6.10 NOISE

This section describes the existing noise environment of the project site and in the vicinity, potential environmental impacts, recommended mitigation measures to help reduce or avoid impacts related to noise and vibration, and the level of significance after mitigation. The analysis in this section was summarized from the *Noise Assessment for Scholl Canyon Landfill Expansion, City of Glendale* (Mestre Greve Associates, September 13, 2012). This report is included as Appendix L of the Draft Environmental Impact Report (DEIR).

6.10.1 EXISTING CONDITIONS

6.10.1.1 Background Information on Noise

Noise Criteria Background

Sound is technically described in terms of the loudness (amplitude) of the sound and frequency (pitch) of the sound. The standard unit of measurement of the loudness of sound is the decibel (dB). Decibels are based on the logarithmic scale. The logarithmic scale compresses the wide range in sound pressure levels to a more usable range of numbers in a manner similar to the Richter scale used to measure earthquakes. In terms of human response to noise, a sound 10 dB higher than another is judged to be twice as loud; and 20 dB higher four times as loud; and so forth. Everyday sounds normally range from 30 dB (very quiet) to 100 dB (very loud).

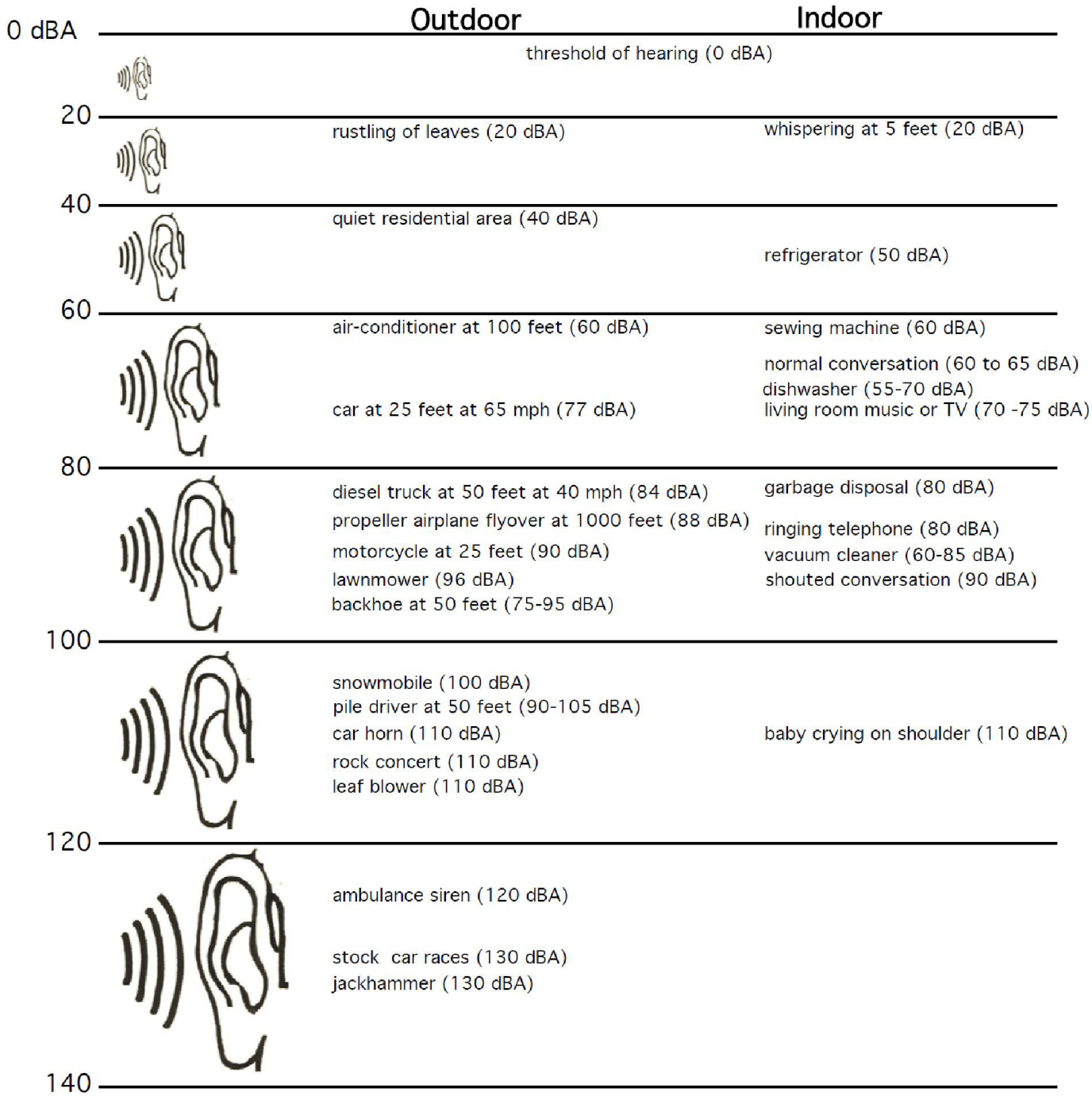
Since the human ear is not equally sensitive to sound at all frequencies, a special frequency-dependent rating scale has been devised to relate noise to human sensitivity. The A-weighted decibel scale (dBA) performs this compensation by discriminating against frequencies in a manner approximating the sensitivity of the human ear. Community noise levels are measured in terms of the "A-weighted decibel," abbreviated dBA. Figure 6.10-1 provides examples of various noises and their typical A-weighted noise level.

Sound levels decrease as a function of distance from the source as a result of wave divergence, atmospheric absorption and ground attenuation. As the sound wave form travels away from the source, the sound energy is dispersed over a greater area, thereby dispersing the sound power of the wave. Atmospheric absorption also influences the levels that are received by the observer.

The greater the distance traveled, the greater the influence and the resultant fluctuations. The degree of absorption is a function of the frequency of the sound as well as the humidity and temperature of the air. Turbulence and gradients of wind, temperature and humidity also play a significant role in determining the degree of attenuation. Intervening topography can also have a substantial effect on the effective perceived noise levels.

Noise has been defined as unwanted sound and it is known to have several adverse effects on people. From these known effects of noise, criteria have been established to help protect the public health and safety and prevent disruption of certain human activities. This criterion is based on such known impacts of noise on people as hearing loss, speech interference, sleep interference, physiological responses and annoyance. Each of these potential noise impacts on people are briefly discussed in the following narratives:

P:\P&D Environment\Scholl Canyon EIR\GIS\Figure 6.10-1 Typical Sounds in dBA.mxd



Source: League For The Hard of Hearing, Handbook of Noise Control, McGraw Hill, Edited by Cyril Harris, 1979, Measurements by Mestre Greve Associates, Sanitation Districts (2012), and AECOM (2012).

Figure 6.10-1
Typical Sounds in A-weighted Decibels (dBA)

Hearing Loss is not a concern in community noise situations of this type. The potential for noise induced hearing loss is more commonly associated with occupational noise exposures in heavy industry or very noisy work environments. Noise levels in neighborhoods, even in very noisy airport environs, are not sufficiently loud to cause hearing loss.

Speech Interference is one of the primary concerns in environmental noise problems. Normal conversational speech is in the range of 60 to 65 dBA and any noise in this range or louder may interfere with speech. There are specific methods of describing speech interference as a function of distance between speaker and listener and voice level.

Sleep Interference is a major noise concern for traffic noise. Sleep disturbance studies have identified interior noise levels that have the potential to cause sleep disturbance. Note that sleep disturbance does not necessarily mean awakening from sleep, but can refer to altering the pattern and stages of sleep.

Physiological Responses are those measurable effects of noise on people that are realized as changes in pulse rate, blood pressure, etc. While such effects can be induced and observed, the extent is not known to which these physiological responses cause harm or are sign of harm.

Annoyance is the most difficult of all noise responses to describe. Annoyance is a very individual characteristic and can vary widely from person to person. What one person considers tolerable can be quite unbearable to another of equal hearing capability.

Noise Assessment Metrics

The description, analysis and reporting of community noise levels around communities is made difficult by the complexity of human response to noise and the myriad of noise metrics that have been developed for describing noise impacts. Each of these metrics attempts to quantify noise levels with respect to community response. Most of the metrics use the A-Weighted noise level to quantify noise impacts on humans. A-Weighting is a frequency weighting that accounts for human sensitivity to different frequencies.

Noise metrics can be divided into two categories: single-event and cumulative. Single-event metrics describe the noise levels from an individual event such as an aircraft fly over or perhaps a heavy equipment pass-by. Cumulative metrics average the total noise over a specific time period, which is typically 1 or 24 hours for community noise problems. For this type of analysis, cumulative noise metrics will be used.

Several rating scales have been developed for measurement of community noise. These account for: (1) the parameters of noise that have been shown to contribute to the effects of noise on man, (2) the variety of noises found in the environment, (3) the variations in noise levels that occur as a person moves through the environment, and (4) the variations associated with the time of day. They are designed to account for the known health effects of noise on people described previously. Based on these effects, the observation has been made that the potential for a noise to impact people is dependent on the total acoustical energy content of the noise. A number of noise scales have been developed to account for this observation. Two of the predominant noise scales are the: Equivalent Noise Level (Leq) and the Community Noise Equivalent Level (CNEL). These scales are described in the following paragraphs.

Leq is the sound level corresponding to a steady-state sound level containing the same total energy as a time-varying signal over a given sample period. Leq is the "energy" average noise level during the time period of the sample. Leq can be measured for any time period, but is

typically measured for 1 hour. This 1-hour noise level can also be referred to as the Hourly Noise Level (Leq[h]). It is the energy sum of all the events and background noise levels that occur during that time period.

CNEL, Community Noise Equivalent Level, is the predominant rating scale now in use in California for land use compatibility assessment. The CNEL scale represents a time weighted 24-hour average noise level based on the A-weighted decibel. Time weighted refers to the fact that noise that occurs during certain sensitive time periods is penalized for occurring at these times. The evening time period (7:00 P.M. to 10:00 P.M.) penalizes noises by 5 dBA, while nighttime (10:00 P.M. to 7:00 A.M.) noises are penalized by 10 dBA. These time periods and penalties were selected to reflect people's increased sensitivity to noise during these time periods. A CNEL noise level may be reported as a "CNEL of 60 dBA," "60 dBA CNEL," or simply "60 CNEL." Typical noise levels in terms of the CNEL scale for different types of communities are presented in Figure 6.10-2.

