Correia Middle School Sports Complex Project
Draft EIR

Appendix E

Noise Study

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NOISE STUDY

Correia Middle School Sports Complex Expansion Project

City of San Diego CA

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GLOSSARY OF TERMS

Sound Pressure Level (SPL): a ratio of one sound pressure to a reference pressure (L_{ref}) of 20 µPa. Because of the dynamic range of the human ear, the ratio is calculated logarithmically by 20 log (L/L_{ref}).

A-weighted Sound Pressure Level (dBA): Some frequencies of noise are more noticeable than others. To compensate for this fact, different sound frequencies are weighted more.

Minimum Sound Level (L_{min}): Minimum SPL or the lowest SPL measured over the time interval using the A-weighted network and slow time weighting.

Maximum Sound Level (L_{max}): Maximum SPL or the highest SPL measured over the time interval the A-weighted network and slow time weighting.

Equivalent sound level (L_{eq}): the true equivalent sound level measured over the run time. Leq is the A-weighted steady sound level that contains the same total acoustical energy as the actual fluctuating sound level.

Day Night Sound Level (LDN): Representing the Day/Night sound level, this measurement is a 24 –hour average sound level where 10 dB is added to all the readings that occur between 10 pm and 7 am. This is primarily used in community noise regulations where there is a 10 dB "Penalty" for night time noise. Typically LDN's are measured using A weighting.

Community Noise Exposure Level (CNEL): The accumulated exposure to sound measured in a 24-hour sampling interval and artificially boosted during certain hours. For CNEL, samples taken between 7 pm and 10 pm are boosted by 5 dB; samples taken between 10 pm and 7 am are boosted by 10 dB.

Octave Band: An octave band is defined as a frequency band whose upper band-edge frequency is twice the lower band frequency.

Third-Octave Band: A third-octave band is defined as a frequency band whose upper band-edge frequency is 1.26 times the lower band frequency.

Response Time (F,S,I): The response time is a standardized exponential time weighting of the input signal according to fast (F), slow (S) or impulse (I) time response relationships. Time response can be described with a time constant. The time constants for fast, slow and impulse responses are 1.0 seconds, 0.125 seconds and 0.35 milliseconds, respectively.

EXECUTIVE SUMMARY

This noise study has been completed to determine the noise impacts associated with the construction or operational activities from the Correia Sports Field renovation project at the Correia Middle School site in the City of San Diego. The proposed project is the construction and operation of a new Sports Complex on the Correia Middle School campus. The complex would include an improved baseball field (including additional bleachers and a concession stand with restroom facilities), track and field facilities (including a long jump pit), four multi-purpose fields (including artificial turf with an irrigation type cooling system), new classroom and restroom buildings, and installation of ten field lighting poles and fixtures.

Operational Noise Levels

Based upon the property line noise levels determined for the Project none of the proposed noise sources directly or cumulatively exceeds the property line standards at the property lines. Therefore, the proposed development related operational noise levels comply with the City's most restrictive daytime, evening and nighttime noise standards. No impacts are anticipated and no mitigation is required.

Transportation Noise Levels

The Project does not create a direct impact of more than 3 dBA CNEL on any roadway segment and no cumulative noise increase of 3 dBA CNEL or more was found. Therefore, the proposed Project's direct and cumulative contributions to off-site roadway noise increases will not cause any significant impacts to any noise sensitive land uses.

Construction Noise Levels

The construction equipment will be spread out over the project site with some equipment working near the property line while other operations are located as far as 400 feet from the same property line. Based upon the findings even if all the equipment was located, at a distance as close as 100 feet from the nearest property line, which is not physically possible, the combined noise level would be less than 75 dBA. Given this and the spatial separation of the equipment, the noise levels will comply with the City of San Diego's 75 dBA 12-hour standard and no impacts will occur and no mitigation measures are required.

Construction activities may occur during a sensitive habitat nesting/breeding season. The nearest sensitive habitat area is located to the north at the Famosa Slough, 425 feet from the nearest construction activities. At a distance of 425 feet the worst-case construction noise level would be 60 dBA Leq if all the equipment was working within the same location, which is not physically possible. The equipment will be spread out throughout the site reducing the overall noise levels at the habitat area. Thus, the construction noise levels would be below the 60 dBA Leq threshold.

1.0 PROJECT INTRODUCTION

1.1 Purpose of this Study

The purpose of this Noise study is to determine both construction and operational impacts (if any) generated from the proposed project to offsite uses. Should impacts be determined, the intent of this study would be to recommend suitable mitigation measures classify impacts as less then significant.

