

**To:** Stacie Henderson  
CAJA Environmental Services, LLC

**From:** Noah Tanski  
NTEC

**Date:** April 25, 2024

**RE: Chaminade High School North Campus Athletic Facilities – Technical Memorandum**

Dear Stacie,

As you know, Noah Tanski Environmental Consulting (NTEC) performed the operational noise analysis for the Chaminade College Preparatory High School Initial Study/Mitigated Negative Declaration (IS/MND). The analysis evaluated noise impacts from sources such as mechanical equipment, parking lots, and athletic facilities that are proposed by the Project. Noise sources from these facilities are potentially wide-ranging (e.g., crowd noise, athletics noise, amplified sounds, etc.), and there is limited formal scholarship establishing reference noise levels for use in predictive analysis. That said, the noise sources are well understood, and many studies, including CEQA-related studies, have documented noise levels associated with high school athletics. To characterize and predict noise impacts that would result from the Project's proposed athletic facilities, the analysis performed for the IS/MND drew upon a synthesis of noise levels that were documented as part of studies for similar athletic facilities projects. A simplified discussion of the analysis and its reference noise levels is included in the IS/MND; a more-detailed discussion is included here in this technical memorandum.

### **North Campus Athletic Fields and Aquatics Complex – Overview**

As explained in the IS/MND, the North Campus would include new athletic fields for soccer and baseball, as well as an aquatic facility featuring an outdoor pool. The hours of operation for the North Campus would be more restrictive than the usage hours allowed by the school's current Conditional Use Permit for the Main Campus. The North Campus hours of operations would be:

- Athletic Fields: Monday – Friday, 7:00 A.M. – 9:00 P.M. (with exception for overtime/extra inning play); Saturday, 8:00 A.M. – 9:00 P.M.; Sunday, 9:00 A.M. – 8:00 P.M. (no more than 15 Sundays per year).
- Aquatic Complex/Pool: Monday – Friday, 8:00 A.M. – 8:00 P.M.; Saturday, 10:00 A.M. – 7:00 P.M.; no operations on Sundays.
- Batting Cage: Monday – Saturday, 9:00 A.M. – 7:00 P.M.; no operations on Sundays.

Rental or lease of the North Campus athletic facilities would be subject to more restrictive day and hour limitations:

- Athletic Fields: Use by community-based athletic organizations shall be limited to 36 days annually, Monday through Saturday, 8:00 A.M. – 6:00 P.M. Use is not permitted on Sundays and national holidays. The rental or lease of the batting cages is not permitted at any time.
- Aquatic Complex/Pool: Use by community-based organizations, which shall travel to and from the North Campus by bus, shall be limited to daylight hours and end no later than 7:00 P.M. Monday through Friday, and no later than 5:00 P.M. on Saturdays. For community member swim activities, use hours shall be limited to Monday-Saturday, 8:00 A.M. – 6:00 P.M. Use is not permitted on Sundays and national holidays.

### **CEQA Noise Thresholds of Significance – Overview**

The City’s threshold of significance for operational noise impacts is whether a project’s operations would: (1) cause ambient noise levels to increase by 3 dBA CNEL or more to or within a sensitive receptor’s “normally unacceptable” or “clearly unacceptable” noise and land use compatibility category, as defined by the City’s General Plan Noise Element; or (2) result in any 5 dBA  $L_{eq(1-hour)}$  or CNEL noise increase to a sensitive receptor. CNEL is a 24-hour weighted average noise level that penalizes noise levels between 7:00 P.M. and 7:00 A.M. to account for people’s increased noise sensitivity during these hours.  $L_{eq}$  represents the energy average noise level for a given time period, which for purposes of the impact analysis is a minimum of one hour. The Project’s sensitive receptors for noise impact assessment are all single-family residential land uses. According to the City’s General Plan Noise Element, noise levels between 70 and 75 dBA CNEL are considered “normally unacceptable” for these uses, and noise levels 75 dBA CNEL and above are considered “clearly unacceptable.” Another way of understanding this threshold is that if the Project does not cause or contribute to noise levels of 70 dBA CNEL or greater at a sensitive receptor, then a 5 dBA CNEL increase is the appropriate threshold. If the Project may cause or contribute to noise levels of 70 dBA CNEL or greater at a sensitive receptor, then a 3 dBA CNEL increase is the appropriate threshold. Notwithstanding, any 5 dBA  $L_{eq}$  increase over an averaging period of one hour or more would also be considered significant. Therefore, the following analysis discusses impacts in terms of a 3 dBA CNEL increase threshold, a 5 dBA CNEL increase threshold, and a 5 dBA  $L_{eq}$  increase threshold, as appropriate.