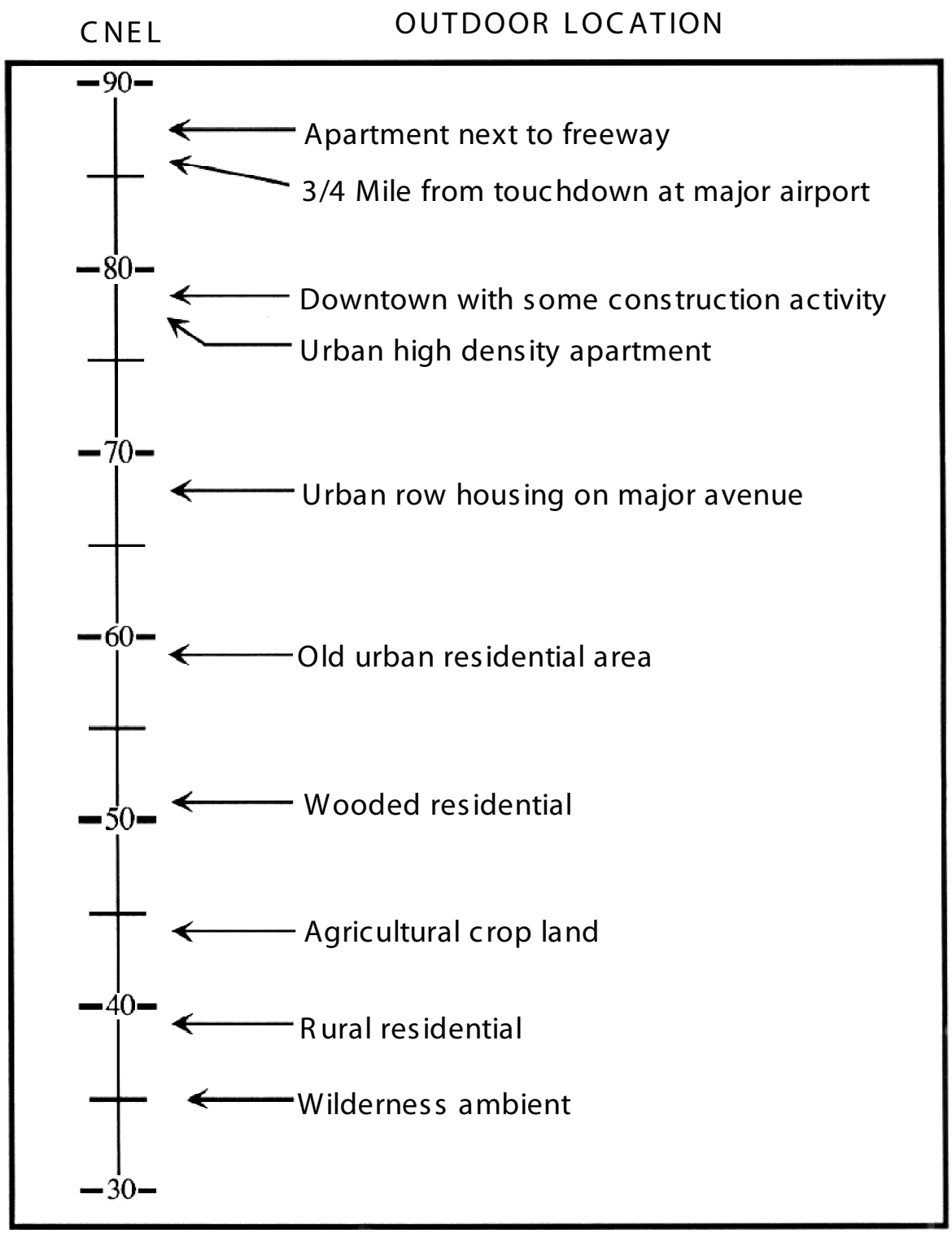
LDN, the day-night scale is similar to the CNEL scale except that evening noises are not penalized. It is a measure of the overall noise experienced during an entire day. The time-weighted refers to the fact that noise that occurs during certain sensitive time periods is penalized for occurring at these times. In the LDN scale, those noise levels that occur during the night (10:00 P.M. to 7:00 A.M.) are penalized by 10 dB. This penalty was selected to attempt to account for increased human sensitivity to noise during the quieter period of a day, where home and sleep is the most probable activity.

L(%) is a statistical method of describing noise which accounts for variance in noise levels throughout a given measurement period. L(%) is a way of expressing the noise level exceeded for a percentage of time in a given measurement period. For example since 5 minutes is 25% of 20 minutes, L(25) is the noise level that is equal to or exceeded for five minutes in a twenty-minute measurement period. It is L(%) that is used for most Noise Ordinance standards. For example most daytime County, state and County Noise Ordinances use an ordinance standard of 55 dBA for 30 minutes per hour or an L(50) level of 55 dBA. In other words, the Noise Ordinance states that no noise level should exceed 55 dBA for more than fifty percent of a given period.

6.10.1.2 Noise Criteria

The project site and most of the potentially impacted noise sensitive receptors are located in the City of Glendale. Residences to the west and north of the project site are primarily located in the City of Glendale, while most residences to the east and south are located in the City of Pasadena. Additionally, residential areas to the southeast along SR-134 are located in the City of Los Angeles. Community noise standards relevant to this project are contained in the City of Glendale General Plan and Noise Ordinance, the City of Pasadena General Plan and Noise Ordinance, as well as the City of Los Angeles General Plan and Noise Ordinance.

The Noise Control ordinances and Noise Element policies for the City of Glendale and City of Pasadena are presented below. The City of Los Angeles General Plan Noise Element (1999) does not have any specific outdoor and indoor noise standard for various land uses impacted by transportation noise sources.



Source: Mestre Greve Associates (2012), Sanitation Districts (2012), and AECOM (2012).

Figure 6.10-2
Typical Outdoor Noise Levels

Noise Element

City of Glendale

The City of Glendale General Plan Noise Element specifies outdoor and indoor noise standards for various land uses impacted by transportation noise sources. The City's noise standards are consistent with the State of California's noise standards. The interior and exterior noise standards are in terms of the CNEL scale. The standards state that for residential land use, the exterior noise exposure level shall not exceed 65 CNEL and the interior noise exposure level shall not exceed 45 CNEL. Open space park land has an exterior standard of 65 CNEL for hillside open space areas open to the public. Hotel, motel, transient lodging, church, school classroom, and hospital uses have interior noise limits of 45 CNEL. These levels are also consistent with the land use compatibility guidelines developed by the California Department of Health.

City of Pasadena

The City of Pasadena General Plan Noise Element has not adopted any specific outdoor or indoor noise standards for land uses impacted by transportation noise sources. Therefore, the State of California's noise standards would be utilized. The State's interior and exterior noise standards are in terms of the CNEL scale. The standards state that for residential land use, the exterior noise exposure level shall not exceed 65 CNEL and the interior noise exposure level shall not exceed 45 CNEL. These levels are also consistent with the land use compatibility guidelines developed by the California Department of Health.

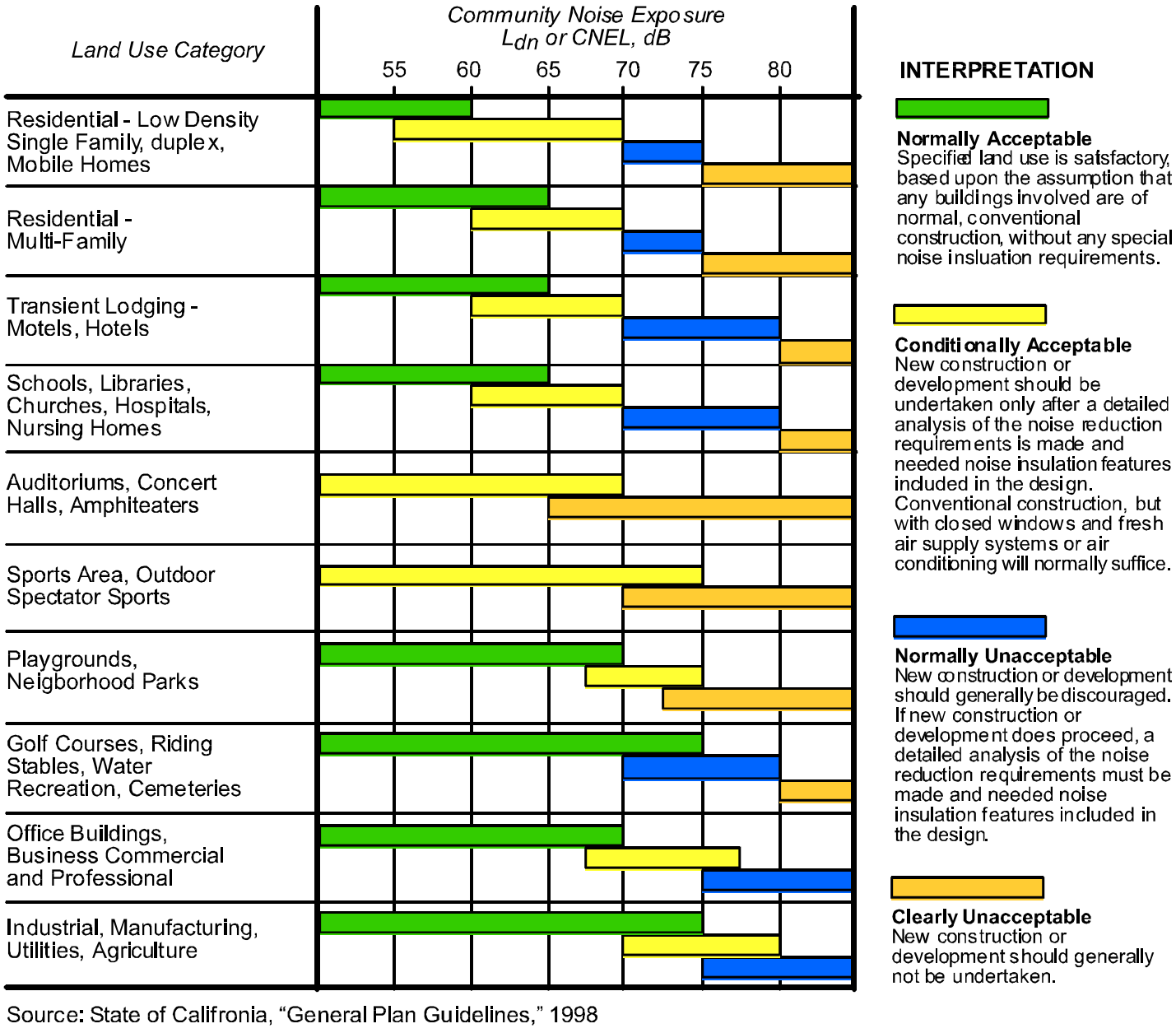
Land Use and Noise Compatibility Matrix

The cities of Glendale, Pasadena, and Los Angeles Noise Elements contain similar compatibility matrices for determining the compatibility of various land uses with noise levels. These matrices are consistent with the California Noise/Land Use Compatibility Guidelines. This matrix is reproduced as Figure 6.10-3. This exhibit classifies various land uses in terms of Normally Acceptable, Conditionally Acceptable, Normally Unacceptable and Unacceptable based on their noise exposure in the Community Noise Equivalent Level (CNEL) scale. For residential uses, CNEL levels from 50 to 60 dBA are Normally Acceptable, CNEL levels from 65 to 70 are Conditionally Acceptable, CNEL levels of greater than 75 dBA are Normally Unacceptable.

A land use exposed to noise levels that are considered Normally Acceptable indicates that the land use is compatible with the noise environment and no special noise insulation is required. If new construction is exposed to a Conditionally Acceptable noise level a noise analysis is typically required to determine noise mitigation required to reduce noise levels to a compatible level. Conventional construction will normally suffice with a fresh air supply system or air conditioning to allow windows to remain closed. A noise analysis is also required for new construction exposed to a Normally Unacceptable noise level. The analysis is required to determine mitigation measures, which may be significant, to reduce noise levels to a compatible level. Proposed development exposed to Clearly Unacceptable noise levels should generally not be undertaken.

Noise Ordinance

A noise ordinance is designed to control unnecessary, excessive and annoying sounds from stationary (non-transportation) noise sources. Noise ordinance requirements cannot be applied to mobile noise sources such as heavy trucks when traveling on public roadways. Federal and state laws preempt control of mobile noise sources on public roads. Noise ordinance standards typically apply to industrial and commercial noise sources impacting residential areas.