1.2 Project Location

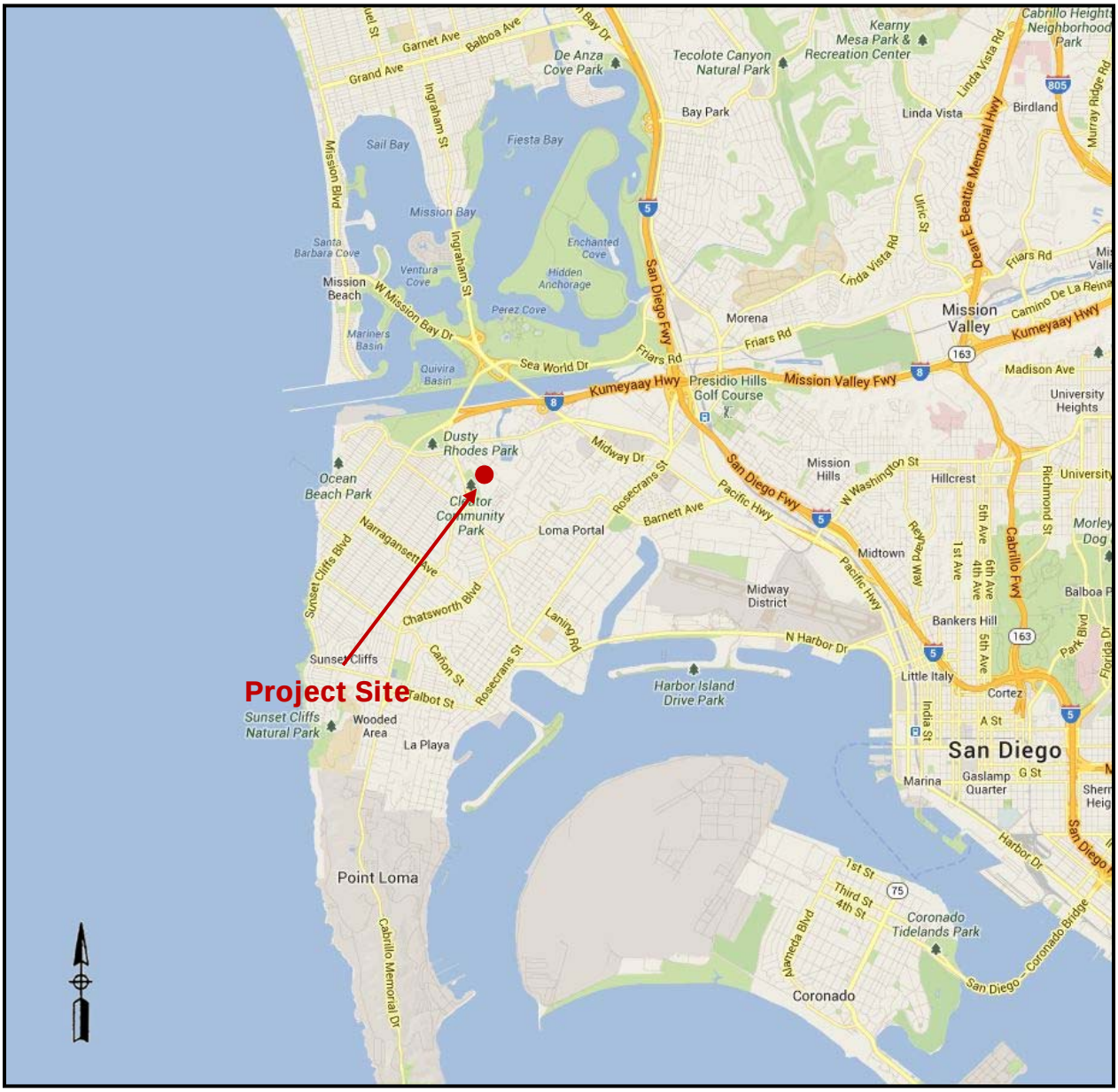
The proposed project is located on the San Diego Unified School District's Correia Middle School Campus within the City of San Diego. The project is bounded by Famosa Boulevard to the southeast, Valeta Street to the northeast, and a park along Nimitz Boulevard to the southwest. Access to the project is provided via Valeta Street. A general project vicinity map is shown in Figure 1–A on the following page.

1.3 Project Description

The Proposed Project is the construction and operation of a new Sports Complex on the Correia Middle School campus. The complex will include: 1) a natural turf softball field that can also accommodate field sports in the outfield area; 2) an artificial turf play field with multiple markings for either one football field or a combination of two other field sports; and, 3) a hard court play area. Additional project features will include: a long jump pit; a classroom/team room building; a restroom/ concession/storage building; sports field lighting of the natural and artificial turf play areas; a new paved pedestrian walkway connecting the different sports venues; a new electrical service; new field irrigation and cooling infrastructure; and, landscaping.

