April 2023 | Draft Environmental Impact Report

EL DORADO HIGH SCHOOL FIELD LIGHTING PROJECT

for Placentia Yorba Linda Unified School District

Prepared for:

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PLACEWORKS

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ABBREVIATIONS AND ACRONYMS

AAQS	ambient air quality standards
AB	Assembly Bill
ACM	asbestos-containing materials
ADT	average daily traffic
amsl	above mean sea level
AQMP	air quality management plan
AST	aboveground storage tank
BAU	business as usual
bgs	below ground surface
BMP	best management practices
CAA	Clean Air Act
CAFE	corporate average fuel economy
CalARP	California Accidental Release Prevention Program
CalEMA	California Emergency Management Agency
Cal/EPA	California Environmental Protection Agency
CAL FIRE	California Department of Forestry and Fire Protection
CALGreen	California Green Building Standards Code
Cal/OSHA	California Occupational Safety and Health Administration
CalRecycle	California Department of Resources, Recycling, and Recovery
Caltrans	California Department of Transportation
CARB	California Air Resources Board
CBC	California Building Code
CCAA	California Clean Air Act
CCR	California Code of Regulations
CDE	California Department of Education
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
cfs	cubic feet per second
CGS	California Geologic Survey
CMP	congestion management program

Abbreviations and Acronyms

CNDDB	California Natural Diversity Database
CNEL	community noise equivalent level
CO	carbon monoxide
CO_2e	carbon dioxide equivalent
Corps	US Army Corps of Engineers
CSO	combined sewer overflows
CUPA	Certified Unified Program Agency
CWA	Clean Water Act
dB	decibel
dBA	A-weighted decibel
DPM	diesel particulate matter
DTSC	Department of Toxic Substances Control
EIR	environmental impact report
EPA	United States Environmental Protection Agency
EPCRA	Emergency Planning and Community Right-to-Know Act
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
GHG	greenhouse gases
GWP	global warming potential
HCM	Highway Capacity Manual
HQTA	high quality transit area
HVAC	heating, ventilating, and air conditioning system
IPCC	Intergovernmental Panel on Climate Change
L_{dn}	day-night noise level
L_{eq}	equivalent continuous noise level
LBP	lead-based paint
LCFS	low-carbon fuel standard
LOS	level of service
LST	localized significance thresholds
M_W	moment magnitude
MCL	maximum contaminant level
MEP	maximum extent practicable

Abbreviations and Acronyms

mgd	million gallons per day
MMT	million metric tons
MPO	metropolitan planning organization
MT	metric ton
MWD	Metropolitan Water District of Southern California
NAHC	Native American Heritage Commission
NO_X	nitrogen oxides
NPDES	National Pollution Discharge Elimination System
O_3	ozone
OES	California Office of Emergency Services
PM	particulate matter
POTW	publicly owned treatment works
ppm	parts per million
PPV	peak particle velocity
RCRA	Resource Conservation and Recovery Act
REC	recognized environmental condition
RMP	risk management plan
RMS	root mean square
RPS	renewable portfolio standard
RWQCB	Regional Water Quality Control Board
SB	Senate Bill
SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
SIP	state implementation plan
SLM	sound level meter
SoCAB	South Coast Air Basin
SO_X	sulfur oxides
SQMP	stormwater quality management plan
SRA	source receptor area [or state responsibility area]
SUSMP	standard urban stormwater mitigation plan
SWP	State Water Project
SWPPP	Storm Water Pollution Prevention Plan
SWRCB	State Water Resources Control Board

Abbreviations and Acronyms

TAC	toxic air contaminants
TNM	transportation noise model
tpd	tons per day
TRI	toxic release inventory
TTCP	traditional tribal cultural places
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
UST	underground storage tank
UWMP	urban water management plan
V/C	volume-to-capacity ratio
VdB	velocity decibels
VHFHSZ	very high fire hazard severity zone
VMT	vehicle miles traveled
VOC	volatile organic compound
WQMP	water quality management plan
WSA	water supply assessment

1. Executive Summary

1.1 INTRODUCTION

This Draft Environmental Impact Report (DEIR) addresses the environmental effects associated with the implementation of the proposed El Dorado High School Sports Field Lighting Project (proposed project). The California Environmental Quality Act (CEQA) requires that local government agencies consider the environmental consequences before taking action on projects over which they have discretionary approval authority. An Environmental Impact Report (EIR) analyzes potential environmental consequences in order to inform the public and support informed decisions by local and state governmental agency decision makers. This document focuses on impacts determined to be potentially significant in the Notice of Preparation (NOP) completed for the proposed project (see Appendix A)

This DEIR has been prepared pursuant to the requirements of CEQA and the Placentia-Yorba Linda Unified School District's (PYLUSD or District) CEQA procedures. The District, as the lead agency, has reviewed and revised all submitted drafts, technical studies, and reports as necessary to reflect its own independent judgment, including reliance on technical personnel and review of technical subconsultant reports.

Data for this DEIR are derived from on-site field observations; discussions with affected agencies; analysis of adopted plans and policies; review of available studies, reports, data, and similar literature; and specialized technical studies (lighting, air quality, energy, greenhouse gas emissions, noise, and transportation).

1.2 ENVIRONMENTAL PROCEDURES

This DEIR has been prepared pursuant to CEQA to assess the environmental effects associated with implementation of the proposed project, as well as anticipated future discretionary actions and approvals. CEQA established six main objectives for an EIR:

1. Disclose to decision makers and the public the significant environmental effects of proposed activities.
2. Identify ways to avoid or reduce environmental damage.
3. Prevent environmental damage by requiring implementation of feasible alternatives or mitigation measures.
4. Disclose to the public reasons for agency approval of projects with significant environmental effects.
5. Foster interagency coordination in the review of projects.
6. Enhance public participation in the planning process.

An EIR is the most comprehensive form of environmental documentation in CEQA and the CEQA Guidelines; it is intended to provide an objective, factually supported analysis and full disclosure of the environmental consequences of a proposed project with the potential to result in significant, adverse environmental impacts.

An EIR is one of various decision-making tools used by a lead agency to consider the merits and disadvantages of a project that is subject to its discretionary authority. Before approving a proposed project, the lead agency must consider the information in the EIR; determine whether the EIR was prepared in accordance with CEQA and the CEQA Guidelines; determine that it reflects the independent judgment of the lead agency; adopt findings concerning the project's significant environmental impacts and alternatives; and adopt a statement of overriding considerations if significant impacts cannot be avoided.

1.2.1 EIR Format

Chapter 1. Executive Summary: Summarizes the background and description of the proposed project, the format of this EIR, project alternatives, any critical issues remaining to be resolved, and the potential environmental impacts and mitigation measures identified for the proposed project.

Chapter 2. Introduction: Describes the purpose of this DEIR, background on the project, overview of the NOP process, the use of incorporation by reference, and Final Environmental Impact Report (FEIR) certification.

Chapter 3. Project Description: A detailed description of the project, including its objectives, its area and location, approvals anticipated to be required as part of the project, necessary environmental clearances, and the intended uses of this DEIR.

Chapter 4. Environmental Setting: A description of the physical environmental conditions in the vicinity of the project as they existed at the time the NOP was published, from local and regional perspectives. These provide the baseline physical conditions from which the lead agency determines the significance of the project's environmental impacts.

Chapter 5. Environmental Analysis: Each environmental topic is analyzed in a separate section that discusses: the thresholds used to determine if a significant impact would occur; the methodology to identify and evaluate the potential impacts of the project; the existing environmental setting; the potential adverse and beneficial effects of the project; the level of impact significance before mitigation; the mitigation measures for the proposed project; the level of significance after mitigation is incorporated; and the potential cumulative impacts of the proposed project and other existing, approved, and proposed development in the area.

Chapter 6. Significant Unavoidable Adverse Impacts: Describes the significant unavoidable adverse impacts of the proposed project, if applicable.

Chapter 7. Alternatives to the Proposed Project: Describes the alternatives and compares their impacts to the impacts of the proposed project. Alternatives include the No Project Alternative and a Restricted Hours Alternative.

Chapter 8. Impacts Found Not to Be Significant: Briefly describes the potential impacts of the project that were determined not to be significant by the Notice of Preparation and were therefore not discussed in detail in this DEIR.

Chapter 9. Significant Irreversible Changes Due to the Proposed Project: Describes the significant irreversible environmental changes associated with the project.

Chapter 10. Growth-Inducing Impacts of the Project: Describes the ways in which the proposed project would cause increases in employment or population that could result in new physical or environmental impacts.

Chapter 11. Organizations and Persons Consulted: Lists the people and organizations that were contacted during the preparation of this DEIR.

Chapter 12. Qualifications of Persons Preparing EIR: Lists the people who prepared this DEIR for the proposed project.

Appendices: The appendices for this document consist of these supporting documents:

- Appendix A: Notice of Preparation (NOP) and Comments
- Appendix B: Musco Light Level Summary
- Appendix C: Air Quality, Greenhouse Gas Emissions, and Energy Data
- Appendix D: Noise and Vibration Data and Calculations

1.2.2 Type and Purpose of This DEIR

This DEIR has been prepared as a "Project EIR," defined by Section 15161 of the CEQA Guidelines (California Code of Regulations, Title 14, Division 6, Chapter 3). This type of EIR examines the environmental impacts of a specific development project and should focus primarily on the changes in the environment that would result from the development project. The EIR shall examine all phases of the project including planning, construction, and operation.

1.3 PROJECT LOCATION

El Dorado High School is located at 1651 Valencia Avenue in the City of Placentia in northern Orange County. The City of Placentia is bounded by the City of Brea to the north, the City of Anaheim to the south, the City of Yorba Linda to the northeast, and the City of Fullerton to the west. Regional access to the City is provided by State Route 57 (SR-57) traversing the City north to south vertically, and State Route 90 (SR-90) traversing the City in a northwest-southeast direction diagonally.

1.4 PROJECT SUMMARY

PYLUSD plans to add permanent lighting to the synthetic track/field at El Dorado HS. The proposed lighting would consist of four pre-cast concrete bases with four galvanized steel poles 80 feet tall, with light emitting diode (LED) luminaires mounted at 16 feet and 80 feet. The El Dorado HS track/field would be used for sporting events and band practice. The proposed maximum field illumination level would be approximately 33 fc.

The installation of the permanent lighting would enable students to use the track/field for El Dorado HS student use and community use, particularly in the winter months. Currently, students are transported to other schools for practice due to a lack of access, especially during the winter months. The El Dorado HS band would remain on the Campus in the fall and use the synthetic field until 10:00 p.m. The El Dorado HS football team would use the field until 10:00 p.m., and the out of season sports would use the field until 9:00 p.m. instead of going off campus. Band practice during the summer (i.e., June and July) would be provided in the evening to avoid conflicts with athletic activities. As with the existing conditions, the newly lit existing synthetic track/field would be available for use by approved community groups after school hours up to 10:00 p.m. when the field is not in use by El Dorado HS students and during weekends, as provided by the District's use policy.

1.5 SUMMARY OF PROJECT ALTERNATIVES

CEQA Guidelines Section 15126.6 requires that an EIR describe a range of reasonable alternatives to a project that could feasibly attain the basic objectives of a project and avoid or lessen the environmental effects of a project. While the District considered various options and recommendations during the scoping process, the final selection of alternatives was based on the CEQA Guidelines Section 15126.6(f), which states that the selection of alternatives shall be limited to ones that would avoid or substantially lessen any of the significant effects of the project.

Based on the criteria listed in Section 7.1.1 of this DEIR, the following two alternatives have been determined to represent a reasonable range of alternatives that have the potential to feasibly attain most of the basic objectives of the project but may avoid or substantially lessen significant effects of the project. These alternatives are analyzed in detail in the following sections.

- No Project Alternative
- Restricted Hours Alternative

1.6 NO PROJECT ALTERNATIVE

CEQA Guidelines Section 15126.6(e) requires that a "No Project" Alternative be evaluated. This analysis must discuss the existing site conditions as well as what would be reasonably expected to occur in the foreseeable future if the project were not approved. Under the No Project Alternative, the proposed improvements at El Dorado High School would not be implemented. The project site on campus would not have permanent lighting, and students would continue to practice at an off-site location during the evening and winter months. Portable lights would continue to be used on the athletic field. This alternative would not meet any of the project objectives.

1.6.1 Restricted Hours Alternative

Under the Restricted Hours Alternative, the proposed El Dorado High School Field Lighting Project would be implemented and would include installing four pre-cast concrete bases with four galvanized steel poles 80 feet tall, with light emitting diode (LED) luminaires mounted at 16 feet and 80 feet. The maximum field illumination level would be approximately 33 fc. Under this Alternative, the difference from the proposed project is that field use would be required to stop at 9:00 p.m. and lights would turn off at 9:00 p.m., instead of 10:00 p.m. This alternative would result in similar impacts as the proposed project related to aesthetics, air quality, greenhouse gas emissions, noise, and transportation. This alternative would meet all of the objectives of the project.

1.7 ISSUES TO BE RESOLVED

Section 15123(b)(3) of the CEQA Guidelines requires that an EIR contain issues to be resolved, including the choice among alternatives and whether or how to mitigate significant impacts. With regard to the proposed project, the major issues to be resolved include decisions by the lead agency as to:

1. Whether this DEIR adequately describes the environmental impacts of the project.
2. Whether the benefits of the project override the environmental impacts that cannot be feasibly avoided or mitigated to a level of insignificance.
3. Whether there are other mitigation measures that should be applied to the project in addition to the mitigation measures identified in the DEIR.
4. Whether there are any alternatives to the project that would substantially lessen any of the significant impacts of the proposed project and achieve most of the basic project objectives.

1.8 AREAS OF CONTROVERSY

On April 29, 2022, PYLUSD issued an IS/NOP for the proposed project. The scoping period for this IS/NOP was between April 29, 2022 and May 30, 2022, during which interested agencies and the public could submit comments about the proposed project. During the time, the District received 19 comment letters from members of the public. Comments received during the circulation of the IS/NOP are included in Appendix A.

The following issues are likely to be of particular concern to agencies and interested members of the public during the environmental review process. While every concern applicable to the CEQA process is addressed in this DEIR, this list is not necessarily exhaustive, but rather attempts to capture those concerns that are likely to generate the greatest interest based on the input received during the scoping process.

- Spill light and glare on neighboring residences
- Increase in noise from additional field usage

- Impacts on traffic
- Concerns with community use of fields

1.9 SUMMARY OF ENVIRONMENTAL IMPACTS, MITIGATION MEASURES, AND LEVELS OF SIGNIFICANCE AFTER MITIGATION

Table 1-1, *Summary of Environmental Impacts, Mitigation Measures and Levels of Significance After Mitigation*, summarizes the conclusions of the environmental analysis contained in this DEIR. Impacts are identified as significant or less than significant, and mitigation measures are identified for all significant impacts. The level of significance after imposition of the mitigation measures is also presented.

Table 1-1 Summary of Environmental Impacts, Mitigation Measures and Levels of Significance After Mitigation

Environmental Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
5.1 AESTHETICS			
Impact 5.1-1: The proposed project would not have a substantial adverse effect on a scenic vista. The project site is in an urbanized area, and the proposed project would not conflict with applicable zoning and other regulations governing scenic quality. [Thresholds AE-1 and AE-3]	Less than Significant.	No mitigation measures are required.	Not applicable.
Impact 5.1-2: The proposed project would not alter scenic resources within a state scenic highway. [Threshold AE-2]	No Impact.	No mitigation measures are required	Not applicable.
Impact 5.1-4: The proposed project could create a new source of substantial light or glare, which would adversely affect day or nighttime views in the area. [Threshold AE-4]	Less than Significant	▪ No mitigation measures are required	Less than Significant

Table 1-1 Summary of Environmental Impacts, Mitigation Measures and Levels of Significance After Mitigation

Environmental Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
5.2 AIR QUALITY			
Impact 5.2-1: The proposed project would not conflict with the South Coast AQMD AQMP. [Threshold AQ-1]	Less than significant.	No mitigation measures are required.	Not applicable.
Impact 5.2-2: Construction activities associated with the proposed project would not generate short-term emissions in exceedance of the South Coast AQMD's regional threshold criteria. [Thresholds AQ-2 and AQ-3]	Less than significant.	No mitigation measures are required.	Not applicable.
Impact 5.2-3: Long-term operation of the proposed project would not generate emissions in exceedance of the South Coast AQMD's regional threshold criteria. [Thresholds AQ-2 and AQ-3]	No impact.	No mitigation measures are required.	Not applicable.
Impact 5.2-4: Construction of the proposed project could expose sensitive receptors to substantial pollutant concentrations. [Threshold AQ-3]	Less than significant.	No mitigation measures are required.	Not applicable.
Impact 5.2-5: Operation of the proposed project would not expose sensitive receptors to substantial pollutant concentrations. [Threshold AQ-3]	No impact.	No mitigation measures are required.	Not applicable.
Impact 5.2-6: The proposed project would not result in other emissions (such as those leading to odors) that would adversely affect a substantial number of people. [Threshold AQ-4]	No impact.	No mitigation measures are required.	Not applicable.

Table 1-1 Summary of Environmental Impacts, Mitigation Measures and Levels of Significance After Mitigation

Environmental Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
5.3 GREENHOUSE GAS EMISSIONS			
Impact 5.3-1: Implementation of the proposed project would not generate a net increase in GHG emissions, either directly or indirectly, that would have a significant impact on the environment. [Threshold GHG-1]	Less than significant.	No mitigation measures are required.	Not applicable.
Impact 5.3-2: Implementation of the proposed project would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs. [Threshold GHG-2]	Less than significant.	No mitigation measures are required.	Not applicable.
5.6 NOISE			
Impact 5.4-1: Construction activities would result in temporary noise increases in the vicinity of the proposed project that would not exceed standards. [Threshold N-1]	Less than significant.	No mitigation measures are required.	Not applicable.
Impact 5.4-2: Project implementation would result in long-term operation-related noise that would cause substantial increases in ambient noise levels. [Threshold N-1]	Potentially significant.	No feasible mitigation measures	Significant and unavoidable.
Impact 5.4-3: The project would not create excessive groundborne vibration and groundborne noise. [Threshold N-2]	Less than significant.	No mitigation measures are required.	Not applicable.
Impact 5.4-4: The proximity of the project site to an airport or airstrip would not result in exposure of future workers to excessive airport-related noise. [Threshold N-3]	No impact.	No mitigation measures are required.	Not applicable.

Table 1-1 Summary of Environmental Impacts, Mitigation Measures and Levels of Significance After Mitigation

Environmental Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
5.7 TRANSPORTATION			
Impact 5.5-1: The proposed project would not conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities. [Threshold T-1]	Less than significant.	No mitigation measures are required.	Not applicable.
Impact 5.5-2: The proposed project would not conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b). [Threshold T-2]	No impact.	No mitigation measures are required.	Not applicable.
Impact 5.5-3: The proposed project would not substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections), or incompatible uses (e.g., farm equipment). [Thresholds T-3]	No impact.	No mitigation measures are required.	Not applicable.
Impact 5.5-4: The proposed project would not result in inadequate emergency access [Thresholds T-4]	No impact.	No mitigation measures are required.	Not applicable.

2. Introduction

2.1 PURPOSE OF THE ENVIRONMENTAL IMPACT REPORT

The California Environmental Quality Act (CEQA) requires that all state and local governmental agencies consider the environmental consequences of projects over which they have discretionary authority before taking action on those projects. This draft environmental impact report (DEIR) has been prepared to satisfy CEQA and the CEQA Guidelines for the Sports Facility Lighting at El Dorado High School (proposed project). An environmental impact report (EIR) is the public document designed to provide decision makers and the public with an analysis of the environmental effects of a project, and to indicate possible ways to reduce or avoid environmental damage through the development of mitigation measures and alternatives to the project. The EIR must disclose significant environmental impacts that cannot be avoided; growth inducing impacts; effects not found to be significant; and significant cumulative impacts of all past, present, and reasonably foreseeable future projects.

The lead agency means "the public agency which has the principal responsibility for carrying out or approving a project which may have a significant effect upon the environment" (Public Resources Code, Section 21067). The Placentia-Yorba Linda Unified School District (PYLUSD or District) has the principal responsibility for approval of the Sports Facility Lighting at El Dorado High School Project. For this reason, the PYLUSD is the CEQA lead agency for this project. The District will review and consider this EIR in its decision to approve, revise, or deny the project.

The intent of the DEIR is to provide sufficient information on the potential environmental impacts of the proposed project to allow the PYLUSD to make an informed decision regarding approval of the project. Specific discretionary actions to be reviewed by the District are described in Section 3.5.3, *Required Approvals*.

This DEIR has been prepared in accordance with requirements of the:

- California Environmental Quality Act (CEQA) of 1970, as amended (Public Resources Code, Sections 21000 et seq.)
- State Guidelines for the Implementation of the CEQA of 1970 (CEQA Guidelines), as amended (California Code of Regulations, Title 14, Division 6, Chapter 3, Sections 15000 et seq.)

The District, which has the principal responsibility for processing and approving the project, will consider the information in this EIR along with other information that may be presented during the CEQA process. In addition, this EIR is the primary reference document in the formulation and implementation of a Mitigation Monitoring and Reporting Program for the project.

In accordance with CEQA, public agencies are required to make appropriate findings for each potential environmental impact identified in the EIR that cannot be mitigated to a less than significant level. If the lead agency (and responsible agencies using this CEQA document for associated permits or approvals) decides that the benefits of the project outweigh any identified significant environmental effects that cannot be mitigated to below a threshold of significance, the lead agency must adopt a Statement of Overriding Considerations, which states the reasons supporting its actions. The actions involved in the implementation of the project are described in Section 3.5.3, *Required Approvals*. Other agencies, including responsible and trustee agencies, that may have discretionary approval over the project or components of it are also described in in that section.

2.2 NOTICE OF PREPARATION

The Notice of Preparation (NOP) and scoping process helps determine the scope of the environmental issues to be addressed in the DEIR early in the environmental review process. The PYLUSD issued a NOP for a 30-day public review period from April 29, 2022 to May 30, 2022 (see Appendix A). They were distributed to federal, State, Tribal, regional, local government, and utility agencies and other interested parties to solicit comments and inform the public of the potential environmental issues that the EIR would address. Comments received during the initial study's public review period and comments presented at the scoping meeting, held May 24, 2022, are summarized below and provided in Appendix A (see Table 2-1, *Notice of Preparation Comments*).

