
FINAL ENVIRONMENTAL IMPACT REPORT
VOLUME I OF III

*JESUIT HIGH SCHOOL STADIUM
LIGHTING*



*Control Number: PLNP2021-00262
State Clearinghouse Number: 2022100645
February 2024*

COUNTY OF SACRAMENTO
DEPARTMENT OF COMMUNITY DEVELOPMENT
PLANNING AND ENVIRONMENTAL REVIEW
827 7TH STREET, ROOM 225
SACRAMENTO, CALIFORNIA 95814



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This Environmental Impact Report has been prepared pursuant to the California Environmental Quality Act of 1970 (Public Resources Code Division 13). An Environmental Impact Report is an informational document which, when this Office requires its preparation shall be considered by every public agency prior to its approval or disapproval of a project. The purpose of an Environmental Impact Report is to provide public agencies with detailed information about the effect that a proposed project is likely to have on the environment; to list ways in which any adverse effects of such a project might be minimized; and to suggest alternatives to such a project.

Prepared by the
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PREFACE

FINAL ENVIRONMENTAL IMPACT REPORT

This final environmental impact report (Final EIR) has been prepared by Sacramento County (County), as lead agency, in accordance with the requirements of the California Environmental Quality Act (CEQA) and the State CEQA Guidelines (California Code of Regulations [CCR] Section 15132). This Final EIR contains responses to comments received on the draft environmental impact report (Draft EIR) for the Jesuit High School Stadium Lighting Project (project). The Sacramento County Planning Commission will use the Final EIR as one of the informational sources to determine whether to approve or deny the project.

A Notice of Preparation (NOP) for the proposed project was published on October 28, 2022. An agency scoping meeting was held on November 15, 2022 and a public scoping meeting was held on December 7, 2022.

Along with a Notice of Completion (NOC), the Draft EIR was released to the Governor's Office of Planning and Research to begin the public review period (Public Resources Code, Section 21161) on September 15, 2023. Concurrent with the NOC, the County also provided public notice of the availability of the Draft EIR for public review through publication in a local newspaper and with notices which were sent to individuals who had requested such notification. The written comment period began on September 15, 2023 and closed on October 30, 2023 at 5 p.m.

Where changes to the text of the EIR were made to reflect revisions to the proposed project or are required as a result of the comments received, those changes are shown with **bold underline for text added** and ~~strikethrough for text deleted~~ within the pertinent chapter(s). Corrections to errors in pagination or format, spelling corrections, grammatical corrections, and other such editorial changes that are unrelated to the substantive content of the EIR are not highlighted. It should be noted that the revisions do not change the intent or content of the analysis, the conclusions, or effectiveness of mitigation measures presented in the Draft EIR.

CEQA Guidelines Section 15088.5 requires a lead agency to recirculate an EIR when "significant new information" is added to the EIR after the lead agency gives public notice of the availability of the Draft EIR but before certification. "Information" may include project changes, changes to the environmental setting, or additional data or other information. The CEQA Guidelines do not consider new information to be significant unless the lead agency changes the EIR in a way that deprives the public of a meaningful opportunity to comment on a substantial adverse environmental effect or a feasible way to mitigate the impact that the agency or project proponent has declined to implement.

Section 15088.5 states “significant new information” requiring recirculation may include:

- A new significant environmental impact that had not previously been disclosed in the Draft EIR would result from the project or from a new mitigation measure;
- A substantial increase in the severity of an environmental impact that had already been identified unless mitigation measures would be adopted to reduce the impact to a level of insignificance;
- A feasible project alternative or mitigation measure would considerably lessen the significant environmental impacts of the project, but the proponents will not adopt it; or
- The Draft EIR was so inadequate and conclusory that meaningful public review and comment were precluded.

In response to comments from the public and public agencies on the Draft EIR, the County has incorporated minor revisions to the text of the Draft EIR into the Final EIR. The revisions to the text of the Draft EIR outlined below present minor corrections, additions, and revisions initiated by Sacramento County based on comments received during the public review period by reviewing agencies and/or the public, as well as minor corrections added by the County during preparation of the Mitigation Monitoring and Reporting Program (MMRP). None of the information added to the Draft EIR altered the significance conclusions. Rather, the new information amplified and clarified the information provided in the Draft EIR. None of the revisions or updates to the Draft EIR’s analyses represents “significant new information” as that term is defined by the CEQA Guidelines Section 15088.5. Thus, recirculation is not necessary as the changes do not constitute significant new information under CEQA.

The Draft EIR, Final EIR, and all appended materials are available electronically on Sacramento County’s website. Visit <https://planningdocuments.saccounty.net/>; within the “Application No.” search field type PLNP2021-00262 and click “search”.

1 EXECUTIVE SUMMARY

The subject of this Environmental Impact Report (EIR) is a project known as Jesuit High School Stadium Lighting (project). The purpose of the proposed project is to install permanent light fixtures within the Marauder Stadium at Jesuit High School. The project site is located at 1200 Jacob Lane in the community of Carmichael in unincorporated Sacramento County.

The environmental impact and mitigation summary table (Table ES-1: Executive Summary of Impacts and Mitigation *on page 1-5*) briefly describes the significant project impacts and mitigation measures recommended to eliminate or reduce the impacts, as well as level of impact significance with mitigation incorporated. The residual impact after mitigation is also identified. Detailed discussions of each of the identified impacts and mitigation measures, including pertinent support data, can be found in the specific topic sections in the remainder of this report.

This report has identified project-related impacts associated with air quality, biological resources, cultural resources, transportation, and tribal cultural resources as significant or potentially significant, which could be reduced to a less-than-significant level through inclusion of recommended mitigation measures.

This report identifies significant and unavoidable impacts related to aesthetics and noise.

Impacts associated with agricultural and forestry resources, energy, geology and soils, greenhouse gas emissions, hazards and hazardous materials, hydrology and water quality, land use, mineral resources, population and housing, public services, recreation, utilities and service systems, and wildfire would be **less than significant**.

SUMMARY OF THE PROPOSED PROJECT

Jesuit High School is requesting a Use Permit Amendment and Design Review to install four (4) permanent stadium light poles at the Marauder Stadium. The proposed light poles will have light emitting diode (LED) lights affixed to the top, and will be located approximately at the 10-yard lines of the football field. Existing public announcement (PA) speakers would be relocated from wooden poles to the new stadium light poles at their current authorized location and height, which is 44 feet above grade on the home side and 35 feet above grade on the visitor's side of the stadium. The request also includes additional code-compliant lighting for the bleachers and pedestrian pathways of the stadium. The project applicant would limit the use of the proposed stadium lights to select evenings to accommodate athletic practices and competitions, primarily during the winter months when the sun sets early or during home football games.

OVERVIEW OF PROJECT ALTERNATIVES

The following alternatives to the project are evaluated in this Draft EIR.

NO PROJECT ALTERNATIVE

For the purposes of the No Project Alternative, it is assumed the proposed project would not be constructed. Therefore, for the purposes of the No Project Alternative analysis, neither permanent lights, nor code-compliant lighting for the bleachers or pedestrian pathways of the stadium would be installed at the stadium, and athletic activities would continue to occur as they are presently occurring.

ALTERNATIVE 1: ALTERNATE STADIUM LOCATIONS

Under this alternative, Jesuit High School would arrange for the use of another facility for practices and games that cannot be accommodated between the end of classes and sundown. Two existing lighted stadiums have been identified:

- **Hughes Stadium.** This facility is located at 3835 Freeport Boulevard, Sacramento, at Sacramento City College. It is approximately 10 miles from Jesuit High School. The stadium is surrounded by campus facilities and commercial land uses. The nearest residence is approximately 500 feet to the south.
- **Hornet Stadium.** This facility is located at 6000 Jed Smith Drive, Sacramento, at California State University, Sacramento. It is approximately 6 miles from Jesuit High School. The stadium is surrounded by campus facilities and commercial land uses. The nearest residence is approximately 1,000 feet to the west.

ALTERNATIVE 2: SHADE STRUCTURE AT MARAUDER STADIUM

This alternative would construct a shade structure over the bleachers and field at Marauder Stadium. The shade structure could also potentially be constructed over another field at Jesuit High School. By providing shade over the field, this structure would help make afternoon practices more tolerable for players during the hotter months of early fall and late spring. Alternative 2 would not include lighting to illuminate the field and seating areas after dark.

AREAS OF CONTROVERSY

Community concerns include the potential for increased noise, traffic, and light pollution associated with nighttime football games. In addition, concerns have been expressed about public safety and increases in parking on residential streets in the vicinity of Jesuit High School.

ORGANIZATION OF THE DRAFT ENVIRONMENTAL IMPACT REPORT

Consistent with California Environmental Quality Act (CEQA) Guidelines Sections 15120 through 15131, this Draft EIR includes:

- Table of Contents
- **Chapter 1:** Executive Summary that identifies each significant impact along with the proposed mitigation measures and/or alternatives that would reduce or avoid each impact, discusses areas of controversy known to the County, and identifies the issues to be resolved.
- **Chapter 2:** Introduction to the purpose of this document, a brief project overview, the use of this document by agencies, and the EIR process
- **Chapter 3:** Project description, including the regional and precise location and boundaries of the project on maps; provides a statement of project objectives, including the underlying project purpose; provides a general description of project characteristics; and includes a brief statement of the intended uses of the EIR, including a list of other agencies that are expected to use the EIR in decision making, a list of permits and approvals required to implement the project, and a list of related environmental review and consultation requirements mandated by laws, regulations, or policies.
- **Chapter 4:** Alternatives, including a discussion of alternatives that evaluates, analyzes, and compares a reasonable range of feasible alternatives that would attain most of the basic project objectives and would avoid or reduce any of the significant impacts of the project; evaluates and analyzes a “no project” alternative that describes impacts that are reasonably expected to occur in the foreseeable future if the project is not approved; identifies the Environmentally Superior Alternative; and identifies potential alternatives that initially were considered by the County and briefly explains why they were not carried forward for more detailed review.
- **Chapters 5-10:** Environmental setting, impacts, mitigation measures, and post-mitigation significance for Aesthetics, Air Quality, Greenhouse Gas Emissions, Land Use and Planning, Noise and Vibration, and Transportation.
- **Chapter 11:** Other CEQA sections, including Growth-Inducing Impacts, Irreversible Impacts, Effects Found to be Less than Significant, and Cumulative Impacts.
- **Chapter 12:** Bibliography, including references for citations from other chapters.
- **Chapter 13:** Glossary, which includes definitions of terms and acronyms.

- **Chapter 14:** Acknowledgements, which includes a list of organizations and persons preparing the EIR.
- **Appendices**, including the NOP and scoping comments and technical reports and data sheets related to aesthetics, air quality and greenhouse gas (GHG), noise and vibration, and transportation.

IMPACT AND MITIGATION SUMMARY TABLE

Table ES-1: Executive Summary of Impacts and Mitigation

Impacts	Level of Significance Before Mitigation	Mitigation Measure	Level of Significance After Mitigation
AESTHETICS			
Impact AE-2. Create a New Source of Substantial Light or Glare that Would Adversely Affect Day or Nighttime Views in The Area?	S	No feasible mitigation measures available	SU
AIR QUALITY			
Impact AQ-1. Conflict with or Obstruct Implementation of the Applicable Air Quality Plan?	Construction PS Operations LS	Mitigation Measure AQ-1. SMAQMD Basic Construction Emission Control Practices The construction contractor shall comply with Basic Construction Emission Control Practices identified by the SMAQMD and listed below or as they may be updated in the future: <ul style="list-style-type: none"> • Water all exposed surfaces two times daily. Exposed surfaces include, but are not limited to soil piles, graded areas, unpaved parking areas, staging areas, and access roads. • Cover or maintain at least two feet of free board space on haul trucks transporting soil, sand, or other loose material on the site. Any haul trucks 	LSM

LS = Less Than Significant LSM = Less Than Significant with Mitigation NI = No Impact PS = Potentially Significant S = Significant SU = Significant and Unavoidable

Impacts	Level of Significance Before Mitigation	Mitigation Measure	Level of Significance After Mitigation
		<p>that would be traveling along freeways or major roadways should be covered.</p> <ul style="list-style-type: none"> • Use wet power vacuum street sweepers to remove any visible track out mud or dirt onto adjacent public roads at least once a day. Use of dry powered sweeping is prohibited. • Limit vehicle speeds on unpaved roads to 15 miles per hour (mph). • All roadways, driveways, sidewalks, parking lots to be paved should be completed as soon as possible. In addition, building pads should be laid as soon as possible after grading unless seeding or soil binders are used. • Minimize idling time either by shutting equipment off when not in use or reducing the time of idling to 5 minutes [required by California Code of Regulations, Title 13, sections 2449(d) and 2485]. Provide clear signage that posts this requirement for workers at the entrances to the site. • Provide current certificate(s) of compliance for ARB's In-Use Off-Road Diesel-Fueled Fleets Regulation [California Code of Regulations, Title 	

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Impacts	Level of Significance Before Mitigation	Mitigation Measure	Level of Significance After Mitigation
		<p>13, sections 2449 and 2449.1]. For more information contact ARB at 877-593-6677, doors@arb.ca.gov, or www.arb.ca.gov/doors/compliance_cert 1.html.</p> <ul style="list-style-type: none"> Maintain all construction equipment in proper working condition according to manufacturer's specifications. The equipment must be checked by a certified mechanic and determined to be running in proper condition before it is operated. 	
<p>Impact AQ-2. Result in a Cumulatively Considerable Net Increase of any Criteria Pollutant for which the Project Region is Nonattainment Under an Applicable Federal or State Ambient Air Quality Standard?</p>	<p>Construction PS Operations LS</p>	<p>Implement Mitigation Measure AQ-1. SMAQMD Basic Construction Emission</p>	<p>LSM</p>
BIOLOGICAL RESOURCES			
<p>Impact BIO-1. Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service (Impact BIO-1).</p>	<p>Construction PS Operations LS</p>	<p>Mitigation Measure BIO-1: Prior to demolition and construction activities, to avoid impacts to nesting birds during the nesting season (February 15 to August 30 for common small bird species (e.g., California scrub-jay) and February 15 to September 15 for raptors (e.g., Cooper's hawk), or if construction activities are suspended for at least 14 days and recommence during the nesting season, a</p>	<p>LSM</p>

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Impacts	Level of Significance Before Mitigation	Mitigation Measure	Level of Significance After Mitigation
		<p>qualified biologist will conduct nesting bird surveys.</p> <p>A. Two surveys for active bird nests will occur within 14 days prior to start of construction, with the final survey conducted within 48 hours prior to construction. Appropriate minimum survey radii surrounding each work area are typically 250 feet for passerines, 500 feet for smaller raptors, and 1,000 feet for larger raptors. Surveys will be conducted at the appropriate times of day to observe nesting activities. Locations off the site to which access is not available may be surveyed from within the site or from public areas. A report documenting survey results and plan for active bird nest avoidance (if needed) shall be completed by the qualified biologist prior to construction activities and submitted to the Sacramento County Environmental Coordinator.</p> <p>B. If the qualified biologist documents active nests within the project site or in nearby surrounding areas, an appropriate buffer between each nest and active construction will be established. The buffer will be clearly marked and</p>	

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Impacts	Level of Significance Before Mitigation	Mitigation Measure	Level of Significance After Mitigation
		<p>maintained until the young have fledged and are foraging independently. Prior to construction, the qualified biologist will conduct baseline monitoring of each nest to characterize “normal” bird behavior and establish a buffer distance, which allows the birds to exhibit normal behavior. The qualified biologist will monitor the nesting birds daily during construction activities and increase the buffer if birds show signs of unusual or distressed behavior (e.g., defensive flights and vocalizations, standing up from a brooding position, and/or flying away from the nest). If buffer establishment is not possible, the qualified biologist or construction foreman will have the authority to cease all construction work in the area until the young have fledged and the nest is no longer active.</p> <p>Jesuit High School and contractors shall be responsible for implementation of this mitigation measure. Compliance with this measure will be documented, prior to the start of construction activities.</p>	

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Impacts	Level of Significance Before Mitigation	Mitigation Measure	Level of Significance After Mitigation
CULTURAL RESOURCES			
Impact CR-2: Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5.	Construction PS Operations LS	Mitigation Measure CR-1: Should any cultural resources, such as structural features, unusual amounts of bone or shell, artifacts, human remains, or architectural remains be encountered during any development activities, work shall be suspended to allow for review by tribal monitors. Designated staff implementing the MMRP shall be immediately notified. The project applicant shall be required to implement any mitigation deemed necessary for the protection of the cultural resources, as outlined in Mitigation Measure TCR-1 detailed below.	LSM
Impact CR-3: Disturb any human remains, including those interred outside of dedicated cemeteries.	Construction PS Operations LS	Mitigation Measure CR-2: Pursuant to Sections 5097.5 and 5097.98 of the State Public Resources Code, and Section 7050.5 of the State Health and Safety Code, if a human bone or bone of unknown origin is found during construction, all work is to stop and the County Coroner and Planning and Environmental Review shall be immediately notified. If the remains are determined to be Native American, the Coroner shall notify the Native American Heritage Commission within 24 hours, and the Native American Heritage Commission shall identify the person or persons it believes to be the most likely descendent from the deceased Native	LSM

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Impacts	Level of Significance Before Mitigation	Mitigation Measure	Level of Significance After Mitigation
		American. The most likely descendent may make recommendations to the landowner or the person responsible for the excavation work, for means of treating or disposition of, with appropriate dignity, the human remains and any associated grave goods.	
NOISE AND VIBRATIONS			
Impact NOI-1. Generation of a Substantial Temporary or Permanent Increase in Ambient Noise Levels in the Vicinity of the Project in Excess of Standards Established in the Local General Plan or Noise Ordinance, or Applicable Standards of Other Agencies	S Operations	Mitigation Measure NOI-1: Ambient Noise Reduction Strategies <ul style="list-style-type: none"> • <u>Conclude Scheduling evening events to conclude by 10 pm. Evening events at the stadium shall be scheduled to conclude by no later than 10 pm. To the maximum extent reasonable and feasible, recognizing that events such as football games may occasionally go into overtime.</u> games shall be scheduled to account for the extra time that may be needed in the event that games end in a tie and require overtime play. • <u>Reduce PA System Output and Usage.</u> Measures to reduce PA system output shall be employed, to the extent feasible, including focusing <u>to focus</u> the sound within the bleacher areas and minimizing <u>minimizing</u> spillover of PA system sound into surrounding residential 	SU

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Impacts	Level of Significance Before Mitigation	Mitigation Measure	Level of Significance After Mitigation
		<p>areas. Additionally, PA system settings shall also be established at the minimum levels required for intelligibility over background crowd noise. <u>PA settings shall be set and maintained for all evening and nighttime events so that the maximum noise level at the edge of the Jesuit High School property boundary adjacent to noise-sensitive uses shall not exceed 70 dBA L_{max}, which is anticipated to result in at least 3 dBA reduction compared to documented current PA noise levels at the property line.</u> A limiter shall be included in the PA system to ensure that this <u>this performance standard is met. Prior to building permit approval, the applicant shall test the PA system and adjust settings and design if necessary, to document compliance with this performance standard</u> maximum level is not exceeded or that the amplifier setting is not increased. Finally, where usage of the proposed PA system is not specifically needed for certain events or activities, the usage of the PA system shall be prohibited.</p>	

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Impacts	Level of Significance Before Mitigation	Mitigation Measure	Level of Significance After Mitigation
		<ul style="list-style-type: none"> • <u>Restrict Usage of Artificial Noise Makers. Artificial noisemakers (including bullhorns, cowbells, airhorns, megaphones, etc.) are prohibited items. All bags are subject to search at the gates, and attendees will not be permitted entry with such items.</u> 	
TRANSPORTATION			
Impact TR-3. Substantially Increase Hazards Due to a Geometric Design Feature (E.G., Sharp Curves or Dangerous Intersections) or Incompatible Uses (E.G., Farm Equipment)?	<p>Construction LS</p> <p>Operations PS</p>	<p>Mitigation Measure TR-2: Pedestrian safety improvements to site plans</p> <p>Prior to building permit approval, the project proponent shall <u>prepare improvement plans</u> make amendments to the final designs of the proposed project for review and approval by the Sacramento County Transportation Department which shall include the following improvements at the <u>western side of the</u> intersection of Tennyson Way and American River Drive across from Jesuit High School’s southern parking lot <u>and at the four-way stop-controlled intersection at Jacob Lane and American River Drive:</u></p> <ul style="list-style-type: none"> • <u>Tennyson Way and American River Drive.</u> Install pedestrian crossing with enhanced safety features. Enhanced safety features may <u>which would</u> include <u>a striped,</u> high visibility <u>(Caltrans “ladder”)</u> 	LSM

LS = Less Than Significant LSM = Less Than Significant with Mitigation NI = No Impact PS = Potentially Significant S = Significant SU = Significant and Unavoidable

Impacts	Level of Significance Before Mitigation	Mitigation Measure	Level of Significance After Mitigation
		<p>crosswalk markings, flashing beacons <u>with signage</u>, parking restrictions <u>as needed to improve crosswalk visibility and safety, and</u> lighting improvements, <u>as determined by Sacramento County Department of Transportation and based on Sacramento County Improvement Standards</u>, signage, and pavement markings, as determined to be needed by the Sacramento County Department of Transportation.</p> <ul style="list-style-type: none"> • <u>Jacob Lane and American River Drive. Install basic yellow crosswalk on all legs of the intersection.</u> 	
TRIBAL CULTURAL RESOURCES			
Impact TCR-1: Would the project cause a substantial adverse change in the significance of a tribal cultural resource	<p>Construction PS</p> <p>Operations LS</p>	<p>Implement Mitigation Measures CR-1 and CR-2</p> <p>Mitigation Measure TCR-1:</p> <ol style="list-style-type: none"> 1. If subsurface deposits believed to be cultural or human in origin are discovered during ground disturbance, site preparation, or construction activities, then all work must halt within a 100-foot radius of the discovery. A qualified professional archeologist, meeting the Secretary of the Interior’s Professional Qualification Standards for prehistoric and historic archaeology, shall be retained at the 	LSM

LS = Less Than Significant LSM = Less Than Significant with Mitigation NI = No Impact PS = Potentially Significant S = Significant SU = Significant and Unavoidable

Impacts	Level of Significance Before Mitigation	Mitigation Measure	Level of Significance After Mitigation
		<p>Applicant's expense to evaluate the significance of the find. If it is determined due to the types of deposits discovered that a Native American monitor is required, the Guidelines for Monitors/Consultants of Native American Cultural, Religious, and Burial Sites as established by the Native American Heritage Commission shall be followed, and the monitor shall be retained at the Applicant's expense.</p> <p>2. Work shall not continue within the 100-foot radius of the discovery site until the archaeologist conducts sufficient research and data collection to make a determination that the resource is either 1) not cultural in origin; or 2) not potentially eligible for listing on the National Register of Historic Places or California Register of Historical Resources.</p> <p>a) If a potentially-eligible resource is encountered, then the archeologist, and the project proponent shall coordinate with the Sacramento County Planning and Environmental Review (PER), and arrange for either 1) total avoidance of the resource, if possible; or 2) test excavations or total data recovery as mitigation. The determination shall be formally documented in writing and</p>	

LS = Less Than Significant LSM = Less Than Significant with Mitigation NI = No Impact PS = Potentially Significant S = Significant SU = Significant and Unavoidable

Impacts	Level of Significance Before Mitigation	Mitigation Measure	Level of Significance After Mitigation
		<p>submitted to PER as verification that the provisions of CEQA for managing unanticipated discoveries have been met.</p> <p>b) Section 5097.98 of the State Public Resources Code and Section 7050.5 of the State Health and Safety Code, in the event of the discovery of human remains, all work must stop and the County Coroner shall be immediately notified. If the remains are determined to be Native American, guidelines of the Native American Heritage Commission shall be adhered to in the treatment and disposition of the remains.</p>	

LS = Less Than Significant LSM = Less Than Significant with Mitigation NI = No Impact PS = Potentially Significant S = Significant SU = Significant and Unavoidable

MITIGATION MONITORING AND REPORTING PROGRAM

It shall be the responsibility of the project applicant/owner to comply with the Mitigation Monitoring and Reporting Program (MMRP) for this project and to reimburse the County for all expenses incurred in the implementation of the MMRP, including any necessary enforcement actions. The MMRP fee for this project is \$4,300.00. This fee includes administrative costs of \$1,200.00, which must be paid to the Office of Planning and Environmental Review prior to recordation of the MMRP and prior to recordation of any final parcel or subdivision map. The remaining balance will be due prior to review of any plans by the Environmental Coordinator or issuance of any building, grading, work authorization, occupancy or other project-related permits.

TERMINOLOGY USED IN THIS EIR

This Draft EIR uses the following terminology to describe environmental effects of the project.

Significance Criteria. A set of criteria used by the lead agency to determine at what level, or “threshold,” an impact would be considered significant. Significance criteria used in this EIR include those that are set forth in the CEQA Guidelines, or can be discerned from the CEQA Guidelines; criteria based on factual or scientific information; criteria based on regulatory standards of local, state, and federal agencies; and criteria based on goals and policies identified in the Sacramento County General Plan.

No Impact. A designation of no impact is given when no adverse changes in the environment are expected.

Less-than-Significant Impact. A project impact is considered less than significant when it does not reach the standard of significance and would therefore cause no substantial change in the environment. No mitigation is required for less-than-significant impacts.

Potentially Significant Impact. A potentially significant impact is a substantial, or potentially substantial, adverse change in the environment. Physical conditions which exist within the area will be directly or indirectly affected by the proposed project. Impacts may also be short-term or long-term. A project impact is considered significant if it reaches the threshold of significance identified in the EIR. Mitigation measures may reduce a potentially significant impact to less than significant.

Significant Unavoidable Impact. A project impact is considered significant and unavoidable if it is significant and cannot be avoided or mitigated to a less-than-significant level once the project is implemented.

Cumulative Significant Impact. A cumulative impact can result when a change in the environment results from the incremental impact of a project when added to other

related past, present or reasonably foreseeable future projects. Significant cumulative impacts may result from individually minor but collectively significant projects.

Mitigation. Mitigation measures are revisions to the project that would minimize, avoid, or reduce a significant effect on the environment. CEQA Guidelines §15370 identifies 5 types of mitigation:

- a) Avoiding the impact altogether by not taking a certain action or parts of an action.
- b) Minimizing impacts by limiting the degree or magnitude of the action and its implementation.
- c) Rectifying the impact by repairing, rehabilitating, or restoring the impacted environment.
- d) Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action.
- e) Compensating for the impact by replacing or providing substitute resources or environments.

2 INTRODUCTION

SUMMARY OF THE PROPOSED PROJECT

Jesuit High School is requesting a Use Permit Amendment and Design Review from Sacramento County to install four (4) permanent stadium light poles at Marauder Stadium. Two (2) of the light poles, located on the north side of the stadium, would be 100-feet high. The other two (2) light poles, located on the south side of the stadium, would be 90-feet high. The proposed light poles will have light emitting diode (LED) lights affixed to the top, and will be located approximately at the 10-yard lines of the football field. The proposed light poles will have setbacks of 208±-feet from centerfield on the north (home side) and 175± feet from the south (visitor's side) of the field. The proposed project also includes additional code-compliant lighting for the bleachers and pedestrian pathways of the stadium.

ENVIRONMENTAL IMPACT REPORT SCOPE AND PROCESS

The California Environmental Quality Act (CEQA) requires public agencies to identify, disclose, and consider the potential environmental impacts of proposed discretionary actions that the agencies are considering for approval. A project that may have a significant impact on the environment cannot be approved unless the Lead Agency makes the approval contingent upon the implementation of mitigation measures that would reduce or avoid that impact to the furthest extent feasible. When a project may have significant environmental impacts, the Lead Agency must prepare an environmental impact report (EIR) before it considers whether to approve the project.

Sacramento County, as the Lead Agency for the project, has prepared this Draft EIR for public review and comment per the requirements of Article 7, Sections 15080 to 15097 of the CEQA Guidelines, which describes the EIR process, as well as other requirements set forth in the regulations. As discussed below, the Draft EIR will be available for review and comment by public agencies and the general public for a period of 45 days. Prior to considering the project, the County will prepare a Final EIR that includes the Draft EIR, the comments received on the Draft EIR, written responses to those comments, a list of commenters, and any revisions made to the Draft EIR in response to the comments per Section 15132 of the CEQA Guidelines. As required under Section 15090, prior to considering the approval of the Jesuit High School Stadium Lighting Project, the Planning Commission will certify that the information contained in the Final EIR has been completed in compliance with CEQA; that the Commission reviewed and considered the information contained in the Final EIR before making a decision; and that the Final EIR reflects the County's independent judgment and analysis.

LEAD AGENCY DETERMINATION

As the public agency undertaking the proposed project, the County is designated as the Lead Agency for the project. CEQA Guidelines Section 15367 defines the Lead Agency as "...the public agency, which has the principal responsibility for carrying out or approving a project." Other public agencies may use this document in their decision making or permit processes related to the project.

This Draft EIR was prepared with assistance from AECOM, an environmental consultant. Prior to public review, this Draft EIR was extensively reviewed and evaluated by County staff and, as such, this Draft EIR reflects the independent judgment and analysis of County staff. A list of report preparation personnel is provided in Section 13. Acknowledgements of this Draft EIR.

PURPOSE OF THIS ENVIRONMENTAL IMPACT REPORT

This Draft EIR has been prepared pursuant to CEQA and the CEQA Guidelines (CEQA Guidelines Title 14 California Code of Regulations Chapter 3 Section 15000 et seq.). CEQA requires that State and local government agencies consider the environmental consequences of projects over which they have discretionary authority before taking action on those projects (California Public Resources Code [PRC] 21000 et seq.).

The purpose of this Draft EIR is to analyze the environmental impacts of the proposed project, while describing ways to reduce or avoid these potential impacts. Additionally, this Draft EIR identifies alternatives to the proposed project that would meet the project objectives while reducing one or more potential environmental impacts.

CEQA requires that each public agency mitigate or avoid the significant environmental effects of projects it approves or implements whenever feasible. An EIR is an informational document used in State, regional, and local planning and decision-making processes to disclose potential environmental effects. The purpose of the EIR is not to recommend approval or denial of a project. However, the public agency's decision whether to approve or to deny the project must take into consideration the information provided by the EIR.

When considering a project, the public agency may approve the project even if it would result in significant and unavoidable adverse environmental impacts so long as the EIR discloses the project's environmental effects, including:

- Significant effects;
- Those that cannot be avoided;
- Growth-inducing effects;
- Effects found not to be significant; and
- Cumulative impacts.

CEQA provides that a lead agency that intends to approve a project with significant and unavoidable effects must identify the “[s]pecific economic, legal, social, technological, or other considerations...” that make infeasible particular mitigation measures or alternatives identified in the EIR. In addition, the lead agency in such a case must identify the benefits of the project that outweigh the significant effects on the environment (Statement of Overriding Considerations, California Public Resources Code Section 21081).

DRAFT EIR SCOPING PROCESS

In accordance with the CEQA Guidelines, the County distributed a Notice of Preparation (NOP) of a Draft EIR for the project on October 28, 2022 to allow the public an opportunity to provide comment on the scope of the analysis that should be included in this Draft EIR. An agency scoping meeting was held on November 15, 2022 and a public scoping meeting was held on December 7, 2022. The public scoping comment period closed with the meeting held on December 7, 2022; however, relevant comments received prior to and following this comment period have been cataloged and considered in the preparation of this Draft EIR. The scope of this Draft EIR includes the potential environmental impacts identified in the NOP, as well as any issues raised by agencies and the public in response to the NOP. Copies of the NOP, and comments received during the NOP comment period are contained in Appendix A and Appendix G of this Draft EIR.

PUBLIC AND ENVIRONMENTAL REVIEW PROCESS

Upon completion of this Draft EIR, the County filed a Notice of Completion (NOC) with the State Office of Planning and Research along with a Notice of Availability to begin the public review period (PRC Section 21161). Concurrent with the NOC, the Draft EIR was distributed to responsible and trustee agencies, other affected agencies, surrounding cities, and interested parties, including those requesting a copy of the Draft EIR in accordance with PRC 21092(b)(3). The 45-day comment period began on September 15, 2023 and closed on October 30, 2023.

FINAL EIR

Upon completion of the public review period, the County reviewed the comments received and prepared written responses to environmental issues raised pursuant to CEQA Guidelines 15088 and, as necessary, made any related revisions to the Draft EIR. Comments received and the responses to comments are included as part of the record for consideration of the project. Responses are incorporated into the Final EIR, which is available for public review and provided to any commenting public agencies at least 10 days prior to certification of the EIR (CEQA Guidelines 15088[b]). The general process for the preparation and certification of an EIR is described under Section 15096 of the CEQA Guidelines.

The Final EIR will be considered by the Planning Commission prior to determining whether to approve the project, as per Section 15090 of the CEQA Guidelines. Specifically, the Commission must certify that:

- The Final EIR has been completed in compliance with CEQA;
- The Final EIR was presented to the Commission, and that the Commission reviewed and considered the information contained in the Final EIR prior to approving the project; and
- The Final EIR reflects the independent judgment and analysis of the Planning Commission.

Following certification of the Final EIR, the Commission may then consider approval of the project, as described in Section 15092 of the CEQA Guidelines, which states that a public agency shall not decide to approve or carry out a project for which an EIR was prepared unless either: (1) the project as approved will not have a significant effect on the environment, or (2) the agency has eliminated or substantially lessened all significant effects where feasible and made a determination that any remaining significant effects found to be unavoidable are acceptable due to overriding considerations.

If the project is approved, Section 15091 of the CEQA Guidelines requires the County to adopt findings describing how each of the significant impacts identified in the EIR is being mitigated. The findings will describe the reasons why significant unavoidable impacts, if any, cannot be mitigated. The findings will also describe the County's findings with respect to the project alternatives that were analyzed in the EIR.

If the Planning Commission decides to approve the project, or any alternative to the project, despite a finding that it will have significant and unavoidable impacts, the Commission will also adopt a statement of overriding considerations describing the benefits of the project that in the Commission's judgment outweigh its significant environmental impacts, pursuant to Section 15093 of the CEQA Guidelines. Finally, the Commission will adopt a Mitigation Monitoring and Reporting Program (MMRP), as required under Sections 15096 (g) and 15097 of the CEQA Guidelines, which describes how the County will ensure the mitigation measures being required of the project will be carried out.

3 PROJECT DESCRIPTION

The purpose of the proposed project is to install permanent light fixtures within the Marauder Stadium at Jesuit High School. This chapter defines existing conditions and environmental setting at the project site and the surrounding areas (Background and Environmental Setting). The chapter also identifies a statement of project objectives (Project Objective) and provides a detailed description of the proposed Jesuit High School Stadium Lighting Project (proposed project) (Project Description and Characteristics). Lastly, the chapter identifies intended uses of this environmental impact report (EIR) (including for consideration by the County Planning Commission hearing authority and potential subsequent permits, approvals, review, and/or consultation requirements) (Intended Use of the EIR). Plates are provided to facilitate a thorough understanding of the project's regional location, site characteristics, and components. The description of the project included in this chapter sets forth the characteristics upon which the evaluation of potential impacts in this draft EIR is based. All of the project application materials are also available at the County of Sacramento website: <https://planning.saccounty.gov/Pages/Jesuit-High-School-Stadium-Lighting.aspx>

BACKGROUND

Jesuit High School, located at 1200 Jacob Lane, has been operating as a private Catholic High School since 1963. According to the project applicant, school enrollment over the past 10 years has ranged between 960 – 1,090 students supported by 130 faculty and staff. The Jesuit campus is approximately 51 acres in total land area with 15 buildings, practice and playing athletic fields, and approximately 539 parking spaces. Primary access to the Jesuit High School campus is from 4660 Fair Oaks Boulevard, which includes a signalized intersection (O'Donnell Lane). The Jesuit High School campus is surrounded entirely by single-family residences with the exception of the Country Oaks Pet Hospital.

The project site has a recent history of entitlements associated with the athletic uses of Jesuit High School (Assessor's Parcel Number [APN]: 289-0210-045-0000). A Notice of Exemption (NOE) for a grading permit associated with track and field improvements was released in 2015 (County Control No: PLER2015-00039). The project consisted of upgrading the existing track and field facilities with construction to include a 400-meter, 8 lane all-weather running track, a synthetic turf stadium field with permanent field markings for football and soccer, and stadium seating on home and visitor sides. The project was a Categorical Exemption under CEQA Statue 15301, Class 1. The project qualified under this exemption class because it consisted of repair and maintenance of existing facilities involving negligible or no expansion of use beyond that existing at the time of determination.

A NOE for a Use Permit Amendment to PLNP2008-00237 to permit the relocation of the scoreboard and sound system on the Jesuit High School athletic field in the RD-4

zoning district was approved on April 8, 2019 (Control No. PLNP2018-00190). The project was with a Categorical Exemption under CEQA Guidelines Section 15323, Class 23. Class 23 consists of the normal operations of existing facilities for public gatherings for which the facilities were designed, where there is a past history of the facility being used for the same or similar kind of purpose. For the purposes of this section, “past history” shall mean that the same or similar kind of activity has been occurring for at least three years and that there is a reasonable expectation that the future occurrence of the activity would not represent a change in the operation of the facility. Facilities included within this exemption include, but are not limited to, racetracks, stadiums, convention centers, auditoriums, amphitheaters, planetariums, swimming pools, and amusement parks.

It was determined that this Categorical Exemption applied to the previous project because Jesuit High School had been operating at the location since 1963, and the subject parcel had been developed with sports fields during that time. A review of aerial photos illustrated a track and baseball diamonds on the parcel in 1968. Over time, the aeriels indicated the track and field became more developed and included the use of a public address system and scoreboard during sporting events.

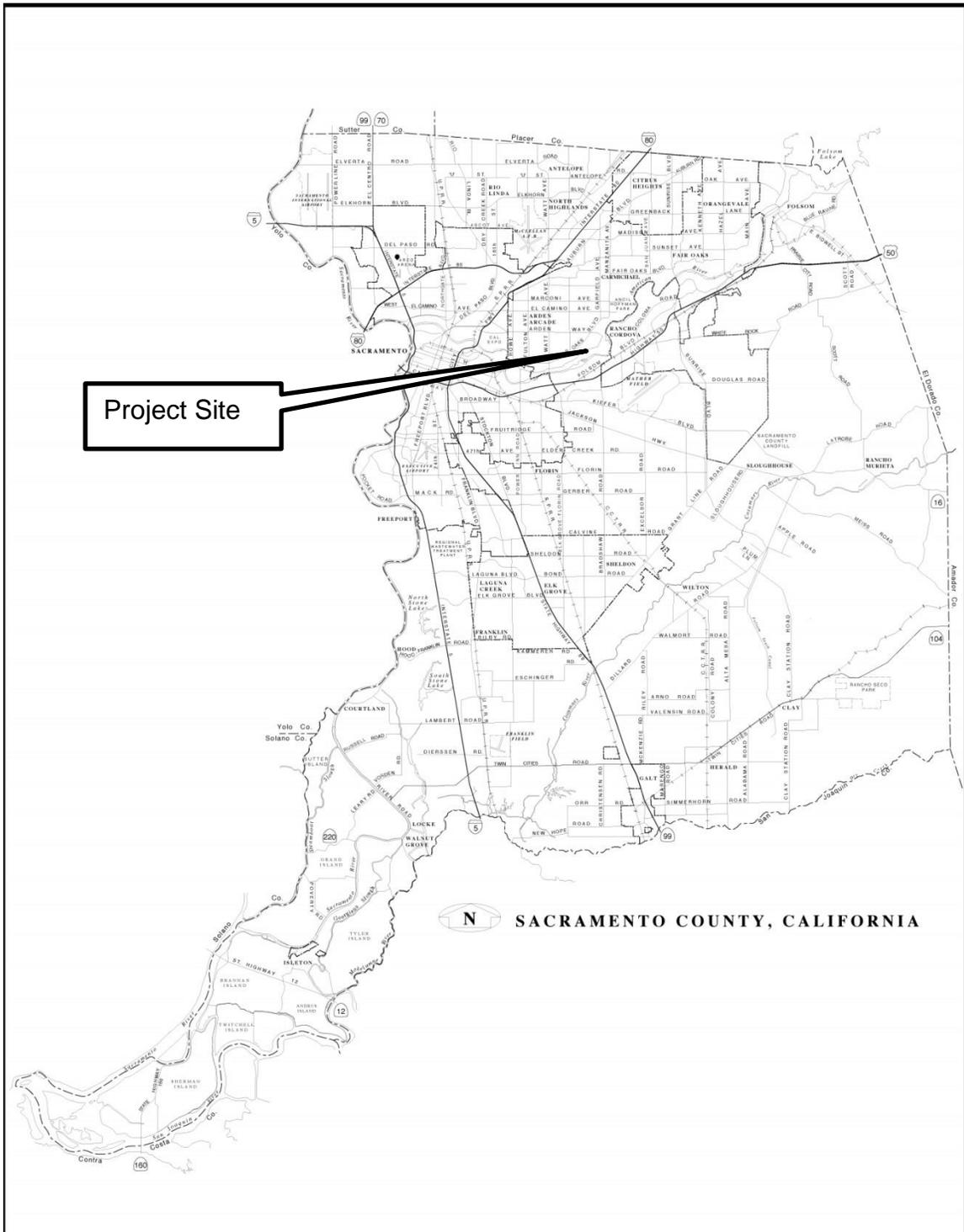
Several temporary use permits associated with temporary lighting for the football stadium were granted by Sacramento County Planning and Environmental Review (PER) for the project site. The first temporary Use Permit was Control No. PLNP2018-TUZ-00229, which was granted for use on September 13th and September 14th, 2018. The second temporary use permit was Control No. PLNP2020-00044, which was granted for use on May 22nd, August 22nd, and September 4th, 2020. The third temporary use permit was an emergency permit due to the COVID-19 pandemic that granted the installation and use of fifteen (15) 23-foot temporary LCS light towers and three practice fields throughout the grounds of the high school during football team practices (Control No. PLNP2020-00180). The emergency temporary use permit was granted for APNs: 289-0210-012, 013, and 289-0210-045 and was valid from November 16th, 2020 thru June 30th, 2021. Additionally, the emergency temporary use permit included the installation of seven (7) 20-foot by 40-foot pole tents (i.e., shade structures) at four different locations throughout the high school. **Finally, a temporary Use Permit, Control No. PLNP2023-00190, was granted on August 18, 2023 for temporary lighting for two events scheduled for August 25, 2023 and September 1, 2023 between the hours of 4:00 PM to 10:30 PM.**

ENVIRONMENTAL SETTING

PROJECT SITE DESCRIPTION

The project site is located in the central portion of Sacramento County, south of Fair Oaks Boulevard and north of American River Drive, between Piccadilly Circle and Jacob Lane (see Plate PD-1). The project site is situated on the north side of American River Drive, the west side of Jacob Lane, and the east side of Piccadilly Circle on the Jesuit High School Campus, in the Carmichael/Old Foothill Farms community of

Plate PD-1: Project Location Exhibit



unincorporated Sacramento County. While the Jesuit High School campus spans the boundary between the unincorporated communities of Arden-Arcade and Carmichael, the proposed project site is located within the Carmichael portion of the property.

The project site is south of the existing Jesuit High School main campus (APN): 289-0210-045-0000. The project site is approximately 20.22 acres in total land area, and is the location of Jesuit High School's sports facilities, notably Marauder Stadium used for football, track and field, soccer, lacrosse, and other sporting events. The project site is developed with the existing stadium and associated facilities, parking lot, practice fields, swimming pool, tennis courts, and two baseball fields.

Marauder Stadium is an artificial turf field with an eight-lane synthetic track surrounding the field perimeter. The stadium also includes a freestanding scoreboard with a public address (PA) system. The home stands, located at the north side of the field, have a capacity of 2,000 persons, while the visitor stands on the south side of the stadium, have a capacity of 1,000 persons. The total maximum capacity for Marauder Stadium is approximately 3,000 persons.

LAND USE

The surrounding land uses are all single-family residential with RD-4 (Residential Density 4) zoned properties, with the exception of Country Oaks Pet Hospital. To the north across Fair Oaks Boulevard, there are single-family residential properties with RD-3 (Residential Density 3) and RD-2 (NPA) (Residential Density 2 and Neighborhood Preservation Area) zoning. Arden Hills Country Club, zoned RD-2, is also located north of the site. The project site is located approximately 0.3 miles to the north of the American River Parkway zoned O (PC) (Open Space and Parkway Corridor). See Plate PD-2 and Plate PD-3 for surrounding land uses and zoning.

TOPOGRAPHY AND PHYSICAL SETTING

Overall site topography is generally flat but increases in elevation along the northern portion of the site toward the Jesuit High School main campus. Site elevations range from 52 feet above sea level (at the southwestern portion of the property fronting American River Drive) to 74 feet (at the northwestern corner of the property). The site also contains existing landscaping consisting of turf grass, trees, and shrubs. Notably, numerous mature deciduous and evergreen trees and shrubs surround the property boundaries of the Jesuit High School campus, particularly along American River Drive and adjacent to single-family residential properties along Piccadilly Circle and Jacob Lane. These mature trees provide potential habitat for nesting and migratory birds, especially due to the project site's location north of the American River Parkway.

