IV. ENVIRONMENTAL IMPACT ANALYSIS

H. NOISE

The following analysis of noise impacts is based on the Air Quality and Noise Technical Report prepared by Terry A. Hayes Associates LLC, dated December 2004. This report is included in its entirely as Appendix D of this Draft EIR. The following analysis defines the existing noise conditions at the project site and in the project vicinity and assesses potential short-term construction and long-term operation noise impacts associated with the proposed project.

EXISTING CONDITIONS

NOISE CHARACTERISTICS, MEASUREMENT, AND REPORTING

Noise is generally defined as unwanted sound. Technically, noise is described in terms of loudness (amplitude) and frequency (pitch). The degree to which noise can impact the human environment ranges from interfering with speech and sleep (annoyance and nuisance) to causing adverse health effects (hearing loss and psychological effects). Human response to noise is subjective and can vary greatly from person to person. Factors that influence individual responses include the intensity, frequency, and pattern of noise, the amount of background noise present before the intruding noise, and the nature of work or human activity that is exposed to the noise source.

Sound is technically described in terms of loudness (amplitude) and frequency (pitch). The basic unit of measurement for sound is the decibel (dB). To better account for individual human sensitivity to sound, decibels are measured on the “A-weighted scale” (dBA), which reflects the normal hearing sensitivity range of the human ear. On this scale, the range of human hearing extends from approximately 3 dBA to 140 dBA. The smallest perceptible sound level change for a person with normal hearing sensitivity is approximately 3 dBA. A 5-dBA sound increase is considered clearly noticeable, and a 10-dBA sound increase is perceived by most people as a doubling of the sound level.

Noise levels decrease as the distance between the noise source and the receiver increases. Noise generated by a stationary noise source, or “point source,” will decrease by approximately six decibels over hard surfaces and nine decibels over soft surfaces for each doubling of the distance. For example, if a noise sources produce a noise level of 89 dBA at a reference distance of 50 feet, then the noise level would be 83 dBA at a distance of 100 feet from the noise source, 77 dBA at a distance of 200 feet, and so on.

Generally, noise is most audible when traveling by direct line-of-sight. Barriers, such as walls, berms, or buildings that break the line-of-sight between the source and the receiver greatly reduces noise levels since sound can only reach the receiver by bending over the top of the barrier (known as diffraction). Sound barriers can reduce sound levels by as much as 20 dBA. However, if a barrier is not high or long enough to break the line-of-sight from the source to the receiver, the level of sound reduction is greatly reduced.

The two most common means of reporting and analyzing community noise levels are the Community Noise Equivalent Level (CNEL) and the Equivalent Noise Level (L_{eq}). The CNEL is an average sound level during a 24-hour day. The CNEL is a noise measurement scale that accounts for noise source, distance, single event duration, single event occurrence, frequency,

and time of day. There is a greater sensitivity to noise that occurs during the generally quiet evening hours and overnight hours when people sleep, when the background sound level is lower than during the day. Specifically, human reaction to sound between 7:00 PM and 10:00 PM is as if the sound were actually five decibels higher than if it occurred between 7:00 AM and 7:00 PM Therefore, the CNEL assigns a five-decibel penalty to noise levels during the evening hours. Similarly, as human reaction to sound occurring between 10:00 PM and 7:00 AM is as if the sound were ten decibels higher than if it occurred between 7:00 AM and 7:00 PM, a ten-decibel penalty is assigned to the noise levels during these nighttime hours. Because the CNEL accounts for human sensitivity to sound, the CNEL 24-hour figure is always higher than the actual 24-hour average. The CNEL is used as a baseline to measure the proposed project's operational noise impacts.

The L_{eq} is another type of noise average, which represents the average of the fluctuating noise levels recorded in any given time period, usually one hour, or L_{eq}. The average noise level is based on the energy content (acoustic energy) of the sound. L_{eq} can be thought of as the level of a continuous noise that has the same energy content as the fluctuating noise level. The L_{eq} is expressed in units of dBA.

REGULATORY SETTING

Several noise standards and guidelines have been established by government agencies to control and mitigate noise-related impacts. The City of Los Angeles has adopted a number of such policies, many of which are partially based on federal and state regulations. The policies include, but are not limited to, those outlined in the Los Angeles Municipal Code (LAMC) and the City's CNEL Guidelines, as set forth in the *L.A. CEQA Thresholds Guide*.

In general, the LAMC establishes regulations outlining allowable increases in noise levels in terms of established noise criteria. The Noise Regulation (Chapter XI of the LAMC) sets forth acceptable ambient sound levels in order to regulate intrusive noise within specific land use zones. The Noise Regulation states that a noise increase of five dBA over the existing average ambient level at an adjacent property line is a violation of the Regulation. In addition, the City's Noise Regulation limits construction equipment noise within 500 feet of a residential zone to 75 dBA measured at a distance of 50 feet from the source.

The City's CNEL Guidelines, as outlined in the *L.A. CEQA Thresholds Guide*, assess the compatibility of a range of land use types with a range of noise levels in terms of CNEL. Compatibility levels are expressed in terms of being "normally acceptable, "conditionally acceptable", "normally unacceptable", and "clearly unacceptable" for each designated land use. Such categories account for the noise sensitivity of different land uses. These CNEL Guidelines are discussed in more detail under Thresholds of Significance, below.

EXISTING NOISE SETTING

The existing noise environment in the project vicinity is characterized by vehicular traffic, animals (e.g., chirping birds and barking dogs), and noises typical to a residential area (e.g., children playing and people conversing). Of these, vehicular traffic is the dominant noise source in the area. However, construction of the Rinaldi Street extension, which is currently underway along the south and east side of the project site, contributes to traffic as the predominant source of noise in the area.