Table 2-1 Notice of Preparation Comments

Commenter	Comment Summary	Date Received
Chrystine Ammari	Supports the lights being added to the filed. Comments that the current lighting is inadequate and feels unsafe. Additionally, comments that they support more games on the El Dorado Campus and having more space for evening use.	April 29, 2022
James Young	Concern about the time and funding being put towards this project when there was a meeting in 2013 outlining the process for pursuing field lighting at El Dorado HS. Wants to know why the EIR is occurring now for a project that was brought up in 2013.	May 3, 2022
Craig & Diana Fulmer	The project is not needed as student population has not increased. Not every school needs or has lighted fields. The imposition that a public address system and lighting will have on neighbors. Additionally, there is concern about parking issues.	May 9, 2022
Steve Hannah	Has four specific concerns regarding the proposed light poles. The first concern is related to excessive light and glare disrupting normal living routine, the second concern is regarding noise dramatically increasing and duration of exposure increasing, the third concern is about the proposed project generating more litter along Brookhaven Avenue, and the fourth concern is related to bird population in the neighborhood being disrupted by the large lighting structures. The commenter also offered suggestions for addressing their concerns. Firstly, the state not installing permanent lights and removing the temporary lights currently used would address their first concern. Secondly, they state that not allowing non-El Dorado HS entities to use the field (and thereby removing the temporary lights currently used and not installing the proposed light poles) would address their second concern. Thirdly, to address litter concerns the commenter recommends daily cleaning of the campus property line. Lastly, the commenter states that since the project site has functioned well for the campus	May 19, 2022

Table 2-1 Notice of Preparation Comments

Commenter	Comment Summary	Date Received
	since its inception there is no need to add the proposed light poles, and by not adding the light poles the birds would not be affected.	
Bernice Dietz	States that they are against the project due to concerns regarding the proposed project increasing traffic in the surrounding area and resulting in more noise through the PA system. Additionally, they are concerned that the lights will make backyards too bright and result in real estate values declining.	May 24, 2022
Diana Fulmer	States that the project is an unnecessary expenditure and a poses a big problem for homeowners around the school. They note concerns related to noise. They comment that the school should use the funding for other changes and repairs on the campus as the permanent lighting is not needed for the school. Other schools in the District have lighting and that they are not needed at El Dorado HS.	May 25, 2022
Susan Dolliver	States that they are not opposed to permanent lights on the field, but they are concerned about light usage after 9 p.m. being inconvenient to the homes surrounding the field. They also note they are concerned with the noise associated with the PA system and parking issues related to the new lights.	May 26, 2022
Heather Fields and Nik Mattheus	Concern about light trespass, noise pollution, non-school related use of fields, parking issues, and stating that the project is unnecessary.	May 27, 2022
Martha Jones	Concerned about the prospect of a large sports field slowly being installed in the neighborhood. Worried about the impact of the lights, late hours, parking issues, noise. Suggest that District plant plants along the fence on Brookhaven to improve aesthetics and block bright lights and noise.	May 27, 2022
Barbara Thomas	States they are opposed to the lights due to the negative impact they will have on the neighborhoods around El Dorado HS.	May 27, 2022
Mike Rogers	States that the project is unnecessary. Concerned about non El Dorado HS groups and individuals using the fields late at night and notes that the current temporary lights have been left on all night on many occasions. They also note concern about the PA system.	May 27, 2022
Dana Rodine	Concerned about the field turning into a sports complex used by non El Dorado entities. Suggests buying land to build a sports complex elsewhere. They state they are against the proposed project due to noise, light spill and glare, and safety/privacy concerns related to increase field use.	May 28, 2022
Dennis & Virginia Lewis	Concern that new lights will not be any different, or worse, than existing temporary lights. Issues with non-school related use of fields and problems with parking. Use of field from 7 am to 10pm 6 or 7 days a week is not acceptable. New lights will increase noise and nightly activity and would be detrimental to neighbors.	May 29, 2022
Steve Hannah	Worried about inconsistency with plans that show PA system and the scoping meeting where it was stated that the PA system would not be part of the project. Concerned about the project lighting being for non El Dorado HS entities and about the source of funding being used for the project.	May 29, 2022

Table 2-1 Notice of Preparation Comments

Commenter	Comment Summary	Date Received
Diana Fulmer	States that before the proposed project should be considered. Comments that in the future Daylight Savings will be in effect all year long and teams may not need additional lighting for practice. Concerned about having students out late on school nights and the proposed lights seem excessive for a practice field. Also comments about public comment deadline being on a holiday and concern about low attendance at the meeting due to unclear directions.	May 30, 2022
Beth Hall	They are worried about parking issues, noise, excess light spill, litter, and safety issues related to the proposed project. States that the proposed lighting is unnecessary.	May 30, 2022
James Young	States that the project description is too broad and misleading. Concerned about the proposed lighting being for non El Dorado HS entity usage and result in an increase in traffic, noise, and light, which will impact surrounding residences. They comment that the project is expensive and unnecessary.	May 30, 2022
Paul Pongetti	States it is unclear why the proposed project is necessary and is concerned about the light and noise impact on nearby residences from the proposed lights and PA system. Suggests that the diesel-powered portable lights be replaced by all electric portable lights as currently used by El Dorado HS on the north side of the track. Comments that any new lights should use the most modern technology to minimize spill light, lights should be turned off no later than 8 p.m., and community soccer groups should relocate to another field for practice.	May 30, 2022
Cole Barner	Concerned about increase in noise, light, and traffic impacts resulting from implementation of the proposed project. States that they object to uncontrolled use of the field.	May 30, 2022

Based on this process for the proposed project, certain environmental categories were identified as having the potential to result in significant impacts. Environmental issues that were considered to have potentially significant impacts are addressed in this DEIR, and issues identified to result in less than significant impacts or no impacts are addressed in the Chapter 8, *Impacts Found Not to be Significant,* of the DEIR.

2.3 SCOPE OF THIS DEIR

The scope of the DEIR was determined based on the NOP, comments received in response to the NOP, and comments received at the scoping meeting conducted by the PYLUSD. Pursuant to Sections 15126.2 and 15126.4 of the CEQA Guidelines, the DEIR should identify any potentially significant adverse impacts and recommend mitigation that would reduce or eliminate these impacts to levels of insignificance.

2.3.1 Impacts Considered Less Than Significant

During preparation of the NOP, PYLUSD determined that 12 environmental impact categories were not significantly affected by or did not affect the proposed project. These environmental topics are discussed in Chapter 8, *Impacts Found Not to be Significant,* of this DEIR:

- Agriculture and Forestry Resources
- Biological Resources
- Cultural Resources
- Energy
- Geology and Soils
- Hazards and Hazardous Materials
- Hydrology and Water Quality
- Land Use and Planning
- Mineral Resources
- Population and Housing
- Public Services
- Recreation
- Tribal Cultural Resources
- Utilities and Service Systems
- Wildfire

2.3.2 Potentially Significant Adverse Impacts

Through the NOP process, PYLUSD determined that further analysis was needed for five environmental topics to determine whether the proposed project would result in potentially significant impacts. These topics are evaluated in detail in Chapter 5, *Environmental Analysis*, of this DEIR.

- Aesthetics
- Air Quality
- Greenhouse Gas Emissions
- Noise
- Transportation

2.3.3 Unavoidable Significant Adverse Impacts

This DEIR identifies one significant and unavoidable adverse impacts, as defined by CEQA, that would result from implementation of the proposed project. Unavoidable adverse impacts may be considered significant on a project-specific basis, cumulatively significant, and/or potentially significant. The District must prepare a "statement of overriding considerations" before it can approve the project, attesting that the decision-making body has balanced the benefits of the proposed project against its unavoidable significant environmental effects and has determined that the benefits outweigh the adverse effects, and therefore the adverse effects are considered acceptable. The impact that was found in the DEIR to be significant and unavoidable is:

- Exterior noise impacts at the residential property lines just north of the project site.

2.4 INCORPORATION BY REFERENCE

The following documents are incorporated herewith by reference into this DEIR, consistent with Section 15150 of the CEQA Guidelines, and they are available for review at the PYLUSD Office.

- City of Placentia General Plan, October 2019

2.5 FINAL EIR CERTIFICATION

This DEIR is being circulated for a 45-day review period, from April 3, 2023 to May 17, 2023. Interested agencies and members of the public are invited to provide written comments on the DEIR. In compliance with Sections 15085(a) and 15087(a)(1) of the CEQA Guidelines, the PYLUSD, serving as the lead agency, has published a Notice of Completion (NOC) and Notice of Availability (NOA) of the DEIR, which indicates that the DEIR and all associated technical appendices can be viewed at the following locations:

- Placentia-Yorba Linda Unified School District, 1301 E. Orangethorpe Avenue, Placentia, CA 92870

In addition, the DEIR is available online at the Placentia-Yorba Linda Unified School District website:

https://www.pylusd.org/edhsfieldlights

Any public agency or members of the public wishing to comment on the DEIR must submit their comments in writing or via email with the subject heading "El Dorado High School Field Lighting Project" to one the following addresses prior to the end of the public review period:

- **Mail:** Bradd Runge, Director, Maintenance, Facilities & Construction
  Placentia-Yorba Linda Unified School District
  1301 E. Orangethorpe Avenue
  Placentia, CA 92870
- **District Website:** https://www.pylusd.org/edhsfieldlights

Upon completion of the 45-day review period, PYLUSD will review all written comments received and prepare written responses for each. The Final EIR (FEIR) will include all received comments, PYLUSD'S responses to those comments, and any changes to the DEIR that result from comments. The FEIR will be presented to the PYLUSD'S Board of Education for potential certification as the environmental document for the proposed project. All persons who comment on the DEIR will be notified of the availability of the FEIR and the date of the public hearing.

2.6 MITIGATION MONITORING

Public Resources Code Section 21081.6 requires that an agency adopt a mitigation monitoring and reporting program (MMRP) for any project for which it has made findings pursuant to Public Resources Code Section 21081. Such a program is intended to ensure the implementation of all mitigation measures adopted through the preparation of the EIR.

The MMRP for the proposed project will be completed as part of the FEIR, prior to consideration of the project by the District's Board of Education.

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3. Project Description

3.1 OVERVIEW

The Placentia-Yorba Linda Unified School District (PYLUSD or District) proposes to install permanent lighting around the El Dorado High School (El Dorado HS or Campus) synthetic track/field (proposed project). The existing synthetic track/field at El Dorado HS does not currently have existing permanent stadium lighting, and therefore, the sports teams and band must practice at other campuses in the evenings during the winter months. The proposed project would result in the installation of stadium lighting around the existing track and field to allow for students to practice on-site in the winter months.

3.2 PROJECT LOCATION

The PYLUSD property is at 1651 Valencia Avenue (Assessor Parcel Number [APN] 336-021-07), in the City of Placentia, northern Orange County (see Figure 3-1, *Regional Location*). The City of Placentia is surrounded by the City of Yorba Linda to the east, the City of Fullerton to the west, the City of Anaheim the south, and the City of Brea to the north. The project site is approximately 1.25-miles east of State Route (SR) 57 and approximately one mile south of SR-90. El Dorado HS is bound by Brookhaven Avenue to the west, Valencia Avenue to the east, and single-family residences to the north and south (see Figure 3-2, *Local Vicinity*, and Figure 3-3, *Aerial Photograph*). The District proposes installing four permanent lights around the El Dorado HS synthetic track/field (project site). The synthetic track/field is in the northwestern portion of the Campus and is north of the baseball and softball fields, west of the existing parking lot and tennis courts, east of immediately east Brookhaven Avenue, and directly south of single-family residences (See Figure 3-3 *Aerial Photograph).*

3.2.1 Surrounding Land Uses

The Campus and adjoining properties are all zoned as R-1, Single-Family Residential. The Placentia Fire and Life Safety Station No. 2 is located approximately 300-feet south southeast of the Campus and the Brookhaven Elementary School is across Brookhaven Avenue to the northwest of the project site. Wagner Elementary School and Park is east of the Campus.

3.3 STATEMENT OF OBJECTIVES

Section 15124(b) of CEQA Guidelines requires a project description to include a statement of the objectives of a project that addresses the underlying purpose. The following specific objectives have been identified for the proposed project:

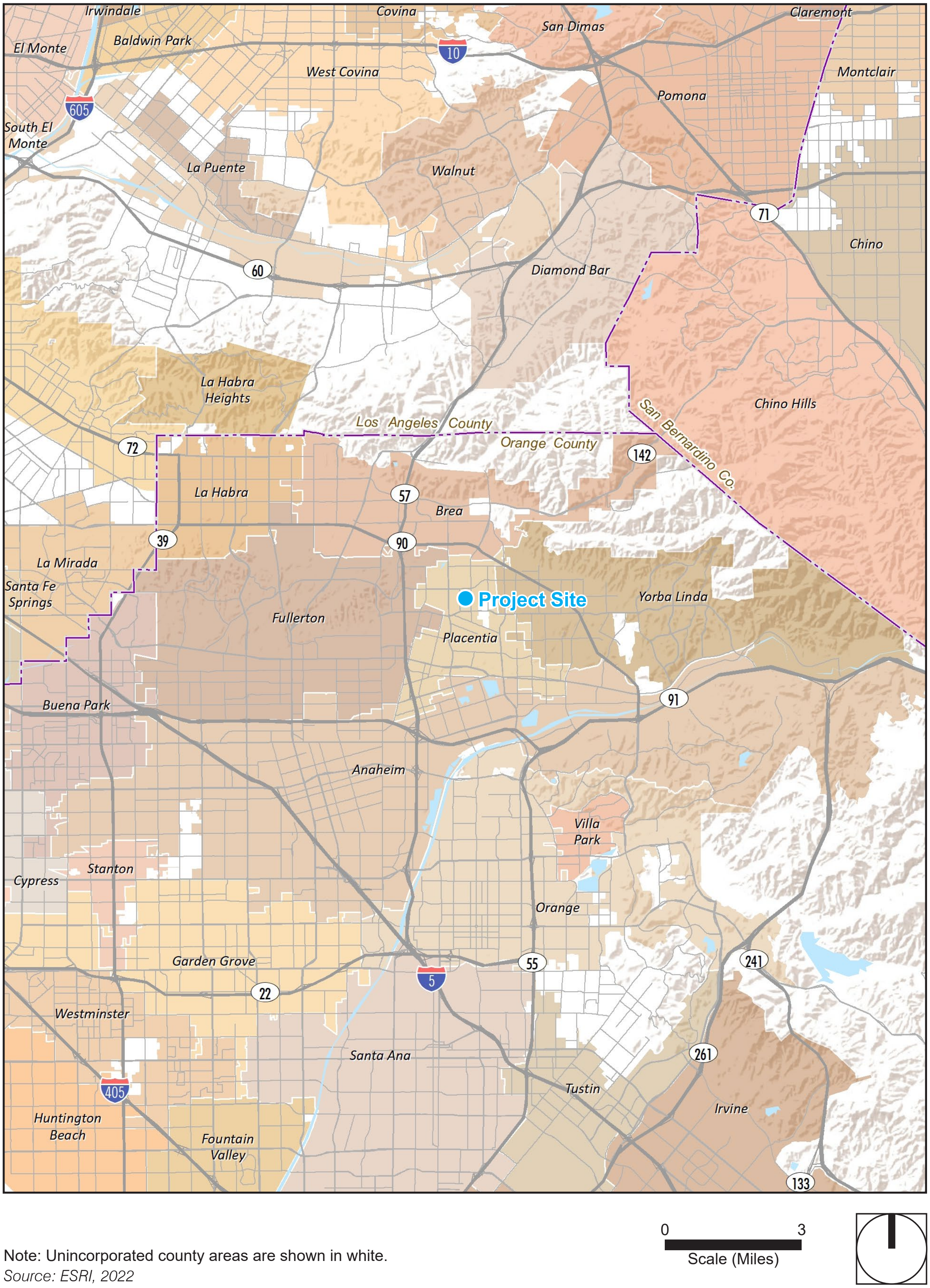
1. Provide lighting to allow for safe night use of existing athletic facilities to accommodate school events and activities.

2. Enable sports teams and band to practice on existing El Dorado HS athletic field during winter months. Reduce logistics and travel issues associated with transporting students and equipment off-site for practice during the winter months.
3. Eliminate travel time to off-site sports facilities to allow for increased practice time.
4. Provide improved lighting technology to reduce light spill and energy consumption.

3.4 EXISTING CONDITIONS

As shown in Figure 3-2, *Local Vicinity* and Figure 3-3, *Aerial Photograph*, the El Dorado HS campus is in a residential neighborhood of Placentia, California. The track/field is located within the El Dorado HS campus and is situated north of the softball and baseball fields, west of the existing parking lot and tennis courts, and east of Brookhaven Avenue, and south of single-family residences. The synthetic field is in the northwestern portion of the campus and includes a track, long jump/high jump area, a football field, and soccer field. There is a 25-foot grass buffer between the existing track and residence property line. There is a six-foot CMU block wall along the northern boundary of the campus.

Figure 3-1 Regional Location



Note: Unincorporated county areas are shown in white.

Source: ESRI, 2022

PlaceWorks

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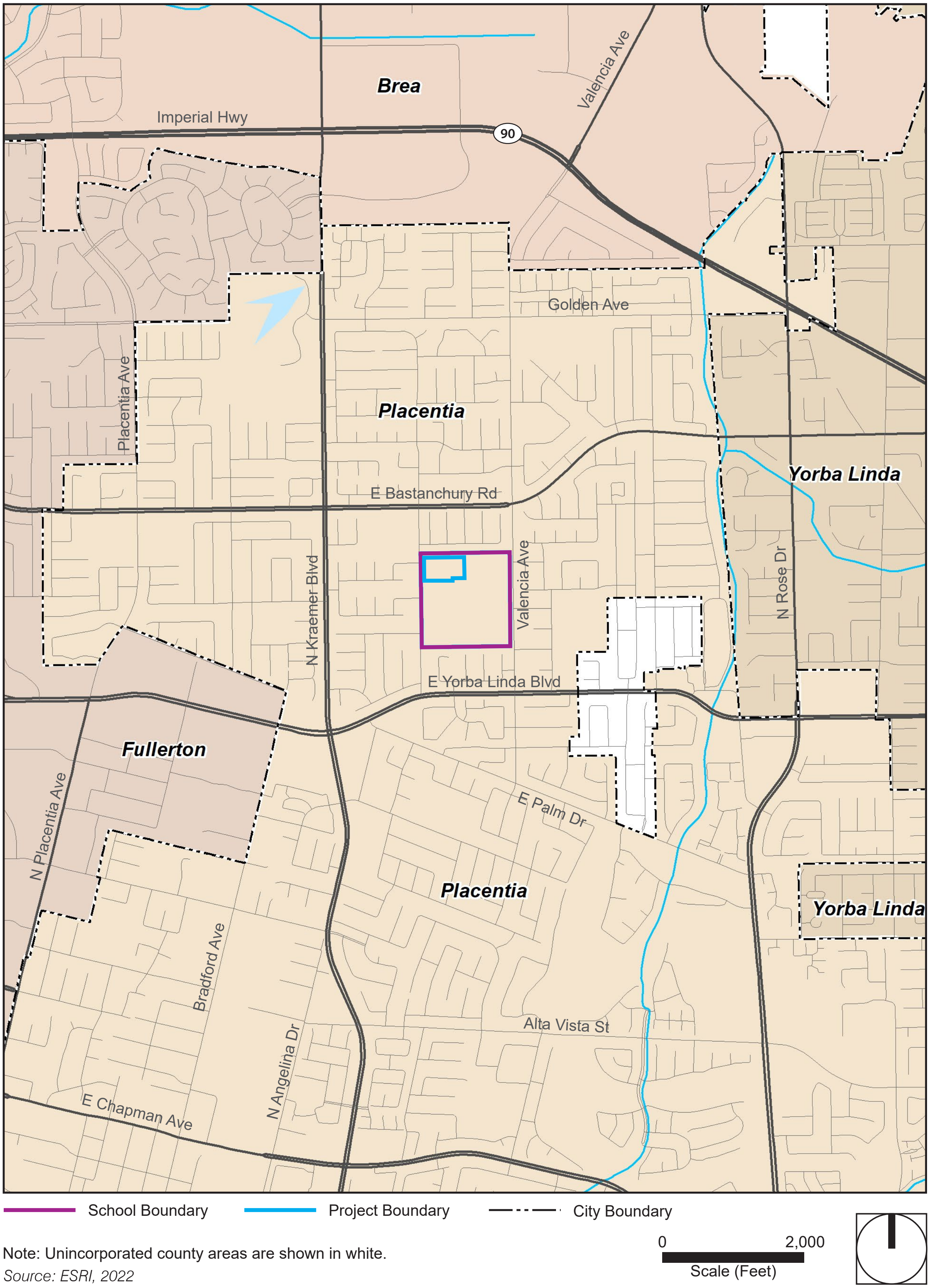
Figure 3-2 Local Vicinity



Note: Unincorporated county areas are shown in white.

Source: ESRI, 2022

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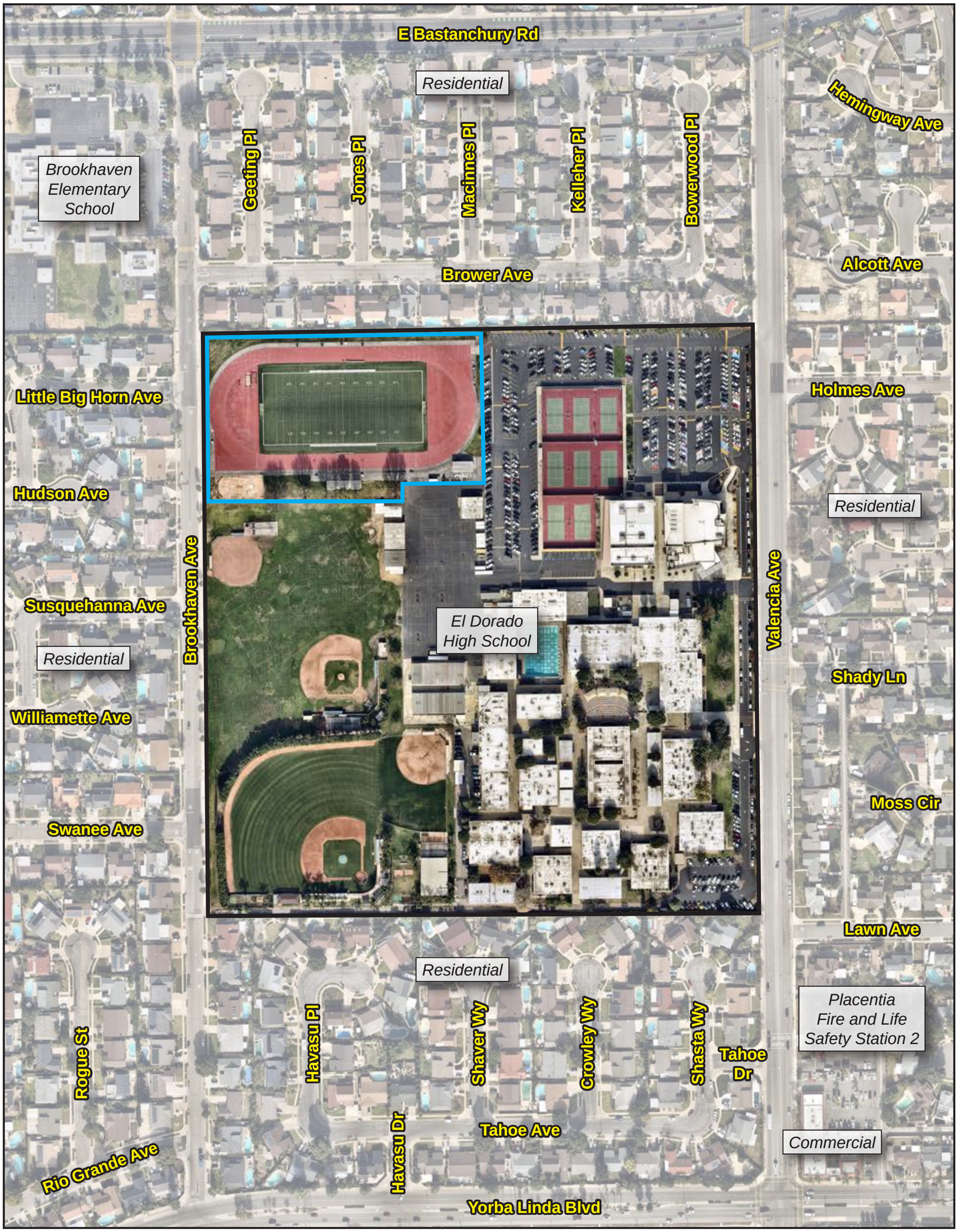
Figure 3-3 Aerial Photograph



Source: Nearmap, Ltd., 2022.

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3.4.1 Current lighting

The existing track/field is currently used for scheduled El Dorado HS sporting events (e.g., practice and games), band practice, and community use (e.g., club soccer). Three electric-powered portable lights are currently used for student-related activities on the track/field. The football team uses the field in the fall from about 5:00 p.m. to 8:30 p.m. four nights a week. In the winter season the soccer team uses the field from 3:00 p.m. to 5:00 p.m. The boys and girls lacrosse team uses the field until dark in the spring season. The track/field is also used by a youth soccer group, the Strikers, Monday through Thursday until 9:00 p.m. The youth soccer group currently uses six diesel-powered portable lights to light the track/field. Table 3-1 *El Dorado High School – Current Field Lighting* shows the current use of the field and lighting schedule.

