Construction Generated Noise

Building Type Office, Hotel, Hospital, School, Public Works **Distance (ft)**

Construction Noise at 50 Feet (dBA Leq) 50

Construction Phase	All Applicable Equipment in Use[1]	Minimum Required Equipment in Use[1]
Ground Clearing/Demolition	84	84
Excavation	89	79
Foundation Construction	78	78
Building Construction	87	75
Finishing and Site Cleanup	89	75

Receptors to the Northwest – Orangewood Park

Maximum Construction Noise (dBA Leq) 90

Construction Phase	All Applicable Equipment in Use[1]	Minimum Required Equipment in Use[1]
Ground Clearing/Demolition	79	79
Excavation (Site Preparation)	84	74
Foundation Construction	73	73
Building Construction	82	70
Paving	84	70

Average Construction Noise (dBA Leq) 275

Construction Phase	All Applicable Equipment in Use[1]	Minimum Required Equipment in Use[1]
Ground Clearing/Demolition	69	69
Excavation (Site Preparation)	74	64
Foundation Construction	63	63
Building Construction	72	60
Paving	74	60

Residents to the Northeast – Multifamily Residential (Torrey Pines)

Maximum Construction Noise (dBA Leq) 200

Construction Phase	All Applicable Equipment in Use[1]	Minimum Required Equipment in Use[1]
Ground Clearing/Demolition	72	72
Excavation (Site Preparation)	77	67
Foundation Construction	66	66
Building Construction	75	63
Paving	77	63

Average Construction Noise (dBA Leq) 300

Construction Phase	All Applicable Equipment in Use[1]	Minimum Required Equipment in Use[1]
Ground Clearing/Demolition	68	68
Excavation (Site Preparation)	73	63
Foundation Construction	62	62
Building Construction	71	59
Paving	73	59

Receptors to the Southeast – Single Family Residential Uses

Maximum Construction Noise (dBA Leq) 650

Construction Phase	All Applicable Equipment in Use[1]	Minimum Required Equipment in Use[1]
Ground Clearing/Demolition	62	62
Excavation (Site Preparation)	67	57
Foundation Construction	56	56
Building Construction	65	53
Paving	67	53

Average Construction Noise (dBA Leq) 800

Construction Phase	All Applicable Equipment in Use[1]	Minimum Required Equipment in Use[1]
Ground Clearing/Demolition	60	60
Excavation (Site Preparation)	65	55
Foundation Construction	54	54
Building Construction	63	51
Paving	65	51

Receptors to the Southwest – Edgewood High School

Maximum Construction Noise (dBA Leq) 1,000

Construction Phase	All Applicable Equipment in Use[1]	Minimum Required Equipment in Use[1]
Ground Clearing/Demolition	58	58
Excavation (Site Preparation)	63	53
Foundation Construction	52	52
Building Construction	61	49
Paving	63	49

Average Construction Noise (dBA Leq) 1,150

Construction Phase	All Applicable Equipment in Use[1]	Minimum Required Equipment in Use[1]
Ground Clearing/Demolition	57	57
Excavation (Site Preparation)	62	52
Foundation Construction	51	51
Building Construction	60	48
Paving	62	48

Source: Bolt, Beranek and Newman, "Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances," prepared for the USEPA, December 31, 1971. Based on analysis for Office Building, Hotel, Hospital, School, and Public Works.

Construction Generated Vibration

Receptors to the Northwest – Orangewood Park	Closest Distance (feet):	415
Equipment	**Approximate RMS a Velocity at 25 ft, inch/second**	**Approximate RMS Velocity Level, inch/second**
Vibratory roller	0.21	0.003
Caisson Drill	0.089	0.001
Large bulldozer	0.089	0.001
Small bulldozer	0.003	0.000
Jackhammer	0.035	0.001
Loaded trucks	0.076	0.001
	Criteria	0.250

Residents to the Northeast – Multifamily Residential (Torrey	Closest Distance (feet):	200
Equipment	**Approximate RMS a Velocity at 25 ft, inch/second**	**Approximate RMS Velocity Level, inch/second**
Vibratory roller	0.21	0.009
Large bulldozer	0.089	0.004
Small bulldozer	0.003	0.000
Jackhammer	0.035	0.002
Loaded trucks	0.076	0.003
	Criteria	0.250

Receptors to the Southeast – Single Family Residential Uses	Closest Distance (feet):	650
Equipment	**Approximate RMS a Velocity at 25 ft, inch/second**	**Approximate RMS Velocity Level, inch/second**
Vibratory roller	0.21	0.002
Large bulldozer	0.089	0.001
Small bulldozer	0.003	0.000
Jackhammer	0.035	0.000
Loaded trucks	0.076	0.001
	Criteria	0.250

Receptors to the Southwest – Edgewood High School	Closest Distance (feet):	1,000
Equipment	**Approximate RMS a Velocity at 25 ft, inch/second**	**Approximate RMS Velocity Level, inch/second**
Vibratory roller	0.21	0.001
Large bulldozer	0.089	0.000
Small bulldozer	0.003	0.000
Jackhammer	0.035	0.000
Loaded trucks	0.076	0.000
	Criteria	0.250

Based on distance to nearest structure

[1.] Determined based on use of jackhammers or pneumatic hammers that may be used for pavement demolition at a distance of 25 feet

Notes: RMS velocity calculated from vibration level (VdB) using the reference of one microinch/second.