Plate PD-2: Aerial Photo of Project Site

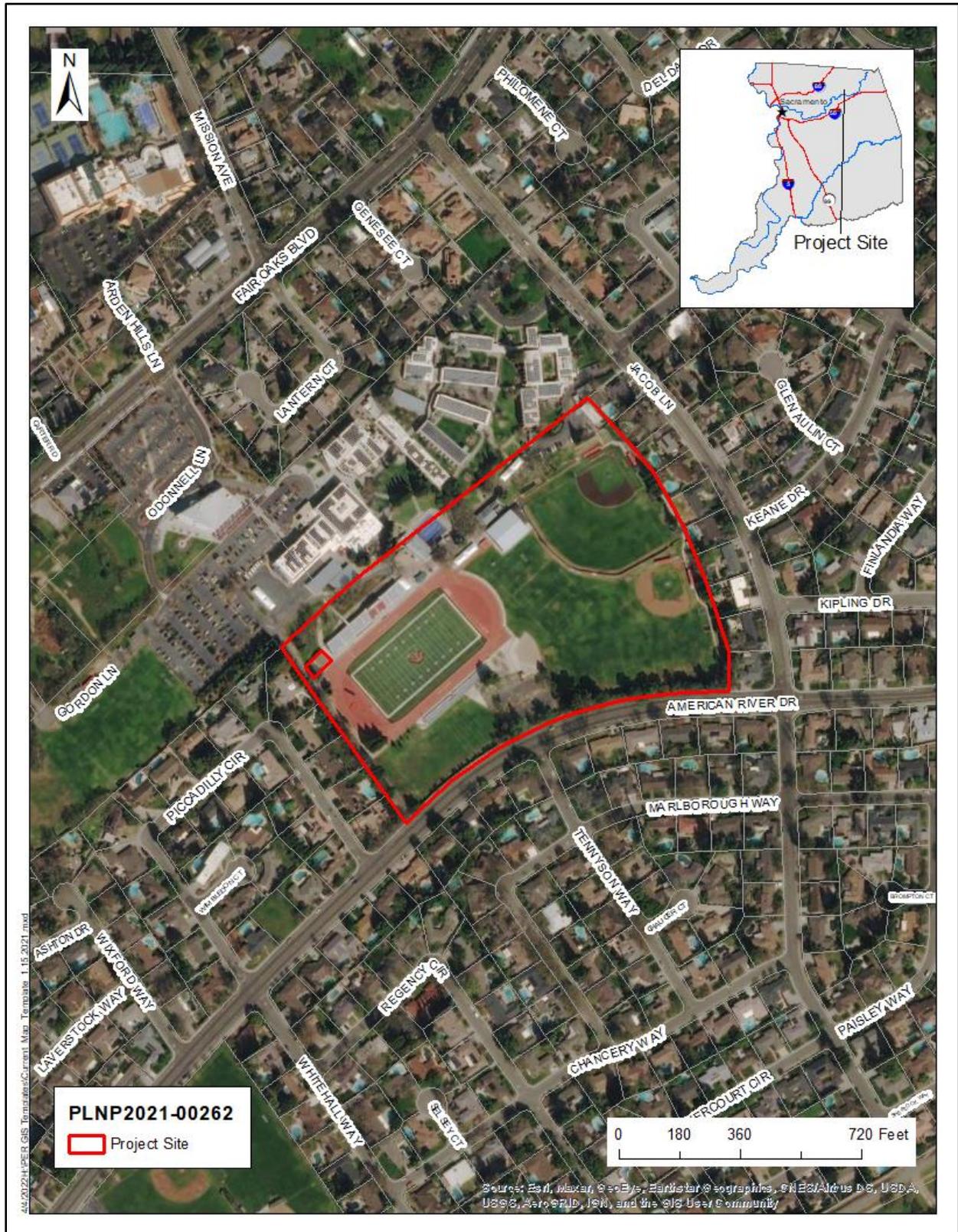
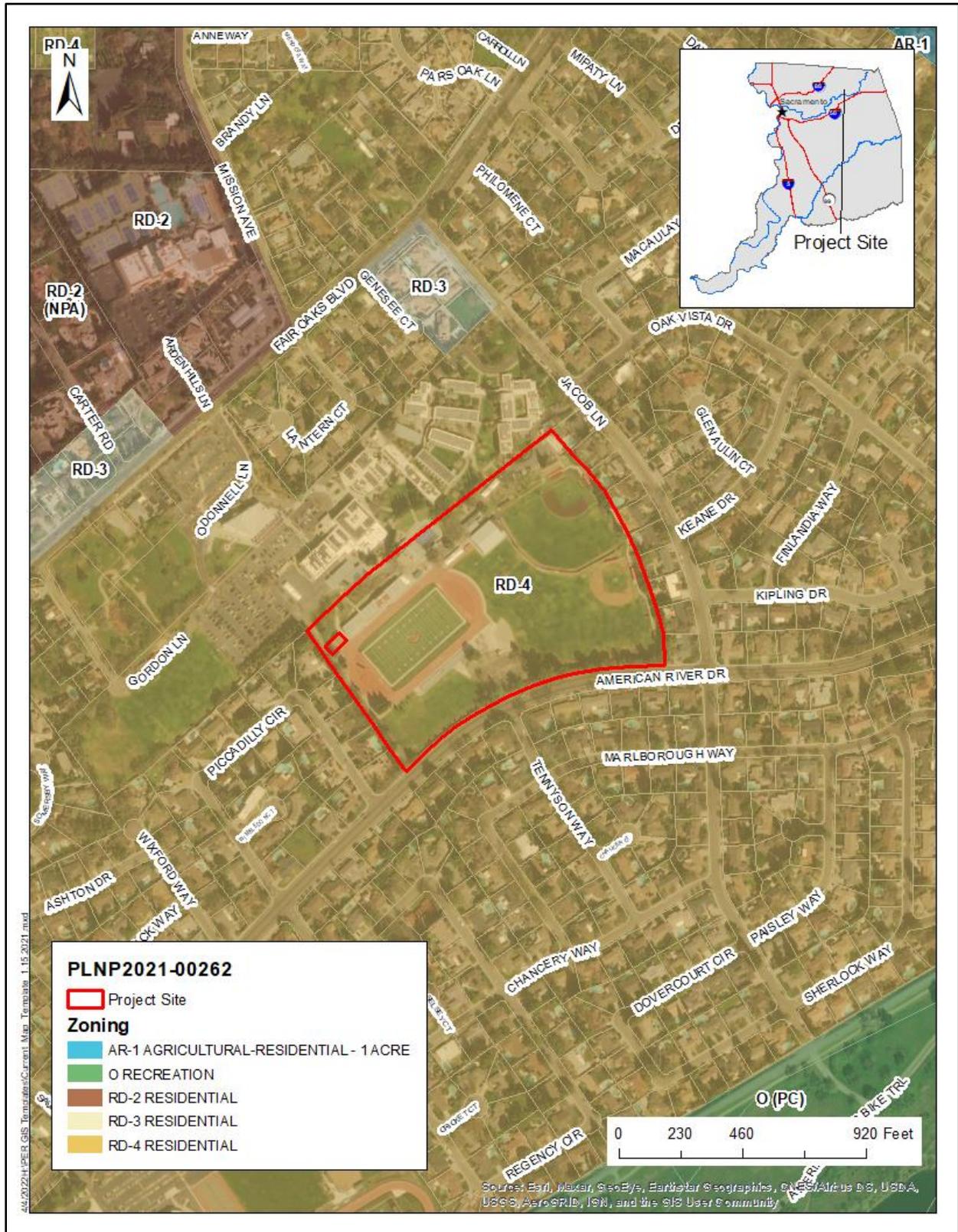


Plate PD-3: Surrounding Land Uses and Zoning



PROJECT OBJECTIVES

Per Section 15124(b) of the CEQA Guidelines, the project description shall include:

A statement of the objectives sought by the proposed project. A clearly written statement of objectives will help the lead agency develop a reasonable range of alternatives to evaluate in the EIR and will aid the decision makers in preparing findings or a statement of overriding considerations, if necessary. The statement of objectives should include the underlying purpose of the project and may discuss the project benefits.

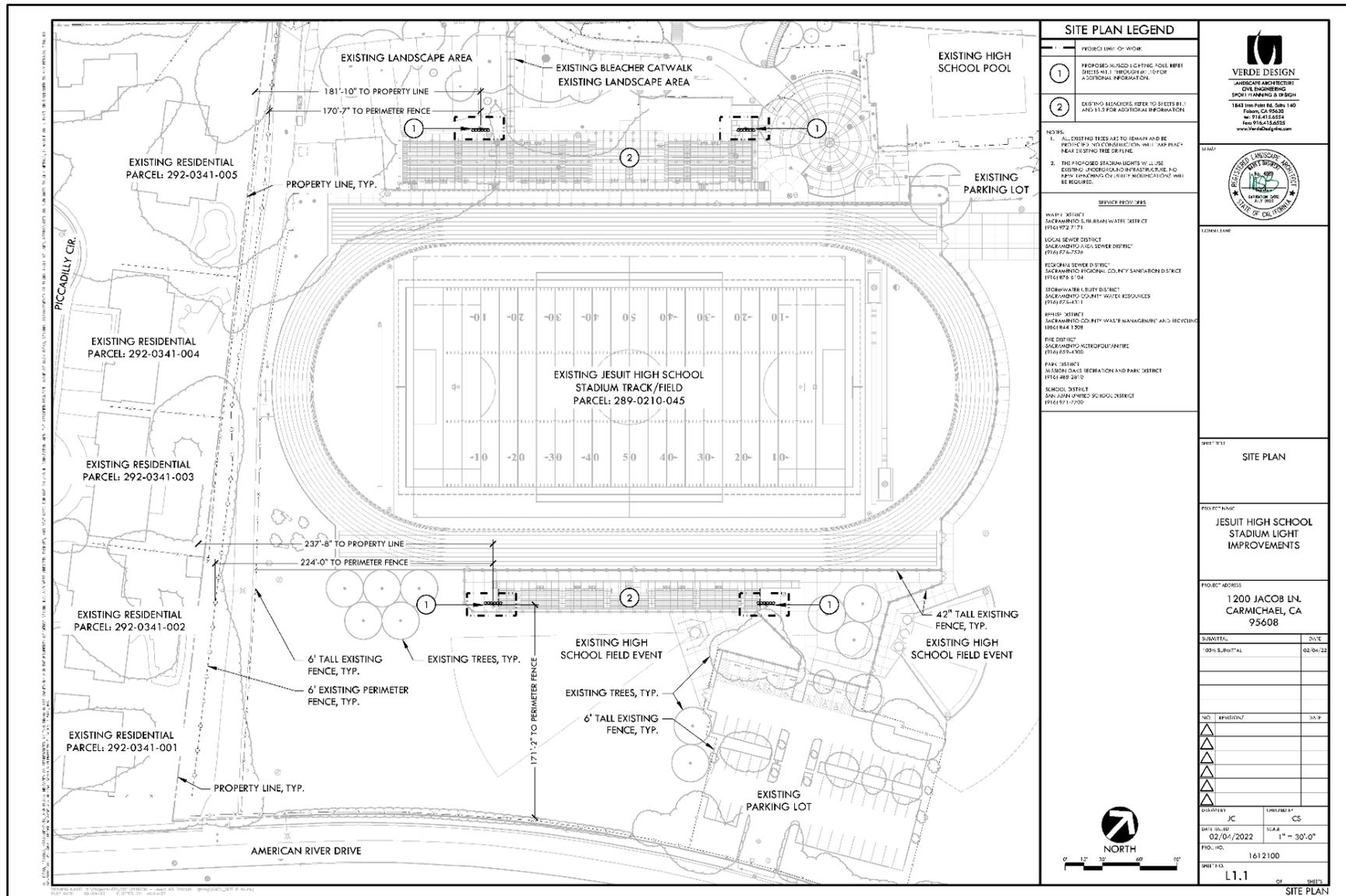
The project applicant has provided the following statement of basic project objectives consistent with CEQA Guidelines Section 15124 (b). The project applicant has indicated that the project should accomplish the following:

- Develop the capability to host evening athletic events on campus and allow for athletic practices and competitions to occur after the peak afternoon temperatures to protect the health and safety of student-athletes, coaches, and spectators;
- Provide a feasible location at which to increase the athletic opportunities for Jesuit High School students;
- Provide sufficient time, particularly for Fall and Winter sports, to train and compete without requiring student-athletes to miss excessive classroom instruction multiple times per month;
- Spread on-campus activities over a broader period of time to reduce the number of individuals and vehicles concurrently utilizing school facilities;
- Enhance the overall high school athletic experience for students, parents, alumni, and the Sacramento community; and
- Continue to build upon Jesuit's reputation for athletic excellence by providing facilities that allow athletes to achieve peak performance.

PROJECT DESCRIPTION AND CHARACTERISTICS

Jesuit High School is requesting a Use Permit Amendment and Design Review to install four (4) permanent stadium light poles at the Marauder Stadium. See Plate PD-4 for the project's preliminary site plan. Two (2) of the light poles, located on the north side of the stadium, would be 100-feet high. The other two (2) light poles, located on the south side of the stadium, would be 90-feet high. The proposed light poles will have LED lights affixed to the top, and will be located approximately at the 10-yard lines of the football field. The proposed light poles will have setbacks of 208±-feet from centerfield on the north (home side) and 175± feet from the south (visitor's side) of the field. The request also includes additional code-compliant lighting for the bleachers and pedestrian

Plate PD-4: Preliminary Site Plan



pathways of the stadium. Sacramento County Planning Entitlement requests are as follows:

1. A **Use Permit Amendment** to PLNP2018-00190 to allow stadium lighting on the Jesuit High School athletic field in the Residential 4 (RD-4) zoning district.
2. A **Design Review** to determine substantial compliance with the *Sacramento County Countywide Design Guidelines* (Design Guidelines).

The project request would amend the most current comprehensive entitlement for Jesuit High School's Use Permit (County Control No. PLNP2008-00237). As discussed in the Background, this Use Permit was previously amended in 2019 to allow an existing scoreboard and the operation of a PA system at Marauder Stadium (County Control No. PLNP2018-00190). The approved PA system speakers are attached to wooden poles. As part of the proposed project, the poles to which the PA speakers are currently attached would be taken down and replaced by the new lighting system's metal poles. Subsequently, the PA speakers will then be rehung onto the new stadium light poles at their current authorized location and height, which is 44 feet above grade on the home side and 35 feet above grade on the visitor's side of the stadium. The PA speakers would have the same angle of projection. Furthermore, reinstallation of the PA speakers on the new stadium poles would not alter or affect the terms of operating the PA system, including restrictions on the timing of operations and the noise levels permitted, as described and conditioned in the 2019 Use Permit amendment.

OPERATIONS PLAN

Jesuit High School has submitted to the County Night Event Management Guidelines that would be used in conjunction with the high school's existing standard operations, policies, and procedures governed by the school's Safety Team, Athletic Department, and California Interscholastic Federation (CIF), including but not limited to the Jesuit High School Incident Response Manual, Game Day Information sheets and the CIF Game Management Guidelines. The guidelines contain procedures for notification of neighbors of high profile/high-capacity events, communications to Jesuit High School families and students as well as visiting schools regarding conduct expectations, duties of volunteers assigned to these events, management of on- and off-site parking, and operation of the sound system.

PROPOSED IMPROVEMENTS (STADIUM LIGHTS)

Table PD-1 summarizes the lighting configuration for each of the four (4) poles. Each pole will be on a pre-cast base set approximately 20 feet below ground. As shown in columns four and five of the table, the number of luminaires (lighting fixtures) on each lighting pole would range from 14 to 19, with a total for all four poles of 66. These luminaires would be mounted at varying heights, ranging from 15 to 100 feet above grade. The total energy load would be 49.46 kilowatt (kW). When the lighting system is in use, the average daily electricity consumption would range from 117–158 kilowatt hours (kWh).

Table PD-1: Pole Heights and Luminaire Configuration

Location of the Pole	Pole Height Above Grade	Luminaire Type	Mounting Height	Quantity per Pole
F1	100'	TLC-LED-900	100'	10
		TLC-LED-400	100'	2
		TLC-LED-600	75'	2
		TLC-BT-575	35'	2
		TLC-LED-1200	100'	2
Subtotal				18
F2	100'	TLC-LED-900	100'	10
		TLC-LED-400	100'	2
		TLC-LED-600	75'	2
		TLC-BT-575	35'	2
		TLC-LED-1200	100'	3
Subtotal				19
F3	90'	TLC-LED-900	90'	6
		TLC-LED-400	70'	1
		TLC-BT-575	15'	2
		TLC-LED-1200	90'	6
Subtotal				15
F4	90'	TLC-LED-1200	90'	5
		TLC-LED-400	70'	1
		TLC-BT-575	15'	2
		TLC-LED-900	90'	6
Subtotal				14
Total				66

The LED light fixtures technology, designed by Musco Lighting as a new state-of-the art, dark sky certified lighting system, would provide the following benefits:

- Utilize a smaller point source, which allows the system to achieve maximum cut-off and light control, significantly reducing light spillage and glare to the surrounding community.
- Operate at adjustable light levels (ranging from 15-40 foot candles (fc), allowing lighting to be reduced by as much as half the normal intensity, settings that can be utilized during non-competitive events such as practices).
- Designed to meet the strict guidelines set by the International Dark-Sky Association (IDA) and, as such, will not contribute to glare or skyglow.

The improvements would also include wheelchair-accessible seating in the first row of the existing bleachers and the proposed handrails/guardrails at the ends of the existing bleacher seating. These would be composed of the same materials (steel) and would be the same size and color as the existing bleachers (silver/grey).

In addition to the improvements at the stadium, the applicant is proposing to install a pedestrian crossing with enhanced safety features at the intersection of Tennyson Way and American River Drive across from Jesuit High School's southern parking lot.

SCHEDULE OF USES

The proposed project is intended to expand the timing and use of the existing stadium facilities for several sports teams including the following: football, soccer, lacrosse, and track and field. The timing of all other school-affiliated sporting activities that do not utilize the stadium for practices or games would remain the same. See Plate PD-5 for a detailed anticipated event lighting schedule provided by the project applicant, which provides a summary of the anticipated uses of the stadium after the lights are installed. No uses of the stadium are proposed before sunrise.

The project applicant indicated that the proposed stadium lights would be used on select evenings to accommodate athletic practices and competitions, primarily during the winter months when the sun sets early or during home football games. It is anticipated that lighting for athletic practices can be provided at a significantly reduced intensity and will not be accompanied by the noise or spectators usually associated with competitions. Evening competitions with near capacity crowds are anticipated to be held between seven (7) and ten (10) times per a year. Evening competitions with smaller crowds below capacity and minimal or no amplified sound are anticipated to be held twenty (20) to twenty-five (25) times per year.

Sunset in the Sacramento area ranges from as early as 4:30 P.M. in late November to early December to as late as 9:15 P.M. in early August (National Oceanic and Atmospheric Administration [NOAA] Sunrise/Sunset Calculator for the year 2023). Evening athletic games and evening athletic practices would be limited to only school-sanctioned sports teams. Use of lighting during and following athletic practices would generally end by 8:00 P.M. Most athletic games would end by 9:00 P.M. except for football which will usually end at 10:00 P.M., but no later than 11:00 P.M., with lighting potentially remaining on after at reduced levels to facilitate safe crowd exiting and for clean-up and other similar activities after game completion.

According to the project applicant, the stadium's track and field is used by the following sports programs:

- Jesuit High School athletic program
- Jesuit High School Junior Marauder football league
- Parochial Athletic League (PAL) flag football
- Parochial Athletic League (PAL) track program

PAL is an integral part of the educational mission of the schools that participate in the league and is supervised by the Catholic Schools Department (CSD) under the direct supervision of the Diocese of Sacramento. PAL is for grade school-age students only. Jesuit High School supports that mission by partnering with PAL to use the stadium for certain events. By regulation, the PAL flag football and track/field practices and contests must occur during daytime hours. Therefore, these events will not be impacted by the proposed stadium lights since they are not allowed to compete or practice at night.

Plate PD-5: Anticipated Event Lighting Schedule (Provided by Project Applicant)

JESUIT HIGH SCHOOL SACRAMENTO ANTICIPATED EVENT LIGHTING

Event	Current Time	Proposed Time	Days	Months	Light Level (approx)	Size Estimate	Amplified Sound	Marching Band
Games - Lacrosse	3-6 p.m.	5-9 p.m.	TBD	Mar-Apr	100%	100-300	Yes	No
Games - Football	Sat. 10 - 4 p.m.	5-10 p.m.	F	Aug-Oct	100%	800-1500	Yes	Yes
Games - Soccer	3-6 p.m.	3-7 p.m.	Tu, Th	Dec-Feb	80%	100-300	No	No
Practice - Football	3:30-6:30	4-7 p.m.	M-Th	Aug-Nov	50%	N/A	No	No
Practice - Soccer	3:30-6:00	4-7 p.m.	M-F	Nov - Feb	50%	N/A	No	No
Practice - Track	3:30-5:00	4-7 p.m.	M-F	Feb-Apr	50%	N/A	No	No
Practice Lacrosse	3:30-6:30	4-8 p.m.	M-F	Feb-Apr	50%	N/A	No	No
Track & Field Special Event	3:00-6:00	3-8 p.m.	Rarely	Mar-Apr	80%	500-900	Yes	No
Soccer Playoffs	4:00-6:00	5-7 p.m.	TBD	Feb	80%	500-900	Yes	No
Lacrosse Playoffs	4:00-6:00	7-9 p.m.	TBD	May	100%	200-500	Yes	No
Football Playoffs	1-4 p.m.	7-10 p.m.	F	Nov	100%	1500-3000	Yes	Yes

Historical Average number of home games regular season	
Football	5
Lacrosse	10
Soccer	14

Historical Average number of home playoff games	
Football	2
Lacrosse	1
Soccer	4
Track & Field Special Event	1

Jesuit High School October 10, 2022

ATTENDANCE

The estimated attendance for athletic competitions upon installation of the proposed stadium field lights would vary by sport and other factors, such as level of competition (regular season vs. postseason) and weather conditions. Under existing conditions, the highest attendance is typically for football games, with approximately 1,200 attendees for most football games, increasing to up to 2,500 attendees for postseason games. Currently, Jesuit High School football games take place during Saturday afternoon hours or off-site at Sacramento City College's Hughes Stadium for post season games. The installation of stadium lights at Jesuit High School is expected to increase attendance from 1,200 attendees to 1,500 attendees for most regular season football games and up to 3,000 attendees for postseason games. For other special sporting events or playoffs, including track and field, lacrosse, and soccer, attendance is expected to be from 200 attendees to up to 900 attendees.

PARKING NEEDS

Existing parking on the Jesuit High School campus is illustrated in Plates PD-6 and PD-7. There is no additional parking proposed as part of the project. Both the Fair Oaks Boulevard/O'Donnell Drive main campus parking lot entrance along with the parking lot adjacent to the project site located off of American River Drive, would be made available for nighttime games at the Marauder Stadium. The applicant also stated that there is ability to park approximately 300 vehicles on the soccer/rugby fields and another 100 vehicles on the field south of the visitor's bleachers. Particularly, these areas can be utilized for larger football events during the summer and fall months.

According to the Local Transportation Analysis Report (LTA) prepared by Kimley Horn dated March 10, 2023, Jesuit High School has 539 total parking stalls on campus, with 499 of those stalls available to attendees during a Friday evening football game. The remaining 40 spaces are dedicated strictly for campus residents and maintenance equipment.

During maximum capacity, parking demand can exceed the number of on-site parking spots. Two off-site parking locations that Jesuit High School has previously arranged to use for major events are the Arden Hills Wellness Resort (on the north side of Fair Oaks Boulevard) and the Rio Americano High School Parking Lot on American River Drive approximately 0.5 miles southwest of the stadium. Attendees also park on nearby residential streets where it is allowed.

CONSTRUCTION METHODS

Access to the project site for construction would be through the access lane to the west of the stadium from American River Drive. Equipment and materials would be staged at the discus field located at the west of the parking lot on American River Drive, south of the stadium. Installation of the light poles would involve auguring holes and installing precast pole bases into those holes. No tree removal would be required. The existing PA speaker supports would be removed by the crane and the speaker removed from those supports on the ground. The poles would be raised by crane bolted to the pole

Plate PD-6: Jesuit High School Campus Map

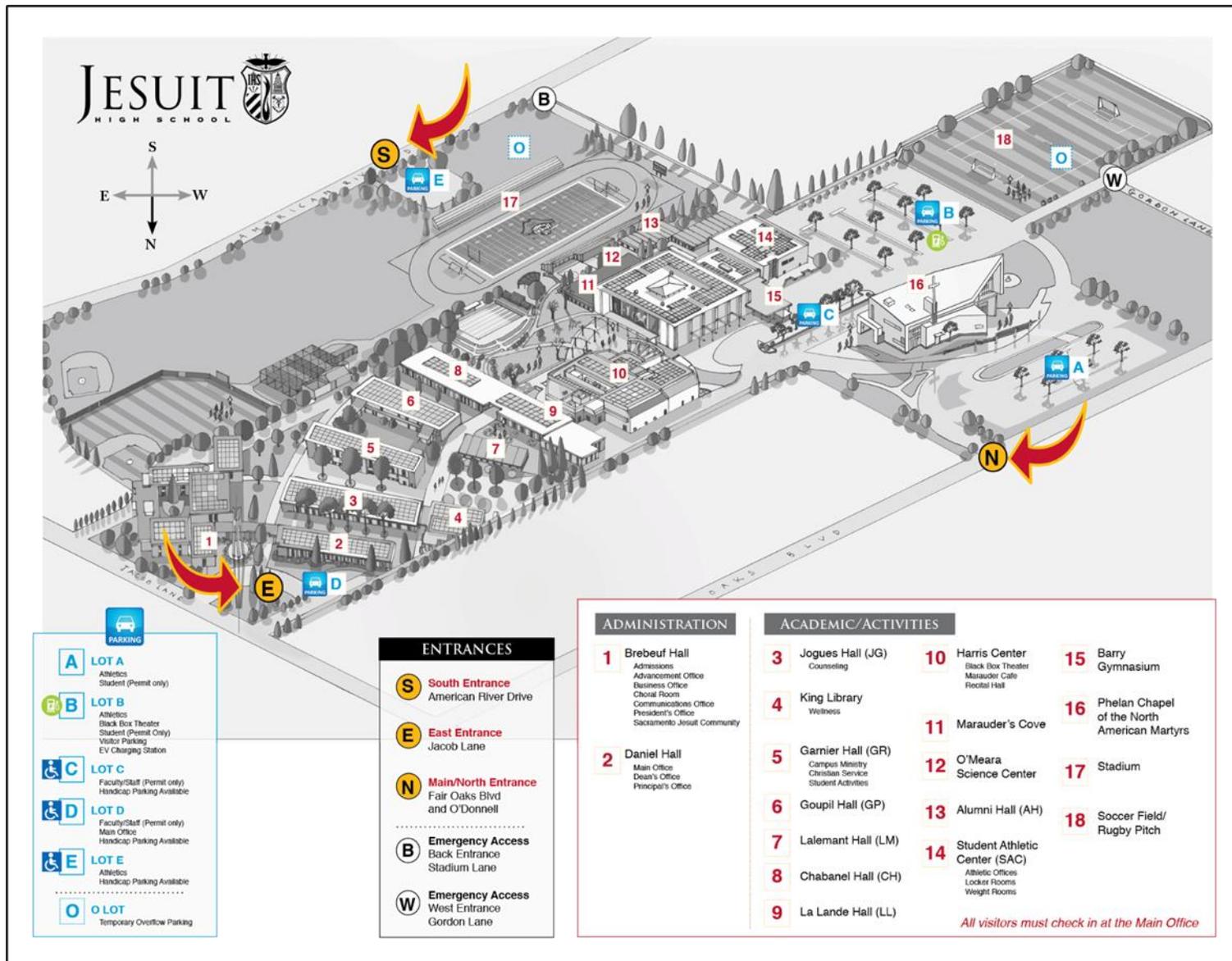


Plate PD-7: Listing of Jesuit High School Parking Areas

Jesuit High School Parking Spaces

There are 8 distinct parking areas on campus: 1) Jacob Lane; 2 Chapel Lot; 3) Soccer/Rugby (includes Gordon lane) Lot; 4) Gym Lot; 5) American River Drive Lot; 6) Jesuit Residence (off Jacob Lane); 7) Maintenance and 8) Dreyer Plaza (outside the pool). Our lots have Open or Student, Faculty, Visitor, Dedicated, School Van or Handicap Parking spaces as listed below.

1) <u>Jacob Lane</u>	Faculty – 42 Visitor – 6 Handicap – 2	6) <u>Jesuit Residences</u>	Handicap – 8 Carport – 6 Dedicated – 8
2) <u>Chapel Lot</u>	Open – 98 (Student) Handicap – 4	7) <u>Maintenance</u> – No Public Parking – 27 (Reserved B&G/Janitorial/Jesuit ONLY)	
3) <u>Soccer/Rugby</u>	Open – 211 (Student) (including 5 EVP) School Vans – 6	8) <u>Dreyer Plaza/Pool</u>	Open – 1 Handicap – 2
4) <u>Gym Lot</u>	Open – 28 (Student) (+ 1 PACE Auc.) Faculty – 34 Handicap – 8 Visitor – 5	<u>Overflow Field Parking</u> – can be used for special events: <i>Soccer/Rugby Field</i> Open – 300+/- <i>FB Practice</i> Open – 100+ (located behind visitor bleachers)	
5) <u>Am. River Dr.</u>	Open – 44		

Totals: Open / Student – 337 (Including 5 Electric Vehicle Parking)
AR Lot – 44 (Former Sophomore Lot- open during events)
Faculty – 76
Handicap – 24
Dedicated – 14 (Jesuit Residence) *
Maintenance – 27 (Reserved - Not Available to Faculty or Public) *
Visitor – 11 (5 across from SAC / 6 In the Jacob Lane lot)
School Vans – 6

All Spaces: 539 (Includes Dedicated Parking, does NOT include Field Parking)
499 (Without Dedicated Residence & Maintenance)
899 – approximate spaces with the use of field overflow lots

bases. Light fixtures and speakers would be attached to the new poles on the ground in the staging area and erected with the poles; PA speakers would be attached to the new poles at the same height as they are removed from the prior poles. Underground electrical conduit is existing with pull boxes within 10 feet of the pole location. Minor trenching would be required to install conduit and wire from the pull boxes to the new pole bases. Equipment required for construction would be a crane, auger, backhoe, and forklift. The number of construction crew on site is estimated to be 10. Construction hours would be between 7 am and 4 pm during weekdays. Construction would occur over a period of two weeks.

INTENDED USE OF THE EIR

The County Planning Commission will consider the information contained in the EIR as a part of the evaluation of the project and will render a decision to approve or deny the requested entitlements. Responsible and other agencies may also use the EIR for their own discretionary approvals associated with the project.

Table PD-2, below, includes information required by Section 15124 of the CEQA Guidelines and summarizes the following intended uses of the EIR:

- A list of agencies that are expected to use the EIR in their decision making.
- A list of permits and other approvals required to implement the project.
- A list of related environmental review and consultation requirements required by federal, state, or local laws, regulations, or polices.

Table PD-2: Subsequent Permits, Approvals, Review, and Consultation Requirements

Agency	Approval
County Planning Commission	Final Environmental Impact Report Certification
County Planning Commission	Use Permit Amendment and Design Review
County Building Permits and Inspection Division	Building Permit
County Transportation	Encroachment Permit
County Transportation	Improvement Plans

4 ALTERNATIVES

INTRODUCTION

This chapter describes alternatives to the proposed project that could lessen potentially significant impacts while meeting the basic objectives of the project. An evaluation comparing impacts of the alternatives to the impacts of the proposed project is included. The following impact discussions are presented in either a qualitative or a quantitative manner depending on resource topic, and are generally briefer than those found in the project chapters, consistent with the CEQA Guidelines Section 15126.6(d). This chapter does not repeat background discussions or other subject matter, which has already been described in the topical chapters of this EIR, but focuses on those alternative impacts which are substantively different than the impacts described for the project. Reviewers are encouraged to read the topical chapters describing project impacts prior to reading the Alternatives chapter for additional background and context that precede this chapter (i.e., Chapters 5 through 10).

REGULATORY CONTEXT

CALIFORNIA ENVIRONMENTAL QUALITY ACT REQUIREMENTS

As stated in Section 15126.6 of the CEQA Guidelines:

An EIR shall describe a range of reasonable alternatives to the project, or to the location of the project, which would feasibility attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives.

The range of potentially feasible alternatives required in an EIR is governed by a “rule of reason” that requires the EIR to set forth only those alternatives necessary to permit a reasoned choice. The potential feasibility of an alternative may be determined based on a variety of factors, including economic viability, availability of infrastructure, and other plans or regulatory limitations. As stated in Public Resources Code Section 21081[a] [3], the ultimate determination as to whether an alternative is feasible or infeasible is made by the lead agency’s decision-making body.

In determining what alternatives should be considered in the EIR, it is important to acknowledge the objectives of the project, the project’s significant effects, and unique project considerations. These factors are crucial to the development of alternatives that meet the criteria specified in Section 15126.6(a). The CEQA Guidelines further require that the alternatives be compared to the project’s environmental impacts and that a “No Project” Alternative is considered (Section 15126.6[d] [e]).

CONSIDERATIONS FOR SELECTION OF ALTERNATIVES

ATTAINMENT OF PROJECT OBJECTIVES

Pursuant to Section 15126.6 of the CEQA Guidelines, an alternative must “attain most of the basic objectives of the project.” As described in Chapter 2, “Project Description,” the project objectives are as follows:

- Provide a feasible location at which to increase the athletic opportunities for Jesuit High School students and enable greater participation/attendance by students and their families by hosting on-campus sports competitions during the evening hours;
- Allow for athletic practices and competition to occur after the peak afternoon hours during times with more favorable weather conditions to protect the health and safety of student-athletes, coaches and spectators;
- Provide sufficient time, particularly for Fall and Winter sports, to train and compete without requiring student-athletes to miss excessive classroom instruction multiple times per month;
- Spread on-campus activities over a broader period of time to reduce the number of individuals and vehicles concurrently utilizing school facilities;
- Enhance the overall high school athletic experience for students, parents, alumni, and the Sacramento community; and
- Continue to build upon Jesuit’s reputation for athletic excellence by providing facilities that allow athletes to achieve peak performance.

GUIDELINES FOR SELECTION OF ALTERNATIVES

The requirement that an EIR evaluate alternatives to a project or alternatives to the location of a project is a broad one, since the primary intent of the alternatives analysis is to disclose other ways that the objectives of the project could be attained while reducing the magnitude of, or avoiding entirely, the significant environmental impacts of the project. According to the CEQA Guidelines Section 15126.6(f):

The alternatives shall be limited to ones that would avoid or substantially lessen any of the significant effects of the project. Of those alternatives, the EIR need examine in detail only the ones that the lead agency determined could feasibly attain most of the basic objectives of the project.

In the context of CEQA, "feasible" is defined in CEQA Guidelines Section 15364 as:

Capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social and technological factors. Further, the following factors may be considered in the assessment of the feasibility of alternatives: site suitability, economic viability, availability of infrastructure, general plan consistency, other plans or regulatory

limitations, jurisdictional boundaries, and the ability of the proponent to attain site control. Finally, an EIR is not required to analyze alternatives when the effects of the alternative "cannot be reasonably ascertained and whose implementation is remote and speculative." (CEQA Guidelines Section 15126.6(f)(3)).

Based on the above guidance, alternatives were selected for review that would meet most of the basic project objectives, would reduce one or more of the significant impacts of the project, would be reasonable and potentially feasible, and would not be speculative.

RANGE OF ALTERNATIVES

To foster meaningful public discussion and informed decision-making, a range of reasonable alternatives to the proposed project were developed, as summarized below. Some of the alternatives considered were infeasible and rejected without detailed analysis, for the reasons explained below. Alternatives discussed in detail below include the "No Project" alternative, Alternative 1 (Alternative Locations), and Alternative 2 (Shade Structure at Marauder Stadium). The purpose of the "No Project" alternative is to allow the hearing body to compare the impacts of approving the project to the impacts of not approving the project. The "No Project" alternative describes what would happen if the existing land use designations remained in effect. As outlined in Section 15126.6(f)(3) of the CEQA Guidelines, an EIR need not evaluate an alternative that is considered speculative, theoretical, or unreasonable.

The purpose of this chapter is to identify alternatives that would mitigate, lessen, or avoid the potentially significant effects of the proposed project. As described in Chapters 5 and 9 of this document, the proposed project would result in two significant and unavoidable impacts in aesthetics and noise and less-than-significant impacts with mitigation incorporated in air quality, biological resources, cultural and tribal cultural resources, and transportation.

SIGNIFICANT PROJECT IMPACTS

SIGNIFICANT AND UNAVOIDABLE IMPACTS

The following significant and unavoidable impacts could result from implementation of the proposed project:

Aesthetics: The project would have a significant and unavoidable impact with regard to nighttime generation of glare and skyglow from the proposed stadium lighting. No feasible mitigation is available. This would be a significant and unavoidable impact.

Noise and Vibration: The project would result in increases in ambient noise levels that would exceed the 3 dBA threshold at sensitive receptors near the stadium. Mitigation Measure NOI-1 would lessen the severity of these impacts, but not below the level of significance. This would be a significant and unavoidable impact.

LESS THAN SIGNIFICANT WITH MITIGATION

Significant impacts that could be reduced to less-than-significant levels with identified mitigation measures are summarized below:

Air Quality: Construction impact with regard to conflicts with applicable air quality plans and net increases in criteria pollutants for which the project region is in nonattainment under applicable standards.

Biological Resources: Construction impact on raptors and nesting birds.

Cultural Resources Construction impact of inadvertent discovery of cultural resources or unanticipated human remains.

Transportation: Operational impact with respect to substantially increasing hazards due to design features or incompatible uses.

Tribal Cultural Resources Construction impact of inadvertent discovery of tribal cultural resources with mitigation incorporated from cultural resources above.

ALTERNATIVES CONSIDERED

ALTERNATIVES CONSIDERED BUT DISMISSED FROM FURTHER EVALUATION

Pursuant to CEQA Guidelines Section 15126.6(c), the alternatives that were considered but rejected as infeasible are briefly discussed below. An alternative may be considered but not carried forward for various reasons, such as not meeting the objective(s) of the project; not being feasible; conditions outside the control of the project applicant (e.g., land ownership, right-of-way acquisition); or other constraints.

ELIMINATE ATHLETIC PROGRAMS

This alternative would avoid the need for the practice and game flexibility that would be provided by permanent stadium lighting by eliminating these team sports altogether, or through eliminating the football program. However, this alternative is dismissed from further consideration because it does not meet any of the project objectives.

ALTERNATIVE PROJECT LOCATION - NEW STADIUM WITH LIGHTING

Establishing a new stadium with installed lighting is unlikely to have fewer or less significant environmental impacts than the proposed project unless it were located far from existing residential development and could avoid significant noise and lighting effects. However, locating a new stadium at a distance from existing residential development could also have the effect of increasing travel distances to the stadium and associated criteria air pollutant and greenhouse gas emissions. Adding permanent lighting to Marauder Stadium can be done within the existing facility footprint. Developing an entirely new site could result in new or more severe significant impacts than have been identified for the proposed project, such as aesthetic, biological, cultural

resources, hydrology and water quality, noise, and transportation impacts. The applicant would also need to obtain control of a new site that is of sufficient size to accommodate a new stadium. In addition, if a new site is not available within a reasonable distance of Jesuit High School and its enrolled population, most of the project objectives would not be attained. For these reasons, this alternative was considered, but then rejected for detailed examination in this EIR.

RESCHEDULING TO MORNING HOURS

This alternative would reschedule practices and games to the morning hours. Although it might be possible to schedule some practices during the morning hours in the spring and fall, during the winter months, sunrise occurs after 7 am, which may not provide adequate time for practices prior to the start of classes. In addition, this alternative would not accommodate weekday games, as mornings would not provide the several hours required and would conflict with the school and work schedules of most participants and attendees. For these reasons, this alternative was considered, but then rejected for detailed examination in this EIR.

ALTERNATIVES EVALUATION

NO PROJECT ALTERNATIVE

For the purposes of the No Project Alternative, it is assumed the proposed project would not be constructed. Therefore, for the purposes of the No Project Alternative analysis, permanent lights, as well as code-compliant lighting for the bleachers and pedestrian pathways of the stadium would not be installed at the stadium, and athletic activities would continue to occur as they are presently occurring and as described in the “Current Time” column of Plate PD-4 in Chapter 3, Project Description. Generally, this means that sports practices and games would end prior to sundown, and that no evening or nighttime events would take place at the stadium. However, temporary, portable lighting could be used with issuance of a temporary use permit.

CONSISTENCY WITH PROJECT OBJECTIVES

This alternative would not meet any of the project objectives.

EVALUATION

AESTHETICS

Because the stadium lighting would not be installed, this alternative would eliminate the significant and unavoidable impact with regard to nighttime generation of glare and skyglow. However, because temporary lighting could be used, the No Project Alternative would not necessarily eliminate all environmental effects from the light and glare.

AIR QUALITY

Under the No Project Alternative, there would not be air quality impacts because no construction would occur. Although the proposed project would also not have air quality

impacts, this alternative would eliminate the need to implement SMAQMD-required Basic Construction Emission Control Practices (Mitigation Measure AQ-1). Since there would be no increase in attendance for planned events, there would be no increase in criteria air pollutant emissions during operations.

CULTURAL AND TRIBAL CULTURAL RESOURCES

The No Project Alternative would not involve construction. Therefore, no mitigation related to protecting cultural or tribal cultural resources or paleontological resources would be required.

NOISE AND VIBRATION

Under the No Project Alternative, football games, which represent the worst-case for long-term noise generation, would not occur during evening hours. Therefore, this alternative would not have a significant and unavoidable long-term impact of significant increases in ambient noise levels at nearby sensitive receptors. In addition, as no construction would occur, this alternative would not generate a temporary increase in ambient noise levels. However, because temporary lighting could be used, the No Project Alternative would not necessarily eliminate the potential for nighttime noise effects.

TRANSPORTATION

Under the No Project Alternative, there would be no evening games that would exacerbate an existing pedestrian safety condition along American River Drive. Therefore, Mitigation Measure TR-1 would not be applicable.

ALTERNATIVE 1: ALTERNATE STADIUM LOCATIONS

Under this alternative, Jesuit High School would arrange for the use of another facility for practices and games that cannot be accommodated between the end of classes and sundown. Two existing lighted stadiums have been identified:

- **Hughes Stadium.** This facility is located at 3835 Freeport Boulevard, Sacramento, at Sacramento City College. It is approximately 10 miles from Jesuit High School. The stadium is surrounded by campus facilities and commercial land uses. The nearest residence is approximately 500 feet to the south.
- **Hornet Stadium.** This facility is located at 6000 Jed Smith Drive, Sacramento, at California State University, Sacramento. It is approximately 6 miles from Jesuit High School. The stadium is surrounded by campus facilities and commercial land uses. The nearest residence is approximately 1,000 feet to the west.

CONSISTENCY WITH PROJECT OBJECTIVES

This alternative would meet most of the basic project objectives. However, it may not meet the objective of enabling greater participation/attendance by students and their families due to the significantly greater (6-10 mile) travel distance from Jesuit High School.

EVALUATION

AESTHETICS

Because the stadium lighting would not be installed, this alternative would eliminate the significant and unavoidable impact with regard to nighttime generation of glare and skyglow at Marauder Stadium. In addition, this impact would not occur at the Hughes or Hornet stadiums, which already have stadium lighting, even with the addition of Jesuit High School games due to the greater distance between the lighting and land uses that are sensitive to light.

AIR QUALITY

Under the No Project Alternative, there would be no potentially significant construction-related air quality impact because no construction would occur. This alternative would eliminate the need to implement SMAQMD-required Basic Construction Emission Control Practices (Mitigation Measure AQ-1). However, vehicle miles traveled (VMT) would likely increase due to the greater travel distances that would be involved, which would increase emissions of criteria pollutants from vehicle trips.

CULTURAL AND TRIBAL CULTURAL RESOURCES

Alternative 1 would not involve construction because these off-site facilities already have nighttime lighting. Therefore, no mitigation related to protecting cultural or tribal cultural resources would be required.

NOISE AND VIBRATION

Under this alternative, evening football games would occur at off-site facilities (e.g., Hughes or Hornet stadiums); therefore, sensitive receptors near Marauder Stadium would not experience changes in ambient noise levels. In addition, sensitive receptors at these off-site stadiums are a minimum of 500 feet away, ensuring that they would not experience significant changes in ambient noise levels due to additional games. Therefore, Alternative 1 would not have a significant and unavoidable long-term impact of significant increases in ambient noise levels at nearby sensitive receptors. In addition, as no construction would occur, this alternative would not generate a temporary increase in ambient noise levels.

TRANSPORTATION

As under the proposed project, Alternative 1 would not conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities. This alternative would not exacerbate an existing pedestrian safety condition along American River Drive because evening events would occur at other facilities. Therefore, Mitigation Measure TR-1 would not be required. However, due to the greater distances that attendees would have to travel, Alternative 1 could increase VMT compared to the proposed project.

ALTERNATIVE 2: SHADE STRUCTURE AT MARAUDER STADIUM

This alternative would construct a shade structure over the bleachers and field at Marauder Stadium. The shade structure could also potentially be constructed over another field at Jesuit High School. By providing shade over the field, this structure would help make afternoon practices more tolerable for players during the hotter months of early fall and late spring. It is assumed that Alternative 2 would not include lighting to illuminate the field and seating areas after dark.

CONSISTENCY WITH PROJECT OBJECTIVES

Because lighting would not be integrated into this structure, it would not meet the project objective of providing the flexibility of having practices and games during evening hours in the winter. Alternative 2 would partially meet the objective of protecting the health and safety of student-athletes, coaches, and spectators because it would provide shade on excessively hot days.

AESTHETICS

Because the stadium lighting would not be installed, this alternative would eliminate the significant and unavoidable impact with regard to nighttime generation of glare and skyglow. However, depending upon its height and location, this structure could be highly visible compared to thin lighting standards, it would have a greater aesthetic impact related to degradation of the existing visual character or quality of public views of the site and its surroundings and could conflict with applicable zoning and other regulations governing scenic quality.

AIR QUALITY

Alternative 2 would involve significantly more construction than the proposed project in order to erect the shade structure. Therefore, it would have greater short-term air quality impacts. However, air quality emissions from vehicle trips would be reduced because it is likely that attendance would not increase due to this alternative not shifting games to the evening hours.

CULTURAL AND TRIBAL CULTURAL RESOURCES

Alternative 2 would involve significantly more construction than the proposed project to in order erect the shade structure. Therefore, this alternative could have greater impacts on cultural, tribal cultural, and paleontological resources due to increased ground disturbance.

NOISE AND VIBRATION

Under Alternative 2, football games, which represent the worst-case for noise generation, would not occur during evening hours. Therefore, this alternative would not have a significant and unavoidable long-term impact of significant increases in ambient noise levels at nearby sensitive receptors. However, due to the greater amount of construction that would be required to erect the shade structure, Alternative 2 could increase short-term construction noise impacts.

TRANSPORTATION

As under the proposed project, Alternative 2 would not conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities. This alternative would not exacerbate an existing pedestrian safety condition along American River Drive because evening events would not occur. In addition, because this alternative would not have evening games, VMT would not increase as a result of higher attendance.

COMPARATIVE COMPARISON OF ENVIRONMENTAL EFFECTS

For comparison purposes, Table ALT-1 provides the impacts of the proposed project before mitigation, the No Project Alternative, Alternative 1 (Alternate Stadium Locations), and Alternative 2 (Shade Structure).

- NI: No impact
- LS: Indicates the project's impact is less than significant
- PS: Indicates the project's impact is potentially significant
- LSM: Less than significant with mitigation incorporated
- SU: Significant and Unavoidable
- Less: Indicates the impact is less than the proposed project
- Similar: Indicates the impact is equal or similar to the proposed project
- Greater: Indicates the impact is greater than the proposed project

Table ALT-1: Comparison of Alternatives to the Proposed Project

Impact Category	Proposed Project Impact Level	No Project Alternative	Alternative 1: Alternate Stadium Locations	Alternative 2: Shade Structure
Aesthetics				
Impact AE-1. In Nonurbanized Areas, Substantially Degrade the Existing Visual Character or Quality of Public Views of the Site and its Surroundings? If the Project is in an Urbanized Area, Would the Project Conflict with Applicable Zoning and Other Regulations Governing Scenic Quality?	LS	NI Less	NI Less	PS Greater
Impact AE-2. Create a New Source of Substantial Light or Glare that Would Adversely Affect Day or Nighttime Views in the Area?	SU	NI Less	NI Less	NI Less
Air Quality				
Impact AQ-1. Conflict with or Obstruct Implementation of the Applicable Air Quality Plan?	LSM	NI Less	NI Less	LSM Greater
Impact AQ-2. Result in a Cumulatively Considerable Net Increase of any Criteria Pollutant for which the Project Region is Nonattainment Under an Applicable Federal or State Ambient Air Quality Standard?	LSM	NI Less	NI Less	LSM Greater
Impact AQ-3. Expose Sensitive Receptors to Substantial Pollutant Concentrations?	LS	NI Less	NI Less	LSM Greater

Impact Category	Proposed Project Impact Level	No Project Alternative	Alternative 1: Alternate Stadium Locations	Alternative 2: Shade Structure
Impact AQ-4. Result in Other Emissions (Such as Those Leading to Odors) Adversely Affecting a Substantial Number of People?	LS	NI Less	NI Less	LSM Greater
Biological Resources				
Impact BR-1: Have a Substantial Adverse Effect, Either Directly or Through Habitat Modifications, on Any Species Identified as a Candidate, Sensitive, or Special-Status Species in Local or Regional Plans, Policies, or Regulations, or by CDFW or USFWS	LSM	NI Less	NI Less	LSM Greater
Impact BR-2: Have a Substantial Adverse Effect on Any Riparian Habitat or Other Sensitive Natural Community Identified in Local or Regional Plans, Policies, or Regulations, or by CDFW or USFWS	NI	NI Similar	NI Similar	NI Similar
Impact BR-3: Have a Substantial Adverse Effect on State or Federally Protected Wetlands (including, but not limited to, Marsh, Vernal Pool, Coastal) through Direct Removal, Filling, Hydrological Interruption, or Other Means	NI	NI Similar	NI Similar	NI Similar

Impact Category	Proposed Project Impact Level	No Project Alternative	Alternative 1: Alternate Stadium Locations	Alternative 2: Shade Structure
Impact BR-4: Interfere Substantially with the Movement of Any Native Resident or Migratory Fish or Wildlife Species or with Established Native Resident or Migratory Wildlife Corridors, or Impede the Use of Native Wildlife Nursery Sites	LSM	NI Less	NI Less	LSM Greater
Impact BR-5: Conflict with Any Local Policies or Ordinances Protecting Biological Resources, such as a Tree Preservation Policy or Ordinance	NI	NI Similar	NI Similar	NI Similar
Impact BR-6: Conflict with the Provisions of an Adopted HCP, Natural Community Conservation Plan, or other approved Local, Regional, or State HCP	NI	NI Similar	NI Similar	NI Similar
Cultural Resources				
Impact CR-1: Cause a Substantial Adverse Change in the Significance of a Historical Resource Pursuant To Section 15064.5	LSM	NI Less	NI Less	LSM Greater
Impact CR-2: Cause a Substantial Adverse Change in the Significance of an Archaeological Resource Pursuant to Section 15064.5	LSM	NI Less	NI Less	LSM Greater
Impact CR-3: Disturb Any Human Remains, Including Those Interred Outside of Dedicated Cemeteries	LSM	NI Less	NI Less	LSM Greater

Impact Category	Proposed Project Impact Level	No Project Alternative	Alternative 1: Alternate Stadium Locations	Alternative 2: Shade Structure
Impact CR-4: Damage to or Destruction of Paleontological Resources During Earthmoving Activities	LSM	NI Less	NI Less	LSM Greater
Noise and Vibration				
Impact NOI-1. Generation of a Substantial Temporary or Permanent Increase in Ambient Noise Levels in the Vicinity of the Project in Excess of Standards Established in the Local General Plan or Noise Ordinance, or Applicable Standards of Other Agencies	SU	NI Less	NI Less	NI Less
Impact NOI-2. Generation of Excessive Groundborne Vibration or Groundborne Noise Levels	LS	NI Less	NI Less	LS Greater
Transportation				
Impact TR-1. Conflict with a Program, Plan, Ordinance or Policy Addressing the Circulation System, Including Transit, Roadway, Bicycle and Pedestrian Facilities?	LS	NI Less	NI Less	NI Less
Impact TR-2. Conflict or be Inconsistent with CEQA Guidelines § 15064.3, Subdivision (B)?	LS	NI Less	PS Greater	NI Less
Impact TR-3. Substantially Increase Hazards Due to a Geometric Design Feature (E.G., Sharp Curves or Dangerous Intersections) or Incompatible Uses (E.G., Farm Equipment)?	LSM	NI Less	NI Less	NI Less

Impact Category	Proposed Project Impact Level	No Project Alternative	Alternative 1: Alternate Stadium Locations	Alternative 2: Shade Structure
Impact TR-4. Result in Inadequate Emergency Access?	LS	LS Similar	LS Similar	LS Similar
Tribal Cultural Resources				
Impact TCR-1: Cause a Substantial Adverse Change in the Significance of a Tribal Cultural Resource	LSM	NI Less	NI Less	LSM Greater

ENVIRONMENTALLY SUPERIOR ALTERNATIVE

Table ALT-1 provides a summary comparison of the impacts of the proposed project and the alternatives that were analyzed. As indicated in Table ALT-1, the No Project Alternative would avoid impacts to all resource areas listed above with the exception of potential light and glare impacts from use of portable lighting that can be allowed under a temporary use permit. However, the No Project Alternative would not meet any of the project objectives listed in Chapter 3. CEQA Guidelines Section 15126.6(e)(2) states that when the No Project Alternative is identified as the environmentally superior alternative, the EIR must also identify an environmentally superior alternative from among the other alternatives. Alternative 1 would avoid impacts to all resources with the exception of transportation, in which there would be a potentially significant VMT impact. Therefore, Alternative 1 would be the environmentally superior alternative.