Table 3-1 El Dorado High School –Current Field Lighting

Month	5:00pm	5:30pm	6:00pm	6:30pm	7:00pm	7:30pm	8:00pm	8:30pm	9:00pm	9:30pm
Aug	Football	Football	Football	Football	Football	Football	Football			
	Soccer or Lacrosse	Soccer or Lacrosse	Soccer or Lacrosse	Soccer or Lacrosse	Soccer or Lacrosse	Soccer or Lacrosse	Soccer or Lacrosse	Soccer or Lacrosse	Soccer or Lacrosse	
						Club Soccer	Club Soccer	Club Soccer		
Sep	Football	Football	Football	Football	Football	Football	Football	Football		
	Soccer or Lacrosse	Soccer or Lacrosse	Soccer or Lacrosse	Soccer or Lacrosse	Soccer or Lacrosse	Soccer or Lacrosse	Soccer or Lacrosse	Soccer or Lacrosse	Soccer or Lacrosse	
						Club Soccer	Club Soccer	Club Soccer		
Oct	Football	Football	Football	Football	Football	Football	Football			
	Soccer or Lacrosse	Soccer or Lacrosse	Soccer or Lacrosse	Soccer or Lacrosse	Soccer or Lacrosse	Soccer or Lacrosse	Soccer or Lacrosse	Soccer or Lacrosse	Soccer or Lacrosse	
Nov	Football	Football	Football	Football	Football	Football	Football			
	Soccer or Lacrosse	Soccer or Lacrosse	Soccer or Lacrosse	Soccer or Lacrosse	Soccer or Lacrosse	Soccer or Lacrosse	Soccer or Lacrosse	Soccer or Lacrosse		
				Club Soccer	Club Soccer	Club Soccer	Club Soccer			
Dec	Soccer	Soccer	Soccer	Soccer	Soccer	Soccer	Soccer	Soccer	Soccer	
	Lacrosse	Lacrosse	Lacrosse	Lacrosse	Lacrosse	Lacrosse	Lacrosse	Lacrosse	Lacrosse	
	Club Soccer	Club Soccer	Club Soccer	Club Soccer	Club Soccer	Club Soccer	Club Soccer			
Jan	Soccer	Soccer	Soccer	Soccer	Soccer	Soccer	Soccer	Soccer	Soccer	
	Lacrosse Practice	Lacrosse	Lacrosse	Lacrosse	Lacrosse	Lacrosse	Lacrosse	Lacrosse	Lacrosse	
Feb	Lacrosse/ Track	Lacrosse/ Track	Lacrosse/ Track	Lacrosse/ Track	Lacrosse/ Track	Lacrosse/ Track	Lacrosse/ Track	Lacrosse/ Track	Lacrosse/ Track	
	Football/ Soccer	Football/ Soccer	Football/ Soccer	Football/ Soccer	Football/ Soccer	Football/ Soccer	Football/ Soccer	Football/ Soccer	Football/ Soccer	
March	Lacrosse	Lacrosse	Lacrosse	Lacrosse	Lacrosse					
	Football/ Soccer	Football/Soccer	Football/ Soccer	Football/ Soccer	Football/ Soccer	Football/ Soccer	Football/ Soccer	Football/ Soccer	Football/ Soccer	
	Club Soccer	Club Soccer	Club Soccer	Club Soccer	Club Soccer	Club Soccer	Club Soccer			

Table 3-1 El Dorado High School –Current Field Lighting

Month	5:00pm	5:30pm	6:00pm	6:30pm	7:00pm	7:30pm	8:00pm	8:30pm	9:00pm	9:30pm
April	Lacrosse	Lacrosse	Lacrosse	Lacrosse	Lacrosse					
	Football/ Soccer	Football/ Soccer	Football/ Soccer	Football/ Soccer	Football/ Soccer	Football/ Soccer	Football/ Soccer	Football/ Soccer	Football/ Soccer	
				Club Soccer	Club Soccer	Club Soccer	Club Soccer	Club Soccer		
May	Spring Football	Spring Football	Spring Football	Spring Football	Spring Football					
				Club Soccer	Club Soccer	Club Soccer	Club Soccer	Club Soccer		
June						Club Soccer	Club Soccer	Club Soccer		
July						Club Soccer	Club Soccer	Club Soccer		

Notes: Shaded cells indicate when temporary lights are current used

3.4.2 Site Access, Circulation, and Parking

Vehicular access to the El Dorado HS Campus and track/field is via the driveway off Valencia Avenue and existing parking lot. The proposed project does not include changes to the existing driveways or circulation systems around the campus. Parking for school employees, students, and visitors would be provided on-site in the existing parking lot west of Valencia Avenue.

During the winter and fall months, El Dorado HS band and football team travel to Bradford Stadium for practice. Bradford Stadium is located at Valencia High School at 500 Bradford Avenue approximately 1.5 miles from El Dorado HS.

3.4.3 General Plan and Existing Zoning

The City of Placentia General Plan Land Use designation for the project site is Schools. The zoning designation for the project site is Single-Family Residential District (R-1). As stated in the City of Placentia Municipal Code, permitted uses include single-family residences including private garages; public parks; home occupations; accessory buildings; structures and uses normally incidental to single-family residences; small family day care home; accessory dwelling units in compliance with Chapter 23.73. Uses permitted subject to obtaining a use permit in the "R-1" district include, churches, schools, playgrounds, public utilities, public and quasi-public buildings and uses; crop and tree farming; guesthouses; public or private parking lots for automobiles when adjacent to any "C" or "M" district; fraternity and sorority houses; large family day care home per Section 23.81.160.

3.5 PROJECT CHARACTERISTICS

"Project," as defined by the CEQA Guidelines, means:

> ... the whole of an action, which has a potential for resulting in either a direct physical change in the environment, or a reasonably foreseeable indirect physical change in the environment, and that is any of the following: (1)…enactment and amendment of zoning ordinances, and the adoption and amendment of local General Plans or elements thereof pursuant to Government Code Sections 65100–65700. (14 Cal. Code of Reg. Section 15378[a])

3.5.1 Proposed Project

PYLUSD plans to add permanent lighting to the synthetic track/field at El Dorado HS. The installation of the permanent lighting would enable El Dorado HS use and community use of the synthetic fields in the evening, particularly in the winter months when daytime is shorter. Currently, students are transported to other schools for practice due to a lack of access, especially during the winter months. The El Dorado HS band would remain on the Campus in the fall and use the synthetic field until 10:00 p.m. The El Dorado HS football team would use the field until 10:00 p.m., and the out of season sports would use the field until 9:00 p.m. instead of going off campus. Band practice during the summer (i.e., June and July) would be provided in the evening to avoid conflicts with athletic activities. As with the existing conditions, the newly lit synthetic track/field would be available for use by approved community groups after school hours up to 10:00 p.m. when the field is not in use by El Dorado HS students and during weekends, as provided by the District's use policy. The proposed project would not include a public announcement system (PA). Implementation of the proposed project would not provide additional seating.

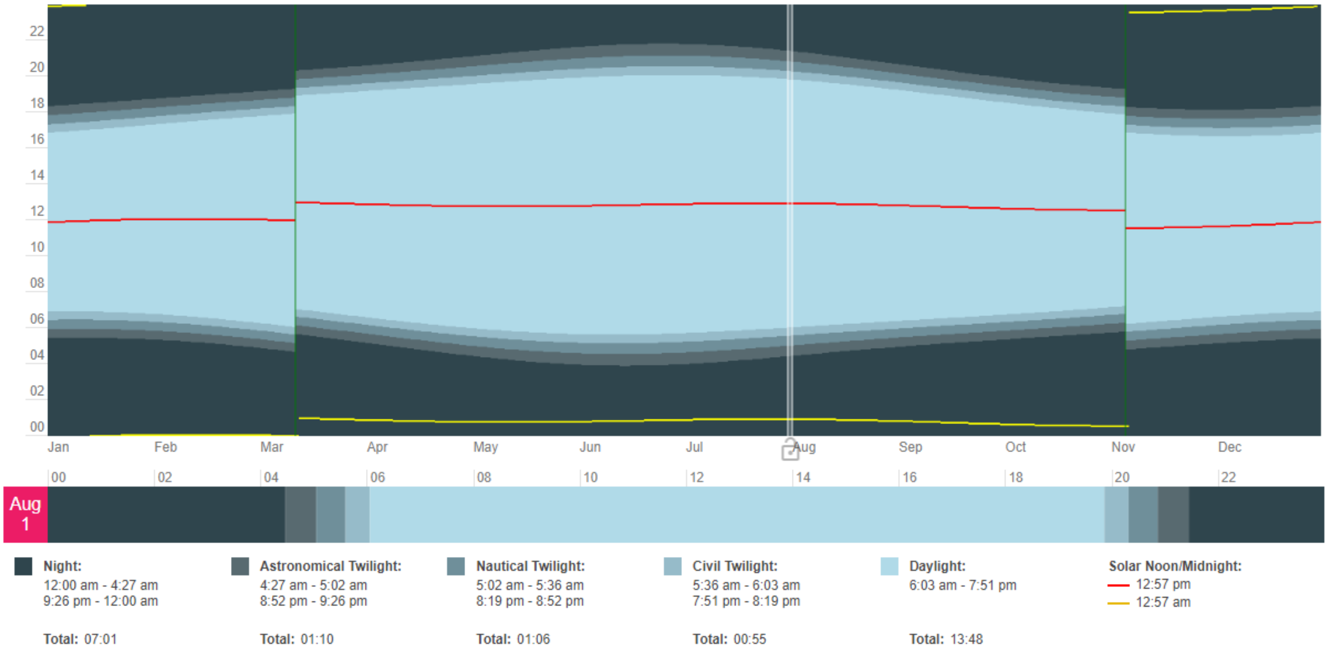
The proposed lighting would consist of four pre-cast concrete bases with four galvanized steel poles 80 feet tall, with eight light emitting diode (LED) luminaires mounted at 16 feet and 80 feet. See Figure 3-4*, Pole Locations* for the exact location of the four light poles and see Figure 3.5, *Light Pole Schematic*. Conduits required for the lighting are already in place and would wires would be pulled to connect the new lighting.

The proposed maximum field illumination level would be approximately 33 fc. The four light poles would provide the track/field with an average of about 33 fc, the track with an average of about 16.1 fc, and the long jump/high jump areas with an average of about 21.7 fc (see Figure 3-4).

As shown in Exhibit A, *2022 Sun Graph for Placentia*, from November to February, daylight is available until around 6:00 p.m. when the sun starts to set; from March to October, daylight is available until around 7:30 p.m., and as late as around 8:15 p.m. from June to July. El Dorado HS use of the track/field would end by 10:00 p.m. (community use would end by 9:00 p.m.). Maximum operating hours for the lights would be up to four and half hours during winter months and about three hours during spring and autumn months.

3. Project Description

Exhibit A: 2022 Sun Graph for Placentia



Note: The red line representing solar noon period reflects daylight saving time beginning in early March to early November.
Source:Timeanddate.com 2022

Figure 3-4 - Lighting Poles

El Dorado High School Stadium/Track DSA
Placentia,CA

EQUIPMENT LAYOUT

INCLUDES:
- Egress Area
- Football
- Soccer
- Track

Electrical System Requirements: Refer to Amperage Draw Chart and/or the **"Musco Control System Summary"** for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.

EQUIPMENT LIST FOR AREAS SHOWN

Pole				Luminaires		
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE
2	S1-S2	80'	-	80' 15.5' 80'	TLC-LED-900 TLC-BT-575 TLC-LED-1500	5 2 3
2	S3-S4	80'	-	80' 15.5' 80'	TLC-LED-900 TLC-BT-575 TLC-LED-1500	3 2 5
4	TOTALS					40

SINGLE LUMINAIRE AMPERAGE DRAW CHART

Driver (.90 min power factor)	Line Amperage Per Luminaire (max draw)						
Single Phase Voltage	208 (60)	220 (60)	240 (60)	277 (60)	347 (60)	380 (60)	480 (60)
TLC-LED-1500	8.5	8.1	7.4	6.4	5.1	4.7	3.7
TLC-LED-900	5.3	5.0	4.6	4.0	3.2	2.9	2.3
TLC-BT-575	3.4	3.2	2.9	2.5	2.0	1.8	1.5

Source: MUSCO, 2023.

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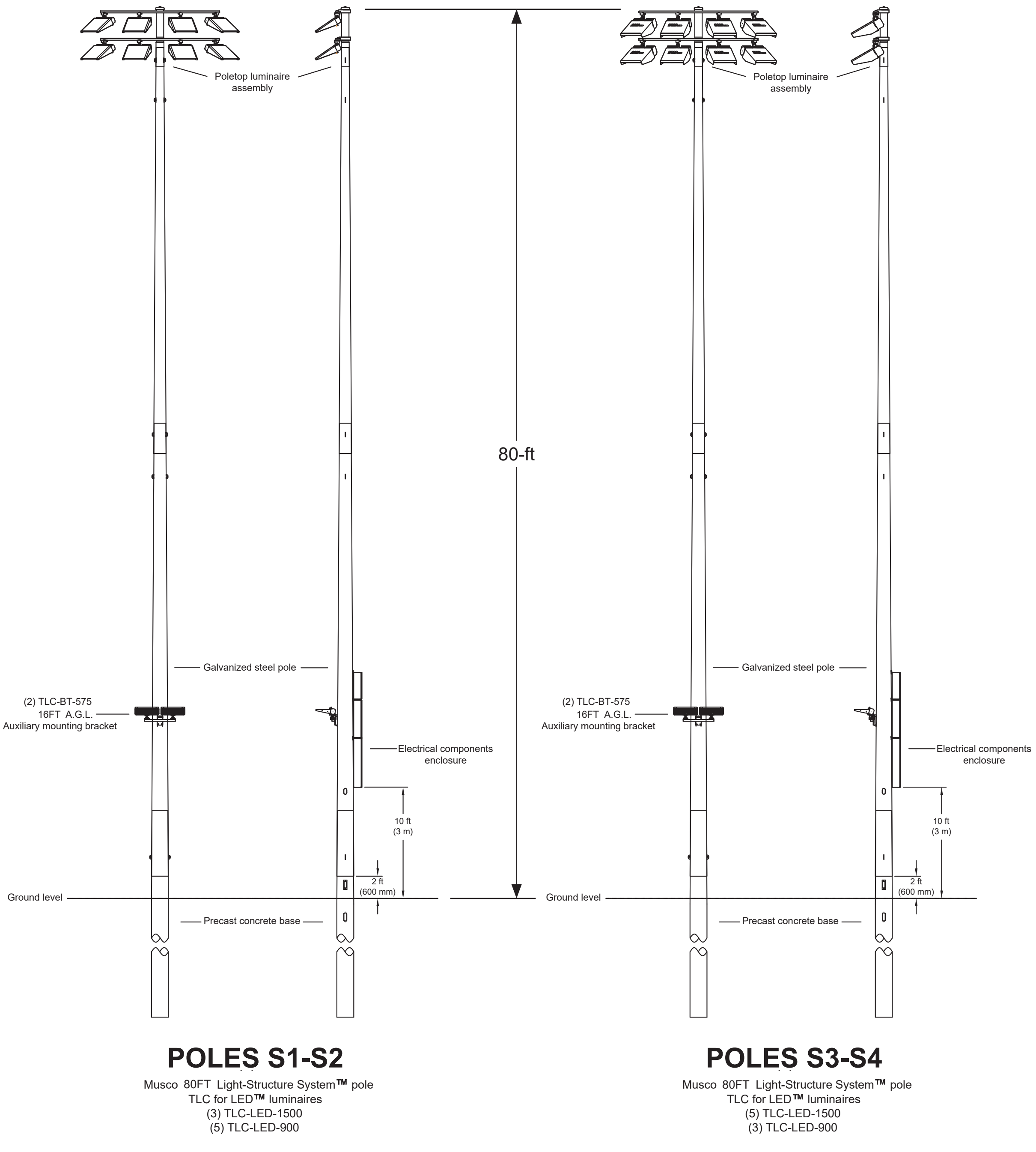
Figure 3-5 - Light Pole Schematic



Source: Musco, 2023

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3.5.1.1 ACTIVITIES SCHEDULE

The proposed activities schedule for El Dorado HS is shown in Table 3-2, *El Dorado High School – Proposed Lighting*. All El Dorado HS student activities are scheduled to end by 10:00 p.m. The El Dorado HS students and community currently use the field.

Table 3-2 El Dorado High School –Proposed Lighting

Month	5:00pm	5:30pm	6:00pm	6:30pm	7:00pm	7:30pm	8:00pm	8:30pm	9:00pm	10:00pm
Aug								▨	▨	▨
						▨	▨	▨	▨	▨
						▨	▨	▨	▨	▨
Sep								▨	▨	▨
						▨	▨	▨	▨	▨
						▨	▨	▨	▨	▨
Oct								▨	▨	▨
					▨	▨	▨	▨	▨	▨
					▨	▨	▨	▨	▨	▨
Nov								▨	▨	▨
		▨	▨	▨	▨	▨	▨	▨	▨	▨
Dec		▨	▨	▨	▨	▨	▨	▨	▨	▨
Jan		▨	▨	▨	▨	▨	▨	▨	▨	▨
Feb		▨	▨	▨	▨	▨	▨	▨	▨	▨
March						▨	▨	▨	▨	▨
			▨	▨	▨	▨	▨	▨	▨	▨
Apr					▨	▨	▨	▨	▨	▨
					▨	▨	▨	▨	▨	▨
May						▨	▨	▨	▨	▨
						▨	▨	▨	▨	▨
June							▨	▨	▨	▨
							▨	▨	▨	▨
July							▨	▨	▨	▨
							▨	▨	▨	▨

Notes: Shaded cells indicate proposed field use with new lighting

3.5.2 Project Construction

The District proposes to begin the track/field lighting project in fall 2023. Construction of permanent lights is anticipated to take up to two months. Construction and staging for the proposed project would be entirely within the Campus.

3.5.3 Required Approvals

3.5.3.1 LEAD AGENCY

The PYLUSD is the Lead Agency under CEQA and is carrying out the proposed project. To approve the proposed project, the PYLUSD Board of Education must first certify the Final Environmental Impact Report (FEIR) and adopt, as applicable, a Mitigation Monitoring and Reporting Program (MMRP), findings, and a statement of overriding considerations. The Board will consider the information in the EIR when making its decision to approve or deny the proposed project, or in directing modifications to the proposed project in response to the EIR's findings and mitigation measures. The EIR is intended to disclose to the public the proposed project's details, analyses of the proposed project's potential environment impacts, and identification of feasible mitigation or alternatives that would lessen or reduce significant impacts to less-than-significant levels.

3.5.3.2 OTHER AGENCY ACTION REQUESTED

The PYLUSD is the Lead Agency under CEQA and has the approval authority over the proposed project. The District would require approval and/or coordination from the following agencies to implement the proposed project.

The anticipated approvals required for this project are:

Lead Agency	Action
Placentia-Yorba Linda Unified School District	• Approve the proposed project • Certify the EIR • Adopt the Mitigation Monitoring and Reporting Program
Responsible Agencies	**Action**
Department of General Services, Division of State Architect	• Approval of construction drawings

4. Environmental Setting

4.1 INTRODUCTION

This section provides a "description of the physical environmental conditions in the vicinity of the project, as they exist at the time the notice of preparation is published, from both a local and a regional perspective" (CEQA Guidelines Section 15125[a]), pursuant to provisions of the California Environmental Quality Act (CEQA) and the CEQA Guidelines. The environmental setting provides the baseline physical conditions from which the lead agency will determine the significance of environmental impacts resulting from the proposed project. Subsections of Chapter 5, *Environmental Analysis*, provide more detailed descriptions of the local, regional, state, and federal regulatory and environmental settings for specific topical areas.

4.2 REGIONAL ENVIRONMENTAL SETTING

4.2.1 Regional Location

The City of Placentia (City) is in northern Orange County. The City is bordered by the City of Brea to the north, the City of Anaheim to the south, the City of Yorba Linda to the northeast, and the City of Fullerton to the west. Regional access to the City is provided by State Route (SR) 57 (SR-57) 1.25 miles to the west, SR-90 (Imperial Highway) 1 mile to the north, and SR 91 2.85 miles to the south (see Figure 3-1, *Regional Location*).

4.2.2 Regional Planning Considerations

4.2.2.1 SCAG REGIONAL TRANSPORTATION PLAN/SUSTAINABLE COMMUNITIES STRATEGY

The Southern California Association of Governments (SCAG) is a council of governments representing Imperial, Los Angeles, Orange, Riverside, San Bernardino, and Ventura counties. SCAG is the federally recognized metropolitan planning organization for this region, which encompasses over 38,000 square miles. SCAG is a regional planning agency and a forum for addressing regional issues concerning transportation, the economy community development, and the environment. SCAG is also the regional clearinghouse for projects requiring environmental documentation under federal and state law. In this role, SCAG reviews proposed development and infrastructure projects to analyze their impacts on regional planning programs.

On September 13, 2020, SCAG adopted the 2020-2045 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS), also known as Connect SoCal. The RTP/SCS is a long-range visioning plan that balances future mobility and housing needs with economic, environmental and public health goals. This long-range plan, which is a requirement of the state of California and the federal government, is updated by SCAG every four years as demographic, economic, and policy circumstances change. Connect SoCal embodies a collective vision for the region's future and is developed with input from local governments, county transportation commissions, tribal governments, nonprofit organizations, businesses, and local stakeholders.

The 2020-2045 RTP/SCS includes growth forecasts that estimate employment, population, and housing growth. These estimates are used by SCAG, transportation agencies, and local agencies to anticipate and plan for growth. Connect SoCal works to address residents' challenges by promoting job accessibility, enabling shorter commutes, making communities safer and encouraging lower-cost housing developments. One of the key goals is to encourage development of diverse housing types in areas that are supported by multiple transportation options.

4.2.2.2 SOUTH COAST AIR BASIN AIR QUALITY MANAGEMENT PLAN

The project site is in the South Coast Air Basin (SoCAB), which is managed by the South Coast Air Quality Management District (South Coast AQMD). Pollutants emitted into the ambient air by stationary and mobile sources are regulated by federal and state law, and standards are detailed in the SoCAB Air Quality Management Plan (AQMP). Air pollutants for which ambient air quality standards (AAQS) have been developed are known as criteria air pollutants—ozone (O_3), carbon monoxide (CO), volatile organic compounds (VOC), nitrogen oxides (NO_x), sulfur dioxide, coarse inhalable particular matter (PM_{10}), fine inhalable particulate matter ($PM_{2.5}$), and lead. VOC and NO_x are criteria pollutant precursors and go on to form secondary criteria pollutants, such as $O_{3,}$ through chemical and photochemical reactions in the atmosphere. Air basins are classified as attainment/nonattainment areas for particular pollutants depending on whether they meet AAQS for that pollutant. The SoCAB is a nonattainment area for PM2.5 under California and National AAQS and a nonattainment area for PM10 under the California AAQS (CARB 2019). The SoCAB is designated extreme nonattainment for O3 under the California AAQS (1 hour and 8 hour) and National AAQS (8 hour) (CARB 2019). The Los Angeles County portion of the SoCAB is designated nonattainment under the National AAQS for lead (South Coast AQMD 2012; CARB 2019). The proposed project's consistency with the applicable AAQS is discussed in Section 5.2, *Air Quality*.

4.2.2.3 GREENHOUSE GAS EMISSIONS REDUCTION LEGISLATION

Current State of California guidance and goals for reductions in greenhouse gas (GHG) emissions are generally embodied in Executive Order S-03-05; Executive Order B-30-15; Assembly Bill 32 (AB 32), the Global Warming Solutions Act (2008); and Senate Bill 375 (SB 375), the Sustainable Communities and Climate Protection Act.

Executive Order S-03-05, signed June 1, 2005, set the following GHG reduction targets for California:

- 2000 levels by 2010
- 1990 levels by 2020
- 80 percent below 1990 levels by 2050

AB 32 was passed by the California state legislature on August 31, 2006, to place the state on a course toward reducing its contribution of GHG emissions. AB 32 follows the 2020 tier of emissions reduction targets established in Executive Order S-3-05. Based on the GHG emissions inventory conducted for its 2008 Scoping Plan, the California Air Resources Board (CARB) approved a 2020 emissions limit of 427 million metric tons of carbon dioxide-equivalent (MMTCO2e) for the state (CARB 2008). In 2015, the governor signed Executive Order B-30-15 into law, establishing a GHG reduction target for year 2030, which was later codified under Senate Bill 32 (SB 32) (2016). CARB is required to update the Scoping Plan every five years and completed the last update in 2017. CARB is currently working on an update to the 2017 Scoping Plan, which it anticipates adopting in 2022.

In 2008, the Sustainable Communities and Climate Protection Act, SB 375, was adopted to connect the GHG emissions reductions targets established in the 2008 Scoping Plan for the transportation sector to local land use decisions that affect travel behavior. Its intent is to reduce GHG emissions from light-duty trucks and automobiles (excludes emissions associated with goods movement) by aligning regional long-range transportation plans, investments, and housing allocations to local land use planning to reduce vehicle miles traveled (VMT) and vehicle trips. Specifically, SB 375 required CARB to establish GHG emissions reduction targets for each of the 18 MPOs. SCAG is the MPO for the Southern California region.

Pursuant to the recommendations of the Regional Transportation Advisory Committee, CARB adopted per capita reduction targets for each of the MPOs rather than a total magnitude reduction target. SCAG's targets are an 8 percent per capita reduction from 2005 GHG emission levels by 2020 and a 13 percent per capita reduction from 2005 GHG emission levels by 2035 (CARB 2010). The 2020 targets were smaller than the 2035 targets because a significant portion of the built environment in 2020 has been defined by decisions that have already been made. In general, the 2020 scenarios reflect that more time is needed for large land use and transportation infrastructure changes. Most of the reductions in the interim are anticipated to come from improving the efficiency of the region's transportation network. The targets would result in 3 MMTCO2e of reductions by 2020 and 15 MMTCO2e of reductions by 2035. Based on these reductions, the passenger vehicle target in CARB's Scoping Plan (for AB 32) would be met (CARB 2010).