Source: State of Califronia, "General Plan Guidelines," 1998

Source: State of California, "General Plan Guidelines" (1998), Mestre Greve Associates (2012), Sanitation Districts (2012), and AECOM (2012).

Figure 6.10-3
Land Use/Noise Compatibility Matrix

Sensitive land uses surrounding the project site are residential areas located to the east, northeast, southeast and west. The majority of the residential areas to the west and northeast are located in the City of Glendale, while the majority of the residential areas to the east and southeast are located in the City of Pasadena. Limited residential area to the southeast along SR-134 is located in the City of Los Angeles. Additionally, there is a park to the west, recreational (baseball field, golf and tennis court) areas to the north and northwest, as well as a college/university to the northeast. The college/university is considered to be a sensitive commercial land use. For open space uses (i.e., baseball field, golf course and tennis court), the City of Glendale zoning map show these areas as SR (Special Recreation). As a result, there are no ordinance requirements for recreation uses.

City of Glendale

The City of Glendale Noise Ordinance applies the most stringent noise limits of 55 to 60 dBA Leq, depending on the type of residential, for the daytime period (7:00 A.M. to 10:00 P.M.) and 45 dBA Leq for the nighttime period (10:00 P.M. to 7:00 A.M.) at the nearest residential property. Also, the noise level cannot exceed 65 dBA (Leq) at any time at an adjacent commercial property, and 70 dBA (Leq) at any time at an adjacent industrial property. The noise limits pertain to noise which exceeds the actual (measured noise) versus presumed ambient noise, and are in terms of hourly average (Leq) noise levels.

The City of Glendale Noise Ordinance (Chapter 8.36.080) exempts noise from construction activity for certain time periods. Activities that take place between 7:00 A.M. and 7:00 P.M. Monday through Saturday will be exempt from the noise standard. Construction will not be allowed at any time on a Sunday or on holidays.

City of Pasadena

The City of Pasadena General Plan and Noise Ordinance Chapter 9.36 Noise Restrictions prohibits the production of excessive noise. The applicable interior noise standards (for the multi-family residential property land use) are 60 dBA Leq for the daytime period (7:00 A.M. to 10:00 P.M.) and 50 dBA Leq for the nighttime period (10:00 P.M. to 7:00 A.M.). The noise standards are in terms of hourly average (Leq) interior noise levels. The City of Pasadena does not have any specific noise limits for exterior areas.

City of Los Angeles

The City of Los Angeles Noise Control Ordinance Chapter XI Noise Regulation, Sec. 111.03, prohibits unnecessary, excessive and annoying noise. The Los Angeles noise ordinance does not have specific noise criteria, and therefore, presumed ambient noise levels listed in the City of Los Angeles Noise Ordinance are utilized. For residential areas experiencing ambient noise less than the presumed noise (i.e., 50 dBA), the presumed noise level becomes the minimum criterion noise level. For residential areas already experiencing ambient noise greater than the presumed noise level, the measured ambient noise becomes the noise criterion levels.

The City of Los Angeles noise ordinance (Section 41.40) states that construction activity within 500 feet of any residential zone shall be limited to between the hours of 7:00 A.M. and 9:00 P.M. Monday through Friday, 8:00 A.M. and 6:00 P.M. on Saturday. Construction will not be allowed at any time on a Sunday or on holidays.

6.10.1.3 Existing Noise Measurements

To document the existing noise environment in the vicinity of the project site, long-term (24-hour)

ambient noise measurements were made at three locations in the project vicinity and short-term (15-20 minute) ambient measurements were made at eight locations. The short-term noise measurement sites were generally selected at the nearest sensitive land uses on all sides, while the three 24-hour measurement sites were selected at the nearest residential areas that are most affected representing areas to the north, east and west. Site 1 is in City of Los Angeles jurisdiction. Sites A, C, 2, 3, 7 and 8 are in City of Glendale jurisdiction. Sites B, 4, 5 and 6 are in City of Pasadena jurisdiction. The general locations of these measurement sites are shown in Figure 6.10-4.

Long-Term Measurement Results

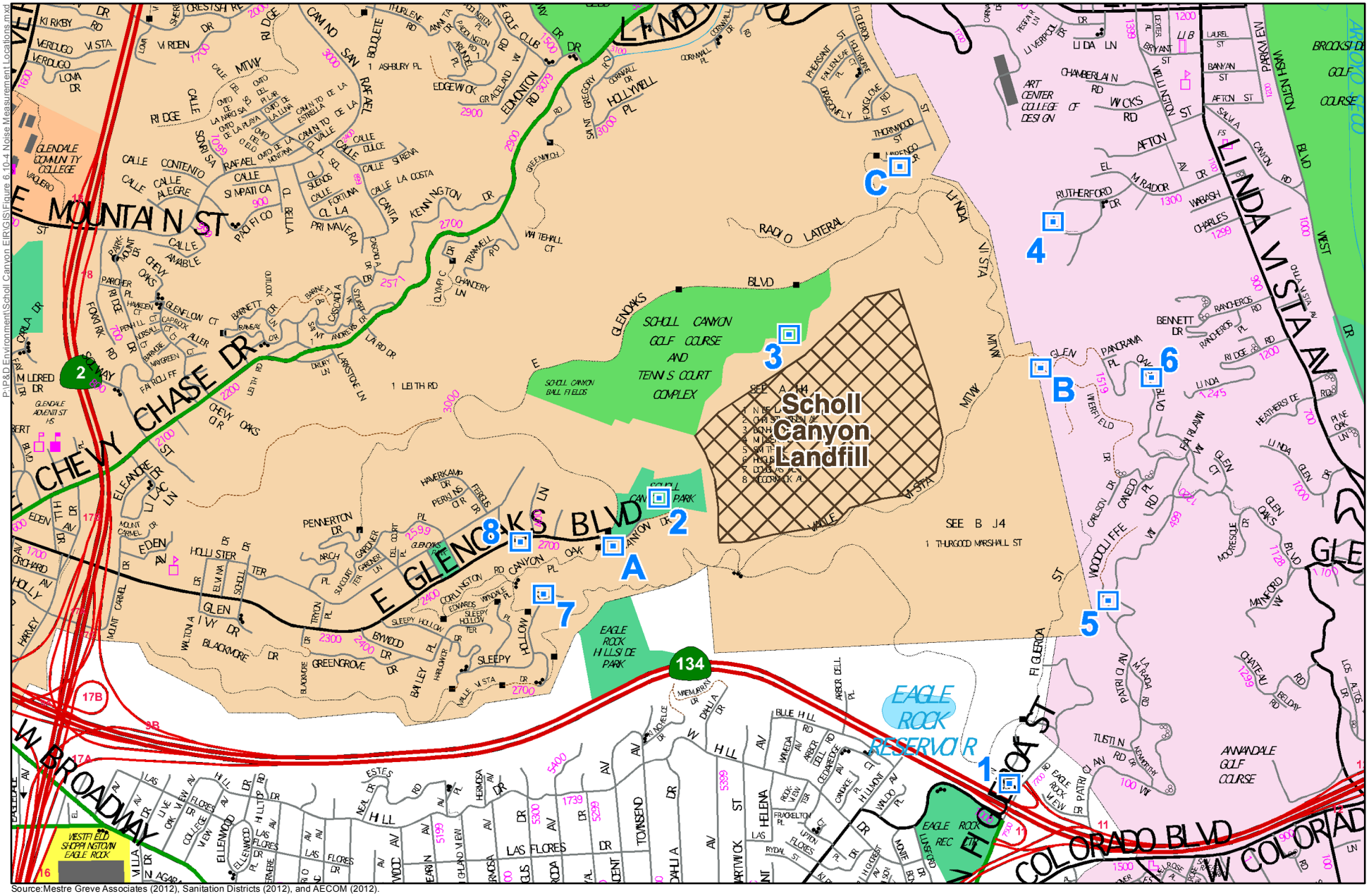
The long-term measurement results are presented in Tables 6.10-1 through 6.10-3. The results are presented in terms of the energy average, Leq, noise level, the median, L50, noise level, and the maximum and minimum noise levels each hour. The CNEL noise level, a weighted 24-hour average (see Section 1.2.2) is also presented for each site.

Site A was located on a deck in the rear yard of the residence at 2830 Glen Oaks Canyon Drive. The results of the noise measurements taken at Site A from 2:00 p.m. February 27, 2008 to 2:00 P.M. February 28, 2008 are presented in Table 6.10-1. During the daytime hours (7:00 A.M. to 7:00 P.M.) the Leq noise level ranged from about 41 dBA to 49 dBA with the highest level during the 8:00 A.M. hour. The daytime median noise level ranged from 33 to 46 dBA with the highest level during the 9:00 A.M. hour. The noise level during most of the 8:00 A.M. hour was relatively low, but there was one loud event, likely an aircraft

TABLE 6.10-1. MEASURED NOISE LEVELS AT LONG-TERM MEASUREMENT SITE A

HOUR	MEASURED NOISE LEVEL (dBA SPL)			
	L_{eq}	MAXIMUM	L50	MINIMUM
2:00 P.M.	40.8	60.5	32.7	28.5
3:00 P.M.	41.0	67.0	37.8	27.4
4:00 P.M.	46.8	70.0	34.2	27.3
5:00 P.M.	41.3	59.5	34.7	28.4
6:00 P.M.	42.3	61.5	33.3	28.1
7:00 P.M.	42.7	59.0	40.3	30.6
8:00 P.M.	41.8	53.0	40.6	39.9
9:00 P.M.	40.0	51.5	40.4	26.5
10:00 P.M.	32.6	49.0	28.0	25.1
11:00 P.M.	41.7	66.0	26.8	24.4
12:00 A.M.	34.4	59.0	25.6	23.8
1:00 A.M.	25.8	36.5	25.4	24.1
2:00 A.M.	32.0	57.5	25.1	23.7
3:00 A.M.	30.0	52.0	24.8	23.6
4:00 A.M.	39.2	60.0	25.2	23.5
5:00 A.M.	41.1	59.0	26.4	24.3
6:00 A.M.	42.9	67.5	35.3	29.5
7:00 A.M.	43.5	61.5	36.7	28.7
8:00 A.M.	49.2	74.0	35.7	28.2
9:00 A.M.	48.5	59.5	46.4	30.9
10:00 A.M.	45.0	60.0	39.6	31.0
11:00 A.M.	47.8	67.5	40.6	29.0
12:00 P.M.	44.7	67.0	36.7	29.4
1:00 P.M.	48.5	72.5	37.0	29.2
CNEL: 47.1 dBA				

Source: Mestre Greve Associates, 2012.



Source:Mestre Greve Associates (2012), Sanitation Districts (2012), and AECOM (2012).

Scale 1 : 24,000
1" = 2,000 feet

0 862.5 1,725 3,450 Feet

Figure 6.10-4
Noise Measurement Locations

overflight during that hour that resulted in the maximum noise level measured at the site for the entire 24-hour measurement period.

During the evening hours (7:00 P.M. to 10:00 P.M.) the hourly Leq noise level ranged between 40 and 43 dBA and the L50 noise level ranged between 40 and 41 dB. A fountain or other noise source that generates a relatively constant low-level noise was switched on at approximately 7:35 P.M. raising background noise levels from the 32 to 37 dBA range to a fairly constant level of around 41 dBA. This noise source shut off at 9:45 P.M.