5 AESTHETICS

INTRODUCTION

This chapter presents a description and photographs of existing viewsheds and the existing visual character of the project site and surrounding area. This chapter also evaluates potential aesthetics impacts of the proposed project from public viewpoints; and compliance with the County Zoning Code, along with various other plans and policies designed to regulate visual character and quality. Finally, this chapter examines the effect of new sources of nighttime lighting as related to light trespass, glare, and skyglow.

ENVIRONMENTAL SETTING

VISUAL RESOURCE EVALUATION CONCEPTS

Both natural and created features in a landscape contribute to its visual character. Landscape characteristics that influence the visual character include geologic, hydrologic, botanical, wildlife, recreation, and urban features. The basic elements that comprise the visual character of landscape features are form, line, color, and texture (Federal Highway Administration [FHA 1988], U.S. Forest Service [USFS 1995]). The appearance of the landscape is described in terms of the dominance of each of these elements.

In addition to visual character, the overall visual experience also encompasses viewer response, including viewer exposure and sensitivity. Visual perception is the basic act of seeing or recognizing an object. Landscape elements are considered higher or lower in visual importance based on their proximity to the viewer. Generally, the closer a resource is to the viewer, the more dominant, and therefore visually important, it is to the viewer. The primary public viewpoint of the project site is from vehicles on American River Drive; as observer speed increases during vehicular travel on roadways, the sharpness of lateral vision declines and the observer tends to focus along the line of travel. Visual sensitivity is affected by viewer activity, awareness, and expectations in combination with the duration of the view (FHA 1988).

EXISTING VISUAL RESOURCES

The description of the visual character at the project site includes a description of the relevant key observation points (KOPs) and photographs from each KOP, showing the existing conditions, are provided. Plate AE-1 shows the location of each of the key viewpoints. Existing light and glare at the project site and the surrounding area are also briefly described. The section below titled “Impacts and Analysis” includes visual simulations showing the proposed condition at the project site with the inclusion of nighttime lighting as viewed from various locations (M. Neils Engineering 2023).

Plate AE-1: Key Observation Points



Source: AECOM 2023

EXISTING VISUAL CHARACTER

PROJECT SITE

The project site consists of the southern half of the Jesuit High School campus, which is comprised of the existing outdoor stadium and bleachers, outdoor baseball/softball fields, equipment storage building, small paved parking lot south of the stadium (which would serve as the temporary construction staging area), and soccer fields south of the stadium. The site was originally developed as a school in 1963, and the outdoor sports facilities at the project site were developed in 1968, with upgrades to the stadium and track in 2016. The project site and surrounding area are flat; therefore, the dominant landforms consist of the existing on-site and surrounding urban development.

The four proposed light standards would be installed in existing paved areas immediately adjacent to the adjacent stadium and bleachers: two on the north side and two on the south side. The viewshed in this area is dominated by the height and silver/grey color of the existing metal bleacher seating, which runs parallel to the long sides of the oval track and infield. The bleachers present a strong horizontal, elevated element in the landscape. The flat track on the ground inside the bleachers is composed of an all-weather surface that is red in color, while the infield is composed of contrasting green turf grass with white markings for football. An overlay of the school's mascot in the center of the football field matches the track in color. Several tall wood power poles are present on the west side of the track. Several small one-story buildings including a concession stand and equipment storage buildings, flat paved walkways with tan concrete coloring, and flat paved outdoor gathering areas (also tan colored) surround the stadium. Groupings of several tall deciduous landscape trees (green in spring and summer, gold in fall, and brown in winter) are present outside the stadium proper (at each corner) and along walkways and adjacent to the gathering areas. The surrounding green color and fine texture of the turf discus, baseball, and soccer fields provide a pleasing visual contrast with the silver/grey color and coarse texture of the bleacher seating. The visual appearance of the stadium presents a high degree of cohesiveness and unity. An aerial view of the existing stadium, including the location of the four proposed light standards, is shown in KOP-1.

The discus/soccer field immediately south of the stadium, which is proposed for temporary construction staging, consists of turf grass and is surrounded by a mix of tall deciduous landscape trees (green in spring and summer, gold in fall, and brown in winter) and evergreen trees that are green year-round on the west side adjacent to a small paved access road. The discus/soccer field is separated from American River Drive by a tall green hedge over chain-link fencing, and scattered landscape trees. A view of the proposed construction staging area from American River Drive is shown in KOP-2.

SURROUNDING LAND USES

Land uses immediately adjacent to the project site consist of the northern half of the Jesuit High School campus to the north, and single-family detached residences to the east, west, and south. The areas surrounding the project site are flat.



Source: Google Earth 2022

Photo Viewpoint KOP-1. Aerial View of Existing Stadium and Location of Proposed Light Standards. This view shows the green turf football field with white yardage markings and school mascot emblem at center field; the red all-weather track surface, silver/grey bleacher seating on the north and south sides of the stadium, and surrounding concession building, paved walkways, landscape trees, outdoor gathering areas, and adjacent turf soccer fields.



Source: Google Earth 2022

Photo Viewpoint KOP-2. View of Proposed Construction Staging Area from American River Drive, looking northwest. A paved sidewalk along American River Drive, a landscape hedge over chain link fencing and landscape trees on the project site are visible in the foreground. The back side of bleacher seating at the Jesuit High School stadium, along with surrounding tall landscape trees and two tall power poles, are visible in the middleground. The school's turf grass discus/soccer fields (not visible in this viewpoint) are situated between the landscape hedge and the stadium bleachers.

The existing Jesuit High School campus to the north consists of primarily large, block-style, red brick buildings, including classrooms, administration, gymnasium, cafeteria, etc. The campus is expansive, and includes views of large areas of green turf grass and tall, green deciduous and evergreen landscape trees. Paved parking areas with landscape trees and shrubs are present throughout the campus, as are several paved roadways that provide access throughout the campus. A representative view of the Jesuit High School campus buildings is provided in KOP-3.



Source: Google Earth 2022

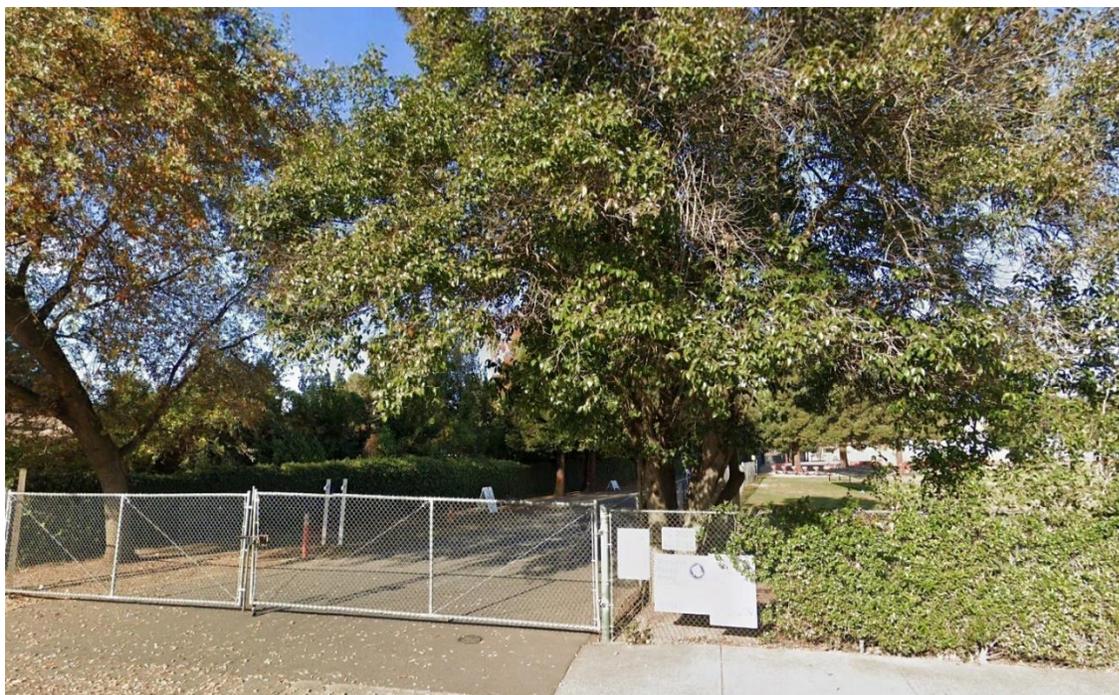
Photo Viewpoint KOP-3. View of Jesuit High School Campus Entry from Jacob Lane, looking southwest. Paved campus entryway drive isle and signage, red brick school buildings, entry sculpture with cross, landscape trees, and turf grass are visible in the foreground. Tall landscape trees further south and west on the school campus are visible in the middleground (behind the buildings).

Single-family detached residences, zoned Residential 4 (RD-4)¹, are present immediately adjacent to the project site to the west along Piccadilly Circle and to the east along Jacob Lane, and to the south across American River Drive. The project site is also zoned RD-4. Private schools are an allowable use under the Sacramento County Zoning Code in areas zoned RD-4, with a conditional use permit (Sacramento County 2023). The only public viewpoints of the project site are from ~~motorists traveling on~~ American River Drive between Piccadilly Circle and Jacob Lane (KOP-2), and ~~motorists~~ at the north end of Tennyson Way at American River Drive.

¹ RD-4 zoning designates Low Density Residential development with a minimum lot size of 8,500 square feet.

A line of very tall, mature, mixed deciduous and evergreen landscape trees and a tall, thick horizontal green shrub hedge are present along the Jesuit High School property fencing on the west side, between an existing paved drive aisle on school property west of the stadium and the residences to the west along Piccadilly Circle (KOP-4). This visual screening runs north along the entire western property boundary of the project site.

Residences along Jacob Lane, which back up to the school's eastern property boundary, are farther from the locations of the proposed light standards and the construction staging area – approximately 650 feet, and are separated from these areas by the school's turf grass baseball/soccer fields. Limited visual screening in the form of tall landscape trees is scattered along portions of the eastern school property fencing adjacent to the project site; however, some areas along this fence line have no visual screening.



Source: Google Earth 2022

Photo Viewpoint KOP-4. View of Visual Screening along West Side of Project Site, from American River Drive, looking northwest. Paved sidewalk and entry from American River Drive, fencing and gate and signage on school property, and a landscape hedge and landscape trees on the project site west of the drive aisle are visible in the foreground. The west side of the school's turf grass soccer fields, the west edge of the stadium, and tall landscape trees at single-family residences to the west are visible in the middleground.

AMERICAN RIVER PARKWAY

The proposed light standards at the Jesuit High School stadium would be installed approximately 2,014–2,300 feet (0.45 mile) north of the Jacob Lane access to the American River Parkway (Parkway). The proposed construction staging area (i.e., the discus/soccer field south of the stadium) is approximately 1,851 feet (0.35 mile) north of the Jacob Lane access to the Parkway. From the Harrington Way Parkway access (east

of the Jacob Lane access), the proposed light standards would range from 0.45 to 0.54 mile to the northwest. The project site is situated at an elevation of approximately 54 feet above mean sea level (amsl). The Jedediah Smith Memorial Trail (approximately 2,258–2,400 feet south of the proposed light standards) is situated at elevations ranging from 52–53 feet amsl. The intervening distance between the Parkway/Jedediah Smith Memorial Trail and the Jesuit High School stadium is composed of single-family detached residences and associated tall landscape trees, as described above. The view looking north from the Jedediah Smith Memorial Trail at the Jacob Lane Parkway access is shown in KOP-5. The view looking northwest from the Harrington Way Parkway access is visually similar to KOP-5 (i.e., comprised of single-family detached homes and tall landscape trees).



Source: Google Earth 2016

Photo Viewpoint KOP-5. View of the Jacob Lane Access to the American River Parkway, looking north from the Jedediah Smith Memorial Trail. The paved Jacob Lane bicycle/pedestrian trail connector, and perennial grasses and trees in the Parkway are visible in the foreground. The gate at the southern end of Jacob Lane, a single-family residence, and associated residential landscape trees and shrubs to the northwest of the access point are visible in the middleground.

The portion of the Parkway that is south of Jesuit High School is within the Save the American River Association (SARA) Park Area Plan, in the Rio Americano Area, within the American River Parkway Plan (Sacramento County 2008). The Rio Americano area comprises that portion of the SARA Park area that is north of the river. The northern parkway boundary is adjacent to predominantly single-family residential neighborhoods and the Rio Americano High School. There is no public vehicular access to the Rio Americano Parkway area. Four designated bicycle access points provide ingress and egress for nearby residents. Occasional rest stops with picnic tables and trash cans are located along the river near the trails. Otherwise, the area is undeveloped (Sacramento County 2008).

SCENIC HIGHWAYS

The California Department of Transportation (Caltrans) manages the State Scenic Highway Program and assists local communities seeking to officially designate state scenic highways (Caltrans 2023). In addition, Sacramento County has designated certain roadway segments as scenic highways or scenic corridors as part of its General Plan (Sacramento County 2020).

There are no designated State or County scenic highways adjacent to or in the vicinity of the project site. The nearest State-designated highway is State Route 160 (River Road), approximately 11.5 miles to the southwest. The nearest County-designated scenic highway is Garden Highway, approximately 9 miles west of the project site.

LIGHT AND GLARE

The project site is in the urbanized area of Carmichael, where nighttime lighting from development throughout Carmichael, Arden, Rancho Cordova, and Sacramento creates existing skyglow. Nighttime security lighting is present at the project site and the Jesuit High School buildings to the north in the form of building and parking lot lighting. Overhead light standards for street lights are present along American River Drive immediately south of the project site. Nighttime security lighting is also present at the surrounding single-family residences to the east, west, and south.

The California Building Standards Code (California Code of Regulations [CCR] Title 24) began regulating outdoor lighting effective October 1, 2005. Although the Title 24 standards do not apply to sports lighting, they provide guidance relative to an understanding of the existing lighting environment. Based on the lighting zone classifications contained in CCR Title 24 and the Model Lighting Ordinance developed by International Dark-Sky Association (IDA) and the Illuminating Engineering Society of North America (IES) (IDA-IES 2011), under existing conditions, the project site is classified as Lighting Zone E3: Moderately High Ambient Light Areas of human activity (i.e., habitation, recreation, and/or work) where electric lighting may be continuous and required for safety and convenience at night. In this lighting zone, “the vision of human residents and users is adapted to moderately high light levels, and they have moderate to high expectations of electric lighting. Lighting is expected to be continuous (e.g., lighting delivered fairly evenly along the length of a path or street). After curfew, both light levels and uniformity may be reduced in some areas as activity levels decline” (M. Neils Engineering, Inc. 2023).

REGULATORY SETTING

FEDERAL AND STATE

FEDERAL AND STATE WILD AND SCENIC RIVER SYSTEMS

The National Wild and Scenic Rivers Act of 1968 (Public Law 90-542; 16 U.S. Code 1271 et seq.) created the National Wild and Scenic Rivers System to preserve certain rivers with outstanding natural, cultural, and recreational values in a free-flowing condition for public enjoyment. The Act safeguards the special character of these rivers, while also recognizing the potential for their appropriate use and development. Designated segments need not include the entire river and may include tributaries.

The California Wild and Scenic Rivers Act of 1972 (PRC Section 5093.50 et seq.) preserves designated rivers which possess extraordinary scenic, recreational, fishery, or wildlife values in a free-flowing state, together with their immediate environments, for the benefit and enjoyment of the public. Rivers or segments included with the system are classified as “wild,” “scenic,” or “recreational” based on the level of existing development of adjacent land areas when designated. Designated segments need not include the entire river.

The lower American River from its confluence with the Sacramento River upstream to Nimbus Dam (23 river miles) is classified as a “Recreation” river within both the State and Federal Wild and Scenic River Systems. River segments designated as “recreational” are readily accessible by road or railroad, may have some development along their shorelines, and may have been impounded or diverted in the past (PRC Section 5093.53).

MODEL LIGHTING ORDINANCE

In 2011, the IDA and the IES developed a Model Lighting Ordinance (MLO) and an accompanying User’s Guide to address the need for regulation of outdoor lighting in North America (IDA-IES 2011). As noted by the IDA (2023), the MLO has not been widely adopted by jurisdictions across the U.S. (and it has not been adopted by Sacramento County); however, it does provide a framework that can be used for lighting designs and analyses. The MLO was developed to provide suggested regulations for outdoor lighting to:

- a. Permit the use of outdoor lighting that does not exceed the minimum levels specified in IES recommended practices for night-time safety, utility, security, productivity, enjoyment, and commerce.
- b. Minimize adverse offsite impacts of lighting such as light trespass, and obtrusive light.
- c. Curtail light pollution, reduce skyglow and improve the nighttime environment for astronomy.

- d. Help protect the natural environment from the adverse effects of night lighting from gas or electric sources.
- e. Conserve energy and resources to the greatest extent possible.

The MLO defines lighting zones, and provides methods for calculation of outdoor lighting for residential, non-residential, and outdoor sports field projects. The MLO contains suggested standards for luminaire² lumens³ in each lighting zone based on the proposed land use. The MLO also contains suggested maximum allowable Backlight, Uplight, and Glare (BUG) Ratings to be calculated based on the lighting zone and the proposed land use.

LOCAL

SACRAMENTO COUNTY GENERAL PLAN

The *Sacramento County General Plan of 2005–2030* (Sacramento County 2020) includes the following policy related to aesthetics that applies to the proposed project.

LAND USE ELEMENT

- **Policy LU-31:** Strive to achieve a natural nighttime environment and an uncompromised public view of the night sky by reducing light pollution.

SACRAMENTO COUNTYWIDE DESIGN GUIDELINES

The *Sacramento Countywide Design Guidelines* (Sacramento County 2022) were adopted to promote high quality, sustainable, and healthy community design. The objectives of the Guidelines, in conjunction with the County’s Design Review Program, are to: achieve high standards for the quality of the built environment, advance sustainable development, and provide business and user-friendly practices. The guidelines also incorporate sustainability practices that include green building and construction which can facilitate sustainability by generating jobs; and increasing energy efficiency, water conservation, and air quality and waste reduction. As part of the project permitting and design review process, project applicants are required to complete and submit to the County a supplemental form related to the design concepts presented in the Guidelines. Chapter 5 of the Design Guidelines provides the following Office, Business Park, Institutional, and Industrial Development Design Guidelines (schools are considered an institutional land use).

5.4.4 Lighting

Every project should have an overall lighting plan for pedestrian pathways, architectural lighting, lobbies and entryways, parking lots, and service areas.

² A luminaire is a complete lighting source: the light unit itself and all the components directly associated with the distribution, positioning, and protection of the light unit.

³ Lumens are a measure of the total quantity of visible light emitted by a light source. For LED lighting, the amount of lumens indicates the “brightness” of a light; more lumens results in a brighter light.

Design Guidelines

- Lighting should enhance the architectural and site design concepts while being energy efficient. Architectural lighting is encouraged.
- Spillover lighting that is visible from outside the site should be avoided by orienting fixtures downward or shielding light.
- Energy efficient lighting shall be at levels that provide public safety and meet or exceed Zoning Code standards.
- Low, pedestrian-scaled fixtures are encouraged to help identify and light pedestrian routes.
- Lighting in service areas should be the minimum required for operation, and should be designed to minimize the visibility to those areas, while providing for a safe environment. Motion controlled lighting is recommended.
- Lighting should be LED lights or other acceptable high energy efficiency lights, with automatic controls to dim lights after certain hours or when no one is present. Lighting shall be adequate to provide for a safe environment.
- Provide energy efficient lighting in all common areas and buildings, including pedestrian and vehicular routes. The emphasis should be on personal safety, with lighting landscape or building surfaces secondary.

SACRAMENTO COUNTY ZONING CODE

The Sacramento County Zoning Code (Sacramento County 2023), Chapter 5 Development Standards, Table 5.13 Commercial Lot and Commercial and Institutional Project Development Standards, provides the following direction:

- **Lighting:** Site and street lighting shall comply with Section 5, Street Light Design of the Sacramento County Improvement Standards. Also refer to Section 5.9.4.G for Parking Area Lighting standards.

Sacramento County Zoning Code Section 6.3, Design and Site Plan Review, sets forth the provisions of the County's Design Review Program, in which discretionary and non-discretionary projects are reviewed to determine a project's compliance with the Countywide Design Guidelines (Sacramento County 2022). Most commercial, industrial, residential, mixed-use, institutional, or public works projects, regardless of zoning district, requiring discretionary entitlement(s) or approval(s) are subject to the Design Review Program.

For discretionary projects, the Design Review Advisory Committee (DRAC) conducts design reviews and makes findings and recommendations to the approving authority regarding compliance with the Countywide Design Guidelines. The DRAC does not have

final authority over projects and serves in an advisory and technical guidance capacity to the approving authority (Zoning Code Section 6.3.2.E.2).

The appropriate County approving authority is required to make one of the following findings (Zoning Code Section 6.3.2.F):

1. The project substantially complies with the County-wide Design Guidelines;
2. The project would substantially comply with the Countywide Design Guidelines if modified with recommended modifications; or
3. The project does not comply with the Countywide Design Guidelines and should, as consequence, not be approved.

AMERICAN RIVER PARKWAY PLAN

The Parkway is an open space greenbelt that extends approximately 29 miles from Folsom Dam in the northeast to the confluence with the Sacramento River in the southwest. There are several distinct areas of the Parkway, each having individual features which contribute to their separate identities. The American River Parkway Plan (Sacramento County 2008) provides a guide to land use decisions affecting the Parkway; specifically addressing its preservation, use, development, and administration. Sacramento County has the principal responsibility for administration and management of the Parkway as guided by the American River Parkway Plan.

The American River Parkway Plan also acts as the management plan for the federal and state Wild and Scenic Rivers Acts.

The proposed light standards at the project site would be approximately 0.45 mile north of the SARA Park Area, which is located between the Watt Avenue Area and the Arden Bar Area, including portions of the Parkway on both the right and left banks (north and south sides of the river), and totals approximately 254 acres. Within the SARA Park Area, the project site is north of the Rio Americano subarea.

The following policy from the American River Parkway Plan related to visual impacts from uses and facilities adjacent to the Parkway is applicable to the proposed project.

Policy 7.24. In order to minimize adverse visual impacts on the aesthetic resources of the Parkway, local jurisdictions shall regulate adjacent development visible from the Parkway. These local regulations shall take into account the extent to which the development is visible from the Parkway. Regulations may include tools to address design, color, texture and scale, such as:

- Setbacks or buffers between the Parkway and the development.
- Structures to be stepped away from the Parkway or limits on building scale.
- Screening of structures visible from the Parkway with landscaping, preferably native vegetation or other naturally occurring features.

- Use of colors and materials including non-reflective surfaces, amount of glass, and requiring medium to dark earth tone colors that blend with the colors of surrounding vegetation, particularly in sensitive bluff or river's edge locations.
- Guidelines to discourage intrusive lighting and commercial advertising.

IMPACTS AND ANALYSIS

SIGNIFICANCE CRITERIA

Based on Appendix G of the State CEQA Guidelines, the proposed project would have a significant impact related to aesthetics if it would:

- have a substantial adverse effect on a scenic vista;
- substantially damage scenic resources, including but not limited to trees, rock outcroppings, and historic buildings, within a state scenic highway;
- in non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings (public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality; or,
- create a new source of substantial light or glare that would adversely affect day or nighttime views in the area.

ISSUES NOT DISCUSSED FURTHER

Substantial Adverse Effect on a Scenic Vista—A scenic vista is a public viewpoint that provides expansive views of highly valued scenery or landscapes. Sacramento County (2020) has not designated any scenic vistas at the project site, nor is the project site within the viewshed of any scenic vista. The project site consists of flat land that has been developed and operated as a school since 1963, and as the school's outdoor recreation fields since 1968. The site consists of the existing Jesuit High School stadium, turf baseball fields, concession and storage buildings, paved walkways, and a small paved parking area. The project site does not contain any unique geologic features, major waterfalls, unique rock outcroppings, gorges, mountains, or other features that could be regarded as outstanding scenic features. The project site does not contain or include any scenic vistas. Thus, there would be **no impact**, and this issue is not evaluated further in this EIR.

Substantial Damage to Scenic Resources within a Designated Scenic Highway—There are no designated State or County scenic highways adjacent to or in the vicinity of the project site. The nearest State-designated highway is SR 160 (River Road), approximately 11.5 miles to the southwest. The nearest County-designated scenic highway is Garden Highway, approximately 9 miles west of the project site. The project site is not visible from either of these roadways. Therefore, implementation of the

proposed project would not affect scenic resources within a State- or County-designated scenic highway. Thus, there would be **no impact**, and this issue is not evaluated further in this EIR.

METHODOLOGY

This visual impact analysis is based on field observations conducted by AECOM in May 2023 and a review of maps and aerial photographs. Analysis of the project's impacts was based on evaluation of the changes to the existing visual resources that would result from project implementation. In making a determination of the extent and implications of the visual changes, consideration was given to:

- specific changes in the visual composition, character, and valued qualities of the affected environment from public viewpoints;
- the visual context of the affected environment;
- the numbers of public viewers, their activities, and the extent to which these activities are related to the aesthetic qualities affected by the project-related changes.

It should be noted that an assessment of visual character is inherently a subjective matter, and reasonable people can disagree as to whether changes in visual character would be adverse or beneficial.

Off-site effects of light pollution for any project may include light trespass, glare, and skyglow. All of these issues are functions of the fixture or luminaire design and installation. This analysis uses the terms light trespass, glare, and skyglow as defined by the MLO (IDA-IES 2011), as listed below:

- **Light Trespass:** Light that falls beyond the property it is intended to illuminate.
- **Glare:** Lighting entering the eye directly from luminaires or indirectly from reflective surfaces that causes visual discomfort or reduced visibility.
- **Skyglow:** The brightening of the nighttime sky that results from scattering and reflection of artificial light by moisture and dust particles in the atmosphere. Skyglow is caused by light directed or reflected upwards or sideways and reduces one's ability to view the night sky.

A Lighting Report containing a BUG lighting analysis to determine (via computer modeling) the amount of light trespass, glare, and skyglow that could be generated at the project site, and to determine the appropriate lighting fixtures and shielding to reduce these issues, was performed as part of the project's lighting design and engineering. The Lighting Report relied on the suggested standards contained in the MLO (IDA-IEA 2011) based on the defined lighting zone and proposed use at the project site. The Lighting Report is attached to this EIR as Appendix B. The analysis of nighttime lighting impacts herein (Impact AE-2) relies on the Lighting Report prepared by M. Neils Engineering, Inc. (2023).

ENVIRONMENTAL IMPACTS

IMPACT AE-1. IN NONURBANIZED AREAS, SUBSTANTIALLY DEGRADE THE EXISTING VISUAL CHARACTER OR QUALITY OF PUBLIC VIEWS OF THE SITE AND ITS SURROUNDINGS? IF THE PROJECT IS IN AN URBANIZED AREA, WOULD THE PROJECT CONFLICT WITH APPLICABLE ZONING AND OTHER REGULATIONS GOVERNING SCENIC QUALITY?

DEGRADATION OF VISUAL CHARACTER

The project site consists of the outdoor stadium and sports fields associated with the Jesuit High School campus, which was developed as a school in 1963 with the sports fields added in 1968. The project site is located in the urbanized area of Carmichael, adjacent to the urbanized areas of Arden (to the west) and Rancho Cordova (to the east). The project site is surrounded by Jesuit High School buildings to the north, and single-family residences to the east, west, and south.

The only public viewpoints in the project vicinity are from motorists traveling on American River Drive immediately south of the project site between Piccadilly Circle and Jacob Lane, and the north end of Tennyson Way at its intersection with American River Drive. In addition, this analysis also considers public views from the American River Parkway. The project site is not visible from Fair Oaks Boulevard to the north due to the intervening distance, school campus buildings, and landscape trees.

The existing discus/soccer field on the school campus between American River Drive and the stadium would also serve as the proposed construction staging area. Due to the intervening vegetation on the school campus (see KOPs 2 and 4), views of construction equipment in the staging area would be **partially** ~~mostly~~ blocked for motorists traveling on American River Drive and the north end of Tennyson Way. A crane may be necessary to set the light poles, and the top of the crane would be visible for a few days from motorists traveling on American River Drive and the north end of Tennyson Way. Due to the limited nature of construction, there would be a small amount of construction equipment and it would only be present for a period of 1–2 weeks. Thus, the short-term and temporary visual change from construction equipment would not substantially degrade the existing visual character or quality of public views of the site and its surroundings from American River Drive or the north end of Tennyson Way, and therefore would result in a **less-than-significant** impact.

American River Drive is oriented east to west approximately 171 feet south of the closest proposed light pole. As shown in KOP-2, views of the lower 20 feet of the proposed light poles would be blocked by the intervening hedges and trees on the campus on the north side of American River Drive. However, the upper 70–80 feet of the light poles and the luminaires would be visible to motorists looking north from American River Drive. Views of the proposed light poles from the north end of Tennyson Way at the American River Drive intersection would be **partially** ~~mostly~~ blocked by the landscape trees on the school campus around the parking area adjacent to American River Drive. The proposed four new light poles would be installed immediately adjacent to the existing Jesuit High School

Stadium next to the existing bleacher seating. The light poles would be visually similar to other existing urban development at the project site, including the power poles, bleachers, scoreboard, concession building, and various equipment storage buildings. Although the poles would be tall, they would be of a small diameter and of a similar color as the existing on-site development. The light silver/grey color of the steel poles would tend to blend in with the sky background. The existing PA speakers on the existing power poles are not **partially** visible from any public viewpoints **along American River Drive** and would not **continue to** be visible when they are reinstalled at the same height on the new light poles. The proposed additions of wheelchair-accessible seating in the first row of the existing bleachers, and the proposed handrails/guardrails at the ends of the existing bleacher seating would be composed of the same materials (steel), would be the same size and color as the existing bleachers (silver/grey), and would not be visible from any public viewpoint. Small, wall-mounted lighting mounted on the bleacher aisles would be visually screened, shielded, of low wattage, and directed downward onto the bleacher walkways to provide improved pedestrian safety on the bleachers at night. Furthermore, these small wall-mounted lights would not be visible from any public viewpoints. Therefore, the proposed light poles, minor bleacher modifications, and bleacher safety lighting would not substantially degrade the existing visual character or quality of public views of the site and its surroundings from American River Drive or the north end of Tennyson Way, and this impact would be **less than significant**.

The American River Parkway is approximately 2,014–2,300 feet (nearly one-half mile) from the proposed light poles at the Jesuit High School stadium. The project site is not visible from the Parkway due to the intervening distance, single-family detached residences, and tall landscape trees. The Parkway corridor decreases in elevation to the south towards the American River. The Jedediah Smith Memorial Trail (KOP-5) is situated at approximately the same elevation as the proposed light poles at the Jesuit High School stadium. However, due to the intervening distance and tall trees, only the tops of the light poles and the luminaires would be visible from the Parkway. The poles would be of a small diameter (particularly as viewed from a distance of nearly one-half mile) and the light silver/grey color of the steel poles would tend to blend in with the sky background. Therefore, the proposed light poles would not substantially degrade the existing visual character or quality of public views of the viewshed from the American River Parkway, and this impact would be **less than significant**.

CONFLICTS WITH REGULATIONS GOVERNING SCENIC QUALITY

The project site and immediately surrounding development are zoned RD-4. Private schools are an allowable use under the Sacramento County Zoning Code in areas zoned RD-4, with a conditional use permit (Sacramento County 2023). Jesuit High School operates as a private school under a conditional use permit from the County.

Outdoor nighttime lighting for evening sporting events (particularly football) is common at other high schools, and college campuses, throughout the county. Outdoor lighting at stadiums requires tall poles that serve as light standards. The Sacramento County Zoning Code (Sacramento County 2023) allows outdoor nighttime lighting at schools with a conditional use permit. The proposed light poles and associated LED lights, minor improvements to the lowest level of the existing bleachers to provide wheelchair seating,

guard rails at the east and west ends of the existing bleachers to provide safety, and small wall-mounted bleacher aisle lighting were reviewed by the County's Design Review Advisory Committee in May of 2022 following the process described in detail in the "Regulatory Setting" subsection above. The Committee determined that the proposed project would be in compliance with the *Sacramento Countywide Design Guidelines* (Sacramento County 2022), also described above in the "Regulatory Setting" subsection. The Design Guidelines are intended to encourage high-quality development that strengthens the economic vitality of all areas of the County, to advance sustainable development, and provide business and user-friendly practices. The Design Guidelines are also intended to improve community planning and design to promote healthy living and to balance integration of social, economic, and environmental concerns. The Design Guidelines supplement the County Zoning Regulations with design criteria that supports and implements the goals and policies of the County.

In order for a conditional use permit to be issued by the County for the proposed project, Sacramento County Zoning Code Section 6.3.2.F requires the County to make one of the following findings:

1. The project substantially complies with the Countywide Design Guidelines;
2. The project would substantially comply with the Countywide Design Guidelines if modified with recommended modifications; or
3. The project does not comply with the Countywide Design Guidelines and should, as consequence, not be approved.

Furthermore, given the distance of the proposed light poles from the American River Parkway and the intervening tall trees and residences, only the tops of the light poles would be visible from the Parkway. The poles would be of a small diameter (particularly as viewed from a distance of nearly one-half mile) and the light silver/grey color of the steel poles would tend to blend in with the sky background. Therefore, the proposed project would not conflict with the policies of the American River Parkway Plan.

For the reasons described above, the proposed project would not conflict with applicable zoning and other regulations governing scenic quality, and this impact would be **less than significant**.

MITIGATION MEASURES

No mitigation is required.

IMPACT AE-2. CREATE A NEW SOURCE OF SUBSTANTIAL LIGHT OR GLARE THAT WOULD ADVERSELY AFFECT DAY OR NIGHTTIME VIEWS IN THE AREA?

As described above under the heading "Methodology," the project applicant retained the services of M. Neils Engineering, Inc. (2023), in consultation with Musco Lighting (a leading provider of outdoor LED sports lighting systems), to design and engineer the Jesuit High School's stadium lighting system and provide a lighting analysis. The

analysis contained in the Lighting Report prepared by M. Neils Engineering, Inc. (attached to this draft EIR as Appendix B), provides the computer modeling results of anticipated lighting levels as well as backlight, uplight, and glare at the adjacent property lines and the American River Parkway resulting from the proposed stadium lighting. The information presented below is excerpted from the M. Neils Engineering, Inc. (2023) Lighting Report.

The Musco lighting design for the proposed project identified the calculated brightness of the LED stadium lights measured in lumens and candelas, as shown in Appendices B and E to the Lighting Report (M. Neils Engineering, Inc. 2023). A visual example of the amount of glare that is generated in relation to candelas is provided in Appendix C to the Lighting Report (M. Neils Engineering, Inc. 2023).

As described in the Lighting Report, the project site is in Lighting Zone E3: “Moderately High” or “Medium” levels of existing ambient illumination based on CCR Title 24. The Lighting Report notes that the Electric Power Research Institute suggests a recommended maximum illuminance level for Lighting Zone E3 of 8 lux (0.8 footcandle⁴). As shown in the Lighting Report, modeling results demonstrate that light levels from the proposed stadium lighting at the Jesuit High School property boundaries to the east and south would be 0.0 footcandle—meaning there would be no additional nighttime lighting generated by the proposed stadium lights at these locations. Furthermore, nearly all of the modeled light levels at the western property boundary from the proposed stadium lighting would be 0.0 footcandle. Along the boundary between the Jesuit High School property and the backyards of the three houses directly west of the stadium, the proposed stadium lighting would generate 0.049 to 0.1 footcandles (variations are due to the amount of rounding incorporated into the modeling programs). As shown in the footcandle values presented below for comparison, the amount of stadium lighting that would be generated at the back property lines of these three residences would be only slightly more illumination than is generated by moonlight. Finally, the few 0.049 to 0.1 footcandle values from the proposed stadium lighting at the western property line would be substantially below the 0.8 footcandle standard.

For comparison purposes, typical lighting levels measured horizontally at ground level consist of the following:

- Clear, sunny daylight: 8,000-10,000 footcandle
- Cloudy sky: 1,000-1,500 footcandle
- Street lighting: from 1 to 2 footcandle
- Moonlight: 0.03 footcandle

⁴ A footcandle is a measurement of light intensity. One footcandle is defined as the amount of light necessary to saturate a 1-foot-square area with one lumen of light.

Because the human eye adjusts for a range of lighting levels of one million to one, humans typically cannot accurately discern a difference of 50 percent in light level within a given range without the use of instrumentation (M. Neils Engineering, Inc. 2023).

Appendix E to the Lighting Report shows the photometric calculations for the proposed stadium lighting. As presented in the Lighting Report, the computer modeling for the proposed stadium lighting system shows that the light levels would meet the recommendations for Environmental Zone E3 (Medium ambient brightness, 0.8 footcandle) and would also meet the more stringent recommendations for Environmental Zone E2 (Low ambient brightness), which is 0.3 footcandle.

Appendix D to the Lighting Report includes visual simulations of the proposed stadium lighting under nighttime conditions, showing an aerial view of the stadium lighting and also the view from multiple locations surrounding the stadium (M. Neils Engineering, Inc. 2023). A view of the proposed stadium lighting at night from a public viewpoint on American River Drive south of the project site (at the gated entry road on the southwest side of the project site) is excerpted from the Lighting Report and presented below in Visual Simulation 1.



Source: M. Neils Engineering, Inc. 2023

Visual Simulation 1: View of Proposed Jesuit Stadium Lighting, looking North from American River Drive east of Piccadilly Circle.

As described in Chapter 3, “Project Description,” of this EIR, the use of nighttime lighting during and following athletic practices would generally end by 8:00 P.M. Nearly all athletic games would end by 10:00 P.M., but no later than 11:00 P.M., with lighting potentially remaining on for a short time afterwards to facilitate safe crowd exiting and for clean-up and other similar activities after game completion. The level of nighttime lighting would be reduced by 50 percent during nighttime sports practice; full illumination of the

lighting system would only occur during games. The total number of nighttime games during a calendar year, when the lighting system would be used at full illumination, has historically been 37.⁵

Under CEQA, an evaluation of a project's potential visual change as viewed from private property is not required (*Mira Mar Mobile Community v. City of Oceanside*, 119 Cal.App.4th 477 [Cal. Ct. App. 2004]). Nevertheless, for purposes of full disclosure, the project applicant has elected to provide a comparison of nighttime lighting changes from the surrounding private residences. Appendix E (page 20) of the Lighting Report prepared by M. Neils Engineering, Inc. (2023) shows a blanket grid of projected footcandle ratings generated by computer modeling, which demonstrates that the light level at the property lines of all of the surrounding residences to the east, west, and south would be 0.0 footcandle.

The nearest residences to the proposed stadium lighting backup to the Jesuit High School property boundary on the west side of the stadium, along Piccadilly Circle. As described in the subsection "Environmental Setting" and shown in KOP-5 above, these residences are screened from the stadium by tall, mature trees and shrubs, resulting in only intermittent views. Visual Simulation 2, excerpted from the Lighting Report (M. Neils Engineering, Inc. 2023), illustrates a representative nighttime view from the backyard of the private residences along Piccadilly Circle looking east towards the stadium. Nighttime lighting for the residences south of American River Drive, looking north at the stadium would be the same as shown in Visual Simulation 1, above.



Source: M. Neils Engineering, Inc. 2023

⁵This number is derived by totaling the historical average number of regular season home games and home playoff games shown in Plate PD-4: Anticipated Event Lighting Schedule in Chapter 3, Project Description.

Visual Simulation 2: View of Proposed Jesuit Stadium Lighting, looking east from the backyards of residences on the east side of Piccadilly Circle.

As noted earlier, the guidance contained in the MLO recommends incorporating the BUG rating system for luminaires, which provides more effective control of unwanted light, including light trespass, glare, and skyglow. A BUG analysis of the proposed lighting system was performed, and a summary of the results is presented in Appendix B of the Lighting Report. The proposed lighting plan for the Jesuit High School stadium was submitted to the IDA for validation that it meets the criteria adopted IDA's Community Friendly Outdoor Sports Lighting program. The IDA assigns either a "pass" or "fail" rating when performing its review. As shown in Appendix B to the Lighting Report, the IDA assigned a "pass" rating to the project's proposed stadium lighting, indicating the backlight, uplight, and glare generated by the proposed stadium lighting would meet the IDA's standards to reduce glare to a level that would not cause annoyance or disruption, and would reduce skyglow to a low level (M. Neils Engineering, Inc. 2023).

IMPACT CONCLUSION

In conclusion, modeling results demonstrate that the proposed stadium lighting would result in zero light trespass off-site at public (American River Drive, Tennyson Way, and American River Parkway) and private (neighboring residences) viewpoints. Modeling also demonstrates that glare and skyglow would be reduced to levels that meet IDA standards (M. Neils Engineering, Inc. 2023). Therefore, the proposed stadium lighting would also meet County Zoning standards and Design Guidelines (e.g., Zoning Code Chapter 5 Development Standards—Table 5.13 Commercial Lot and Commercial and Institutional Project Development Standards; avoid spillover lighting, use LED lighting), and would be consistent with the policies contained in the County General Plan (e.g., Policy LU-31, reduce light pollution) and the American River Parkway Plan (i.e., Policy 7.24 discourage intrusive lighting).

However, it is acknowledged that the ambient nighttime lighting environment at the project site and from off-site public views of the project site would change as a result of the proposed stadium lighting. In order to be conservative, this analysis concludes that the nighttime generation of visually perceptible light source altering existing nighttime views from the proposed stadium lighting would result in a **potentially significant** impact.

MITIGATION MEASURES

The proposed Jesuit High School stadium lighting has been designed to reduce light trespass, glare, and skyglow to the maximum extent feasible using modern technology. There would be no light trespass off the project site. However, there are no feasible mitigation measures available that would further reduce or completely eliminate the project's nighttime glare and skyglow effects. Therefore, this impact is considered **significant and unavoidable**.

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6 AIR QUALITY

INTRODUCTION

This section describes existing local and regional air quality conditions; summarizes applicable air quality regulations at the federal, state, and local levels; and analyzes potential short-term and long-term air quality impacts that could result from implementation of the proposed project. The results of emissions modeling using the California Emissions Estimator Model (CalEEMod), version 2022.1.1.12, conducted by AECOM, were used to inform this impact analysis. The CalEEMod model inputs and results are provided in Appendix C of this EIR.

ENVIRONMENTAL SETTING

Ambient concentrations of air pollutants are determined by the amount of emissions released by the air pollutant's sources and the atmosphere's ability to transport and dilute such emissions. Natural factors that affect transport and dilution include terrain, wind, atmospheric stability, and sunlight. Therefore, existing air quality conditions are determined by such natural factors as topography, meteorology, and climate, in addition to the amount of air pollutant emissions, as discussed separately below.

LOCATION, CLIMATE, AND ATMOSPHERIC CONDITIONS

The project site is in the Sacramento Valley Air Basin (SVAB), which is characterized by hot, dry summers and cool, rainy winters. Typically, winds transport air pollutants northward out of the SVAB; however, from July to September, the wind pattern generally shifts southward, blowing air pollutants back into the SVAB and exacerbating the concentration of air pollutant emissions in the air basin. Between winter storms, high pressure and light winds contribute to low-level temperature inversions and stable atmospheric conditions, resulting in the concentration of air pollutants.

CRITERIA AIR POLLUTANTS

Individual air pollutants at certain concentrations may adversely affect human or animal health, reduce visibility, damage property, and reduce the productivity or vigor of crops and natural vegetation. Six air pollutants have been identified by the United States Environmental Protection Agency (EPA) and the California Air Resources Board (ARB) as being of concern both on a nationwide and statewide level: ozone; carbon monoxide (CO); nitrogen dioxide (NO₂); sulfur dioxide (SO₂); lead; and particulate matter (PM), which is subdivided into two classes based on particle size – PM equal to or less than 10 micrometers in diameter (PM₁₀) and PM equal to or less than 2.5 micrometers in diameter (PM_{2.5}).

In Sacramento County, air pollutants of greatest concern due to the regional nonattainment status (see the Regulatory Setting below for further detail) are ozone,

including ozone precursors, and PM. The largest single source of air pollutants in the Sacramento area is automobile exhaust. Other sources, such as agriculture and construction/demolition activities (including mining), also contribute to high levels of suspended PM.

The common properties, sources, and related health and environmental effects of these pollutants are summarized below.

Ozone. Ground-level ozone is created by complex chemical reactions between nitrogen oxides and volatile organic compounds in the presence of sunlight. Ground-level ozone is not emitted directly into the atmosphere but is formed through a series of reactions involving reactive organic gases (ROG) and nitrogen oxides (NO_x) in the presence of sunlight. These chemicals are considered to be precursors of ozone, as their reaction leads to its formation. Ozone is a strong irritant that attacks the respiratory system, leading to the damage of lung tissue. Asthma, bronchitis, and other respiratory ailments, as well as cardiovascular diseases, are aggravated by exposure to ozone.

ROG emissions result primarily from incomplete combustion and evaporation of solvents and fuels. Most NO_x are created during combustion of fuels. NO_x is a major contributor to ozone formation. Emissions of both ROG and NO_x are considered critical to ozone formation; therefore, either ROG or NO_x can limit the rate of ozone production. When the production rate of NO_x is lower, indicating that NO_x is scarce, the rate of ozone production is NO_x-limited. Under these circumstances, ozone levels could be most effectively reduced by lowering current and future NO_x emissions (from fuel combustion), rather than by lowering ROG emissions. Rural areas tend to be NO_x-limited, while areas with dense urban populations tend to be ROG-limited.

Emissions of the ozone precursors ROG and NO_x have decreased in the past several years. According to the most recently published edition of the ARB California Almanac of Emissions and Air Quality, NO_x, and ROG emissions levels in the Sacramento metropolitan area are projected to continue to decrease through 2035, largely because of more stringent motor vehicle standards and cleaner burning fuels, as well as rules for controlling ROG emissions from industrial coating and solvent operations (ARB 2013).

Nitrogen Dioxide. NO₂ is a reddish-brown gas that can irritate the lungs and can cause breathing difficulties at high concentrations. Like ozone, nitrogen dioxide is not directly emitted, but is formed through a reaction between nitric oxides and atmospheric oxygen. NO₂ also contributes to the formation of particulate matter (see discussion below). NO₂ concentrations in the air basin have been well below ambient air quality standards.

Particulate Matter (PM). PM refers to a wide range of solid or liquid particles in the atmosphere, including smoke, dust, aerosols, and metallic oxides. PM is directly emitted to the atmosphere as a byproduct of fuel combustion, wind erosion of soil and unpaved roads, and from construction or agricultural operations. Small particles are also created in the atmosphere through chemical reactions.

The size of PM is directly linked to its potential for causing health problems. Although particles greater than 10 micrometers in diameter can cause irritation in the nose, throat, and bronchial tubes, natural mechanisms remove much of these particles. Particles less than 10 micrometers in diameter are able to pass through the body's natural defenses and the mucous membranes of the upper respiratory tract and enter into the lungs. The particles can damage the alveoli. The particles may also carry carcinogens and other toxic compounds, which can adhere to the particle surfaces and enter the lungs.