Land uses that are considered especially sensitive to noise are referred to as "sensitive receptors." Noise sensitive receptors include, but are not limited to, schools, residences, libraries, hospitals, and other care facilities. Representative sensitive receptors in the project vicinity include the proposed Sierra Canyon Secondary School classroom building, single-family residences on Lurline Avenue (located approximately 140 feet from the project site), single-family residences both south and north of Rinaldi Street (located approximately 130 and 250 feet from the project site, respectively), and single-family residences on De Soto Avenue (located approximately 600 feet from the project site). The locations of these sensitive receptors in relation to the project site are show on **Figure IV.H-1**. Noise measurements were taken at these locations between 2:30 PM and 5:30 PM on June 17, 2004 to establish existing ambient conditions and provide a baseline from which to evaluate project impacts. The existing noise levels at these monitoring locations are shown in **Table IV.H-1**. As shown, existing ambient noise levels range from 48 to 76 dBA (L_{eq}).

As stated earlier, an extension of Rinaldi Street is currently being constructed along the south and east sides of the project site and will be completed prior to the start of project construction. Thus, ambient noise levels in the area, including at the receptor locations, would likely increase once the extension is open for traffic, as additional traffic would be diverted to the area. The existing noise measurements listed in **Table IV.H-1** and the traffic volumes listed in the traffic study prepared by Crain & Associates (included as Appendix D of this Draft EIR) were used to estimate ambient noise levels upon completion of the Rinaldi Street extension.[1] These noise levels are shown in **Table IV.H-2**. As shown, ambient noise levels after the Rinaldi Street extension is completed will range from 61 dBA to 76 dBA (L_{eq}).

As stated above, vehicular traffic is the predominant noise source in the project vicinity. Using the existing traffic volumes provided in the traffic study (Appendix D of this Draft EIR), the CNEL was calculated at the sensitive receptors near roadways that would be affected by the proposed project.[2] These estimated noise levels, which are shown in **Table IV.H-3**, represent the most conservative scenario as it is assumed that no shielding is provided between vehicles on the roadways and the location of each sensitive receptor. As shown, noise levels at the sensitive receptors would range from 54 to 76 dBA (CNEL) with existing conditions and would increase to 66 to 76 dBA when Rinaldi Street is completed.

1 Using these inputs, the California Department of Transportation (Caltrans) Sound 2000 Model was used to estimate the ambient noise levels with operation of the Rinaldi Street extension.

2 The Federal Highway Administration (FHWA) RD-77-108 noise calculation formulas were applied to determine the estimated CNEL.

Figure IV.H-1
Sensitive Receptor Locations

TABLE IV.H-1 EXISTING NOISE LEVELS (L_{eq})		
No.	**Monitoring Location**	**Noise Measurement (dBA)**
1	Proposed Sierra Canyon Secondary School Classroom Building	54
2	Single-Family Residences on Lurline Avenue	48
3	Single-Family Residences south of Rinaldi Street	52
4	Single-Family Residences north of Rinaldi Street	60
5	Single-Family Residences at De Soto Avenue	76
SOURCE: Terry A. Hayes Associates LLC, December 2004 (Appendix D of this Draft EIR).		

TABLE IV.H-2 ESTIMATED AMBIENT NOISE LEVELS WITH COMPLETION OF RINALDI STREET EXTENSION (L_{eq})		
No.	**Monitoring Location**	**Noise Measurement (dBA)**
1	Proposed Sierra Canyon Secondary School Classroom Building	61
2	Single-Family Residences on Lurline Avenue	63
3	Single-Family Residences south of Rinaldi Street	62
4	Single-Family Residences north of Rinaldi Street	65
5	Single-Family Residences at De Soto Avenue	76
SOURCE: Terry A. Hayes Associates LLC, December 2004 (Appendix D of this Draft EIR).		

TABLE IV.H-3 ESTIMATED EXISTING CNEL			
No.	**Monitoring Location**	**Existing (dBA)**	**Ambient With Rinaldi (dBA)**
1	Proposed Sierra Canyon Secondary School Classroom Bldg.	54	71
2	Single-Family Residences on Lurline Avenue	48	66
3	Single-Family Residences south of Rinaldi Street	52	69
4	Single-Family Residences north of Rinaldi Street	60	73
5	Single-Family Residences on De Soto Avenue	76	76
SOURCE: Terry A. Hayes Associates LLC, December 2004 (Appendix D of this Draft EIR).			

ENVIRONMENTAL IMPACTS

THRESHOLDS OF SIGNIFICANCE

The City off Los Angeles *L.A. CEQA Thresholds Guide* provides significance thresholds for construction and operational noise impacts. These thresholds, which are listed below, are used to determine whether potential noise impacts associated with the proposed project would be considered significant.

Construction

A significant construction noise impact would occur if:

- The proposed project added five or more decibels (L_{eq}) to the current ambient exterior noise level at a sensitive receptor location.[3]

Operation

A significant operational noise impact would occur if:

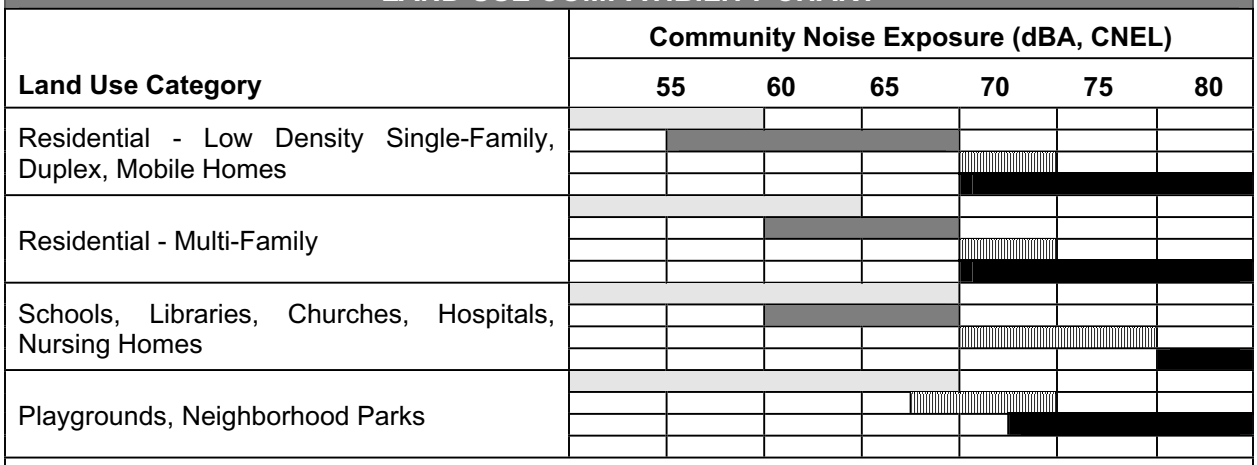
- The proposed project causes the ambient noise level measured at the property line of the affected uses to increase by three or more decibels (CNEL) to or within the "normally acceptable" or "clearly unacceptable" category of the Land Use Compatibility Chart included as **Table IV.H-4**. If ambient noise levels are within the "normally acceptable" or "conditionally acceptable" category, a significant impact would occur if the proposed project causes the ambient noise level measured at the property line of the affected use to increase by five or more decibels (CNEL);