### **Aquatic Complex/Pool**

#### *Discussion*

Studies consistently show that the highest noise levels from high school aquatic facilities are associated with amplified sound systems (e.g., music, announcements, etc.) during swim meets. Noise from regular pool activities (e.g., swimming, practice, coaching, etc.) are relatively modest and were measured to be approximately 66.6 dBA  $L_{eq}$  at 15 feet. However, noise during swim meets is closely correlated with the noise levels of amplified sound systems and was measured to be approximately 71.8 dBA  $L_{eq}$  at 30 feet.

#### *Analysis*

The nearest sensitive receptors to the proposed aquatic complex/pool are Melba Street Cul-de-Sac Residences, Bobbyboyar Avenue Cul-de-Sac Residences, and Woodlake Avenue Residences. Worst-case hourly noise levels for these receptors were estimated based on the 71.8 dBA  $L_{eq}$  at 30 feet noise level

associated with swim meets and distances to each receptor. For Bobbyboyar Avenue Cul-de-Sac Residences, existing walls and the massing of the proposed aquatics facility design would provide additional noise reduction, which is accounted for by the analysis. As shown in Table 1, worst-case hourly noise level increases at Melba Street Cul-de-Sac Residences, Bobbyboyar Avenue Cul-de-Sac Residences, and Woodlake Avenue Residences would be below 3 dBA and therefore below the 5 dBA  $L_{eq}$  threshold of significance.

**Table 1**  
**Aquatic Complex/Pool Noise Levels – Swim Meet ( $L_{eq}$  1-hr)**

Receptor	Distance (feet)	Operations Noise Level (dBA $L_{eq}$ )	Existing Ambient Noise Level (dBA $L_{eq}$ )	New Noise Level (dBA $L_{eq}$ )	Threshold (dBA $L_{eq}$ )	Increase (dBA $L_{eq}$ ) <sup>A</sup>
Melba Street Cul-de-Sac Residences	250	53.4	53.9	56.7	5.0	2.8
Bobbyboyar Avenue Cul-de-Sac Residences	150	52.8	53.9	56.4	5.0	2.5
Woodlake Avenue Residences	100	61.3	67.2	68.2	5.0	1.0

Note A: Potential significant impacts are shown in **bold**.

Source

- Woodrow Wilson High School Aquatic Center IS/MND, March 2021.

**Batting Cage**

*Discussion*

Studies report that batting cage noise levels (i.e., noise from batting practice using a pitching machine) are only as high as 56.6 dBA  $L_{eq}$  at 40 feet. Noise levels from the contact of bat and ball can be as high as 70.5 dBA  $L_{max}$  when adjusted to the same 40-foot distance, but these events are instantaneous and do not create sustained high noise levels.