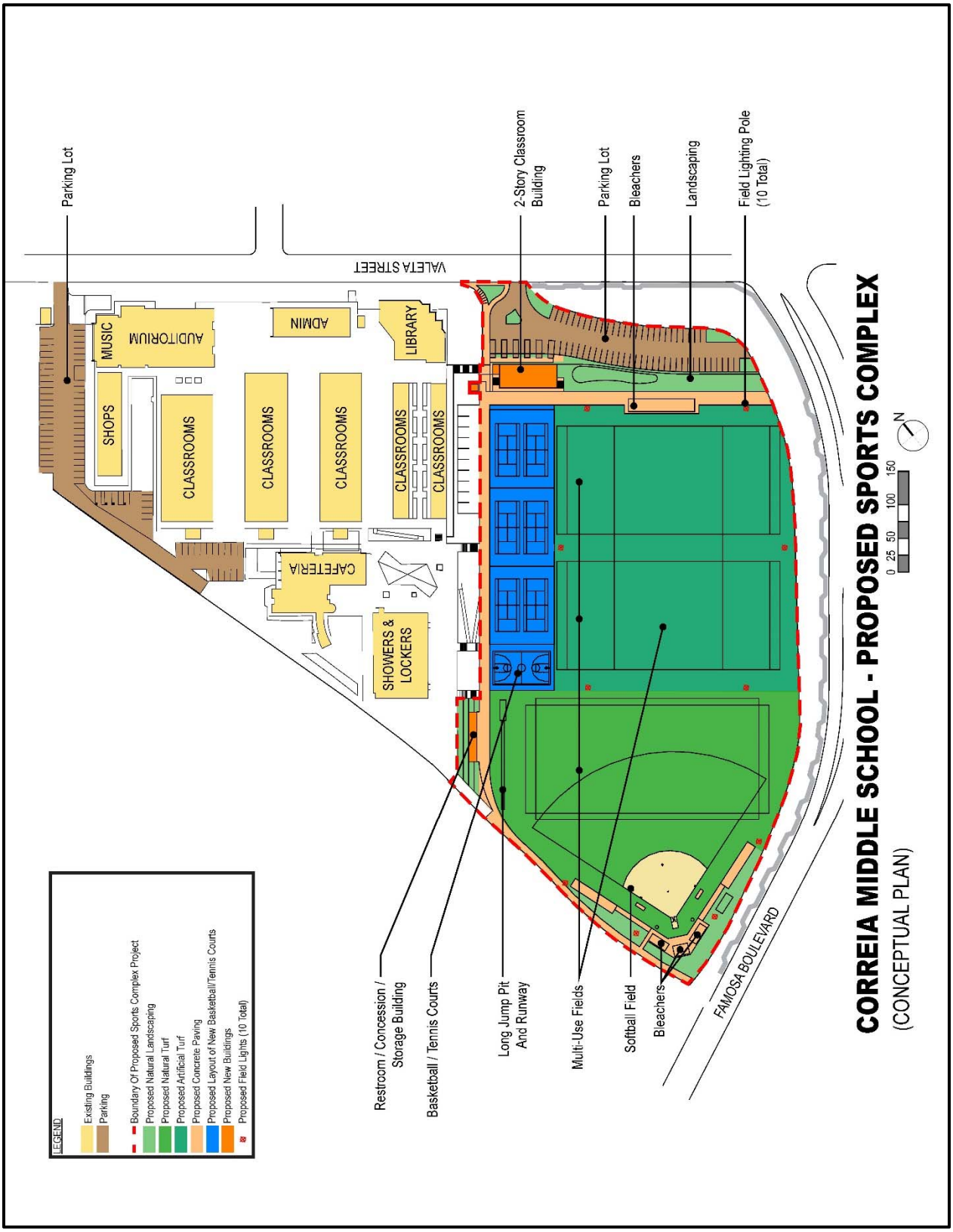
During school hours, the Proposed Project will only be available for use by Correia students. After school hours, the complex will be open to use by Correia students and limited use by Point Loma High School students, and could also be rented on a limited basis to public and private sports teams/clubs for community use on evenings and weekends in accordance with the District's Administrative Procedures No. 9205 and 9229. The Site plan is shown in Figure 1–B on Page 3 of this report. The physical layout of the proposed Sports Complex includes multi-use fields, a new baseball field, new hard courts, long jump pit, new buildings, field lighting, and new landscaping.

Figure 1-A: Project Vicinity Map



Source: Google Maps, 2013

Figure 1-B: Proposed Site Layout



The following describes the specific development components proposed within the new complex:

1. Multi-use Fields

   The artificial turf portion of the sports complex will be provided with markings for two parallel playfields with their long dimensions in the northwest/southeast orientation and a superimposed playfield with its long dimension oriented in the southwest/northeast direction. The parallel fields will be marked for lacrosse (330′ long x 180′ wide), soccer (300′ long a 180′ wide) and field hockey (300′ long x 180′ wide) and the perpendicular field will be marked for football (360′ long x 160′ wide). All fields meet the size requirements of the National Federation of State School Association's standards for competitive play areas;

   The equipment for the multi-use fields will include: removable football goal posts; removable soccer goals; removable lacrosse goals; removable field hockey goals; and, associated corner markers for each sport, as appropriate; and, One set of portable five (5) row aluminum bleachers (300 seats) will be placed along the northeastern end of the multi-use field.

2. Softball Field (replace the existing baseball field)

   The natural turf portion of the sports complex will include a softball field with: 60′ base paths; a 250′ outfield fence line; and 25′ wide foul areas. The softball field will be positioned so that the turf area beyond the skinned infield can be used to accommodate field sport play, including football (360′ x 160′) or an oversized soccer field (360′ x 200′);
   The softball field will be provided with: an illuminated scoreboard; roofed dugouts and fence-enclosed bullpens; and new aluminum bleachers (not to exceed the seating capacity of the existing baseball field currently occupying the site [approximately 200 seats.

3. Hard Court Area

   Six tennis courts with fence enclosure; and,
   One basketball court.