- The proposed project incrementally increases ambient noise levels by five or more decibels (L_{eq}); or

- The proposed project causes interior noise levels at the proposed classrooms to exceed the LAMC Section 91 interior noise level limit of 45 dBA (CNEL).

[3] The *L.A. CEQA Thresholds Guide* states that a significant construction impact would occur if construction activities lasting more than one day would exceed existing ambient exterior noise levels by 10 dBA or more at a noise sensitive receptor. If construction activities last more than ten days in a three-month period, a significant impact would occur if construction activities would cause ambient noise levels at a noise sensitive use to increase by 5 dBA or more. Thus, since construction of the proposed project would last more than ten days in a three-month period, the latter threshold is being used.

TABLE IV.H-4
LAND USE COMPATIBILITY CHART



Normally Acceptable - Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction without any special noise insulation

Conditionally Acceptable - New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features included in the design. Conventional construction, but with closed windows and fresh air supply system or air conditionally will normally suffice.

Normally Unacceptable - New construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design.

Clearly Unacceptable - New construction or development should generally not be undertaken.

SOURCE: California Office of Noise Control, Department of Health Services.

CONSTRUCTION PHASE IMPACTS

As described in Section III, Project Description of this Draft EIR, construction activities on the project site would occur in three phases. Phase I would include site clearing; grading/excavation; and construction of the classroom building, parking level, campus plaza, and temporary athletic courts. This would be the longest construction phase, at up to 18 months, and the most intense. Phase II of construction would include demolition of the existing residential building; grading/excavation; and construction of the administration building, athletics center, and aquatics center. Finally, Phase III would involve the development of the performing arts center. Specific durations of the second and third phases are not known at this time and it is possible that phasing may differ from this scenario (for example, if the performing arts center or athletics center could be built sooner, during Phase I). However, the described phasing sequence is considered the most likely scenario at this point and neither of the latter two phases would be longer than the initial construction phase.

Construction activities require the use of numerous pieces of noise-generating equipment, such as jackhammers, pneumatic impact equipment, saws, and tractors. Typical noise levels from various types of equipment that may be used during construction are listed in **Table IV.H-5**.

The table shows noise levels at distances of 50 and 100 feet from the construction noise source. Noise levels generally decrease by six decibels over hard surfaces and nine decibels over soft surfaces for each doubling of distance. For instance, the noise level for a jackhammer would be 82 dBA at 50 feet, 76 dBA at 100 feet, and 70 dBA at 200 feet. However, noise levels fluctuate depending on the type of construction activity involved, the type of equipment used, the duration of use, the distance between the noise source and receptor, and the presence or absence of noise attenuation barriers.

TABLE IV.H-5
MAXIMUM NOISE LEVELS OF COMMON CONSTRUCTION EQUIPMENT

Type of Equipment	Noise Level (dBA)[1]	
	50 Feet	100 Feet
Jackhammer	82	76
Steamroller	83	77
Street Paver	80	74
Backhoe	83	77
Street Compressor	67	61
Front-end Loader	79	73
Street Cleaner	70	64
Idling Haul Truck	72	66
Cement Mixer	72	66

[1] Assumes a 6-dBA drop-off rate for noise generated by a "point source" and traveling over hard surfaces. Actual measured noise levels of the equipment listed in this table were taken at distances of 10 feet and 30 feet from the source.

SOURCE: Cowan, James P., *Handbook of Environmental Acoustics*, 1994.

Table IV.H-6 indicates noise levels that take into account the likelihood that more than one piece of construction equipment would be in operation at the same time and lists the typical overall noise levels that would be expected for each type of construction activity. These noise levels are based on surveys conducted by the USEPA in the early 1970's. However, since 1970, regulations have been enforced to improve noise generated by certain types of construction equipment to meet worker noise exposure standards. While many older pieces of equipment are still in use, the construction noise levels indicated in **Table IV.H-6** represent worst-case conditions. Noise levels at 50 feet utilizing construction equipment mufflers are also shown. As the table shows, the highest noise levels typically occur during the grading/excavation and finishing portions of construction. However, as finishing activities primarily occur indoors, noise associated with this activity would not have as much affect on the surrounding areas as grading/excavation activities, which occur outdoors. Thus, for purposes of analyzing noise impacts, grading/excavation activities are considered to generate the highest construction noise levels.

TABLE IV.H-6 TYPICAL OUTDOOR CONSTRUCTION NOISE LEVELS		
Construction Activity	**Noise Level (dBA, L_{eq})**	
	At 50 Feet	**At 50 Feet with Mufflers**
Ground Clearing	84	82
Grading/Excavation	89	86
Foundations	78	77
Structural	85	83
Finishing	89	86

SOURCE: Environmental Protection Agency, Noise from Construction Equipment and Operations, Building Equipment and Home Appliances, PB 206717, 1971.

To ascertain worst-case noise impacts at sensitive receptor locations, construction noise has been modeled by using the typical grading/excavation noise levels. The noise source is assumed to be active for forty percent of the eight-hour work-day (consistent with the USEPA's studies of construction noise), generating a noise level of 89 dBA (L_{eq}) at a reference distance of 50 feet.