During the nighttime hours (10:00 P.M. to 7:00 A.M.) the Leq noise level ranged from 26 dBA to 43 dBA and the median noise level ranged from 25 to 35 dBA. Between 10:00 P.M. and 3:00 A.M. the Leq noise level was below 35 dBA except during the 11:00 P.M. hour. The noise level during the 11:00 P.M. hour ranged between 25 and 30 dBA except for one noise event, likely an aircraft overflight that resulted in the higher Leq level than the adjacent hours. The exhibit shows that at 4:00 A.M. the Leq level started increasing and at 6:00 A.M. the L50 level started to increase. This is due to traffic noise levels, both distant and local, increasing as the morning commute begins.

The CNEL level at the site was 47.1 dBA. This is a relatively low level of noise. A typical indoor residential noise criterion is 45 CNEL and the outdoor level at Site A was only 2 dB greater than this which is not a significant difference. A typical outdoor residential noise criterion is 65 CNEL. The noise environment around the project site is, perceptually, about four times as quiet as this.

Site B was located on a patio in the front yard of the residence at 1605 Glen Oaks Boulevard. The results of the noise measurements taken at Site B from 12:00 P.M. February 26, 2008 to 12:00 P.M. February 27, 2008 are presented in Table 6.10-2.

TABLE 6.10-2. MEASURED NOISE LEVELS AT LONG-TERM MEASUREMENT SITE B

HOUR	MEASURED NOISE LEVEL (dBA SPL)			
	L_{eq}	MAXIMUM	L50	MINIMUM
12:00 P.M.	39.2	53.0	35.5	32.1
1:00 P.M.	41.4	58.0	34.6	32.0
2:00 P.M.	41.3	63.5	35.0	32.1
3:00 P.M.	45.0	62.0	36.4	31.8
4:00 P.M.	47.8	70.5	36.6	31.2
5:00 P.M.	46.3	63.5	39.6	34.4
6:00 P.M.	44.9	61.0	37.5	33.7
7:00 P.M.	43.4	66.0	37.2	33.7
8:00 P.M.	38.7	55.5	35.4	32.7
9:00 P.M.	37.6	53.0	35.2	33.1
10:00 P.M.	34.8	43.5	34.6	31.6
11:00 P.M.	34.5	46.0	33.9	31.8
12:00 A.M.	35.3	48.5	34.5	31.3
1:00 A.M.	34.9	44.5	34.0	30.5
2:00 A.M.	34.1	50.0	32.2	29.4
3:00 A.M.	36.5	58.5	31.7	29.1
4:00 A.M.	36.2	57.5	32.2	27.9
5:00 A.M.	38.2	49.0	37.3	34.6
6:00 A.M.	42.1	53.0	41.0	38.6
7:00 A.M.	43.2	56.5	39.7	36.7
8:00 A.M.	41.9	57.5	39.5	31.9
9:00 A.M.	46.2	64.5	40.4	31.6

TABLE 6.10-2. MEASURED NOISE LEVELS AT LONG-TERM MEASUREMENT SITE B

HOUR	MEASURED NOISE LEVEL (dBA SPL)			
	L_{eq}	MAXIMUM	L50	MINIMUM
10:00 A.M.	43.9	66.0	37.7	32.0
11:00 A.M.	40.9	58.0	35.3	31.8
CNEL: 45.7 dBA				

Source: Mestre Greve Associates, 2012.

During the daytime hours (7:00 A.M. to 7:00 P.M.) the Leq noise level ranged from about 39 dBA to 48 dBA with the highest noise level during the 4:00 P.M. hour. The daytime median noise level ranged from 35 to 40 dBA with the highest level during the 7:00 A.M. hour. Daytime background levels were typically in the 32 to 37 dBA range with occasional noise events, 10 to 14 per hour exceeding 45 dBA for, typically, less than 30 seconds each. The background levels increased to between 35 and 40 dBA starting around 4:45 P.M. and lasting until about 6:30 P.M. This would correlate with the evening commute resulting in higher distant traffic noise during these hours. The same thing occurred during the early morning hours, starting around 4:30 A.M. until about 8:30 A.M.

Long-term noise measurements were performed concurrently at Site C, discussed below. A comparison of the noise levels over time showed that many noise events occurred at nearly the same time at both sites. Due to the distance between the measurement sites, the most likely cause of these noise events is aircraft overflights. There were typically two to three overflights each hour during the daytime, with an evening peak of eight flights during the 6:00 P.M. hour and four to five flights in the 5:00 P.M., 7:00 P.M., and 8:00 P.M. hours. The morning peak occurred during the 7:00 A.M. hour with seven flights. There were four apparent overflights between 10:00 P.M. and 7:00 A.M., two in the 2:00 A.M. hour, and one each in the 3:00 A.M. and 5:00 A.M. hour.

On average, the aircraft overflights generated a maximum noise level of 55 dBA at Site B, which is not considered excessively loud. Twenty percent of the apparent aircraft events exceeded 60 dBA, four percent of the apparent aircraft events exceeded 65 dBA, and the loudest overflight generated a noise level of 71 dBA during the 4:00 P.M. hour. This overflight resulted in the highest hourly Leq at Site B. While the highest daytime median (L50) noise level occurred during the 7:00 A.M. hour the highest overall median noise level occurred during the 6:00 A.M. hour as a result of increased background noise from distant traffic during the morning commute.

During the evening hours (7:00 P.M. to 10:00 P.M.) the hourly Leq noise level ranged between 38 and 43 dBA and the L50 noise level ranged between 35 and 37 dB. Table 6.10-2 shows that both the Leq and L50 levels decreased as the evening hours progressed. During this time the distant traffic noise diminished along with the number of noise events.

During the nighttime hours (10:00 P.M. to 7:00 A.M.) the Leq noise level ranged from 34 dBA to 42 dBA and the median noise level ranged from 32 to 41 dBA. The highest Leq and median noise levels occurred during the 6 a.m. hour and, as discussed above, this was likely due to distant morning commute traffic. The CNEL level at the site was 45.7 dBA, which as discussed above is a relatively low level of noise.

Site C was located on the southern side yard of the residence at 1037 Marengo Drive. The results of the noise measurements taken from 11:00 A.M. February 26, 2008 to 11:00 A.M. February 27, 2008 at Site C are presented in Table 6.10-3. During the daytime hours (7:00 A.M. to 7:00 P.M.) the Leq noise level ranged from about 39 dBA to 49 dBA with the highest noise level during the 4:00 P.M. hour. The daytime median noise level ranged from 32 to 37 dBA with the highest level during the 7:00 A.M. hour.

TABLE 6.10-3. MEASURED NOISE LEVELS AT LONG-TERM MEASUREMENT SITE C

HOUR	MEASURED NOISE LEVEL (dBA SPL)			
	L_{eq}	MAXIMUM	L50	MINIMUM
11:00 A.M.	40.0	58.5	34.1	30.8
12:00 P.M.	45.5	71.0	33.6	30.1
1:00 P.M.	39.6	57.0	33.7	30.5
2:00 P.M.	40.4	62.5	33.0	30.7
3:00 P.M.	39.3	62.0	32.9	30.1
4:00 P.M.	48.9	74.5	32.4	28.6
5:00 P.M.	46.4	69.0	31.7	29.2
6:00 P.M.	44.8	64.0	31.6	27.5
7:00 P.M.	39.8	60.5	32.1	31.1
8:00 P.M.	36.4	56.0	32.0	31.0
9:00 P.M.	33.1	48.5	32.2	30.2
10:00 P.M.	30.8	34.0	30.4	27.1
11:00 P.M.	31.5	36.5	31.5	27.9
12:00 A.M.	31.6	38.0	31.4	26.8
1:00 A.M.	29.1	32.0	29.0	27.9
2:00 A.M.	32.9	51.0	28.7	27.3
3:00 A.M.	33.2	51.0	31.6	29.5
4:00 A.M.	33.1	54.0	29.1	25.5
5:00 A.M.	32.1	49.0	30.8	29.3
6:00 A.M.	36.1	46.5	35.2	30.7
7:00 A.M.	41.0	58.0	37.4	32.0
8:00 A.M.	38.9	61.0	34.1	30.4
9:00 A.M.	45.7	69.0	36.5	30.8
10:00 A.M.	39.7	56.0	36.0	29.4
CNEL: 43.3 dBA				

Source: Mestre Greve Associates, 2012.

As mentioned in the Site B discussion above, the maximum hourly Leq during the 4:00 P.M. hour was primarily due to a likely aircraft overflight that generated the highest noise level measured at both sites. This event generated a maximum noise level of 75 dBA at Site C. On average, aircraft overflights generated average maximum noise levels of 55 dBA at Site C. Twenty-six percent of aircraft flights generated noise levels in excess of 60 dBA and six percent exceeded 65 dBA. Most of the aircraft overflights generate moderate noise levels and a few generate considerable noise levels.

Daytime background levels were typically in the 32 to 37 dBA range with occasional noise events, typically three to ten per hour, exceeding 45 dBA for, typically, less than 30 seconds each. There was a maximum of 18 events exceeding 45 dBA during the 9:00 A.M. hour and 15 events during the 10:00 A.M. hour. As discussed above, two to three of these events were likely aircraft operations. An increase in background noise levels during the evening commute hours was not observed at Site C. The increase in Leq levels during the 4:00 P.M., 5:00 P.M. and 6:00 P.M. hours was primarily due to a high number of apparent overflights. An increase in background noise was observed during the morning commute hours, with noise levels starting to rise at the 6:00 A.M. and peaking at 9:00 A.M.

During the evening hours (7:00 P.M. to 10:00 P.M.) the hourly Leq noise level ranged between 33 and 40 dBA and the L50 noise level was 32 dB. Table 6.10-3 shows that the Leq levels decreased as the evening hours progressed while the L50 level was relatively constant. During this time the number of noise events and aircraft overflights decreased.

During the nighttime hours (10:00 P.M. to 7:00 A.M.) the Leq noise level ranged from 29 dBA to 39 dBA and the median noise level ranged from 29 to 35 dBA. The highest Leq and median noise levels occurred during the 6:00 A.M. hour and, as discussed above, was likely due to distant morning commute traffic. The CNEL level at the site was 43.3 dBA, which as discussed above is a relatively low level of noise and the quietest of the three long-term measurement sites.

Short-Term Measurement Results

The short-term measurement results are shown in Table 6.10-4 in terms of the L_{eq}, maximum noise level, minimum noise level and percentile noise levels (L%) from the Noise Ordinance criteria for each measurement period. The L50 percentile level represents the noise level that was exceeded 50 percent of the measurement period also known as the median ambient noise level. The L90 noise levels represent the background noise level which is exceeded 90 percent of the time. The L1.7, L8.3, L25 and L50 correspond with the noise ordinance metrics described in Section 6.10.1.1. Figure 6.10-4 also illustrates the locations of these measurement sites.