4.3 LOCAL ENVIRONMENTAL SETTING

The Placentia Yorba Linda Unified School District (PYLUSD or District) serves students in Placentia, Yorba Linda, and parts of Anaheim, Brea, and Fullerton in northeast Orange County. The District has 34 schools: 21 elementary schools, 5 middle schools, 5 high schools, and 5 alternative schools (PYLUSD 2022). Districtwide enrollment was 24,296 for the 2020-21 school year (CDE 2022a). Enrollment at El Dorado High School for the 2020-21 school year was 2,004 (CDE 2022b).

4.3.1 Project Location

The existing El Dorado High School (HS) is at 1651 Valencia Avenue, City of Placentia, Orange County, California (project site). El Dorado HS is situated within approximately 38 acres over one parcel, Assessor's Parcel Number (APN) 336-021-07. The project site is bounded by Brookhaven Avenue to the west and Valencia Avenue to the east. Single-family homes border the project site to the north and south. Specifically, the proposed project would be developed within the El Dorado HS existing synthetic track/field across approximately five acres (see Figure 3-1, *Regional Location,* Figure 3-2, *Local Vicinity,* and Figure 3-3, *Aerial Photograph*). The project site is generally flat within a residential neighborhood.

4.3.2 Existing Land Use

The project site is 5.65 acres of the El Dorado HS Campus, which is approximately 38 acres in size, and is situated in the northwestern corner of the campus. The campus was founded in 1966 and currently consists of approximately 20 buildings, two parking lots, 9 tennis courts, two baseball diamonds, one softball field, swimming pool, hardscaped basketball courts, the synthetic track/field, and the PYLUSD Performing Arts Center.

4.3.3 Aesthetics

The project site is part of an existing high school in an urban area and surrounded by lighted roadways, residential, schools, parks, and commercial development. The project site contains the El Dorado HS track and field, existing lighting, ornamental trees, and a chain link fence on top of a concrete wall. The existing lighting at the El Dorado HS track and field are temporary, portable lights that are powered by generators. The El Dorado HS campus and surrounding area is generally flat and there are no topographic features or rock outcroppings in the vicinity. The project site is not part of a scenic vista. Carbon Canyon Regional Park, approximately 1.7 miles northeast of the project site, and the Chino Hills State Park, 2.4 miles northeast of the project site, are the nearest scenic resources to the project site. Views around the project site are characterized by residential and commercial uses. Details related to the proposed project's impacts on aesthetics are provided in Section 5.1, *Aesthetics*.

4.3.4 Climate, Air Quality and Greenhouse Gas Emissions

The annual average temperature varies little throughout the SoCAB, ranging from the low to middle 60s, measured in degrees Fahrenheit (°F) to middle to high 70s. With a more pronounced oceanic influence, coastal areas show less variability in annual minimum and maximum temperatures than inland areas. The climatological station nearest to the project site that best represents the climatological conditions of the project area is the Santa Ana Fire Station, California Monitoring Station (ID 047888). The average low is reported at 52.0°F and the average high is 75.8°F (WRCC 2023).

In contrast to a very steady pattern of temperature, rainfall is seasonally and annually highly variable. Almost all rain falls from November through April. Rainfall averages 13.69 inches per year in the vicinity of the project site (WRCC 2023). Annual average humidity is 70 percent along the coast and 57 percent in the eastern portions of the SoCAB. Since 2013, Southern California, including Placentia, has experienced prolonged drought conditions.

The project site is located in the SoCAB which is managed by the South Coast AQMD, as indicated in Section 4.2.2.2, above. The SoCAB is designated nonattainment for ozone (O_3), fine inhalable particulate matter ($PM_{2.5}$), and lead under the California and National AAQS and nonattainment for coarse inhalable particulate matter (PM_{10}) and nitrogen dioxide (NO_2) under the California AAQS. Additional information regarding air quality and climate change regulations affecting the City of Placentia is provided in Section 4.2.2, *Regional Planning Considerations*. Existing air quality conditions in the City of Placentia, greenhouse gas emissions and energy consumption are discussed in more detail in Sections 5.2, *Air Quality* and 5.3, *Greenhouse Gas Emissions*.

4.3.5 Noise

The project site is in a largely developed area with residential and school uses and is subject to noise from transportation and stationary sources. In addition to roadway noise and stationary noise sources (property maintenance, light mechanical equipment, people talking, etc.), the project vicinity is also subject to recurring events of athletic field noise from the existing uses on the project site. Noise-sensitive receptors in the vicinity of the proposed project are the residential uses surrounding the project site. Refer to Section 5.4, *Noise*, for additional information concerning the noise environment and an analysis of project-related noise impacts.

4.3.6 Transportation

El Dorado HS is bound by Valencia Avenue to the east, Brookhaven Avenue to the west, and residential to the north and south. There are sidewalks on both side of Valencia Avenue and Brookhaven Avenue. Orange County Transportation Authority (OCTA) operates the Route 26 bus line on Yorba Linda Boulevard approximately 600 feet south of El Dorado HS. Currently, there is a pedestrian gate along Brookhaven Avenue where drop-off/pick-up often occurs. Refer to Section 5.5, *Transportation*, for additional information concerning traffic and transportation impacts.

4.3.7 Cultural, Paleontological, and Tribal Cultural Resources

The City is fully urbanized; however, ground-disturbing activities in the City, including the project site could uncover cultural, paleontological, and tribal cultural resources. Refer to Section 8.3, *Cultural Resources,* and Section 8.13, *Tribal Cultural Resources*, for additional information concerning cultural, paleontological, and tribal cultural impacts.

4.4 ASSUMPTIONS REGARDING CUMULATIVE IMPACTS

Section 15130 of the CEQA Guidelines states that cumulative impacts shall be discussed where they are significant. It further states that this discussion shall reflect the level and severity of the impact and the likelihood of occurrence, but not in as great a level of detail as that necessary for the project alone. Section 15355 of the Guidelines defines cumulative impacts as "...two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts." Cumulative impacts represent the change caused by the incremental impact of a project when added to other proposed or committed projects in the vicinity.

The CEQA Guidelines (Section 15130 [b][1]) state that the information utilized in an analysis of cumulative impacts should come from one of two sources:

A. A list of past, present and probable future projects producing related cumulative impacts, including, if necessary, those projects outside the control of the agency.

B. A summary of projections contained in an adopted General Plan or related planning document designed to evaluate regional or area-wide conditions.

The cumulative impact analyses in Chapter 5, Environmental Analysis, of this DEIR primarily use Method A. PlaceWorks compiled a list of cumulative projects for analysis under CEQA. These cumulative projects are listed and numbered in Table 4-1 and mapped on Figure 4-1, *Cumulative Projects Location Map*.

Table 4-1 Cumulative Projects

No.	Project	Address	Land Use	Dwelling Units (DU)	Non-residential Area (SF)	Other
1	Santa Angelina Senior Apartment homes	1314 N. Angelina Drive City of Placentia	Senior Adult Assisted Living Continuing Care	64	-	-
2	Brookhaven Elementary School	1851 Brookhaven Ave City of Placentia	School Modernization	-	-	-
3	Morse Elementary School	431 Morse Ave City of Placentia	School Modernization	-	-	-
4	Wagner Elementary School	717 E Yorba Linda Blvd City of Placentia	School Modernization	-	-	-
5	Tuffree Middle School	2151 N Kraemer Blvd City of Placentia	School Modernization	-	-	-

Cumulative impact analyses for several topical sections are also based on the most appropriate geographic boundaries for the respective impact. For example, cumulative hydrological impacts are based on the area's watershed (Carbon Creek Watershed), and wastewater impacts are based on the Golden State Water Company's service boundary, which includes other jurisdictions in addition to Placentia. Several potential cumulative impacts encompassing regional boundaries (e.g., traffic, air quality, greenhouse gases) are addressed in the context of the growth assumptions in various regional plans. Following is a summary of the approach and extent of cumulative impacts, which are further detailed in each topical environmental section.

- **Aesthetics.** Cumulative impacts consider the potential for the project and related projects in the same visual area to impact scenic resources in the City, including scenic viewsheds and landforms, open space, assessment of area-wide vistas, and coastal view roads. The aesthetic analysis also considers cumulative compliance with City plans, programs, and regulations governing scenic resources.

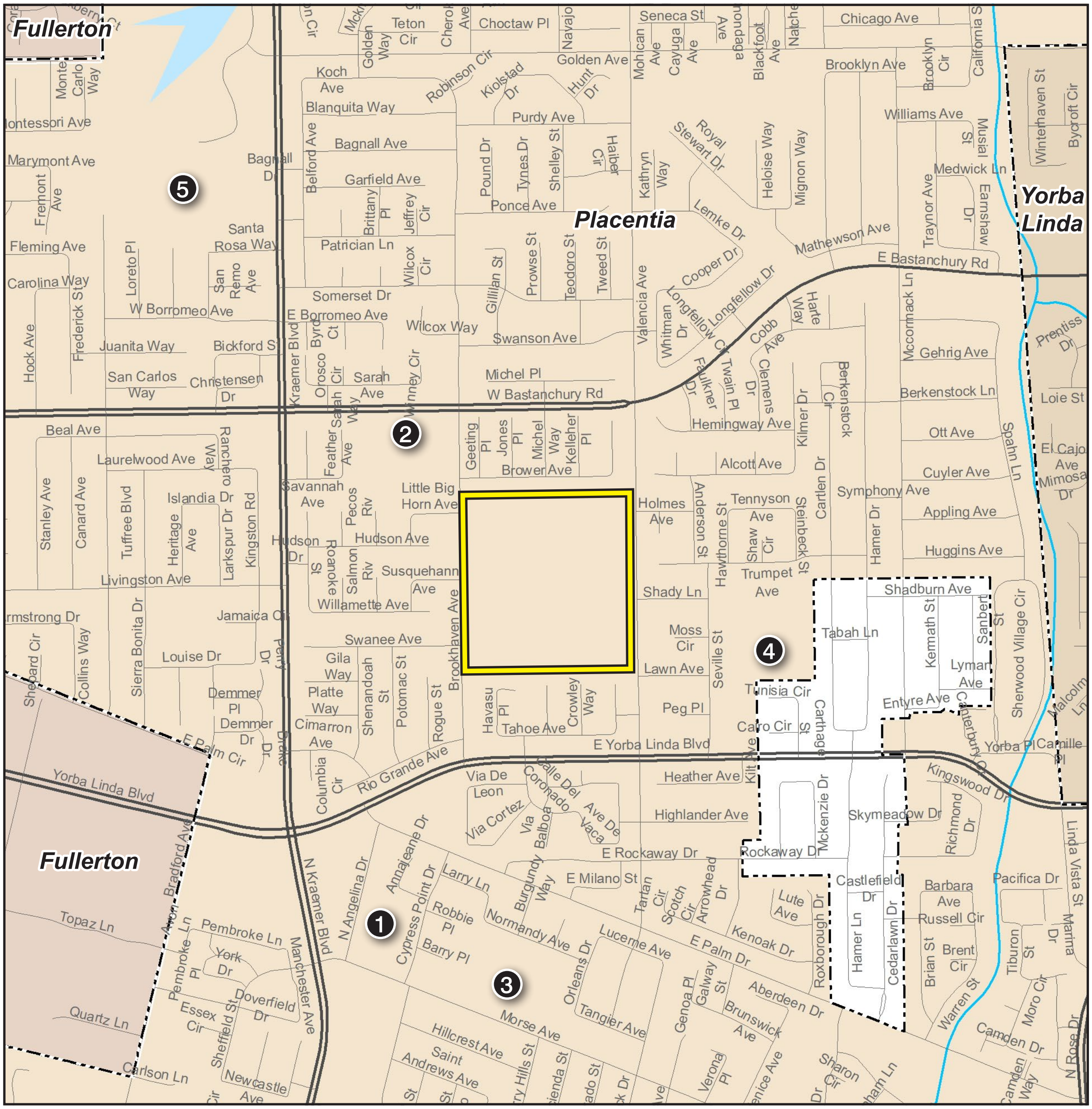
- **Air Quality.** Air quality impacts are both regional impacts and localized impacts. For cumulative impacts, the analysis is based on the regional boundaries of the South Coast Air Basin.

- **Greenhouse Gas (GHG) Emissions.** GHG emissions impacts are not site-specific impacts but cumulative global impacts. Therefore, the analysis in Section 5.5 is the project's cumulative contribution to global climate change.

- **Noise.** Cumulative noise impacts are based on the traffic study, which considers the regional growth based on citywide and regional projections.

- **Transportation.** Cumulative VMT impacts consider the impacts of future growth and development in the City of Placentia and vicinity on the roadway system serving the area.

Figure 4-1 - Cumulative Projects Location Map



1. Santa Angelina Senior Apartment Homes (1314 N. Angelina Drive, Placentia, CA 92870)
2. Brookhaven Elementary School (1851 Brookhaven Avenue, Placentia, CA 92870)
3. Morse Elementary School (431 Morse Avenue, Placentia, CA 92870)
4. Wagner Elementary School (717 E. Yorba Linda Boulevard, Placentia, CA 92870)
5. Tuffree Middle School (2151 N. Kraemer Boulevard, Placentia, CA 92870)

School Boundary

City Boundary

0 1,250 Scale (Feet)

Note: Unincorporated county areas are shown in white.

Source: ESRI, 2022

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4.5 REFERENCES

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5. Environmental Analysis

Chapter 5 examines the environmental setting of the El Dorado High School Field Lighting Project (proposed project), analyzes its effects and the significance of its impacts, and recommends mitigation measures to reduce or avoid impacts. This chapter has a separate section for each environmental issue area that was determined to need further study in the DEIR. This scope was determined in the Notice of Preparation (NOP), which was published on April 29, 2022 (see Appendix A), and through public and agency comments received during the NOP comment period from April 29, 2022, to May 30, 2022 (see Appendix A). Environmental issues and their corresponding sections are:

- 5.1 Aesthetics
- 5.2 Air Quality
- 5.3 Greenhouse Gas Emissions
- 5.4 Noise
- 5.5 Transportation

Sections 5.1 through 5.5 provide a detailed discussion of the environmental setting, impacts associated with the proposed project, and mitigation measures designed to reduce significant impacts where required and when feasible. The residual impacts following the implementation of any mitigation measure are also discussed.

Organization of Environmental Analysis

To assist the reader with comparing information between environmental issues, each section is organized under the following major headings:

- Environmental Setting
- Thresholds of Significance
- Environmental Impacts
- Cumulative Impacts
- Level of Significance Before Mitigation
- Mitigation Measures
- Level of Significance After Mitigation
- References

In addition, Chapter 1, *Executive Summary,* has a table that summarizes all impacts by environmental issue.

Terminology Used in This Draft EIR

The level of significance is identified for each impact in this DEIR. Although the criteria for determining significance are different for each topic area, the environmental analysis applies a uniform classification of the impacts based on definitions consistent with CEQA and the CEQA Guidelines:

- **No impact.** The project would not cause adverse changes in the environment.
- **Less than significant.** The project would not cause any substantial adverse change in the environment.
- **Less than significant with mitigation incorporated.** The EIR includes mitigation measures that avoid substantial adverse impacts on the environment.
- **Significant and unavoidable.** The project would cause a substantial adverse effect on the environment, and no feasible mitigation measures are available to reduce the impact to a less than significant level.

5.1 AESTHETICS

This section of the Draft Environmental Impact Report (DEIR) evaluates the potential impacts of the proposed El Dorado High School (El Dorado HS) field lighting (proposed project) on aesthetic and visual resources related to scenic vistas, views from trails, visual character, visual quality, and new sources of light and glare at the campus and surrounding community.

The analysis in this section is based in part on the existing conditions observed during project site visits on October 7, 8, and 11, 2022 and daytime and nighttime simulations prepared for the proposed project. The analysis in this section is also based in part on the proposed project lighting plan and Illumination Summary/Light Level Summary prepared by Musco Lighting (2023) located in Appendix B of this DEIR.

The District received two emails and one letter from residents in response to the Notice of Preparation (NOP) related to light and glare. The NOP and all scoping comment letters are included as Appendix A of this DEIR.

5.1.1 Environmental Setting

5.1.1.1 REGULATORY BACKGROUND

State and local laws, regulations, plans, or guidelines related to aesthetics that are applicable to the proposed project are summarized in this section.

State

State Scenic Highway Program

The State Scenic Highway Program was created in 1963 by the State Legislature to protect and enhance the natural scenic beauty along portions of state highway system that are determined to be scenic highways. Scenic highways can have an “eligible” designation or be “officially designated.” The status of a proposed state scenic highway changes from eligible to officially designated when a local jurisdiction adopts a scenic corridor protection program, then applies to the California Department of Transportation (Caltrans) for scenic highway approval and receives notification from Caltrans that the highway has been officially designated as a Scenic Highway.

California Building Code: Building Energy Efficiency Standards

Energy conservation standards for new residential and nonresidential buildings were adopted by the California Energy Resources Conservation and Development Commission (now the CEC) in June 1977 and most recently revised in 2016 (Title 24, Part 6, of the California Code of Regulations [CCR]). Title 24 requires the design of building shells and building components to conserve energy. The standards are updated periodically to allow for consideration and possible incorporation of new energy efficiency technologies and methods. On June 10, 2015, the CEC adopted the 2016 Building Energy Efficiency Standards, which went into effect on January 1, 2017. Title 24 requires outdoor lighting controls to reduce energy usage; in effect, this reduces outdoor lighting.

Nighttime Sky, CCR Title 24, Outdoor Lighting Standards

The California legislature passed a bill in 2001 requiring the California Energy Commission to adopt energy efficiency standards for outdoor lighting, both public and private. In November 2003, the commission adopted changes to the California Code of Regulations, Title 24, parts 1 and 6, Building Energy Efficiency Standards. These standards became effective on October 1, 2005, and included changes to the requirements for outdoor lighting for residential and nonresidential development. These standards improved the quality of outdoor lighting and helped to reduce the impacts of light pollution, light trespass, and glare. The standards regulate lighting characteristics such as maximum power and brightness, shielding, and sensor controls to turn lighting on and off. Different lighting standards are set for different "lighting zones" (LZ), and the zone for a specific area is based on population figures from the 2000 Census. Areas can be designated LZ1 (dark), LZ2 (rural), or LZ3 (urban). Based on this classification, the project site is designated LZ3.

As described in Section 140.7(a) – Prescriptive Requirements for Outdoor lighting, the project is exempt from Section 140.7 of the Building Energy Efficiency Standards.

Local

City of Placentia General Plan

Land Use Element

The Land Use Element includes the following goals and policies related to visual resources:

Goal LU-2: Ensure that new development is compatible with surrounding land uses, the circulation network, and existing development constraints.

- **Policy LU-2.1.** Where residential/commercial Mixed-Use is permitted, ensure compatible integration of adjacent uses to minimize conflicts through site planning, development standards and architectural compatibility.
- **Policy LU - 2.2.** Develop residential and commercial design guidelines to both protect existing development and allow for future development that is attractive, compatible, and sensitive to surrounding uses.

Goal LU-5: Improve urban design in Placentia to ensure that development is both architecturally attractive and functionally compatible and to create identifiable neighborhoods, and community areas.

- **Policy LU-5.2.** Develop citywide visual and circulation linkages through strengthened landscaping, pedestrian lighting, and bicycle trails.
- **Policy LU-5.7.** Promote exterior signage and lighting that is subdued in character and non-intrusive upon neighboring uses.

Health, Wellness & Environmental Justice Element

The Health, Wellness & Environmental Justice element includes the following goals, policies, and objectives related to visual resources:

Goal HW/EJ-7: Ensure that parks, trails, open spaces, and community facilities that support active, healthy recreation and activities are distributed throughout Placentia and are available to residents of disadvantaged communities.

- **Policy HW/EJ-7.8.** Continue to maintain and improve recreational facilities with adequate lighting, signage, hours of operation and programs representative of the multicultural needs and income levels of the community. Providing facility upgrades may increase capacity to attract people from neighborhoods that are currently underserved.

The project site is not subject to a dark sky ordinance that is often meant to protect wildlife habitat, protect the natural ambiance of the night sky, and reduce energy use. These ordinances are also important in areas near existing observatories. The City of Placentia Municipal Code does not include a dark sky ordinance.

5.1.1.2 EXISTING CONDITIONS

Scenic Vistas and Corridors

Scenic vistas are panoramic views of features such as mountains, forests, the ocean, or urban skylines. The city of Placentia is near gently rolling hillsides with distant views of Chino Hills to the north and to the east, views of the San Gabriel Mountains to the north, and views of the Santa Ana Mountains to the east. The project site is not located within a scenic vista or scenic corridor. The nearest scenic areas are Carbon Canyon Regional Park and Chino Hills State Park, which are approximately 1.7 miles and 2.4 miles northeast of the project site, respectively.

The project site is not located near or within a designated scenic highway. The nearest officially designated state scenic highway is State Route 91 (SR-91) from SR 55 to City of Anaheim eastern city limit, which is approximately 3.6 miles southeast of El Dorado HS.

Visual Character and Landform

The El Dorado HS campus contains an existing developed high school campus. Specifically, the project site is developed with existing outdoor athletic facilities including a track/field. The El Dorado HS campus is surrounded by adjacent residential uses and qualifies as an "urbanized area."[1] The project site is surrounded by residential to the north, campus parking and tennis courts to the east, campus buildings and baseball field to the south, and Brookhaven Avenue immediately to the west followed by a residential neighborhood. Views around the project site include the other urbanized uses such as residential and commercial uses. The project site and surrounding immediate vicinity lack significant topography.

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[1] Public Resources Code Section 21071/CEQA Guidelines 15191(m)(1) for an incorporated city "Urbanized area" means the city that either by itself or in combination with two contiguous incorporated cities has a population of at least 100,000 persons. City of Placentia has a population of about 51,274 and the adjacent City of Fullerton has a population of about 141,874.

Existing Views

The project site can be seen from public rights-of-way, including Valencia Avenue, Brookhaven Avenue, Susquehanna Avenue, and Little Big Horn Avenue as well as from the surrounding residential and commercial uses. Views of the campus and project site from the surrounding residential neighborhood roadways include views of the athletic fields along Brookhaven Avenue and landscaping including tree lines. The campus buildings are also visible from Brookhaven Avenue. The campus parking lot and campus building are immediately visible from Valencia Avenue. The synthetic track/field are partially visible from Valencia Avenue as they are partially obstructed by the parked cars, fencing around the tennis courts, and campus buildings.

Views of the Project Site from Public Locations

Public viewing points, identified in Figure 5.1-1, *Public Viewpoints*, were chosen as a representative sample of views of the project site from surrounding public areas and the broader project vicinity. Views from private residences are not protected views under CEQA and are not described herein.

Public Viewing Point 1

Public Viewing Point 1 was taken near the intersection of Susquehanna Avenue and Brookhaven Avenue looking northeast towards the project site, see Figure 5.1-2a *Existing Daytime Public Viewpoint 1* and Figure 5.1-3a *Existing Nighttime Public Viewpoint 1*. The view consists of Brookhaven Avenue, streetlights, the El Dorado HS track/field, ornamental trees, chain link fence that surrounds the high school campus, and the residences along Brower Avenue.

Public Viewing Point 2

Public Viewing Point 2 was taken near the intersection of Little Big Horn Avenue and Brookhaven Avenue looking east towards the project site, see Figure 5.1-2b *Existing Daytime Public Viewpoint 2* and Figure 5.1-3b *Existing Nighttime Public Viewpoint 2*. The view consists of the El Dorado HS track/field, goal posts, flag pole, score board, ornamental trees, chain link fence and concrete wall along the western boundary of El Dorado HS, partial views of campus buildings, and the residences along Brower Avenue.

Public Viewing Point 3

Public Viewing Point 3 was taken near the intersection of Jones Place and Brower Avenue looking southwest towards the project site, see Figure 5.1-2c *Existing Daytime Public Viewpoint 3* and Figure 5.1-3c *Existing Nighttime Public Viewpoint 3*. The view consists of Brower Avenue, the frontage of single-family residences along the northern portion of the project site, light pole, and trees. The campus is not visible from this viewpoint.

Light and Glare

The two major causes of light pollution on the campus are spill light and glare from existing sources of light. Spill light is caused by misdirected light that illuminates areas outside the area intended to be lit. Glare occurs when a bright object is against (or reflects off) a dark background or shiny surface. Existing sources of light on the campus include light emanating from building interiors, building and security lights, and parking lot lights. Figures 5.1-3a through 5.1-3c show the existing nighttime lighting conditions at the project site and immediate area. While there is no permanent nighttime lighting installed on the existing track/field, El Dorado HS uses temporary/portable field lights used during some athletic events. Figures 5.1-3a through 5.1-3c show the El Dorado HS track/field existing nighttime conditions with lights off and lights on (including portable lights). Figure 5.1-4, *Existing Light Measurements* provides light meter readings taken along the northern property line. These light meter readings were taken when the existing lights were on in the parking lot, tennis courts, and when the portable track/field lights were on. The existing light meter readings include horizonal readings taken at three feet above ground surface and vertical readings taken at four feet five inches. As shown on Figure 5.1-4, the maximum vertical light spill along the northern boundary is 2.7 foot candles (fc) and the maximum horizontal light spill along the northern boundary is 0.6 fc. The lowest vertical light spill reading along the northern boundary property line is 0.5 fc and the lowest horizontal light spill reading is 0 fc. Off-site sources of light include street lighting, vehicular lighting, and exterior lighting on existing residential and commercial uses.