The noise level during the construction period at each receptor location was calculated by: 1) making a distance adjustment to the construction source sound level; and 2) logarithmically adding the adjusted construction noise source level to the ambient noise level. The estimated construction noise levels at sensitive receptors are shown in **Table IV.H-7**. These levels are worst-case unattenuated estimates that do not account for walls or other barriers that may block noise. As indicated in **Table IV.H-7**, incremental increases in noise levels at the single-family residences north of Rinaldi Street and on De Soto Avenue (receptor nos. 4 and 5) would be below the significance threshold of five decibels over the existing ambient noise levels. However, the incremental increases in noise levels at the proposed Sierra Canyon Secondary School classroom building, the single-family residences on Lurline Avenue, and single-family residences south of Rinaldi Street (receptor nos. 1 through 3) would be above the significance threshold. Therefore, a significant construction noise impact at these three locations would occur prior to implementation of recommended mitigation measures.

TABLE IV.H-7 CONSTRUCTION NOISE LEVELS							
No.	**Monitoring Location**	**Distance (feet)[1]**	**Noise Level[2]**	**Existing Ambient[3]**	**New Ambient[4]**	**Increase**	**Signif. Impact?**
1	Proposed Classroom Bldg.	50	89	61	81	20	Yes
2	Residences on Lurline Ave.	140	80	63	73	10	Yes
3	Residences south of Rinaldi St.	130	81	62	73	11	Yes
4	Residences north of Rinaldi St.	250	75	65	68	3	No
5	Residences on De Soto Ave.	600	67	76	77	1	No

1 Distance of noise source from receptor.
2 Construction noise sound level (dBA) at receptor location, with distance adjustment.
3 Pre-construction ambient noise level at receptor location with completed Rinaldi Street Extension.
4 New sound level at receptor location during the construction period, including noise from construction activity.

SOURCE: Terry A. Hayes Associates LLC, December 2004 (Appendix D of this Draft EIR).

OPERATIONAL PHASE IMPACTS

Traffic Noise

The predominant noise source in the project vicinity, as with most urbanized areas, is vehicular traffic. The extension of Rinaldi Street along the south and east of the project site, which is currently under construction, is expected to greatly contribute to the vehicular traffic noise in the immediate project area. Project-related traffic would further increase ambient noise levels in the vicinity of the project site.

Project-related traffic noise impacts were estimated for the 24-hour period and during the morning peak hour, when the greatest concentration of students and employees are traveling to and from the project site.[4] As shown in **Table IV.H-8**, over a 24-hour period, vehicular noise at sensitive receptors would range from 68 to 76 dBA (CNEL) under "with project" conditions. The project would cause noise levels at the proposed Sierra Canyon classroom building, the residences south and north of Rinaldi Street, and the residences on De Soto Avenue (receptor nos. 1, 3, 4, and 5) to be within the "normally unacceptable" or "clearly unacceptable" category of the Land Use Compatibility Chart (**Table IV.H-4**). According to the significance criteria, a significant impact would occur if the project resulted in an increase in the ambient noise levels measured at the property line of the affected uses of three dBA (CNEL) to or within the "normally unacceptable" or "clearly unacceptable" category. The proposed project is anticipated to incrementally increase noise levels by approximately one dBA to or within the "normally unacceptable" or "clearly unacceptable" category at the proposed classroom building and the residences south of Rinaldi Street (receptor nos. 1 and 3) and by less than one decibel within the "normally unacceptable" or "clearly unacceptable" category at the residences north of Rinaldi Street and on De Soto Avenue (receptor nos. 4 and 5) as compared to the "no project"

4 The Federal Highway Administration RD-77-108 noise calculation formulas were used to estimate project-related traffic noise during the 24-hour period and the Caltrans Sound 2000 Noise Model was used to estimate vehicle noise during the morning peak hour.

condition. These incremental increases would not exceed the significance threshold. Thus, impacts at these receptor locations would be less than significant impacts.

TABLE IV.H-8
ESTIMATED FUTURE CNEL

No.	Monitoring Location	Noise Level (dBA, CNEL)			Signif. Impact?
		Existing (2004)	No Project (2007)	With Project (2007)	
1	Sierra Canyon Secondary School Classroom Building	66	71	72	No
2	Single-Family Residences on Lurline Ave.	54	66	68	No
3	Single-Family Residences south of Rinaldi St.	66	69	70	No
4	Single-Family Residences north of Rinaldi St.	71	73	73	No
5	Single-Family Residences on De Soto Ave.	76	76	76	No

Assumptions:
- Vehicular traffic is the predominant noise source.
- The 24-hour trip distribution is 81 percent between the hours of 7:00 AM and 7:00 PM, 12 percent between the hours of 7:00 PM and 10:00 PM, and 7 percent between the hours of 10:00 PM and 7:00 AM
- The distribution of vehicle types is 88 percent automobiles, 7 percent medium trucks, and 5 percent heavy trucks.

SOURCE: Terry A. Hayes Associates LLC, December 2004 (Appendix D) of this Draft EIR).

The noise level at the residences on Lurline Avenue (receptor no. 2) is within the "normally acceptable" and "conditionally acceptable" category under the "existing," "no project," and "with project" conditions. According to the significance criteria, if ambient noise levels are within the "normally acceptable" or "conditionally acceptable" category, a significant impact would occur if the proposed project causes the ambient noise level measured at the property line of the affected use to increase by five or more dBA (CNEL). As shown in **Table IV.H-8**, the proposed project would incrementally increase noise levels at receptor no. 2 by two dBA (CNEL), which is below the significance threshold. Thus, impacts at this receptor location would also be less than significant.

The proposed school would have two entrances from the future extension of Rinaldi Street. The west entrance would be located on the north side of the Rinaldi Street extension, near the western property line, approximately 480 feet from De Soto Avenue. The east entrance would be located on the north side of the Rinaldi Street extension, approximately 250 feet southwest of the northern property line. It is anticipated that vehicles entering and exiting the project site via these driveways could increase ambient noise levels at sensitive receptors in the area. According to the traffic study prepared for the project (included as Appendix I of this Draft EIR), more vehicle trips would be generated during the morning peak hour (304 trips) than during the evening peak hour (88 trips). Thus, in order to analyze the worst-case, the one-hour average noise levels at sensitive receptors were calculated for the AM peak hour, when students, parents, and employees are entering and exiting the project site.