Carbon Monoxide (CO). CO is a component of motor vehicle exhaust, which contributes about 56 percent of all CO emissions nationwide. Other non-road engines and vehicles (such as construction equipment and boats) contribute about 22 percent of all carbon monoxide emissions nationwide. CO can cause harmful health effects by reducing oxygen delivery to the body's organs (like the heart and brain) and tissues. CO contributes to the formation of ground-level ozone. Concentration of CO is a direct function of vehicle idling time and, thus, traffic flow conditions. Transport of CO emissions is extremely limited; it disperses rapidly from the source under normal meteorological conditions. Under certain meteorological conditions, however, CO concentrations close to a congested roadway or intersection may reach unhealthy levels, affecting local sensitive receptors (residents, school children, hospital patients, the elderly, etc.). Congested intersections with high volumes of traffic could cause CO "hot spots," where localized high concentrations of CO occur.

Sulfur Oxides (SO_x). Within the larger group of gaseous SO_x, SO₂ is the component of greatest concern and is used as the indicator for the group. Emissions that lead to high concentrations of SO₂ generally also lead to the formation of other SO_x. Sulfur dioxide is a colorless acid gas with a pungent odor. SO₂ is produced by the combustion of sulfur-containing fuels, such as oil, coal, and diesel. Sulfur dioxide dissolves in water vapor to form acid, and interacts with other gases and particles in the air to form sulfates and other products that can be harmful to people and their environment. Health effects of SO₂ include damage to lung tissue and increased risk of acute and chronic respiratory disease.

Lead. Lead (Pb) is a metal found naturally in the environment, as well as in manufactured products. Thirty years ago, mobile sources were the main contributor to ambient Pb concentrations in the air. Pb was phased out of on-road vehicle gasoline between 1975 and 1996. Consequently, levels of lead in the air decreased 98 percent between 1980 and 2014 (EPA 2022a). As a result of the phase-out of leaded gasoline, metal processing is currently the primary source of lead emissions. The highest levels of Pb in air are generally found near Pb smelters. Other stationary sources are waste incinerators, utilities, and lead-acid battery manufacturers.

TOXIC AIR CONTAMINANTS AND THEIR EFFECTS ON HUMAN HEALTH

In addition to criteria air pollutants, toxic air contaminants (TACs) are pollutants are also used as indicators of air quality conditions that can harm human health. Exposure to TACs may result in an increase in mortality or serious illness or may pose a present or

potential hazard to human health. TACs and result in long-term health effects such as cancer, birth defects, neurological damage, damage to the body's natural defense system, and diseases that lead to death; or short-term acute affects such as eye watering, respiratory irritation (a cough), running nose, throat pain, and headaches. TACs can be classified as either carcinogens (cancer-causing) or non-carcinogens, based on the nature of the effects associated with exposure to the pollutant.

Stationary sources of TACs include gasoline stations, dry cleaners, and diesel backup generators, among which are subject to permit requirements. On-road motor vehicles and off-road sources, such as construction equipment and trains, are also common sources of TACs. According to the *California Almanac of Emissions and Air Quality* (ARB 2013), most of the estimated health risk from TACs can be attributed to relatively few compounds, the most important being particulate matter from diesel-fueled engines (i.e., diesel particular matter [DPM]). Other TACs for which data are available that pose the greatest existing ambient risk in California are benzene, 1,3-butadiene, acetaldehyde, carbon tetrachloride, hexavalent chromium, para-dichlorobenzene, formaldehyde, methylene chloride, and perchloroethylene. Public exposure to TACs can result from emissions from normal operations, as well as accidental releases.

Another concern related to air quality is naturally occurring asbestos (NOA). Asbestos is a term used for several types of naturally occurring fibrous minerals found in many parts of California. When rock containing asbestos is broken or crushed, such as through construction-related ground disturbance or rock quarrying activities where NOA is present, asbestos fibers may be released and become airborne. Exposure to asbestos fibers may result in health issues such as lung cancer, mesothelioma (a rare cancer of the thin membranes lining the lungs, chest, and abdominal cavity), and asbestosis (a non-cancerous lung disease which causes scarring of the lungs). Because asbestos is a known carcinogen, NOA is considered a TAC. NOA is typically associated with fault zones, and areas containing serpentinite or contacts between serpentinite and other types of rocks. According to the California Department of Conservation *Special Report 192: Relative Likelihood for the Presence of Naturally Occurring Asbestos in Eastern Sacramento County, California*, the project site is located within an area categorized as least likely to contain NOA (California Department of Conservation 2006).

EXISTING AIR QUALITY CONDITIONS

Concentrations of emissions from criteria air pollutants are used to indicate the quality of the ambient air. Ambient air pollutant concentration monitoring data for the latest three years for which data is available (2019 through 2021) for the criteria pollutants for which the region is in nonattainment are provided in Table AQ-1. The data presented for ozone, NO₂, PM_{2.5}, and PM₁₀ is based on monitoring results from the ARB monitoring site nearest the project site is Sacramento-Del Paso Manor, located 2701 Avalon Drive, Sacramento, CA 95821 approximately 3 miles north of the project site.

Table AQ-1: Local Air Quality Monitoring Summary

Pollutant and Averaging Period	Item	2019	2020	2021
Ozone 1 Hour	Max 1 Hour (ppm)	0.087	0.120	0.110
Ozone 1 Hour	Days > State Standard (0.09 ppm)	0	4	7
Ozone 8 Hour	Max 8 Hour (ppm)	0.069	0.085	0.091
Ozone 8 Hour	Days > State Standard (0.070 ppm)	0	10	18
Ozone 8 Hour	Days > National Standard (0.070 ppm)	0	10	17
NO ₂ Annual	Annual Average (ppm)	0.006	0.006	*
NO ₂ 1 Hour	Max 1 Hour (ppm)	0.051	0.046	0.024
NO ₂ 1 Hour	Days > State Standard (0.18 ppm)	0	0	0
PM ₁₀ Annual	Annual Average (µg/m ³)	20.2	30.5	18.3
PM ₁₀ 24 hour	Max 24 Hour (µg/m ³)	53.0	188.0	63.0
PM ₁₀ 24 hour	Days > State Standard (50 µg/m ³)	5	17	2
PM ₁₀ 24 hour	Days > National Standard (150 µg/m ³)	0	1	0
PM _{2.5} Annual	Annual Average (µg/m ³)	8.2	14.6	10.2
PM _{2.5} 24 hour	Max 24 Hour (µg/m ³)	41.4	147.3	90.0
PM _{2.5} 24 hour	Days > National Standard (35 µg/m ³)	3	27	5

Source: ARB 2022b

Notes:

* = insufficient data; µg/m³ = micrograms per cubic meter; NO₂ = nitrogen dioxide; PM₁₀ = particulate matter with aerodynamic diameter less than 10 microns; PM_{2.5} = particulate matter with aerodynamic diameter less than 2.5 microns; ppm = parts per million

SENSITIVE RECEPTORS

Although air pollution can affect all segments of the population, certain groups are more susceptible to its adverse effects than others. Children, the elderly, and the chronically or acutely ill are the most sensitive population groups. These sensitive receptors are commonly associated with specific land uses such as residential areas, schools, retirement homes, and hospitals.

Residential areas are considered sensitive to air pollution because residents (including children and the elderly) tend to be at home for extended periods of time, resulting in sustained exposure to the pollutants present. Recreational land uses are considered moderately sensitive to air pollution. Exercise places a high demand on respiratory functions, which can be impaired by air pollution, even though exposure periods during exercise are generally short. In addition, noticeable air pollution can detract from the enjoyment of recreation. Industrial and commercial areas are considered the least sensitive to air pollution. Exposure periods are relatively short and intermittent as the majority of the workers tend to stay indoors most of the time.

Existing sensitive receptors located adjacent to, or in the vicinity of the project site consist of existing single-family residential subdivisions south and west of the project site, high school classrooms, gym and auditorium north, and athletic fields to the east (refer to Plate PD-3). In addition to the students at Jesuit High School, the nearest sensitive receptors are the residences in the area surrounding the campus and the single closest sensitive receptor is a residence located approximately 50 feet southwest of the stadium.

REGULATORY SETTING

The U.S. EPA, ARB, and Sacramento Metropolitan Air Quality District (SMAQMD) are responsible for regulating air quality in the vicinity of the project site. Each agency develops rules, regulations, policies, and/or goals to comply with applicable legislation. Although EPA regulations may not be superseded, in general, both state and local regulations may be more stringent. The regulatory frameworks for criteria air pollutants, TACs, and other emissions are described below.

FEDERAL

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

The EPA was established on December 2, 1970, to create a single agency that covered several agency concerns: federal research, monitoring, standard-setting and enforcement. The purpose of the EPA is to protect the overall health of humans and the environment.

FEDERAL CLEAN AIR ACT

The federal Clean Air Act (CAA), adopted in 1970 and most recently amended in 1990, is the primary legislation that governs federal air quality regulations. The CAA delegates primary responsibility for clean air to EPA. EPA develops rules and regulations to preserve and improve air quality and delegates specific responsibilities to state and local agencies.

The federal CAA required the EPA to set national ambient air quality standards (NAAQS) for seven air pollutants on the basis of human health and welfare criteria. Table AQ-2, National and California Ambient Air Quality Standards, lists national and California ambient air quality standards for common air pollutants. The CAA also set deadlines for the attainment of these standards. The CAA established two types of national air standards: primary and secondary standards. Primary standards set limits to protect public health, including the health of sensitive persons such as asthmatics, children, and the elderly. Secondary standards set limits to protect public welfare, including protection against decreased visibility, damage to animals, crops, vegetation, and buildings.

Table AQ-2: National and California Ambient Air Quality Standards

Pollutant	Averaging Time	CAAQS ¹	NAAQS ^{2,3}	
			Primary	Secondary
CO	1 Hour	20 ppm (23 mg/m ³)	35 ppm (40 mg/m ³)	NA
CO	8 Hour	9.0 ppm (10 mg/m ³)	9 ppm (10 mg/m ³)	NA
NO ₂	1 hour	0.18 ppm (339 µg/m ³)	100 ppb (188 µg/m ³)	NA
NO ₂	Annual Arithmetic Mean	0.030 ppm (57 µg/m ³)	0.053 ppm (100 µg/m ³)	Same as Primary
Ozone	1 hour	0.09 ppm (180 µg/m ³)	NA ⁵	NA
Ozone	8 hour	0.070 ppm (137 µg/m ³) ⁸	0.070 ppm (137 µg/m ³) ⁴	Same as Primary
PM ₁₀	24 hour	50 µg/m ³	150 µg/m ³	Same as Primary
PM ₁₀	Annual Arithmetic Mean	20 µg/m ³ ⁶	NA	NA
PM _{2.5}	24 hour	NA	35 µg/m ³	Same as Primary
PM _{2.5}	Annual Arithmetic Mean	12 µg/m ³ ⁶	12 µg/m ³ ¹⁰	15.0 µg/m ³
SO ₂	1 hour	0.25 ppm (655 µg/m ³)	0.075 ppm (196 µg/m ³)	NA
SO ₂	24 hour	0.04 ppm (105 µg/m ³)	0.14 ppm (365 µg/m ³)	NA
SO ₂	Annual Arithmetic Mean	NA	0.030 ppm (80 µg/m ³)	NA
Sulfates	24 hour	25 µg/m ³	NA	NA
H ₂ S	1 hour	0.03 ppm (42 µg/m ³)	NA	NA
Lead	30-day Average	1.5 µg/m ³	NA	NA
Lead	Calendar quarter	NA	1.5 µg/m ³	Same as Primary
Lead	Rolling 3-month Average	NA	0.15 µg/m ³ ⁹	
Vinyl Chloride	24 hour	0.01 ppm (26 µg/m ³)	NA	NA
Visibility-Reducing Particles	8 hour	See Note 7	NA	NA

Notes for Table AQ-2

Source: ARB 2016

Key:

$\mu\text{g}/\text{m}^3$ = micrograms per cubic meter; CAAQS = California Ambient Air Quality Standard; ARB = California Air Resources Board; CO = carbon monoxide; H_2S = hydrogen sulfide; mg/m^3 = milligrams per cubic meter; NA = not applicable; NAAQS = National Ambient Air Quality Standards; NO_2 = nitrogen dioxide; O^3 = ozone; PM_{10} = particulate matter 10 microns in diameter or less; $\text{PM}_{2.5}$ = particulate matter 2.5 microns in diameter or less; ppb = parts per billion; ppm = parts per million; SO_2 = sulfur dioxide; EPA = United States Environmental Protection Agency; VRP = Visibility Reducing Particles

- ¹ California standards for ozone, carbon monoxide (except Lake Tahoe), sulfur dioxide (1-hour and 24-hour), nitrogen dioxide, suspended particulate matter – PM_{10} , and visibility reducing particles are values that are not to be exceeded. The standards for sulfates, Lake Tahoe carbon monoxide, lead, hydrogen sulfide, and vinyl chloride are not to be equaled or exceeded. If the standard is for a 1-hour, 8-hour or 24-hour average (i.e., all standards except for lead and the PM_{10} annual standard), then some measurements may be excluded. In particular, measurements are excluded that ARB determines would occur less than once per year on the average. The Lake Tahoe CO standard is 6.0 ppm, a level one-half the national standard and two-thirds the state standard.
- ² National standards shown are the “primary standards” designed to protect public health. National standards other than for ozone, particulates and those based on annual averages are not to be exceeded more than once a year. The 1-hour ozone standard is attained if, during the most recent three-year period, the average number of days per year with maximum hourly concentrations above the standard is equal to or less than one. The 8-hour ozone standard is attained when the 3-year average of the 4th highest daily concentrations is 0.070 ppm (70 ppb) or less. The 24-hour PM_{10} standard is attained when the 3-year average of the 99th percentile of monitored concentrations is less than 150 $\mu\text{g}/\text{m}^3$. The 24-hour $\text{PM}_{2.5}$ standard is attained when the 3-year average of 98th percentiles is less than 35 $\mu\text{g}/\text{m}^3$. Except for the national particulate standards, annual standards are met if the annual average falls below the standard at every site. The national annual particulate standard for PM_{10} is met if the 3-year average falls below the standard at every site. The annual $\text{PM}_{2.5}$ standard is met if the 3-year average of annual averages spatially averaged across officially designed clusters of sites falls below the standard.
- ³ National air quality standards are set by the EPA at levels determined to be protective of public health with an adequate margin of safety.
- ⁴ On October 1, 2015, the national 8-hour ozone primary and secondary standards were lowered from 0.075 to 0.070 ppm. An area will meet the standard if the fourth-highest maximum daily 8-hour ozone concentration per year, averaged over three years, is equal to or less than 0.070 ppm. EPA will make recommendations on attainment designations by October 1, 2016, and issue final designations October 1, 2017. Nonattainment areas will have until 2020 to late 2037 to meet the health standard, with attainment dates varying based on the ozone level in the area.
- ⁵ The national 1-hour ozone standard was revoked by the EPA on June 15, 2005.
- ⁶ In June 2002, ARB established new annual standards for $\text{PM}_{2.5}$ and PM_{10} .
- ⁷ Statewide VRP Standard (except Lake Tahoe Air Basin): Particles in sufficient amount to produce an extinction coefficient of 0.23 per kilometer when the relative humidity is less than 70 percent. This standard is intended to limit the frequency and severity of visibility impairment due to regional haze and is equivalent to a 10-mile nominal visual range.
- ⁸ The 8-hour CA ozone standard was approved by the Air Resources Board on April 28, 2005 and became effective on May 17, 2006.
- ⁹ National lead standard, rolling 3-month average: final rule signed October 15, 2008. Final designations effective December 31, 2011.
- ¹⁰ In December 2012, EPA strengthened the annual $\text{PM}_{2.5}$ NAAQS from 15.0 to 12.0 $\mu\text{g}/\text{m}^3$. In December 2014, EPA issued final area designations for the 2012 primary annual $\text{PM}_{2.5}$ NAAQS. Areas designated “unclassifiable/attainment” must continue to take steps to prevent their air quality from deteriorating to unhealthy levels. The effective date of this standard is April 15, 2015.

The CAA requires EPA to determine if areas of the country meet the NAAQS for each criteria air pollutant. Areas are designated according to the following basic designation categories:

- **Attainment:** This designation signifies that pollutant concentrations in the area do not exceed the established standard. In most cases, a maintenance plan is

required for a region after it has attained an air quality standard and is designated as an attainment or maintenance area after previously being designated as nonattainment. Maintenance plans are designed to ensure continued compliance with the standard.

- **Nonattainment:** This designation indicates that a pollutant concentration has exceeded the established standard. Nonattainment may differ in severity. To identify the severity of the problem and the extent of planning and actions required to meet the standard, nonattainment areas are assigned a classification that is commensurate with the severity of their air quality problem (e.g., moderate, serious, severe, extreme).
- **Unclassifiable:** This designation indicates that insufficient data exist to determine attainment or nonattainment. For regulatory purposes, an unclassified area is generally treated the same as an attainment area.

The SMAQMD meets the NAAQS for all criteria air pollutants except ozone and PM_{2.5}. The federal Clean Air Act requires areas designated as nonattainment or maintenance for ozone, inhalable particulate matter, carbon monoxide, nitrogen dioxide, and sulfur dioxide to develop plans, known as State Implementation Plans (SIPs) that describe how an area will attain national ambient air quality standards.

The EPA regulates diesel engine design and fuel composition at the federal level and has implemented a series of measures since 1993 to reduce emissions from off-road and highway diesel equipment.

EPA Tier 1 non-road diesel engine standards were introduced in 1996, Tier 2 in 2001, Tier 3 in 2006, with final Tier 4 in 2014 (ARB 2023), resulting in substantial reductions in emissions rates from diesel-powered construction equipment manufactured over the past 20 years, and especially for construction equipment manufactured in the past five years.

In California, non-road equipment fleets can retain older equipment, but fleets must meet averaged emissions limits, new equipment must be Tier 3 or better after January 2018 (for large and medium fleets) or January 2023 (for small fleets), and over time, the older equipment must be fitted with particulate filters. Large and medium fleets have increasingly strict fleet compliance targets through 2023 and small fleets through 2029.

STATE

CALIFORNIA AIR RESOURCES BOARD

The federal CAA gives states primary responsibility for directly monitoring, controlling, and preventing air pollution. ARB is responsible for coordination and oversight of federal, state, and local air pollution control programs in California and for implementing the requirements of the federal CAA and California CAA. The duties of ARB include coordinating air quality attainment efforts, setting standards, conducting research, and creating solutions to air pollution. The ARB oversees regional or local air quality

management or air pollution control districts that are charged with developing attainment plans for the areas over which they have jurisdiction.

ARB is the lead agency for developing the SIPs in California. SIPs are a compilation of new and previously submitted plans, programs (such as monitoring, modeling, permitting, etc.), district rules, state regulations, and federal controls. California grants air districts explicit statutory authority to adopt indirect source regulations and transportation control measures. Local air districts prepare State Implementation Plan elements and submit them to the ARB for review and approval. ARB forwards State Implementation Plan revisions to the EPA for approval and publication in the Federal Register.

The California Ambient Air Quality Standard (CAAQS) were established in 1959 by the California Department of Public Health to set air quality standards and controls for vehicle emissions. Table AQ-2, National and California Ambient Air Quality Standards, lists national and California ambient air quality standards. When CAAQS are exceeded, an "attainment plan" must be prepared that outlines how an air district will achieve compliance with the state standards. Applicable plans for the SVAB, including Sacramento County, are described below under the Local regulatory setting. Most recently, in March 2017, ARB adopted the *2016 State Strategy for the State Implementation Plan* (State SIP Strategy), and in October 2018, adopted the *2018 Updates to the California State Implementation Plan* (2018 SIP Updates), describing the proposed commitment to achieve the reductions necessary from mobile sources, fuels, and consumer products to meet federal ozone and PM_{2.5} standards over the next 15 years.

California has a comprehensive and effective Air Toxics Program. Several pieces of legislation form the basis for the ARB to identify and control air toxics from a multitude of sources, inform the public of significant toxic exposures and provide ways to reduce risks from these exposures. The Toxic Air Contaminant Identification and Control Act of 1983 or Assembly Bill (AB) 1807 established the California Air Toxics Program, designed to reduce exposure to air toxics. Once a substance is identified as a TAC, and with the participation of local air districts, industry, and interested public, ARB prepares a report that outlines the need and degree to regulate the TAC through a control measure (ARB 2020).

LOCAL

SACRAMENTO METROPOLITAN AIR QUALITY MANAGEMENT DISTRICT

At the county level, air quality is managed through land use and development planning practices that are implemented by Sacramento County and the incorporated Cities and through permitted source controls that are implemented by the Sacramento Metropolitan Air Quality Management District (SMAQMD). The SMAQMD is responsible for (1) implementing air quality regulations, including developing plans and control measures for stationary sources of air pollution to meet the NAAQS and CAAQS, (2) implementing permit programs for the construction, modification, and operation of

sources of air pollution, and (3) enforcing air pollution statutes and regulations governing stationary sources. With ARB oversight, the SMAQMD administers local regulations. The following SMAQMD rules that may relate to project construction activities or building design may include, but are not limited to:

- Rule 201: General Permit Requirements.
- Rule 401: Ringlemann Chart.
- Rule 402: Nuisance.
- Rule 403: Fugitive Dust.
- Rule 404: Particulate Matter.
- Rule 405: Dust and Condensed Fumes.
- Rule 460: Adhesives and Sealants.
- Rule 902: Asbestos.

As a part of the SVAB federal ozone nonattainment area, the SMAQMD works with the other local air districts within the Sacramento area to develop a regional air quality management plan under the federal CAA requirement. The regional air quality management plan, State Implementation Plan, which describes and demonstrates how the Sacramento Federal Nonattainment Area, inclusive of Sacramento County, is meeting requirements under the federal CAA in demonstrating reasonable further progress and attainment of the NAAQS for ozone. The most current version of the plan, the *2017 Revisions to the Sacramento Regional 8-Hour Ozone Attainment and Reasonable Further Progress Plan (2017 Ozone Attainment and Progress Plan)*, was prepared and adopted by ARB on November 16, 2017 (SMAQMD 2017). Some elements of the Ozone Attainment and Progress Plan were updated in 2018 and included in the 2018 Updates to the California State Implementation Plan, which updated SIP elements for nonattainment areas throughout the state, as needed. These updates to the plan were adopted by ARB on October 15, 2018. The Ozone Attainment and Progress Plan is the currently adopted and applicable air quality plan for the region.

Similarly, the region prepared the PM_{2.5} Maintenance Plan and Redesignation Request (SMAQMD 2010) to address how the region attained and would continue to attain the 24-hour PM_{2.5} standard. In 2017, EPA found that the area attained the 2006 24-hour PM_{2.5} NAAQS by the attainment date of December 31, 2015. The PM_{2.5} Maintenance Plan and Redesignation Request will be updated and submitted in the future based on the clean data finding made by the EPA.

The SMAQMD also prepared the PM₁₀ Implementation/Maintenance Plan and Redesignation Request for Sacramento County (SMAQMD 2013). EPA approved the PM₁₀ Plan, which allowed EPA to proceed with the redesignation of Sacramento County as attainment for the PM₁₀ NAAQS. The approval of the first Maintenance Plan showed maintenance from 2013 through 2023. A second plan must provide for maintenance of the NAAQS for 10 more years after expiration of the first 10-year maintenance period.

The SMAQMD adopted and submitted the Second 10-Year PM₁₀ Maintenance Plan for Sacramento County in August of 2021 to demonstrate maintenance of the PM₁₀ standard through 2033.

IMPACTS AND ANALYSIS

SIGNIFICANCE CRITERIA

For the purposes of this EIR, a significant impact related to air quality would occur if implementation of the proposed project would:

- conflict with or obstruct implementation of the applicable air quality plan;
- result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard;
- expose sensitive receptors to substantial pollutant concentrations; or
- result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.

As stated in Appendix G of the CEQA Guidelines, the significance criteria established by the applicable air quality management district may be relied on to make the above determinations. Thus, pursuant to the SMAQMD-recommended thresholds for evaluating project-related air quality impacts, the proposed project would result in a significant impact on air quality if it would:

- generate construction-related criteria air pollutant or ozone precursor emissions that exceed 85 pounds per day for NO_x, or, after implementation of best management practices (BMPs), 80 pounds per day or 14.6 tons per year of PM₁₀ and 82 pounds per day or 15 tons per year of PM_{2.5};
- generate long-term regional criteria air pollutant or ozone precursor emissions that exceed 65 pounds per day of ROG or NO_x, 80 pounds per day or 14.6 tons per year of PM₁₀ and 82 pounds per day or 15 tons per year of PM_{2.5};
- generate emissions of toxic air contaminants that would cause an excess cancer risk level of more than 10 in in one million or exceed a noncarcinogenic¹ Hazard Index of 1; or
- result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.

¹ Noncarcinogenic or noncancer effects are those effects other than cancer, such as emphysema or reproductive disorders that can be associated with substantial pollutant concentrations.

For cumulative impacts, SMAQMD states that, as a result of the approach to thresholds of significance adopted by SMAQMD, if a project's emissions are not anticipated to exceed the SMAQMD-recommended thresholds, as listed above, the project would not be expected to result in a cumulatively considerable contribution to a significant impact at a cumulative level (SMAQMD 2020a, b).

METHODOLOGY

Potential air quality impacts associated with short-term construction and long-term operations were evaluated in accordance with Sacramento County, SMAQMD-recommended and ARB-recommended methodologies.

Construction-related emissions were modeled using the CalEEMod (v.2022.1.1.12). Project-specific construction parameters were used as inputs in the air quality analysis (to the extent information was available). Construction is assumed to occur in 2023 and last up to 2 weeks. Where project-specific information was not available, such as construction duration, equipment use, and the number of construction workers, default parameters provided by the model were used. Modeled construction-related emissions are compared with the applicable SMAQMD thresholds to determine significance.

Following construction, project-related operational emissions sources would include an intermittent increase in vehicle trips associated with evening events and electricity to power the proposed lights. Operational emissions associated with these activities were quantified using CalEEMod; the trip generation rate was based upon the traffic study prepared for the project (Kimley Horn 2023) and the electricity consumption based upon the lighting system design for the proposed project (Musco Lighting 2023).

Emissions model input details and assumptions, as well as the CalEEMod emissions estimate output files, are available in Appendix C.

TAC emissions associated with project construction that could affect surrounding areas are evaluated qualitatively. The potential for the project operations to expose residents to TAC emissions that would exceed applicable health standards is also discussed qualitatively.

The impact analysis does not directly evaluate airborne lead. Neither construction nor future operations would generate quantifiable lead emissions because of regulations that require unleaded fuel and that prohibit lead in new building materials.

Lastly, SMAQMD recommends that odor impacts be addressed in a qualitative manner. Such an analysis must determine if the project would result in excessive nuisance odors, as defined under California Code of Regulations, Health and Safety Code Section 41700, Air Quality Public Nuisance.

ENVIRONMENTAL IMPACTS

IMPACT AQ-1. CONFLICT WITH OR OBSTRUCT IMPLEMENTATION OF THE APPLICABLE AIR QUALITY PLAN?

Air quality plans describe air pollution control strategies to be implemented by a city, county, or regional air district. The primary purpose of an air quality plan is to bring an area that does not attain the NAAQS or CAAQS into compliance with those standards, or to maintain existing compliance with those standards, pursuant to the requirements of the CAA and California Clean Air Act (CCAA). The SMAQMD region, including Sacramento County, is currently designated as nonattainment for the NAAQS and CAAQS for ozone, and nonattainment for the NAAQS for 24-hour PM_{2.5}, and the CAAQS for PM₁₀.

CONSTRUCTION

Construction activities associated with the proposed project would result in emissions of criteria air pollutants and ozone precursors, including ROG, NO_x, PM₁₀, and PM_{2.5}, the pollutants for which the project region is designated as nonattainment under either the NAAQS or CAAQS. SMAQMD has adopted air quality plans pursuant to regulatory requirements under EPA and ARB for the attainment and maintenance of federal and state ambient air quality standards, as detailed above in “Regulatory Setting.” The goal of the air quality plans is to reduce criteria air pollutant emissions for which the SVAB is designated as nonattainment in order to achieve NAAQS and CAAQS by the earliest practicable date. As documented in the SMAQMD CEQA Guide (SMAQMD 2021), the SMAQMD construction mass emissions thresholds for ozone precursors correlate to the NO_x and ROG reductions from heavy-duty vehicles and land use project emission reduction requirements committed to in the 2004 Ozone Attainment Plan for the Sacramento Federal Ozone Nonattainment Area; therefore, projects whose emissions would be less than the recommended thresholds of significance for criteria air pollutants would not conflict with or obstruct implementation of applicable air quality plans related to the attainment of ozone. Similarly, the construction mass emissions thresholds for PM correlate to the SMAQMD’s permitting offset trigger levels² and represent the emission levels above which a project’s individual emissions would result in an individually or cumulatively considerable contribution to the County’s existing air quality conditions. These emission levels prevent deterioration of ambient air quality and a regionally cumulative significant impact by ensuring projects do not worsen the region’s attainment status. Therefore, projects whose emissions do not exceed the

² SMAQMD rules require stationary sources that emit pollutants in excess of certain levels to implement best available control technology (BACT) and provide offsets. The PM BACT threshold is zero, and the offset threshold is 14.6 tons per year for PM₁₀ and 15 tons/year for PM_{2.5}. Requiring projects to implement BACT and best management practices is reasonable because it mirrors the CAA approach to reducing emissions and attaining the federal CAA standards.

recommended PM thresholds of significance would also not conflict with or obstruct implementation of the applicable air quality plans related to PM.

The project construction-related activities will be required to comply with SMAQMD rules and regulations established, in part, to ensure implementation of and consistency with strategies and actions of the applicable air quality plans. In addition, as detailed below in Impact AQ-2 and shown in Table AQ-3, emissions generated during construction would not exceed the SMAQMD thresholds of significance. However, due to the nonattainment status of the SVAB with respect to ozone, PM₁₀, and PM_{2.5}, SMAQMD recommends that all construction projects implement the SMAQMD Basic Construction Emission Control Practices (SMAQMD 2020c). SMAQMD's Basic Construction Emission Control Practices include such measures as watering the construction site twice daily, limiting vehicle speeds on unpaved roadways to 15 miles per hour, minimizing vehicle idling, covering haul trucks transporting soil, and cleaning paved roads. The proposed project would not include travel on unpaved roadways and would have minimal earthwork or transport of soil. Regardless, without incorporation of applicable SMAQMD's Basic Construction Control Practices, the project construction activities would be considered to potentially conflict with or obstruct implementation of the SMAQMD's air quality plans for PM and the impact is considered to be **potentially significant**.

OPERATIONS

Operational activities associated with the project would be limited to intermittent increases in vehicle trips for evening events and electricity to power the lights, as needed. As detailed below in Table AQ-4, proposed operational activities would result in emissions of criteria air pollutant and ozone precursors, including ROG, NO_x, PM₁₀, and PM_{2.5}. As shown in Table AQ-4, project operational emissions are less than 0.7 pounds per day and 0.01 tons per year for any given pollutant, or close to zero, which is substantially below the SMAQMD recommended thresholds of significance. As such, operational emissions associated with project operations would not conflict with or obstruct implementation of applicable air quality plans; and this impact of long-term operations would be **less than significant**.

MITIGATION MEASURES

MITIGATION MEASURE AQ-1. SMAQMD BASIC CONSTRUCTION EMISSION CONTROL PRACTICES

The construction contractor shall comply with Basic Construction Emission Control Practices identified by the SMAQMD and listed below or as they may be updated in the future:

- Water all exposed surfaces two times daily. Exposed surfaces include, but are not limited to soil piles, graded areas, unpaved parking areas, staging areas, and access roads.

- Cover or maintain at least two feet of free board space on haul trucks transporting soil, sand, or other loose material on the site. Any haul trucks that would be traveling along freeways or major roadways should be covered.
- Use wet power vacuum street sweepers to remove any visible track out mud or dirt onto adjacent public roads at least once a day. Use of dry powered sweeping is prohibited.
- Limit vehicle speeds on unpaved roads to 15 miles per hour (mph).
- All roadways, driveways, sidewalks, parking lots to be paved should be completed as soon as possible. In addition, building pads should be laid as soon as possible after grading unless seeding or soil binders are used.
- Minimize idling time either by shutting equipment off when not in use or reducing the time of idling to 5 minutes [required by California Code of Regulations, Title 13, sections 2449(d) and 2485]. Provide clear signage that posts this requirement for workers at the entrances to the site.
- Provide current certificate(s) of compliance for ARB's In-Use Off-Road Diesel-Fueled Fleets Regulation [California Code of Regulations, Title 13, sections 2449 and 2449.1]. For more information contact ARB at 877-593-6677, doors@arb.ca.gov, or www.arb.ca.gov/doors/compliance_cert1.html
- Maintain all construction equipment in proper working condition according to manufacturer's specifications. The equipment must be checked by a certified mechanic and determined to be running in proper condition before it is operated.

SIGNIFICANCE AFTER MITIGATION

With implementation of Mitigation Measure AQ-1, the project's construction activities would not conflict with applicable air quality plans, and this impact would be **less than significant with mitigation**.

IMPACT AQ-2. RESULT IN A CUMULATIVELY CONSIDERABLE NET INCREASE OF ANY CRITERIA POLLUTANT FOR WHICH THE PROJECT REGION IS NONATTAINMENT UNDER AN APPLICABLE FEDERAL OR STATE AMBIENT AIR QUALITY STANDARD?

By its very nature, air pollution is largely a cumulative impact. The nonattainment status of regional pollutants is a result of past and present development within the SVAB, and this regional impact is cumulative rather than being attributable to any one source. A project's emissions may be individually limited, but cumulatively considerable when taken in combination with past, present, and future development projects.

SMAQMD established mass emissions thresholds with consideration of the area's nonattainment status and attainment planning efforts to comply with federal and State ambient air quality standards. As stated in the SMAQMD CEQA Guide, if a project's emissions would not exceed the SMAQMD-recommended thresholds, the project would

not be expected to result in a cumulatively considerable contribution to this significant cumulative impact (SMAQMD 2020b).

CONSTRUCTION

Construction would result in temporary emissions of criteria air pollutants and ozone precursors in the form of both fugitive dust from ground disturbing activities and vehicle travel on paved roadways, and exhaust emissions from the use of off-road equipment and on-road motor vehicles. Table AQ-3 presents the proposed project's daily and total construction-related emissions.

Table AQ-3: Summary of Construction-Related Emissions of Criteria Air Pollutants and Precursors

	Maximum Daily Emissions ROG (pounds per day)	Maximum Daily Emissions NO _x (pounds per day)	Maximum Daily Emissions PM ₁₀ (pounds per day)	Maximum Daily Emissions PM _{2.5} (pounds per day)	Maximum Annual Emissions PM ₁₀ (tons per year)	Maximum Annual Emissions PM _{2.5} (tons per year)
Project Construction Emissions	0.85	8.98	0.69	0.41	< 0.005	< 0.005
SMAQMD Significance Threshold ¹	N/A	85	80	82	14.6	15
Do Project Emissions Exceed SMAQMD Threshold?	N/A	No	No	No	No	No

Notes:

NO_x = oxides of nitrogen; PM₁₀ = respirable particulate matter with an aerodynamic diameter of 10 micrometers or less; PM_{2.5} = respirable particulate matter with an aerodynamic diameter of 2.5 micrometers or less; ROG = reactive organic gases; SMAQMD = Sacramento Metropolitan Air Quality Management District

¹ Represents SMAQMD Threshold of Significance with the application of Best Management Practices (BMPs) and Best Available Control Technology (BACT).

Source: Modeled by AECOM in 2023. See Appendix C for detailed construction inputs and model output files.

As shown in Table AQ-3, estimated maximum project emissions associated with construction of the proposed project would be less than 9 pounds per day of NO_x (an ozone precursor), and less than one pound per day or 0.01 ton per year of each PM₁₀ and PM_{2.5}, substantially below the SMAQMD recommended thresholds of significance. Although construction-related emissions would not exceed SMAQMD thresholds, due to the nonattainment status of the SVAB with respect to ozone, PM₁₀, and PM_{2.5}, SMAQMD recommends that all construction projects implement the SMAQMD Basic Construction Emission Control Practices (SMAQMD 2020c). Without implementation of the SMAQMD Basic Construction Emission Control Practices, as described in Impact AQ-1, the contribution of construction-related emissions from the project would have the potential to be cumulatively considerable, resulting in a **potentially significant impact**.

OPERATIONAL EMISSIONS

The proposed project's operations would include an intermittent increase in vehicle trips to the stadium during events. To calculate the increase in operational mobile-source emissions that would result from increased attendance (and increased vehicle trips) at evening and nighttime events, an estimated trip rate for one day per week (Saturday) was applied to CalEEMod based on the vehicle miles traveled analysis prepared for this EIR (Kimley Horn 2023) for a "worst case" traffic scenario, assuming a maximum increase of 108 round trips per day, which is conservative because this is based on the more heavily-attended playoff events and not typical games. The resultant long-term operational emissions estimates are shown in Table AQ-4.

Table AQ-4: Summary of Operational Emissions of Criteria Air Pollutants and Precursors

	Maximum Daily Emissions ROG (pounds per day)	Maximum Daily Emissions NO _x (pounds per day)	Maximum Daily Emissions PM ₁₀ (pounds per day)	Maximum Daily Emissions PM _{2.5} (pounds per day)	Maximum Annual Emissions PM ₁₀ (tons per year)	Maximum Annual Emissions PM _{2.5} (tons per year)
Operational Emissions	0.63	0.33	0.48	0.09	0.01	< 0.005
SMAQMD Significance Threshold ¹	65	65	80	82	14.6	15
Do Project Emissions Exceed SMAQMD Threshold?	No	No	No	No	No	No

Notes:

NO_x = oxides of nitrogen; PM₁₀ = respirable particulate matter with an aerodynamic diameter of 10 micrometers or less; PM_{2.5} = respirable particulate matter with an aerodynamic diameter of 2.5 micrometers or less; ROG = reactive organic gases; SMAQMD = Sacramento Metropolitan Air Quality Management District

¹ Represents SMAQMD Threshold of Significance with the application of Best Management Practices (BMPs) and Best Available Control Technology (BACT).

Data compiled by AECOM in 2023. See Appendix C for detailed construction inputs and model output files.

As explained above, SMAQMD established mass emissions thresholds with consideration of the regions nonattainment status and attainment planning efforts to comply with federal and State ambient air quality standards, and if a project's emissions would not exceed the SMAQMD-recommended thresholds the project would not be expected to result in a cumulatively considerable contribution to this significant cumulative impact (SMAQMD 2020b). As shown in Table AQ-4, the intermittent increase in emissions related to project operations would not approach or exceed any SMAQMD threshold. This comparison to the SMAQMD thresholds shows that operations would not result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or

state ambient air quality standard, and this operational-related impact would be **less than significant**.

MITIGATION MEASURES

IMPLEMENT MITIGATION MEASURE AQ-1. SMAQMD BASIC CONSTRUCTION EMISSION

SIGNIFICANCE AFTER MITIGATION

Implementation of Mitigation Measure AQ-1 would ensure that the project would implement the SMAQMD-required Basic Construction Emission Control Practices, allowing the use of the non-zero particulate matter significance thresholds. This impact would be **less than significant with mitigation**.

IMPACT AQ-3. EXPOSE SENSITIVE RECEPTORS TO SUBSTANTIAL POLLUTANT CONCENTRATIONS?

Sensitive receptors nearest to the project are users of the stadium itself, as well as students at the school and athletic fields to the north and east of the stadium and single-family residences to the south and east of the stadium.

CRITERIA AIR POLLUTANTS AND OZONE PRECURSORS

HEALTH EFFECTS SCREENING

SMAQMD's *Instructions for Sac Metro Air District Minor Project and Strategic Area Project Health Effects Screening Tools* (SMAQMD's Instructions) were used to estimate the potential health risks that could result from the operational emissions of ROG, NO_x, and PM_{2.5}. To date, SMAQMD has published three options for analyzing projects: small projects may use the Minor Project Health Screening Tool, while larger projects may use the Strategic Area Project Health Screening Tool, and practitioners have the option to conduct project-specific modeling.

Both the Minor Project Health Screening Tool and Strategic Area Project Health Screening Tool are based on the maximum thresholds of significance adopted within the five air district regions contemplated within SMAQMD's *Guidance to Address the Friant Ranch Ruling for CEQA Projects in the Sac Metro Air District* (SMAQMD's Friant Guidance; October 2020). The air district thresholds considered in SMAQMD's Friant Guidance included thresholds from SMAQMD, as well as the El Dorado County Air Quality Management District, the Feather River Air Quality Management District, the Placer County Air Pollution Control District, and the Yolo Solano Air Quality Management District. The highest allowable emission rates of NO_x, ROG, PM₁₀, and PM_{2.5} from the five air districts is 82 pounds per day (lbs/day) for all four pollutants. The Minor Project Health Screening Tool is intended for use by projects that would result in emissions at or below 82 lbs/day, while the Strategic Area Project Health Screening Tool is intended for use by projects that would result in emissions between two and eight times greater than 82 lbs/day. The Strategic Area Project Screening Model was

prepared by SMAQMD for five locations throughout the Sacramento region for two scenarios: two times and eight times the threshold of significance level (2xTOS and 8xTOS). The corresponding emissions levels included in the model for 2xTOS were 164 lbs/day for ROG and NO_x, and 656 lbs/day under the 8xTOS for ROG and NO_x (SMAQMD 2020d).

As noted in SMAQMD's Friant Guidance, "each model generates conservative estimates of health effects, for two reasons: The tools' outputs are based on the simulation of a full year of exposure at the maximum daily average of the increases in air pollution concentration... [and] [t]he health effects are calculated for emissions levels that are very high" (SMAQMD 2020d).

The model derives the estimated health risk associated with operation of a project based on increases in concentrations of ozone and PM_{2.5} that were estimated using a photochemical grid model (PGM). The concentration estimates of the PGM are then applied to the U.S. Environmental Protection Agency's Benefits Mapping and Analysis Program (BenMAP) to estimate the resulting health effects from concentration increases. PGMs and BenMAP were developed to assess air pollution and human health impacts over large areas and populations that far exceed the area of an average land use development project. These models were never designed to determine whether emissions generated by an individual development project would affect community health or the date an air basin would attain an ambient air quality standard. Rather, they are used to help inform regional planning strategies based on cumulative changes in emissions within an air basin or larger geography.

It must be cautioned that within the typical project-level scope of CEQA analyses, PGMs are unable to provide precise, spatially defined pollutant data at a local scale. In addition, as noted in SMAQMD's Friant Guidance, "BenMAP estimates potential health effects from a change in air pollutant concentrations, but does not fully account for other factors affecting health such as access to medical care, genetics, income levels, behavior choices such as diet and exercise, and underlying health conditions" (2020). Thus, the modeling conducted for the health risk analysis is based on imprecise mapping and only takes into account one of the main public health determinants (i.e., environmental influences).

DISCUSSION OF PROJECT IMPACTS: CRITERIA POLLUTANT HEALTH RISKS

Since the proposed project would be below the daily operational thresholds for criteria air pollutants, the Minor Project Health Screening Tool was used to estimate health risks. The results are shown in Minor Project Health Screening Table in Appendix C.

Again, it is important to note that the "model outputs are derived from the numbers of people who would be affected by [the] project due to their geographic proximity and based on average population through the Five-District-Region. The models do not take into account population subgroups with greater vulnerabilities to air pollution, except for ages for certain endpoints" (SMAQMD 2020d). In addition, as explained in the SMAQMD Instructions for Sac Metro Air District Minor Project and Strategic Area Project Health Effects Screening Tool (2020), the Minor Project Health Screening Tool

applies emissions of 82 pounds per day for each pollutant, not the actual emissions of a given project. In the case of the proposed project, the operational emissions of the project would be less than 1 pound per day of each respective criteria air pollutant modeled by the Tool, which is less than 1 percent of the mass emissions used by the Minor Project Health Screening Tool. For each of these reasons, it would be misleading to correlate the levels of criteria air pollutant and precursor emissions associated with project implementation to specific health outcomes. While the effects noted above could manifest in individuals, actual effects depend on factors specific to each individual, including life stage (e.g., older adults are more sensitive), preexisting cardiovascular or respiratory diseases, and genetic polymorphisms. Even if this specific medical information was known about each individual, there are wide ranges of potential outcomes from exposure to ozone precursors and particulates, from no effect to the effects listed in the tables. Ultimately, the health effects associated with the project, using the SMAQMD guidance “are conservatively estimated, and the actual effects may be zero” (SMAQMD 2020d).

CONCLUSION: CRITERIA POLLUTANT HEALTH RISKS

Neither SMAQMD nor the County of Sacramento have adopted thresholds of significance for the assessment of health risks related to the emission of criteria pollutants. Furthermore, an industry standard level of significance has not been adopted or proposed. Due to the lack of adopted thresholds of significance the health risks, this data is presented for informational purposes and does not represent an attempt to arrive at any level-of-significance conclusions.

TOXIC AIR CONTAMINANTS

In addition to criteria air pollutants, construction of the project would also generate TAC emissions, specifically DPM, associated with heavy-duty construction equipment operations. These activities may expose nearby receptors to TACs, including surrounding residents and students. More than 90 percent of DPM is less than 1 micrometer (μm) in diameter, and thus is a subset of $\text{PM}_{2.5}$, presented in Table AQ-3.

Operations of the project would not result in a substantial net increase TACs; even if there were a minor increase in visitor trips to and from the stadium, these would be primarily associated with passenger vehicles, which are predominantly gasoline powered and not a source of DPM.

Health risk is a function of the concentration of contaminants in the environment and the duration of exposure to those contaminants. Concentrations of mobile-source DPM emissions are typically reduced by approximately 60 percent at a distance of around 300 feet (90 meters) (Zhu et al. 2002) from the source. Within the project site, equipment would generally be concentrated at the locations of pole installation. Pole installation locations are approximately 100 feet (30 meters) from the nearest students and approximately 150 feet (45 meters) from the nearest residents. In addition, as described above, $\text{PM}_{2.5}$ emissions during construction would not exceed the SMAQMD's threshold of significance of 82 pounds per day (Table AQ-3). The maximum daily on-site exhaust $\text{PM}_{2.5}$ emissions would be a subset of the total $\text{PM}_{2.5}$ emissions shown in Table AQ-3, which include fugitive dust and exhaust $\text{PM}_{2.5}$ emissions generated both on- and

off-site; as detailed in Appendix C, the maximum daily on-site exhaust PM_{2.5} emissions are estimated to be less than 0.32 pounds per day. The maximum daily emissions would only occur if all anticipated equipment were operated simultaneously all day for a given day, which is unlikely. Emissions would only occur for the approximately two-week construction duration.

The risks estimated for an exposed individual are higher if a fixed exposure occurs over a longer period of time. Health effects from TACs are often described in terms of individual cancer risk, which is based on a 30-year lifetime exposure to TACs (Office of Environmental Health Hazard Assessment 2015). Based on the two-week duration of construction, the potential exposure of a nearby sensitive receptor to construction emissions would be less than one-tenth of a percent of the total exposure period used for typical health risk calculations (i.e., 30 years). In addition, the prevailing wind conditions in the region are winds blowing from the southwest, in which case pollutants would be dispersed toward the north. Existing student classrooms are adjacent to the project site, along the northern perimeter, approximately 100 feet from the site. Residential sensitive receptors in the vicinity of the project are buffered by open space and vegetation that would disperse pollutants. Residences located on the western and southern sides of the project site are buffered by vegetation within their properties, and the majority of the area east of the project site consists of open space, providing a substantial 300-foot buffer between the project site and residences situated to the east and north. The roadway, vegetation and open space would provide additional buffer between the limited diesel emissions from construction and sensitive receptors in the direction of the prevailing winds. In summary, because of the temporary nature of construction activities, the dispersive properties of TACs, the distance of the project from sensitive receptors, as well as the fact that PM emissions would be far less than the SMAQMD emission threshold, short-term construction would not expose sensitive receptors to DPM emission levels that would result in a health hazard. As a result, this impact would be **less than significant**. Finally, the project would implement Mitigation Measure AQ-1 to comply with the SMAQMD-required emission reduction measures, which would further reduce this already less-than-significant impact.

IMPACT AQ-4. RESULT IN OTHER EMISSIONS (SUCH AS THOSE LEADING TO ODORS) ADVERSELY AFFECTING A SUBSTANTIAL NUMBER OF PEOPLE?

The occurrence and severity of odor impacts depend on numerous factors, including the nature, frequency, and intensity of the source; wind speed and direction; and the presence of sensitive receptors. Typically, odors are generally regarded as an annoyance rather than a health hazard. However, manifestations of a person's reaction to foul odors can range from the psychological (i.e., irritation, anger, or anxiety) to the physiological, including circulatory and respiratory effects, nausea, vomiting, and headache. The ability to detect odors varies considerably among the population and overall is quite subjective.