TABLE 6.10-4. SHORT-TERM NOISE MEASUREMENT RESULTS

Site	Date	Start	MEASURED SOUND LEVEL (dBA)							
			L_{eq}	L_{max}	L1.7	L8.3	L25	L50	L90	Lmin
1	2/26/08	01:21 P.M.	68.2	78.6	73.1	70.3	68.7	67.5	65.4	58.1
2	2/28/08	12:19 P.M.	43.2	57.6	50.8	46.9	43.5	40.3	35.9	32.1
3	2/27/08	01:45 P.M.	55.2	69.1	61.1	57.9	55.7	54.0	50.3	46.8
4	2/26/08	12:40 P.M.	46.5	57.7	52.4	49.9	47.7	45.5	39.0	37.1
4	2/27/08	10:24 A.M.	45.1	64.8	53.7	46.5	43.3	40.3	37.7	36.3
5	2/27/08	11:40 A.M.	49.5	60.8	56.0	52.8	49.8	48.0	45.4	41.3
6	2/26/08	11:55 A.M.	46.5	57.7	52.4	49.9	47.7	45.5	39.0	37.1
7	2/28/08	11:40 A.M.	49.4	69.8	59.5	50.7	44.9	40.9	37.6	36.7
8	2/28/08	01:03 P.M.	57.9	75.5	69.3	60.0	54.0	49.4	41.2	36.4

Source: Mestre Greve Associates, 2012.

Site 1 was approximately 80 feet west of the edge of Scholl Canyon Access Road along North Figueroa Street. The measurement location was at a similar distance from the Scholl Canyon Access Road as the nearby homes. The primary source of noise at Site 1 was traffic noise from the SR-134 Freeway and ramps as well as vehicles, including trash trucks, traveling on Scholl Canyon Access Road. A helicopter flying over the freeway was also audible during the measurement period but did not considerably affect the measured noise levels. The highest noise levels of all the measurement sites were measured at Site 1. The noise level at Site 1 was quite high due to its proximity to the SR-134 freeway and Scholl Canyon Access Road.

The noise level at the site was relatively constant due to the freeway traffic noise. For more than 80% of the measurement period the noise level remained between 65 and 70 dBA. Higher noise levels were experienced as louder vehicles, typically trucks traveling to the landfill, passed the site on Scholl Canyon Access Road. During the 20-minute measurement period, eight vehicle passes generated short duration noise events, each less than 5 seconds, that exceeded 73 dBA with the highest being 78.6 dBA. Lower noise levels were experienced during simultaneous gaps in traffic on the freeway and on Scholl Canyon Access Road. The noise level only dropped below 64 dBA seven times during the measurement, each less than 5 seconds.

Site 2 was located near the playground area of Scholl Canyon Park. The primary sources of noise were birds, foliage rustling in the breeze, distant traffic, aircraft, and park visitors. Backup beepers, likely

originating from the landfill, were occasionally just audible at the site. What sounded like a large truck "bouncing" after passing over a bump in the road was also occasionally barely audible but the location of the source of noise was not identified. The park was relatively empty during the measurement with a small group of visitors playing cards in the picnic area. They were relatively quiet with occasional outbursts. A helicopter overflight caused the maximum noise level. There were three propeller aircraft overflights and two helicopter overflights during the measurement. The noise levels measured at Site 2 were the lowest of all the short-term measurement sites and are considered relatively quiet.

Site 3 was located near the southern edge of the Scholl Canyon Golf Course in the vicinity of the 12th hole putting green. The primary sources of noise were activities in the landfill. There were two dozers operating at the active landfill disposal area where trucks were depositing their loads, approximately 1,500 feet from the measurement site. The road that vehicles used to exit the landfill passed as close as approximately 700 feet from the measurement site. Other sources of noise at the site included golfers, golf carts, and aircraft. There was one helicopter overflight during the measurement.

It is not known what caused the maximum noise level during the measurement. However, it was a very short duration event of less than two seconds. A whistle after a yelling of "fore" caused the second highest measured noise level, and the helicopter overflight caused the next highest maximum of 67 dBA. For the most part, the noise level did not exceed 60 dBA during the measurement except for a few very short events. The Leq noise level measured at the site is considered moderate.

Site 4 was located on the inner edge of the sidewalk between 1451 and 1436 Rutherford Drive. Two sets of measurements were performed at Site 4 due to gardeners working in the area during the first measurement. Gardeners arrived at a neighboring home approximately three minutes after the start of the first measurement and operated lawn mowers, string trimmers, and leaf blowers for much of the remainder of the measurement period. Other sources of noise during the first measurement period were birds, a pool waterfall, two general aviation propeller aircraft overflights, and a high enroute commercial jet. A dog bark caused the maximum noise level.

While the gardening activity represents a regular typical noise source for a residential area, it only occurs for a relatively small amount of time and noise levels measured during gardening activities are not necessarily representative of the ambient noise environment at the site most of the time. Therefore, the measurement at Site 4 was repeated. During the second measurement the sources of noise included birds, a pool fountain, two general aviation aircraft overflights, vehicle passes, and persons getting into a car at a neighboring home and leaving. A vehicle passing on Rutherford Drive caused the maximum noise level. The aircraft overflights generated maximum noise levels in the 55 dBA range.

Table 6.10-4 shows that the average, Leq, levels measured during the two measurement periods were very similar, differing by less than 1.5 dB. However, the median noise level, L50, was approximately 5 dB higher during the first measurement than during the second. This is because the gardening activities during the first measurement generated relatively consistent noise levels in the 45 to 50 dBA range, while the second measurement was characterized by a few louder noise events, vehicle passes, door slams, and aircraft overflights, with lower noise levels, in the 40 dBA range, between these events. In general the noise environment around Site 4 is relatively quiet.

Site 5 was located along the east side of Woodcliffe Road south of the home at 337 Woodcliffe Road. The primary noise sources were distant traffic noise, primarily from the SR-134 Freeway, and birds. Two general aviation piston aircraft overflew the site during the measurement and a tile saw was audible a few times in the distance. The noise level generally fluctuated between about 45 and 50 dBA with frequent peaks up to approximately 55 dBA. The source of the maximum noise level was not identified. The two

general aviation aircraft overflights generated maximum noise levels of approximately 50 dBA. The noise environment in the vicinity of Site 5 is considered moderately quiet.

Site 6 was located along the west side of Glen Oaks Boulevard south of 1404 Glen Oaks Boulevard. The primary sources of noise were distant traffic, vehicles passing on Glen Oaks Boulevard, neighborhood dogs barking, birds, foliage rustling in the breeze, and a general aviation propeller aircraft. A pair of vehicles passing on Glen Oaks Boulevard caused the maximum noise level. Five vehicles passed by the site during the measurement period generating peak noise levels between 60 and 66 dBA. Something caused dogs in the neighborhood to start barking for approximately 40 seconds generating noise levels of approximately 60 dBA. Generally, noise levels fluctuated between approximately 35 and 40 dBA outside of these events. The ambient noise environment near Site 6 is considered relatively quiet with occasional moderately loud noise events.

Site 7 was located on the sidewalk between 2747 and 2753 Sleepy Hollow Place. The primary sources of background noise were distant traffic, a small front yard fountain, and birds. Workers were loading a moving truck at the end of the cul-de-sac during the measurement and occasionally generated noise audible at the sound level meter. The relatively quiet background noise environment, typically ranging between 35 and 40 dBA, was interrupted by several aircraft overflights. Six general aviation propeller aircraft and two business jets overflew the site during the measurement. One propeller aircraft was flying at a lower altitude and generated the maximum noise level of 69.8 dBA during the period. Two propeller aircraft generated maximum levels between 56 and 58 dBA and one business jet generated a maximum noise level of 67 dBA. The remaining aircraft generated maximum noise levels in the 51 to 54 dBA range.

Table 6.10-4 shows that the median, L50, noise level was 40.9 dBA, approximately 9 dB less than the average, Leq, noise level of 49.4 dBA. This means that for half of the measurement the noise level was less than 40.9 dBA. The L25 noise level was 44.9 dBA, meaning that for three-quarters of the measurement the noise level was less than 44.9 dBA. The noise environment in the vicinity of Site 7 is relatively quiet with occasional moderate noise events from aircraft overflights.

Site 8 was located on the sidewalk on the south side of Glen Oaks Boulevard between 2664 and 2666 Glen Oaks Boulevard. The primary source of noise at Site 8 was vehicles passing on Glen Oaks Boulevard. Just less than two cars per minute passed the site. A passing car caused the maximum noise level during the measurement and thirteen vehicles generated maximum pass-by noise levels of 70 dBA or greater. Ten vehicles generated maximum pass-by noise levels between 65 and 70 dBA. There were six general aviation propeller aircraft overflights and one business jet overflight during the measurement. The maximum noise levels from these events were less than the majority of the vehicle passes.

Existing Roadway Noise Levels

Existing traffic noise levels are shown in Table 6.10-5. In addition, noise measurements were made along the access road to Scholl Canyon Landfill (refer to Section 6.10.1.3, Site 1). The noise levels during the measurements usually ranged from 65 to 70 dBA. The nearby freeway and freeway ramps were the primary noise source in the area.

TABLE 6.10-5. EXISTING TRAFFIC NOISE LEVELS

ROADWAY SEGMENT	CNEL @ 100' [1]	DISTANCE TO CNEL CONTOUR FROM CENTERLINE OF ROADWAY (FEET)		
		70 CNEL	65 CNEL	60 CNEL
Scholl Canyon Access Road				
Landfill Access Only	60.1	ROW[2]	ROW	102
SR-134 to Eagle Rock Substation	61.9	ROW	62	134
North Figueroa Street				
EB SR-134 Ramps to WB SR-134 Ramps	63.1	ROW	75	161
Colorado Blvd. to EB SR-134 Ramps	64.7	ROW	96	206
Colorado to La Loma	64.5	ROW	93	199
La Loma Road to Yosemite Drive	65.2	ROW	103	223
S. of Yosemite Drive	65.6	51	110	238
SR-134				
East of Figueroa Street	79.0	343	739	1,593
West of Figueroa Street	78.9	338	728	1,568

Source: Mestre Greve Associates, 2012.
Notes:
[1] Distance from roadway centerline
[2] ROW – Noise contour falls within roadway right-of-way.

6.10.2 THRESHOLDS OF SIGNIFICANCE

Based on Appendix G of the CEQA Guidelines, implementation of the proposed project would result in a significant adverse impact on the environment related to noise if it would:

- Exposure of persons to or generation of noise levels in excess of standards established in a local general plan or noise ordinance, or applicable standards of other agencies.
- Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels.
- A substantial permanent increase in ambient noise levels in the project vicinity above levels without the project.
- A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels without the project.

6.10.3 METHODOLOGY

The measurement survey utilized Brüel & Kjær 2238 and 2236 automated digital noise data acquisition systems. These instruments automatically calculate the Equivalent Noise Level (L_{eq}) and Percent Noise Level (L%) for any specific time period. The noise monitors were equipped with Brüel & Kjær 1/2-inch electret microphones and were calibrated with Brüel & Kjær calibrators with calibrations traceable to the National Bureau of Standards. Calibration for the instrument is performed annually and is certified through the duration of the measurements. This measurement system satisfies the ANSI (American National Standards Institute) Standards 1.4 for Type 1 precision noise measurement instrumentation.

Potential noise impacts are commonly divided into two groups: temporary and long-term. Temporary impacts are usually associated with noise generated by construction activities. For the proposed project, short–term construction activities would occur once during the life of the project or once every few years such as final cover/berm construction placement, gas system, stormwater drainage system and one-time liner construction. Long-term noise impacts would be associated with day-to-day landfill operations, such as waste placement and compaction, excavating and moving dirt on site, and traffic-related noise (i.e., refuse, soil and green waste trucks and employee vehicles).