4. Field Lighting

Based on preliminary design, ten light poles are proposed to provide field lighting at multiple locations within the field. Figure 1-3 depicts the proposed location of each of the poles. Pole heights will range from 70 and 80 feet in height (2 @ 70' and 8 @ 80'). Each pole will support an array of 5-12 1,500W light fixtures (total of 92 fixtures). In addition, each fixture will be fitted with an external visor to reduce glare and a reflective insert to focus light onto the playing field.

5. Additional Features

Long jump pit and runway, including a rubberized runway and a sand landing pit; Approximately 6,200 square foot two-story classroom/team room building and related parking lot improvements (this building will replace two existing portable classroom buildings and one portable restroom located in the same area);

Approximately 1,000 square foot concession/restroom/equipment storage building located for convenient access to and from the play fields and spectator areas;

A handicap accessible concrete walkway extending from the sports complex entrance to the softball field, the multi-use play areas and the hard court area as well as the two new buildings; and,

A new 480 volt electrical service to provide the power required for the field lighting and the new structures.

1.4 Sports Complex Operations

Currently, athletic events at Correia Middle School are possible only during daylight hours. These existing events include school physical education programs and softball games. With development of the Proposed Project, the new permanent field lighting will allow for sporting events, such as team practices and community league sports team events to be held at night after school hours. In addition, the Proposed Project will be available for weekend rentals by non-school related sports leagues as allowed under the District's Administrative Procedures No. 9205 and 9229 (i.e., soccer, youth sports, etc), as well as special District events such as school graduation events.

As such the Proposed Project is anticipated to accommodate expanded uses of the facility. These uses can include school related practices and competitions (games); special events such as graduation and pep rallies; community uses (like club sports) and events (such as ASB events); and other various uses. The expanded use of the Proposed Project is expected to occur due to increased demand (resulting from an expanding athletic program and because the new field may be preferred over other older fields) and because the lights will accommodate usage after sunset.

Approving and scheduling uses of the Proposed Project is under the ultimate authority of the Board of Education. However, the Principal will have responsibility for coordinating and scheduling day-to-day usage. The schedule for using the Proposed Project will have the potential to change every year as athletic programs expand and change, and as different community needs and events are identified. Therefore, it is difficult to forecast what the likely usage of the Proposed Project will be. In accordance with District Administrative Procedure No. 9205, school facilities are to be made available after 5 pm on school days and after 8 am on non-school days when the proposed outside use does not interfere with the District's educational program or maintenance of the facilities. Upon approval of the principal, school facilities may be made available before 5 pm on school days, even when school is in session, or before 8 am on non-school days, for groups and activities eligible for free use of facilities. Upon approval of the Rentals Office, Real Estate Department, facilities may be made available before 5 pm on school days after school is out for groups and activities not eligible for free use. The Proposed Project is proposed to be available for use any day of the week up until an 11:00 pm mandatory cutoff time for the lights. The typical uses associated with the Proposed Project are provided in Table 1-1. As shown in Table 1-1, various games, practices, and events are anticipated that would require the use of the field lights. Table 1-1 provides the typical ending time for those activities. The school would minimize the operation of the lights when they are not in use. The majority of these uses currently do not occur at the school but they are considered likely to occur with the implementation of the Proposed Project.

To provide a conservative assessment of potential impacts resulting from the use of the Proposed Project, this document considers the potential effects of usage of the complex on any day of the week. It was also assumed that the lights could be used any day up to 11:00 pm

Third Party Use of the Sports Complex

The District may allow third parties to utilize the Proposed Project. The District in July 2014 revised Administrative Procedure 9229 regarding use of District athletic fields and lighted stadiums in accordance with the Civic Center Act. Under the Civic Center Act, organizations, clubs, and associations formed for recreational, educational, political, economic, artistic or moral purposes are permitted by state law and district policy to use school buildings and grounds. "Civic Center use" must be subordinate to and not interfere with the instructional program or other public school purposes. Such use may be on either a free or a rental-charge basis. Upon receipt of a facilities use request from an outside group, the District shall consider whether the proposed use is appropriate for the requested facility; considering the potential impact on the school and the community, the availability of sufficient parking, security, custodial services, restrooms and other services needed to accommodate the use. The District may direct an outside group to that facility most appropriate for the proposed use, taking into account the above factors.

The Board of Education, in accordance with Administrative Procedure 9229, may adopt site-specific field use policies which take into consideration the specific needs and constraints of the campus; including the specific needs and practices of the school, the adequacy and condition of the facility, the physical location of the site, the needs of the community, the impact of the Proposed Project on the surrounding community, and the extent to which negative impacts to the surrounding community can be mitigated by the employment of reasonable restrictions. A site specific field use policy has not been developed for Proposed Project at Correia Middle School.

Sports Complex Weekly Usage Estimate

To provide a conservative assessment of potential impacts resulting from the use of the Proposed Project, this document considers the potential effects of usage of the Proposed Project for school or third parties on any day of the week. It was also assumed that the lights could be used any day up to 11:00 pm. The typical, but not limited to, uses associated with a Sports Complex are provided in Table 1-1. The majority of these uses currently do not occur at the school but they are considered likely to occur with the implementation of the proposed Sports Complex.