Sources that may emit odors during construction activities include exhaust from diesel construction equipment and heavy-duty trucks, which could be considered offensive to

some individuals. Odors from these sources would be localized and generally confined to the immediate area surrounding the source. The project would use typical construction techniques, and the odors would be typical of most construction sites and temporary in nature. Project operation would also not add any new sources of odors. The project would continue to utilize land for school activities and would remain similar to existing conditions. The land uses associated with the project are school-related and would not include the typical odor-generating land uses.

SMAQMD has identified the following land uses that could be of concern in relation to odors: wastewater treatment plants; sanitary landfills; composting/green waste facilities; recycling facilities; petroleum refineries; chemical manufacturing plants; painting/coating operations; rendering plants; and food packaging plants (SMAQMD 2016). As a result, the project would not result in other emissions, such as those leading to odors, adversely affecting a substantial number of people. This impact would be **less than significant**.

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7 GREENHOUSE GAS

INTRODUCTION

This section provides background information about greenhouse gas (GHG) emissions. Emissions of GHGs have the potential to adversely affect the environment because such emissions contribute cumulatively to global climate change. The quantity of GHGs that it takes to ultimately result in climate change is not precisely known; however, no single project alone is expected to measurably contribute to a noticeable incremental change in the global average temperature, or to a global, local, or micro climate. Given the nature of environmental consequences from GHGs and global climate change, CEQA requires that lead agencies evaluate the cumulative impacts of GHGs, even relatively small additions.

ENVIRONMENTAL SETTING

Certain gases in the earth's atmosphere, classified as GHGs, play a critical role in determining the earth's surface temperature. Solar radiation enters the earth's atmosphere from space. A portion of the radiation is absorbed by the earth's surface, and a smaller portion of this radiation is reflected back toward space through the atmosphere. However, infrared radiation is selectively absorbed by GHGs in the atmosphere. As a result, infrared radiation released from the earth that otherwise would have escaped back into space is instead "trapped," resulting in a warming of the atmosphere. This phenomenon, known as the "greenhouse effect," is responsible for maintaining a habitable climate on Earth. Anthropogenic (e.g., human caused) emissions of GHGs lead to atmospheric levels in excess of natural ambient concentrations and have the potential to adversely affect the environment because such emissions contribute, on a cumulative basis, to global climate change.

The Intergovernmental Panel on Climate Change (IPCC) concluded that variations in natural phenomena, such as solar radiation and volcanoes, produced most of the warming of the earth from pre-industrial times to 1950. Some variations in natural phenomena also had a small cooling effect. From 1950 to the present, increasing GHG concentrations resulting from human activity, such as fossil fuel burning and deforestation, have been responsible for most of the observed temperature increase (IPCC 2023).

Global surface temperature has increased by approximately 1.96 degrees Fahrenheit (°F) over the last 140 years (IPCC 2023); the likely total human-caused global surface temperature increase is 1.93°F. The rate of increase in global average surface temperature has not been consistent; the last four decades have warmed at a much faster rate per decade (IPCC 2023).

During the same period when increased global warming has occurred, many other changes have occurred in other natural systems. Sea levels have risen; precipitation patterns throughout the world have shifted, with some areas becoming wetter and others drier; snowlines have increased elevation, resulting in changes to the snowpack, runoff, and water storage; and numerous other conditions have been observed. Although it is difficult to prove a definitive cause-and-effect relationship between global warming and other observed changes to natural systems, there is a high level of confidence in the scientific community that these changes are a direct result of increased global temperatures caused by the increased presence of GHGs in the atmosphere (IPCC 2023).

PRINCIPAL GREENHOUSE GASES AND SOURCES

GHGs are present in the atmosphere naturally, are released by natural and anthropogenic (human-caused) sources, and are formed from secondary reactions taking place in the atmosphere. Natural sources of GHGs include the respiration of humans, animals, and plants; decomposition of organic matter; volcanic activity; and evaporation from the oceans. Anthropogenic sources include the combustion of fossil fuels by stationary and mobile sources, waste treatment, and agricultural processes. The following are the principal GHG pollutants that contribute to climate change and their primary emission sources:

- Carbon Dioxide (CO₂): Natural sources of CO₂ include decomposition of dead organic matter; respiration of bacteria, plants, animals, and fungus; and evaporation from oceans. Anthropogenic (human) sources include burning of coal, oil, natural gas, and wood.
- Methane (CH₄): CH₄ is emitted during the production and transport of coal, natural gas, and oil. CH₄ emissions also result from livestock and other agricultural practices and by the decay of organic waste in municipal solid waste landfills.
- Nitrous Oxide (N₂O): N₂O is produced by both natural and human-related sources. Primary human-related sources of N₂O are agricultural soil management, sewage treatment, mobile and stationary combustion of fossil fuel, adipic acid production, and nitric acid production. N₂O is also produced naturally from a wide variety of biological sources in soil and water, particularly microbial action in wet tropical forests.
- Fluorinated gases: These gases are typically emitted in smaller quantities, but because they are potent greenhouse gases, they are sometimes called High Global Warming Potential (High GWP) gases. GHGs are not monitored at local air pollution monitoring stations and do not represent a direct impact to human health. Rather, GHGs generated locally contribute to global concentrations of GHGs, which result in changes to the climate and environment.

GLOBAL WARMING POTENTIAL

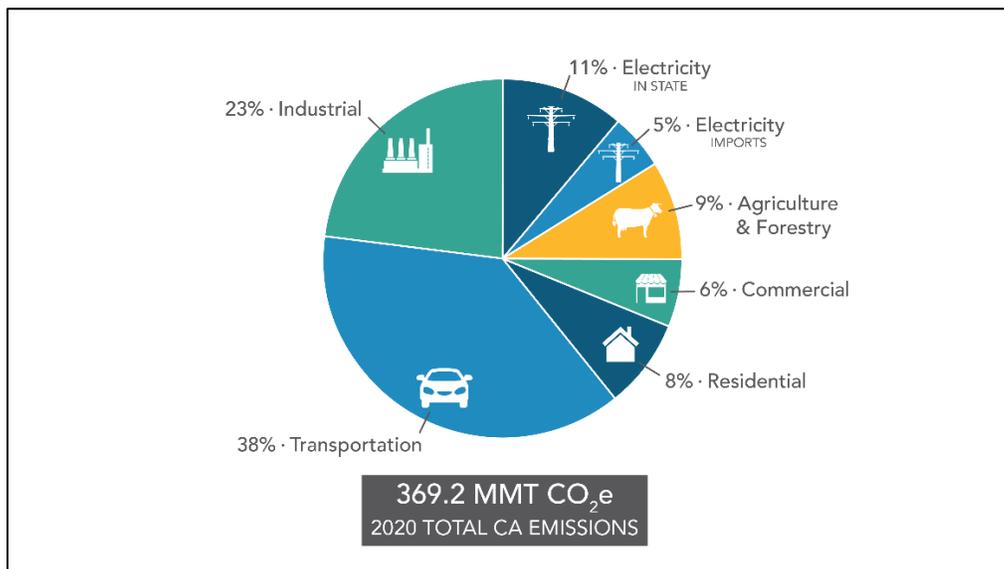
Global Warming Potential (GWP) is a concept developed to compare the ability of each GHG to trap heat in the atmosphere relative to another gas. The GWP of a GHG is based on several factors, including the relative effectiveness of a gas to absorb infrared radiation and the length of time the gas remains in the atmosphere (“atmospheric lifetime”). The GWP of each gas is measured relative to CO₂. Therefore, CO₂ has a GWP of 1. GHGs with lower emissions rates than CO₂ may still contribute to climate change because they are more effective at absorbing outgoing infrared radiation than CO₂ (i.e., high GWP). GHG emissions are typically measured in terms of metric tons of carbon dioxide equivalent (CO₂e) and are often expressed in MT CO₂e.

GREENHOUSE GAS EMISSIONS INVENTORIES

CALIFORNIA GREENHOUSE GAS EMISSIONS INVENTORY AND TRENDS

The ARB prepares an annual inventory of statewide GHG emissions. GHGs are typically analyzed by sector, a term that refers to the type of activity. As shown in Plate GHG-1, 369.2 million MT CO₂e were generated in 2020. Combustion of fossil fuel in the transportation sector was the single largest source of California’s GHG emissions in 2020, accounting for 38 percent of total GHG emissions. Transportation was followed by industry, which accounted for 23 percent, and then the electric power sector (including in-state and out-of-state sources), which accounted for 11 percent of total GHG emissions (ARB 2022a).

Plate GHG-1: 2020 California Greenhouse Gas Emissions Inventory by Sector

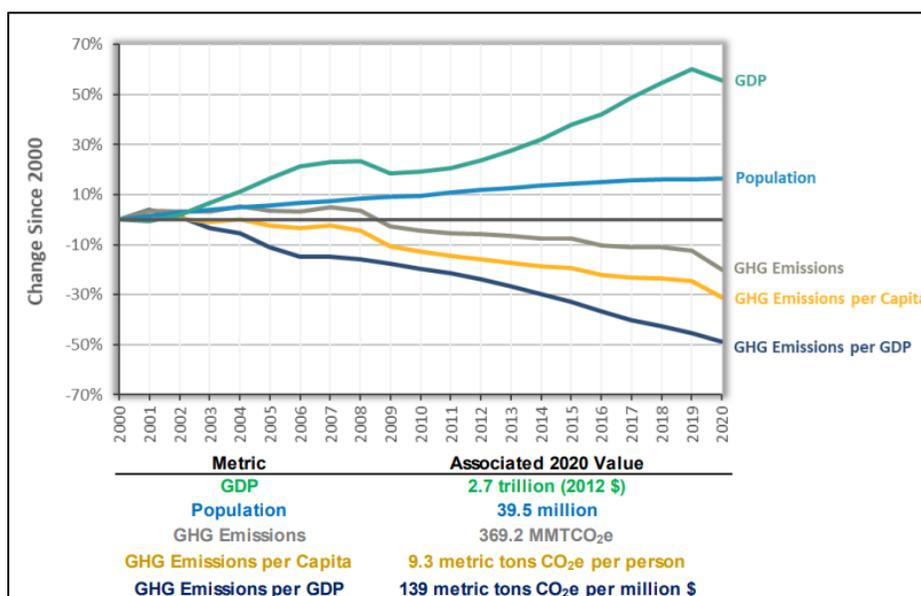


Source: ARB 2022a

California has implemented several programs and regulatory measures to reduce GHG emissions. Plate GHG-2 demonstrates California’s progress in reducing statewide GHG

emissions. Since 2007, California's GHG emissions have been declining, even as population and gross domestic product have increased. Per-capita GHG emissions in 2020 were 33 percent lower than the peak per-capita GHG emissions recorded in 2001. Similarly, GHG emissions per million dollars of gross domestic product have decreased by 49 percent since the peak in 2001.

Plate GHG-2: Trends in California Greenhouse Gas Emissions (Years 2000 to 2020)



Source: ARB 2022b

LOCAL GREENHOUSE GAS EMISSIONS INVENTORY

As described below, under "Sacramento County Climate Action Plan," the County of Sacramento completed the County's Draft Climate Action Plan (CAP) in 2022. The Final Draft CAP includes a baseline and forecasted GHG emissions inventory for the community and government operations. The total community GHG emissions in the 2015 baseline year were 4,723,011 MT CO₂e; while the forecasted GHG emissions for 2030 are 3,309,712 MT CO₂e (County of Sacramento 2022).

REGULATORY SETTING

While most do not directly inform proposed project implementation or impact determination, federal, state, regional, and local GHG-related plans, policies, and regulations are helpful for understanding the overall context for GHG emissions impacts and strategies to reduce GHG emissions.

FEDERAL

The EPA is the federal agency responsible for implementing the CAA. On April 2, 2007, the U.S. Supreme Court held that the EPA must consider regulation of motor vehicle

GHG emissions. In *Massachusetts v. Environmental Protection Agency et al.*, 12 states and cities (including California) along with several environmental organizations sued to require EPA to regulate GHGs as pollutants under the CAA (127 S. Ct. 1438 [2007]). The Supreme Court ruled that GHGs fit within the CAA's definition of a pollutant and that EPA had the authority to regulate GHGs. The Inflation Reduction Act, signed on August 16, 2022, affirms EPA's authority to regulate greenhouse gas emissions under the CAA.

STATE

The legal framework for GHG emission reductions has come about through Executive Orders (EO), legislation, and regulations. The major components of California's climate change initiatives are outlined below.

EXECUTIVE ORDER S-3-05

Executive Order S-3-05, issued in recognition of California's vulnerability to the effects of climate change, set forth the following target dates by which statewide GHG emissions would be progressively reduced: by 2010, reduce GHG emissions to 2000 levels; by 2020, reduce GHG emissions to 1990 levels; and by 2050, reduce GHG emissions to 80 percent below 1990 levels.

ASSEMBLY BILL 1279

For the post-2030 period, EO-B-55-18 established a statewide goal of achieving carbon neutrality as soon as possible, but no later than 2045, and achieving and maintaining net negative emissions thereafter. Signed September 16, 2022, AB 1279, the California Climate Crisis Act, codified EO B-55-18. This bill declares the policy of the state both to achieve net zero greenhouse gas emissions as soon as possible, but no later than 2045, and achieve and maintain net negative greenhouse gas emissions thereafter. It as requires that by 2045 statewide anthropogenic greenhouse gas emissions are reduced to at least 85 percent below the 1990 levels.

ASSEMBLY BILL 32 AND THE STATE CLIMATE CHANGE SCOPING PLAN

In 2006, California passed the California Global Warming Solutions Act of 2006 (AB 32; California Health and Safety Code Division 25.5, Sections 38500, et seq.). AB 32 further details and puts into law the mid-term GHG reduction target established in Executive Order S-3-05: reduce GHG emissions below 1990 levels by 2020. AB 32 also identifies ARB as the State agency responsible for the design and implementation of emissions limits, regulations, and other measures to meet the target.

In December 2008, ARB adopted the Climate Change Scoping Plan (Scoping Plan), which contains the main strategies California will implement to achieve the required GHG reductions required by AB 32 (ARB 2008). The Scoping Plan also includes ARB-recommended GHG reductions for each emissions sector of California's GHG inventory. ARB acknowledges that land use planning decisions will have large impacts on the GHG emissions that will result from the transportation, housing, industry, forestry, water, agriculture, electricity, and natural gas emissions sectors. The Scoping Plan details the

regulations, alternative compliance mechanisms, voluntary actions and incentives, etc. proposed to meet the target emission reduction levels.

ARB has now adopted the 2022 Scoping Plan Update, which evaluates progress toward the 2030 target, as well as examining scenarios that could achieve carbon neutrality by 2045 or sooner (ARB 2022c). The 2022 Scoping Plan Update focuses on actions needed to achieve carbon neutrality by assessing paths for clean technology, energy deployment, natural and working lands, and others, and is designed to meet the State's long-term climate objectives.

EXECUTIVE ORDER B-30-15

Signed in 2015, EO B-30-15 establishes a statewide GHG reduction goal of 40 percent below 1990 levels by 2030. The emission reduction target acts as an interim goal between the AB 32 goal (i.e., achieve 1990 emission levels by 2020) and EO S-3-05 goal of reducing statewide emissions 80 percent below 1990 levels by 2050. In addition, the executive order aligns California's 2030 GHG reduction goal with the European Union's reduction target (i.e., 40 percent below 1990 levels by 2030) that was adopted in October 2014.

SENATE BILL 32

Approval of Senate Bill (SB) 32 in September 2016 extended the provisions of AB 32 from 2020 to 2030 and codified the 2030 interim GHG emissions reduction target established by EO B-30-15 (i.e., 40 percent below 1990 levels by 2030). The companion bill, AB 197, adds two non-voting members to the ARB, creates the Joint Legislative Committee on Climate Change Policies consisting of at least three Senators and three Assembly members, requires additional annual reporting of emissions, and requires Scoping Plan updates to include alternative compliance mechanisms for each statewide reduction measure, along with market-based compliance mechanisms and potential incentives.

SENATE BILL 1078 (2002), SENATE BILL 100 (2021) – CALIFORNIA RENEWABLES PORTFOLIO STANDARD

Established in 2002 by SB 1078, California's Renewables Portfolio Standard (RPS) requires electricity providers (i.e., utilities, cooperatives, and community choice aggregators) to provide a specified minimum portion of their electricity supply from eligible renewable resources by milestone target years. Since 2002, state legislative actions have modified and accelerated the RPS several times, resulting in one of the most ambitious renewable energy standards in the country. Most recently, SB 100 increased the RPS target to require retail sellers of electricity to serve 60 percent of their electric load with renewable energy by 2030 with new interim targets of 44 percent by 2024 and 52 percent by 2027, as well as requiring that all of the state's electricity come from carbon-free resources (not only RPS-eligible ones) by 2045.

LOCAL

SACRAMENTO COUNTY CLIMATE ACTION PLAN

Sacramento County is currently in the process of developing the CAP. The Revised Final Draft CAP was presented to the Board of Supervisors on March 23, 2022, and a Second Revised Final Draft CAP public review period took place during summer 2022 with a Board of Supervisors hearing in September 2022. Based on input from the Board of Supervisors during that hearing, additional review of and response to comments is being undertaken to finalize the CAP.

The Revised Final Draft CAP details specific measures that will be implemented in the County by 2030 to reduce GHG emissions from communitywide activities and government operations (County of Sacramento 2022). It also includes an adaptation plan that recommends actions to reduce the community's vulnerability to the anticipated impacts of climate change. The Revised Final Draft CAP has been developed in response to mitigation measures contained in the County's General Plan, the County's adoption of a Climate Emergency Resolution in December 2020, and State legislation including Assembly Bill 32, SB 32, and SB 743 as well as Executive Orders S-3-05 and B-55-18. The strategies and measures contained in the Revised Final Draft CAP complement a wide range of policies, plans, and programs that have been adopted by the County, State, and regional agencies to protect communities from hazards and activities contributing to GHG emissions.

IMPACTS AND ANALYSIS

SIGNIFICANCE CRITERIA

GHG emissions have the potential to adversely affect the environment because such emissions contribute cumulatively to global climate change. It is unlikely that a single project will contribute significantly to climate change, but cumulative emissions from many projects could affect global GHG concentrations and the global climate system. Therefore, impacts are analyzed within the cumulative context of the project's potential contribution to the significant impact of global climate change.

Based on Appendix G of the CEQA Guidelines, implementation of the proposed project would result in a cumulatively considerable contribution to the significant impact of climate change if it would:

- generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment, or
- conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases.

Section 15064.4(b) of the CEQA Statute and Guidelines, concerning determining the significance of impacts from GHG emissions, states that a lead agency may consider

the following three factors in assessing the significance of impacts from GHG emissions.

- The extent to which the project may increase or reduce GHG emissions as compared to the existing environmental setting.
- Whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project.
- The extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions. Such regulations or requirements must be adopted by the relevant public agency through a public review process and must include specific requirements that reduce or mitigate the project's incremental contribution of GHG emissions. If there is substantial evidence that the possible effects of a particular project are still cumulatively considerable notwithstanding compliance with the adopted regulations or requirements, an EIR must be prepared for the project.

As stated in Appendix G of the CEQA Guidelines, the significance criteria established by the applicable air quality management district may be relied on to make the above determinations.

On April 23, 2020, the SMAQMD Board of Directors adopted the Update to the Recommended GHG Emissions Thresholds of Significance, which established thresholds of significance for GHG emissions designed to analyze a project's compliance with applicable State laws, including AB 32 and SB 32 (SMAQMD 2020a). In developing the thresholds, the SMAQMD developed the thresholds for Sacramento County based on determining Sacramento County's share of statewide 2030 GHG emissions by sector, determining the share of Sacramento County 2030 emissions from existing development versus new development, allocating 2030 GHG emissions from new development among land uses and place types to set numeric thresholds, and setting best management practices by land use and place types that achieve those numeric thresholds. Specifically, the SMAQMD adopted a mass emissions based threshold for the construction phase of all project types of 1,100 MT CO_{2e} per year (SMAQMD 2021).

For operational emissions, the SMAQMD has developed an operational screening table, which shows sizes of development projects at which 1,100 MT CO_{2e} would not be exceeded, when including implementation of Tier 1 Best Management Practices.¹ Since the proposed project includes the installation of lighting, and operational activities would be limited to electricity consumption and intermittent mobile trips related to ongoing use of the existing stadium, Tier 1 Best Management Practices, which require that projects

¹ 1,100 MT CO_{2e}/year is the current SMAQMD de minimis threshold. By complying with Best Management Practices 1 and 2 (removing natural gas, EV-ready), SMAQMD suggests that small projects would reduce emissions to be consistent with State goals (SMAQMD 2020a).

be designed and constructed without natural gas infrastructure (BMP 1) and that projects meet the current California Green Building Standards (CALGreen) Tier 2 standards and that all electric vehicle (EV) capable spaces shall instead be EV ready (BMP 2), would not be applicable. Therefore, determining whether the proposed project's construction related and operational GHG emissions may result in a cumulatively considerable contribution to the cumulative impact of climate change, is based on SMAQMD's threshold of 1,100 MT CO_{2e} per year.

METHODOLOGY

Short-term construction activities of the proposed project would generate GHG emissions associated with off-road and on-road exhaust. The intermittent increase in vehicle trips to the stadium during operations would generate GHG emissions from mobile exhaust, as detailed in Chapter 6, "Air Quality." In addition, indirect GHG emissions would result from electricity consumption to power the proposed lights. Construction-related (both off-road and on-road) and operational (mobile and energy) GHG emissions were modeled using the same methods and assumptions as those described in Chapter 6 "Air Quality," of this EIR for the project's first year of operation. Appendix C provides detailed model inputs, assumptions, and outputs.

ENVIRONMENTAL IMPACTS

IMPACT GHG-1. GENERATE GREENHOUSE GAS EMISSIONS, EITHER DIRECTLY OR INDIRECTLY, THAT MAY HAVE A SIGNIFICANT IMPACT ON THE ENVIRONMENT?

GHG emissions have the potential to adversely affect the environment because such emissions contribute cumulatively to global climate change. It is unlikely that a single project will contribute significantly to climate change, but cumulative emissions from many projects could affect global GHG concentrations and the climate system. Therefore, impacts are analyzed within the context of the proposed project's potential contribution to the cumulatively significant impact of climate change. The proposed project would generate GHG emissions as a result of short-term construction and long-term operational activities.

Construction-related exhaust GHG emissions would be generated from a variety sources during construction of the project including, but not limited to heavy-duty construction equipment, haul trucks, material delivery trucks, and construction worker vehicles. The intermittent increase in operational vehicle trips would generally be limited to special events; the estimated increase in trips used to estimate annual operational GHG emissions assumed an event would occur weekly, which is an overestimate, and was conservatively based on the more intense playoff events that would generate more trips than other typical events, as further detailed in the VMT analysis conducted in support of this EIR (Kimley Horn 2023). Based on design and related electricity consumption information for the project, daily and annual electricity consumption, along with the CalEEMod default GHG intensity factors for the Sacramento Municipal Utility District power mix, were used to estimate energy-related GHG emissions.

Table GHG-1 presents a summary of the proposed project's total construction-related GHG emissions and annual operational GHG emissions.

Table GHG-1: Proposed Project's Greenhouse Gas Emissions Summary

Description	MT CO _{2e}
Total Construction Emissions	11.9
SMAQMD Threshold	1,100
Annual Operational Emissions	34.7
SMAQMD Threshold	1,100
Exceeds Thresholds?	No

Notes: CO_{2e} = carbon dioxide equivalents; MT = metric tons; SMAQMD = Sacramento Metropolitan Air Quality Management District.

As shown in Table GHG-1, the proposed project's construction-related and operational emissions would each be well below the SMAQMD threshold of 1,100 MT CO_{2e} per year.

Therefore, the proposed project's generation of GHG emissions would result in a **less than cumulatively considerable contribution** to the significant impact of climate change.

MITIGATION MEASURES

None required.

IMPACT GHG-2. CONFLICT WITH AN APPLICABLE PLAN, POLICY OR REGULATION ADOPTED FOR THE PURPOSE OF REDUCING THE EMISSIONS OF GREENHOUSE GASES?

The proposed project has been analyzed to determine consistency with State of California's GHG reduction targets (as identified in the Regulatory Setting above).

As discussed previously, Sacramento County has prepared a Draft CAP; however, this Draft CAP has not been finalized at the time of this analysis. Therefore, this analysis is based on an evaluation of statewide plans, policies, or regulations adopted for the purpose of reducing GHG emissions.

In accordance with State law, ARB developed the State's Climate Change Scoping Plan (2008) and Scoping Plan updates (2014, 2017, and 2022) to outline the State's strategy to reduce California's GHG emissions per AB 32, SB 32, and AB 1279. ARB's Scoping Plan updates include measures that would indirectly address GHG emissions from construction activities, including the phasing-in of cleaner technology for diesel engine fleets and the development of a Low Carbon Fuel Standard. Policies formulated under the mandate of AB 32 that apply to construction-related activity, either directly or indirectly, are assumed to be implemented statewide and would affect the project should those policies be implemented before construction begins.

As described previously, the long-term generation of GHG emissions associated with the project would be limited to intermittent increases in vehicle trips to evening stadium events and electricity consumption associated with the lighting. The ARB Advanced Clean Cars regulation for electric vehicle sales requirements is anticipated to reduce fossil-fuel powered passenger vehicles with an increase in electric vehicle, thereby reducing the GHG emissions associated with on-road passenger vehicles. While the proposed project does not influence the implementation of this regulation in any way, the mobile-source GHG emissions associated with long-term operational trips would be likely to decrease over time as the average passenger vehicle fleet mix becomes less carbon intensive. Similarly, California established a Renewables Portfolio Standard, which requires retail sellers of electricity to meet specific goals of providing their energy supply from renewable sources. Per SB 100, electricity retailers are required to provide at least 60 percent of their supply from renewable sources by 2030. SB 100 also added the requirement that all state's electricity must come from carbon-free resources by 2045. Therefore, these requirements would continue to reduce the carbon content of electricity generation and would reduce GHG emissions associated with the project's electricity consumption over time.

Furthermore, the SMAQMD quantitative thresholds of significance for GHGs were developed with the intent to ensure at least 90 percent of new GHG emissions would be reviewed and assessed for mitigation, thereby contributing to GHG emissions reductions goals set forth by AB 32 and SB 32. As explained in the discussion of Impact GHG-1, above, the proposed project would also not exceed the SMAQMD construction GHG emissions threshold of 1,100 MT CO_{2e} per year for construction-related emissions. Additionally, the proposed project operations would not include natural gas infrastructure, consistent with SMAQMD recommended BMP 1 and SMAQMD recommended BMP 2 for EV infrastructure is not applicable as the proposed project supports ongoing use of the existing stadium and does not propose new or expanded school facilities or parking. The project is a lighting improvements project for an existing school stadium that primarily serves existing local school needs and would result in GHG emissions of less than 35 MT CO_{2e} per year, substantially below the SMAQMD bright-line threshold of 1,100 MT CO_{2e} per year. Therefore, the proposed project would not conflict with applicable plans, policies, or regulations adopted for the purpose of reducing GHG emissions and this impact would be **less than significant**.

MITIGATION MEASURES

None required.

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8 LAND USE AND PLANNING

INTRODUCTION

This chapter addresses the potential land use and planning impacts associated with the proposed Jesuit High School Stadium Lighting project (proposed project), which involves the installation of permanent stadium lights at Jesuit High School's Marauder Stadium located in the Carmichael community of unincorporated County of Sacramento (County). The analysis in this chapter considers the potential impacts of the project related to the compatibility of the proposed project with adjacent land uses, consistency of the project with applicable policies, zoning requirements, and other relevant planning and policy documents, specifically regarding policies and standards the County has adopted for the intent of reducing physical environmental effects.

The County released a Notice of Preparation (NOP) for this Environmental Impact Report (EIR) on October 28, 2022. There were no responses to the NOP that directly addressed impacts related to land use; however, comments received from community members involved general concerns regarding land use compatibility. The NOP is provided as Appendix A and comments received are provided as Appendix G.

ENVIRONMENTAL SETTING

LAND USE

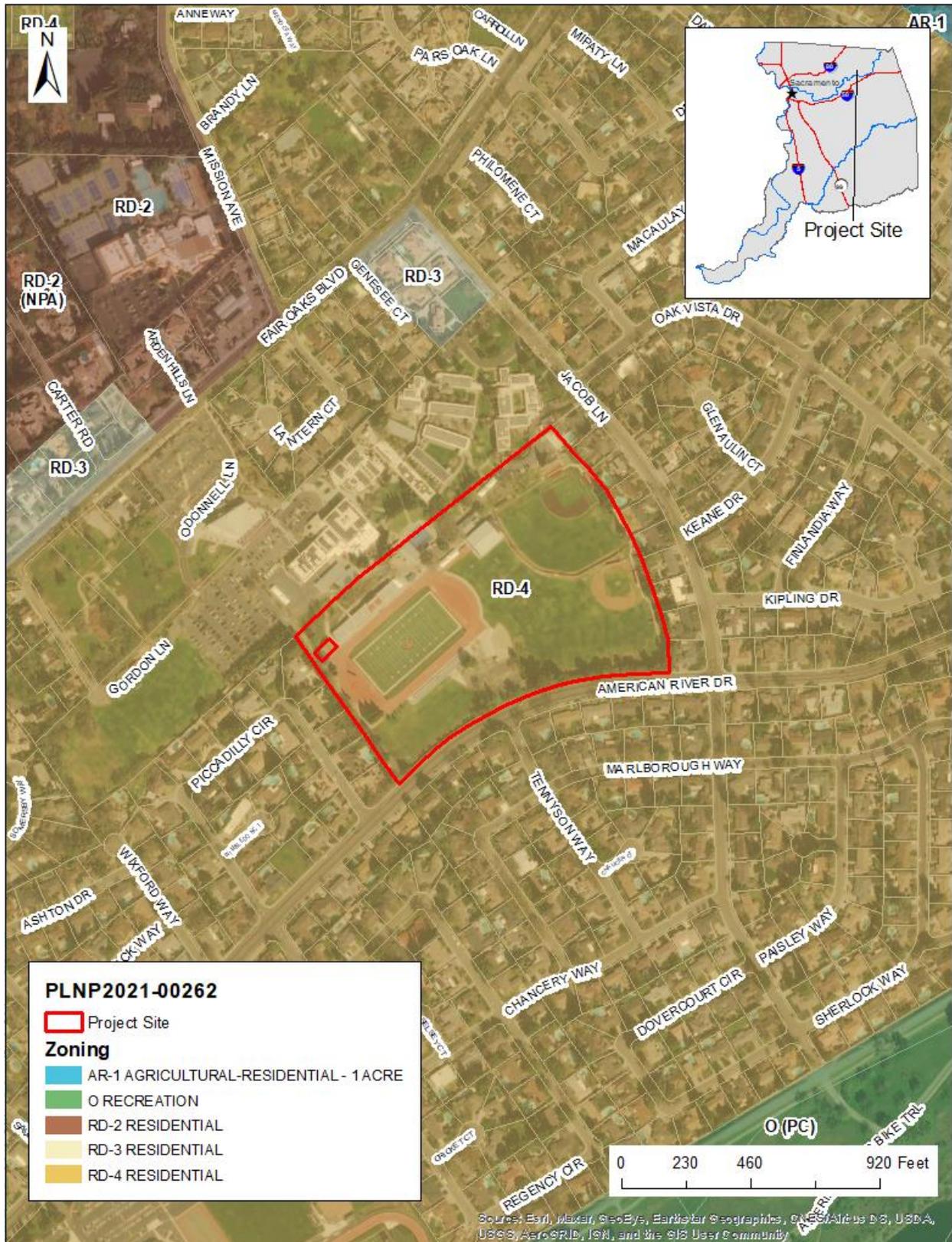
The proposed project is located in the unincorporated area of Sacramento County within the Carmichael Community. The project vicinity includes parcels developed with single-family residential uses, a veterinary hospital, nursery, and country club. The greater project vicinity is made up of a mix of land uses and features, including the American River (approximately 0.3 miles south of the project site) and associated American River Parkway, schools, parks, commercial uses, and various residential uses (ranging from detached single-family residences to medium density apartments and condominiums).

The Jesuit High School campus is made up of several parcels, including the project site, designated as Low Density Residential (LDR) on the Sacramento County General Plan (General Plan) Land Use Map and zoned RD-4 (low density residential 4 lots per acre). All surrounding properties are designated LDR by the General Plan and are located within the RD-4 zone. Several properties to the north along Fair Oaks Boulevard are located within the RD-2 and RD-3 zones. See Plate LU-1 for project site and vicinity General Plan designations and Plate LU-2 for project site and vicinity Zoning.

Plate LU-1: General Plan Designation



Plate LU-2: Zoning



The adjacent parcels to the south, west, and east are all developed with single-family homes that make-up an established suburban neighborhood within the community. In addition to being situated adjacent to a residential neighborhood, the Jesuit High School main campus is north of the project site.

The closest major arterials and thoroughfares are American River Drive (adjacent to the south) and Fair Oaks Boulevard (approximately 890 feet to the north). Jacob Lane is approximately 140 feet east of the project site. Transit service is available along major roadways in the general vicinity (such as Arden Way), but there is no service in the immediate vicinity of the site.

REGULATORY SETTING

SACRAMENTO COUNTY 2030 GENERAL PLAN

The General Plan provides an inventory of land supply within the County, and projects the amount and location of land and development that will be required to accommodate future populations and economic growth through 2030 (Sacramento County 2011).

GROWTH MANAGEMENT POLICIES: URBAN POLICY AREA AND URBAN SERVICE BOUNDARY

The General Plan designates an Urban Policy Area (UPA) and an Urban Services Boundary (USB) for growth management purposes. The USB indicates the ultimate boundary of the urban area in the unincorporated County, and also serves as the ultimate boundary for urban service provision. This boundary, which is based upon natural and environmental constraints to urban growth, is intended to be a permanent boundary not subject to modification except under extraordinary circumstances. The USB should be used by urban infrastructure providers for developing very long-range master plans, which can be implemented over time as the urbanized area expands.

The UPA defines the area expected to receive urban levels of public infrastructure and services within the 20-year planning period of the General Plan. Defining the UPA is of key importance in the provision of urban services and infrastructure to the unincorporated County, as it provides the geographic basis for infrastructure master plans, particularly for public water and sewerage, which require large capital investment and relatively long lead time for the installation of capital improvements.

The project site is located within the USB and UPA.

LAND USE ELEMENT

The General Plan Land Use Element's "primary role is to ensure that the County's land resources are utilized in the most efficient, equitable and productive manner possible to provide a high quality of life for both current and future residents" (2030 General Plan).

The General Plan designates each property within the County with a land use designation. The project site and vicinity are designated for LDR land uses within the General Plan. According to the General Plan the LDR designation is defined as follows:

This designation provides for area of predominately single-family housing with some attached housing units. It allows urban densities between one and twelve dwelling units per acre, resulting in population densities ranging from approximately 2.5 to 30 persons per acre. Typical low-density development includes detached single-family homes, duplexes, triplexes, fourplexes, townhouses, lower density condominiums, cluster housing, and mobile home parks.

The General Plan Land Use Element also includes the following relevant policy that pertains to the proposed Project:

LU-31: Strive to achieve a natural nighttime environment and an uncompromised public view of the night sky by reducing light pollution.

SACRAMENTO COUNTY ZONING CODE

The purposes of the Sacramento County Zoning Code (Zoning Code) are diverse; however, in general, the Zoning Code regulates the use of structures, buildings, and land to encourage the most appropriate uses within the unincorporated Sacramento County (Sacramento County 2015). The Project site is zoned RD-4. Chapter 2 of the Zoning Code defines the basics purpose and summary of the RD-4 zone as:

Low Density Single-Family Residential Zoning District. Same as RD-3, except a minimum lot size of 8,500 square feet (single-family attached/detached) is permitted if a public sewer facility is in use or if a public sewage facility and public water facility are both in use. Convenience centers are permitted, subject to issuance of a use permit. Minimum lot width and public street frontage is 65 feet.

The general purposes of residential land use zones are outlined in the Zoning Code, under Section 2.6.1. Some of the applicable purposes are:

- To protect residential areas against fire, explosions, toxic and noxious matter, and other hazards, and against offensive noise, odorous matter, glare, and other objectionable influences.
- To protect residential areas, as far as possible, against heavy and through traffic.
- To protect residential areas against congestion by regulating the density of population, and the bulk of buildings in relation to the land around them and to one another; designing roadways that incorporate active transportation and encourage walking and bicycling through a network of interconnected streets, sidewalks, and bike lanes; providing for off-street parking spaces to require the provisions of open space in residential areas wherever practicable, and thereby

provide a more desirable, active environment for urban living in a metropolitan area.

- To provide appropriate space for those educational, religious, recreational, health and similar facilities that serve the needs of the nearby residents, to generally perform their own activities more effectively in a residential environment, and do not create objectionable influences.

According to the Land Use Table of the Zoning Code, the development of private schools is permitted in the RD-4 land use zone, subject to issuance of a conditional use permit. The request is a Use Permit Amendment to allow permanent stadium lighting at Jesuit High School's Marauder Stadium.

The project includes Design Review to comply with the County's Commercial and Mixed-Use Design Guidelines. These guidelines are intended to promote compatibility between new and existing development, maintain and enhance community identity and quality of life, encourage high quality development, promote the use of sustainable strategies in site design, building design and landscaping and to facilitate a clear and efficient project review process.

CARMICHAEL COMMUNITY PLAN AND ACTION PLAN

The Carmichael Community Plan (Community Plan), adopted in 1975, was prepared as a guide for the physical development of Carmichael. The Community Plan includes goals, recommendations, and policies regarding land use, transportation and circulation, recreation and open space, and public facilities and utilities. The Community Plan has an implementation guide to review projects against the recommended actions and policies of the Community Plan and to determine zoning consistency with the Community Plan land use designation.

In 2006, the Carmichael Community Action Plan (Action Plan) was adopted as an appendix to the Community Plan. Supplementing the Community Plan, the Action Plan identifies on-going, short-term, and long-term actions related to neighborhood services, transportation, community identity, land use, public safety, county/non-county services, and financing options.

SIGNIFICANCE CRITERIA AND METHODOLOGY

SIGNIFICANCE CRITERIA

LAND USE AND PLANNING

Based on the CEQA Guidelines, a land use and planning impact is significant if Project implementation results in any of the following:

1. Physically divide an established community; or

2. Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect.

ISSUES NOT DISCUSSED FURTHER

The project is a request for stadium lighting to be added within an existing high school campus stadium. There is no development occurring that could be considered a barrier nor would existing improvements or general circulation to the surrounding community be modified. The proposed project is intended to serve the existing high school campus and student/family community. Therefore, the project would not physically divide an established community. This impact would be *less than significant* and is not discussed further.

METHODOLOGY

An evaluation of the potential land use impacts associated with implementation of the Project was based on a review of planning documents, including the various components and policies of the Sacramento County General Plan and Zoning Code, other County regulations affecting planning and implementation of the General Plan, and consultation with appropriate agencies.

IMPACTS AND ANALYSIS

IMPACT LU-1: CAUSE A SIGNIFICANT ENVIRONMENTAL IMPACT DUE TO A CONFLICT WITH ANY LAND USE PLAN, POLICY, OR REGULATION OF AN AGENCY ADOPTED FOR THE PURPOSE OF AVOIDING OR MITIGATING AN ENVIRONMENTAL EFFECT

GENERAL PLAN CONSISTENCY

The project is located within the USB and UPA in the unincorporated Carmichael Community. Areas within the USB and UPA have vital public infrastructure available and the General Plan supports revitalization of parcels within the urban areas. The project site has existing urban infrastructure serving the Jesuit High School campus and only minor infrastructure modifications and upgrades will be required to serve the proposed project.

The project site is designated for LDR uses within the General Plan and the proposed project will be consistent with the land uses anticipated within the LDR designation. Potential aesthetic impacts related to achieving a natural nighttime environment and an uncompromised public view of the night sky by reducing light pollution are discussed further in Chapter 5 - Aesthetics.

ZONING CODE CONSISTENCY

The project site is zoned RD-4 and consists of installing stadium lighting at the existing Jesuit High School campus stadium. The Zoning Code stipulates specific requirements

for development within each land use zone. All institutional uses within residential zones include specific standards that include but are not limited to setbacks, building height, lot depth and frontage, and landscaping. The proposed project meets all of the minimum standards for institutional uses within the RD-4 zone and is consistent with the requirements of the RD-4 zone.

CARMICHAEL COMMUNITY PLAN AND ACTION PLAN CONSISTENCY

The Carmichael Community Plan land use designation for the project site is RD-4, which is consistent with the zoning for the site. Both the Community Plan and Action Plan do not have specific policies that relate to the proposed project. The proposed project is consistent with the RD-4 community plan land use designation.

CONCLUSION

As demonstrated by the above analysis, the project would not conflict with the land use policies of the General Plan, Zoning Code or Carmichael Community Plan that were adopted for the purpose of avoiding or reducing an environmental effect. This impact would be *less than significant*.

MITIGATION MEASURES

None required.

9 NOISE AND VIBRATIONS

INTRODUCTION

This section includes a description of ambient noise conditions, a summary of applicable regulations related to noise and vibration, and an analysis of the potential impacts resulting from the implementation of the proposed project. This section references the Environmental Noise Assessment that was prepared for the project by Bollard Acoustical Consultants, Inc. (Appendix D).

ENVIRONMENTAL SETTING

ACOUSTIC FUNDAMENTALS

Noise is generally defined as sound that is loud, disagreeable, unexpected, or unwanted. Sound, as described in more detail below, is mechanical energy transmitted in the form of a wave because of a disturbance or vibration, and as any pressure variation in the air that the human ear can detect.

SOUND AND THE HUMAN EAR

Because of the ability of the human ear to detect a wide range of sound-pressure fluctuations, sound-pressure levels are expressed in logarithmic units called decibels (dB) to avoid a very large and awkward range in numbers. The sound pressure level in decibels is calculated by taking the log of the ratio between the actual sound pressure and the reference sound pressure squared. The reference sound pressure is considered the absolute hearing threshold (Caltrans 2013). Use of this logarithmic scale reveals that the total sound from two individual sources, each measured at 65 A-weighted decibels (dBA), is 68 dBA, not 130 dBA; that is, doubling the source strength increases the sound pressure by 3 dBA. Typical noise levels associated with various sources are shown on Plate NOI-1.

Because the human ear is not equally sensitive to all sound frequencies, a specific frequency-dependent rating scale was devised to relate noise to human sensitivity. A dBA scale performs this compensation by discriminating against frequencies in a manner approximating the sensitivity of the human ear. The basis for compensation is the faintest sound audible to the average ear at the frequency of maximum sensitivity. This dBA scale has been chosen by most authorities to regulate environmental noise. With respect to how humans perceive and react to changes in noise levels, a 1-dBA increase is imperceptible, a 3-dBA increase is barely perceptible, a 6-dBA increase is

clearly noticeable, and a 10-dBA increase is subjectively perceived as approximately twice as loud (Egan 1988), as presented in Table NOI-1.¹

Table NOI-1: Subjective Reaction to Changes in Noise Levels of Similar Sources

Change in Level, dBA	Subjective Reaction
1	Imperceptible (except for tones)
3	Just barely perceptible
6	Clearly noticeable
10	About twice (or half) as loud

Note: dBA = A-weighted decibels
Source: Egan 1988

Plate NOI-1: Typical Noise Levels

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
	— 110 —	Rock band
Jet fly-over at 1000 feet	— 100 —	
Gas lawn mower at 3 feet	— 90 —	
Diesel truck at 50 feet at 50 mph	— 80 —	Food blender at 3 feet Garbage disposal at 3 feet
Noisy urban area, daytime	— 70 —	Vacuum cleaner at 10 feet Normal speech at 3 feet
Gas lawn mower, 100 feet Commercial area	— 60 —	
Heavy traffic at 300 feet	— 50 —	Large business office Dishwasher next room
Quiet urban daytime	— 40 —	Theater, large conference room (background)
Quiet urban nighttime	— 30 —	Library
Quiet suburban nighttime	— 20 —	Bedroom at night, concert hall (background)
Quiet rural nighttime	— 10 —	Broadcast/recording studio
Lowest threshold of human hearing	— 0 —	Lowest threshold of human hearing

Notes:
dBA = A-weighted decibels
Source: Caltrans 2013

¹ Table NOI-1 was developed on the basis of the reactions of test subjects to changes in the levels of steady-state pure tones or broadband noise and changes in levels of a given noise source. It is probably most applicable to noise levels in the range of 50–70 dBA, as this is the usual range of voice and interior noise levels.

SOUND PROPAGATION AND ATTENUATION

As sound (noise) propagates from the source to the receptor, the attenuation, or manner of noise reduction in relation to distance, is dependent on surface characteristics, atmospheric conditions, and the presence of physical barriers. The inverse-square law describes the attenuation caused by the pattern in which sound travels from the source to the receptor. Sound travels uniformly outward from a point source in a spherical pattern with an attenuation rate of 6 dBA per doubling of distance (dBA/DD). However, from a line source (e.g., a road), sound travels uniformly outward in a cylindrical pattern with an attenuation rate of 3 dBA/DD. The characteristics of the surface between the source and the receptor may result in additional sound absorption and/or reflection. Atmospheric conditions such as wind speed, temperature, and humidity may affect noise levels. The presence of a barrier between the source and the receptor may also attenuate noise levels. The actual amount of attenuation depends on the size of the barrier and the frequency of the noise. A noise barrier may be any natural or human-made feature such as a hill, tree, building, wall, or berm (Caltrans 2013).

NOISE DESCRIPTORS

The selection of a proper noise descriptor for a specific source depends on the spatial and temporal distribution, duration, and fluctuation of the noise. The noise descriptors most often encountered when dealing with traffic, community, and environmental noise are defined below (Caltrans 2013).

- **L_{max} (Maximum Noise Level):** The maximum instantaneous noise level during a specific period of time. The L_{max} may also be referred to as the “peak (noise) level.”
- **L_{min} (Minimum Noise Level):** The minimum instantaneous noise level during a specific period of time.
- **L_{eq} (Equivalent Noise Level):** The energy mean (average) noise level. The instantaneous noise levels during a specific period of time in dBA are converted to relative energy values. From the sum of the relative energy values, an average energy value is calculated, which is then converted back to dBA to determine the L_{eq}. In noise environments that are determined by major noise events, such as aircraft overflights, the L_{eq} value is heavily influenced by the magnitude and number of single events that produce the high noise levels.
- **L_{dn} (Day-Night Noise Level):** The 24-hour L_{eq} with a 10-dBA “penalty” for noise events that occur during the noise-sensitive hours between 10:00 p.m. and 7:00 a.m. In other words, 10 dBA is “added” to noise events that occur in the nighttime hours, and this generates a higher reported noise level when determining compliance with noise standards. The L_{dn} attempts to account for the fact that noise during this specific period of time is a potential source of disturbance with respect to normal sleeping hours.
- **L_n (statistical descriptor):** The noise level exceeded “n” percent of a specific period of time. The L₁₀(t) is a statistical descriptor of the sound level exceeded for 10 percent of the time of the measurement period (t). It can be obtained using

short-term measurements; however, it cannot be accurately added to or subtracted from other L_{10} measures or other descriptors. Typically, the L_{10} is about 3 dB(A) above the $L_{eq}(t)$. The $L_{50}(t)$ is a statistical descriptor of the sound level exceeding 50 percent of the time of the measurement period (t). The $L_{90}(t)$ is a statistical descriptor of the sound level exceeding 90 percent of the time of the measurement period (t). This is considered to represent the background noise without the source in question. Where the noise emissions from a source of interest are constant (such as noise from a fan, air conditioner, or pool pump) and the ambient noise level has a degree of variability (for example, due to traffic noise), the L_{90} descriptor may adequately describe the noise source.

- **CNEL (Community Noise Equivalent Level):** Similar to the L_{dn} described above, but with an additional 5-dBA, “penalty” added to noise events that occur during the noise-sensitive hours between 7:00 p.m. and 10:00 p.m., which are typically reserved for relaxation, conversation, reading, and television. When the same 24-hour noise data are used, the reported CNEL is typically approximately 0.5 dBA higher than the L_{dn} .
- **SENL (Single-Event [Impulsive] Noise Level):** A receiver’s cumulative noise exposure from a single impulsive noise event, which is defined as an acoustical event of short duration and involves a change in sound pressure above some reference value. SENLs typically represent the noise events used to calculate the L_{eq} , L_{dn} , and CNEL.

Community noise is commonly described in terms of the ambient noise level, which is defined as the all-encompassing noise level associated with a given noise environment. A common statistical tool to measure the ambient noise level is the average, or equivalent, sound level L_{eq} , which corresponds to a steady-state, A-weighted sound level containing the same total energy as a time-varying signal over a given time period (usually one hour). The L_{eq} is the foundation of the composite noise descriptors such as L_{dn} and CNEL, as defined above, and correlates well with community response to noise.