As shown in **Table IV.H-9**, ambient noise levels during the AM peak hour would range from 62 to 77 dBA (L_{eq}) at the sensitive receptors. Ambient noise levels under the proposed project are anticipated to incrementally increase by one dBA (L_{eq}) at all receptors when compared to the "no project" condition. This increase would not exceed the significance threshold of a five or more dBA (L_{eq}) increase. Thus, impacts would be less than significant.

TABLE IV.H-9
ESTIMATED FUTURE AM PEAK HOUR NOISE LEVELS

No.	Monitoring Location	Noise Level (dBA, L_{eq})			Signif. Impact?
		Existing (2004)	No Project (2007)	With Project (2007)	
1	Sierra Canyon Secondary School Classroom Building	54	61	62	No
2	Single-Family Residences on Lurline Ave.	48	63	64	No
3	Single-Family Residences south of Rinaldi St.	52	62	63	No
4	Single-Family Residences north of Rinaldi S.	60	65	66	No
5	Single-Family Residences on De Soto Ave.	76	76	77	No

Assumptions:
- Vehicular traffic is the predominant noise source.
- The distribution of vehicle types is 88 percent automobiles, 7 percent medium trucks, and 5 percent heavy trucks.

SOURCE: Terry A. Hayes Associates LLC, December 2004 (Appendix D of this Draft EIR).

Proposed Parking Level Noise

The proposed project would provide 236 parking spaces in an on-grade parking level located along the southern, southwestern, and eastern portions of the site (at the Rinaldi Street extension). This parking level would be nested into the existing slope at the northern and western portions of the site. However, the southern, southwestern, and eastern portion of the parking level would be visible to residences to the south, west, and east of the project site. Thus, it is possible that noise from the parking level would increase ambient noise levels at these residential uses.

Noise generated from the proposed parking level could include car alarms, car radios, car doors slamming, tire squeals, and people talking, shouting, and laughing. Noise from these sources, although intermittent and short-term in nature, could be audible at sensitive receptors in the area. Among these noise sources, the car alarm would be the loudest potential source. Car alarms can emit a noise level of approximately 100 dBA at a distance of 10 feet. Thus, car alarms would emit a single-event noise level of approximately 69 dBA at the residential uses south of Rinaldi Street, which are located approximately 130 feet from the project site.[5] At the residences north of Rinaldi Street, which are approximately 250 feet from the project site, car

[5] Assumes noise is traveling across a hard site since the Rinaldi Street extension would be located between the parking level and the residences south of Rinaldi Street.

alarms would emit a single-even noise level of approximately 47 dBA.[6] At the residences on Lurline Avenue, which are approximately 140 feet from the project site, car alarms would emit a single-event noise level of approximately 49 dBA.[7] The existing ambient noise levels at these receptor locations with completion of the Rinaldi Street extension are projected to be approximately 62, 65, and 63 dBA (L_{eq}), respectively, as shown in **Table IV.H-2**. Since ambient noise levels at each of these residential locations would be lower than noise generated by the car alarms, it is likely that activated car alarms in the parking level would be audible at these residences.

Noise from car alarms would occur infrequently and sporadically. Furthermore, although the residences south and north of Rinaldi Street and on Lurline Avenue would be able to hear the car alarms when in use, they would not emit noise often enough to incrementally increase the aggregate hourly noise levels by five dBA or more. Specifically, assuming that a car alarm would generate noise for approximately two minutes within a one-hour period, the ambient noise levels would incrementally increase by less than one dBA (L_{eq}). Thus, no significant impacts to the surrounding sensitive receptors, including the residences south and north of Rinaldi Street and on Lurline Avenue, would occur as a result of operation of the parking level.

Interior Noise Levels in the Proposed Classroom Building

As shown in **Table IV.H-8**, the exterior noise level at the proposed classroom building is anticipated to be approximately 72 dBA (CNEL) under "with project" conditions. Therefore, it is likely that the interior noise level in proposed classrooms would exceed the City of Los Angeles interior noise standard of 45 dBA (CNEL). Thus, noise insulation features would be required in the design of the proposed classroom building. Prior to implementation of such measures, impacts would be significant.

Noise from School Chimes and Public Address System

The proposed project would require the use of school chimes and a public address system for the daily operation of the school and school events. The chimes and the speakers for the public address system would likely be distributed along the exterior and interior walls of the school buildings. The chimes located outside of the school buildings would be used during a typical school day indicating the commencement and conclusion of classes. The ambient noise level on the project site under the "with project" condition is projected to be approximately 62 dBA (L_{eq}). To be clearly intelligible, the school chimes and public address system must generate a sound pressure level of at least ten dBA above the background noise level. Thus, the chimes and public announcement system would have to generate a noise level of at least 72 dBA.

The nearest residences with a direct line-of-sight to the project site are located south of Rinaldi Street, approximately 130 feet south of the project site.[8] At this distance, the chime and public address system would emit a noise level of approximately 64 dBA. Ambient noise levels at these residences are projected to be approximately 62 dBA (L_{eq}) after completion of the Rinaldi

[6] Assumes noise is traveling across a soft site since the area between the project site and these residences is largely comprised of dirt.

[7] Assumes noise is traveling across a soft site since the area between the project site and these residences is largely comprised of grass.

[8] There is currently a wall located along the southern portion of Rinaldi Street (from De Soto Avenue to Oklahoma Avenue), blocking the line-of-site between the project site and the residences in this area. No barriers exist to the east of Oklahoma Avenue. Thus, residences to the east of Oklahoma Avenue, including the residences at the Oklahoma Avenue cul-de-sac and Nashville Street, would have a direct line-of-site to the project site.

Street extension but prior to construction of the proposed project. Since noise from the chimes and public address system would be higher than ambient noise level, it is likely that the chime and public address system would be audible at these residents. As such, noise from the chimes and public address system could be a nuisance to the affected residents.