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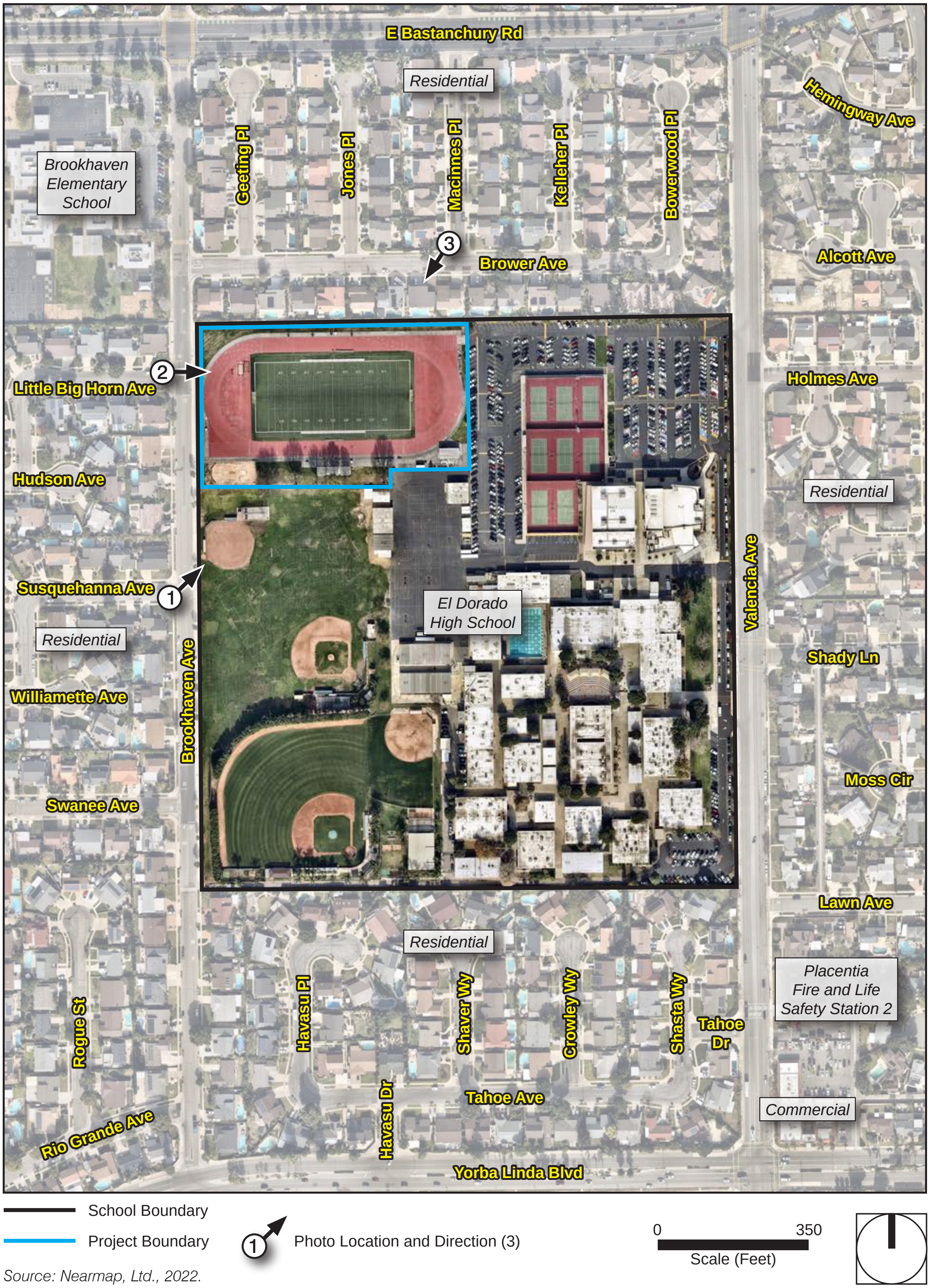
Figure 5.1-1 - Public Viewpoints



Source: Nearmap, Ltd., 2022.

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Figure 5.1-2a - Existing Daytime Public Viewpoint 1

Source: PlaceWorks, Inc., 2023.

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Figure 5.1-2b - Existing Daytime Public Viewpoint 2

Source: PlaceWorks, Inc., 2023.

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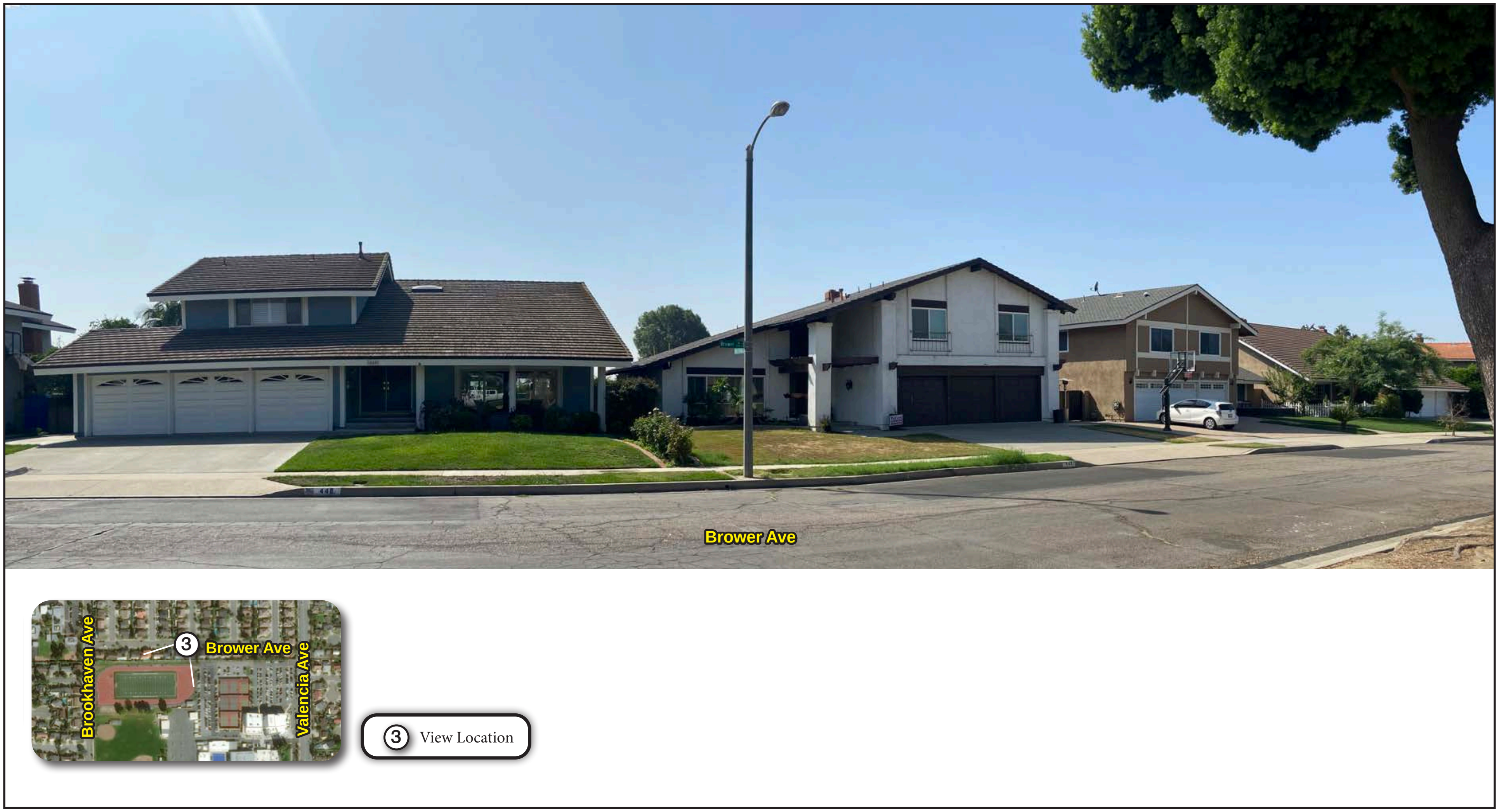
Figure 5.1-2c - Existing Daytime Public Viewpoint 3



Source: PlaceWorks, Inc., 2023.

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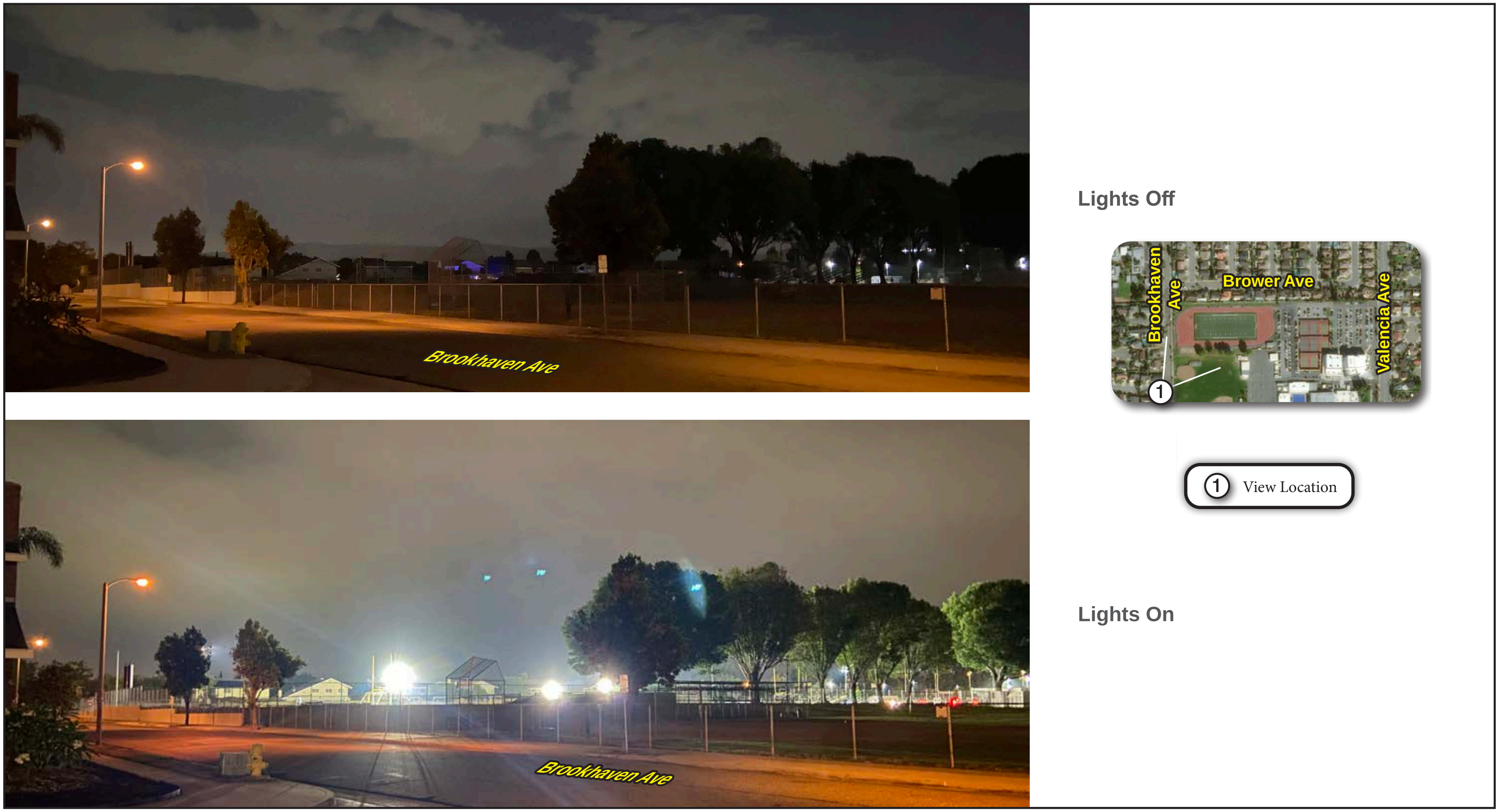
Figure 5.1-3a - Existing Nighttime Public Viewpoint 1



Source: PlaceWorks, Inc., 2023.

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Figure 5.1-3b - Existing Nighttime Public Viewpoint 2

Source: *PlaceWorks, Inc., 2023.*

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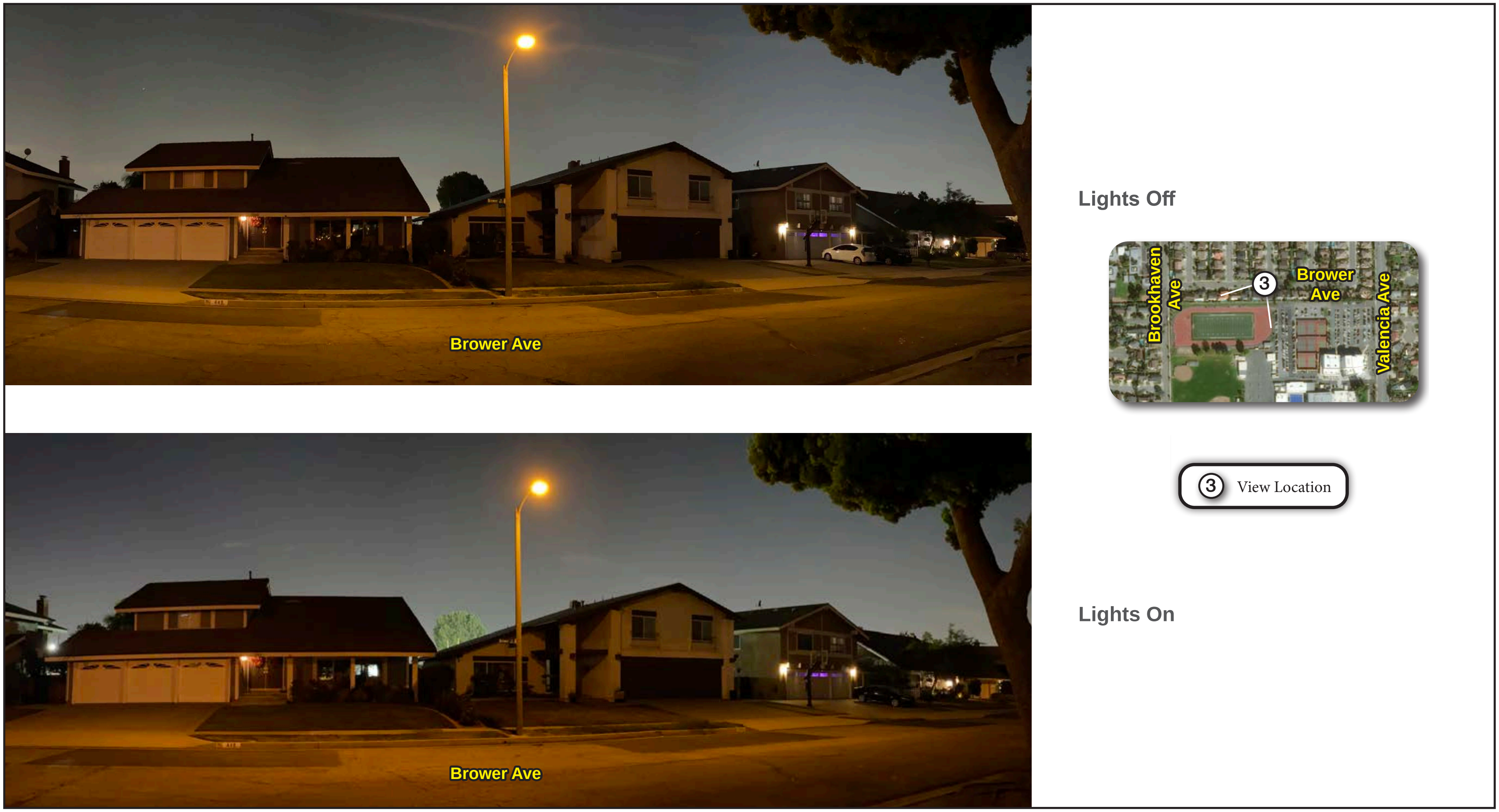
Figure 5.1-3c - Existing Nighttime Public Viewpoint 3



Source: PlaceWorks, Inc., 2023.

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Figure 5.1-4 - Existing Light Measurements

Location	Measurement (foot-candles)	
	Lights On	
	Vertical Spill Light	Horizontal Spill Light
1	0.1	0
2	0.2	0
3	0.4	0
4	1.8	1.7
5	0.4	0.1
6	0.8	0.7
7	0.4	0
8	2.3	2
9	0.5	0.1
10	1.1	0.6
11	0.5	0
12	2.7	0
13	0.9	0.1
14	1.3	0.1
15	1.6	0.2
16	1.6	0.2
17	1.1	0.2
18	1	0.2
19	0.7	0.2
20	0.5	0.1
21	0.3	0
22	0.4	0
23	0.4	0
24	0.4	0.1
25	0.2	0
26	0.2	0
27	0.2	0

Source: PlaceWorks, 2022.

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5.1.2 Thresholds of Significance

Appendix G of the CEQA Guidelines states that, "except as provided in Public Resources Code Section 21099," a project would normally have a significant effect on the environment if the project would:

AE-1 Have a substantial adverse effect on a scenic vista.

AE-2 Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway.

AE-3 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.

AE-4 Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area. For the purposes of this analysis, an industry standard of 0.8 foot-candle (fc) was used for a significance determination. The 0.8 fc is selected as it sets the standard below the level of typical street lights (1.0 to 5.0 fc) and it is below is twilight (1.0 fc), which assures that bedrooms are not subjected to sleep-depriving light intrusion.

5.1.3 Environmental Impacts

5.1.3.1 METHODOLOGY

Nighttime illumination and glare impacts are the effects of a project's exterior lighting upon adjoining uses and areas. Light and glare impacts are determined through a comparison of the existing light sources with the proposed lighting plan or policies. In some cases, excessive light and glare can be annoying to residents or other sensitive land uses; be disorienting or dangerous to drivers; impair the character of rural communities; and/or adversely affect wildlife. If the project has the potential to generate spill light on adjacent sensitive receptors or generate glare at receptors in the vicinity of the project site, mitigation measures can be provided to reduce potential impacts, as necessary. The following provides relevant lighting assessment terminology used in this analysis.

A lighting illumination summary was prepared for the proposed project based on computer calculations and includes a grid summary of the minimum and maximum maintained horizontal footcandles for the track/field and immediately adjacent areas (Musco 2023).

Terminology

The **foot-candle** (fc) is a unit based on English measurements. Although foot-candles are considered obsolete in some scientific circles, they are nevertheless used because many existing light meters are calibrated in foot-candles. Moonlight produces approximately 0.01 fc, and sunlight can produce up to 10,000 fc. The general benchmarks for light levels are shown in Table 5.1-1, *General Light Levels Benchmark*.

Table 5.1-1 General Light Levels Benchmark

Outdoor Light	Foot-Candles
Direct Sunlight	10,000
Full Daylight	1,000
Overcast Day	100
Dusk	10
Twilight	1
Deep Twilight	0.1
Full Moon	0.01
Quarter Moon	0.001
Moonless Night	0.0001
Overcast Night	0.00001
Gas station canopies	25–30
Typical neighborhood streetlight and parking garage	1.0–5.0

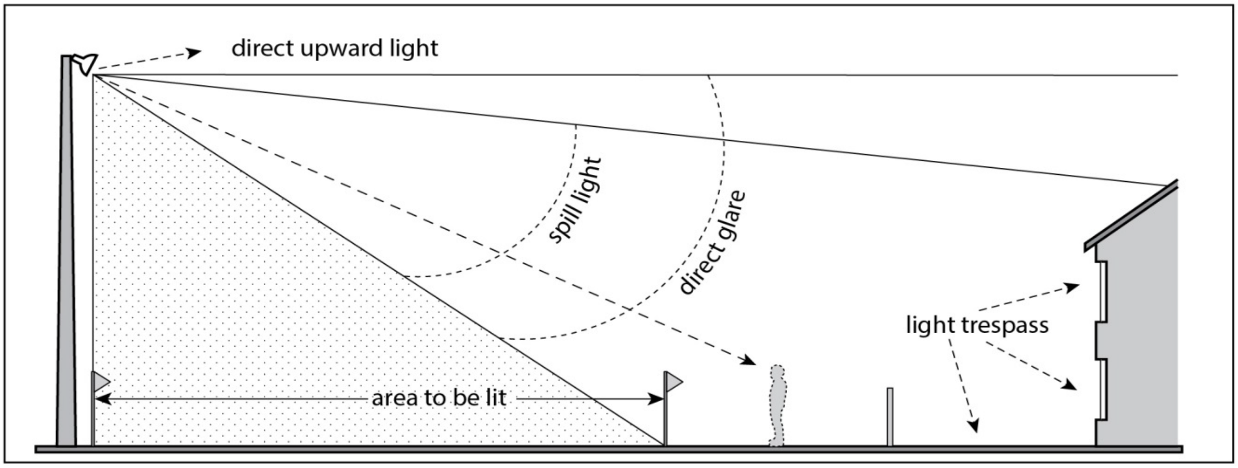
Horizontal foot-candle. The amount of light received on a horizontal surface such as a roadway or parking lot pavement.

Vertical foot-candle. The amount of light received on a vertical surface such as a billboard or building façade.

Glare means lighting entering the eye directly from a light fixture or indirectly from reflective surfaces that causes visual discomfort or reduced visibility. Glare can be generated by building-exterior materials, surface-paving materials, vehicles traveling or parked on roads and driveways, and sports lights. Any highly reflective façade material is a concern because buildings can reflect bright sunrays. The concepts of spill light, direct glare, and light trespass are illustrated in Exhibit A, *Spill Light, Direct Glare, and Light Trespass*, adapted from the Institution of Lighting Engineers (ILE 2003).

Direct glare is caused by looking at an unshielded lamp or a light at maximum candlepower. Direct glare is dependent on the brightness of the light source, the contrast in brightness between the light source and the surrounding environment, the size of the light source, and its position.

Exhibit A: Spill Light, Direct Glare, and Light Trespass



Illuminance is the amount of light on a surface or plane, typically expressed in a horizontal plane (e.g., on the ground) or in a vertical plane (e.g., on the side of a building).

Lumen means the unit of measure used to quantify the amount of visible light produced by a light source or emitted from a luminaire (as distinct from "watt," a measure of power consumption).

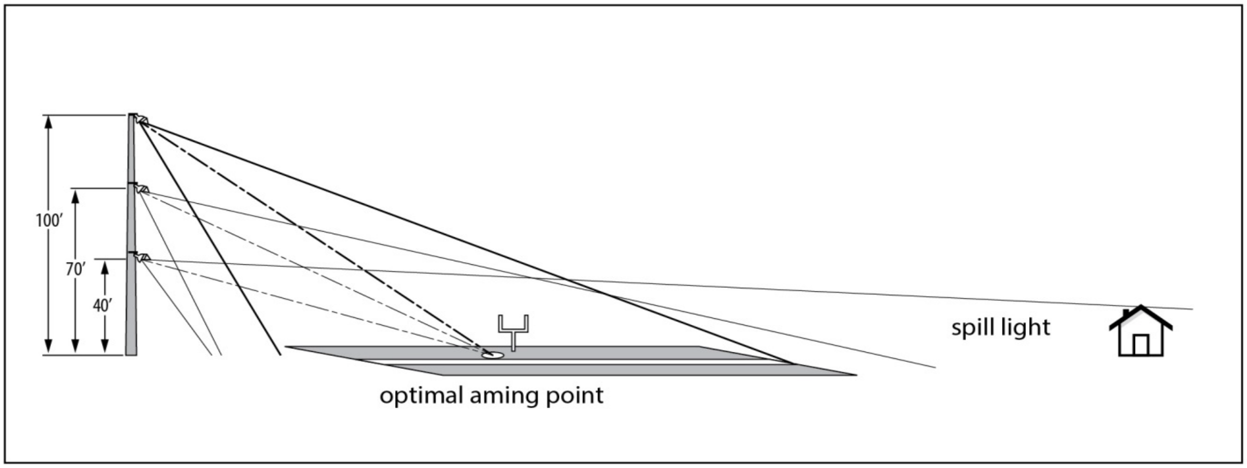
Luminaire means outdoor electrically powered illuminating devices that include a light source, outdoor reflective or refractive surfaces, lenses, electrical connectors and components, and all parts used to mount the assembly, distribute the light, and/or protect the light source, whether permanently installed or portable. An important component of luminaires is their shielding:

- **Fully shielded.** A luminaire emitting no light above the horizontal plane.
- **Shielded.** A luminaire emitting less than 2 percent of its light above the horizontal plane.
- **Partly shielded.** A luminaire emitting less than 10 percent of its light above the horizontal plane.
- **Unshielded.** A luminaire that may emit light in any direction.