NEGATIVE EFFECTS OF NOISE ON HUMANS

Negative effects of noise exposure include physical damage to the human auditory system, interference, and disease. Exposure to noise may result in physical damage to the auditory system, which may lead to gradual or traumatic hearing loss. Gradual hearing loss is caused by sustained exposure to moderately high noise levels over a period of time; traumatic hearing loss is caused by sudden exposure to extremely high noise levels over a short period. Gradual and traumatic hearing loss both may result in permanent hearing damage. In addition, noise may interfere with or interrupt sleep, relaxation, recreation, and communication. Although most interference may be classified as annoying, the inability to hear a warning signal may be considered dangerous. Noise may also be a contributor to diseases associated with stress, such as hypertension, anxiety, and heart disease. The degree to which noise contributes to such diseases depends on the frequency, bandwidth, the level of the noise, and the exposure time (Caltrans 2013).

FUNDAMENTAL NOISE CONTROL OPTIONS

Any noise problem is generally composed of three basic elements: the noise source, a transmission path, and a receiver. The appropriate acoustical treatment for a given project should consider the nature of the noise source and the sensitivity of the receiver. The problem should be defined in terms of appropriate criteria (L_{dn} , L_{eq} , or L_{max}); the location of the sensitive receiver (inside or outside); and the time that the problem occurs (daytime or nighttime). Noise control techniques should then be selected to provide an acceptable noise environment for the receiving property while remaining consistent with local accessibility, safety, and aesthetic standards, as well as practical structural and economic limits. Example noise control options are listed below.

- **Setbacks** - Noise exposure may be reduced by increasing the distance between the noise source and the receiving use. Setback areas can, for example, take the form of open space, frontage roads, recreational areas, and storage yards.
- **Barriers** - Shielding by barriers can be obtained by placing walls, berms, or other structures (such as buildings) between the noise source and the receiver. The effectiveness of a barrier depends on blocking the line of sight between the source and receiver; effectiveness is improved when the sound must travel a longer distance to pass over the barrier than if it were traveling in a straight line from source to receiver.
- **Site Design** - Buildings can be placed on a project site to shield other structures or areas from areas affected by noise, and to prevent an increase in noise level caused by reflections. The use of one building to shield another can significantly reduce a project's overall noise control costs, particularly if the shielding structure is insensitive to noise.
- **Building Façades** - When interior noise levels are of concern in a noisy environment, noise reduction may be obtained through acoustical design of building façades. Standard construction practices provide a noise reduction of 10–15 dBA for building façades with open windows and a noise reduction of approximately 25 dBA when windows are closed (EPA 1974). Thus, an exterior-to-interior noise reduction of 25 dBA can be obtained by requiring that building design include adequate ventilation systems, which allows windows on a noise-affected façade to remain closed under any weather condition.
- **Vegetation** - Trees and other vegetation are often thought to provide significant noise attenuation. However, approximately 100 feet of dense foliage (so that no visual path extends through the foliage) is required to achieve a 5-dBA attenuation of traffic noise (Caltrans 2020). Thus, the use of vegetation as a noise barrier should not be considered a practical method of noise control unless large tracts of dense foliage are part of the existing landscape. Vegetation can be used to acoustically “soften” intervening ground between a noise source and a receiver, increasing ground absorption of sound and thus increasing the attenuation of sound with distance.

VIBRATION

Vibration is the periodic oscillation of a medium or object. The rumbling sound caused by the vibration of room surfaces is called structure-borne noise. Sources of groundborne vibrations include natural phenomena (e.g., earthquakes, volcanic eruptions, sea waves, landslides) or human-made causes (e.g., explosions, machinery, traffic, trains, construction equipment). Vibration sources may be continuous, such as operating factory machinery, or transient, such as explosions. As is the case with airborne sound, groundborne vibrations may be described by amplitude and frequency.

Vibration amplitudes are usually expressed in peak particle velocity (PPV) or root mean square (RMS), as in RMS vibration velocity. PPV is defined as the maximum instantaneous positive or negative peak of a vibration signal. PPV is often used in monitoring of blasting vibration because it is related to the stresses that are experienced by buildings (FTA 2018). PPV and RMS are normally described in inches per second (in/sec).

Human and structural response to different vibration levels is influenced by a number of factors, including ground type, distance between source and receptor, duration, and the number of perceived vibration events. Table NOI-2, which was developed by the California Department of Transportation (Caltrans), shows the vibration levels which would normally be required to result in damage to structures. The vibration levels are presented in terms of PPV in in/sec.

Although PPV is appropriate for evaluating the potential for building damage, it is not always suitable for evaluating human response. It takes some time for the human body to respond to vibration signals. In a sense, the human body responds to average vibration amplitude. The RMS of a signal is the average of the squared amplitude of the signal, typically calculated over a period of one second. Like airborne sound, the RMS velocity is often expressed in decibel notation, as vibration decibels (VdB), which serves to compress the range of numbers required to describe vibration (FTA 2018). This is based on a reference value of one microinch per second ($\mu\text{in}/\text{sec}$).

The background vibration-velocity level in residential areas is usually approximately 50 VdB. Groundborne vibration is normally perceptible to humans at approximately 65 VdB. For most people, a vibration-velocity level of 75 VdB is the approximate dividing line between barely perceptible and distinctly perceptible levels (FTA 2018).

Typical outdoor sources of perceptible groundborne vibration are construction equipment, steel-wheeled trains, and traffic on rough roads. If a roadway is smooth, the groundborne vibration is rarely perceptible. The range of interest is from approximately 50 VdB, which is the typical background vibration-velocity level, to 100 VdB, which is the general threshold where minor damage can occur in fragile buildings. Construction activities can generate groundborne vibrations, which can pose a risk to nearby structures. Constant or transient vibrations can weaken structures, crack facades, and disturb occupants (FTA 2018).

Table NOI-2: Effects of Various Vibration Levels on People and Buildings

Velocity Level, PPV (in/sec)	Vibration Level, VdB	Human Reaction	Effect on Buildings
0.01	68	Barely perceptible	No effect
0.04	80	Distinctly perceptible	Vibration unlikely to cause damage of any type to any structures
0.08	86	Distinctly perceptible to strongly perceptible	Recommended upper level of the vibration to which ruins and ancient monuments should be subjected
0.1	88	Strongly perceptible	Virtually no risk of damage to normal buildings
0.3	98	Strongly perceptible to Severe	Threshold at which there is a risk of damage to older residential structures
0.5	102	Severe – Vibration considered unpleasant	Threshold at which there is a risk of damage to newer residential structures

Notes:

In/sec=inches per second; PPV=peak particle velocity; VdB = Vibration Decibel

Source: Caltrans 2020

Construction vibrations can be transient, random, or continuous. Transient construction vibrations are generated by blasting, impact pile driving, and wrecking balls. Continuous vibrations result from vibratory pile drivers, large pumps, horizontal directional drilling, and compressors. Random vibration can result from jackhammers, pavement breakers, and heavy construction equipment. “Architectural” damage can be classified as cosmetic only, such as minor cracking of building elements, while “structural” damage may threaten the integrity of a building. Safe vibration limits that can be applied to assess the potential for damaging a structure vary by researcher and there is no general consensus as to what amount of vibration may pose a threat for structural damage to a building. Construction-induced vibration that can be detrimental to the building is very rare and has only been observed in instances where the structure is in a high state of disrepair and the construction activity occurs immediately adjacent to the structure. Table NOI-3 shows the criteria established by the Federal Transit Administration (FTA) for the likelihood of structural damage due to vibration.

Table NOI-3: Groundborne Vibration Criteria: Architectural Damage

Building Category	PPV (in/sec)	Lv (VdB) ^a
I. Reinforced concrete, steel, or timber (no plaster)	0.5	102
II. Engineered concrete masonry (no plaster)	0.3	98
III. Non-engineered timber and masonry buildings	0.2	94
IV. Buildings extremely and susceptible to vibration damage	0.12	90

Notes:

in/sec = inches per second; Lv = Vibration Level; PPV = peak particle velocity; VdB = Vibration Decibel.

^a RMS velocity calculated from vibration level (VdB) using the reference of one micro-inch/second.

Source: FTA 2018.

EXISTING CONDITIONS

EXISTING NOISE-SENSITIVE LAND USES

Noise-sensitive land uses generally consist of those uses where noise exposure would result in adverse effects on uses for which quiet is an essential element of their intended purpose. Residential dwellings are of primary concern because of the potential for increased and prolonged exposure of individuals to both interior and exterior noise. Other examples of noise-sensitive land uses include nursing homes, schools, hospitals, libraries, childcare facilities, and places of worship.

The proposed project site is located at Jesuit High School (JHS) stadium, in the unincorporated community of Carmichael, within Sacramento County, California. The stadium supports a variety of activities throughout the year, including football, lacrosse, soccer, and track and field. The stadium also includes a public address (PA) system that is utilized for the aforementioned events.

Noise-sensitive land uses in the project area include numerous single-family residences. The JHS stadium is bordered by residential uses to the immediate west and southwest on Piccadilly Circle, with additional residences beyond. The stadium is bordered to the south by a JHS practice field beyond which is American River Drive and residential neighborhoods. The stadium is bordered to the east by JHS baseball diamonds beyond which are residential neighborhoods along Jacobs Lane. The stadium is bordered to the north by the JHS campus with the nearest residences located approximately 500 feet to the north along Lantern Court.

Plate NOI-2 shows the nearby sensitive land uses and the six long-term noise monitoring locations discussed below.

AMBIENT NOISE STUDY

An environmental noise assessment/noise impact analysis was completed for the proposed project. The purposes of this assessment were to quantify pre-project (baseline) ambient noise conditions in the residential areas surrounding the JHS stadium, to evaluate the impacts of noise generated during evening hours at the stadium within those residential areas, and to evaluate measures to reduce the noise generation of those activities where appropriate and feasible. For the purpose of this assessment, the dusk period when the proposed lights would be used is assumed to be 5-10 pm.

Plate NOI-2: Ambient Noise Study Locations



As part of the noise assessment, and to quantify existing ambient noise levels during the critical 5-10 p.m. period at the nearest representative residences to the JHS stadium, long-term ambient noise surveys were conducted at the six locations shown in Plate NOI-2. The survey period extended from approximately noon on Friday, September 30 through noon on Monday, October 10th, 2022, a period of approximately 240 consecutive hours at each location. These six locations were chosen based on their close proximity to the proposed project site, as they have the greatest potential to be directly affected by increases in noise during the 5-10 p.m. period.

Noise study locations are shown in Plate NOI-2, and the results of the ambient monitoring are shown in Table NOI-4 also includes the County's adjusted daytime noise standard, both in terms of L_{max} and L_{50} .

Table NOI-4: Ambient Noise Study Results

Site	Average Ambient Level, dBA – L_{max}	Average Ambient Level, dBA – L_{50}	Adjusted Daytime Noise Standard – L_{max}	Adjusted Daytime Noise Standard – L_{50}
1	60	42	70	50
2	66	42	70	50
3	73	48	73	50
4	61	41	70	50
5	75	50	75	50
6	68	47	70	50

Source: Bollard Acoustical Consultants, Inc. (BAC), 2023a

The County's 75 dBA L_{max} and 55 dBA L_{50} noise standards are adjusted downward by 5 dB where the noise source in question consists of speech or music, which is the case for noise generated within the JHS stadium. In addition, in cases where the measured maximum ambient noise levels currently exceed the County's standards, the standards are increased to equal the ambient conditions. This explains the increased standards at Sites 3 and 5.

The ambient noise survey results shown in Table NOI-4 indicate that, with the exception of Sites 3 and 5, both of which were located in front-yard areas of residences on American River Drive, the 10-day average measured ambient noise levels were below the Sacramento County maximum and median daytime noise level standards, after downward adjustment for noise sources consisting of music and speech, between the hours of 5 and 10 p.m.. At Sites 3 and 5, ambient conditions were elevated (73 dBA and 75 dBA, respectively) as expected due to the influence of American River Drive traffic noise. At monitoring Site 6, ambient conditions were somewhat elevated due to barking dogs and swimming pool equipment.

REGULATORY SETTING

FEDERAL

Although not directly applicable to the proposed project, the research that supported the development of federal community noise standards is broadly applicable in understanding human response to different noise levels and is summarized below for the reader's edification.

U.S. ENVIRONMENTAL PROTECTION AGENCY NOISE CONTROL ACT

The Federal Noise Control Act of 1972 (Public Law 92-574) established a requirement that all federal agencies administer their programs to promote an environment free of noise that would jeopardize public health or welfare.² Although the U.S. Environmental Protection Agency (EPA) was given a major role in disseminating information to the public and coordinating federal agencies, each federal agency retains authority to adopt noise regulations pertaining to agency programs.³

In 1974, in response to the requirements of the federal Noise Control Act, the EPA identified indoor and outdoor noise level limits to protect public health and welfare (communication disruption, sleep disturbance, and hearing damage). Outdoor and indoor noise exposure limits of 55 dB L_{dn} and 45 dB L_{dn}, respectively, are identified as desirable to protect against speech interference and sleep disturbance for residential, educational, and healthcare areas. The sound-level criterion identified to protect against hearing damage in commercial and industrial areas is 70 dB 24-hour L_{eq} (both outdoors and indoors).

The EPA's Office of Noise Abatement and Control was established to coordinate federal noise control activities. In 1981, EPA administrators determined that subjective issues such as noise would be better addressed at lower levels of government. Consequently, in 1982, responsibilities for regulating noise control policies were transferred to state and local governments.

U.S. DEPARTMENT OF TRANSPORTATION AND U.S. EPA VIBRATION GUIDELINES

To address the human response to groundborne vibration, the FTA of the U.S. Department of Transportation has set forth guidelines for maximum-acceptable vibration criteria for different types of land uses. These include 65 VdB for land uses where low ambient vibration is essential for interior operations (e.g., hospitals, high-tech manufacturing, laboratory facilities); 80 VdB for residential uses and buildings where people normally sleep; and 83 VdB for institutional land uses with primarily daytime operations (e.g., schools, churches, clinics, offices) (FTA 2018).

Standards have also been established to address the potential for groundborne vibration to cause structural damage to buildings. These standards were developed by the Committee of Hearing, Bio Acoustics, and Bio Mechanics (CHABA) at the request of the EPA (FTA 2018). For fragile structures, CHABA recommends a maximum limit of 0.25 in/sec PPV (FTA 2018).

² The U.S. Environmental Protection Agency (EPA) was given the responsibility for providing information to the public regarding identifiable effects of noise on public health and welfare, publishing information on the levels of environmental noise that will protect the public health and welfare with an adequate margin of safety, coordinating federal research and activities related to noise control, and establishing federal noise emission standards for selected products distributed in interstate commerce. The Noise Control Act also directed that all federal agencies comply with applicable federal, State, interstate, and local noise control regulations.

³ The EPA can, however, require other federal agencies to justify their noise regulations in terms of the Noise Control Act policy requirements.

STATE

In 1971, the State required cities and counties to include noise elements in their general plans (Government Code Section 65302 et seq.). The State of California General Plan Guidelines (OPR 2017) identify guidelines for the noise elements of local general plans, including a sound level/land-use compatibility chart. The noise element guidelines identify the “normally acceptable” range of noise exposure for low-density residential uses as less than 60 dB L_{dn} , and the “conditionally acceptable” range as 55-70 dB L_{dn} . Overlapping noise level ranges are intended to indicate that local conditions (existing sound levels and community attitudes toward dominant sound sources) should be considered in evaluating land use compatibility at specific locations. The State’s guidance for land use/noise compatibility is summarized in Table NOI-5.

Table NOI-5: Land Use Noise Compatibility Guidelines

Land Use Category	Community Noise Exposure (CNEL/ L_{dn} , dBA)			
	Normally Acceptable ¹	Conditionally Acceptable ²	Normally Unacceptable ³	Clearly Unacceptable ⁴
Residential-Low Density Single Family, Duplex, Mobile Home	<60	55–70	70–75	75+
Residential-Multiple Family	<65	60–70	70–75	75+
Transient Lodging, Motel, Hotel	<65	60–70	70–80	80+
School, Library, Church, Hospital, Nursing Home	<70	60–70	70–80	80+
Auditorium, Concert Hall, Amphitheater		<70	65+	
Sports Arenas, Outdoor Spectator Sports		<75	70+	
Playground, Neighborhood Park	<70		67.5–75	72.5+
Golf Courses, Stable, Water Recreation, Cemetery	<75		70–80	80+
Office Building, Business Commercial and Professional	<70	67.5–77.5	75+	
Industrial, Manufacturing, Utilities, Agriculture	<75	70–80	75+	

Notes: CNEL = Community Noise Equivalent Level; dBA = A-weighted decibels; L_{dn} = day-night average noise level.

¹ Specified land use is satisfactory, based on the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements.

² New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features are included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning will normally suffice.

³ 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. Outdoor areas must be shielded.

⁴ New construction or development should generally not be undertaken.

Source: OPR 2017

CALIFORNIA DEPARTMENT OF TRANSPORTATION

The Caltrans Transportation and Construction Vibration Guidance Manual provides guidance for construction vibration. This includes guidance for annoyance potential criteria (i.e., the potential to annoy nearby humans) and damage potential threshold criteria (i.e., the potential to damage nearby structures). These criteria are presented in terms of PPV in in/sec. These standards are more stringent than the recommended guidelines established by the FTA, presented above. Table NOI-6 shows potential criteria for vibration annoyance, and Table NOI-7 shows the general thresholds for structural responses to vibration levels.

Table NOI-6: Human Responses to Vibration Levels, Peak Vibration Threshold (in/sec PPV)

Human Response	Maximum PPV for Transient Sources (in/sec)	Maximum PPV for Continuous/Frequent Intermittent Sources (in/sec)
Barely Perceptible	0.04	0.01
Distinctly Perceptible	0.25	0.04
Strongly Perceptible	0.9	0.1
Severe	2.0	0.4

Notes: in/sec = inches per second; PPV = peak particle velocity
Source: Caltrans 2020

Table NOI-7: Structural Responses to Vibration Levels, Peak Vibration Threshold (in/sec PPV)

Structure and Condition	Peak Vibration Threshold (in/sec PPV) Transient Sources	Peak Vibration Threshold (in/sec PPV) Continuous/Frequent Intermittent Sources
Extremely fragile historic buildings, ruins, ancient monuments	0.12	0.08
Fragile buildings	0.2	0.1
Historic and some old buildings	0.5	0.25
Older residential structures	0.5	0.3
New residential structures	1.0	0.5
Modern industrial/commercial buildings	2.0	0.5

Notes: in/sec = inches per second; PPV = peak particle velocity
Source: Caltrans 2020

LOCAL**COUNTY OF SACRAMENTO GENERAL PLAN**

The County of Sacramento General Plan Noise Element contains policies related to land use and noise compatibility. Relevant County policies are presented for context.

- NO-6.** Where a project would consist of or include non-transportation noise sources, the noise generation of those sources shall be mitigated so as not exceed the interior and exterior noise level standards of (Table NOI-8) at existing noise-sensitive areas in the project vicinity.
- NO-8.** Noise associated with construction activities shall adhere to the County Code requirements. Specifically, Section 6.68.090(e) addresses construction noise within the County.
- NO-12.** All noise analyses prepared to determine compliance with the noise level standards contained within this Noise Element shall be prepared in accordance with (Table NOI-8).
- NO-13.** Where noise mitigation measures are required to satisfy the noise level standards of this Noise Element, emphasis shall be placed on the use of setbacks and site design to the extent feasible, prior to consideration of the use of noise barriers.

**Table NOI-8: Non-Transportation Noise Standards
Sacramento County Noise Element Median (L₅₀) / Maximum (L_{max})¹
[Table 2 of the Sacramento County General Plan]**

Receiving Land Use	Outdoor Area ²		Interior ³	
	Daytime	Nighttime	Day & Night	Notes
All Residential	55 / 75	50 / 70	35 / 55	
Transient Lodging	55 / 75	---	35 / 55	4
Hospitals & Nursing Homes	55 / 75	---	35 / 55	5, 6
Theaters & Auditoriums	---	---	30 / 50	6
Churches, Meeting Halls, Schools, Libraries, etc.	55 / 75	---	35 / 60	6
Office Buildings	60 / 75	---	45 / 65	6
Commercial Buildings	---	---	45 / 65	6
Playgrounds, Parks, etc.	65 / 75	---	---	6
Industry	60 / 80	---	50 / 70	6

Notes:

- 1 The Table NOI-8 standards shall be reduced by 5 dB for sounds consisting primarily of speech or music, and for recurring impulsive sounds. If the existing ambient noise level exceeds the standards of Table NOI-8, then the noise level standards shall be increased at 5 dB increments to encompass the ambient.
- 2 Sensitive areas are defined acoustic terminology section.
- 3 Interior noise level standards are applied within noise-sensitive areas of the various land uses, with windows and doors in closed positions.
- 4 Outdoor activity areas of transient lodging facilities are not commonly used during nighttime hours.
- 5 Hospitals are often noise-generating uses. The exterior noise level standards for hospitals are applicable only at clearly identified areas designated for outdoor relaxation by either hospital staff or patients.
- 6 The outdoor activity areas of these uses (if any), are not typically utilized during nighttime hours.
- 7 Where median (L₅₀) noise level data is not available for a particular noise source, average (L_{eq}) values may be substituted for the standards of this table provided the noise source in question operates for at least 30 minutes of an hour. If the source in question operates less than 30 minutes per hour, then the maximum noise level standards shown would apply.

Source: County of Sacramento General Plan Noise Element 2017. Table 2.

Table NOI-9: Requirements for Acoustical Analyses Prepared in Sacramento County
[Table 3 of the Sacramento County General Plan]

An acoustical analysis prepared pursuant to the Noise Element shall:
A. Be the responsibility of the applicant.
B. Be prepared by qualified persons experienced in the fields of environmental noise assessment and architectural acoustics.
C. Include representative noise level measurements with sufficient sampling periods and locations to adequately describe local conditions.
D. Estimate projected future (20-year) noise levels in terms of the Standards of Table 2, and compare those levels to the adopted policies of the Noise Element.
E. Recommend appropriate mitigation to achieve compliance with the adopted policies and standards of the Noise Element.
F. Estimate interior and exterior noise exposure after the prescribed mitigation measures have been implemented.

SACRAMENTO COUNTY NOISE CONTROL ORDINANCE

Noise control regulations in Sacramento County are specified under Chapter 6.68 of the County Code (Sacramento County, n.d.). The ordinance contains performance standards for the purpose of preventing unnecessary, excessive, and offensive noise levels at sensitive receptors within the county. Table NOI-10 includes excerpts from the Noise Control Ordinance.

Table NOI-10: Excerpts from the County of Sacramento Noise Control Ordinance

Noise Area	County Zoning Districts	Time Period	Exterior Noise Standard
1	RE-1, RD-1, RE-2, RD-2, RE-3, RD-3, RD-4, R-1-A, RD-5, R-2, RD-10, R-2A, RD-20, R-3, R-D-30, RD-40, RM-1, RM-2, A-1-B, AR-1, A-2, AR-2, A-5, AR-5	7 a.m.–10 p.m.	55 dB
		10 p.m.–7 a.m.	50 dB

- a Noise standards, unless otherwise specifically indicated in this chapter, shall apply to all properties within a designated noise area.
- b It is unlawful for any person at any location within the County to create any noise which causes the noise levels on an affected property, when measured in the designated noise area, to exceed for the duration of time set forth following, the specified exterior noise standards in any one hour by:

Cumulative Duration of the Intrusive Sound	Allowance Decibels (dB)
1. Cumulative period of 30 minutes per hour	0
2. Cumulative period of 15 minutes per hour	+ 5
3. Cumulative period of 5 minutes per hour	+10
4. Cumulative period of 1 minute per hour	+15
5. Level not to be exceeded for any time per hour	+20

- c. Each of the noise limits specified in subdivision (b) of this section shall be reduced by five dB for impulsive or simple tone noises, or for noises consisting of speech or music.
- d. If the ambient noise level exceeds that permitted by any of the first four noise-limit categories specified in subdivision (b), the allowable noise limit shall be increased in five dB increments in each category to encompass the ambient noise level. If the ambient noise level exceeds the fifth noise level category, the maximum ambient noise level shall be the noise limit for that category.

Notes: dB = A-weighted decibels
 Source: County of Sacramento Code, Noise Control 1976

Section 6.68.090(e) of the County of Sacramento Code establishes conditions that are considered exempt from the associated provisions, as described below:

Noise sources associated with construction, repair, remodeling, demolition, paving or grading of any real property, provided said activities do not take place between the hours of eight p.m. and six a.m. on weekdays and Friday commencing at eight p.m. through and including seven a.m. on Saturday; Saturdays commencing at eight p.m. through and including seven a.m. on the next following Sunday and on each Sunday after the hour of eight p.m. Provided, however, when an unforeseen or unavoidable condition occurs during a construction project and the nature of the project necessitates that work in process be continued until a specific phase is completed, the contractor or owner shall be allowed to continue work after eight p.m. and to operate machinery and equipment necessary until completion of the specific work in progress can be brought to conclusion under conditions which will not jeopardize inspection acceptance or create undue financial hardships for the contractor or owner.

SIGNIFICANCE CRITERIA AND METHODOLOGY

SIGNIFICANCE CRITERIA

Based on Appendix G of the CEQA Guidelines, general standards for community ambient noise degradation, and the local standards identified above, the project would have a significant noise impact if it would result in:

- generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies;
- generation of excessive groundborne vibration or groundborne noise levels; or
- for a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, exposure of people residing or working in the project area to excessive noise levels.

In addition to the guidelines and standards presented above, another consideration is the degradation of the existing ambient noise environment due to an increase in the ambient noise levels. With respect to noise levels, a 1-dBA increase is imperceptible, a 3-dBA increase is barely perceptible, a 6-dBA increase is clearly perceptible, and a 10-dBA increase is subjectively perceived as approximately twice as loud. As a result, for operation of the proposed project, a minimally perceptible increase of 3 dBA shall represent a significant increase in ambient noise levels.

For evening and nighttime construction activity, the analysis applies the County noise limits provided on Table NOI-8. According to Section 6.68.090 of the County Noise Ordinance, "School bands, school athletic and school entertainment events" as well as

“Noise sources associated with construction, repair, remodeling, demolition, paving or grading of any real property” are generally exempted from the policies of the ordinance. However, for the purpose of this CEQA analysis, exemptions to the County noise standard are not considered to reduce the significance of potential impacts. Additionally, those exemptions have no bearing on the 3 dBA significance threshold for increases in ambient noise levels. Therefore, potential exemptions to the County noise standard are not considered in the following impact statements.

Additionally, a summary of permitted hours of construction for the Sacramento County are shown in Table NOI-11.

Table NOI-11: Permitted Hours of Construction and Applicable Thresholds in Sacramento County

Noise Parameter	Noise Limit
Monday through Friday	Between the hours of 8 p.m. and 6 a.m.
Saturdays	Between the hours of 8:00 a.m. and 7:00 a.m.
Sundays and holidays	Between the hours of 8:00 a.m. and 6:00 a.m.
Applicable Thresholds (Construction)	The County controls construction noise through limitations on construction hours.
Applicable Thresholds (Operation)	Residential land uses - 55 dBA L_{dn} or less in exterior noise environment, and 35 dBA L_{dn} interior noise levels attributable to exterior noise sources.

Source: County of Sacramento, 1976

dBA = A-weighted decibels; L_{dn} = day-night average noise level.

ISSUES NOT DISCUSSED FURTHER

Excessive Noise in the Vicinity of an Airport. The proposed project would not expose people to excessive noise levels from an airport or private airstrip. Sacramento Mather Airport is the closest airport, and is approximately 3.5 miles southeast of the project site. The project site is not within the boundaries of the Mather Airport Land Use Compatibility Plan or associated noise contours. There would be **no impact** related to aircraft noise, and therefore this issue is not discussed further in this EIR.

METHODOLOGY

Short-term, temporary (i.e., construction-related) noise impacts are evaluated based on equipment used and duration of construction process. Potential long-term (i.e., operational) noise was assessed based on the results of an ambient noise study. As stated above in the Environmental Setting, an ambient noise study was completed to quantify ambient noise levels at six monitoring locations, and to quantify potential noise impacts resulting from stadium activities.

Evening football games were considered to be the events with the highest potential to generate noise as a result of the project. To quantify the potential long-term impacts of the project, noise levels were recorded for home football games played at the JHS stadium and compared to County standards, as discussed below.

IMPACTS AND ANALYSIS

IMPACT NOI-1. GENERATION OF A SUBSTANTIAL TEMPORARY OR PERMANENT INCREASE IN AMBIENT NOISE LEVELS IN THE VICINITY OF THE PROJECT IN EXCESS OF STANDARDS ESTABLISHED IN THE LOCAL GENERAL PLAN OR NOISE ORDINANCE, OR APPLICABLE STANDARDS OF OTHER AGENCIES

SHORT-TERM IMPACTS

Short-term, temporary noise impacts are associated with project construction. Construction would take place over a two-week period, during weekdays, between the hours of 7 am and 4 pm, which is within the permitted hours prescribed by the County Noise Ordinance (see Table NOI-11). The number of construction crew is estimated to be 10.

Construction activities would consist of removing four existing wooden poles (which currently hold the stadium's PA speakers), and installing four metal poles that will support the proposed stadium lighting and existing PA speakers. The existing wooden poles would be removed by crane, and the speakers on those wooden poles would be removed on the ground and transferred onto the proposed metal poles. Light fixtures would also be installed on the metal poles on the ground. To install the metal poles, the construction crew would auger (a process using a rotating metal shaft similar to a drill) holes and install precast pole bases into those holes. Once the precast pole bases are in place, the metal poles would be raised by crane and installed. Additionally, minor trenching (a process of digging using an excavator) would be used to install electrical conduit and wires from electrical pull boxes to the metal poles.

The equipment needed for construction would be a crane to lower the existing wooden poles and install the proposed metal poles; an auger to drill four holes and install precast pole bases for the metal poles; a backhoe for trenching and installation of electrical connections; and a forklift for lifting and moving materials. Additionally, a cement mixer would deliver ready-mix concrete to the site for the installation of the new metal pole bases. A concrete pump truck may also be required during construction to support this work. During construction, residents and other sensitive receptors may experience noise from backup alarms, engines, and operation of the auger and backhoe.

The closest sensitive receptor to the project area is a residence on Piccadilly Circle, which is between 230 to 550 feet away from planned construction areas. An addendum to the project's Environmental Noise Assessment evaluated potential impacts during construction on nearby sensitive receptors (Bollard Acoustical Consultants, Inc. 2023b). Based upon the Federal Highway Administration (FHWA) Roadway Construction Noise Model (RCNM) (FHWA 2006), noise levels for individual project equipment can range from 80 to 85 dB L_{max} at 50 feet, as shown in Table NOI-12.

Table NOI-12: Construction Equipment Noise Levels

Construction Equipment	Reference Maximum Noise Level at 50 feet, L _{max} (dB)
Backhoe	80
Concrete mixer truck	85
Concrete pump truck	82
Crane	83
Auger	84

Source: Federal Transit Administration Noise and Vibration Impact Assessment Manual, Table 7-1 (2018) and FHWA Roadway Construction Noise Model (2006).

Based upon the equipment noise levels described in Table NOI-12, usage factors, and a typical noise-attenuation rate of 6 dB for every doubling of distance, exterior noise levels at noise-sensitive receptors near the project site could be as high as 64 dB to 72 dB, L_{max} from the project construction activities. The full results of the construction noise modeling are described in Table NOI-13.

Table NOI-13: Project Construction Noise Levels

Receptor	Distance to Construction Areas (feet)	Predicted Range of Maximum Noise Levels at Receptors, L _{max} (dB)
1	230 – 550	64 – 72
2	260 – 530	64 – 71
3	260 – 670	62 – 71
4	550 – 950	59 – 64
5	450 – 900	60 – 66
6	740 – 1,100	58 – 62

Source: Addendum to Noise Study for the Jesuit High School Stadium Lighting Project.

As shown in Table NOI-4, the ambient noise study conducted for the project found that existing maximum noise levels exceed 70 dBA at certain locations. The projected maximum noise levels during construction shown in Table NOI-12 would be similar to existing noise levels. Additionally, based on the County daytime noise standards listed in Table NOI-8, construction activities are not expected to exceed the County thresholds for residential land uses. Therefore, construction would not generate substantial noise in excess of the applicable standards and would not conflict with the County Noise Ordinance. Therefore, the short-term impact from project construction would be **less than significant**.

LONG-TERM IMPACTS

MEASURED NOISE LEVELS FOR DAYTIME FOOTBALL GAMES

Long-term impacts are associated with noise-generating events (e.g., football games) that would occur during the evening with the project. Currently, there are no evening events held at the stadium due to the absence of lighting. Football games represent the events with the highest noise-generating potential during evening stadium usage. This is due to crowd size, event duration, number of events per year, the use of the

stadium's PA system, and the inclusion of the JHS marching band. Football games make use of the stadium's PA system during both the regular season and playoffs, and typically include a marching band.

Due to their high noise-generating potential, the environmental noise assessment used home football games as a "worst case" noise generating scenario for its quantitative analysis of evening stadium events. During the period of the noise study, home football games were played at the stadium on October 1, 2022, and October 8, 2022. Junior varsity and varsity football games were played on both days, the latter of which had approximately 1,500 spectators in attendance. It should be noted that there was also an air show at nearby Mather Airport on October 1, 2022, which obscured the noise generated by the football games that day. Therefore, the October 1, 2022 games were excluded from the quantitative analysis.

Table NOI-14 and Table NOI-15 show the measured median and maximum noise levels during the October 8, 2022 football games at the six sites shown on Plate NOI-2 above.

As shown in Table NOI-14 and Table NOI-15, the County Noise Ordinance standards were exceeded at four of six noise monitoring stations during the October 8, 2022 football games. However, some of these exceedances were determined to have been caused by noise sources unrelated to the JHS football games.

Table NOI-14: Measured Median (L₅₀) Noise Levels During October 8, 2022 Football Games

Time	Site 1	Site 2	Site 3	Site 4	Site 5	Site 6
10:50 am -11 am	47	48	56	45	56	51
11 am - 12 pm	47	51	57	41	57	50
12 pm - 1 pm	45	48	56	40	53	51
1 pm - 2 pm	46	51	56	41	54	50
2 pm - 3 pm	46	51	58	42	55	49
3 pm - 3:20 pm	47	50	55	40	54	48
Average	46	50	57	41	55	50
Noise Standard	50	50	50	50	50	50

Source: Bollard Acoustical Consultants, Inc. (BAC), 2022

Table notes:

- ¹ The noise generation of the junior varsity football game started approximately 10:50 am and the noise generation of the varsity football game ended at approximately 3:20 pm on October 8, 2022.
- ² Numbers shown in **bold** would technically not be satisfactory relative to the adjusted Sacramento County noise standards if those standards are applicable to this project.
- ³ It is unknown why the measured maximum noise levels at Site 2 were so much higher than at Site 1 when both sites were approximately equidistant to the football field and separated by approximately 175 feet.
- ⁴ Monitoring Sites 3 and 5 were located adjacent to American River Drive, which explains the higher measured median noise levels at these locations.
- ⁵ Noise from barking dogs and residents talking accounted for the elevated maximum noise levels at monitoring Site 6.
- ⁶ The County's 75 dBA L_{max} and 55 dBA L₅₀ noise standards are adjusted downward by 5 dB where the noise source in question consists of speech or music, which is the case for noise generated within the JHS stadium. In addition, in cases where the measured maximum ambient noise levels currently exceed the County's standards, the standards are increased to equal the ambient conditions. This explains the increased standards at Sites 3 and 5.

Table NOI-15: Measured Maximum (L_{max}) Noise Levels During October 8, 2022 Football Games

Time	Site 1	Site 2	Site 3	Site 4	Site 5	Site 6
10:50 am - 11 am	65	67	70	66	77	63
11 am - 12 pm	63	75	77	59	73	88
12 pm - 1 pm	63	72	74	57	79	79
1 pm - 2 pm	67	75	72	59	69	90
2 pm - 3 pm	65	75	85	64	81	79
3 pm - 3:20 pm	69	78	73	57	75	68
Average	65	74	75	60	76	78
Noise Standard	70	70	73	70	75	70

Source: Bollard Acoustical Consultants, Inc. (BAC), 2022

NOISE ANALYSIS OF SHIFTING FOOTBALL GAMES TO EVENING HOURS

To estimate noise levels that would occur with shifting football games to evening hours, the noise measurement results at each of the six monitoring sites (Table NOI-14 and Table NOI-15) were combined with the ambient noise levels during evening hours (5-10 pm), as shown in Table NOI-15. The project noise impacts at each of the six locations are discussed below.

SITE 1 – RESIDENCE AT NORTH END OF PICCADILLY CIRCLE (POTENTIALLY SIGNIFICANT IMPACT)

Site 1 is the closest site to the stadium home bleachers at approximately 160 feet away. As shown in Table NOI-14 and Table NOI-15, the County's median and maximum noise standards were not exceeded at Site 1 during any hour of the October 8, 2022 football games. Measured median noise levels averaged 46 dBA L_{50} and measured maximum noise levels averaged 65 dBA L_{max} – 4 dBA and 5 dBA below the County median and maximum standards, respectively. Although the County standards were not exceeded, the project could still result in a significant increase in ambient noise levels compared with existing ambient conditions.

As shown in Table NOI-4, measured average ambient conditions during the 5-10 pm period at Site 1 were 42 dBA L_{50} and 60 dBA L_{max} . It is estimated that shifting football games into the evening hours would result in increases in ambient noise levels at Site 1 by 4 dBA L_{50} and 5 dBA L_{max} . As stated above, an increase of 3 dBA or more is considered significant for the purpose of this analysis. Therefore, the project would result in a potentially significant noise impact at Site 1.

SITE 2 – RESIDENCES ALONG PICCADILLY CIRCLE (POTENTIALLY SIGNIFICANT IMPACT)

Site 2 is the closest site to the stadium visiting bleachers at approximately 150 feet from the football field. As shown in Table NOI-14 and Table NOI-15, measured median and measured maximum noise levels exceeded the County standards at multiple points during the October 8, 2022 football games. While the average measured median noise

level was consistent with the County standard, the average measured maximum noise level exceeded the County standard of by 4 dBA.

As shown in Table NOI-4, measured average ambient conditions during the 5-10 pm period at Site 2 were 42 dBA L_{50} and 66 dBA L_{max} . It is estimated that shifting football games into the evening hours would result in increases in ambient noise levels at Site 2 by 8 dBA L_{50} and 8 dBA L_{max} . Therefore, the project would result in a potentially significant noise impact at Site 2.

SITE 3 – RESIDENCES ON AMERICAN RIVER DRIVE, BETWEEN TENNYSON WAY & PICCADILLY CIRCLE (POTENTIALLY SIGNIFICANT IMPACT)

Site 3 is approximately 370 feet from the football field. It is also 50 feet from the center of the eastbound lane of American River Drive. Table NOI-14 shows that the County median noise standard was exceeded, on average, by 7 dBA at Site 3. Table NOI-15 shows that the adjusted County maximum noise standard was exceeded, on average, by 2 dBA at this site. However, these exceedances may have been more attributable to traffic on American River Drive than the football games.

As shown in Table NOI-4, measured average ambient conditions during the 5 pm to 10 pm period at Site 3 were 48 dBA L_{50} and 73 dBA L_{max} . Table NOI-14 and Table NOI-15 show that shifting football games into the evening hours could result in increases in ambient noise levels at Site 3 by 9 dBA L_{50} and 2 dBA L_{max} . As stated above, traffic noise from American River Drive is known to have contributed to the measured noise levels at Site 3. However, because football games may result in increases in ambient noise exceeding the 3 dBA threshold, the project would result in a potentially significant noise impact at Site 3.

SITE 4 – RESIDENCES ALONG MARLBOROUGH WAY (LESS THAN SIGNIFICANT IMPACT)

Site 4 is in the backyard of a residence on Marlborough Way. This location is approximately 725 feet from the football field. Table NOI-14 and Table NOI-15 indicate that the County noise standards were not exceeded at Site 4 at any hour during the October 8, 2022 football games.

As shown in Table NOI-4, measured average ambient conditions during the 5-10 pm period at Site 4 were 41 dBA L_{50} and 61 dBA L_{max} . Table NOI-14 and Table NOI-15 show that shifting football games to the evening hours would not result in a significant increase in ambient noise at Site 4. Therefore, impacts at Site 4 would be less than significant.

SITE 5 – RESIDENCES ON AMERICAN RIVER DRIVE, BETWEEN TENNYSON WAY & JACOB LANE (POTENTIALLY SIGNIFICANT IMPACT)

Site 5 is approximately 530 feet from the football field. It is also 50 feet from the center of American River Drive. The data in Table NOI-14 and Table NOI-15 show that the measured median noise levels at Site 5 exceeded the County noise standard by an average of 5 dBA, with measured maximum noise levels exceeding the adjusted County noise standard by an average of 1 dBA. However, these exceedances may have been more attributable to traffic on American River Drive than due to the football games.

As shown in Table NOI-4, measured average ambient conditions during the 5-10 pm period at Site 5 were 50 dBA L_{50} and 75 dBA L_{max} . Shifting football games into the evening hours could result in increases in ambient noise levels at Site 5 by 5 dBA L_{50} and 1 dBA L_{max} . The increase in median ambient noise level would be a potentially significant noise impact on Site 5.

SITE 6 – NEAREST RESIDENCES ON JACOB LANE TO THE JHS STADIUM (POTENTIALLY SIGNIFICANT IMPACT)

Site 6 is approximately 750 feet from the football field. Data in Table NOI-14 and Table NOI-15 indicate that the County median noise standard was exceeded at Site 6 during 2 periods of the October 8 football games, but the exceedance was only by 1 dBA. Measured maximum noise levels at Site 6 exceeded the County's 70 dBA maximum noise standard by an average of 8 dBA. However, according to the environmental noise assessment, those exceedances were caused by barking dogs and lawn maintenance equipment, and not by activities related to the football games. Maximum noise levels generated by the football game were identified as being below the County maximum noise standard.

As shown in Table NOI-4, measured average ambient conditions during the 5-10 pm period at Site 6 were 47 dBA L_{50} and 68 dBA L_{max} . Shifting football games into the evening hours could result in increases in ambient noise levels at Site 6 by 3 dBA L_{50} and 10 dBA L_{max} . However, as noted previously, considerable noise generation from barking dogs and lawn maintenance equipment contributed to the measured maximum noise levels. The environmental noise assessment determined that the increase in ambient maximum noise levels would be less than the 3 dBA threshold. Despite this, the 3 dBA increase in ambient median noise levels would be a potentially significant noise impact, as experienced at Site 6.

SUMMARY OF LONG-TERM IMPACTS

As shown above, shifting football games into the evening hours is predicted to result in increases in ambient noise levels that would exceed the 3 dBA threshold at five of the six sites. Additionally, the County median and maximum noise standards were found to have been exceeded at multiple sites during the October 8, 2022 football games. Additionally, the environmental noise assessment determined that playoff football games could result in even greater noise levels, due to larger crowd sizes. Playoff game noise generation was estimated to be 1 to 2 dBA higher than with regular season games, which would further increase ambient noise levels, causing greater exceedances of County noise standards. Therefore, the proposed project would result in a **potentially significant impact**.

MITIGATION MEASURES

The following measure is proposed to mitigate Impact NOI-1, which is the potentially significant long-term increase in ambient noise levels from shifting games at the stadium to evening hours. A sound wall was considered along the western property line of the JHS stadium in order to attenuate noise received by the residences along Piccadilly Circle. However, sound walls/noise barriers were determined to be ineffective for the

project, as they would not sufficiently attenuate noise generated by elevated sources such as the PA system speakers and upper bleachers.

MITIGATION MEASURE NOI-1: AMBIENT NOISE REDUCTION STRATEGIES

- ~~Conclude~~**Scheduling evening events to conclude by 10 pm. Evening** events at the stadium shall **be scheduled to conclude by no later than 10 pm.** ~~To the maximum extent reasonable and feasible, recognizing that events such as football games may occasionally go into overtime.~~ ~~games shall be scheduled to account for the extra time that may be needed in the event that games end in a tie and require overtime play.~~
- **Reduce PA System Output and Usage.** Measures to reduce PA system output shall be employed, ~~to the extent feasible, including focusing~~ **to focus** the sound within the bleacher areas and ~~minimizing~~ spillover of PA system sound into surrounding residential areas. Additionally, PA system settings shall also be established at the minimum levels required for intelligibility over background crowd noise. **PA settings shall be set and maintained for all evening and nighttime events so that the maximum noise level at the edge of the Jesuit High School property boundary adjacent to noise-sensitive uses shall not exceed 70 dBA L_{max}, which is anticipated to result in at least 3 dBA reduction compared to documented current PA noise levels at the property line.** A limiter shall be included in the PA system to ensure that ~~this~~ **this performance standard is met. Prior to building permit approval, the applicant shall test the PA system and adjust settings and design if necessary, to document compliance with this performance standard** ~~maximum level is not exceeded or that the amplifier setting is not increased.~~ Finally, where usage of the proposed PA system is not specifically needed for certain events or activities, the usage of the PA system shall be prohibited.
- **Restrict Usage of Artificial Noise Makers. Artificial noisemakers (including bullhorns, cowbells, airhorns, megaphones, etc.) are prohibited items. All bags are subject to search at the gates, and attendees will not be permitted entry with such items.**

SIGNIFICANCE AFTER MITIGATION

Although Mitigation Measure NOI-1 would help limit ambient noise from stadium activities, there is no quantifiable evidence that ~~they would reduce the potential impact to a less-than-significant level.~~ **this measure** ~~they would reduce the potential impact to a less-than-significant level.~~ **Installing an electronic limiter to reduce PA system noise would help reduce ambient noise and prevent the PA system itself from exceeding the County Noise Element maximum nighttime threshold for non-transportation noise sources of 70 dBA L_{max} for residential uses. The PA system is the part of typical stadium noise that can be reduced through mitigation, but typical sources of noise also include crowd noise, cheering, and music that is not the subject of Mitigation Measure NOI-1.**

As shown in Table NOI-12 and Table NOI-13, the October 8, 2022 football game exceeded the County Noise Ordinance standards at four of six monitoring stations. Additionally, shifting football games to the evening hours has the potential to significantly increase ambient noise at five of six monitoring locations. The varsity game played that day exceeded the applicable median standard by up to eight decibels. Therefore, the proposed project would result in a **significant and unavoidable impact**, regardless of mitigation.

IMPACT NOI-2. GENERATION OF EXCESSIVE GROUNDBORNE VIBRATION OR GROUNDBORNE NOISE LEVELS

SHORT-TERM IMPACTS

Construction activities have the potential to result in short-term groundborne vibration. Vibration generated by construction equipment spreads through the ground and diminishes in magnitude with increases in distance. As stated above, project construction would require the use of an auger drill rig in order to drill four holes and install precast pole bases into those holes. According to Federal Transit Administration (FTA 2018), vibration levels associated with the use of caisson drilling⁴ is 0.089 in/sec) PPV and 87 vibration decibels [VdB referenced to 1 microinch per second ($\mu\text{in}/\text{sec}$) and based on the RMS velocity amplitude] at 25 feet. As stated above, the closest sensitive receptor to the project site is a residence on Piccadilly Circle, which is approximately 230 feet away from the closest proposed construction.

Using FTA's recommended procedure for applying a propagation adjustment to these reference levels, predicted worst-case vibration levels of approximately 0.003 in/sec PPV at the closest existing sensitive receptor, located approximately 230 feet from the closest proposed construction, could occur. Based on the thresholds for human annoyance and architectural damage listed in Table NOI-2 and Table NOI-3, respectively, construction would not result in substantial human annoyance, and would not damage nearby structures. Therefore, short-term impacts would be **less than significant**.

LONG-TERM IMPACTS

The project is not anticipated to result in long-term excessive groundborne vibration or noise, as activities in the stadium (e.g., football games) do not generate appreciable ground vibration. As stated in the environmental setting above, vibration is the periodic oscillation of a medium or object, typical sources of which include natural phenomena (e.g., earthquakes, volcanic eruptions, sea waves, landslides) or human-made causes (e.g., explosions, machinery, traffic, trains, construction equipment). Activities such as

⁴ Conservatively, assuming a drill rig truck would generate the same level of vibration as a Caisson Drilling. Caisson Drilling is a method used to drill a hole and then insert either a temporary or permanent steel casing in the hole to the desired depth. A drilling rig is an integrated system that drills wells, such as oil or water wells, or holes for piling and other construction purposes, into the earth's subsurface.

football games do not generate substantial levels of vibration. Therefore, there would be **no long-term impact**.

10 TRANSPORTATION

INTRODUCTION

This chapter evaluates potential impacts resulting from the additional vehicles added to the roadway system during construction and operation of the proposed project, and associated effects related to emergency access and traffic hazards. This chapter also addresses the potential for the project to conflict with a transportation program, plan, or ordinance and CEQA Guidelines Section 15064.3(b).