Assuming that the chime system would be utilized twice an hour during a typical school day to signify the beginning and end of classes, it is estimated that the chime system would incrementally increase the aggregate hourly noise level by less than one dBA (L_{eq}) at the residences south of Rinaldi Street. Although the chimes would be audible when they are being used, they would not emit noise often enough to incrementally increase the aggregate hourly noise levels by five or more dBA (L_{eq}). Thus, impacts would be less than significant.

The public address system would likely be used primarily for special events and school assemblies. When the exterior public address system is being used, ambient noise levels at the residences south of Rinaldi Street are anticipated to incrementally increase by approximately two dBA (L_{eq}), which is below the five dBA (L_{eq}) significance threshold.[9] Thus, impacts would be less than significant.

Residences to the west and east of the project site are located farther from the site than residences to the south. Thus, it is reasonable to assume that the chimes and public address system would emit less noise at these locations than the location discussed above and impacts would be less than significant.

Equestrian Trail Noise

An equestrian trail is being proposed along the western perimeter of the project site. Horses trotting or whinnying on the equestrian trail has the potential to generate noise levels that could be a nuisance to students when school is in session. Uses that are proposed along or close to the site's western boundary include the aquatics center, the administration building, the performing arts center, and the campus plaza. None of these uses are noise-sensitive. The noise-sensitive uses on the project site (i.e., classrooms and library) would be located approximately 170 feet east of the equestrian trail. Given the distance of the classrooms and library from the equestrian trail, it is not likely that noise from the trail would incrementally increase ambient noise levels at the proposed classrooms or library, or would pose any disturbance to a quiet learning environment. Thus, impacts would be less than significant.

Event Noise

Special events, such as athletic events, school dances, and graduation, are likely to increase noise levels on the project site and in the surrounding area. Special events would be held at various locations on the project site. Noise impacts associated with special events at these different locations are discussed below.

Athletics Center

An athletics center is proposed to be developed on the eastern portion of the project site. The proposed athletics center would include a gymnasium that would provide pull-out bleachers with

[9] Assumes that the public announcement system would emit noise 100 percent of the time during an event or assembly.

1,180 seats. Events that would occur in the athletics center include school dances exercises and athletics events.

Although activities occurring in the athletics center are within an enclosed area, these activities have the potential to increase noise levels in the surrounding areas, particularly when the doors to the athletics center are open. The athletics center would have three entrances, located on the north, northwest, and southwest sides of the building. Only the doors on the southwest side of the building would have a direct line-of-sight to any of the surrounding residential uses. However, these doors provide access to the hallways of the athletics center rather than directly to the gymnasium, where noise-producing events would take place. Thus, it is not likely that noise generated within the gymnasium would be noticeably audible at residences surrounding the project site, and no significant impacts would occur.

Although events at the athletic center would occur indoors, some activities, such as students and faculty entering and exiting an event and students socializing, may occur outside of the athletics center. These activities have the potential to emit noise levels that could be heard at nearby residences and could be considered a nuisance. Mitigation measures are proposed to ensure that noise generated outside of the athletics center would be less than significant.

Performing Arts Center

The proposed performing arts center would consist of a 600-seat auditorium. Activities that would take place in the auditorium include student plays and concerts. Similar to the athletics center, activities occurring in the performing arts center would occur indoors. The performing arts center would have two doors, located on the northeast side of the building and on the southeast side of the building. Only the doors on the southeast side would have a direct line-of-sight to nearby residences. However, as with the athletics center, these doors provide access to the hallways of the performing arts center rather than directly to the auditorium. Thus, noise emanating from within the auditorium would not likely be audible at the surrounding residences. Thus, impacts at these residences would be less than significant.

Although events at the performing arts center would occur indoors, it is likely that some activities may occur outside of the performing arts center, similar to those discussed above under the athletics center. These activities have the potential to emit noise levels that could be audible at nearby residences and could be considered a nuisance. Mitigation measures are proposed to ensure that noise generated outside of the performing arts center would be less than significant.

Aquatics Center

The proposed aquatics center, which would be located in the northern portion of the project site, would have bleachers to accommodate approximately 80 people. Given that activities occurring at the aquatics center would take place outdoors, it is possible that events at the aquatics center would increase noise levels in the surrounding area. Possible noise sources include yells, whistles, and cheers. The proposed classroom building and athletics center would block the line-of-site between the aquatics center and most of the residences to the south and east of the site. As such, only a few residences on Lurline Avenue would have a direct-line of sight to the aquatics center. It is likely that instantaneous crowd noise would be audible at these residences. Assuming the maximum crowd size of approximately 80 people, an event at the aquatics center would likely generate an aggregate hourly noise level of approximately 68 dBA

(L_{eq}).[10] At the nearest residences with a direct line-of-sight to the aquatics center (approximately 500 feet to the east, on Lurline Avenue), an event at the aquatics center would likely generate a noise level of approximately 48 dBA (L_{eq}). The ambient noise level at the residences on Lurline Avenue is projected to be approximately 63 dBA (L_{eq}) upon completion of the Rinaldi Street extension. Given the distance of the aquatics center from the residences, it is anticipated that ambient noise levels at residences with a direct line-of-sight to the aquatics center would remain unchanged. Thus, impacts would be less than significant.

Campus Plaza

Outdoor activities, such as pep rallies, lunch, graduation, grade level ceremonies, physical education, and school assemblies, could be held at the proposed campus plaza. These activities would likely increase noise levels on the project site and in the surrounding area. It is possible that all of the 550 proposed students could be in the campus plaza at one time. A crowd of 550 people can emit a noise level of approximately 92 dBA at a distance of five feet.[11] Noise sources (e.g., people conversing) would likely be spread throughout the plaza, rather than be concentrated in one area. To represent overall noise levels that could be emitted from the campus plaza, it is assumed that most of the noise would come from the center of the campus plaza, which is approximately 500 feet from the residence on Lurline Avenue, which is the nearest receptor with a direct line-of-sight to the campus plaza. Activities occurring on the campus plaza would emit a noise level of approximately 32 dBA at these residences.[12] The ambient noise level at these residences is projected to be approximately 63 dBA when the Rinaldi Street extension is completed. Activities at the campus plaza would result in an incremental increase in the ambient noise levels at these residences of less than one dBA (L_{eq}), which would not exceed the significance threshold of a five or more dBA increase (L_{eq}). Thus, impacts would be less than significant.