Off site noise impacts from on site activities, both short-term and long-term, are measured against the Noise Ordinance criteria. On site activities for this project are landfill construction and operations. Off site noise impacts from on site activities of the proposed landfill expansion will need to comply with the City of Pasadena, City of Glendale and Los Angeles noise ordinance criteria (discussed in Section 6.10.1.2) at the nearest properties. It should be noted that the City of Pasadena does not have any specific noise limits for exterior areas, and as a result, the City of Glendale exterior noise ordinance shall be utilized for this project.

Long-term off site impacts from traffic noise are measured against two criteria. Both criteria must be met for a significant impact to be identified. First, project traffic must cause a noise level increase greater than 3 dB[1] on a roadway segment adjacent to a noise sensitive land use. Second, the resulting future with project noise level must exceed the criteria level for the noise sensitive land use. In this case, the criteria level is 65 CNEL for residential land uses.

The landfill currently accepts an average of 1,400 tons per day (TPD); however, the landfill is permitted to accept up to a maximum of 3,400 TPD. Therefore, to capture the worst-case scenario, project traffic was analyzed assuming the trip generation associated with 3,400 TPD added to the existing non-landfill traffic. To determine future traffic noise impacts, assuming the maximum of 3,400 TPD, the Federal Highway Administration (FHWA) traffic noise prediction model was used. The FHWA noise model utilizes various traffic-flow parameters (e.g. traffic volume, speed, truck mix, etc.) to predict noise levels that result from the operation of motor vehicles on the roadways. Traffic-flow parameters for the roadways in the vicinity of the project were from the Traffic Data Collection and Calculations (Appendix M of the DEIR).

Noise modeling requires the classification of vehicles based on noise emissions into passenger vehicles, medium trucks, and heavy trucks. Medium trucks are defined as having two axles, 4 wheels, with a gross weight between 10,000 pounds and 26,500 pounds. Heavy trucks are defined as vehicles with a gross weight greater than 26,500 pounds and three or more axles. For noise modeling purposes, landfill related trucks are assumed to be approximately 47% medium truck and 53% heavy trucks based on the existing distribution of vehicles hauling to the site. The percentage of heavy trucks is projected to decrease slightly over time due to growth in green waste acceptance which utilizes a smaller proportion of heavy vehicles than refuse. The traffic volumes associated with full operation of the landfill were added to the existing

[1] In community noise assessment, changes in noise levels greater than 3 dB are often identified as significant, while changes less than 1 dB will not be discernible to local residents. In the range of 1 to 3 dB, residents who are very sensitive to noise may perceive a slight change. Note that there is no scientific evidence available to support the use of 3 dB as the significance threshold. In laboratory testing situations, humans are able to detect noise level changes of slightly less than 1 dB. In a community noise situation, however, noise exposures are over a long time period, and changes in noise levels occur over years, rather than the immediate comparison made in a laboratory situation. Therefore, the level at which changes in community noise levels become discernible is likely to be some value greater than 1 dB, and 3 dB appears to be appropriate for most people.

traffic noise levels and then compared to the existing noise levels in order to determine potential traffic noise increases.

6.10.4 IMPACTS

6.10.4.1 Variation 1

Construction Noise Impacts

Short–term construction related to Variation 1 includes final cover/berm construction placement, extension of the gas collection system, and stormwater drainage system. These short-term activities would occur periodically during the life of the project, and could last up to several weeks. Short-term construction activities associated with Variation 1 would comply with the City of Glendale/Pasadena, and City of Los Angeles allowable hours of operations, as discussed previously in Section 6.10.1.2. Therefore, noise impacts related to short-term construction activities would be considered less than significant.

Operation-related Noise Impacts

Traffic Noise

The existing landfill operation generates 1,744 vehicles, of which 62 are employee vehicles and 1,682 are landfill- (refuse, soil, and green waste) related trucks. At full capacity (3,400 TPD), the landfill would generate an additional 1,746 vehicles, of which 18 are employee vehicles while 1,728 are landfill related trucks. Thus, operating at full capacity, the landfill would generate a total of 3,490 vehicles, of which 80 would be employee vehicles while 3,410 would be landfill-related trucks. The changes in traffic noise under Variation 1 are identified in Table 6.10-6.

TABLE 6.10-6. TRAFFIC NOISE CNEL INCREASE (dBA)

ROADWAY SEGMENT	Existing CNEL @ 100'[1]	Without Project CNEL @100'	With Project CNEL @ 100'[1]	Noise Increase over Existing	Project Contribution
Scholl Canyon Access Road					
Landfill Access Only	60.1	47.4	64.9	4.9	4.9
SR-134 to Eagle Rock Substation	61.9	49.6	66.6	4.7	4.7
North Figueroa Street					
EB SR-134 Ramps to WB SR-134 Ramps	63.1	63.2	66.3	3.2	3.1
Colorado Blvd. to EB SR-134 Ramps	64.7	65.1	65.1	3.9	0.1
Colorado to La Loma Road	64.5	64.8	65.0	2.8	0.1
La Loma Road to Yosemite Drive	65.2	65.6	65.6	2.7	0
S. of Yosemite Drive	65.6	66.2	66.1	3.7	0.1
SR-134					
East of Figueroa Street	79.0	-	-	-	-
West of Figueroa Street	78.9	-	-	-	-

Source: Mestre Greve Associates, 2012.
Notes:
[1] Distance from roadway centerline

As shown in Table 6.10-6, noise increases greater than 3dB occur along Scholl Canyon Road and North Figueroa Street. Table 6.10-7 provides the distances to the CNEL noise contour associated with 3,400 TPD. The values shown under the 60, 65 and 70 CNEL columns represent the distance from the centerline of the roadway to the respective contour value. For example, residences located less than the distance shown under the 65 CNEL noise contour would experience noise greater than 65 CNEL. The CNEL at 100 feet from the roadway centerline is also presented. These contours do not take into account the effect of any noise barriers or topography that may reduce traffic noise levels. To simplify the traffic noise levels in the tables, the noise contours which occur within 50 feet of the centerline, or fall within the roadway right-of-way are shown as ROW.

TABLE 6.10-7. PROJECTED TRAFFIC NOISE LEVELS – 3,400 TPD

ROADWAY SEGMENT	CNEL @ 100'[1]	DISTANCE TO CNEL CONTOUR FROM CENTERLINE OF ROADWAY (FEET)		
		70 CNEL	65 CNEL	60 CNEL
Scholl Canyon Access Road				
Landfill Access Only	64.9	ROW[2]	98	211
SR-134 to Eagle Rock Substation	66.6	60	129	277
North Figueroa Street				
EB SR-134 Ramps to WB SR-134 Ramps	66.3	57	123	264
Colorado Blvd. to EB SR-134 Ramps	65.1	47	101	217
Colorado to La Loma Road	65.0	46	99	214
La Loma Road to Yosemite Drive	65.6	51	110	237
S. of Yosemite Drive	66.1	55	118	253
SR-134				
East of Figueroa Street	--	--	--	--
West of Figueroa Street	--	--	--	--

Source: Mestre Greve Associates, 2012.
Notes:
[1] Distance from roadway centerline
[2] ROW – Noise contour falls within roadway right-of-way.

Residences located within the 65 CNEL noise contours and those residences experience noise increases greater than 3 dB, the project would result in a significant impact. There are existing residences along the east and west side of Scholl Canyon Road immediately north of SR-134. The residences to the west are located between 50 and 253 feet from the centerline of Scholl Canyon Road. The residences east of Scholl Canyon Road are at distances of 140 feet or more and are at a substantially higher elevation than the roadway. The residences to the east do not have a direct line of sight to Scholl Canyon Road and are estimated to receive a 5 dBA reduction in reported noise levels.

According to Table 6.10-6 and Table 6.10-7, any residences located within 129 feet from the centerline of Scholl Canyon Road between SR-134 and the Eagle Rock Substation would be potentially impacted by landfill operation-related traffic noise. However, as this analysis assumes a worst-case-scenario of 3,400 TPD these noise levels reflect the maximum possible number of vehicle trips. Additional noise analysis was conducted to determine what tonnage amount, or truck volume, would trigger the 65 CNEL significant impact threshold. Based on the additional noise analysis, noise levels associated with 2,600 TPD would not result in a significant off site traffic noise impact. Noticeable noise levels may be triggered when landfill tonnage reaches 2,600 TPD. Therefore, should the SCLF accept greater than 2,600 TPD, a potentially significant noise impact related to landfill traffic would occur under Variation 1.

There are no residences along Scholl Canyon Road north of Eagle Rock Substation or North Figueroa Street between the freeway ramps, and therefore, the noise increase in these areas is considered to be less than significant.

Long-Term Landfill Operation

Typical examples of construction-type equipment noise at 50 feet are presented in Figure 6.10-5. The noise levels shown in Figure 6.10-5 can be used as the basis for predicting the operational noise estimate. The typical noise level for most of the equipment would range from 70 to 95 dBA at a distance of 50 feet. This type of noise usually drops off at a rate of 6 dB for each doubling of the distance from the source. Therefore, at 100 feet, the noise level would range between 64 and 89 dBA; at 200 feet, the noise level would range between 58 and 83 dBA; and at 400 feet, the noise level would range between 52 and 77 dBA. Typically, the average Leq noise levels would range between 5 and 15 dBA below the typical noise levels noted above, depending on the type and number of equipment.

The predicted hourly noise levels from operations would increase the ambient noise levels for short periods, and as operational activities move farther away from the edge and towards the center of the landfill property, these noise levels would be substantially less. The majority of the sensitive receptor sites are not affected by existing landfill operations but may be impacted by new operations due to the vertical changes in the landfill configuration under Variation 1. Furthermore, short-term construction activities may occur near landfill operational activities; therefore, as a worst-case scenario, the noise from construction-related activities/equipment has been combined with the operational equipment in the noise analysis below.