Light trespass means light that falls beyond the property on which it originates. The amount of trespass is expressed in foot-candles and is measured in the vertical plane at five feet above grade at the property line of the site on which the light(s) is located. If the adjacent property is a street, alley, or sidewalk, the point at which trespassing light is measured is the center of the street, alley, sidewalk, or right-of-way. Field measurements to determine light trespass compliance do not include the effect of light produced by streetlights.

As a general rule, taller poles allow fixtures to be aimed more directly on the playing surface, which reduces the amount of light spilling into surrounding areas. Proper fixture angles ensure even light distribution across the playing area and reduce spill light, as shown in Exhibit B, *Pole Heights and Lighting Angles*.

Exhibit B: Pole Heights and Lighting Angles



Sky Glow is light that reflects into the night sky and reduces visibility of the sky and stars. It is a concern in many jurisdictions, especially those with observatories.

5.1.3.2 IMPACT ANALYSIS

Impact 5.1-1: The proposed project would not have a substantial adverse effect on a scenic vista. [Threshold AE-1]

There are no scenic vistas officially designated by the City of Placentia General Plan. The project site is not in the viewshed of a scenic resource. Existing development on the project site does not currently obstruct or interfere with views of the Chino Hills to the north northeast from surrounding areas. The proposed four light poles would be visible from the surrounding neighborhood; however, the new development would not degrade background views of the Chino Hills. Implementation of the proposed project would not result in the obstruction or degradation of existing scenic views. Therefore, the proposed project's impacts on scenic vistas are **less than significant**.

Impact 5.1-2: The proposed project would not alter scenic resources within a state scenic highway. [Threshold AE-2]

The California Scenic Highway Program seeks to preserve and protect areas of outstanding natural beauty that are visible from state highways. The project site is not located within or near a Scenic Highway designated by the California Department of Transportation (Caltrans). The nearest officially designated state scenic highway is SR-91 from SR 55 to the east city limit of Anaheim, which is approximately 3.6 miles southeast of El Dorado HS (Caltrans 2022). Due to the distance, topography, and intervening development, El Dorado HS is not visible from a designated state scenic highway. Therefore, the proposed project would not damage scenic resources within a state scenic highway, and **no impact** would occur.

Impact 5.1-3: The proposed project would not conflict with applicable zoning and other regulations governing scenic quality. [Threshold AE-3]

The existing vertical elements of the campus that are visible from the residential areas to the north, south, east, and west include temporary portable field lights, permanent light poles at the tennis courts, score board, trees, fencing, and school buildings. The proposed project includes the installation of four 80-foot LED light poles with six luminaries/fixtures at 80 feet and two luminaries/fixtures at 16 feet for a total of 32 luminaries. The project is consistent with the existing campus zoning and land use designation. Implementation of the proposed project would not violate any regulations governing scenic quality. As the project site is already developed with school uses, the proposed light poles would not interfere with public views, including background views of Chino Hills, and would not conflict with regulations governing scenic quality. Therefore, impacts would be **less than significant**.

Impact 5.1-4: The proposed project could create a new source of substantial light and glare that would adversely affect day or nighttime views in the area. [Threshold AE-4]

For the purposes of this analysis, a standard of 0.8 foot-candle (fc) was used for a significance determination because 0.8 fc would be close to twilight light levels. The 0.8 fc is selected as it sets the standard below the level of typical street lights (1.0 to 5.0 fc) and it is below twilight levels (1.0 fc), which assures that bedrooms are not subjected to sleep-depriving light intrusion.

As described above in Section 5.1.1.2, existing artificial sources of light on-site include temporary portable field lights for student and community use of the El Dorado HS track/field. The youth soccer group currently uses six 30-foot tall, diesel-powered portable lights to light the track/field. The District uses three electric-powered portable lights for student-related activities, such as band practice, on the track/field (see Figures 5.1-3a through 5.1-3c and Figure 5.1-4). Other existing on-site sources of artificial light include light emanating from building interiors, building and security lights, and parking lots. Existing off-site lighting sources include street lighting, vehicular lighting, and exterior lighting on existing residential and commercial uses. The nearest light sensitive receptors are the single-family residences immediately north of the track/field.

The proposed project would install field lighting required to effectively illuminate the track/field for El Dorado HS student and community use. The proposed maximum field illumination level would be approximately 44 fc. The four light poles would provide the track/field with an average of about 33 fc, the track with an average of about 16.1 fc, and the long jump/high jump areas with an average of about 21.7 fc (see Figure 3-4 and Table 5.1-2 below).

Table 5.1-2 Lighting Level Summary

Area	Guaranteed Average Illumination	Minimum Illumination	Maximum Illumination
Football	33.3	28	39
Track Field	16.1	4	30
Soccer	32.9	24	39
Long Jump/High Jump Area	21.7	9	40

Some of the design elements for light control and reduced spill lighting include mounting height and steep aiming angles, various lighting modes, visors and shielding, reflective housing around the luminaires, number of luminaires, and appropriate light levels. The proposed light poles incorporate all these elements, and each element can be arranged individually to control and minimize any potential spill lighting impacts. Additionally, there are existing street light poles in the surrounding area and existing light poles at the campus tennis courts. The proposed project would not be inconsistent with the surrounding existing conditions during the daytime.

Figure 5.1-5a, *Proposed Daytime Public Viewpoint 1,* and Figure 5.1-5a, *Proposed Nighttime Public Viewpoint 1,* shows daytime and nighttime views of the project site under project conditions from the intersection of Susquehanna Avenue and Brookhaven Avenue.

Figure 5.1-5b, *Proposed Daytime Public Viewpoint 2,* and Figure 5.1-5b, *Proposed Nighttime Public Viewpoint 2,* shows daytime and nighttime views of the project site under project conditions from the intersection of Little Big Horn Avenue and Brookhaven Avenue.

Figure 5.1-5c, *Proposed Daytime Public Viewpoint 3,* and Figure 5.1-5c, *Proposed Nighttime Public Viewpoint 3,* shows daytime and nighttime views of the project site under project conditions from the intersection of Jones Place and Brower Avenue.

As shown in those figures, the light poles would be visible from the three public viewpoints behind the existing street trees, landscaping, and fencing. However, the galvanized poles with shielded LED luminaires would not be a source of adverse light or glare impacts during the daytime.

As shown in Figures 5.1-6a through 5.1-6c, *Proposed Nighttime Public Viewpoints 1 through 3,* the proposed pole heights allow the best control for focusing the lights to minimize spillover light. Higher mounting heights are generally more effective in controlling spill light, because a more controlled and/or narrower beam may be used, making it easier to confine the light to the design area (see Exhibit B *Pole Heights and Lighting Angles*). Lower mounting heights increase the spill light beyond the property boundaries. Lower mounting heights make bright parts of the floodlights more visible from positions outside the property boundary, which can increase glare.

As shown in Figure 5.1-7, *Musco Lighting Analysis,* the operation of the proposed project would not exceed 0.8 fc at the northern property line. Spill light would not exceed 0.8 fc at the residential property line across Brookhaven Avenue to the west of the project site. As shown in Appendix B, illumination summary of the maximum vertical fc, the proposed project would result in a vertical maximum 0.79 fc which is lower than the existing conditions for vertical spill light. These residents would experience a reduction in the average spill light, specifically vertical spill light, they now experience from the portable lights used for evening events.

Figure 5.1-5a - Proposed Daytime Public Viewpoint 1

① View Location
● Proposed Field Lights

Source: PlaceWorks, Inc., 2023.

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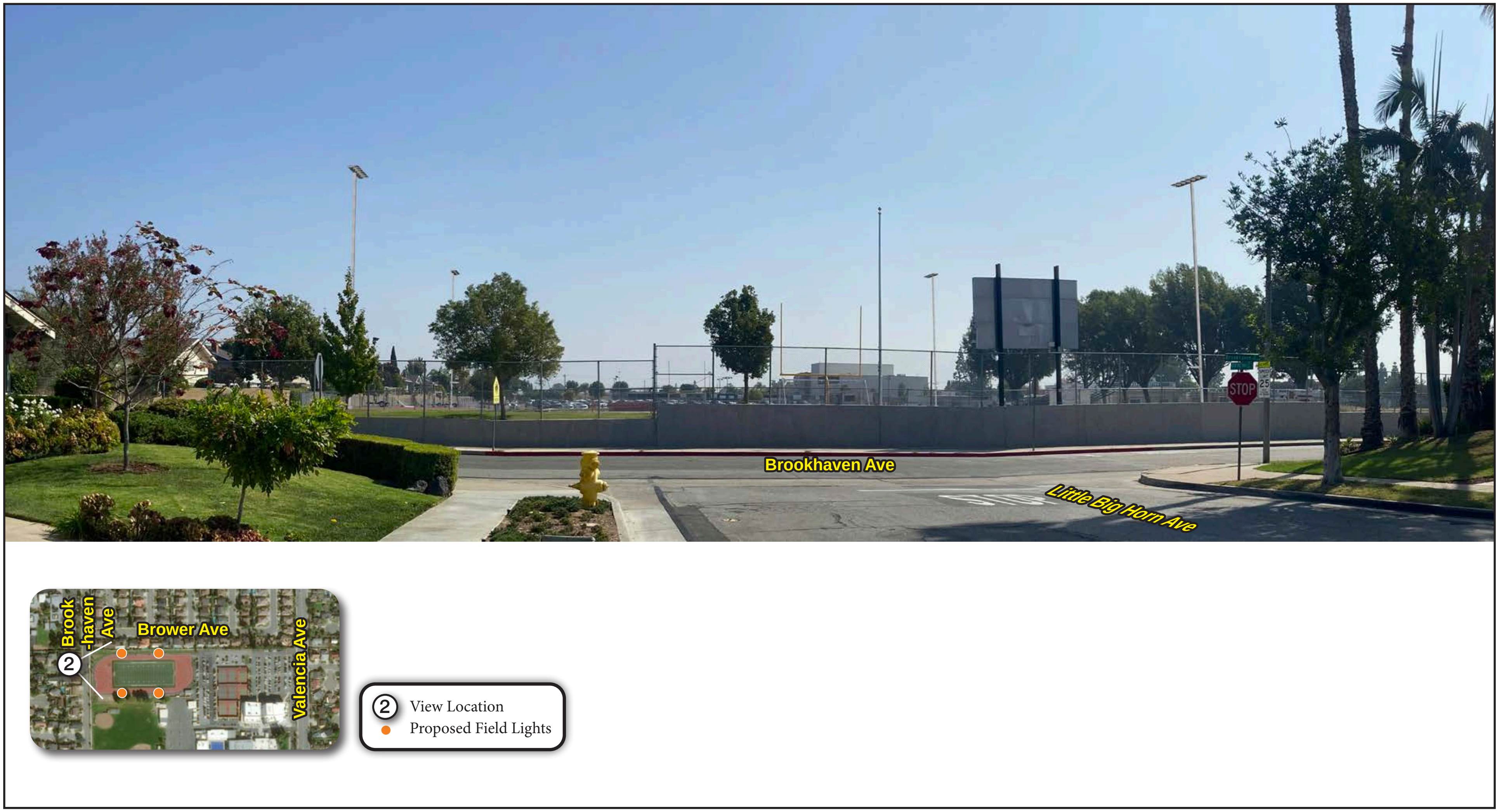
Figure 5.1-5b - Proposed Daytime Public Viewpoint 2



Source: PlaceWorks, Inc., 2023.

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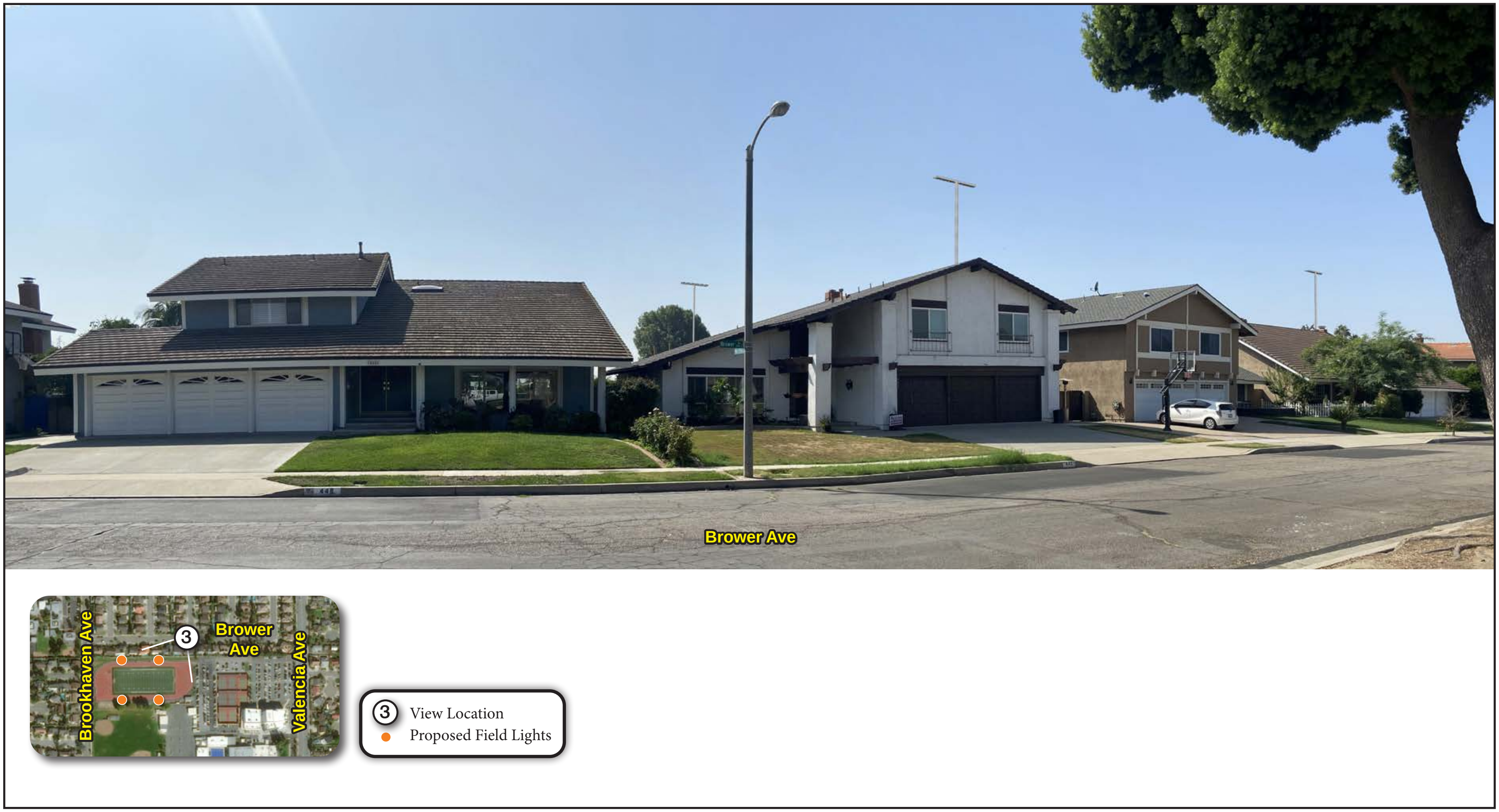
Figure 5.1-5c - Proposed Daytime Public Viewpoint 3



Source: PlaceWorks, Inc., 2023.

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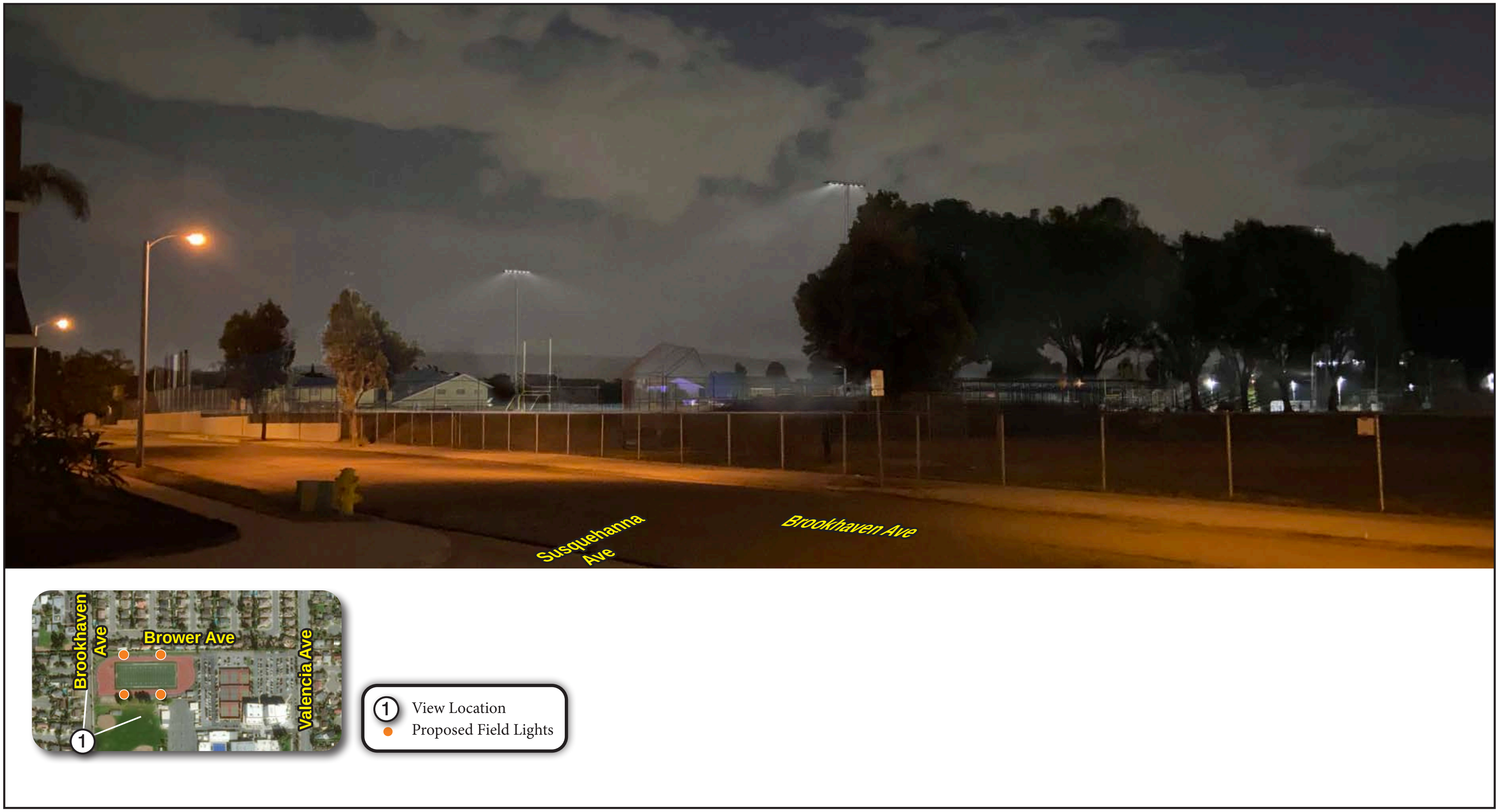
Figure 5.1-6a - Proposed Nighttime Public Viewpoint 1



Source: PlaceWorks, Inc., 2023.

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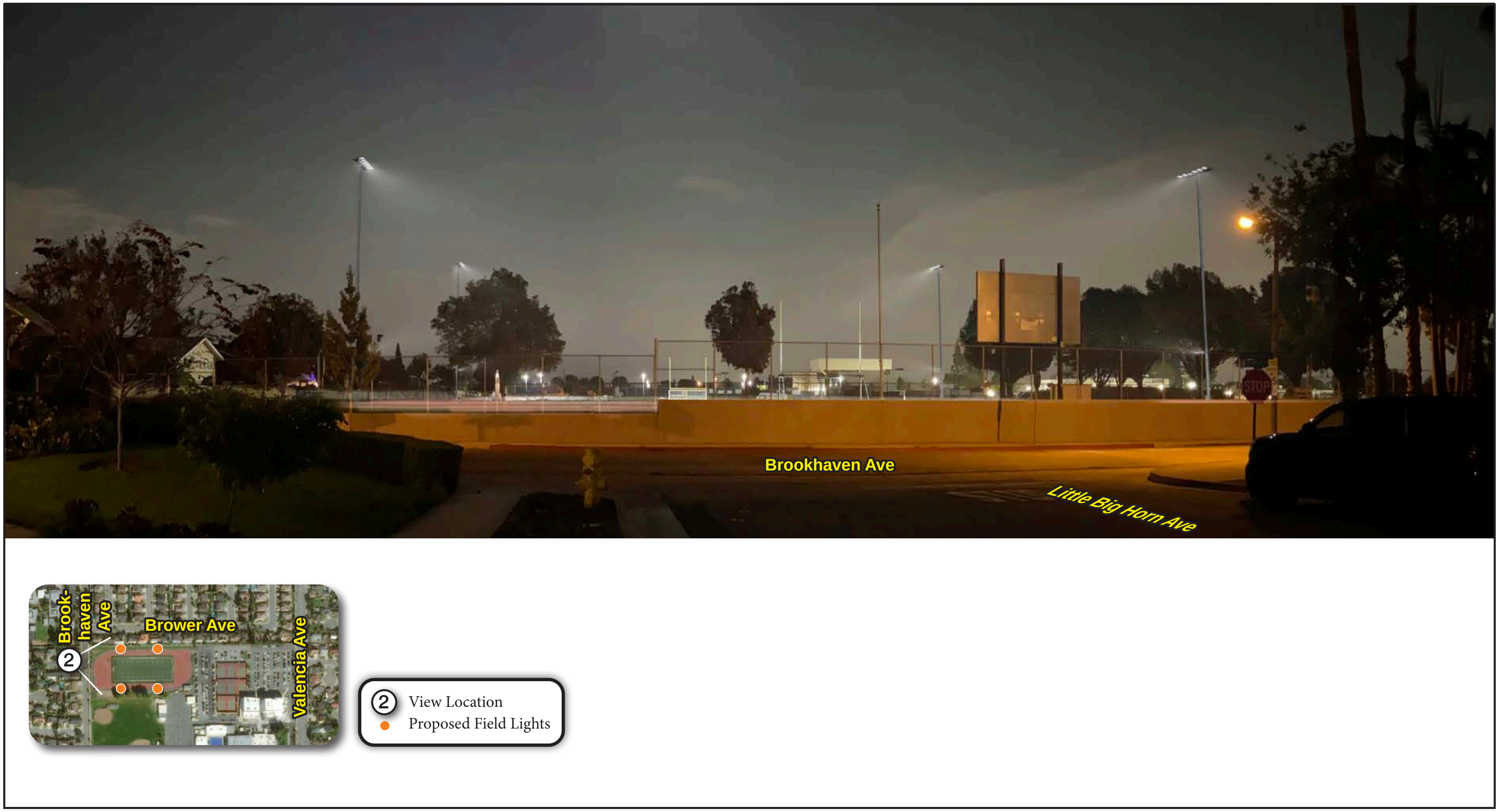
Figure 5.1-6b - Proposed Nighttime Public Viewpoint 2



Source: PlaceWorks, Inc., 2023.