Source: Based on methodology from the United States Department of Transportation Federal Transit Administration, *Transit Noise and Vibration Impact Assessment* (2006).

Queen of the Valley Medical Office Building

Roadway Segment		Speed	24-hour Traffic Volume			Distance to CNEL from Roadway Centerline												Change From Existing	Change due to Project	Noise Level (CNEL or Ldn) at Distance from Roadway Centerline Existing			Future No Proj			Future Plus Proj			Change From Existing	Change due to Project
			Existing	Future Without Project	Future With Project	Existing				Future No Project				Future With Project						50 feet	50 feet	50 feet	50 feet	50 feet	50 feet	50 feet	50 feet	50 feet		
						50 Feet	60 CNEL	65 CNEL	70 CNEL	50 Feet	60 CNEL	65 CNEL	70 CNEL	50 Feet	60 CNEL	65 CNEL	70 CNEL													
Merced Avenue	Orange Ave to N. Hospital Dr.	40	14,300	14,700	15,100	71.9	310	144	67	72.0	316	147	68	72.1	322	149	69	0.2	0.1	71.9	71.9	71.9	72.0	72.0	72.0	72.1	72.1	72.1	+0.2	+0.1
Merced Avenue	N. Hospital Dr. to Sunset Ave	40	14,100	14,500	14,700	71.8	307	143	66	72.0	313	145	67	72.0	316	147	68	0.2	0.1	71.8	71.8	71.8	72.0	72.0	72.0	72.0	72.0	72.0	+0.2	+0.1
Sunset Avenue	Merced Ave to E. Hospital Dr.	40	26,000	26,700	27,200	74.5	462	215	100	74.6	471	218	101	74.7	476	221	103	0.2	0.1	74.5	74.5	74.5	74.6	74.6	74.6	74.7	74.7	74.7	+0.2	+0.1
Sunset Avenue	E. Hospital Dr. to Vine Ave	40	25,700	26,400	26,900	74.4	459	213	99	74.6	467	217	101	74.6	473	220	102	0.2	0.1	74.4	74.4	74.4	74.6	74.6	74.6	74.6	74.6	74.6	+0.2	+0.1

Assumptions:

				Fleet Mix	92%	Autos
					3%	Medium Trucks
Simplified to 2 lanes	6.1 meters=	20.0	feet from centerline		5%	Heavy Trucks
future	6.1 meters=	20.0	feet from centerline	Time of Day:	70%	Day
Noise path decay parameter for hard site					15%	Evening
					15%	Night

Calculations using methods of Federal Highway Administration *Highway Traffic Noise Prediction Model*,
December, 1978. Baseline California vehicle noise levels from Caltrans, TAN 95-03, 1995
Source of standard assumptions:

24-hour distribution of traffic volumes:
 70% day (7-7), 15% evening (7-10), 15% night (10-7)
Analysis of L.A. County 24-hour traffic counts for selected arterial streets
conducted by Pat Mann for Inglewood Noise Element, 1974
Truck Mix

ARB standard fleet mix for air quality analysis
Heavy trucks for noise model includes heavy diesel tractor-trailers only
Medium trucks for noise model includes buses and bobtail trucks
Autos includes cars, vans, pickups and light trucks

Site parameter: 0.0   (0=hard, 1=soft)
HALFSEP   1/2 lane separation   6.1
HALFSEPFUT   1/2 lane separation (future)   6.1

Lane separation: 2 ___ ___
consider   + +
moving lanes
only   6 ___ ___ ___   ___ ___ ___
                        + <-------------> +

                    4 ___ ___ ___ ___
                        + <--------> +

                    8 + ___ ___ ___ ___   ___ ___ ___ ___
                          + <-----------------> +

California base noise levels:
Autos: 5.2+38.8 Log10 (speed, mi/hr) = -2.8 + 38.8 Log10 (speed, km/hr)
Light trucks: 35.3 + 25.6 Log10 (speed, mi/hr) = 30 + 25.6 Log10 (speed, km/hr)
Heavy trucks: 25-31 mi/hr: 51.9 + 19.2 Log10 (speed, mi/hr) = 47.9 + 19.2 Log10 (speed, km/hr)
                  35-65 mi/hr: 50.4 + 19.2 Log10 (speed, mi/hr) = 46.4 + 19.2 Log10 (speed, km/hr)
                  31-35 mi/hr: straight line interpolation between above two curves