MITIGATION MEASURES

CONSTRUCTION

The following mitigation measures are proposed to minimize impacts associated with on-site construction activities:

IV.H-1 Construction contracts shall specify that all construction equipment shall be equipped with mufflers and other suitable noise attenuation devices.

IV.H-2 All residential units within 600 feet of the construction site shall be sent a notice regarding the construction schedule of the proposed project. A sign, legible at a distance of 50 feet shall also be posted at the construction site. All notices and the signs shall indicate the dates and duration of construction activities, as well as provide a telephone number where residents can inquire about the construction process and register complaints.

[10] Noise levels are based on the assumption that an athletic event with a crowd the size of 17,400 would emit a noise level of approximately 90 dBA (Leq) and that noise would be traveling across a hard site since much of the project site would be built with hard surfaces.

[11] Noise levels are based on the assumption that a person speaking would emit a noise level of approximately 65 dBA at a distance of five feet.

[12] Assumes noise is traveling across a soft site since the area between the project site and residences on Lurline Avenue is comprised of grass.

IV.H-3 A "noise disturbance coordinator" shall be appointed. The disturbance coordinator shall be responsible for responding to any local complaints about construction noise. Upon receipt of any complaints, the disturbance coordinator shall determine the cause of the noise complaint (e.g., starting too early, bad muffler, etc.) and shall implement reasonable measures to resolve the complaint. All notices that are sent to residential units within 600 feet of the construction site and all signs posted at the construction site shall list the telephone number for the disturbance coordinator.

IV.H-4 Pursuant to the City of Los Angeles Municipal Code, Chapter IV, Section 41.40, construction shall be limited to between the hours of 7:00 AM and 9:00 PM Monday through Friday. Should construction occur on Saturdays or on a national holiday, construction shall be limited to between the hours of 8:00 AM and 6:00 PM Construction shall not occur at anytime on Sunday.

IV.H-5 A temporary noise barrier, such as acoustical blankets, shall be placed along the perimeter of the construction site where there is an unobstructed line-of-sight to sensitive receptors (i.e., residences to the west, south, and east and the proposed classroom building). The noise barrier shall have a sound transmission class (STC) rating of no less than 25 and shall be tall enough to block the line of sight between activities occurring on the construction site and sensitive receptors.

OPERATION

IV.H-6 Appropriate design features shall be incorporated to ensure that the interior noise levels at the proposed classrooms and library do not exceed 45 dBA (CNEL). Possible noise insulation features include, but are not limited to, installation of dual-paned windows, use of mechanical ventilation so no windows need to be opened to satisfy fresh air requirements, and additional insulation.

IV.H-7 To the maximum extent feasible, the sound path of school chimes shall be directed away from residential uses and school bells shall not be placed on structures or walls of buildings that face residential uses.

IV.H-8 When special events are scheduled on campus, the school shall provide residents within 600 feet of the project site a telephone number for residents to register complaints pertaining to such events. Personnel with the authority to control student activities, such as the school head of operations or headmaster, shall cease activities that are related to the complaints, as feasible, or adjust the hours of activities, as needed.

CUMULATIVE IMPACTS

CONSTRUCTION

As outlined in Section IV, Environmental Setting, of this Draft EIR, 30 related projects have been identified within the project area. Noise from construction of these projects, as with the proposed project, would be localized, potentially affecting only the areas immediately surrounding each of the project sites. Furthermore, due to distance attenuation, construction noise on one site would not likely result in a noticeable increase in noise at receptors for another site. In addition, all of the related project would be subject to noise-limiting mitigation measures similar to the proposed project. Thus, cumulative construction noise impacts would be less than significant.

OPERATION

In addition to traffic growth resulting from the 30 related projects outlined in Section IV, Environmental Setting, of this Draft EIR, the traffic study assumed that traffic would grow by approximately two percent per year to account for traffic increases from projects not yet proposed or projects that are outside of the study area. Thus, future traffic volumes with and without the proposed project already account for the cumulative impacts from these other projects. These volumes were used to determine whether the proposed project would contribute to cumulative noise impacts by comparing year 2007 "with project" conditions to "existing" conditions.

As shown in **Table IV.H-8**, the proposed project is anticipated to incrementally increase noise levels by approximately two dBA (CNEL) over a 24-hour period at the residences north of Rinaldi Street (receptor no. 4) and by less than one dBA (CNEL) at the residences on De Soto Avenue (receptor no. 5) as compared to "existing" conditions. These incremental increases would not exceed the significance threshold of a three dBA (CNEL) or more increase in ambient noise levels when the affected use is within the "normally unacceptable" and "conditionally unacceptable" category of the Land Use Compatibility Chart (**Table IV.H-4**).

Noise levels under the proposed project are anticipated to incrementally increase by approximately six dBA at the proposed Sierra Canyon Secondary School classroom building (receptor no. 1), by 14 dBA at the residences on Lurline Avenue (receptor no. 2), and by four dBA at the residences south of Rinaldi Street (receptor no. 3) as compared to "existing" conditions. Most of these increases in noise levels would be caused by annual traffic growth and other projects in the area. The proposed project would contribute approximately one dBA (CNEL) of the cumulative noise level at the proposed classroom building and the residences south of Rinaldi Street (receptor nos. 1 and 3) and approximately two dBA (CNEL) at the residences on Lurline Avenue (receptor no. 2). Project-related noise contributions would not be perceptible to the general public. However, at the residences south of Rinaldi Street (receptor no. 3), the project's one dBA (CNEL) contribution would cause ambient noise levels to fall within the "normally unacceptable" and "clearly unacceptable" category of the Land Use Compatibility Chart. Thus, the proposed project would contribute to significant cumulative noise impacts over a 24-hour period, and is thus considered cumulatively significant.