Table 1-1: Typical High School Stadium Usage

Use/Activity	Season	Number per Season*	Attendance	Typical Days	Typical Latest Time	Lights Likely to be Used
School District Uses						
Baseball Practice – Var, JV, Fresh	Any	Weekly	Low	Mon-Sat	8 pm	Y
Baseball Games– Var, JV, Fresh		150	Med	Mon-Sat	8 pm	Y
Correia Sports Teams		Weekly	Low	Mon-Sat	8 pm	Y
Graduation**	June	1	High	Any	6 pm	N
Other School Events	Any	>5	Med	Any	10pm	Y
Community Uses						
Youth Pop Warner Practice	Aug-Nov	70	Low	Mon-Sun	10pm	Y
Youth Pop Warner Game	Aug-Nov	5	Low-Med	Sat	10pm	Y
Youth Club Sports	Year round	Weekly	Low-Med	Any	10pm	Y
Adult Club Sports	Year round	Weekly	Low-Med	Any	10pm	Y
Community Events	Year round	Occasional	Low-Med	Any	10pm	Y

* All numbers are approximate.

**Graduation is an existing event at the school, there will be no change in this event.

Attendance: Low=<50; Med=50-300; High=300-1500+ attendees

Source: SDUSD and BRG Consulting, Inc., 2014.

To provide a conservative assessment of potential impacts resulting from the use of the proposed Sports Complex, this document considers the potential effects of usage of the complex on any day of the week. It was also assumed that the lights could be used any day up to 11 p.m. However, as shown on Table 1-1, even with a robust athletic program and some accommodation of other general uses, it is unlikely that intensive events, such as a highly attended event, will occur on a frequent basis.

The Proposed Project includes the following artificial lighting improvements: Musco Light-Structure Green™ sports lighting system throughout the site. Based on preliminary design, a total of ten light standards are proposed to be constructed on-site. Four (4) light standards will be constructed in the southern portion of the site to

illuminate the upgraded softball field. Six (6) lighting standards are proposed at the perimeter of the three multi-use fields in the northern portion of the site, with two (2) lighting standards occurring at the southwestern portion of the fields, two (2) lighting standards at the northeastern portion of the fields, and two (2) lighting standards proposed at the northwestern and southeastern edges of the field. In total, 92 luminaires will be installed on the ten lighting standards proposed as part of the Proposed Project. In addition, each fixture will be fitted with an external visor to reduce glare and a reflective insert to focus light onto the playing fields.

The light fixtures on the ten proposed lighting poles are designed to be fully shielded and directed onto the athletic fields with no light spillage onto adjacent property. A mandatory cutoff of 11 pm will be established for use of the lights. As noted in Table 1-1, the latest events are anticipated to end by approximately 10 pm.

2.0 ACOUSTICAL FUNDAMENTALS

Noise is defined as unwanted or annoying sound which interferes with or disrupts normal activities. Exposure to high noise levels has been demonstrated to cause hearing loss. The individual human response to environmental noise is based on the sensitivity of that individual, the type of noise that occurs and when the noise occurs.

Sound is measured on a logarithmic scale consisting of sound pressure levels known as a decibel (dB). The sounds heard by humans typically do not consist of a single frequency but of a broadband of frequencies having different sound pressure levels. The method for evaluating all the frequencies of the sound is to apply an A-weighting to reflect how the human ear responds to the different sound levels at different frequencies. The A-weighted sound level adequately describes the instantaneous noise whereas the equivalent sound level depicted as Leq represents a steady sound level containing the same total acoustical energy as the actual fluctuating sound level over a given time interval.

The Community Noise Equivalent Level (CNEL) is the 24 hour A-weighted average for sound, with corrections for evening and nighttime hours. The corrections require an addition of 5 decibels to sound levels in the evening hours between 7 p.m. and 10 p.m. and an addition of 10 decibels to sound levels at nighttime hours between 10 p.m. and 7 a.m. These additions are made to account for the increased sensitivity during the evening and nighttime hours when sound appears louder.

A vehicles noise level is from a combination of the noise produced by the engine, exhaust and tires. The cumulative traffic noise levels along a roadway segment are based on three primary factors: the amount of traffic, the travel speed of the traffic, and the vehicle mix ratio or number of medium and heavy trucks. The intensity of traffic noise is increased by higher traffic volumes, greater speeds and increased number of trucks.

Because mobile/traffic noise levels are calculated on a logarithmic scale, a doubling of the traffic noise or acoustical energy results in a noise level increase of 3 dBA. Therefore the doubling of the traffic volume, without changing the vehicle speeds or mix ratio, results in a noise increase of 3 dBA. Mobile noise levels radiant in an almost oblique fashion from the source and drop off at a rate of 3 dBA for each doubling of distance under hard site conditions and at a rate of 4.5 dBA for soft site conditions.

Hard site conditions consist of concrete, asphalt and hard pack dirt while soft site conditions exist in areas having slight grade changes, landscaped areas and vegetation. On the other hand, fixed/point sources radiate outward uniformly as it travels away from the source. Their sound levels attenuate or drop off at a rate of 6 dBA for each doubling of distance.