*Analysis*

The batting cage would be located approximately 75 feet south of the Project’s northern property line. However, hitters would be positioned in the southern portion of the batting cage, approximately 75 feet farther from the property line. Therefore, noise from hitting would occur approximately 150 feet south of the northern property line. The nearest sensitive receptors to the batting cage are 23309 Saticoy Street Residence, Melba Street Cul-de-Sac Residences, and Bobbyboyar Avenue Cul-de-Sac Residences. Worst-case hourly noise levels for these receptors were estimated based on the 56.6 dBA  $L_{eq}$  at 40 feet noise level associated with batting cage practice and distances to each receptor. Conservatively, no other non-distance related attenuation was assumed (i.e., shielding from existing walls, baffling/shielding inside the batting cage, etc.). As shown in Table 2, worst-case hourly noise increases at 23309 Saticoy Street Residence, Melba Street Cul-de-Sac Residences, and Bobbyboyar Avenue Cul-de-Sac Residences would be below 1 dBA and therefore below the 5 dBA  $L_{eq}$  threshold of significance.

**Table 2**  
**Batting Cage Practice Noise Levels (L<sub>eq</sub> 1-hr)**

Receptor	Distance (feet)	Operations Noise Level (dBA L <sub>eq</sub> )	Existing Ambient Noise Level (dBA L <sub>eq</sub> )	New Noise Level (dBA L <sub>eq</sub> )	Threshold (dBA L <sub>eq</sub> )	Increase (dBA L <sub>eq</sub> ) <sup>A</sup>
23309 Saticoy Street Residence	200	42.6	66.3	66.3	5.0	<0.1
Melba Street Cul-de-Sac Residences	150	45.1	53.9	54.4	5.0	0.5
Bobbyboyar Avenue Cul-de-Sac Residences	230	41.4	53.9	54.1	5.0	0.2
Note A: Potential significant impacts are shown in <b>bold</b> .						

Sources:

- California State University, Northridge, Baseball Facilities IS/MND, April 2019.
- Capuchino High School Athletics Complex IS/MND, March 2020.

**Athletic Fields (Soccer Field, Baseball Diamond and Bleachers)**

*Discussion*

Similar to aquatic facilities, studies show that the highest noise levels from baseball diamonds and soccer fields are associated with amplified sound systems operated during games and not the individual sports activities/practices themselves. Sports activities typically generate noise levels below 60 dBA L<sub>eq</sub>, as measured at the sidelines and fringes of activity areas. However, noise from amplified sound systems during baseball games may be as high as 80 dBA L<sub>eq</sub> surrounding bleachers where speakers are located. Farther out, noise levels can vary considerably depending on the distance and orientation from speakers, which are usually mounted on the press box facing the bleacher sections. Noise levels drop off to 65 dBA L<sub>eq</sub> within approximately 110 feet, 60 dBA L<sub>eq</sub> within approximately 220 feet, and 55 dBA L<sub>eq</sub> within approximately 350 feet, assuming that there are no intervening structures.

*Analysis*

The nearest sensitive receptors that would be affected by noise from the proposed athletic fields are 23309 Saticoy Street Residence, Saticoy Street Residences – South of North Campus, Melba Street Cul-de-Sac Residences, and Bobbyboyar Avenue Cul-de-Sac Residences. Worst-case hourly noise levels for these receptors were calculated based on an 80 dBA L<sub>eq</sub> at 20 feet reference noise level, which aligns well with the noise contours described above. Conservatively, no non-distance related attenuation was assumed. As shown in Table 3, worst-case hourly noise increases at 23309 Saticoy Street Residence, Saticoy Street Residences – South of North Campus, Melba Street Cul-de-Sac Residences, and Bobbyboyar Avenue Cul-de-Sac Residences would not exceed 4 dBA, below the 5 dBA L<sub>eq</sub> threshold of significance.

**Table 3**  
**Baseball Game Noise Levels (L<sub>eq</sub> 1-hr)**

Receptor	Distance (feet)	Operations Noise Level (dBA L <sub>eq</sub> )	Existing Ambient Noise Level (dBA L <sub>eq</sub> )	New Noise Level (dBA L <sub>eq</sub> )	Threshold (dBA L <sub>eq</sub> )	Increase (dBA L <sub>eq</sub> ) <sup>A</sup>
23309 Saticoy Street Residence	365	54.8	66.3	66.6	5.0	0.3
Saticoy Street Residences – South of North Campus	110	65.2	68.6	70.2	5.0	1.6
Melba Street Cul-de-Sac Residences	330	55.7	53.9	57.9	5.0	4.0
Bobbyboyar Avenue Cul-de-Sac Residences	365	54.8	53.9	57.4	5.0	3.5
Note A: Potential significant impacts are shown in <b>bold</b> .						

