5 HP	1	50%	85	170	0.000	5	0	58.9	58.9	58.9	58.9	58.4	57.6	56.2	55.9
All Other Equipment > 5 HP	1	50%	85	170	0.000	5	0	58.9	58.9	58.9	58.9	58.4	57.6	56.2	55.9
All Other Equipment > 5 HP	1	50%	85	170	0.000	5	0	58.9	58.9	58.9	58.9	58.4	57.6	56.2	55.9
Paver (asphalt)	1	50%	85	135	0.000	5	0	60.9	60.9	60.9	60.9	60.4	59.6	58.2	57.9
Roller	1	20%	85	135	0.000	5	0	60.9	57.2	57.0	56.9	56.4	55.6	54.3	53.9
Backhoe (with loader)	1	40%	80	135	0.000	5	0	55.9	55.2	55.0	54.9	54.4	53.6	52.3	51.9
Traffic C (moderate, stable flow)	2	60%	75	50	0.000	0	0	64.5	64.5	64.5	64.5	64.5	64.0	62.7	62.3
AAABlank (null value)	--	100%	0	15	0.000	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AAABlank (null value)	--	100%	0	15	0.000	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AAABlank (null value)	--	100%	0	15	0.000	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AAABlank (null value)	--	100%	0	15	0.000	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AAABlank (null value)	--	100%	0	15	0.000	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AAABlank (null value)	--	100%	0	15	0.000	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AAABlank (null value)	--	100%	0	15	0.000	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AAABlank (null value)	--	100%	0	15	0.000	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AAABlank (null value)	--	100%	0	15	0.000	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AAABlank (null value)	--	100%	0	15	0.000	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AAABlank (null value)	--	100%	0	15	0.000	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AAABlank (null value)	--	100%	0	15	0.000	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AAABlank (null value)	--	100%	0	15	0.000	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AAABlank (null value)	--	100%	0	15	0.000	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AAABlank (null value)	--	100%	0	15	0.000	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AAABlank (null value)	--	100%	0	15	0.000	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AAABlank (null value)	--	100%	0	15	0.000	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AAABlank (null value)	--	100%	0	15	0.000	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AAABlank (null value)	--	100%	0	15	0.000	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AAABlank (null value)	--	100%	0	15	0.000	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AAABlank (null value)	--	100%	0	15	0.000	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Combined Effects of all Equipment and Vehicles on Receptor								69.5	69.1	69.0	69.0	68.7	68.0	66.7	66.3

Sources: (1) DOT FHWA 2006, (2) Broch 1971, (3) Kenai 2007, (4) EPA 1971, (5) Brueck 2008, (6) Plog 1988, (7) Rogers 2006, (8) T&M 1986, (9) DH 2010, (10) Viracon 2020

Arch Coating (6)



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Estimated Attenuated Sound Levels at Receptor (dBA)															
Construction Equipment and Vehicles	Ref.	Usage	L _{REF}	D	TC	IL	WL	Sound Level in Decibels, A-weighted (dBA)							
		Factor	dBA	m	dBA/m	dBA	dBA	L _{MAX}	L ₀₂	L ₀₈	L ₁₀	L ₂₅	L ₅₀	L ₉₀	L _{EQ}
AAmbient 40 dBA (set D = Reference, m)	2,6	100%	40	15	0.000	0	0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0
Compressor (air)	1	40%	80	135	0.000	5	0	55.9	55.2	55.0	54.9	54.4	53.6	52.3	51.9
Traffic C (moderate, stable flow)	2	60%	75	50	0.000	0	0	64.5	64.5	64.5	64.5	64.5	64.0	62.7	62.3
AAABlank (null value)	--	100%	0	15	0.000	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AAABlank (null value)	--	100%	0	15	0.000	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AAABlank (null value)	--	100%	0	15	0.000	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AAABlank (null value)	--	100%	0	15	0.000	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AAABlank (null value)	--	100%	0	15	0.000	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AAABlank (null value)	--	100%	0	15	0.000	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AAABlank (null value)	--	100%	0	15	0.000	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AAABlank (null value)	--	100%	0	15	0.000	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AAABlank (null value)	--	100%	0	15	0.000	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AAABlank (null value)	--	100%	0	15	0.000	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AAABlank (null value)	--	100%	0	15	0.000	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AAABlank (null value)	--	100%	0	15	0.000	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AAABlank (null value)	--	100%	0	15	0.000	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AAABlank (null value)	--	100%	0	15	0.000	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AAABlank (null value)	--	100%	0	15	0.000	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AAABlank (null value)	--	100%	0	15	0.000	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AAABlank (null value)	--	100%	0	15	0.000	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AAABlank (null value)	--	100%	0	15	0.000	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AAABlank (null value)	--	100%	0	15	0.000	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AAABlank (null value)	--	100%	0	15	0.000	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AAABlank (null value)	--	100%	0	15	0.000	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AAABlank (null value)	--	100%	0	15	0.000	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AAABlank (null value)	--	100%	0	15	0.000	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AAABlank (null value)	--	100%	0	15	0.000	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AAABlank (null value)	--	100%	0	15	0.000	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AAABlank (null value)	--	100%	0	15	0.000	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AAABlank (null value)	--	100%	0	15	0.000	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AAABlank (null value)	--	100%	0	15	0.000	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Combined Effects of all Equipment and Vehicles on Receptor								65.1	65.0	65.0	65.0	65.0	64.4	63.1	62.7