The most effective noise reduction methods consist of controlling the noise at the source, blocking the noise transmission with barriers. Any or all of these methods may be required to reduce noise levels to an acceptable level. To be effective, a noise barrier must have enough mass to prevent significant noise transmission through it and high enough and long enough to shield the receiver from the noise source. A safe minimum surface weight for a noise barrier is 3.5 pounds/square foot (equivalent to 3/4-inch plywood), and the barrier must be carefully constructed so that there are no cracks or openings.

Barriers constructed of wood or as a wooden fence must have minimum design considerations as follows: the boards must be ¾ inch thick and free of any gaps or knot holes. The design must also incorporate either overlapping the boards at least 1 inch or utilizing a tongue-and-grove design for this to be achieved.

3.0 SIGNIFICANCE THRESHOLDS AND STANDARDS

3.1 Operational Noise

The generation of noise from certain types of land uses could cause potential land use incompatibility. A project which would generate noise levels at the property line which exceed Section 59.5.0401 of the City's Municipal Code is considered potentially significant, as identified in Table 3-1 below.

Table 3-1: Sound Level Limits in Decibels (dBA)

Land Use	Time of Day	One-Hour Average Sound Level (decibels)
1. Single Family Residential	7 a.m. to 7 p.m. 7 p.m. to 10 p.m. 10 p.m. to 7 a.m.	50 45 40
2. Multi-Family Residential (Up to a maximum density of 1/2000)	7 a.m. to 7 p.m. 7 p.m. to 10 p.m. 10 p.m. to 7 a.m.	55 50 45
3. All other Residential	7 a.m. to 7 p.m. 7 p.m. to 10 p.m. 10 p.m. to 7 a.m.	60 55 50
4. Commercial	7 a.m. to 7 p.m. 7 p.m. to 10 p.m. 10 p.m. to 7 a.m.	65 60 60
5. Industrial or Agricultural	any time	75

Source: City of San Diego Noise Ordinance Section 59.5.0401

Section 59.5.0401 of the Noise Ordinance sets a more restrictive operational exterior noise limit for commercial/office uses of 65 dBA Leq for daytime hours of 7 a.m. to 7 p.m. and 60 dBA Leq during the noise sensitive nighttime hours of 7 p.m. to 7 a.m. Project components will only operate during the daytime hours but a few may operate during nighttime or early morning hours and therefore the most conservative approach is to apply the 60 dBA Leq nighttime standard at the property lines.

3.2 Offsite Transportation Noise

In accordance with CEQA, a project should not have a noticeable adverse impact on the surrounding environment. Noise level changes greater than 3 dBA, or a doubling of the acoustic energy, are often identified as audible and considered potentially significant, while changes less than 1 dBA are not discernible. In the range of 1 to 3 dBA, humans who are very sensitive to noise may perceive a slight change. For the purposes for this analysis, a direct and cumulative roadway noise impact would be considered significant if the project increases noise levels at a noise sensitive land use by 3 dBA CNEL and if the noise level is increased above an unacceptable noise level compatibility based on the land use per the City's General Plan.

3.3 Construction Noise

Division 4 of Article 9.5 of the City of San Diego Municipal Code addresses the limits of disturbing or offensive construction noise. The Municipal Code states that with the exception of an emergency, it should be unlawful to conduct any construction activity so as to cause, at or beyond the property lines of any property zoned residential, an average sound level greater than 75 decibels during the 12–hour period from 7:00 a.m. to 7:00 p.m.

4.0 EXISTING NOISE ENVIRONMENT

4.1 Existing Noise Levels at Project Site

Noise measurements were taken August 12, 2013 in the early afternoon hours using a Larson-Davis Model LxT Type 1 precision sound level meter, programmed, in "slow" mode, to record noise levels in "A" weighted form. The sound level meter and microphone were mounted on a tripod, five feet above the ground and equipped with a windscreen during all measurements. The sound level meter was calibrated before and after the monitoring using a Larson-Davis calibrator, Model CAL 200.

The noise measurements were monitored for a time period of roughly 15 minutes during normal afternoon conditions. The results of the noise level measurements are presented in Table 4-1 below. The existing noise levels in the project area consisted primarily of traffic along the adjacent roadways during the measurement. The existing noise levels measured in the area of the project during the early afternoon was found to be between 64-68 dBA Leq due to the meter being located in close proximity of the roadways. The statistical indicators Lmax, Lmin, L10, L50 and L90, are given for the monitoring location. As can be seen from the L90 data, 90% of the time the noise level is below 50 dBA with the exception of location #4. This is due to the combination of traffic and people playing sports in the park and the L90 was roughly 55 dBA. The noise monitoring locations are provided graphically in Figure 4-A on the following page.

Table 4-1: Measured Ambient Noise Levels

Location	Primary Noise Source	Time	Noise Levels (dBA)					
			Leq	Lmax	Lmin	L10	L50	L90
M1	Traffic	1:30-1:50 p.m.	66.5	83.0	46.1	69.5	52.0	48.7
M2	Traffic	2:15-2:30 p.m.	68.2	83.8	43.0	69.7	57.1	47.4
M3	Traffic	2:40-2:55 p.m.	65.2	82.2	44.8	65.0	52.8	47.9
M4	Traffic and sports at City Park	3:05-3:20 p.m.	64.7	82.2	45.5	64.9	60.8	54.6
Due to access limitations the meter was located near the road edge and the noise results are higher.								

