

Metro Orange Line Extension

Construction Noise and Vibration Fact Sheet



Metro[®]

There's a limit

Construction often generates community noise and vibration complaints, even when they take place over a limited time frame. Noise and vibration complaints typically arise from interference with people's activities, especially when the adjacent community has no clear understanding of the extent or duration of the construction activity. Misunderstandings arise when the contractor is considered to be insensitive by the community, even though the contractor is performing the work in compliance with local ordinances.

Construction noise and vibration varies greatly depending on the type and duration of activities. Metro has assessed these activities and established noise limits for construction equipment to be used during construction. These limits are established and presented in the Environmental Impact Report or Statement issued for the project. The limits are based on noise and vibration studies completed for the project as well as Metro's previous experience with these issues on similar projects.

For the Metro Orange Line Extension much of the data regarding noise and vibration limits was determined in the original Metro Orange Line construction which went into service in 2007.

How loud is too loud?

Noise is generated in decibels (dBA) which record the volume or loudness of the noise. Noise from construction activities is recorded as equivalent sound level (Leq) which takes into account the noise volume as well as the noise duration. The dominant source of noise from construction equipment is the diesel engine on bull dozers, trucks, and front end loaders used in the field. The dominant source of vibration from construction activity is pavement break-up and removal. Metro has established noise limits for various pieces of construction equipment used on the project. These are presented in Table 1.

Metro has established noise limits for the construction activities based on federal and City of Los Angeles guidelines. These noise limits are presented in Table 2.

Working day and night

Though noise and vibration generated from the construction activities may be annoying over a period of time, empirical data indicates that the community noise limits established for the project are being adhered to.

The majority of construction activities will take place during daytime hours. However, a minor amount of night time construction activity will occur when the work cannot be completed during the day due to traffic or other factors. Please note that night time construction activities must adhere to more stringent noise limits because of the quieter conditions during the evening.

Vibrations

Metro is controlling the occurrence of vibrations from the construction of the Metro Orange Line Extension through the implementation of Best Management Practices. Accordingly, pile driving is avoided and pavement removal is accomplished using low vibration removal techniques.

These, as well as other practices are being implemented by Metro to control the noise and vibration generated during the construction of the Metro Orange Line Extension.

Table 1

Construction Equipment Noise Emission Levels	
EQUIPMENT	TYPICAL NOISE LEVEL (dBA) 50 FT FROM SOURCE
Air Compressor	81
Backhoe	80
Compactor	82
Concrete Mixer	85
Concrete Pump	82
Concrete Vibrator	76
Crane, Derrick	88
Crane, Mobile	83
Dozer	85
Generator	81
Grader	85
Impact Wrench	85
Jack Hammer	88
Loader	85
Paver	89
Pile-Driver (Impact)	101
Pile-Driver (Sonic)	96
Pneumatic Tool	85
Pump	76
Rail Saw	90
Rock Drill	98
Roller	74
Saw	76
Scarifier	83
Scraper	89
Shovel	82
Tie Inserter	85
Truck	88

Table 2

Construction Noise Standards		
LAND USE	8-HOUR Leg (dBA)	
	Day	Night
Residential	80	70
Commercial	85	85
Industrial	90	90