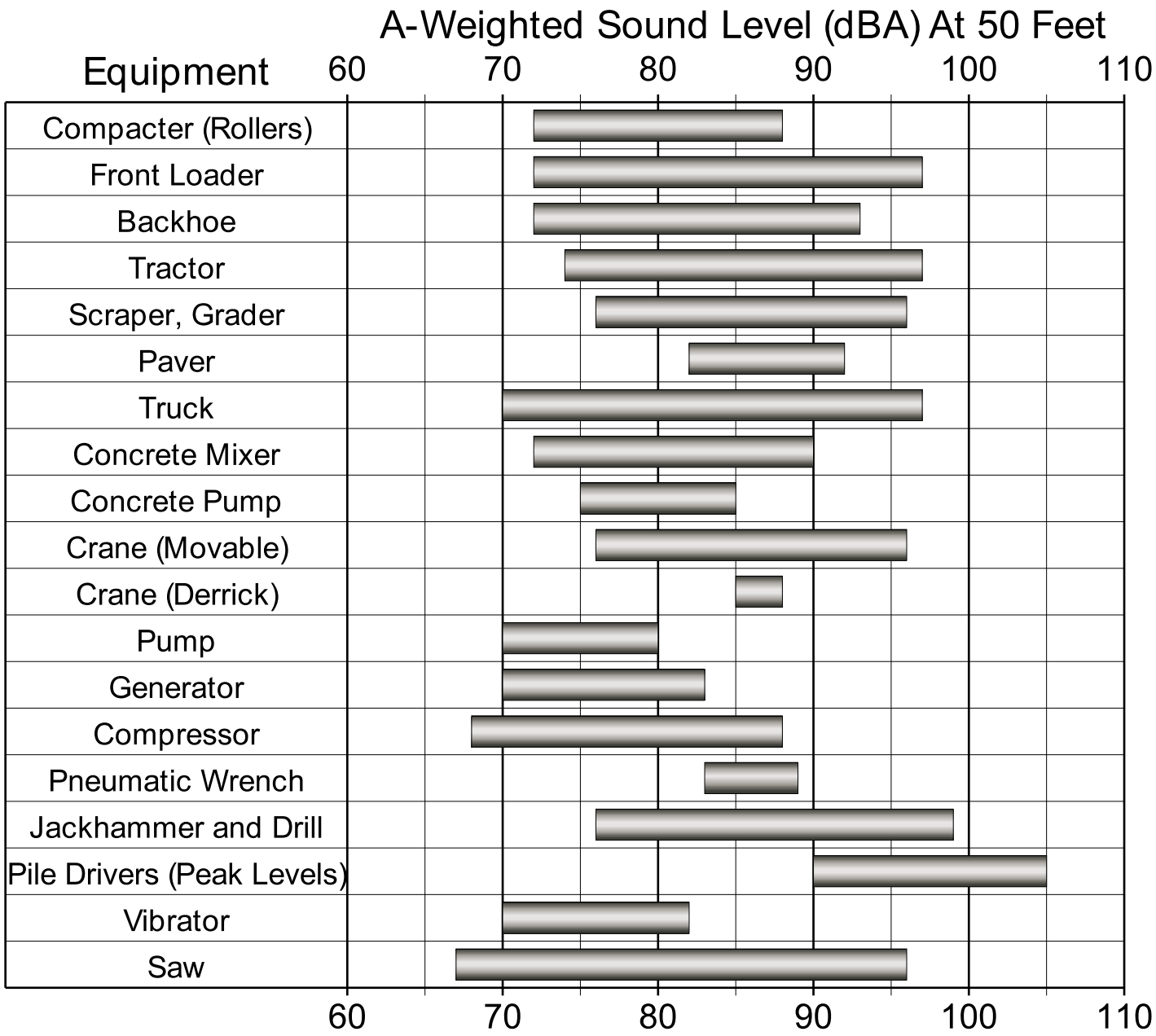
The off site noise impacts from on site activities of Variation 1 should not exceed the Noise Ordinance criteria at the nearest sensitive land uses. The nearest sensitive land uses are residential areas primarily to the northeast, southeast, east and west. There is also a college/university to the northeast. The permitted landfill operation hours are from 8:00 A.M. to 6:00 P.M., and therefore, the proposed landfill operations will need to comply with the daytime noise limits.

Site 1 is located in the City of Los Angeles, and therefore, the Los Angeles noise ordinance is applicable to Site 1. The Los Angeles ordinance indicates that if the ambient noise is less than the presumed ambient noise level (50 dBA), the 50 dBA becomes the minimum criterion level. However, if the ambient noise is greater, then the actual ambient noise becomes the criterion noise level. For Site 1, the average ambient noise was approximately 68 dBA (Leq), and thus, the 68 dBA becomes the noise criterion level.

For Sites 2 through Site 9 (including sites located in the City of Pasadena), compliance with the City of Glendale Noise Ordinance was assessed. Variation 1 operations will need to comply with the daytime hourly average noise level of 55 dBA (Leq) at the nearest residential areas, and 65 dBA (Leq) at the nearest recreational areas and college/university land uses. The City of Glendale Noise Ordinance allows the noise limits to be adjusted to a maximum of 60 dBA (Leq) if the actual ambient noise is already higher than the presumed noise standard (55 dBA (Leq)) at the nearest residential property, or 5 dBA higher than the actual ambient noise, if actual ambient noise is lower than 55 dBA (Leq).

During the initial phases, Variation 1 would be lower in elevation than the surrounding terrain for the majority of the surrounding sites, but would be closer in distance. As operating equipment moves towards the center of the landfill, the landfill noise level would be noticeably less. However, as the landfill reaches its final capacity, the final elevations would be higher than some of the surrounding areas and the existing natural shielding effect of the terrain/topography would be diminished or eliminated.

P:\P&D Environment\Scholl Canyon EIR\GIS\Figure 6.10-5 Construction Equipment Noise Levels.mxd



Source: "Handbook of Noise Control," by Cyril Harris, 1979

Source: "Handbook of Noise Control", Cyril Harris (1979), Mestre Greve Associates (2012), Sanitation Districts (2012), and AECOM (2012).

Figure 6.10-5
Construction Equipment Noise Levels

Noise measurements were made of the existing landfill operations (refer to measurement for Site 3). The noise measurement at this location was 55.2 dBA Leq at a distance of 1,500 feet. The 55.2 dBA Leq at 1,500 feet was interpolated to be approximately 87.6 dBA Leq at 50 feet (based on the actual noise measurement of two active pieces of equipment). Because the number of pieces of equipment would increase, from approximately 25 to 35 (based on the permitted 3,400 tons per day), the noise level would increase by approximately 1.5 dBA, to 89.1 dBA Leq at 50 feet. During a busier scenario, there could be more than two pieces of equipment running. The noise level was adjusted to 92.1 dBA Leq to include a 3 dBA safety factor to account for these busier times. Because there is an increase in the number of equipment in the proposed landfill operations, the 3 dBA factor is warranted. Therefore, the 92.1 dBA Leq at 50 feet was used as a base noise level to determine the potential future landfill operation noise levels at the surrounding sensitive land uses.

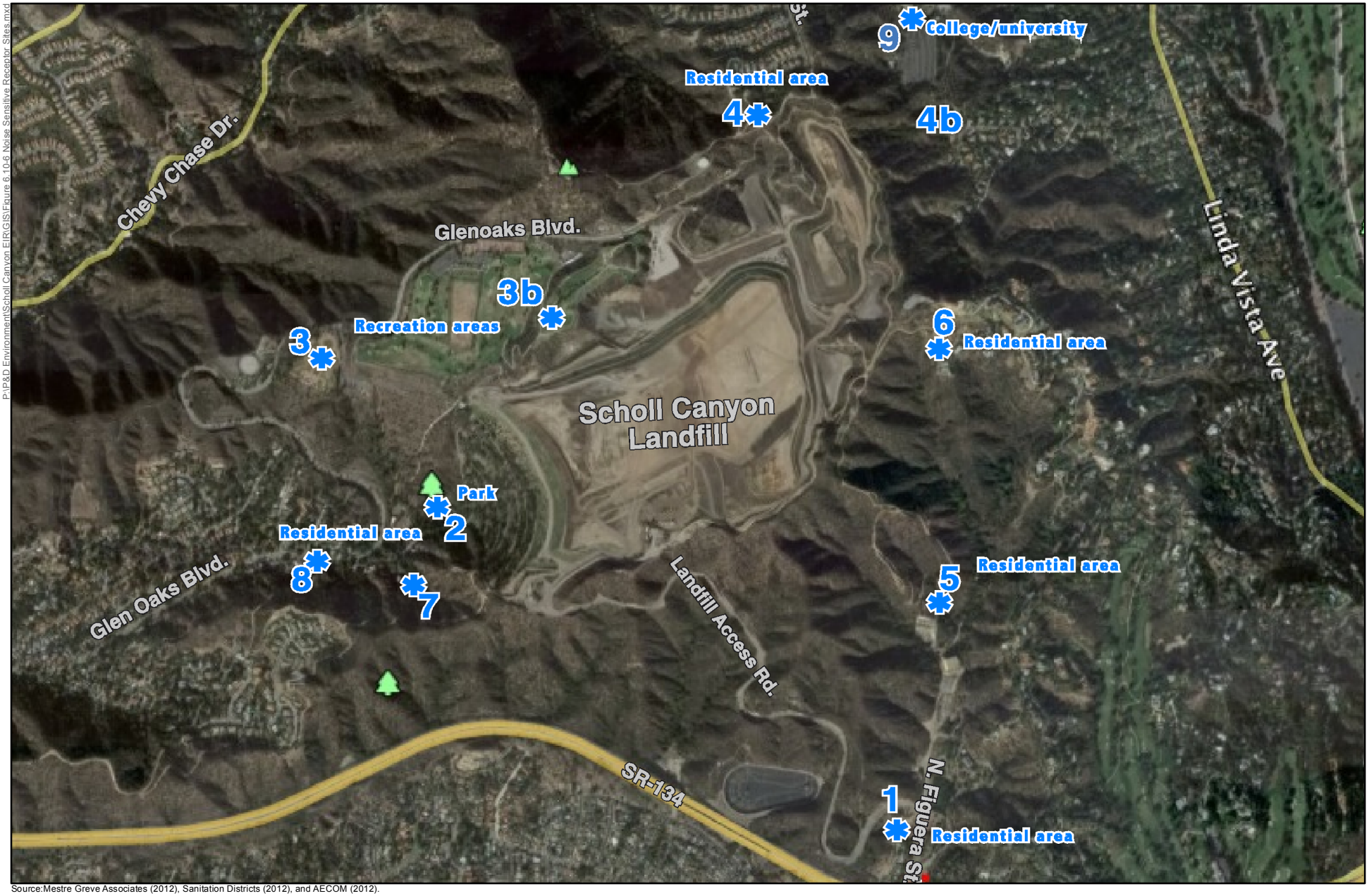
The nearest sensitive land uses are located to the north, northeast, southeast, east and west, and are estimated to be generally between approximately 1,300 and 3,550 feet from the landfill active areas in the initial phases. The general locations of these sensitive receptor sites are shown in Figure 6.10-6. In the final phases the distances to the landfill active areas are approximately 2,000 to 4,150 feet. In the initial phases the landfill is much lower than most of the surrounding area. The surrounding ridgelines in this situation act like a large noise barrier since they break the line of sight between the operations and the receptors. For some sites, the final phases will be the worst case scenario as natural shielding would be diminished due to the higher landfill elevations. Some areas including the north and northeast are much lower than the landfill and have intervening ridges that prevent line of sight now and in the future. Cross-sections depicting these topography effects are provided in Appendix L.

Noise criteria, ambient measurements and distances for each noise sensitive receptor site are presented in Table 6.10-8. The projected landfill noise levels under Variation 1 and the applicable noise limits for each of these surrounding sites are presented in Table 6.10-9. The projected noise levels take into account the natural intervening topography in the area. At select locations noted with an asterisk, the noise levels also account for soil berms that are implemented as part of the existing operation.

TABLE 6.10-8. NOISE CRITERA, AMBIENT MEASUREMENTS AND DISTANCES FOR NEAREST SENSITIVE LAND USES

SITE # LAND USE	CLOSEST DISTANCE (FEET)	NOISE CRITERIA (L_{eq})	AMBIENT MEAS. (L_{eq})
Site 1 Residential Area - Southeast	3,550	68	68.2
Site 2 Residential/Park - West	1,370	55	45.4
Site 3 Baseball Field – Northwest	1,770	n/a	55.2
Site 3b Golf course/Park – North	750	n/a	55.2
Site 4 Residential Area (Site C) – Northeast	1,800	48	43.1
Site 4b Residential Area –East	2,200	50	45.1
Site 5 Residential Area – Southeast	2,500	55	49.5
Site 6 Residential Area (Site B) – East	1,400	49	43.7
Site 7 Residential Area (Site A) – West	2,150	54	49.4
Site 8 Residential Area – East	3,200	60	57.9
Site 9 College/University – Northeast	2,910	65	--

Source: Mestre Greve Associates, 2012.
Notes:
n/a – no applicable exterior noise criterion



Source:Mestre Greve Associates (2012), Sanitation Districts (2012), and AECOM (2012).