Figure 4-A: Ambient Noise Monitoring Location

5.0 OPERATIONAL NOISE LEVELS

This section examines the potential operational noise source levels associated with the development and operation of the proposed project. Noise from a fixed or point source drops off at a rate of 6 dBA for each doubling of distance. Which means a noise level of 70 dBA at 5 feet would be 64 dBA at 10 feet and 58 dBA at 20 feet. Property lines surrounding the project site are residential therefore a 50 dBA hourly noise standard during the daytime hours between 7 a.m. and 7 p.m., a 45 dBA standard during the evening hours of 7 p.m. and 10 p.m. and a 40 dBA standard during the nighttime hours of 10 p.m. and 7 a.m. was applied per the City's Municipal Code.

5.1 Property Line Noise Levels

Noise levels from the proposed sports facilities and associated activities were modeled with Sound Plan Essential, version 2.0, a three-dimensional acoustical modeling software package. Propagation of modeled stationary noise sources was based on ISO Standard 9613-2, "Attenuation of Sound during Propagation Outdoors, Part 2: General Method of Calculation." The assessment methodology assumes that all receptors would be downwind of stationary sources. This is a worst-case assumption for total noise impacts, since, in reality, only some receptors will be downwind at any one time.

The primary on-site sources would be spectators gathered in groups along sidelines and in bleachers. Secondary sources would include vehicles accessing the site and the sports activities within the fields. The modeled source noise levels are presented in Table 5-1. All sound power reference levels were taken from the sound power library included with Sound Plan, version 7.1. The sound level for 10 people was used to simulate teams cheering from a dugout, which is based on a single raised voice generating a sound power level of 81 dBA.

Table 5-1: Source Noise Levels

Name	Source Type	Sound Level (dBA)
Spectator Area (with seating)	Point	83
Soccer Game	Point	62
10 Raised voices	Point	81
Source: Navcon Engineering 2013		

A spectator area was assumed at each of the three bleacher areas are the baseball field and a group of 10 raised voices was placed at each dugout. At the football/soccer field four spectator groups were placed around the field, two teams simulated by 10 raised voices each were centered at 50 yard line on the along sidelines, and a point was placed in the center of the field to represent a game.

The assumptions include:

Spectators at the baseball bleachers; source height 10 feet
Spectators at assumed football field; source height 10 feet
Players in baseball dugouts and at sidelines, source height 5 feet
A baseball game and a football game are occurring during the same period.

5.2 Conclusions

Based on these inputs, the proposed project would not exceed the most restrictive nighttime (10 p.m. – 7a.m.) standard of 40 dBA L_{eq} at any residential zoned property, see Table 5-2 and Figure 5-A. Therefore, the proposed development related operational noise levels comply with the City's most restrictive nighttime standard and no impacts are anticipated and no mitigation is required.

Table 5-2: Predicted Operational Noise Levels

Receiver	Description	Noise Level (dBA L_{eq})	Complies with City Standard
1	2444 Caminito Venido	39	Yes
2	2440 Caminito Venido	40	Yes
3	2456 Caminito Menor	40	Yes
4	2378 Caminito Afuera	40	Yes
5	2370 Caminito Afuera	39	Yes
6	2362 Caminito Afuera	39	Yes
7	2354 Caminito Afuera	40	Yes
8	4096 Caminito Espsjo	40	Yes
9	2324 Caminito Mira	39	Yes
10	2312 Caminito Mira	38	Yes
11	2308 Caminito Mira	37	Yes
12	4201 Montalvo Street	36	Yes
13	4231 Montalvo Street	34	Yes
14	4219 Montalvo Street	35	Yes

Figure 5-A: Predicted Noise Levels

6.0 TRANSPORTATION NOISE LEVELS

6.1 Project Related Transportation Noise Levels

To determine if direct or cumulative off-site noise level increases associated with the development of the proposed project would create noise impacts. The traffic volumes for the existing conditions were compared with the traffic volume increase of existing plus the proposed project.

The project's traffic assessment states that the proposed project only generates 365 daily trips during the weekdays and 352 daily trips during the weekends with a worst case peak hour volume of 54 trips (Source: Correia Middle School Athletic Improvements Trip Generation Letter – LOS Engineering, November 2014). The existing average daily traffic (ADT) volumes along the nearby roadways is 3,225 ADT or higher according to the Correia Middle School Sports Complex San Diego Unified School District, Draft Transportation Impact Study – LOS Engineering.

6.2 Conclusions

Typically it requires a project to double (or add 100%) to the traffic volumes to have a direct impact of 3 dBA CNEL or be a major contributor to the cumulative traffic volumes. The project will add a 10% increase or less to the exiting roadway volumes and no direct impacts are anticipated. Cumulatively the traffic volumes along the roadway segments are expected to potentially double but the project related increase would be minimal (less than 5%) of the overall increase and therefore no impacts are anticipated.