ENVIRONMENTAL SETTING

The proposed project would be situated at the existing Jesuit High School Stadium present on campus at 1200 Jacob Lane in the Carmichael community within unincorporated Sacramento County. The high school generates vehicle trips for daily attendance by faculty, staff, and students, as well as from special events, such as for organized sports, which attract members of the community.

Football games produce the largest number of trips to and from the school for stadium events. Currently, junior varsity (JV) and Varsity games occur on Saturday afternoons in the fall and attract an average of 1,200 attendees per game. Under the proposed project, new lighting facilities will allow for games to occur on Friday nights and is expected to increase attendance to 1,500 during regular season games, including the 85 student athletes, 6 student managers, and 13 coaches across the JV and Varsity teams. Under existing conditions, attendance can reach up to 2,500 during playoff games, as discussed in the *Vehicle Miles Traveled (VMT) Analysis* (Appendix E).

PROJECT STUDY AREA

In 2023, Kimley Horn conducted a *Local Transportation Analysis* (LTA) (Appendix F) to address localized transportation concerns resulting from implementation of the proposed project. The results were summarized in a memorandum and address the level of service (LOS) of roadways adjacent to the project site; the number of trips generated from the proposed project; a queuing analysis of key intersections adjacent to the project site; parking supply and demand; and bicycle and pedestrian safety. Kimley Horn also conducted a *Vehicle Miles Traveled (VMT) Analysis* (Appendix E), which is summarized in a memorandum and provides a detailed analysis on the number of vehicle trips and the associated vehicle miles that would be generated under the proposed project. The results of both studies have been used to inform this analysis, and the results are summarized in the impacts section below.

Roadways adjacent to the project site are shown on Plate TR-1 and include:

Plate TR-1: Project Location and Study Area.



Source: Local Transportation Analysis (Kimley Horn 2023b)

- **American River Drive:** is an east-west, two-way, two-lane local road that provides direct access to the school, as well as surrounding residential development in the vicinity of the school. In the vicinity of the project site, American River Drive has a two-way, left-turn lane in the median. There is bicycle access to the school that campus from American River Drive that **also** facilitates pedestrian access to the school.
- **Fair Oaks Boulevard:** is an east-west, two-way, four-lane local road that provides direct access to the school, as well as surrounding residential development in the vicinity of the school. There is pedestrian and bicycle access to the school campus from Fair Oaks Boulevard that facilitates pedestrian crossing with minimum conflict with vehicles at the school driveway.
- **Jacob Lane:** is north-south, two-way, two-lane local road that provides direct access to the school, as well as surrounding residential development in the vicinity of the school. There is pedestrian and bicycle access to the school campus from Jacob Lane that facilitates pedestrian crossing with minimum conflict with vehicles at the school driveway.

As shown on Plate TR-1 above, two intersections provide direct access to the stadium and adjacent parking lots from adjacent roadways:

1. Fair Oaks Boulevard @ O'Donnell Lane/Arden Hills Lane (school's primary entrance)
2. American River Drive @ Project Southern Driveway (provides access to parking lot at Gordon Lane and O'Donnell Lanes from American River Drive)

EXISTING OPERATING CONDITIONS

BICYCLE AND PEDESTRIAN SAFETY

There are currently Class II¹ bike lanes along both sides of Fair Oaks Boulevard and American River Drive in the immediate vicinity of the project site. There are currently sidewalks present along both sides of Fair Oaks Boulevard and American River Drive within the project vicinity as well. At the Fair Oaks Boulevard intersection with Arden Hills Lane/O'Donnell Lane (Intersection #1), there are marked crosswalks at all four approaches with pedestrian push buttons and walk/don't walk indicators.

The LTA reviewed the American River Drive roadway segment between the Project South Access and Tennyson Way to determine whether off-site pedestrian safety

¹ Class II bike lanes provide a restricted right-of-way designated lane for the exclusive or semi-exclusive use of bicycles with through travel by motor vehicles or pedestrians prohibited, but with vehicle parking and cross-flows by pedestrians and motorists permitted.

improvements should be considered as part of the project. After a review of the existing conditions along the roadway, the following observations were made:

- There is over 700 feet of sight distance for vehicles turning left into the project site from the eastbound approach and no sight distance deficiencies are expected.
- Attendees can park off-site along Tennyson Way or Marlborough Way. For vehicles turning from Tennyson Way onto American River Drive, there is approximately 330 feet of sight distance looking right and 270 feet of sight distance looking left.
- The closest marked pedestrian crossing to the stadium's southern access driveway opposite Tennyson Way along the Southern Driveway (project south access) is at the American River Drive intersection with Jacob Lane, an all-way, stop-controlled intersection.
- No mid-block crossing facilities exist in the vicinity of the project (e.g., at Tennyson Way).

PARKING

The existing Jesuit High School has 539 total parking stalls on campus with 499 of those stalls available to event attendees during a Friday evening football game. The remaining 40 spaces are dedicated strictly for staff and maintenance equipment. There is ability to park approximately 300 vehicles on the soccer/rugby fields and another 100 vehicles on the field south of the visitor's bleachers. There is a total of 899 available parking spaces available for events. The estimated size of an existing Jesuit High School home football game can reach up to 2,500 attendees.

To determine the average vehicle occupancy for vehicles driving to football games, Kimley Horn conducted a literature review of traffic studies related to high school football stadiums was completed during preparation of their LTA. Traffic studies conducted for Valley High Sports Complex in Santa Ana Unified School District, St. Vincent Sports Complex at St. Ambrose University, and Carmel High School Stadium in Carmel, California, observed average vehicle occupancy of 5.0, 4.0, and 3.24 persons per vehicle, respectively. To yield the most conservative results, this study assumes an average vehicle occupancy of 3.24 persons per vehicle (Kimley Horn 2023b). Assuming an average vehicle occupancy of 3.24 persons per vehicle, Jesuit High School regular season home football games generate a peak parking demand of 371 vehicles, leaving a surplus of 128 available parking stalls on campus. Under current conditions, playoff games reach attendances of up to 2,500 people, which generates a peak parking demand of 926 vehicles. This demand exceeds the amount of parking available. Under existing conditions, attendees adapt to this shortage by parking off-site. Two off-site parking locations that Jesuit High School has previously arranged to use for major events are the Arden Hills Wellness Resort (on the north side of Fair Oaks) and the Rio Americano High School Parking Lot on American River Drive approximately .5 miles southwest of the stadium. Attendees also park on nearby residential streets where it is allowed.

Five parking lots, Lots A through E, are spread throughout campus. Lots A through D are located north of the stadium, and Lot E is located along American River Drive immediately east of the existing soccer field and farther east of the project's southern driveway (Jesuit High School 2023).

EXISTING VMT CONDITIONS

A VMT analysis was conducted in March of 2023 to assess daily trips and VMT under existing conditions and anticipated daily trip generation and VMT under the proposed project. The analysis was summarized in a memorandum and is included in Appendix E. The VMT analysis assumed an average vehicle occupancy of 3.24, which results in 371 vehicle trips traveling to the school for football games on Saturday afternoons.

REGULATORY SETTING

FEDERAL

AMERICANS WITH DISABILITIES ACT

The Americans with Disabilities Act (ADA) prohibits discrimination against people with disabilities in private and non-profit businesses (referred to as public accommodations), in transportation, and in several other areas. The U.S. Department of Transportation enforces regulations governing transit, which includes ensuring that recipients of federal aid and state and local entities responsible for roadways and pedestrian facilities do not discriminate on the basis of disability in highway transportation programs or activities. The department also issues guidance to transit agencies on how to comply with the ADA to ensure that public transit vehicles and facilities are accessible.

STATE

The California Department of Transportation (Caltrans) is responsible for planning, designing, constructing, operating, and maintaining the State Highway System (SHS). Caltrans' Local Development – Intergovernmental Review Program Interim Guidance (Caltrans, December 2020) provides guidance on the evaluation of traffic impacts to State highway facilities. The document recommends that CEQA reviewers comment on vehicle miles traveled, "applying local agency thresholds or absent those, thresholds recommended in adopted CEQA Guidelines or Governor's Office of Planning and Research's (OPR's) approved Technical Advisory."

SENATE BILL 743

On September 27, 2013, SB 743 was signed into law, supporting previous climate-focused and transportation legislation, including the Sustainable Communities and Climate Protection Act of 2008 (SB 375), the California Global Warming Solutions Act of 2006 (AB 32), as well as the Complete Streets Act (AB 1358), which requires local governments to plan for a balanced, multimodal transportation network that meets the needs of all users. In December 2018, the OPR issued a final advisory to guide lead

agencies in implementing SB 743, Technical Advisory on Evaluating Transportation Impacts in CEQA (OPR 2018).

The Technical Advisory observes that VMT is the most appropriate metric to use in evaluating a project's transportation impact under CEQA. VMT for residential and office projects is generally assessed using efficiency metrics, i.e., on a "per rate" basis. Specifically, the OPR-recommended metrics are VMT per capita for residential projects and VMT per employee for office projects. The Technical Advisory does not recommend a threshold approach for school projects. Lead agencies have the discretion to set or apply their own significance thresholds in lieu of those recommended in the Technical Advisory, provided they are based on substantial evidence. Cities and counties still have the ability to use metrics such as LOS for other plans, studies, or network monitoring. However, LOS and similar metrics are not considered to be significant environmental impacts under CEQA.

LOCAL

COUNTY OF SACRAMENTO GENERAL PLAN

The main theme of the Sacramento County General Plan Circulation Element is to provide a range of transportation choices (Sacramento County 2020). Its intent is to invest in all travel modes so that the residents and workers have access to more than one realistic and efficient transportation alternative. The General Plan directs integrated and balanced investment in the transportation system: roadway, public transit system, bicycling and pedestrian infrastructure. The General Plan's Circulation Element consists of the Transportation Plan and Transportation Policy Plan.

The following General Plan policy related to transportation and circulation may pertain to the proposed project. The associated environmental impact related to this policy is addressed in the Impacts and Analysis section further below.

- CI-1:** Provide complete streets to provide safe and efficient access to a diversity of travel modes for all urban, suburban and rural land uses within Sacramento County except within certain established neighborhoods where particular amenities (such as sidewalks) are not desired. Within rural areas of the County, a complete street may be accommodated through roadway shoulders of sufficient width or other means to accommodate all modes of travel.
- CI-2:** Promote continued mobility for individuals whose access to automobile transportation is limited by age, illness, income, desire, or disability.
- CI-3:** Travel modes shall be interconnected to form an integrated, coordinated and balanced multi-modal transportation system, planned and developed consistent with the land uses to be served.
- CI-4:** Provide multiple transportation choices to link housing, recreational, employment, commercial, educational, and social services.

- CI-8:** Maintain and rehabilitate the roadway system to maximize safety, mobility, and cost efficiency.
- CI-10:** Land development projects shall be responsible to mitigate the project's adverse impacts to local and regional roadways.
- CI-18:** The County shall plan and prioritize the implementation of intersection improvements, where feasible, in corridors identified as congested.
- CI-32:** Develop a comprehensive, safe, convenient and accessible bicycle and pedestrian system that serves and connects the County's employment, commercial, recreational, educational, social services, housing and other transportation modes.
- CI-36:** Collaborate with neighboring jurisdictions and regional agencies to coordinate planning and development of the County's bikeways, pedestrian facilities and multi- use trails with those of neighboring jurisdictions, and to support a regional bicycle and pedestrian network.
- CI-38:** Design and construct pedestrian facilities to ensure that such facilities are accessible to all users.
- CI-76:** Smart Growth Street planning efforts shall develop a comprehensive strategy to reduce both the total amount of parking and total surface area dedicated to parking facilities. In general, reduced parking requirements and innovative parking solutions such as, shared parking, structured parking, parking maximums rather than minimums, on street parking, performance parking pricing, parking benefit districts and other innovative parking solutions will be strongly encouraged wherever feasible, while large surface parking lots will be strongly discouraged.

TRANSPORTATION ANALYSIS GUIDELINES

For certain projects, the County Department of Transportation requires LTA, which are traffic studies. Projects subject to an LTA would (1) generate 100 or more new a.m. or p.m. peak hour vehicle trip-ends, (2) generate 1,000 or more daily vehicle trip-ends, or (3) are likely to cause or substantially contribute to traffic congestion or safety issues. The purpose of the LTA is to ensure compliance with the multimodal policies in the General Plan; these include LOS², safety, transit service, and a comprehensive, safe, convenient, and accessible bicycle and pedestrian system. The project analysis includes conditions to provide any recommended improvements necessary to comply with General Plan policies. Depending on the project, the Department of Transportation may require additional analysis of other roadway elements such as turn pocket queuing, drive-thru queuing, traffic signal warrants, traffic safety, neighborhood cut-through

² Level of service (LOS) is a qualitative measure used to relate the quality of motor vehicle traffic service. LOS is used to analyze roadways and intersections by categorizing traffic flow and assigning quality levels of traffic based on performance measure like vehicle speed, density, congestion, etc.

traffic, truck impacts, access control, and phasing analysis. The County's *Transportation Analysis Guidelines* (Sacramento County 2020) provide the requirements and guidance for preparing an LTA.

The *Transportation Analysis Guidelines* have been updated to reflect SB 743 and reflected in the CEQA Guidelines Section 15064.3. As noted in the County's guidelines, the intent of SB 743 is to bring CEQA transportation analyses into closer alignment with other statewide policies regarding greenhouse gases, complete streets, and smart growth. Using VMT as a performance measure instead of LOS is intended to discourage suburban sprawl, reduce greenhouse gas emissions, and encourage the development of smart growth, complete streets, and multimodal transportation networks. The current County guidelines provide methodologies for transportation engineers and planners to conduct CEQA transportation analyses for land development and transportation projects in compliance with SB 743. Notably, the County guidelines state that projects generating less than 237 average daily traffic (ADT) are expected to result in less-than-significant VMT impacts.

SACRAMENTO COUNTY ACTIVE TRANSPORTATION PLAN

The 2022 Active Transportation Plan (ATP) for unincorporated Sacramento County is a tool for guiding County staff, public officials, residents, and developers to build a balanced transportation system that supports and encourages active modes of travel (Sacramento County 2022). The ATP provides a prioritization method to implement infrastructure recommendations in a phased, manageable way. The ATP replaced the Pedestrian Master Plan (2007) and the Bikeway Master Plan (2011) within the Sacramento County General Plan.

IMPACTS AND ANALYSIS

SIGNIFICANCE CRITERIA

Based on Appendix G of the State CEQA Guidelines, the proposed project would have a significant impact related to transportation if it would:

- Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities;
- Conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b);
- Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment);
or
- Result in inadequate emergency access.

ENVIRONMENTAL IMPACTS

IMPACT TR-1. CONFLICT WITH A PROGRAM, PLAN, ORDINANCE OR POLICY ADDRESSING THE CIRCULATION SYSTEM, INCLUDING TRANSIT, ROADWAY, BICYCLE AND PEDESTRIAN FACILITIES?

CONSTRUCTION

The project site would be accessed from Southern Driveway to the west of the stadium from American River Drive. The project does not include any permanent changes to the public roadway network. Temporary construction activities would be geographically limited to the internal project site. As a result, the direct impacts of construction would not substantially impact the area's public roadways. Construction will not require any temporary closure of any lane or any other part of the County's circulation system. All construction staging will be on the interior of the site and there will be no interruption of travel in the vicinity of the project site during construction. Construction would occur between 7 am and 4 pm on weekdays, over a period of two weeks. Construction-related vehicle trips would be generated from a variety of sources during construction of the project including, but not limited to, haul trucks, material delivery trucks, and approximately 10 construction workers. The effect on daily and peak-hour traffic volumes would be limited to the estimated two-week construction period. The additional vehicles would not substantially alter existing roadway capacity.

Given the limited duration of construction activity and existing capacity on local roadways, project construction is not anticipated to conflict with any applicable plan, policy or ordinance related to the transportation system that could result in a substantial adverse environmental effect. In accordance with the County's *Transportation Analysis Guidelines*, to the extent that LOS is temporarily degraded by short-term construction activities, the County would address the issue in terms of General Plan consistency rather than as an environmental impact subject to CEQA analysis and mitigation. Construction impacts would be **less than significant**.

OPERATION

The Circulation Element and Active Transportation Plan of the Sacramento County General Plan establishes goals, policies, and implementation measures guiding the future of transportation in the County. The goals, policies, and implementation measures relevant to the project and identified above in "Regulatory Setting" are centered on creating a connective and accessible roadway network that promotes efficient vehicular transport, while also promoting alternative modes of travel, including bicycling and walking.

ROADWAY ACCESS

General Plan Policies CI-8 and CI-18 are related to maintaining the safety and functionality of the roadway network in Sacramento County. The proposed project does not propose any alterations to the roadways adjacent to the project site that would hinder the functionality of these roadways.

Policy CI-76 encourages the use of shared parking facilities and reduced parking requirements. While the proposed project would likely cause a parking demand that exceeds currently available parking approximately twice a year, no additional parking facilities are proposed to be constructed. Instead, as under existing conditions, off-site parking would be made available to meet excess demands, including two off-site parking locations that Jesuit High School has previously arranged to use for major events are the Arden Hills Wellness Resort (on the north side of Fair Oaks) and the Rio Americano High School Parking Lot on American River Drive approximately 0.5 miles southwest of the stadium. Attendees also park on nearby residential streets where it is allowed. Therefore, in alignment with Policy CI-76, the proposed project would utilize shared parking opportunities.

The main roadways providing access to the project site are American River Drive and Fair Oaks Boulevard. The project would not change access to on-campus parking that would be used for evening games. Attendees would use either the primary entrance at O'Donnell Lane/Arden Hills Lane at Fair Oaks Boulevard and the south driveway entrance off American River Drive (see Plate TR-1). Although vehicle traffic is expected to increase in the area on approximately 5 nights per year, when home football games are played, this increase would not result in substantial changes to the functionality of the roadway network. VMT is evaluated under Impact TR-2.

BICYCLE AND PEDESTRIAN ACCESS

General Plan policies CI-32, CI-36, and CI-38 revolve around creating and maintaining safe and accessible opportunities for pedestrians and bicyclists. A significant impact would occur if the project hindered or eliminated an existing designated walkway or bikeway, or if the project interfered with implementation of a proposed walkway or bikeway improvement. There are currently Class II bike lanes along both sides of Fair Oaks Boulevard and American River Drive in the immediate vicinity of the project. The proposed site plan will not eliminate or otherwise affect the ongoing use of these existing bikeways. The proposed project would not adversely impact any pedestrian infrastructure. One pedestrian crossing would be required by Mitigation Measure TR-1, across American River Drive at Tennyson Way. This crossing would include high visibility markings and signage, be designed to be ADA compliant for accessibility to all people, and would further the objectives of General Plan policies CI-32 and CI-38.

TRANSIT ACCESS

No bus stops are located near the project site, and is generally not an existing method of transportation to Saturday afternoon football games, nor is it anticipated to be a typical method of transportation to Friday night football games. Implementation of the proposed project would not have any impact on existing public transit facilities.

SUMMARY

For the reasons discussed above, the project would not conflict with any program, plan, ordinance, or policy related to circulation that would lead to any significant adverse physical environmental impact. The impact is **less than significant**.

IMPACT TR-2. CONFLICT OR BE INCONSISTENT WITH CEQA GUIDELINES § 15064.3, SUBDIVISION (B)?

CONSTRUCTION

VMT analysis is intended to capture the long-term impacts of a proposed project, thus, construction activities are not typically subject to VMT analysis. As a result, no analysis of construction VMT is warranted (Sacramento County 2020). Therefore, consistent with the County *Transportation Analysis Guidelines*, there is no conflict with CEQA Guidelines Section 15064.3 and the VMT impact associated with the project would be **less than significant**.

OPERATION

The VMT analysis conducted for this project focuses on the increase in VMT associated with the projected increase in attendance at football games under the proposed project. Currently, the average attendance of a regular season, Saturday afternoon football game is 1,200 attendees for regular season games and up to 3,000 attendees for playoff games, with an average vehicle occupancy of 3.24 persons per vehicle. This yields a total of 371 vehicle trips per event under the existing conditions. For more information on how this average vehicle occupancy was derived, see footnote 2 of Table TR-1.

**Table TR-1: Existing and Proposed Project Vehicle Trips
(Regular Season Games)**

Metric	Existing Condition	Project Conditions
Total Event Attendees (people) ¹	1,200	1,500
Average Vehicle Occupancy ²	3.24	3.24
Stay After School Reduction (%) ³	0	10
Total Vehicle Trips Per Event	371	417
	Net Change in Vehicle Trips	46

1. Based on average attendance size estimate provided by Jesuit High School of 800-1,500 and include both players, coaching staff, and spectators.
2. Previous traffic studies including a Valley High Sports Complex and St Vincent Sports Complex observed average vehicle occupancy of 5.0 and 4.0 respectively for their evening and weekend events. A 3.24 vehicle occupancy was conservatively assumed for this study and held constant across existing and project scenarios.
3. This represents those who choose to stay after school to attend or prepare for the upcoming football game and may include student athletes, staff and coaches, student concessions workers, or other friends and spectators.

Under the proposed project, the timing of the JV and Varsity football games would shift from Saturday afternoons to Friday nights. Junior Varsity games would occur immediately after school starting around 4:00 pm and Varsity games would occur right after that, ending around 10:00 pm. It is conservatively assumed that allowing these events on Friday nights could increase attendance of each regular season game to up to 1,500 attendees per game. The approximate vehicle occupancy of 3.24 expected to be the same between existing Saturday afternoon games and the proposed Friday night games.

Under the proposed project, it is assumed that the JV team (35 student athletes and 4 coaches), the Varsity team (50 student athletes, 6 student managers), most of the freshman football team (83 student athletes), and additional students and staff that would attend the JV football games would all remain on campus after school, and thus not generate any increase in vehicle trips or VMT.³ To account for these Friday night game attendees that would contribute to the proposed project's increase in attendance, but would not contribute to any sort of increase in VMT, an approximated 10-percent "Stay After School Reduction" was applied to the daily trip totals associated with the proposed project. Therefore, when accounting for the 10-percent reduction in vehicle trips for those attendees remaining on campus, the total number of vehicle trips per regular season Friday night football games is estimated to be 417. Thus, the increase from 371 vehicle trips per event under existing conditions to 417 vehicle trips per event under the proposed project, constitutes a net increase of 46 vehicle trips per event induced by implementation of the proposed project.

In the event that the Varsity football team makes the playoffs, the number of attendees is likely to exceed 1,500. However, the number of playoff games would not exceed two games per season and the number of attendees for a playoff game would likely be similar between existing conditions and under the proposed project conditions. However, for the purposes of this analysis, it was assumed that the number of attendees per game would increase from 2,500 attendees under existing conditions to 3,000 attendees under the proposed project conditions. As noted above, it is assumed that the same 150 people that stay on campus for regular season games would also stay on campus for playoff games, so this would only constitute a 5 percent reduction in daily trip totals for Friday night playoff games. Using the same average vehicle occupancy of 3.24 persons per vehicle, the total vehicle trips per playoff game is estimated as 772 under existing conditions and 880 under proposed project. This constitutes a net increase of 108 vehicle trips generated under the proposed project.

Table TR-2: Existing and Proposed Project Vehicle Trips (Playoff Games)

Metric	Existing Condition	Project Conditions
Total Event Attendees (people)	2,500	3,000
Average Vehicle Occupancy	3.24	3.24
Stay After School Reduction ¹	0	150
Total Vehicle Trips Per Event	772	880
	Net Change in Vehicle Trips	108

1. Assumes an identical number of attendees stay on campus when compared to a regular season game. This includes players, coaching staff, school staff, and spectators.

³It should be noted that Jesuit High School draws a significant number of students and staff from far enough away that staying on campus between end of the school day and the start of games at 5 pm is more practical than leaving and returning.

As discussed above, the average trip increase per day as a result of the proposed project would range from 46 trips for a regular season Friday night football game, and up to 108 trips per day for a playoff game. Per the County's guidelines and OPR recommendations, projects that generate or attract fewer than 237 or 110 trips per day, respectively, may be assumed to cause a less-than-significant transportation impact. It should also be noted that the playoff games are occurring at other venues. By allowing playoff games to occur at Jesuit High School, these games are not occurring at the opponent high schools. Regionally, this represents a redistribution in trips. Therefore, per the County's Guidelines, it can be presumed that the project would have a **less-than-significant** transportation impact on VMT.

IMPACT TR-3. SUBSTANTIALLY INCREASE HAZARDS DUE TO A GEOMETRIC DESIGN FEATURE (E.G., SHARP CURVES OR DANGEROUS INTERSECTIONS) OR INCOMPATIBLE USES (E.G., FARM EQUIPMENT)?

CONSTRUCTION

The primary moderate-capacity roadways that provide access to the project site would be from Fair Oaks Boulevard and American River Drive. The smaller roadways that provide direct access to the project site are O'Donnell Lane and the Southern Driveway. The proposed project does not include any permanent changes to the geometry of the area roadways. All construction activities would be staged on-site, and no temporary lane closures or interruptions to traffic are required during construction. As a result, no impact would result from project construction or operations.

While project construction would introduce additional traffic movements and oversized haul vehicles to the local road network, construction traffic is common throughout the County and is not considered an "incompatible use." Given the small scale of the project and the already moderately trafficked nature of the primary access routes (Fair Oaks Boulevard and American River Drive), the temporary addition of oversize vehicles, haul trucks and worker vehicles would likely not increase traffic hazards and the resulting impact would be **less than significant**.

OPERATION

BICYCLE AND PEDESTRIAN SAFETY

A significant impact to bicycle and pedestrian safety could occur if the project would result in unsafe conditions for bicyclists and pedestrians, including unsafe bicycle/pedestrian, bicycle/motor vehicle, or pedestrian/motor vehicle conflicts. During playoff games, parking demand is expected to exceed the number of on-site parking spots. Two off-site parking location that Jesuit High School has previously arranged to use for major events are the Arden Hills Wellness Resort (on the north side of Fair Oaks Boulevard) and the Rio Americano High School Parking Lot on American River Drive approximately 0.5 miles southwest of the stadium. Attendees also park on nearby residential streets where it is allowed.

There are currently pedestrian crossings along Fair Oaks Boulevard that pedestrians use to access the project site when parking north of Fair Oaks Boulevard. Along American River Drive, the nearest **protected crossing** crosswalk for pedestrians to is located at the intersection of American River Drive and Jacob Lane, which is further east than the stadium's southern entrance and therefore out of the way for pedestrians walking to the Jesuit High School Stadium from Rio Americano High School or who might be dropped off along American River Drive opposite the stadium. **In addition, although this intersection is a four-way stop, it does not contain pavement markings denoting designated crosswalks.** Because this crosswalk is out of the way, pedestrians currently cross American River Drive without any official pedestrian crossing or signage. Therefore, there are existing hazards to pedestrians associated with unprotected crossing of American River Drive. Shifting football games from Saturday afternoons to Friday nights would exacerbate these existing hazards, since pedestrians would cross American River Drive in the dark as opposed to in the daylight, making it more difficult for drivers to see. In addition, it is anticipated that attendance would increase because of evening games, which could further add to these pedestrian crossings. Therefore, the project's impact to pedestrian safety would be **potentially significant**.

MITIGATION MEASURES

MITIGATION MEASURE TR-2: PEDESTRIAN SAFETY IMPROVEMENTS TO SITE PLANS

Prior to building permit approval, the project proponent shall **prepare improvement plans** make amendments to the final designs of the proposed project for review and approval by the Sacramento County Transportation Department which shall include the following improvements at the **western side of the** intersection of Tennyson Way and American River Drive across from Jesuit High School's southern parking lot **and at the four-way stop-controlled intersection at Jacob Lane and American River Drive:**

- **Tennyson Way and American River Drive.** Install pedestrian crossing with enhanced safety features. ~~Enhanced safety features may~~ **which would** include **a striped,** high visibility (**Caltrans "ladder"**) crosswalk markings, flashing beacons **with signage,** parking restrictions **as needed to improve crosswalk visibility and safety, and** lighting improvements, **as determined by Sacramento County Department of Transportation and based on Sacramento County Improvement Standards,** ~~signage, and pavement markings, as determined to be needed by the Sacramento County Department of Transportation.~~
- **Jacob Lane and American River Drive. Install basic yellow crosswalk on all legs of the intersection.**

SIGNIFICANCE AFTER MITIGATION

Implementation of Mitigation Measure TR-2 would enhance pedestrian safety at this location and reduce the potential for hazards to pedestrians occur during project

operation. As a result, the potential impact related to pedestrian hazards would be reduced **less than significant with mitigation**.

INTERSECTIONS

The stadium attendees travelling along Fair Oaks Boulevard would access on-site stadium parking using O'Donnell Lane, and attendees travelling along American River Drive would access on-site parking using the Southern Driveway. The two intersections providing access to the stadium from the north and south are Fair Oaks Boulevard at O'Donnell Lane/Arden Hills Lane and American River Drive at Project Southern Driveway, respectively. The proposed project would induce more vehicle trips, increasing activity at each intersection. Safety considerations would be particularly important for westbound vehicles travelling along Fair Oaks Boulevard and eastbound vehicles travelling along American River Drive, as these travelers would be making left-hand turns into their respective access roads. Turning movement storage length refers to the amount of space available at an intersection for vehicles to be in while waiting to make a left turn. The queue length refers to the space occupied by cars waiting to make a left turn. The proposed project would cause the queue length at both intersections to exceed the available storage length.

A hazard related to the geometric design of an intersection could occur if the queue length exceeds the storage length, forcing vehicles to wait in faster moving traffic instead of the designated turning lane. The queue length for vehicles turning left at these intersections would only exceed available storage by less than one vehicle (25 feet); thus, no safety issues are expected due to the addition of the project (Kimley-Horn 2023b), and the impact related to intersection safety would be **less than significant**.

IMPACT TR-4. RESULT IN INADEQUATE EMERGENCY ACCESS?

CONSTRUCTION

~~Temporary facilities~~ A temporary equipment staging area would be developed at the project site during construction to facilitate the construction process as described above. Construction impacts would generally be limited to on-site, and not directly impact the area's public roadways or substantially impede access to or from nearby properties. As a result, the impact of the project during construction would be **less than significant**. To the extent that emergency access in the project vicinity could be temporarily impeded during construction, the measures provided in the traffic control plan described above would serve to ensure that sufficient emergency access is available for the duration of the construction period.

OPERATION

Access to the project site would be from American River Drive and Fair Oaks Boulevard. The project does not include any permanent changes to the public roadway network. While the project will induce slight increase in traffic and roadway usage, increases in traffic would be spread across existing access routes. Increases in vehicles on roadways surrounding the project site is not expected to result in inadequate

emergency access. As a result, the impact of the project during operation would be **less than significant**.

11 OTHER CEQA CONSIDERATIONS

GROWTH-INDUCING IMPACTS, LESS-THAN-SIGNIFICANT EFFECTS, CUMULATIVE IMPACTS

GROWTH-INDUCING IMPACTS

An EIR must discuss the ways in which a proposed project could foster economic or population growth or the construction of additional housing in the vicinity of the project, and how that growth will, in turn, affect the surrounding environment (see CEQA Guidelines Section 15126.2[d]). Growth can be induced in a number of ways, including through the elimination of obstacles to growth, or through the stimulation of economic activity within the region. The discussion of the removal of obstacles to growth relates directly to the removal of infrastructure limitations or regulatory constraints that could result in growth unforeseen at the time of project approval.

The proposed project includes the construction and operation of stadium lights at Jesuit High School in Carmichael, a suburban area of Sacramento County. The project does not include new housing or employment uses or new infrastructure that could foster economic or population growth. Therefore, the proposed project would not result in direct or indirect growth-inducing impacts.

IRREVERSIBLE IMPACTS

Section 15126.2(c) of the CEQA Guidelines defines an irreversible impact as an impact that uses nonrenewable resources during the initial and continuing phases of the project. Irreversible impacts also can result from damage caused by environmental accidents associated with a project. Irrecoverable commitments of resources are evaluated to ensure that such consumption is justified.

Energy would be consumed during both the construction and operational phases of the project. The construction phase would require the use of nonrenewable resources during construction, including fossil fuels, concrete, metals, plastics, and glass. The operational phase would consume energy in the form of electricity to power the stadium lights. The use of energy during all phases of the project would be irreversible but would not be significant in relation to overall sources and supplies, as described in below in the Energy section.

Accidents, such as the release of hazardous materials, could trigger irreversible environmental damage. However, project construction would result in minimal transport of hazardous materials, and transport and handling would be in accordance with state and local regulations.

EFFECTS FOUND TO BE LESS THAN SIGNIFICANT

AGRICULTURAL AND FORESTRY RESOURCES

Based on Appendix G of the CEQA Guidelines, an impact on agricultural or forestry resources is considered significant if the proposed project would do any of the following:

- 1. Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the FMMP of the California Resources Agency, to nonagricultural use.**

The project site is entirely urban/built-up land. Therefore, the proposed project would not convert farmland to a nonagricultural use, and there would be **no impact**.

- 2. Conflict with existing zoning for agricultural use or a Williamson Act contract.**

The project site is a private high school with no agricultural production and is therefore not zoned for agricultural use or under a Williamson Act contract. Therefore, there would be **no impact**.

- 3. Conflict with existing zoning for, or cause rezoning of, forestland (as defined in Public Resources Code Section 12220[g]), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104[g]).**

The project site is entirely urban/built-up land and is not zoned as forestland or timberland. Therefore, there would be **no impact**.

- 4. Result in the loss of forestland or conversion of forestland to non-forest use.**

The project site is entirely urban/built-up land and contains no forestland. Therefore, no conversion would occur, and there would be **no impact**.

- 5. Involve other changes in the existing environment that, because of their location or nature, could result in conversion of Farmland to nonagricultural use or conversion of forest land to non-forest use.**

Because the project site and project vicinity contain no farmland or forest land, no conversion would occur and there would be **no impact**.

BIOLOGICAL RESOURCES

Based on Appendix G of the CEQA Guidelines, an impact on biological resources is considered significant if the proposed project would do any of the following.

1. **Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service (Impact BIO-1).**

SPECIAL-STATUS PLANT SPECIES

The proposed project is located in existing developed areas of an active high school campus. No suitable habitat exists on the project site for special-status plant species. Therefore, this project would have **no impact** on special-status plant species.

SPECIAL-STATUS ANIMAL SPECIES

This project site is heavily disturbed and provides no suitable habitat for any special-status amphibians, crustaceans, insects, mammals, or reptiles. Therefore, this project would have **no impact** on special-status wildlife or their habitat.

RAPTORS AND NESTING BIRDS

The historic ranges of special-status and non special-status raptors have been continuously decreasing over the last century as previously undisturbed areas continue to be developed. As such, some raptors have been observed adapting to these changes in landscape by colonizing in urban and suburban areas. For example, in the last couple of decades, populations and ranges of Cooper's hawk (*Accipiter cooperi*) have been increasing, especially in the form of breeding birds colonizing urban and suburban areas (Chiang et al. 2012). While it is unlikely that raptors will nest within mature trees in residential neighborhoods, especially with better quality habitat located nearby along the American River, their potential for nesting within the project vicinity should still be considered due to the continuous shift in their ranges and as higher quality habitat becomes scarcer.

The Migratory Bird Treaty Act of 1918 prohibits killing, possessing, or trading in migratory birds, and protects the nesting activities of native birds including common species. Some mature deciduous and evergreen trees surround the property boundaries of the Jesuit High School Campus, particularly along American River Drive and adjacent to single-family residential properties along Piccadilly Circle and Jacob Lane. These mature trees provide potential nesting habitat for birds adapted to urban environments especially due to the project site's proximity to the American River Parkway. Common species that could nest adjacent to the project site include, but are not limited to, California scrub-jay (*Aphelocoma californica*), mourning dove (*Zenaida macroura*), and American Crow (*Corvus brachyrhynchos*).

CONSTRUCTION

The proposed project does not include any tree removal, nor would it disturb any grassland or shrub habitat that could be used for nesting or foraging. The project would not have any direct impacts to nesting birds through habitat removal.

Construction of the stadium lights would occur within 250 feet of available nesting habitat for these species protected by the MBTA. While unlikely, these mature trees could also provide nesting habitat for raptors that are adapting to more urban environments, such as Cooper's hawk. If construction occurs within the nesting bird season (February 1 to September 15), construction noise and vibration could disturb these birds, resulting in birds abandoning their nests thereby causing loss of fertile eggs or nestlings. This would be a significant adverse environmental impact. Implementation of the following mitigation measure would reduce the potential impact to a less-than-significant level.

Pursuant to the MBTA, the following mitigation would be incorporated to avoid and minimize impacts to nesting birds.

Mitigation Measure BIO-1: Prior to demolition and construction activities, to avoid impacts to nesting birds during the nesting season (February 15 to August 30 for common small bird species (e.g., California scrub-jay) and February 15 to September 15 for raptors (e.g., Cooper's hawk), or if construction activities are suspended for at least 14 days and recommence during the nesting season, a qualified biologist will conduct nesting bird surveys.

- A. Two surveys for active bird nests will occur within 14 days prior to start of construction, with the final survey conducted within 48 hours prior to construction. Appropriate minimum survey radii surrounding each work area are typically 250 feet for passerines, 500 feet for smaller raptors, and 1,000 feet for larger raptors. Surveys will be conducted at the appropriate times of day to observe nesting activities. Locations off the site to which access is not available may be surveyed from within the site or from public areas. A report documenting survey results and plan for active bird nest avoidance (if needed) shall be completed by the qualified biologist prior to construction activities and submitted to the Sacramento County Environmental Coordinator.
- B. If the qualified biologist documents active nests within the project site or in nearby surrounding areas, an appropriate buffer between each nest and active construction will be established. The buffer will be clearly marked and maintained until the young have fledged and are foraging independently. Prior to construction, the qualified biologist will conduct baseline monitoring of each nest to characterize "normal" bird behavior and establish a buffer distance, which allows the birds to exhibit normal behavior. The qualified biologist will monitor the nesting birds daily during construction activities and increase the buffer if birds show signs of unusual or distressed behavior (e.g., defensive flights and vocalizations,

standing up from a brooding position, and/or flying away from the nest). If buffer establishment is not possible, the qualified biologist or construction foreman will have the authority to cease all construction work in the area until the young have fledged and the nest is no longer active.

Jesuit High School and contractors shall be responsible for implementation of this mitigation measure. Compliance with this measure will be documented, prior to the start of construction activities.

OPERATION

LIGHTING IMPACTS

The project site is in the urbanized area of Carmichael, where nighttime lighting from development throughout Carmichael, Arden, Rancho Cordova, and Sacramento creates existing skyglow. Nighttime security lighting is present at the project site and the Jesuit High School buildings to the north in the form of building and parking lot lighting. Overhead light standards for streetlights are present along American River Drive immediately south of the project site. Nighttime security lighting is also present at the surrounding single-family residences to the east, west, and south.

The project would install new lighting fixtures along the edges of the track and stadium; no permanent overhead lighting is currently used. The proposed light fixtures would be at the top of 90 and 100-foot poles and directed downwards. As discussed in Aesthetics (Chapter 5) and the Lighting Report prepared by M. Neils Engineering, Inc. for this project, modeling results demonstrate that light levels from the proposed stadium lighting at the Jesuit High School property boundaries to the east, west, and south would be 0.0 footcandle (Appendix B). None of the measured lighting levels closer to the stadium would exceed the 0.8 footcandle standard. For reference, typical lighting levels measured horizontally at ground level are 1 to 2 footcandle for street lighting. In summary, the proposed stadium lights would not substantially increase lighting in the surrounding area from baseline conditions since there are already streetlights along American River Drive.

Once constructed, stadium light poles would be a maximum of 100 feet tall. Given the small surface area of their vertical and horizontal structure, poles would not have a significant impact on bird flight, including during migration. While lighting of the proposed project may cause the existing, active high school campus to be less attractive to nesting birds in the immediate vicinity, ample nesting habitat is located in the surrounding neighborhoods and regional vicinity, particularly within open space to the south along the American River. Additionally, the proposed stadium lighting would not adversely affect nesting behavior of birds adjacent to the project site because the lighting levels outside of the project site would be similar to the lighting levels under existing conditions. Therefore, potential impacts to nesting migratory birds and raptors as a result of increased light and glare would be **less than significant**.

NOISE IMPACTS

The proposed project will increase noise levels in the immediate vicinity by 5 dB during Friday night normal season games, and by 6-7dB on Friday night playoff games (Appendix D, *Environmental Noise Assessment*). However, the playoff games would occur in October, outside of the nesting period for small birds and hawks. Additionally, while the surrounding noise levels generated by football game attendees would increase during Friday night football games, this noise is not substantially different than the noise currently generated during Saturday afternoon football games. The number of attendees are expected to only slightly increase from 1,200 attendees on Saturday afternoon games to 1,500 on Friday nights with up to 3,000 attendees for postseason games, which average two per year. Further, attendance is only one factor in the noise level at football games – the PA system and the marching band being two other contributing factors which would contribute the same level of noise with or without the project. The noise levels at the football games under proposed project conditions would not be substantially more than the noise levels under existing conditions. Any operational noise impacts to birds will not be substantially different from existing impacts. Potential impacts to nesting migratory birds and raptors as a result of operational noise would be **less than significant**.

2. **Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.**

This project is located at the Jesuit High School stadium and is surrounded by residential development. No riparian habitat or other sensitive natural community is present within the project site. Therefore, there would be **no impact** on riparian habitat or sensitive natural communities.

3. **Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.**

The proposed project is located at the Jesuit High School stadium and is surrounded by residential development. No protected wetlands or Waters of the U.S. are present within the project site. Therefore, there would be **no impact** on any federally protect wetlands.

4. **Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nurse sites.**

The proposed project site does not contain habitat for any migratory fish or wildlife, nor would the project impede the use of any native wildlife nursery sites. Suitable nesting habitat is present adjacent to the project boundaries, and the construction of the proposed project could disrupt nesting behavior of migratory birds if they are using

these trees at the time of construction. Any impacts associated with disrupting nesting migratory birds would be mitigated for and reduced to a less-than significant level with mitigation incorporated, as discussed under 1), above (see Mitigation Measure BIO-1).

5. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.

The project site is within Carmichael, an unincorporated community in Sacramento County. Native oak trees within the unincorporated area of Sacramento County are protected by the County Tree Preservation Ordinance and the County General Plan Conservation Element. As discussed, no tree removal is planned as part of the project. Additionally, construction of the proposed stadium lights would not encroach into the root zone of any trees. Therefore, there would be **no impact** related to any local policies or ordinances protecting biological resources.

6. Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

The project site is located in unincorporated Sacramento County, outside of the planning area of any adopted habitat conservation plan of natural community conservation plan. Therefore, there would be **no impact** related to consistency with any adopted habitat conservation plans.

CULTURAL RESOURCES

1. Cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5.

A records search conducted for the project revealed four (4) recorded cultural resources that were previously identified within a 0.25-mile radius of the proposed project area that are historic-age built environment resources. No additional historical resources were identified through background research.

Construction components of the project would be restricted to minor trenching to install conduit and wire from existing pull boxes at the Marauder stadium to the proposed new light pole bases. Installation of the proposed light poles will involve auguring four (4) holes and installing pre-cast bases into these holes. Temporary staging areas for construction are proposed within the project site. No potential direct or indirect effects on above-ground built-environment historic-age resources identified within the 0.25-mile search radius would occur. Impacts to the historic-age built environment are ***less than significant***.

2. Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5.

Based on records search results, there are no archaeological resources identified within the project boundary. Given the project's proximity to the American River, which is

historically known to contain archaeological resources, there remains a potential for inadvertent discoveries of archaeological resources during construction. Mitigation is included below in the event that an archaeological resource is uncovered during subsurface construction activities. With implementation of mitigation measure CR-1, impacts would be ***less than significant***.

The following mitigation would be incorporated to avoid and minimize impacts to archaeological resources:

Mitigation Measure CR-1: Inadvertent Discovery of Cultural Resources

Should any cultural resources, such as structural features, unusual amounts of bone or shell, artifacts, human remains, or architectural remains be encountered during any development activities, work shall be suspended to allow for review by tribal monitors. Designated staff implementing the MMRP shall be immediately notified. The project applicant shall be required to implement any mitigation deemed necessary for the protection of the cultural resources, as outlined in Mitigation Measure TCR-1 detailed below.

3. Disturb any human remains, including those interred outside of dedicated cemeteries.

No prehistoric or historic-era burials were identified within the project area as a result of the records search. The project is not part of a dedicated cemetery. No prehistoric or historic-era burials were identified within the project site; however, based on known sensitivity in the vicinity of the American River, there is potential for encountering unanticipated human remains during construction.

Recommended mitigation measures detailed below include appropriate compliance with California Health and Safety Code Section 7050.5, PRC Section 5097.98, and other pertinent regulatory requirements. The mitigation measures would identify and protect human remains, and as a result, would reduce the potential impacts in the event of the accidental discovery or recognition of any human remains during construction. Therefore, with implementation of Mitigation Measure CR-2, this project impact would be ***less than significant***.

The following mitigation would be incorporated to avoid and minimize impacts to human remains:

Mitigation Measure CR-2: Unanticipated Human Remains

Pursuant to Sections 5097.5 and 5097.98 of the State Public Resources Code, and Section 7050.5 of the State Health and Safety Code, if a human bone or bone of unknown origin is found during construction, all work is to stop and the County Coroner and Planning and Environmental Review shall be immediately notified. If the remains are determined to be Native American, the Coroner shall notify the Native American Heritage Commission within 24 hours, and the Native American Heritage Commission shall identify the person or persons it believes to be the most likely descendent from the

deceased Native American. The most likely descendent may make recommendations to the landowner or the person responsible for the excavation work, for means of treating or disposition of, with appropriate dignity, the human remains and any associated grave goods.

ENERGY

1. Result in potentially significant environmental impacts due to wasteful, inefficient, or unnecessary consumption of energy resources?

The primary energy demands during construction are associated with equipment and vehicle fueling (e.g., gasoline, diesel fuel). Construction equipment and vehicles would be required to comply with federal, state, and local standards and regulations, including the Sacramento Metropolitan Air Quality Management District (SMAQMD) standards that are aimed at reducing air pollution, including minimizing idling and ensuring proper maintenance, which would minimize the wasteful consumption of fuel during construction. Energy use during construction would be temporary and short-term (e.g., several weeks). In addition, the proposed project does not include unusual characteristics that would necessitate the use of construction equipment that would be less energy-efficient than at a comparable construction site.

Energy consumption associated with long-term operations of the proposed project would include use of the proposed lighting and a shift in vehicle trips to and from the project site for use of the stadium during evening hours. As detailed in Transportation (Chapter 10), the mobile trips primarily represent a shift in the timing of trips from previous daytime travel to evening and nighttime trips with implementation of the proposed project and an increase of approximately 46 vehicle trips per event to and from the stadium on approximately 8 nights per year. The shift in vehicle trips would be minimal and, as noted in Chapter 10, Transportation, would not represent any delays, , such as queuing of vehicles at driveways entering the high school campus during evening games, and therefore would not result in wasteful fuel consumption associated with such trips. The proposed lighting would be light-emitting diode (LED) light fixture technology that, when in use, would result in an average daily electricity consumption of 117 to 158 kilowatt-hours. LED is the most energy-efficient lighting technology available (U.S. Department of Energy 2023). In addition, the lighting fixtures would include adjustable light level operations allowing lighting to be reduced by as much as half normal intensity when higher intensity is not needed.

Therefore, the proposed project would not result in wasteful, inefficient, or unnecessary consumption of energy resources and there would be **no impact**.

2. Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?

The project would not use land that was otherwise slated for renewable energy production and does not otherwise conflict with any state or local renewable energy plans. In addition, fuel use would be consistent with current construction and manufacturing practices and energy standards that promote strategic planning that

reduces consumption of fossil fuels and enhances energy efficiency. As described above, construction activities would use construction equipment and vehicles that are in compliance with federal and State standards for fuel efficiency. In addition, as described above, proposed construction and operational activities would not result in an inefficient or wasteful consumption of energy resources. The project would be subject to the energy conservation standards and building regulations as required by Title 24, including the 2022 California Green Building Standards Code. Therefore, the project will not conflict with or obstruct a State or local plan for renewable energy or energy efficiency and there would be no impact.

GEOLOGY, SOILS, AND PALEONTOLOGICAL RESOURCES

Based on Appendix G of the CEQA Guidelines, an impact related to geology, soils, and paleontological resources is considered significant if the proposed project would do any of the following.

1. **Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death, involving rupture of a known earthquake fault as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map or based on other substantial evidence of a known fault, strong seismic ground shaking, liquefaction, or seismically-induced landslides.**

The project site is located in the center of the Sacramento Valley; this area historically has not been seismically active (Jennings and Bryant 2010). The nearest active faults, including those that are classified under the Alquist-Priolo Earthquake Fault Zone Act, are approximately 40 miles west in the Coast Ranges and approximately 60 miles east near Lake Tahoe (Jennings and Bryant 2010, California Geological Survey 2022). The nearest known fault is the Bear Mountain Fault Zone, approximately 23 miles east of the project site, which is not classified as "active" (Jennings and Bryant 2010). The project site has a low potential for strong seismic ground shaking (Branum et al. 2016). Therefore, hazards from surface fault rupture and strong seismic ground shaking are unlikely. The depth to groundwater at the project site is relatively deep—approximately 90 feet below the ground surface (California Department of Water Resources [DWR] 2022), and given the low potential for strong seismic ground shaking, the liquefaction potential is also low. The project site is flat, and is not adjacent to any areas of steep slopes; thus, there is no potential for seismically-induced landslides. Therefore, seismic impacts would be **less than significant**.