As shown in **Table IV.H-9**, noise levels during the AM peak hour are anticipated to incrementally increase by eight dBA (L_{eq}) at the proposed classroom building (receptor no. 1), 16 dBA (L_{eq}) at the residences on Lurline Avenue (receptor no. 2), 11 dBA (L_{eq}) at the residences south of Rinaldi Street (receptor no 3), six dBA (L_{eq}) at the residences north of Rinaldi Street (receptor no. 4), and one dBA (L_{eq}) at the residences on De Soto Avenue (receptor no. 5) when "with project" conditions are compared to "existing" conditions. Most of these increases would be as a result of traffic that is not generated by the proposed project. However, because of increases which exceed five dBA, cumulatively significant impacts would occur with or without the proposed project. The proposed project itself would only contribute to approximately one dBA of the cumulative noise levels at each of these locations, which would not be perceptible to the general public, and noise levels would still exceed the significance threshold of a five or more dBA (L_{eq}) increase even if the proposed project was not implemented. Although the proposed project would not exceed the significance threshold of a five or more dBA (L_{eq}) increase over the ambient noise level, significant cumulative impacts would still occur during peak hours.

LEVEL OF SIGNIFICANCE AFTER MITIGATION

CONSTRUCTION

Topographical and meteorological conditions affect sound wave propagation and the effectiveness of the mitigation measures. As previously illustrated in **Table IV.H-6**, mufflers on construction equipment can reduce noise levels from one to three dBA. Temporary noise barriers, such as acoustical blankets with an STC rating of at least 25 typically reduce noise levels by 15 to 40 dBA at a distance of 50 feet if the line-of-sight between the noise source and receiver is blocked. **Table IV.H-10** shows the estimated construction noise level with the use of mufflers and temporary noise barriers, as prescribed by Mitigation Measures IV.H-1 and IV.H-5.

TABLE IV.H-10
CONSTRUCTION NOISE LEVELS WITH INCORPORATION OF MITIGATION MEASURES (EQUIPMENT MUFFLERS AND ACOUSTICAL BLANKETS)

No.	Monitoring Location	Distance (feet)[1]	Noise Level[2]	Existing Ambient[3]	New Ambient[4]	Increase	Signif. Impact?
1	Proposed Classroom Bldg.	50	71	61	64	3	No
2	Residences on Lurline Ave.	140	62	63	63	<1	No
3	Residences south of Rinaldi St.	130	63	62	62	<1	No
4	Residences north of Rinaldi St.	250	57	65	65	<1	No
5	Residences on De Soto Ave.	600	49	76	76	<1	No

1 Distance of noise source from receptor.
2 Construction noise sound level (dBA) at receptor location.
3 Pre-construction ambient noise level at receptor location with completed Rinaldi Street Extension.
4 New sound level at receptor location during the construction period, including noise from construction activity, with implementation of proposed mitigation measures.

SOURCE: Terry A. Hayes Associates LLC, December 2004 (Appendix D of this Draft EIR).

With implementation of these mitigation measures, ambient noise levels would range from 62 to 76 dBA at sensitive receptors during construction of the project, as shown in **Table IV.H-10**. As a result, ambient noise levels at all of the receptor locations would incrementally increase by less than one to three dBA, which would not exceed the significance threshold of a five dBA or more increase over the existing ambient noise level. Thus, the significant construction noise impacts at the proposed Sierra Canyon Secondary School Classroom Building, the single-family residences on Lurline Avenue, and the single-family residences south of Rinaldi Street would be reduced to less than significant levels. Mitigation Measures IV.H-2 through IV.H-4 would further ensure that construction-related noise impacts would be less than significant.

OPERATIONAL

Traffic Noise

Implementation of the proposed project would not result in significant traffic noise impacts. However, Mitigation Measure IV.H-6 would further ensure that noise-sensitive uses on the

project site, such as the classrooms and library, would not be exposed to excessive traffic noise. Thus, less than significant traffic noise impacts would occur.

Parking Level Noise

Noise generated from the proposed parking level (e.g., car alarms) would not be emitted often enough to incrementally increase the aggregate hourly noise levels by five or more dBA (L_{eq}) at nearby sensitive receptors. Thus, impacts associated with operation of the proposed parking level would be less than significant.

Interior Noise at Proposed Classroom Building and Library

Implementation of Mitigation Measure IV.H-6 would ensure that the proposed classrooms and library would experience an interior noise level of no more than 45 dBA (CNEL), per the City of Los Angeles interior noise standard. With implementation of this mitigation measures, less than significant impacts associated with interior noise levels would occur.

Noise from Chime and Public Address System

The chimes associated with school operation and the public address system would not generate enough noise to result in a significant impact. However, Mitigation Measure IV.H-7 is proposed to ensure that noise generated by these project elements would be directed away from nearby residences to the fullest extent feasible. Impacts associated with the operation of these systems would be less than significant.

Noise from Equestrian Trail

Noise-sensitive uses on the project site (i.e., the proposed classrooms and library) are located approximately 170 feet east of the proposed equestrian trail. Given the distance of these uses from the trail, it is not likely that noise from the trail would incrementally increase ambient noise levels at the proposed classrooms and library. Thus, impacts associated with noise from the equestrian trail would be less than significant.

Noise from Special Events

Noise levels generated outside the athletics center and performing arts center during special events could increase ambient noise levels at nearby sensitive receptors. Mitigation Measure IV.H-8 would ensure that exterior noise generated during special events at these facilities would be minimized at nearby residences by addressing potential problems as they arise, thereby maintaining incremental increases in noise levels at less than five dBA (L_{eq}). Thus, less than significant impacts associated with noise from special events would occur.

Overall, no unavoidable significant project-related noise impacts would occur during construction or operation of the project.

Additionally, the project's contribution to noise levels at the proposed classroom building, the residences on Lurline Avenue, the residences north of Rinaldi Street, and the residences on De Soto Avenue would be less than significant. However, the project's one dBA (CNEL) contribution would cause the noise levels at the residences south of Rinaldi Street (receptor no. 3) to fall within the "normally unacceptable" and "clearly unacceptable" category of the Land Use Compatibility Chart. Thus, the proposed project would contribute to significant cumulative noise

impacts over a 24-hour period at this location. This impact is considered cumulatively significant and unavoidable.