7.0 CONSTRUCTION NOISE LEVELS

Construction noise represents a short-term impact on the ambient noise levels. Noise generated by construction equipment includes haul trucks, water trucks, graders, dozers, loaders and scrapers can reach relatively high levels. Grading activities typically represent one of the highest potential sources for noise impacts. The most effective method of controlling construction noise is through local control of construction hours and by limiting the hours of construction to normal weekday working hours.

Division 4 of Article 9.5 of the City of San Diego Municipal Code (SDMC) addresses the limits of disturbing or offensive construction noise. The SDMC that with the exception of an emergency, it is unlawful to conduct any construction activity as to cause, at or beyond the property lines of any property zoned residential, an average sound level greater than 75 decibels during the 12-hour period from 7:00 a.m. to 7:00 p.m.

The U.S. Environmental Protection Agency (U.S. EPA) has compiled data regarding the noise generating characteristics of specific types of construction equipment. Noise levels generated by heavy construction equipment can range from 60 dBA to in excess of 100 dBA when measured at 50 feet. However, these noise levels diminish rapidly with distance from the construction site at a rate of approximately 6 dBA per doubling of distance. For example, a noise level of 75 dBA measured at 50 feet from the noise source to the receptor would be reduced to 69 dBA at 100 feet and be reduced to 63 dBA at 200 feet from the source. Using a point-source noise prediction model, calculations of the expected construction noise levels were completed. The essential model input data for these performance equations include the source levels of the equipment, source to receiver horizontal and vertical separations, the amount of time the equipment is operating in a given day and any transmission loss from topography or barriers.

7.1 Potential Noise Impact Identification

Based on EPA noise emissions, empirical data and the amount of equipment needed, worst-case noise levels from the construction equipment would occur during demolition and grading activities. The anticipated equipment list for the construction activities includes a dozer, two backhoes/tractors, two water trucks, a trencher, a concrete saw and a grader. Due to physical constraints and normal site preparation operations, the equipment will be spread out over the site. Based upon the site plan, the construction operations may occur near the property line while other operations are located as far as

300 to 400 feet from the same property line. This would result in an average distance of 150-200 feet from the center of the construction operations to the property lines.

As can be seen in Table 7-1 below, if all the equipment was operating in the same location, which is not physically possible, at a distance as close as 100 feet from the nearest property line the point source noise attenuation from construction activities is -6 dBA. This would result in an anticipated worst-case combined noise level of less than 75 dBA at the property line. Although not all the equipment will operate continuously over an 8 hour period, the equipment was assumed continuous to determine the worst-case noise levels. Given this and the spatial separation of the equipment, the noise levels will comply with the City's 75 dBA 12-hour standard at all property lines.

Table 7-1: Construction Noise Levels

Construction Equipment	Quantity	Source Level @ 50-Feet (dBA)*	Duty Cycle (Hours/Day)	Cumulative Noise Level @ Property Line (dBA)
Graders	1	74	8	72.2
Rubber Tired Dozers	1	72	8	70.2
Water Trucks	1	70	8	71.2
Tractors/Loaders/Backhoes	1	73	8	74.2
Trencher	1	72	8	70.2
Concrete/Industrial Saw	1	80	8	72.2
Cumulative Noise Levels @ 50-Feet (dBA)				**78.9**
Nearest Average Distance (Feet)				**100**
Anticipated Property Line Noise Level @ 100-Feet (dBA)				**73.9**
*Source: U.S. Environmental Protection Agency (U.S. EPA), 1971 and Empirical Data				

Biological Noise

The City of San Diego has established a 60 dBA Leq or ambient threshold, whichever is higher, for construction activities within a sensitive habitat area during the breeding/nesting season. Therefore, the 60 dBA Leq or ambient was used as the noise criteria to assess noise impacts on sensitive wildlife both onsite and offsite. Construction activities may occur during a sensitive habitat nesting/breeding season. Based on the worst-case noise levels identified in above of 78.9 dBA at 50 feet, the nearest sensitive habitat area is located 425 feet from the nearest construction activities at the Famosa

Slough to the north. At a distance of 425 feet the worst-case construction noise level would be 60 dBA Leq if all the equipment was working within the same location, which is not physically possible. The equipment will be spread out throughout the site reducing the overall noise levels at the habitat area. Thus, the construction noise levels would be below the 60 dBA Leq threshold.

7.2 Conclusions

The construction equipment will be spread out over the project site with some equipment working near the property line while other operations are located as far as 400 feet from the same property line. Based upon the findings even if all the equipment was located, at a distance as close as 100 feet from the nearest property line, which is not physically possible, the combined noise level would be less than 75 dBA. Therefore, the noise levels will comply with the City of San Diego's 75 dBA 12-hour standard and no impacts will occur and no mitigation measures are required.

Construction activities may occur during a sensitive habitat nesting/breeding season. The nearest sensitive habitat area is located to the north at the Famosa Slough, 425 feet from the nearest construction activities. At a distance of 425 feet the worst-case construction noise level would be 60 dBA Leq if all the equipment was working within the same location, which is not physically possible. The equipment will be spread out throughout the site reducing the overall noise levels at the habitat area. Thus, the construction noise levels would be below the 60 dBA Leq threshold.