Sources: (1) DOT FHWA 2006, (2) Broch 1971, (3) Kenai 2007, (4) EPA 1971, (5) Brueck 2008, (6) Plog 1988, (7) Rogers 2006, (8) T&M 1986, (9) DH 2010, (10) Viracon 2020

FHWA and Other Noise Reference Levels and Usage Factors				
Equipment Description	Ref.	Usage	Reference	Percussive
		Factor percent	Level dBA	Source Yes/No
All Other Equipment > 5 HP	1	50%	85	No
Auger Drill Rig	1	20%	85	No
Backhoe (with loader)	1	40%	80	No
Bar Bender	1	20%	80	No
Blasting	1	1%	94	Yes
Boring Jack Power Unit	1	50%	80	No
Chain Saw	1	20%	85	No
Clam Shovel (dropping)	1	20%	93	Yes
Compactor (ground)	1	20%	80	No
Compressor (air)	1	40%	80	No
Concrete Batch Plant	1	15%	83	No
Concrete Mixer Truck	1	40%	85	No
Concrete Pump Truck	1	20%	82	No
Concrete Saw	1	20%	90	No
Crane	1	16%	85	No
Cutting Torch	1	40%	73	No
Demolition Saw (reciprocating)	1	20%	85	No
Dozer (crawler tractor)	1	40%	85	No
Drill Rig Geothermal	9	100%	78	No
Drill Rig Horizontal (boring)	1,3,9	100%	85	No
Drill Rig Oilwell	3	100%	94	No
Drill Rig Truck	1	20%	84	No
Drum Mixer	1	50%	80	No
Dump Truck	1	40%	84	No
Excavator (hydraulic)	1	40%	85	No
Feller Buncher	1	40%	85	No
Flat Bed Truck	1	40%	84	No
Forklift	1	40%	80	No
Front End Loader	1	40%	80	No
Generator (<25 KVA quiet design)	1	50%	70	No
Generator (general purpose utility)	1	50%	82	No
Gradall	1	40%	85	No
Grader	1	40%	85	No
Grapple (on backhoe)	1	40%	85	No
Horizontal Boring Hydraulic Jack	1	25%	80	No
Hydra Break Ram	1	10%	90	Yes
Impact Pile Driver	1	20%	95	Yes
Jackhammer	1	0.2	85	Yes
Man Lift	1	20%	85	No
Mounted Impact Hammer (hoe ram)	1	20%	90	Yes
N/A	--	--	--	--
Pavement Scarifier	1	20%	85	No
Paver (asphalt)	1	50%	85	No
Pickup Truck	1	40%	55	No
Pneumatic Tools	1	50%	85	No
Pumps (dewatering)	1	50%	77	No
Refrigeration Unit	1	100%	82	No
Rivet Buster (chipping gun)	1	20%	85	Yes
Rock Drill	1	20%	85	No
Roller	1	20%	85	No
Sand Blasting	1	20%	85	No
Scraper	1	40%	85	No

FHWA and Other Noise Reference Levels and Usage Factors				
Equipment Description	Ref.	Usage	Reference	Percussive
		Factor percent	Level dBA	Source Yes/No
Shears (on backhoe)	1	40%	85	No
Skidder (rubber tire)	1	40%	84	No
Slurry Plant	1	100%	78	No
Slurry Trenching Machine	1	50%	82	No
Soil Mix Drill Rig	1	50%	80	No
Tractor (rubber tire)	1	40%	84	No
Tractor Trailer Truck (18-wheel)	4	40%	85	No
Traffic A (very light, unimpeded free flow)	2	20%	75	No
Traffic B (light, reasonably free flow)	2	40%	75	No
Traffic C (moderate, stable flow)	2	60%	75	No
Traffic D (heavy, approaching capacity)	2	80%	75	No
Traffic E (very heavy, operating at capacity)	2	100%	75	No
Vacuum Excavator (vac-truck)	1	40%	85	No
Vacuum Street Sweeper	1	10%	80	No
Ventilation Fan	1	100%	85	No
Vibrating Hopper	1	50%	85	No
Vibratory Concrete Mixer	1	20%	80	No
Vibratory Pile Driver	1	20%	95	No
Warning Horn	1	5%	85	No
Water Truck	1	40%	84	No
Welding Machine (arc welding)	1	50%	70	No
Welding Torch	1	40%	73	No
Wood Chipper	5	50%	87	No

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