Scale 1 : 15,000
1" = 1,250 feet

0 625 1,250 2,500 Feet

Figure 6.10-6
Noise Sensitive Receptor Sites

TABLE 6.10-9. POTENTIAL LANDFILL OPERATION NOISE AT NEAREST SENSITIVE LAND USES (WORST CASE SCENARIO, VARIATION 1)

SITE # LAND USE	NOISE CRITERIA (L_{eq})	LANDFILL NOISE dBA (L_{eq})
Base Elevations at Initial Phase		
Site 1 Residential Area - Southeast	68	32.5
Site 2 Residential/Park - West	55	50.9[1]
Site 3 Baseball Field – Northwest	n/a	57.4
Site 3b Golf course/Park – North	n/a	66.9
Site 4 Residential Area (Site C) – Northeast	48	38.3
Site 4b Residential Area –East	50	35.3
Site 5 Residential Area – Southeast	55	53.0
Site 6 Residential Area (Site B) – East	49	41.8
Site 7 Residential Area (Site A) – West	54	47.8
Site 8 Residential Area – East	60	49.4
Site 9 College/University – Northeast	65	32.4
Top Landfill Elevations at Final Phase		
Site 1 Residential Area - Southeast	68	45.2
Site 2 Residential/Park - West	55	42.7[1]
Site 3 Baseball Field – Northwest	n/a	50.6
Site 3b Golf course/Park – North	n/a	59.8
Site 4 Residential Area (Site C) – Northeast	48	35.3
Site 4b Residential Area –East	50	33.1
Site 5 Residential Area – Southeast	55	47.2
Site 6 Residential Area (Site B) – East	49	47.8[2]
Site 7 Residential Area (Site A) – West	54	47.2
Site 8 Residential Area – East	60	47.1
Site 9 College/University – Northeast	65	34.2

Source: Mestre Greve Associates, 2012.

Notes: n/a – no applicable exterior noise criterion
Unless noted otherwise, projected levels do not account for noise berms
[1] Accounts for berm at 1400' elev. or higher
[2] Accounts for berm at 1500' elev. or higher

The projected noise levels generated by Variation 1 would be between approximately 32.4 and 66.9 dBA L_{eq}, depending on the location. These noise levels would be below the noise criteria at all locations. Thus, noise impacts from landfill construction and operations would be considered less than significant. In addition, the Sanitation Districts will ensure that all landfill operating equipment and trucks are properly tuned and have noise muffling equipment that meets or exceeds applicable EPA standards.

Vibration

Road vehicles rarely create enough groundborne vibration to be perceptible to humans unless the road surface is poorly maintained and there are potholes or bumps. If traffic induces perceptible vibration in buildings, such as window rattling or shaking of small loose items, then it is most likely an effect of low-frequency airborne noise or ground characteristics. Trucks traveling on a flat and true road would not be expected to generate detectable vibration levels. Human annoyance by vibration is related to the number and duration of events. The more events or the greater the duration, the more annoying it will be to humans.

The project site is located over 850 feet from the nearest residential areas. Because of the long distance, on site activities are not anticipated to result in detectable groundborne vibration at the nearest sensitive receptors. The only area where a potential vibration-related impact could occur is along the access road

to the landfill, Scholl Canyon Road. In general, substantial levels of vibration are expected to occur from trucks traveling on Scholl Canyon Road where the road is damaged and not smooth. Residential uses along this roadway are limited to the vicinity of the SR-134.

Location observations were made by Mestre Greve Associates on November 29, 2007 near residences along Scholl Canyon Road. Vibrations could not be detected from trucks traveling to and from the landfill, and therefore, no significant groundborne vibration impact is projected under Variation 1.

6.10.4.2 Variation 2

Construction Noise Impacts

Short–term construction related to Variation 2 includes final cover/berm construction placement, extension of the gas collection system, and stormwater drainage system. These short-term activities would occur periodically during the life of the project, and could last up to several weeks. Short-term construction activities associated with Variation 2 would comply with the City of Glendale/Pasadena, and City of Los Angeles allowable hours of operations, as discussed previously in Section 6.10.1.2. Therefore, noise impacts related to short-term construction activities would be considered less than significant.

Operation-related Noise Impacts

Traffic Noise

Variation 2 would have the same traffic-related noise impacts as Variation 1 because both Variations are assumed to accept 3,400 TPD. As such, any residences located within 129 feet from the centerline of Scholl Canyon Road between SR-134 and the Eagle Rock Substation would be potentially impacted by landfill operation-related traffic noise. However, based on additional noise analysis, noise levels associated with 2,600 TPD would not result in a significant off site traffic noise impact. Noticeable noise levels may be triggered when landfill tonnage reaches 2,600 TPD. Therefore, should the SCLF accept greater than 2,600 TPD, a potentially significant noise impact related to landfill traffic would occur under Variation 2.

Long-Term Landfill Operation

As with Variation 1, the off site noise impacts from on site activities of Variation 2 should not exceed the Noise Ordinance criteria at the nearest sensitive land uses. The nearest sensitive land uses are residential areas primarily to the northeast, southeast, east and west. There is also a college/university to the northeast. The permitted landfill operation hours are from 8:00 A.M. to 6:00 P.M., and therefore, the proposed landfill operations will need to comply with the daytime noise limits.

Similar to Variation 1, during the initial phases, Variation 2 would be lower in elevation than the surrounding terrain for the majority of the surrounding sites, but would be closer in distance. However, as the landfill reaches its final capacity, the final elevations would be higher than some of the surrounding areas and the existing natural shielding effect of the terrain/topography would be diminished or eliminated.

For Variation 2 sensitive receptors may be impacted by new operation associated with the vertical and horizontal changes. The same base noise level used for Variation 1 was used for Variation 2 to determine the potential future landfill operation noise levels at the surrounding sensitive land uses.

Noise criteria, ambient measurements and distances for each noise sensitive receptor site were presented previously in Table 6.10-8. The projected landfill noise levels under Variation 2 and the applicable noise limits for each of these surrounding sites are presented in Table 6.10-10. The projected noise levels take into account the natural intervening topography in the area. At select locations noted with an asterisk, the noise levels also account for soil berms that are implemented as part of the existing operation.

TABLE 6.10-10. POTENTIAL LANDFILL OPERATION NOISE AT NEAREST SENSITIVE LAND USES (WORST CASE SCENARIO, VARIATION 2)

SITE # LAND USE	NOISE CRITERIA (L_{eq})	LANDFILL NOISE dBA (L_{eq})
Base Elevations at Initial Phase		
Site 1 Residential Area - Southeast	68	32.5
Site 2 Residential/Park - West	55	50.9[1]
Site 3 Baseball Field – Northwest	n/a	57.4
Site 3b Golf course/Park – North	n/a	69.3
Site 4 Residential Area (Site C) – Northeast	48	38.3
Site 4b Residential Area –East	50	35.3
Site 5 Residential Area – Southeast	55	53.0
Site 6 Residential Area (Site B) – East	49	41.8
Site 7 Residential Area (Site A) – West	54	47.8
Site 8 Residential Area – East	60	49.4
Site 9 College/University – Northeast	65	32.4
Top Landfill Elevations at Final Phase		
Site 1 Residential Area - Southeast	68	45.2
Site 2 Residential/Park - West	55	42.7[1]
Site 3 Baseball Field – Northwest	n/a	50.6
Site 3b Golf course/Park – North	n/a	59.8
Site 4 Residential Area (Site C) – Northeast	48	43.2
Site 4b Residential Area –East	50	33.1
Site 5 Residential Area – Southeast	55	47.2
Site 6 Residential Area (Site B) – East	49	47.8[2]
Site 7 Residential Area (Site A) – West	54	47.2
Site 8 Residential Area – East	60	47.1
Site 9 College/University – Northeast	65	34.2

Source: Mestre Greve Associates, 2012.

Notes: n/a – no applicable exterior noise criterion
Unless noted otherwise, projected levels do not account for noise berms
[1] Accounts for berm at 1400' elev. or higher
[2] Accounts for berm at 1500' elev. or higher

The projected noise levels generated by Variation 2 would be between approximately 32.4 and 69.3 dBA L_{eq}, depending on the location. These noise levels would be below the noise criteria at all locations. Thus, noise impacts from landfill construction and operations would be considered less than significant. In addition, the Sanitation Districts will ensure that all landfill operating equipment and trucks are properly tuned and have noise muffling equipment that meets or exceeds applicable EPA standards.

Vibration

Similar to Variation 1, the only area where a potential vibration-related impact could occur is along the access road to the landfill, Scholl Canyon Road. In general, substantial levels of vibration are expected to occur from trucks traveling on Scholl Canyon Road where the road is damaged and not smooth. Residential uses along this roadway are limited to the vicinity of the SR-134.

Location observations were made by Mestre Greve Associates on November 29, 2007 near residences along Scholl Canyon Road. Vibrations could not be detected from trucks traveling to and from the landfill, and therefore, no significant groundborne vibration impact is projected under Variation 2.

6.10.5 MITIGATION MEASURES

6.10.5.1 Variation 1

The following mitigation measure is required to ensure that landfill-related truck trips noise does not exceed 65 dBA CNEL at residences along Scholl Canyon Road:

N-1 When the landfill tonnage reaches 2,600 TPD, the Sanitation Districts shall conduct an acoustical analysis to determine the noise exposure level along Scholl Canyon Road, between SR-134 and the Eagle Rock Substation at residential locations west of Scholl Canyon Road to determine if, and where, the outdoor noise standard of 65 dBA CNEL is being exceeded. The locations considered should, at a minimum, be the residences within 129 feet of the centerline at Scholl Canyon Road. At that time, a site-specific acoustical analysis will be prepared to identify impacted areas, determine the source of the impact, and provide mitigation for those impacts associated with the proposed project, as necessary. The mitigation may take the form of noise barriers, structural upgrades, traffic controls or similar measures. The noise reduction recommendations will be coordinated with the City of Glendale.

6.10.5.2 Variation 2

Mitigation measure N-1 (above) also applies to Variation 2, and is required to ensure that landfill-related truck trips noise does not exceed 65 dBA CNEL at residences along Scholl Canyon Road.

6.10.6 LEVEL OF SIGNIFICANCE AFTER MITIGATION

6.10.6.1 Variation 1

Implementation of Variation 1 would result in less than significant impacts related to short-term, temporary construction and long-term landfill operations, and would not result in significant adverse impacts regarding vibration.

Implementation of mitigation measure N-1, described above, will ensure that potentially significant adverse impacts regarding traffic-related noise are reduced to below a level significance.

6.10.6.2 Variation 2

Implementation of Variation 2 would result in less than significant impacts related to short-term, temporary construction and long-term landfill operations, and would not result in significant adverse impacts regarding vibration.

Implementation of mitigation measure N-1, described above, will ensure that potentially significant adverse impacts regarding traffic-related noise are reduced to below a level significance.