Sources

- Capuchino High School Athletics Complex IS/MND, March 2020
- Mills High School Athletic Complex IS/MND, March 2020
- California State University, Northridge, Baseball Facilities IS/MND, April 2019.
- Valley Christian Center Supplemental MND, June 2018.

**Composite Noise Analysis (All Sources)**

As shown in the previous sections, noise generated by the aquatic complex/pool, batting cage, and athletic fields would, individually, be incapable of exceeding existing daytime noise levels at surrounding noise-sensitive receptors by greater than 5 dBA L<sub>eq</sub>, which is the hourly threshold of significance for the Project’s operational impacts. However, each of these uses may be operational on a given school day, so composite impacts from concurrent operations must also be evaluated against the 5 dBA L<sub>eq</sub> threshold. To address this scenario, composite noise levels associated with a baseball game and a swim meet were estimated for surrounding receptors. The batting cage would not be used while a baseball game is being played, so its usage does not figure into the analysis. The composite noise levels shown in Table 4 are estimated based on the swim meet noise levels shown in Table 1 and the baseball game noise levels shown in Table 3. Table 5 compares the composite noise levels estimated in Table 4 with existing daytime noise levels at surrounding noise-sensitive receptors to determine the composite noise impact. As shown in Table 5, Melba Street Cul-de-Sac Residences could experience noise increases greater than 5 dBA L<sub>eq</sub> during instances when a baseball game and swim meet occur simultaneously.

**Table 4**  
**Composite Noise Levels – Swim Meet and Baseball Game (L<sub>eq</sub> 1-hour)**

Receptor	Swim Meet Noise Level (dBA L <sub>eq</sub> )	Baseball Game Noise Level (dBA L <sub>eq</sub> )	Composite Noise Level (dBA L <sub>eq</sub> )
23309 Saticoy Street Residence	<50.0	54.8	56.0
Saticoy Street Residences – South of North Campus	<50.0	65.2	65.3
Melba Street Cul-de-Sac Residences	53.4	55.7	57.7
Bobbyboyar Avenue Cul-de-Sac Residences	52.8	54.8	56.9
Woodlake Avenue Residences	61.3	<50.0	61.6

**Table 5**  
**Composite Noise Level Impact at Receptors (L<sub>eq</sub> 1-hour)**

Receptor	Composite Noise Level From Table 4 (dBA L <sub>eq</sub> )	Existing Ambient Noise Level (dBA L <sub>eq</sub> )	New Noise Level (dBA L <sub>eq</sub> )	Threshold (dBA L <sub>eq</sub> )	Increase (dBA L <sub>eq</sub> ) <sup>A</sup>
23309 Saticoy Street Residence	56.0	66.3	66.7	5.0	0.4
Saticoy Street Residences – South of North Campus	65.3	68.6	70.3	5.0	1.7
Melba Street Cul-de-Sac Residences	57.7	53.9	59.2	5.0	<b>5.3</b>
Bobbyboyar Avenue Cul-de-Sac Residences	56.9	53.9	58.7	5.0	4.8
Woodlake Avenue Residences	61.6	67.2	68.3	5.0	1.1

Note A: Potential significant impacts are shown in **bold**.

The composite noise levels and maximum hourly impacts shown in Table 4 and Table 5 are also insightful regarding the Project’s potential effects on 24-hour CNELs at surrounding noise-sensitive receptors. As discussed earlier, the applicable CNEL-related thresholds are whether the Project would: (1) cause ambient noise levels at sensitive receptor locations to increase by 3 dBA CNEL or more to or above 70 dBA CNEL, which the City’s General Plan Noise Element considers to be a “normally unacceptable” exterior noise level for residential land uses; or (2), barring the above, any 5 dBA CNEL increase.