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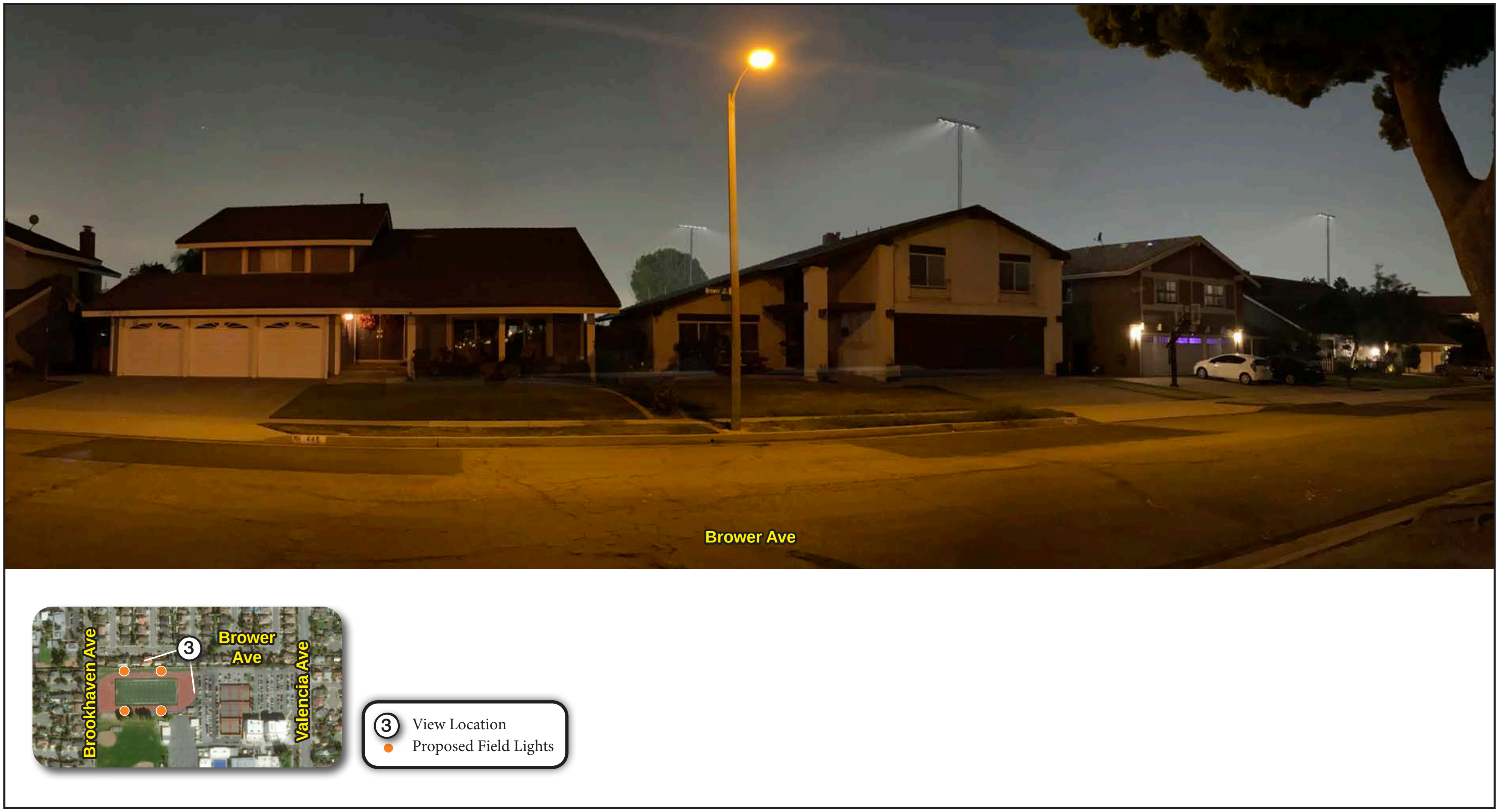
Figure 5.1-6c - Proposed Nighttime Public Viewpoint 3



Source: PlaceWorks, Inc., 2023.

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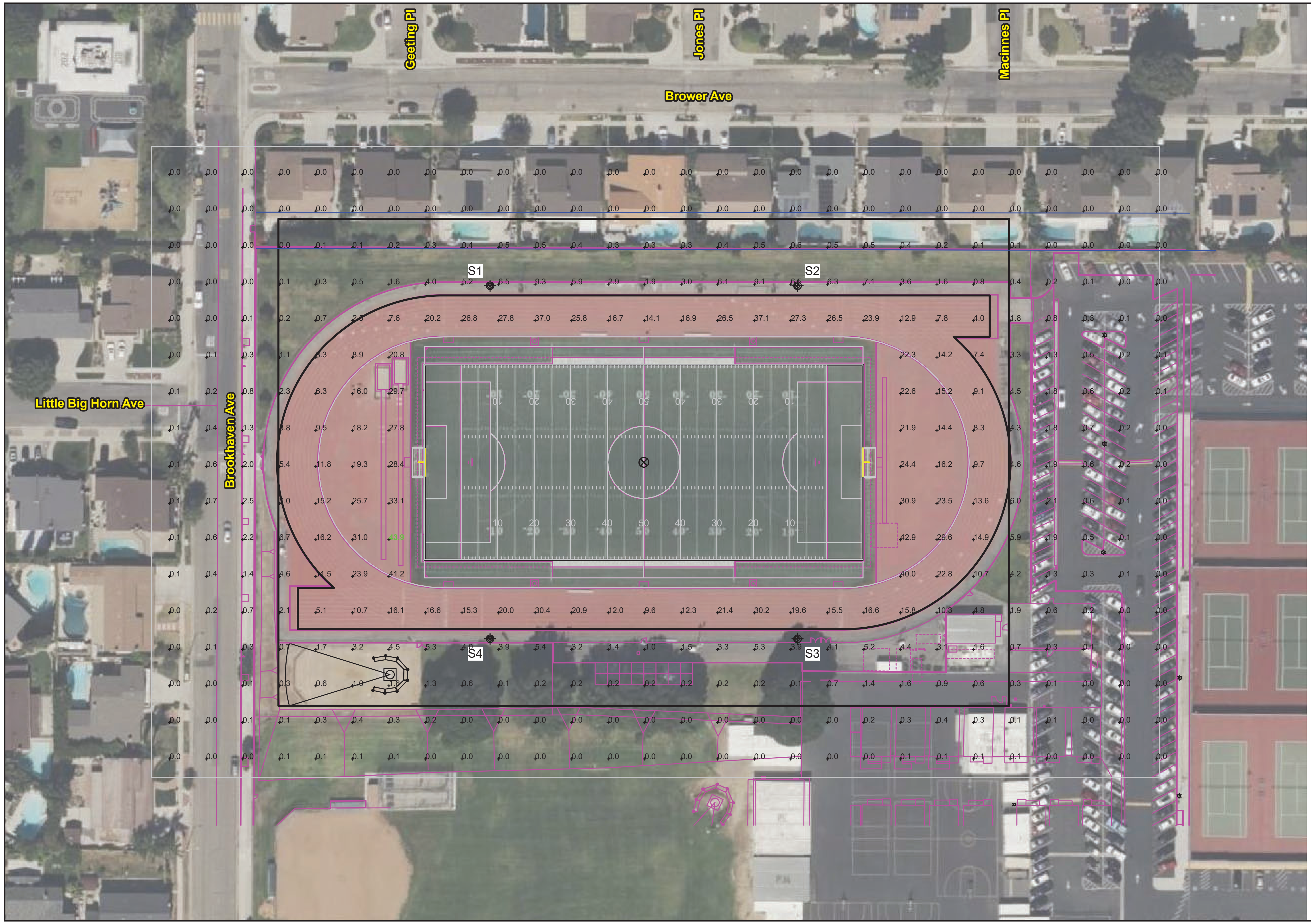
Figure 5.1-7 - Musco Lighting Analysis



El Dorado High School Stadium/Track DSA
Placentia,CA

GRID SUMMARY	
Name:	**Blanket Grid**
Spacing:	30.0' x 30.0'
Height:	3.0' above grade

ILLUMINATION SUMMARY	
MAINTAINED HORIZONTAL FOOTCANDLES	
	Entire Grid
Scan Average:	**4.68**
Maximum:	44
Minimum:	0
Avg / Min:	-
Max / Min:	-
UG (adjacent pts):	894.81
CU:	0.30
No. of Points:	385
LUMINAIRE INFORMATION	
Applied Circuits:	A, B
No. of Luminaires:	**40**
Total Load:	41.72 kW

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Musco Warranty document and includes a 0.95 dirt depreciation factor.

Field Measurements: Individual field measurements may vary from computer-calculated predictions and should be taken in accordance with IESNA RP-6-15.

Electrical System Requirements: Refer to Amperage Draw Chart and/or the **"Musco Control System Summary"** for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.

0 100
Scale (Feet)

Source: MUSCO, 2023.

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This would occur because the increased mounting heights of the proposed lights allow the lamps to be directed down to the playing surface and not at a right angle across the track/field. The new lights would substantially reduce the direct view and spill light of the existing lights. Therefore, the project would not create a new source of substantial light or glare which would adversely affect day or nighttime views in the area. Impacts would be **less than significant**.

Generation of Glare

The design elements for glare control include mounting height, visors and shielding, aim, and reflective housing around the lamp. The project would also use 900W fixtures resulting in maximum spill control. As part of the proposed project, the lighting engineer would ensure that the lights are properly adjusted and maintained so that glare would not impact the surrounding community. In general, all school activities are scheduled to end by 10:00 p.m., and community use would end by 9:00 p.m. The project would not result in a substantial new source of glare that would affect nighttime views in the area. Impacts would be less than significant.

5.1.4 Cumulative Impacts

Development of the proposed project and related projects have the potential result in aesthetic impacts and generate light spill. However, similar to the proposed project, each related project would be expected to prepare a site-specific analysis of impacts, implement mitigation measures if needed, and comply with applicable regulatory compliance measures. The proposed project would not result in significant impacts related to nighttime light spill to the properties immediately to the north or to the west. Therefore, the project's contribution to cumulative nighttime lighting impacts would be less than cumulatively considerable, and the project's impacts would be less than significant.

5.1.5 Level of Significance Before Mitigation

Less than significant. No mitigation measures are required.

5.1.6 References

California Department of Transportation (Caltrans). 2022, March (accessed). Scenic Highways, State Scenic Highway Map ArcGIS. https://caltrans.maps.arcgis.com/apps/webappviewer/index.html?id=465dfd3d807c46cc8e8057116f1aacaa

Institution of Lighting Engineers (ILE). 2003, May. Guidance Notes for the Reduction of Light Pollution. https://www.gov.je/SiteCollectionDocuments/Planning%20and%20building/SPG%20Lightpollution%202002.pdf.

5.2 AIR QUALITY

This section of the Draft Environmental Impact Report (DEIR) evaluates the potential for implementation of the El Dorado High School Field Lighting Project (proposed project) to impact air quality in a local and regional context. This evaluation is based on the methodology recommended by the South Coast Air Quality Management District (South Coast AQMD). The analysis focuses on air pollution from regional emissions and localized pollutant concentrations. In this section, "emissions" refers to the actual quantity of pollutant, measured in pounds per day (lbs/day), and "concentrations" refers to the amount of pollutant material per volumetric unit of air. Concentrations are measured in parts per million (ppm), parts per billion (ppb), or micrograms per cubic meter ($\mu g/m^3$).

Criteria air pollutant emissions modeling is included in Appendix C, *Air Quality, Greenhouse Gas Emissions, and Energy Analysis*, of this DEIR. Cumulative impacts related to air quality are based on the regional boundaries of the South Coast Air Basin (SoCAB).

No comments were received in response to the Initial Study/Notice of Preparation (IS/NOP) in regard to air quality. The IS/NOP and all scoping comment letters are included as Appendix A of this DEIR.

5.2.1 Environmental Setting

5.2.1.1 AIR POLLUTANTS OF CONCERN

Criteria Air Pollutants

The pollutants emitted into the ambient air by stationary and mobile sources are categorized as primary and/or secondary pollutants. Primary air pollutants are emitted directly from sources. Carbon monoxide (CO), volatile organic compounds (VOC), nitrogen oxides (NO_X), sulfur dioxide (SO_2), coarse inhalable particulate matter (PM_{10}), fine inhalable particulate matter ($PM_{2.5}$), and lead (Pb) are primary air pollutants. Of these, CO, SO_2, nitrogen dioxide (NO_2), PM_{10}, and $PM_{2.5}$ are "criteria air pollutants," which means that ambient air quality standards (AAQS) have been established for them. VOC and NO_X are criteria pollutant precursors that form secondary criteria air pollutants through chemical and photochemical reactions in the atmosphere. Ozone (O_3) and NO_2 are the principal secondary pollutants.

Each of the primary and secondary criteria air pollutants and its known health effects are described below.

Carbon Monoxide (CO) is a colorless, odorless, toxic gas produced by incomplete combustion of carbon substances, such as gasoline or diesel fuel. CO is a primary criteria air pollutant. CO concentrations tend to be the highest during winter mornings with little to no wind, when surface-based inversions trap the pollutant at ground levels. Because CO is emitted directly from internal combustion, engines and motor vehicles operating at slow speeds are the primary source of CO in the SoCAB. The highest ambient CO concentrations are generally found near traffic-congested corridors and intersections. The primary adverse health effect associated with CO is interference with normal oxygen transfer to the blood, which may result in tissue oxygen deprivation (South Coast AQMD 2005, USEPA 2022a). The SoCAB is designated as being in attainment under the California AAQS and attainment (serious maintenance) under the National AAQS (CARB 2022a).

Nitrogen Oxides (NO_X) are a byproduct of fuel combustion and contribute to the formation of O_3, PM_{10}, and $PM_{2.5}$. The two major forms of NO_X are nitric oxide (NO) and nitrogen dioxide (NO_2). The principal form of NO_2 produced by combustion is NO, but NO reacts with oxygen to form NO_2, creating the mixture of NO and NO_2 commonly called NO_X. NO_2 acts as an acute irritant and, in equal concentrations, is more injurious than NO. At atmospheric concentrations, however, NO_2 is only potentially irritating. NO_2 absorbs blue light; the result is a brownish-red cast to the atmosphere and reduced visibility. NO_2 exposure concentrations near roadways are of particular concern for susceptible individuals, including asthmatics, children, and the elderly. Current scientific evidence links short-term NO_2 exposures, ranging from 30 minutes to 24 hours, with adverse respiratory effects, including airway inflammation in healthy people and increased respiratory symptoms in people with asthma. Also, studies show a connection between elevated short-term NO_2 concentrations and increased visits to emergency departments and hospital admissions for respiratory issues, especially asthma (South Coast AQMD 2005; USEPA 2022a). On February 21, 2019, the California Air Resources Board (CARB) approved the separation of the area that runs along the State Route 60 corridor through portions of Riverside, San Bernardino, and Los Angeles counties from the remainder of the SoCAB for state nonattainment designation purposes. The board designated this corridor as nonattainment. The remainder of the SoCAB is designated in attainment (maintenance) under the National AAQS and attainment under the California AAQS (CARB 2022a).

Sulfur Dioxide (SO_2) is a colorless, pungent, irritating gas formed by the combustion of sulfurous fossil fuels. It enters the atmosphere as a result of burning high-sulfur-content fuel oils and coal and chemical processes at plants and refineries. Gasoline and natural gas have very low sulfur content and do not release significant quantities of SO_2. When sulfur dioxide forms sulfates (SO_4) in the atmosphere, together these pollutants are referred to as sulfur oxides (SO_X). Thus, SO_2 is both a primary and secondary criteria air pollutant. At sufficiently high concentrations, SO_2 may irritate the upper respiratory tract. Current scientific evidence links short-term exposures to SO_2, ranging from 5 minutes to 24 hours, with an array of adverse respiratory effects, including bronchoconstriction and increased asthma symptoms. These effects are particularly adverse for asthmatics at elevated ventilation rates (e.g., while exercising or playing) at lower concentrations and when combined with particulates, SO_2 may do greater harm by injuring lung tissue. Studies also show a connection between short-term exposure and increased visits to emergency facilities and hospital admissions for respiratory illnesses, particularly in at-risk populations such as children, the elderly, and asthmatics (South Coast AQMD 2005; US EPA 2022). The SoCAB is designated as attainment under the California and National AAQS (CARB 2022a).

Suspended Particulate Matter (PM_{10} and $PM_{2.5}$) consists of finely divided solids or liquids such as soot, dust, aerosols, fumes, and mists. Two forms of fine particulates are now recognized and regulated. Inhalable coarse particles, or PM_{10}, include the particulate matter with an aerodynamic diameter of 10 microns (i.e., 10 millionths of a meter or 0.0004 inch) or less. Inhalable fine particles, or $PM_{2.5}$, have an aerodynamic diameter of 2.5 microns (i.e., 2.5 millionths of a meter or 0.0001 inch) or less. Particulate discharge into the atmosphere results primarily from industrial, agricultural, construction, and transportation activities. However, wind action on arid landscapes also contributes substantially to local particulate loading (i.e., fugitive dust). Both PM_{10} and $PM_{2.5}$ may adversely affect the human respiratory system, especially in people who are naturally sensitive or susceptible to breathing problems (South Coast AQMD 2005).

The US Environmental Protection Agency's (EPA) scientific review concluded that $PM_{2.5}$, which penetrates deeply into the lungs, is more likely than PM_{10} to contribute to health effects and at concentrations that extend well below those allowed by the current PM_{10} standards. These health effects include premature death and increased hospital admissions and emergency room visits (primarily the elderly and individuals with cardiopulmonary disease); increased respiratory symptoms and disease (children and individuals with cardiopulmonary disease such as asthma); decreased lung functions (particularly in children and individuals with asthma); and alterations in lung tissue and structure and in respiratory tract defense mechanisms (South Coast AQMD 2005). There has been emerging evidence that ultrafine particulates, which are even smaller particulates with an aerodynamic diameter of <0.1 microns or less (i.e., ≤0.0001 millimeter) have human health implications because their toxic components may initiate or facilitate biological processes that may lead to adverse effects to the heart, lungs, and other organs (South Coast AQMD 2013). However, the EPA and CARB have not adopted AAQS to regulate these particulates. Diesel particulate matter is classified by CARB as a carcinogen (CARB 1998). Particulate matter can also cause environmental effects such as visibility impairment, environmental damage, and aesthetic damage (South Coast AQMD 2005; USEPA 2022). The SoCAB is a nonattainment area for $PM_{2.5}$ under California and National AAQS and a nonattainment area for PM_{10} under the California AAQS (CARB 2022a).

Ozone (O_3) is a key ingredient of "smog" and is a gas that is formed when VOCs and NO_X, both by-products of internal combustion engine exhaust, undergo photochemical reactions in sunlight. O_3 is a secondary criteria air pollutant. O_3 concentrations are generally highest during the summer months when direct sunlight, light winds, and warm temperatures create favorable conditions for its formation. O_3 poses a health threat to those who already suffer from respiratory diseases as well as to healthy people. Breathing O_3 can trigger a variety of health problems, including chest pain, coughing, throat irritation, and congestion. It can worsen bronchitis, emphysema, and asthma. Ground-level O_3 also can reduce lung function and inflame the linings of the lungs. Repeated exposure may permanently scar lung tissue. O_3 also affects sensitive vegetation and ecosystems, including forests, parks, wildlife refuges, and wilderness areas. In particular, O_3 harms sensitive vegetation during the growing season (South Coast AQMD 2005; US EPA 2022). The SoCAB is designated extreme nonattainment under the California AAQS (1-hour and 8-hour) and National AAQS (8-hour) (CARB 2022a).

Volatile Organic Compounds (VOC) are composed primarily of hydrogen and carbon atoms. Internal combustion associated with motor vehicle usage is the major source of VOCs. Other sources include evaporative emissions from paints and solvents, asphalt paving, and household consumer products such as aerosols (South Coast AQMD 2005). There are no AAQS for VOCs. However, because they contribute to the formation of O_3, South Coast AQMD has established a significance threshold.

Lead (Pb) is a metal found naturally in the environment as well as in manufactured products. Once taken into the body, lead distributes throughout the body in the blood and accumulates in the bones. Depending on the level of exposure, lead can adversely affect the nervous system, kidney function, immune system, reproductive and developmental systems, and the cardiovascular system. Lead exposure also affects the oxygen-carrying capacity of the blood. The effects of lead most commonly encountered in current populations are neurological effects in children and cardiovascular effects in adults (e.g., high blood pressure and heart disease). Infants and young children are especially sensitive to even low levels of lead, which may contribute to behavioral problems, learning deficits, and lowered IQ (South Coast AQMD 2005; USEPA 2022). The major sources of lead emissions have historically been mobile and industrial sources. As a result of the EPA's regulatory efforts to remove lead from gasoline, emissions of lead from the transportation sector dramatically declined by 95 percent between 1980 and 1999, and levels of lead in the air decreased by 94 percent between 1980 and 1999. Today, the highest levels of lead in air are usually found near lead smelters. The major sources of lead emissions today are ore and metals processing and piston-engine aircraft operating on leaded aviation gasoline. However, in 2008 the EPA and CARB adopted stricter lead standards, and special monitoring sites immediately downwind of lead sources recorded very localized violations of the new state and federal standards.[1] As a result of these violations, the Los Angeles County portion of the SoCAB is designated nonattainment under the National AAQS for lead (South Coast AQMD 2012; CARB 2022a). There are no lead-emitting sources associated with this project, and therefore, lead is not a pollutant of concern for the proposed project.

Table 5.2-1, *Criteria Air Pollutant Health Effects Summary*, summarizes the potential health effects associated with the criteria air pollutants.

Table 5.2-1 Criteria Air Pollutant Health Effects Summary

Pollutant	Health Effects	Examples of Sources
Carbon Monoxide (CO)	• Chest pain in heart patients • Headaches, nausea • Reduced mental alertness • Death at very high levels	Any source that burns fuel such as cars, trucks, construction and farming equipment, and residential heaters and stoves
Ozone (O_3)	• Cough, chest tightness • Difficulty taking a deep breath • Worsened asthma symptoms • Lung inflammation	Atmospheric reaction of organic gases with nitrogen oxides in sunlight
Nitrogen Dioxide (NO_2)	• Increased response to allergens • Aggravation of respiratory illness	Same as carbon monoxide sources
Particulate Matter (PM_{10} and $PM_{2.5}$)	• Hospitalizations for worsened heart diseases • Emergency room visits for asthma • Premature death	Cars and trucks (particularly diesels) Fireplaces and woodstoves Windblown dust from overlays, agriculture, and construction
Sulfur Dioxide (SO_2)	• Aggravation of respiratory disease (e.g., asthma and emphysema) • Reduced lung function	Combustion of sulfur-containing fossil fuels, smelting of sulfur-bearing metal ores, and industrial processes
Lead (Pb)	• Behavioral and learning disabilities in children • Nervous system impairment	Contaminated soil

Source: CARB 2022b; South Coast AQMD 2005, 2022.

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[1] Source-oriented monitors record concentrations of lead at lead-related industrial facilities in the SoCAB, which include Exide Technologies in the City of Commerce; Quemetco, Inc., in the City of Industry; Trojan Battery Company in Santa Fe Springs; and Exide Technologies in Vernon. Monitoring conducted between 2004 through 2007 showed that the Trojan Battery Company and Exide Technologies exceed the federal standards (South Coast AQMD 2012).

Toxic Air Contaminants

People exposed to toxic air contaminants (TAC) at sufficient concentrations and durations may have an increased chance of getting cancer or experiencing other serious health effects. These health effects can include damage to the immune system as well as neurological, reproductive (e.g., reduced fertility), developmental, respiratory, and other health problems (USEPA 2020). By the last update to the TAC list in December 1999, CARB had designated 244 compounds as TACs (CARB 1999). Additionally, CARB has implemented control measures for a number of compounds that pose high risks and show potential for effective control. There are no air quality standards for TACs. Instead, TAC impacts are evaluated by calculating the health risks associated with a given exposure. The majority of the estimated health risks from TACs can be attributed to relatively few compounds, the most relevant to the proposed project being particulate matter from diesel-fueled engines.

Diesel Particulate Matter

In 1998, CARB identified diesel particulate matter (DPM) as a TAC. Previously, the individual chemical compounds in diesel exhaust were considered TACs. Almost all diesel exhaust particles are 10 microns or less in diameter. Because of their extremely small size, these particles can be inhaled and eventually trapped in the bronchial and alveolar regions of the lungs. Long-term (chronic) inhalation of DPM is likely a lung cancer risk. Short-term (i.e., acute) exposure can cause irritation and inflammatory symptoms and may exacerbate existing allergies and asthma symptoms (USEPA 2002).

5.2.1.1 REGULATORY BACKGROUND

Ambient air quality standards have been adopted at the state and federal levels for criteria air pollutants. In addition, both the state and federal government regulate the release of TACs. The proposed project is in the SoCAB and is subject to the rules and regulations imposed by the South Coast AQMD, the California AAQS adopted by CARB, and National AAQS adopted by the EPA. Federal, state, regional, and local laws, regulations, plans, or guidelines that are potentially applicable to the proposed project are summarized in this section.

Federal and State

AAQS have been adopted at the state and federal levels for criteria air pollutants. In addition, both the State and federal government regulate the release of TACs. The City of Placentia is in the SoCAB and is subject to the rules and regulations imposed by the South Coast AQMD as well as the California AAQS adopted by CARB and National AAQS adopted by the EPA.