2. **Result in substantial soil erosion or the loss of topsoil.**

A review of U.S. Natural Resources Conservation Service (NRCS) soil survey data indicates that the soil at the project site is composed of the Rossmoor-Urban Land Complex, 0 to 2 percent slopes. This soil type is rated with a moderate wind erosion hazard and low water erosion hazard potential (NRCS 2022). Project-related construction would involve minor excavating and backfilling to install four small concrete foundations for the proposed light standards and minor trenching for electrical over a distance of approximately 10 feet. Due to the small size of the soil area that would be

disturbed, a Storm Water Pollution Prevention Plan (SWPPP) under the National Pollutant Discharge and Elimination System (NPDES) would not be required. Soil disturbance during construction activities would be minor in terms of both extent and time (up to 2 weeks). Therefore, project-related earthmoving activities would not result in substantial soil erosion or loss of topsoil, and this impact would be **less than significant**.

3. Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse.

The project site is flat (thus there are no landslide hazards), and the site does not include open creek banks where lateral spreading could be hazard from soft, water-saturated soils. The project site is composed of the Rossmoor-Urban Land Complex, 0 to 2 percent slopes soil type. There are no unstable soil conditions such as a shallow depth to clay layer or shallow depth to groundwater that would result in subsidence, liquefaction, or collapse (DWR 2022, NRCS 2022). Thus, there would be **no impact** related to unstable soil.

4. Be located on expansive soil, creating substantial direct or indirect risks to life or property.

The soil at the project site is composed of Rossmoor-Urban Land Complex, 0 to 2 percent slopes. This soil type is not expansive (NRCS 2022). Thus, there would be **no impact** related to expansive soil.

5. Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water.

The proposed project does not require or include installation of new permanent restroom facilities. Temporary, portable restrooms would be provided for construction workers during the construction phase. Thus, there would be **no impact** related to soil suitability for septic tanks or alternative wastewater disposal systems.

6. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.

UNIQUE GEOLOGIC FEATURES

A unique geologic feature consists of a major natural element that stands out in the landscape, such as a large and scenic river, gorge, waterfall, volcanic cinder cone, lava field, or glacier. There are no unique geologic features at the project site (which has been developed and used as a school since 1963) or within the project viewshed (which

consists of single-family residences and school buildings). Thus, there would **be no impact** from destruction of a unique geologic feature.

GEOLOGIC FORMATIONS

Based on a review of geologic mapping prepared by Gutierrez (2011), the project site is composed of a mixture of Holocene-age (11,700 years Before Present [B.P.] to Present Day) Alluvium and Pleistocene-age (2.8 million years B.P. to 11,700 years B.P.) Turlock Lake Formation. The alluvial deposits are likely ancestral channel deposits of the nearby American River. The Turlock Lake Formation consists of deeply weathered and dissected arkosic¹ alluvium, composed primarily of sand with some silt and minor gravel.

PALEONTOLOGICAL SENSITIVITY CRITERIA

For the purposes of this analysis, a unique paleontological resource or site is one that is considered significant under the following professional paleontological standards. An individual vertebrate fossil specimen may be considered unique or significant if it is identifiable and well preserved, and it meets one of the following criteria:

- a type specimen (i.e., the individual from which a species or subspecies has been described);
- a member of a rare species;
- a species that is part of a diverse assemblage (i.e., a site where more than one fossil has been discovered) wherein other species are also identifiable, and important information regarding life history of individuals can be drawn;
- a skeletal element different from, or a specimen more complete than, those now available for its species; or
- a complete specimen (i.e., all or substantially all of the entire skeleton is present).

The value or importance of different fossil groups varies depending on the age and depositional environment of the rock unit that contains the fossils, their rarity, the extent to which they have already been identified and documented, and the ability to recover similar materials under more controlled conditions (such as for a research project). Marine invertebrates are generally common; the fossil record is well developed and well documented, and they would generally not be considered a unique paleontological resource. Identifiable vertebrate marine and terrestrial fossils are generally considered scientifically important because they are relatively rare.

In its standard guidelines for assessment and mitigation of adverse impacts on paleontological resources, the Society of Vertebrate Paleontology (SVP 2010) established four categories of sensitivity for paleontological resources: high, low, no, and undetermined. Areas where fossils have been previously found are considered to have a high sensitivity and a high potential to produce fossils. Areas that are not

¹ Arkose is a type of sandstone that is composed of quartz and the silicate mineral feldspar.

sedimentary in origin and that have not been known to produce fossils in the past typically are considered to have low sensitivity. Areas consisting of high-grade metamorphic rocks (e.g., gneisses and schists) and plutonic igneous rocks (e.g., granites and diorites) are considered to have no sensitivity. Areas that have not had any previous paleontological resource surveys or fossil finds are considered to be of undetermined sensitivity until surveys are performed. After reconnaissance surveys, a qualified paleontologist can determine whether the area of undetermined sensitivity should be categorized as having high, low, or no sensitivity. In keeping with the SVP significance criteria, all vertebrate fossils are generally categorized as being of potentially significant scientific value.

PALEONTOLOGICAL SENSITIVITY ASSESSMENT

The results of a paleontological resources records search performed at the University of California, Berkeley Museum of Paleontology (UCMP) on May 2, 2023 indicate there are no recorded fossil localities within or near the project site (UCMP 2023).

To be considered a "unique paleontological resource," a fossil must be more than 11,700 years old. Holocene deposits contain only the remains of extant, modern taxa (if any resources are present), which are not considered "unique" paleontological resources. Thus, the Holocene Alluvium at the project site is not paleontologically sensitive.

The Pleistocene-age Turlock Lake Formation is known to contain unique, scientifically important vertebrate fossil remains. The Fairmead Landfill Fossil locality represents the largest single deposit of fossils from the Turlock Lake Formation in California (Dundas et al., 1996). The Fairmead Landfill site, located in Chowchilla, contains Irvingtonian-age fossils that were originally discovered in 1993 during excavation activities for a new Madera County landfill. Since 1993, more than 15,000 fossil specimens from over 35 different species have been recovered from the Fairmead site, including mammoth, ground sloth, giant short-faced bear, saber tooth cat, wolf, deer, camel, horse, antelope, rodents, birds, reptiles, fish, and prehistoric vegetation.

A variety of plant fossils have also been recovered from several localities in the Turlock Lake Formation in Fresno County (UCMP 2023). Marchand and Allwardt (1981) reported that several vertebrate fossils were recovered near Friant, also in Fresno County, from the Turlock Lake Formation. Hansen (2008) reported that excavations for the California Department of Transportation's State Route 180 West Freeway project uncovered fossil specimens from a Pleistocene-age camel in sediments of the Turlock Lake Formation in Fresno County.

Jefferson (1991) reported two vertebrate fossil localities from Roseville and Rocklin that were likely from the Turlock Lake Formation.

Because of the large number of vertebrate fossils that have been recovered from the Turlock Lake Formation, it is considered to be of high paleontological sensitivity.

IMPACT CONCLUSION

The Holocene-age alluvial deposits at the project site are not paleontologically sensitive. Therefore, earthmoving activities associated with the proposed project in these deposits would not result in accidental damage to or destruction of unique paleontological resources, and there would be **no impact**.

The Pleistocene-age Turlock Lake Formation sediments at the project site are considered to be of high paleontological sensitivity. However, the project site was developed as a school in 1963, and the track and baseball diamonds were installed in 1968. Furthermore, in 2016, improvements were completed at the project site including upgrading the existing track and field facilities to include a 400-meter, 8-lane all-weather running track, and a synthetic turf stadium field with permanent field markings for football and soccer, stadium seating on home and visitor sides. Because the project site has been previously disturbed on multiple occasions during earthmoving activities, including excavating, grading, and compacting, any fossil resources that may have previously been present would have long since been destroyed. Furthermore, earthmoving activities for the proposed project would consist solely of excavation and backfill to install four metal poles, in a pre-cast concrete base, to support the new lighting, thus resulting a very small area of disturbance. Therefore, project-related earthmoving activities in the Turlock Lake Formation would not result in accidental damage to or destruction of unique paleontological resources, and this impact is considered **less than significant**.

HAZARDS AND HAZARDOUS MATERIALS

Based on Appendix G of the CEQA Guidelines, an impact related to hazards and hazardous materials is considered significant if the proposed project would do any of the following.

- 1. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials, or through reasonably foreseeable upset and/or accident conditions involving the release of hazardous materials into the environment.**

The construction process at Jesuit High School would involve the use of construction equipment and associated small quantities of fuels and oils, which are hazardous materials. These materials are not acutely hazardous. Statutory requirements governing hazardous waste transportation in California are contained in the California Health and Safety Code, Division 20, Chapter 6.5, Articles 6.5, 6.6, and 13. Hazardous waste transporters must have a valid registration permit issued by California Department of Toxic Substances Control (DTSC). In addition, hazardous waste transporters must comply with a variety of other State and federal regulations, including the California Vehicle Code (California Code of Regulations [CCR] Title 13); California State Fire Marshal Regulations (CCR Title 19); U.S. Department of Transportation regulations (Title 49 Code of Federal Regulations [CFR]); and U.S. Environmental Protection Agency (EPA) (Title 40 CFR). Handlers of hazardous materials (including construction contractors) are required to follow the manufacturer's labelling instructions for use and disposal.

Construction worker health and safety regulations would be implemented in accordance with applicable federal and state standards, including the California Division of Occupational Safety and Health. Fuel and oil for construction equipment would not be stored at the project site or in the staging area; instead, they would be provided by service trucks obtained through the construction contractor. There is no component of the proposed project that would result in an unusually high level of exposure to hazardous materials, and no acutely hazardous materials would be used or stored at the project site or the construction staging area. Furthermore, the use and disposal of hazardous materials is heavily regulated at the federal and state level by EPA and DTSC, as outlined in CCR Title 22. Thus, this impact would be **less than significant**.

2. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school.

The proposed project would be implemented at the site of the existing Jesuit High School. In addition, the Rio Americano High School outdoor sports fields are approximately 975 feet southwest of the project site. Minor amounts of fuel and oil for construction equipment, which are hazardous materials, would be used during the project's construction process. However, construction activities would only occur for a short period of time (i.e., up to 2 weeks). The construction staging area would be surrounded by temporary exclusionary fencing to protect students and members of the public. The fuel and oil provided by service trucks for the construction equipment are not acutely hazardous. Thus, impacts from the handling of hazardous materials within 0.25 mile of a school would be **less than significant**. (Please see Chapter 6, "Air Quality," for the analysis related to hazardous air emissions.)

3. Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?

AECOM performed a search of publicly available databases maintained under Public Resources Code Section 65962.5 (i.e., the "Cortese List") to determine whether any known hazardous materials are present either in or within 0.25 mile of the project site. These searches included the EnviroStor database maintained by the California Department of Toxic Substances Control (DTSC 2023), and the GeoTracker database maintained by the State Water Resources Control Board (SWRCB 2023).

The nearest open, active hazardous materials site is associated with a Cleanup Program Site, which is not part of Cortese List. This site is approximately 0.75 mile northwest of the project site, where remediation of groundwater contaminated with tetrachloroethylene (PCE), trichloroethylene (TCE), and vinyl chloride from a former drycleaning facility is ongoing. The contaminated groundwater plume does not extend off the former drycleaning site (SWRCB 2023, DTSC 2023). There are two leaking underground storage tank sites approximately 0.75 mile northeast of the project site which have been remediated and are closed; thus, they are no longer part of the Cortese List (SWRCB 2023).

AECOM also performed a search of the U.S. Environmental Protection Agency's National Priorities List (Superfund) database; there are no Superfund sites within 12 miles of the project site (USEPA 2022).

Because the project site is not on the Cortese List, and there are no other nearby hazardous materials sites that would represent a hazard to the public or the environment from project construction or operation, there would be **no impact**.

4. For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area.

Mather Airport is approximately 3 miles to the southeast. The project site is at the extreme northwestern edge of the Airport Influence Area, within Review Area 2 as established by the Mather Airport Land Use Compatibility Plan (ALUCP) (ESA Airports 2022). Review Area 2 represents the combined area of the Code of Federal Regulations (CFR) Title 14 Part 77 imaginary airspace surfaces and overflight notification area, as well as the 10,000-foot Airport Operations Area buffer wildlife hazards analysis area. The project site is not within any of the airport Safety Zones (ESA Airports 2022). The Federal Aviation Administration's (FAA) rule for Safe, Efficient Use and Preservation of Navigable Airspace (14 CFR Part 77) defines a set of imaginary surfaces with relation to an airport's runway(s). The slope and dimension of each imaginary surface is based on the type of approach available or planned for each runway (e.g., visual, non-precision, precision). In addition, height limitations also apply, taking into account the elevation of the surrounding terrain.

The proposed project does not include components that would create new wildlife strike hazards (i.e., no new waterfowl habitat would be created). Furthermore, given the 3-mile distance from Mather Airport, the County has determined that the proposed stadium lighting is in compliance with the Mather ALUCP and therefore would not exceed the FAA's Part 77 height restrictions. Furthermore, the Backlight, Uplight, and Glare analysis performed as part of the project's lighting design and engineering determined that the proposed lighting system would provide appropriate shielding of the luminaires and would reduce nighttime glare and sky glare to very low levels such that it would meet the International Dark-Sky Association criteria (M. Neils Engineering, Inc. 2023). Therefore, the proposed stadium lighting would not result in hazardous glare for aircraft pilots en route to Mather Airport. For the reasons described above, the proposed project would not result in a safety hazard for aircraft or for people residing or working in the project area, and this impact is considered **less than significant**. (Noise hazards are analyzed in DEIR Chapter 4.4, "Noise and Vibration.")

5. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.

CONSTRUCTION

The project site is developed with the existing Jesuit High School stadium and outdoor baseball fields, along with a turf discus field south of the stadium where construction equipment and materials would be staged. The construction site is accessible by emergency vehicles from the south via American River Drive. The limited amount of project construction would result in only minor increases in short-term, temporary, construction-related traffic on local roadways (see Section 4.5, "Transportation"), which would not impair emergency access vehicles or emergency evacuation routes. The existing parent drop off, bus loading areas, and the main school parking areas are located north of the project site near Fair Oaks Boulevard, and would not be affected by project-related construction. All construction materials and equipment would be staged and stored on the project site in the discus field south of the stadium. No construction-related roadway lane closures or detours on surrounding roadways would be necessary. Therefore, project-related construction activities would not substantially impair or physically interfere with an adopted emergency response plan or emergency evacuation plan, and there would be **no impact**.

OPERATION

The project site is in the Carmichael/Old Foothill Farms community of unincorporated Sacramento County. Emergency evacuations would be coordinated by Sacramento County officials through the County Office of Emergency Services (OES). The following information is excerpted from the *Sacramento County Evacuation Plan* (Sacramento County OES 2018). The decision to evacuate, if necessary, would be made based on the information gathered, and communities would be evacuated as the need arises, on a case-by-case basis. The decision to evacuate would depend entirely upon the nature, scope, and severity of the emergency; the number of people affected; and what actions would be necessary to protect the public. Evacuation operations in the field would be managed and conducted by the law enforcement agency with jurisdiction. Key functions supporting the law enforcement efforts include the Sheriff's Department, County Department of Transportation (DOT), Regional Transit, public and private transportation providers, fire departments, County Department of Human Assistance (DHA), County Department of Health and Human Services (DHHS), Animal Care and Regulation, and other services and departments throughout the county (Sacramento County OES 2018).

The Sacramento County OES, in partnership with Yolo and Placer County emergency agencies, cooperatively manage a state-of-the-art emergency alert system known as *Sacramento Alert*. Sacramento Alert is a web-based application that enables authorized County, City, and Special District public safety officials to disseminate public safety information rapidly and efficiently to the residents of Sacramento, including the project area. Sacramento Alert utilizes "reverse 911" data and technology as well as contact information provided by citizens through a Citizen Opt-In portal (Sacramento County OES 2023).

The primary mode of transportation that would be used during an evacuation would be the evacuees' private transportation resources. Law enforcement would be the primary agency for managing the movement of people during an evacuation, along with the Sacramento County DOT and other departments or agencies in supporting roles such as the Sacramento County Medical Health Operational Area Coordinator for medical transport resources. Primary evacuation routes in Sacramento County consist of the major interstates, highways, and prime arterial roadways. Traffic conditions are **and would continue to be** monitored along evacuation routes, and operational adjustments would be made by County officials as necessary during an evacuation to maximize throughput. During an evacuation, County DOT traffic engineers, along with California Department of Transportation (Caltrans), would be able to quickly calculate traffic flow capacity and decide which of the available traffic routes should be used to move people in the correct directions and to adjust evacuation routes based on real-time conditions. Additionally, known traffic conditions may be communicated to Internet applications such as WAZE and Google Crisis Maps to better inform the public in real time regarding available traffic conditions. In the immediate project vicinity, the public would use American River Drive (a collector roadway) and Fair Oaks Boulevard (an arterial roadway), for east-west movement. These streets connect with Watt Avenue, which provides access to U.S. 50 to the south. Alternatively, American River Drive and Fair Oaks Boulevard also provide access to a full grid of other north-south and east-west collector and arterial roadways that also serve as evacuation routes, depending on the location of the emergency (Sacramento County OES 2018).

In the event of a high-level emergency (such as the imminent threat of a flood from a levee breach along the American River), school officials would cancel classes and afternoon and nighttime sports practice and events. This would allow students to stay home with their families, and be prepared for or implement evacuation. In the unlikely event that an evacuation from unforeseen circumstances were to be necessary during an in-process nighttime sporting event at the stadium, the Sacramento County Sheriff's Office North Central District and school officials would coordinate evacuation from the Jesuit High School parking lot onto Fair Oaks Boulevard, in combination with evacuation of any other necessary areas. Fair Oaks Boulevard is a four-lane divided highway that provides east-west access onto a grid of many other north-south and east-west roadways. Traffic from any necessary evacuation would be dispersed throughout this grid network as shown in the *Sacramento County Evacuation Plan* (Sacramento County OES 2018). Therefore, if an evacuation were necessary during a nighttime sporting event at the Jesuit High School stadium, such traffic would not substantially impair implementation of an emergency evacuation plan such that evacuation could not occur, and this impact would be **less than significant**.

6. Expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires.

The project site is located in an urbanized area of Sacramento County (Carmichael), and is not situated within or near a State Responsibility Area or a very high fire hazard severity zone. Jesuit High School and the surrounding area are within a Local Responsibility Area, and are not designated as very high or moderate fire hazard

severity zones. There are no very high or moderate fire hazard severity zones delineated within the urbanized area of Sacramento, including the project site (CAL FIRE 2022). The project site consists of the Jesuit High School outdoor stadium and parking lots, concession building and sports equipment storage buildings, with turf grass ballfields and a few urban shade trees around the perimeter. The project site is surrounded by single family residential development to the east, west, and south, and the school campus classroom and administration buildings to the north. Jesuit High School is currently served by the Sacramento Metropolitan Fire District, and those services would continue in the future. Installation and operation of the proposed stadium lighting and minor upgrades to the existing bleachers at the existing developed project site would not exacerbate wildland fire risks. Thus, there would be **no impact**. (See the "Wildfire" section below for additional analyses related to wildland fire hazards, which were determined to result in no impact.)

HYDROLOGY AND WATER QUALITY

1. Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality.

The project would not result in operational impacts as it relates to water quality. The potential impacts associated with the project would occur during the construction phase. Therefore, the impact analysis focuses on the potential for impacts during construction.

The County has established a Stormwater Ordinance (Sacramento County Code 15.12). The Stormwater Ordinance prohibits the discharge of unauthorized non-stormwater to the County's stormwater conveyance system and local creeks. It applies to all private and public projects in the County, regardless of size or land use type. Upon completion of construction, the project would not result in operational impacts that would impair surface or groundwater quality. Potential impacts associated with degradation of surface or groundwater quality would be a result of construction activities, which is the focus of the analysis below.

The project would be subject to water quality control provisions to minimize the potential for introduction of pollutants, including fuels, oils, and other materials used on-site that, if not properly handled, could be introduced to soils or stormwater. The project is required under existing laws to implement a spill prevention control and countermeasure plan (SPCC Plan) that would provide for fuels storage and containment, refueling procedures, vehicle maintenance, and emergency cleanup procedures in the event of an accidental spill. The project is also required to prepare and implement a construction and industrial stormwater pollution prevention plan (SWPPP), for ground disturbing activities on-site. The SWPPP would identify potential sources of sediment and other pollutants that could affect the quality of stormwater discharges from disturbed areas and would identify site-specific measures (known as best management practices [BMPs]) that would eliminate or minimize sediment and other pollutants in stormwater discharges from disturbed areas. Incorporation of these water quality protection measures would minimize the potential for water quality impacts to sensitive habitats.

Compliance with the County's Stormwater Ordinance, and preparation and implementation of the required site-specific SWPPP which requires that the project minimize potential effects on surface stormwater flows to aquatic features in and outside the development would ensure impacts are ***less than significant***.

2. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would result in substantial erosion or siltation on or off site.

Construction on undeveloped land exposes bare soil, which can be mobilized by rain or wind and displaced into waterways or become an air pollutant. Construction equipment can also track mud and dirt onto roadways, where rains will wash the sediment into storm drains and thence into surface waters. The project will require the excavation of four (4) 16-foot deep holes for the pre-cast base of the stadium lights, and therefore, impacts associated with erosion and grading would be limited to construction activities. Upon completion of construction, the project would not induce further erosion, grading, or runoff of materials or pollutants in an operational setting.

In addition to complying with the County's ordinances and requirements, construction sites disturbing one or more acres are required to comply with the State's General Stormwater Permit for Construction Activities. The Construction General Permit is issued by the State Water Resources Control Board (http://www.waterboards.ca.gov/water_issues/programs/stormwater/construction.shtml) and enforced by the Regional Water Board. Coverage is obtained by submitting a Notice of Intent (NOI) to the State Water Board prior to construction. The General Permit requires preparation and implementation of a site-specific Stormwater Pollution Prevention Plan (SWPPP) that must be kept on-site at all times during construction for review. The project must include an effective combination of erosion, sediment and other pollution control BMPs in compliance with the County ordinances and the State's CGP.

Erosion controls should always be the *first line of defense*, to keep soil from being mobilized in wind and water. Examples include stabilized construction entrances, tackified mulch, 3-step hydroseeding, spray-on soil stabilizers and anchored blankets. Sediment controls are the *second line of defense*; they help to filter sediment out of runoff before it reaches the storm drains and local waterways. Examples include rock bags to protect storm drain inlets, staked or weighted straw wattles/fiber rolls, and silt fences.

In addition to erosion and sediment controls, the project must have BMPs in place to keep other construction-related wastes and pollutants out of the storm drains. Such practices include, but are not limited to: filtering water from dewatering operations, providing proper washout areas for concrete trucks and stucco/paint contractors, containing wastes, managing portable toilets properly, and dry sweeping instead of washing down dirty pavement.

It is the responsibility of the project proponent to verify that the proposed BMPs for the project are appropriate for the unique site conditions, including topography, soil type and anticipated volumes of water entering and leaving the site during the construction phase. In particular, the project proponent should check for the presence of colloidal clay soils on the site. Experience has shown that these soils do not settle out with conventional sedimentation and filtration BMPs. The project proponent may wish to conduct settling column tests in addition to other soils testing on the site, to ascertain whether conventional BMPs will work for the project.

Project compliance with the requirements outlined above, as administered by the County and the Regional Water Board will ensure that project-related erosion and pollution impacts are ***less than significant***.

- 3. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would result in: substantially increase the rate or amount of surface runoff in a manner which would result in flooding on or off-site.**

The project would not result in operational impacts as it relates to existing drainage patterns. The project will not result in any above ground facilities that would increase impervious surfaces or alter the course of flood waters. The potential impacts associated with the project would occur during the construction phase. Project impacts to alter the existing drainage pattern of the site or area to increase surface runoff are ***less than significant***.

- 4. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would result in: create or contribute runoff water which would exceed the capacity of existing or planned stormwater systems or provide substantial additional sources of polluted runoff.**

The project would not result in operational impacts as it relates to existing drainage patterns. The project will not result in any above ground facilities that would increase impervious surfaces or alter the course of a stream or river. The potential impacts associated with the project would occur during the construction phase. Project impacts to alter the existing drainage pattern of the site or area to exceed capacity of existing stormwater systems or provide additional sources of polluted runoff are ***less than significant***.

- 5. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or**

through the addition of impervious surfaces, in a manner which would result in: impede or redirect flood flows.

The project site is located within flood hazard area Zone X (500-year flood and Protected by Levee) as shown on the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (Panel No. 06067C0205H 8/16/12) (see Plate HY-1). This designation includes “areas determined to be outside the 500-year floodplain,” which indicates there is a less than 0.2 percent chance of a flood event occurring on the site for any given year and is an area protected from flooding by a levee. The project site is also located within the 200-year ULOP Applicability Area (Levee Protected) and the local flood hazard zone. A comment letter from County DWR dated April 11, 2022 also indicated that the project site is located in an area designated as Zone X, which has been determined to be outside the 500-year flood and protected by levee from 100-year flood events.

The project does not propose any new structures as defined in the Floodplain Ordinance, so there is not a substantial risk of loss of structures in a flood event. Additionally, the project will be required to comply with the Floodplain Management Ordinance because the site is located within a local flood zone. Therefore, impacts are **less than significant**.

MINERAL RESOURCES

Based on Appendix G of the CEQA Guidelines, an impact related to mineral resources is considered significant if the proposed project would do any of the following.

- 1. Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state.**

Active aggregate mineral resource production in Sacramento County is located along ancestral channels of the American River south of U.S. 50, and the Cosumnes River near Rancho Murieta. Kaolin clay deposits are present in the Sierra Nevada foothills. The project site is located in the urbanized Carmichael area, which is classified by the California Geological Survey as MRZ-1: areas where no significant minerals are present (O'Neal and Gius 2018). Thus, there would be **no impact**.

- 2. Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan.**

The Sacramento County General Plan (Sacramento County 2017) indicates that the only locally important mineral resource recovery sites in the county are those designated by the California Geological Survey as MRZ-2. In the project region, these MRZ-2 areas for aggregate minerals are located along the active and ancestral channels of the American and Cosumnes Rivers, south of U.S. 50 and near Rancho Murieta, respectively. MRZ-2 areas for kaolin clay are located in the Sierra Nevada foothills. As described in a) above, there are no mineral resources at the project site or

in the immediate project vicinity, which consists of a school and single-family residential development. Thus, there would be **no impact**.

POPULATION AND HOUSING

Based on Appendix G of the CEQA Guidelines, an impact related to population and housing is considered significant if the proposed project would do any of the following.

- 1. Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?**

The proposed project is installation and operation of lighting and an existing high school stadium. It does not include development or infrastructure and would directly or indirectly induce population growth. Therefore, **no impact** would occur.

- 2. Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?**

The proposed project would not involve activities that would displace people or structures, requiring construction of replacement housing elsewhere. Therefore, there would be **no impact**.

PUBLIC SERVICES AND UTILITIES AND SERVICE SYSTEMS

The project would result in **less than significant** impacts associated with public utilities and public services. Existing infrastructure has the capacity to serve the project and temporary construction activities would not interfere with any existing public utility providers or public services providers and their associated facilities.

RECREATION

Based on Appendix G of the CEQA Guidelines, an impact related to recreation is considered significant if the proposed project would do any of the following.

- 1. Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated.**

The proposed project would install permanent lights at the existing Jesuit Stadium. This modification would allow football games to shift from Saturday afternoons to Friday nights, which would likely increase attendance at the football games. Because this increased attendance would be at Jesuit Stadium, it would not increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of these facilities would occur or be accelerated. Therefore, this impact would be **less-than-significant**.

1. Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment.

The proposed project does not include new recreational facilities but would install permanent lights at the existing Jesuit High School Stadium. The proposed installation would not change the capacity of the stadium. This modification would allow football games to shift from Saturday afternoons to Friday nights, which would likely increase attendance at the games, as detailed elsewhere in this EIR. However, the existing stadium has adequate capacity to accommodate this potential increase. Therefore, the project would not include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment, and the impact would be **less than significant**.

TRIBAL CULTURAL RESOURCES

1. Would the project cause a substantial adverse change in the significance of a tribal cultural resource?

The California Native American Heritage Commission (NAHC) Sacred Lands File (SLF) records search response on December 9, 2022 indicated positive results. The NCIC records search results indicated zero (0) recorded indigenous-period/ethnographic-period resource(s) within the proposed project area and within the 0.25-mile radius of the project search area.

Conducting consultation early in the CEQA process allows tribal governments, public lead agencies, and project proponents to discuss the level of environmental review, identify and address potential adverse impacts to TCRs, and reduce the potential for delay and conflict in the environmental review process. The intent of the consultations is to provide an opportunity for interested Native American contacts to work together with the County during the project planning process to identify and protect TCRs.

Pursuant to the AB 52 consultation requirement, formal AB 52 notification letters were sent on November 3, 2022 to Native American tribal contacts who previously requested to be notified of Sacramento County projects within their traditionally and culturally affiliated area. One response was received during the 30-day AB-52 review period. This area contains a high probability of subsurface resources due to its proximity near the American River. UAIC responded that with the implementation of standard unanticipated discoveries mitigation, they did not have further questions or concerns.

Because specific locations of potential resources are unknown, mitigation focuses on preventative measures that reduce the probability of impacting the integrity of a resource, as well as plans and processes for properly handling unanticipated discoveries. In the case that an object resembling a tribal or cultural resource is uncovered, construction can halt while the resource is investigated and a conclusion reached for appropriate next steps.

The implementation of MM-CR-1 and MM-CR-2 would generally reduce the potential impacts to any unknown cultural sites or buried human remains that could be determined to be TCRs. In addition, mitigation measures are recommended below to specifically address the potential for the project to encounter tribal cultural resources. Mitigation has been included to address the sensitivity of the project site with regards to tribal resources. Impacts to tribal resources would be ***less than significant with mitigation.***

The following mitigation would be incorporated to avoid and minimize impacts to tribal cultural resources:

Implement Mitigation Measures CR-1 and CR-2

Mitigation Measure TCR-1: Inadvertent Discovery of Tribal Cultural Resources (TCRs)

1. If subsurface deposits believed to be cultural or human in origin are discovered during ground disturbance, site preparation, or construction activities, then all work must halt within a 100-foot radius of the discovery. A qualified professional archeologist, meeting the Secretary of the Interior's Professional Qualification Standards for prehistoric and historic archaeology, shall be retained at the Applicant's expense to evaluate the significance of the find. If it is determined due to the types of deposits discovered that a Native American monitor is required, the Guidelines for Monitors/Consultants of Native American Cultural, Religious, and Burial Sites as established by the Native American Heritage Commission shall be followed, and the monitor shall be retained at the Applicant's expense.
2. Work shall not continue within the 100-foot radius of the discovery site until the archaeologist conducts sufficient research and data collection to make a determination that the resource is either 1) not cultural in origin; or 2) not potentially eligible for listing on the National Register of Historic Places or California Register of Historical Resources.
 - a) If a potentially-eligible resource is encountered, then the archeologist, and the project proponent shall coordinate with the Sacramento County Planning and Environmental Review (PER), and arrange for either 1) total avoidance of the resource, if possible; or 2) test excavations or total data recovery as mitigation. The determination shall be formally documented in writing and submitted to PER as verification that the provisions of CEQA for managing unanticipated discoveries have been met.
 - b) Section 5097.98 of the State Public Resources Code and Section 7050.5 of the State Health and Safety Code, in the event of the discovery of human remains, all work must stop and the County Coroner shall be immediately notified. If the remains are determined to be Native American, guidelines of the Native American Heritage Commission shall be adhered to in the treatment and disposition of the remains.

WILDFIRE

Based on Appendix G of the CEQA Guidelines, an impact related to wildfire is considered significant if the proposed project is located in or near state responsibility areas or lands classified as very high fire hazard severity zones, and the project would do any of the following.

1. Substantially impair an adopted emergency response plan or emergency evacuation plan.

Jesuit High School is located in the urbanized area of Carmichael, and is not situated within or near a State Responsibility Area (SRA) or a very high fire hazard severity zone. The nearest SRA is east of Rancho Cordova, approximately nine miles east of the project site. Jesuit High School and the surrounding area are within a Local Responsibility Area, and are not designated as very high or moderate fire hazard severity zones. There are no very high or moderate fire hazard severity zones delineated within the urbanized area of Sacramento, including the project site (CAL FIRE 2022). The project site consists of the Jesuit High School outdoor stadium and parking lots, concession building and sports equipment storage buildings, with turf grass ballfields and a few urban shade trees around the perimeter. The project site is surrounded by single family residential development to the east, west, and south, and the school campus classroom and administration buildings to the north. The existing Jesuit High School is currently served by the Sacramento Metropolitan Fire District, and those services would continue in the future. Installation and operation of the proposed stadium lighting and minor upgrades to the existing bleachers at the existing developed project site would not exacerbate wildland fire risks. Thus, there would be **no impact**.

2. Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire.

The project site is not located within or near an SRA or a very high fire hazard severity zone (CAL FIRE 2022). The project site is within the urbanized area of Carmichael, consists of an existing school on flat topography, and is served by the Sacramento Metropolitan Fire District. Installation and operation of the proposed stadium lighting and minor upgrades to the existing bleachers at the existing developed project site would not exacerbate wildland fire risks and would not exacerbate the exposure of project occupants to pollutant concentrations from a wildfire or uncontrolled spread of a wildfire. Thus, there would be **no impact**.

3. Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment.

The project site is not located within or near an SRA or a very high fire hazard severity zone (CAL FIRE 2022). The project site is within the urbanized area of Carmichael, consists of an existing school on flat topography, and is served by the Sacramento

Metropolitan Fire District. Installation and operation of the proposed stadium lighting and minor upgrades to the existing bleachers at the existing developed project site does not require the installation or maintenance of associated infrastructure that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment related to fire risk. Thus, there would be **no impact**.

4. Expose people or structures to significant risks, including downslope or downstream flooding or landslides as a result of runoff, post-fire slope instability, or drainage changes.

The project site is not located within or near an SRA or a very high fire hazard severity zone (CAL FIRE 2022). The project site is within the urbanized area of Carmichael, consists of an existing school on flat topography, and is served by the Sacramento Metropolitan Fire District. Installation and operation of the proposed stadium lighting and minor upgrades to the existing bleachers at the existing developed project site would not create post-wildfire risks such as downslope or downstream flooding or landslides as a result of runoff, post-fire slope instability, or drainage changes. Thus, there would be **no impact**.

CUMULATIVE IMPACTS

The CEQA Guidelines section 15355 defines a cumulative impact as “two or more individual effects which, when considered together, are considerable”. An individual effect need not itself be significant to result in significant cumulative effects; the impact is the result of the incremental effects of the project combined with the effects of “other closely related past, present, and reasonably foreseeable probable future projects.” CEQA does not define “closely related”, but the Code of Federal Regulations (40 CFR 1508.25) indicates that a “closely related” project is one which is automatically triggered by the project; one which cannot proceed without the project first proceeding (mutual dependency); one which requires the project for justification or is an interdependent part of the same action; or one which is a similar action with “closely related” timing, geography, and other features.

The requirements for a cumulative analysis are described in CEQA Guidelines Section 15130. A cumulative analysis “need not provide as great detail as is provided for the effects attributable to the project alone.” The analysis should focus on analyzing the effects of the project to which other projects contribute, to the extent practical and reasonable. These other projects may be identified either through the provision of a list of cumulative projects, or via a summary of projections contained in an adopted General Plan or an adopted EIR. This EIR uses the list method, with one project identified as having the potential to contribute to cumulative impacts:

- Arden Hills, PLNP2021-00286. 1220 Arden Hills Lane, Carmichael. A Rezone and Community Plan Amendment to change the zoning designation from RD-2 to RD-4 for an 8.8 acre lot, a Tentative Subdivision Map to divide the lot into 33 single-family lots.

LAND USE

The project will occur on the Jesuit High School campus that is surrounded by existing development and associated existing roadways and infrastructure. The project site is a private high school campus property and will remain in its existing condition. The project will not result in singular impacts associated with division of an established community and would have no cumulative impact. Additionally, the project is consistent with all applicable land use plans and policies and would not result in cumulative impacts as it relates to land use plan consistency. Cumulative land use impacts are **less than significant**.

AESTHETICS

The geographic scope of cumulative impacts on visual quality includes the viewsheds that would be affected by the project, consisting of views from public areas such as major roadways. The project site is surrounded by urban development. The area is flat, and there are no designated scenic vistas or scenic State or County scenic highways in the vicinity. The only project identified within the viewshed of the project is the Arden Hills Wellness Resort, where residential development is proposed. This development would be approximately 1,500 feet northwest of the stadium. As this proposed Arden Hills project would be single-family residential, it is anticipated that it would blend into the surrounding urban development and not create a viewshed or visual character impact. Therefore, the cumulative impact is less than significant with respect to visual character or the quality of public views.

Regarding light and glare, because the Arden Hills project proposes single-family residential development, the aesthetic changes associated with this project would be similar to the existing surrounding development. Similarly, due to the developed and urban nature of the community and surrounding areas, the addition of new light sources to the community would not significantly increase lighting of the area. Therefore, the cumulative light and glare impact would be less than significant.

AIR QUALITY

The geographic scope of cumulative air quality impacts is the Sacramento Valley Air Basin, which is in nonattainment with respect to ozone, PM10, and PM2.5. Therefore, a cumulative air quality impact already exists because of this. Additional emissions of ozone precursors NOx or ROG, or PM10 or PM2.5, over threshold amounts would further degrade air quality related to ozone. Therefore, the cumulative impact is significant.

Construction activities associated with the proposed project would result in emissions of criteria air pollutants and ozone precursors, including ROG, NOX, PM10, and PM2.5, the pollutants for which the project region is designated as nonattainment under either the NAAQS or CAAQS. As discussed in Impact AQ-2 and shown in Table AQ-4, emissions generated during construction would not exceed the SMAQMD thresholds of significance. However, due to the nonattainment status of the SVAB with respect to ozone, PM10, and PM2.5, SMAQMD recommends that all construction projects implement the SMAQMD Basic Construction Emission Control Practices (SMAQMD

2020b). Therefore, this impact would be potentially significant. However, with implementation of Mitigation Measure AQ-1: SMAQMD Basic Construction Control Practices, the impact would be reduced to less than significant. Therefore, the proposed project's contribution to a significant cumulative air quality impact would be **less than cumulatively considerable**, and the impact would be **less than significant**.

BIOLOGICAL RESOURCES

As discussed in the biological resources section above, the historic ranges of special-status and non special-status raptors have been continuously decreasing over the last century as previously undisturbed areas continue to be developed. As such, some raptors have been observed adapting to these changes in landscape by colonizing in urban and suburban areas. Nevertheless, because of past development, the cumulative impact on habitat for of special-status and non special-status raptors is significant.

The proposed project does not include any tree removal and would not have any direct impacts to nesting birds through habitat removal. Construction of the stadium lights would occur within 250 feet of available nesting habitat for these species protected by the MBTA. While unlikely, these mature trees could also provide nesting habitat for raptors that are adapting to more urban environments, such as Cooper's hawk. If construction occurs within the nesting bird season (February 1 to September 15), construction noise and vibration could disturb these birds, resulting in birds abandoning their nests thereby causing loss of fertile eggs or nestlings. However, implementation of mitigation requiring nesting bird surveys if construction occurs during the nesting season would reduce the potential impact to a less-than-significant level. Therefore, the proposed project's contribution to a significant cumulative biological resources impact would **less than cumulatively considerable**, and this impact would be **less than significant**.

GREENHOUSE GAS EMISSIONS

GHG emissions effects are not localized to areas where they are produced. Climate change is a global phenomenon resulting from the combined effects of GHG emissions produced worldwide. Consequently, the analysis of climate change impacts from production of GHGs as included in Chapter 7, Greenhouse Gas, is inherently cumulative in nature. While the true geographic scope of the area affected by GHG emissions is global, for purposes of this EIR, the geographic scope is considered to be the State of California. This scope is selected because California's legislative and regulatory climate change framework is designed to reduce GHG emissions whose management is directly or indirectly within the control of the state. The CEQA process is considered to be the appropriate mechanism for assessing the impacts of GHG emissions from land development projects in light of the state's comprehensive climate change mitigation strategy. The cumulative impacts of global warming are significant given projections of a range of adverse social, economic, and environmental effects resulting therefrom. This is also true for the climate change setting within the state.

As shown in Table GHG-1, the proposed project's construction-related and operational emissions would each be well below the SMAQMD threshold of 1,100 MT CO_{2e} per

year. Therefore, the proposed project's generation of GHG emissions would result in a **less than cumulatively considerable** contribution to the significant impact of climate change, and this impact would be **less than significant**.

NOISE AND VIBRATION

CONSTRUCTION

The construction schedule for the proposed Arden Hills Wellness Resort project is unknown. Additionally, due to the distance of this project (1,500 feet from the stadium), even its construction schedule coincided with the proposed project's construction schedule, it is unlikely that the cumulative construction or any possible cumulative groundborne vibration, would be noticeable. Therefore, temporary construction noise and groundborne vibration will not be discussed further.

OPERATIONS

The geographic scope for long-term noise would be the immediate vicinity of the project site. As discussed in Noise and Vibration (Chapter 9), some monitored locations in the vicinity of the stadium already exceed County Noise Ordinance standards due to ambient noise generated by traffic on American River Drive. Therefore, there is a significant cumulative long-term noise impact resulting from past and present development.

As discussed in Impact NOI-1, shifting football games into the evening hours is predicted to result in increases in ambient noise levels that would exceed the 3 dBA threshold at five of the six sites. Additionally, the County median and maximum noise standards were found to have been exceeded at multiple sites during the October 8, 2022 football games. Additionally, the Environmental Noise Assessment determined that playoff football games could result in even greater noise levels, due to larger crowd sizes. Playoff game noise generation was estimated to be 1 to 2 dBA higher than with regular season games, which would further increase ambient noise levels, causing greater exceedances of County noise standards. Mitigation Measures NOI-1 would reduce this impact, but not to a less-than-significant level. Therefore, the proposed project's contribution to a significant cumulative impact would be **cumulatively considerable**, and this impact would be **significant and unavoidable**.

TRANSPORTATION

Although the state has enacted laws aimed at encouraging transit-oriented and infill land use planning and development, Californians continue to drive more, and mostly drive alone, which is creating challenges for the state in meeting 2030 and 2045 GHG emissions reduction mandates (CARB 2022). Therefore, the cumulative VMT impact is significant. As discussed in ~~Section 4.5~~ **Chapter 10**, Transportation, the proposed project would increase vehicle trips by 108 compared to existing conditions. Per the County's guidelines and OPR recommendations, projects that generate or attract fewer than 237 or 110 trips per day, respectively, may be assumed to cause a less-than-significant transportation impact. The proposed d new activities, new employment, new housing, or other features that would **not** interact with other project or land use changes

to produce additional VMT beyond that reported in ~~Section 4.5~~ **Chapter 10** of this EIR, "Transportation." Therefore, the project's VMT impact would be ***less than cumulatively considerable***, and this impact would be ***less than significant***.

The proposed Arden Hills Wellness Resort project is located approximately 1,500 feet northwest of the stadium. This project, as with all projects proposed within Sacramento County, must implement the County's design and public works improvement standards, which are designed to avoid traffic hazards created by unusual geometries, limitations on sight distance, or other factors. Therefore, there are no cumulative projects proposed within the vicinity with which project construction traffic would combine to exacerbate cumulative traffic safety hazards.

PUBLIC SERVICES AND UTILITIES AND SERVICE SYSTEMS

To the extent the Arden Hills Wellness Resort project would require additional public services and utilities than currently exist, it would be required by the County to provide funding for such improvements. Impacts of any such improvements would be evaluated and mitigation during CEQA review of the project. Therefore, the cumulative impact is ***less than significant*** with respect to public services and utilities.

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13 GLOSSARY OF ACRONYMS / ABBREVIATIONS

°F	degrees Fahrenheit
2017 Ozone Attainment and Progress Plan	<i>2017 Revisions to the Sacramento Regional 8-Hour Ozone Attainment and Reasonable Further Progress Plan</i>
2018 SIP Updates	<i>2018 Updates to the California State Implementation Plan</i>
AB	Assembly Bill
Action Plan	Carmichael Community Action Plan
ADA	Americans with Disabilities Act
ADT	average daily traffic
amsl	above mean sea level
APN	Assessor's Parcel Number
ARB	California Air Resources Board
BenMAP	Benefits Mapping and Analysis Program
BMPs	best management practices
BUG	Backlight, Uplight, and Glare
CAA	federal Clean Air Act
CAAQS	California Ambient Air Quality Standard
CalEEMod	California Emissions Estimator Model
CALGreen	California Green Building Standards
Caltrans	California Department of Transportation
CAP	Climate Action Plan
CCAA	California Clean Air Act
CCR	California Code of Regulations
CEQA	California Environmental Quality Act
CH ₄	Methane
CHABA	Committee of Hearing, Bio Acoustics, and Bio Mechanics
CO	carbon monoxide
CO ₂	Carbon Dioxide
CO _{2e}	carbon dioxide equivalent
Community Plan	Carmichael Community Plan
County	County of Sacramento
dB	decibels
dBA	A-weighted decibels
dBA/DD	A-weighted decibels per doubling of distance
Design Guidelines	<i>Sacramento County Countywide Design Guidelines</i>

DPM	diesel particular matter
DRAC	Design Review Advisory Committee
EIR	Environmental Impact Report
EO	Executive Orders
EPA	U.S. Environmental Protection Agency
EV	electric vehicle
fc	foot candles
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
General Plan	Sacramento County General Plan
GHG	greenhouse gas
GWP	Global Warming Potential
High GWP	High Global Warming Potential
IDA	International Dark-Sky Association
IES	Illuminating Engineering Society of North America
in/sec	inches per second
IPCC	Intergovernmental Panel on Climate Change
JHS	Jesuit High School
JV	junior varsity
KOPs	key observation points
kW	kilowatt
kWh	kilowatt hours
lbs/day	pounds per day
LDR	Low Density Residential
LED	light emitting diode
LOS	level of service
LTA	Local Transportation Analysis
MLO	Model Lighting Ordinance
MMRP	Mitigation Monitoring and Reporting Plan
mph	miles per hour
MT CO _{2e}	metric tons of carbon dioxide equivalent
N ₂ O	Nitrous Oxide
NAAQS	national ambient air quality standards
NO ₂	nitrogen dioxide
NOA	naturally occurring asbestos
NOAA	National Oceanic and Atmospheric Administration

NOC	Notice of Completion
NOE	Notice of Exemption
NOP	Notice of Preparation
NO _x	nitrogen oxides
NPA	Neighborhood Preservation Area
OPR	Governor's Office of Planning and Research
PA	public announcement
Parkway	American River Parkway
Pb	Lead
PC	Parkway Corridor
PER	Planning and Environmental Review
PGM	photochemical grid model
PM	particulate matter
PM ₁₀	PM equal to or less than 10 micrometers in diameter
PM _{2.5}	PM equal to or less than 2.5 micrometers in diameter
PPV	peak particle velocity
PRC	California Public Resources Code
project	Jesuit High School Stadium Lights Project
proposed project	Jesuit High School Stadium Lighting project
RCNM	Roadway Construction Noise Model
RD-2	Residential Density 2 and Neighborhood Preservation Area
RD-3	Residential Density 3
RD-4	Residential Density 4
RMS	root mean square
ROG	reactive organic gases
RPS	Renewables Portfolio Standard
SARA	Save the American River Association
SB	Senate Bill
SENL	Single-Event [Impulsive] Noise Level
SHS	State Highway System
SIPs	State Implementation Plans
SMAQMD	Sacramento Metropolitan Air Quality Management District
SMAQMD's Instructions	Sacramento Metropolitan Air Quality Management District's <i>Instructions for Sac Metro Air District Minor Project and Strategic Area Project Health Effects Screening Tools</i>

SO ₂	sulfur dioxide
SO _x	sulfur oxides
State SIP Strategy	<i>State Strategy for the State Implementation Plan</i>
SVAB	Sacramento Valley Air Basin
TACs	toxic air contaminants
TOS	threshold of significance
UPA	Urban Policy Area
USB	Urban Services Boundary
USFS	U.S. Forest Service
VdB	vibration decibels
VMT	vehicle miles travelled
zoned O	Open Space and Parkway Corridor
Zoning Code	Sacramento County Zoning Code
µin/sec	microinch per second

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