Given that existing daytime ambient noise conditions at Melba Street Cul-de-Sac Residences and Bobbyboyar Avenue Cul-de-Sac Residences are below 55 dBA L<sub>eq</sub>, it is clear that their 24-hour noise levels are below at least 65 dBA CNEL, meaning that the 5 dBA CNEL increase threshold would apply at these

receptors.<sup>1</sup> The following analysis evaluates the potential that 5 dBA CNEL increases could occur at Melba Street Cul-de-Sac Residences and Bobbyboyar Avenue Cul-de-Sac Residences. As explained previously, the composite noise levels shown in Table 4 and Table 5 are representative of a worst-case scenario in which there is a simultaneous swim meet and baseball game. These events last no more than a few hours each. However, if one assumes a conservative scenario in which the worst-case composite noise levels would be generated from 3:00 P.M. – 9:00 P.M.,<sup>2</sup> then the corresponding CNEL at Melba Street Cul-de-Sac Residences and Bobbyboyar Avenue Cul-de-Sac Residences would be 53.5 dBA and 52.7 dBA, respectively, as shown in Table 6. Measured ambient noise conditions and factors such as the urbanized nature of the neighborhood show that 24-hour noise levels for Melba Street Cul-de-Sac Residences and Bobbyboyar Avenue Cul-de-Sac Residences are between 50-55 dBA CNEL. Assuming a low-end 50 dBA CNEL value, the composite CNEL figures estimated in Table 6 demonstrate that operational activities on the North Campus could result in a slight exceedance of the 5 dBA CNEL increase threshold at Melba Street Cul-de-Sac Residences, as shown in Table 7.

**Table 6**  
**24-Hour Noise Levels – Swim Meet and Baseball Game (dBA CNEL)**

Receptor	Swim Meet Noise Level (dBA CNEL)	Baseball Game Noise Level (dBA CNEL)	Composite Noise Level (dBA CNEL)
Melba Street Cul-de-Sac Residences	48.1	52.0	53.5
Bobbyboyar Avenue Cul-de-Sac Residences	47.5	51.1	52.7

**Table 7**  
**24-Hour CNEL Noise Level Impact at Receptors**

Receptor	Composite Noise Level From Table 6 (dBA CNEL)	Existing 24-Hour Noise Level (dBA CNEL)	New Noise Level (dBA CNEL)	Threshold (dBA CNEL)	Increase (dBA CNEL) <sup>A</sup>
Melba Street Cul-de-Sac Residences	53.5	50.0	55.1	5.0	<b>5.1</b>
Bobbyboyar Avenue Cul-de-Sac Residences	52.7	50.0	54.6	5.0	4.6

Note A: Potential significant impacts are shown in **bold**.

With regard to the remaining receptors, 23309 Saticoy Street Residence, Saticoy Street Residences – South of North Campus, and Woodlake Avenue Residences: Table 5 shows that the worst-case hourly

<sup>1</sup> In other words, it would take more than a 5 dBA CNEL increase for their 24-hour noise levels to exceed the 70 dBA CNEL “normally unacceptable” standard.

<sup>2</sup> Specifically, the assumed time periods are 3:00 P.M. – 9:00 P.M. for baseball games and 3:00 P.M. – 8:00 P.M. for swim meets, consistent with their allowable usage hours.

composite noise impacts at these receptors would be below 2 dBA. As such, there is no potential that corresponding 24-hour CNEL impacts at these receptors would exceed the minimum 3 dBA increase threshold.

### **LAMC Section 112.01**

Before discussing the potential mitigating design features and operational conditions that could reduce hourly (i.e.,  $L_{eq}$ ) and 24-hour (i.e., CNEL) noise impacts at Melba Street Cul-de-Sac Residences, it is important to address LAMC Section 112.01 and the effect it would have on amplified baseball game and swim meet noise levels that are at the root of the noise impacts affecting Melba Street Cul-de-Sac Residences and other receptors. LAMC Section 112.01(b) would prohibit any amplified noises from being audible at a distance greater than 150 feet from the North Campus property line, and compliance with this regulation would necessitate that the Project's amplified noise levels are much lower than the levels predicted in this memorandum's analyses. For example, Table 5 shows that composite swim meet and baseball game noise levels, which are mainly caused by amplified sounds at these events, would be as high as 56.9 dBA  $L_{eq}$  at Bobbyboyar Avenue Cul-de-Sac Residences. While this would result in a less than significant 4.8 dBA  $L_{eq}$  hourly noise increase at Bobbyboyar Avenue Cul-de-Sac Residences, the 56.9 dBA  $L_{eq}$  noise level indicates that amplified sounds generating this noise level would be clearly audible over the receptor's 53.9 dBA  $L_{eq}$  ambient noise conditions. Therefore, despite the noise increase being less than significant with respect to the City's 5 dBA  $L_{eq}$  CEQA threshold of significance, the amplified sounds emanating from swim meets and baseball games held simultaneously would still need to be reduced to achieve compliance with the LAMC Section 112.01(b) audibility standard.<sup>3</sup>

The Project's amplified sound systems can be designed in a way that achieves Project objectives (i.e., providing amplified sound for baseball games and swim meets) while complying with LAMC Section 112.01(b). For example, large outdoor music venues are often acoustically engineered to comply with similar noise standards, despite featuring much louder sound systems than the Project would utilize. Acoustical design considerations commonly include techniques such as utilizing directional speakers rather than broadcast systems, mounting speakers low and oriented away from residential areas, and instituting maximum sound level limits. The facilities themselves may also be designed to aid noise control efforts. For example, bleachers may be located so that crowd-facing speakers are directed away from sensitive residential areas, and structures may be located to buffer sensitive residential areas from noise sources. In fact, the Project's site plan already features some of these considerations. For example: the baseball field is oriented so that bleachers are located along Saticoy Street, not near the quieter residential neighborhood to the north; the batting cage is oriented so that batters would also be distanced from this neighborhood; and the aquatic complex is oriented so that the parking lot and athletic field/pool house provide a buffer between the pool and this neighborhood.

### **Mitigation Recommendations**

As shown above in Table 5, maximum hourly noise impacts at Melba Street Cul-de-Sac Residences could be as high as a 5.3 dBA  $L_{eq}$  increase over existing daytime noise conditions, which would exceed the 5 dBA  $L_{eq}$  increase threshold of significance. As shown in Table 7, 24-hour noise impacts at this same receptor could be as high as a 5.1 dBA CNEL increase, which would exceed the 5 dBA CNEL increase threshold of

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<sup>3</sup> In turn, this would reduce the noise increase experienced by Bobbyboyar Avenue Cul-de-Sac Residences.



significance for this receptor, as well. Further, all noise impacts would need to comply with the audibility standard established by LAMC Section 112.01(b). Noise reductions necessary to achieve compliance with LAMC Section 112.01(b) would also achieve the noise reductions necessary to reduce noise impacts at Melba Street Cul-de-Sac Residences to less than significant levels. The following mitigation measures are recommended:

MM-1: Amplified sound systems for the Project's baseball field/bleachers and outdoor aquatics facility/bleachers shall be acoustically engineered with the following design and performance standards:

- Amplified sound levels, as measured at the northern property line of the North Campus, shall not exceed 50 dBA.
- Amplified sound systems shall not be operated outside the operational hours established for the North Campus facilities.
- Speakers shall be directional and oriented away from the northern property line of the North Campus.
- Non-Chaminade users of the facilities shall not be permitted to utilize the facilities' amplified sound systems.

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Please do not hesitate to contact me if you have any questions or require additional information.

Sincerely,



**Noah Tanski**, Principal