Ambient Air Quality Standards

The Clean Air Act (CAA) was passed in 1963 by the US Congress and has been amended several times. The 1970 CAA amendments strengthened previous legislation and laid the foundation for the regulatory scheme of the 1970s and 1980s. In 1977, Congress again added several provisions, including nonattainment requirements for areas not meeting National AAQS and the Prevention of Significant Deterioration program. The 1990 amendments represent the latest in a series of federal efforts to regulate the protection of air quality in the United States. The CAA allows states to adopt more stringent standards or to include other pollution species. The California Clean Air Act, signed into law in 1988, requires all areas of the state to achieve and maintain the

California AAQS by the earliest practical date. The California AAQS tend to be more restrictive than the National AAQS.

These National AAQS and California AAQS are the levels of air quality considered to provide a margin of safety in the protection of the public health and welfare. They are designed to protect "sensitive receptors" most susceptible to further respiratory distress, such as asthmatics, the elderly, very young children, people already weakened by other disease or illness, and persons engaged in strenuous work or exercise. Healthy adults can tolerate occasional exposure to air pollutant concentrations considerably above these minimum standards before adverse effects are observed.

Both California and the federal government have established health-based AAQS for seven air pollutants. As shown in Table 5.2-2, *Ambient Air Quality Standards for Criteria Pollutants*, these pollutants are ozone (O_3), nitrogen dioxide (NO_2), carbon monoxide (CO), sulfur dioxide (SO_2), coarse inhalable particulate matter (PM_{10}), fine inhalable particulate matter ($PM_{2.5}$), and lead (Pb). In addition, the state has set standards for sulfates, hydrogen sulfide, vinyl chloride, and visibility-reducing particles. These standards are designed to protect the health and welfare of the populace with a reasonable margin of safety.

Table 5.2-2 Ambient Air Quality Standards for Criteria Pollutants

Pollutant	Averaging Time	California Standard[1]	Federal Primary Standard[2]	Major Pollutant Sources
Ozone (O_3)[3]	1 hour	0.09 ppm	*	Motor vehicles, paints, coatings, and solvents.
	8 hours	0.070 ppm	0.070 ppm	
Carbon Monoxide (CO)	1 hour	20 ppm	35 ppm	Internal combustion engines, primarily gasoline-powered motor vehicles.
	8 hours	9.0 ppm	9 ppm	
Nitrogen Dioxide (NO_2)	Annual Arithmetic Mean	0.030 ppm	0.053 ppm	Motor vehicles, petroleum-refining operations, industrial sources, aircraft, ships, and railroads.
	1 hour	0.18 ppm	0.100 ppm	
Sulfur Dioxide (SO_2)	Annual Arithmetic Mean	*	0.030 ppm	Fuel combustion, chemical plants, sulfur recovery plants, and metal processing.
	1 hour	0.25 ppm	0.075 ppm	
	24 hours	0.04 ppm	0.14 ppm	
Respirable Coarse Particulate Matter (PM_{10})	Annual Arithmetic Mean	20 µg/m³	*	Dust and fume-producing construction, industrial, and agricultural operations, combustion, atmospheric photochemical reactions, and natural activities (e.g., wind-raised dust and ocean sprays).
	24 hours	50 µg/m³	150 µg/m³	
Respirable Fine Particulate Matter ($PM_{2.5}$)[4]	Annual Arithmetic Mean	12 µg/m³	12 µg/m³	Dust and fume-producing construction, industrial, and agricultural operations, combustion, atmospheric photochemical reactions, and natural activities (e.g., wind-raised dust and ocean sprays).
	24 hours	*	35 µg/m³	

Table 5.2-2 Ambient Air Quality Standards for Criteria Pollutants

Pollutant	Averaging Time	California Standard[1]	Federal Primary Standard[2]	Major Pollutant Sources
Lead (Pb)	30-Day Average	1.5 µg/m^3	*	Present source: lead smelters, battery manufacturing & recycling facilities. Past source: combustion of leaded gasoline.
	Calendar Quarter	*	1.5 µg/m^3	
	Rolling 3-Month Average	*	0.15 µg/m^3	
Sulfates (SO_4)[5]	24 hours	25 µg/m^3	*	Industrial processes.
Visibility Reducing Particles	8 hours	ExCo =0.23/km visibility of 10≥ miles	*	Visibility-reducing particles consist of suspended particulate matter, which is a complex mixture of tiny particles that consists of dry solid fragments, solid cores with liquid coatings, and small droplets of liquid. These particles vary greatly in shape, size and chemical composition, and can be made up of many different materials such as metals, soot, soil, dust, and salt.
Hydrogen Sulfide	1 hour	0.03 ppm	*	Hydrogen sulfide (H_2S) is a colorless gas with the odor of rotten eggs. It is formed during bacterial decomposition of sulfur-containing organic substances. Also, it can be present in sewer gas and some natural gas and can be emitted as the result of geothermal energy exploitation.
Vinyl Chloride	24 hours	0.01 ppm	*	Vinyl chloride (chloroethene), a chlorinated hydrocarbon, is a colorless gas with a mild, sweet odor. Most vinyl chloride is used to make polyvinyl chloride (PVC) plastic and vinyl products. Vinyl chloride has been detected near landfills, sewage plants, and hazardous waste sites, due to microbial breakdown of chlorinated solvents.

Source: CARB 2016.

Notes: ppm: parts per million; µg/m^3: micrograms per cubic meter

* Standard has not been established for this pollutant/duration by this entity.

1 California standards for O_3, CO (except 8-hour Lake Tahoe), SO_2 (1 and 24 hour), NO_2, and particulate matter (PM_{10}, $PM_{2.5}$, and visibility reducing particles), are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.

2 National standards (other than O_3, PM, and those based on annual arithmetic mean) are not to be exceeded more than once a year. The O_3 standard is attained when the fourth highest 8-hour concentration measured at each site in a year, averaged over three years, is equal to or less than the standard. For PM_{10}, the 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 µg/m^3 is equal to or less than one. For $PM_{2.5}$, the 24-hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard.

3 On October 1, 2015, the national 8-hour ozone primary and secondary standards were lowered from 0.075 to 0.070 ppm.

4 On December 14, 2012, the national annual $PM_{2.5}$ primary standard was lowered from 15 µg/m^3 to 12.0 µg/m^3. The existing national 24-hour $PM_{2.5}$ standards (primary and secondary) were retained at 35 µg/m^3, as was the annual secondary standard of 15 µg/m^3. The existing 24-hour PM_{10} standards (primary and secondary) of 150 µg/m^3 also were retained. The form of the annual primary and secondary standards is the annual mean, averaged over 3 years.

5 On June 2, 2010, a new 1-hour SO_2 standard was established and the existing 24-hour and annual primary standards were revoked. The 1-hour national standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the 1-hour national standard to the California standard the units can be converted to ppm. In this case, the national standard of 75 ppb is identical to 0.075 ppm.

California has also adopted a host of other regulations that reduce criteria pollutant emissions:

- **Assembly Bill (AB) 1493: Pavley Fuel Efficiency Standards.** Pavley I is a clean-car standard that reduces greenhouse gas emissions from new passenger vehicles (light-duty auto to medium-duty vehicles) from 2009 through 2016. In January 2012, CARB approved the Advanced Clean Cars program (formerly known as Pavley II) for model years 2017 through 2025.

- **Senate Bill (SB) 1078 and SB 107: Renewables Portfolio Standards**. A major component of California's Renewable Energy Program is the renewables portfolio standard (RPS) established under SB 1078 (Sher) and SB 107 (Simitian). Under the RPS, certain retail sellers of electricity were required to increase the amount of renewable energy each year by at least 1 percent to reach at least 20 percent by December 30, 2010.

- **Heavy-Duty (Tractor-Trailer) Greenhouse Gas Regulation.** The tractors and trailers subject to this regulation must either use EPA SmartWay-certified tractors and trailers or retrofit their existing fleet with SmartWay-verified technologies. The regulation applies primarily to owners of 53-foot or longer box-type trailers, including both dry-van and refrigerated-van trailers, and owners of the heavy-duty tractors that pull them on California highways. These owners are responsible for replacing or retrofitting their affected vehicles with compliant aerodynamic technologies and low rolling resistance tires. Sleeper cab tractors model year 2011 and later must be SmartWay certified. All other tractors must use SmartWay-verified low-rolling-resistance tires. There are also requirements for trailers to have low-rolling-resistance tires and aerodynamic devices.

- **California Code of Regulations (CCR), Title 20: Appliance Energy Efficiency Standards.** The 2006 Appliance Efficiency Regulations (20 CCR Sections 1601–1608) were adopted by the California Energy Commission on October 11, 2006, and approved by the California Office of Administrative Law on December 14, 2006. The regulations include standards for both federally regulated appliances and non–federally regulated appliances.

- **24 CCR, Part 6: Building and Energy Efficiency Standards.** Energy conservation standards for new residential and nonresidential buildings adopted by the California Energy Resources Conservation and Development Commission (now the California Energy Commission) in June 1977.

- **24 CCR, Part 11: Green Building Standards Code.** Establishes planning and design standards for sustainable site development, energy efficiency (in excess of the California Energy Code requirements), water conservation, material conservation, and internal air contaminants.[2]

Tanner Air Toxics Act and Air Toxics Hot Spot Information and Assessment Act

Public exposure to TACs is a significant environmental health issue in California. In 1983, the California legislature enacted a program to identify the health effects of TACs and reduce exposure to them. The California Health and Safety Code defines a TAC as "an air pollutant which may cause or contribute to an

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[2] The green building standards became mandatory in the 2010 edition of the code.

increase in mortality or in serious illness, or which may pose a present or potential hazard to human health" (17 CCR Section 93000). A substance that is listed as a hazardous air pollutant pursuant to Section 112(b) of the federal Clean Air Act (42 US Code Section 7412[b]) is a TAC. Under state law, the California Environmental Protection Agency, acting through CARB, is authorized to identify a substance as a TAC if it is an air pollutant that may cause or contribute to an increase in mortality or serious illness or may pose a present or potential hazard to human health.

California regulates TACs primarily through Assembly Bill (AB) 1807 (Tanner Air Toxics Act) and AB 2588 (Air Toxics "Hot Spot" Information and Assessment Act of 1987). The Tanner Air Toxics Act sets forth a formal procedure for CARB to designate substances as TACs. Once a TAC is identified, CARB adopts an "airborne toxics control measure" for sources that emit designated TACs. If there is a safe threshold for a substance (i.e., a point below which there is no toxic effect), the control measure must reduce exposure to below that threshold. If there is no safe threshold, the measure must incorporate toxics best available control technology to minimize emissions. To date, CARB has established formal control measures for 11 TACs that are identified as having no safe threshold.

Under AB 2588, TAC emissions from individual facilities are quantified and prioritized by the air quality management district or air pollution control district. High-priority facilities are required to perform a health risk assessment, and if specific thresholds are exceeded, are required to communicate the results to the public through notices and public meetings.

CARB has promulgated the following specific rules to limit TAC emissions:

- **13 CCR Chapter 10 Section 2485: Airborne Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling.** Generally restricts on-road diesel-powered commercial motor vehicles with a gross vehicle weight rating of greater than 10,000 pounds from idling more than five minutes.

- **13 CCR Chapter 10 Section 2480: Airborne Toxic Control Measure to Limit School Bus Idling and Idling at Schools.** Generally restricts a school bus or transit bus from idling for more than five minutes when within 100 feet of a school.

- **13 CCR Section 2477 and Article 8: Airborne Toxic Control Measure for In-Use Diesel-Fueled Transport Refrigeration Units (TRU) and TRU Generator Sets and Facilities Where TRUs Operate.** Regulations established to control emissions associated with diesel-powered TRUs.

Regional

The state is divided into air pollution control districts/air quality management districts. These agencies are county or regional governing authorities that have primary responsibility for controlling air pollution from stationary sources. CARB and local air districts are also responsible for developing clean air plans to demonstrate how and when California will attain AAQS established under both the federal and California Clean Air Acts. For the areas in California that have not attained air quality standards, CARB works with air districts to develop and implement state and local attainment plans. In general, attainment plans contain a discussion of ambient air quality data and trends; a baseline emissions inventory; future year projections of emissions, which account for growth projections and already adopted control measures; a comprehensive control strategy of additional measures needed to reach attainment; an attainment demonstration, which generally involves complex modeling; and contingency measures. Plans may also include interim milestones for progress toward attainment. The SoCAB is managed by the South Coast AQMD.

Air Quality Management Planning

The South Coast AQMD is the agency responsible for improving air quality in the SoCAB and ensuring that the National and California AAQS are attained and maintained. South Coast AQMD is responsible for preparing the AQMP for the SoCAB in coordination with the Southern California Association of Governments (SCAG). Since 1979, a number of AQMPs have been prepared.

2016 AQMP

On March 3, 2017, South Coast AQMD adopted the 2016 AQMP, which serves as an update to the 2012 AQMP. The 2016 AQMP addresses strategies and measures to attain the following National AAQS:

- 2008 National 8-hour ozone standard by 2031
- 2012 National annual $PM_{2.5}$ standard by 2025[3]
- 2006 National 24-hour $PM_{2.5}$ standard by 2019
- 1997 National 8-hour ozone standard by 2023
- 1979 National 1-hour ozone standard by 2022

It is projected that total NOx emissions in the SoCAB would need to be reduced to 150 tons per day (tpd) by year 2023 and to 100 tpd in year 2031 to meet the 1997 and 2008 federal 8-hour ozone standards. The strategy would also attain the 1979 federal 1-hour ozone standard by year 2022, which requires reducing NOx emissions to 250 tpd (South Coast AQMD 2017). The strategies in the 2016 AQMP results in approximately 45 percent additional reductions above existing regulations for the 2023 ozone standard and 55 percent additional reductions to above existing regulations to meet the 2031 ozone standard.

Reducing NOx emissions would also reduce $PM_{2.5}$ concentrations in the SoCAB. However, because the goal is to meet the 2012 federal annual $PM_{2.5}$ standard no later than year 2025, South Coast AQMD is seeking to reclassify the SoCAB from "moderate" to "serious" nonattainment under this federal standard. A "moderate" nonattainment would require meeting the 2012 federal standard by no later than 2021.

Overall, the 2016 AQMP consisted of stationary and mobile-source emission reductions from regulatory control measures, incentive-based programs, co-benefits from climate programs, mobile-source strategies, and reductions from federal sources such as aircrafts, locomotives, and ocean-going vessels. Strategies in the 2016 AQMP are implemented in collaboration with CARB and the EPA (South Coast AQMD 2017).

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[3] The 2016 AQMP requests a reclassification from moderate to serious nonattainment for the 2012 National $PM_{2.5}$ standard.

2022 AQMP

On October 1, 2015, the EPA strengthened the National AAQS for ground-level ozone, lowering the primary and secondary ozone standard levels to 70 parts per billion (ppb) from 75 ppb. The SoCAB is classified as an "extreme" nonattainment area for the 2015 National AAQS for ozone. In May 2022, South Coast released the draft 2022 AQMP to address the requirements for meeting this standard. The Draft 2022 AQMP builds upon measures already in place from previous AQMPs. It also includes a variety of additional strategies such as regulation, accelerated deployment of available cleaner technologies (e.g., zero emission technologies, when cost-effective and feasible, and low NOx technologies in other applications), best management practices, co-benefits from existing programs (e.g., climate and energy efficiency), incentives, and other CAA measures to achieve the 2015 8-hour ozone standard. The 2015 8-hour ozone standard is the most stringent standard to date. Because current ozone levels in the SoCAB are so high, meeting the standard will require substantial emission reductions above and beyond current programs. South Coast AQMD forecasts that emissions of NOx—the key pollutant controlling formation of ozone—must be reduced by 71 percent beyond what we would achieve through current programs by 2037 to meet the standard. By year 2037, 42 percent of NOx emissions will come from federal sources, 39 percent will come from State-regulated sources, and only 19 percent will come from sources regulated by the South Coast AQMD (South Coast AQMD 2022).

AB 617: Community Air Protection Program

AB 617 (C. Garcia, Chapter 136, Statutes of 2017) requires local air districts to monitor and implement air pollution control strategies that reduce localized air pollution in communities that bear the greatest burdens. In response to AB 617, CARB has established the Community Air Protection Program.

Air districts are required to host workshops to help identify disadvantaged communities that are disproportionately affected by poor air quality. Once the criteria for identifying the highest priority locations have been identified and the communities have been selected, new community monitoring systems would be installed to track and monitor community-specific air pollution goals. In 2018 CARB prepared an air monitoring plan (Community Air Protection Blueprint) that evaluates the availability and effectiveness of air monitoring technologies and existing community air monitoring networks. Under AB 617, the Blueprint is required to be updated every five years.

Under AB 617, CARB is also required to prepare a statewide strategy to reduce TACs and criteria pollutants in impacted communities; provide a statewide clearinghouse for best available retrofit control technology; adopt new rules requiring the latest best available retrofit control technology for all criteria pollutants for which an area has not achieved attainment of California AAQS; and provide uniform, statewide reporting of emissions inventories. Air districts are required to adopt a community emissions reduction program to achieve reductions for the communities impacted by air pollution that CARB identifies.

Lead Implementation Plan

In 2008, the EPA designated the Los Angeles County portion of the SoCAB as a nonattainment area under the federal lead (Pb) classification because of the addition of source-specific monitoring under the new federal regulation. This designation was based on two source-specific monitors in the City of Vernon and the City of Industry that exceeded the new standard in the 2007 to 2009 period. The remainder of the SoCAB, outside the

Los Angeles County nonattainment area, remains in attainment of the new 2008 lead standard. On May 24, 2012, CARB approved the State Implementation Plan (SIP) revision for the federal lead standard, which the EPA revised in 2008. Lead concentrations in this nonattainment area have been below the level of the federal standard since December 2011. The SIP revision was submitted to the EPA for approval.

South Coast AQMD $PM_{2.5}$ Redesignation Request and Maintenance Plan

In 1997, the EPA adopted the 24-hour $PM_{2.5}$ standard of 65 μg/m^3. In 2006, this standard was lowered to a more health-protective level of 35 μg/m^3. The SoCAB is designated nonattainment for both the 65 and 35 μg/m^3 24-hour $PM_{2.5}$ standards (24-hour $PM_{2.5}$ standards). In 2020, monitored data demonstrated that the SoCAB attained both 24-hour $PM_{2.5}$ standards. The South Coast AQMD developed the "2021 Redesignation Request and Maintenance Plan" for the 1997 and 2006 24-hour $PM_{2.5}$ Standards, demonstrating that the SoCAB has met the requirements to be redesignated to attainment (South Coast AQMD 2021b).

South Coast AQMD Rules and Regulations

All projects are subject to South Coast AQMD rules and regulations in effect at the time of activity, including:

- **Rule 401, Visible Emissions.** This rule is intended to prevent the discharge of pollutant emissions from an emissions source that results in visible emissions. Specifically, the rule prohibits the discharge of any air contaminant into the atmosphere by a person from any single source of emission for a period or periods aggregating more than three minutes in any one hour that is as dark as or darker than designated No. 1 on the Ringelmann Chart, as published by the US Bureau of Mines.

- **Rule 402, Nuisance.** This rule is intended to prevent the discharge of pollutant emissions from an emissions source that results in a public nuisance. Specifically, this rule prohibits any person from discharging quantities of air contaminants or other material from any source such that it would result in an injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public. Additionally, the discharge of air contaminants would also be prohibited where it would endanger the comfort, repose, health, or safety of any number of persons or the public, or that cause, or have a natural tendency to cause, injury or damage to business or property. This rule does not apply to odors emanating from agricultural operations necessary for the growing of crops or the raising of fowl or animals.

- **Rule 403, Fugitive Dust.** This rule is intended to reduce the amount of particulate matter entrained in the ambient air as a result of anthropogenic (human-made) fugitive dust sources by requiring actions to prevent, reduce, or mitigate fugitive dust emissions. Rule 403 applies to any activity or human-made condition capable of generating fugitive dust and requires best available control measures to be applied to earth-moving and grading activities.

- **Rule 445, Wood Burning Devices.** In general, the rule prohibits new developments from the installation of wood-burning devices. This rule is intended to reduce the emission of particulate matter from wood-burning devices and applies to manufacturers and sellers of wood-burning devices, commercial sellers of firewood, and property owners and tenants that operate a wood-burning device.

- **Rule 1113, Architectural Coatings.** This rule serves to limit the VOCs content of architectural coatings used on projects in the South Coast AQMD. Any person who supplies, sells, offers for sale, or manufactures any architectural coating for use on projects in the South Coast AQMD must comply with the current VOC standards set in this rule.

- **Rule 1403, Asbestos Emissions from Demolition/Renovation Activities.** The purpose of this rule is to specify work practice requirements to limit asbestos emissions from building demolition and renovation activities, including the removal and associated disturbance of asbestos-containing materials (ACM). The requirements for demolition and renovation activities include asbestos surveying, notification, ACM removal procedures and time schedules, ACM handling and clean-up procedures, and storage, disposal, and landfilling requirements for asbestos-containing waste materials. All operators are required to maintain records, including waste shipment records, and are required to use appropriate warning labels, signs, and markings.

- **Rule 2305, Warehouse Actions and Investments to Reduce Emissions (WAIRE) Program**. Rule 2305 applies to both the operators and owners of warehouses greater than or equal to 100,000 square feet in size, although most requirements apply to warehouse operators. The rule is being phased in over a three-year period based on warehouse. Under Rule 2305, warehouse operations over 100,000 square feet are required to earn a specified number of WAIRE points using any combination of items from the WAIRE menu, implementation of a custom WAIRE plan, or payment of a mitigation fee. The amount of points every warehouse operator must earn annually depends on the number of truck trips to their warehouse during the 12-month compliance period. The WAIRE menu includes acquisition of or visits from near-zero-emissions and zero-emissions (ZE) on-road trucks, acquiring or using ZE yard trucks, installing or using ZE charging/fueling infrastructure, installing or using solar panels, or installing particulate filters for nearby sensitive land uses. Alternatively, an operator may choose to apply for a site-specific custom WAIRE plan that incorporates actions that are not on the WAIRE menu.

5.2.1.2 EXISTING CONDITIONS

South Coast Air Basin Meteorology

The project site lies in the SoCAB, which includes all of Orange County and the nondesert portions of Los Angeles, Riverside, and San Bernardino Counties. The SoCAB is in a coastal plain with connecting broad valleys and low hills and is bounded by the Pacific Ocean in the southwest quadrant, with high mountains forming the remainder of the perimeter. The general region lies in the semipermanent high-pressure zone of the eastern Pacific. As a result, the climate is mild, tempered by cool sea breezes. This usually mild weather pattern is interrupted infrequently by periods of extremely hot weather, winter storms, and Santa Ana winds (South Coast AQMD 2005).

Temperature and Precipitation

The annual average temperature varies little throughout the SoCAB, ranging from the low to middle 60s, measured in degrees Fahrenheit (°F). With a more pronounced oceanic influence, coastal areas show less variability in annual minimum and maximum temperatures than inland areas. The climatological station nearest to the project site with temperature data is the Anaheim, California Monitoring Station (ID No. 040192). The lowest average temperature is reported at 46.9°F in December, and the highest average temperature is 87.1°F in August (WRCC 2022).

In contrast to a very steady pattern of temperature, rainfall is seasonally and annually highly variable. Almost all rain falls from October through April. Summer rainfall is normally restricted to widely scattered thundershowers near the coast, with slightly heavier shower activity in the east and over the mountains. Rainfall historically averages 14.09 inches per year in the project area (WRCC 2022).

Humidity

Although the SoCAB has a semiarid climate, the air near the Earth's surface is typically moist because of a shallow marine layer. This "ocean effect" is dominant except for infrequent periods when dry, continental air is brought into the SoCAB by offshore winds. Low clouds, often referred to as high fog, are a characteristic climatic feature. Annual average humidity is 70 percent at the coast and 57 percent in the eastern portions of the SoCAB (South Coast AQMD 2005).

Wind

Wind patterns across the southern coastal region are characterized by westerly or southwesterly onshore winds during the day and easterly or northeasterly breezes at night. Wind speed is somewhat greater during the dry summer months than during the rainy winter season.

Between periods of wind, periods of air stagnation may occur in the morning and evening hours. Air stagnation is one of the critical determinants of air quality conditions on any given day. During the winter and fall months, surface high-pressure systems over the SoCAB combined with other meteorological conditions can result in very strong, downslope Santa Ana winds. These winds normally continue a few days before predominant meteorological conditions are reestablished.

The mountain ranges to the east inhibit the eastward transport and diffusion of pollutants. Air quality in the SoCAB generally ranges from fair to poor and is similar to air quality in most of coastal Southern California. The entire region experiences heavy concentrations of air pollutants during prolonged periods of stable atmospheric conditions (South Coast AQMD 2005).

Inversions

In conjunction with the two characteristic wind patterns that affect the rate and orientation of horizontal pollutant transport, two distinct types of temperature inversions control the vertical depth through which pollutants are mixed. These inversions are the marine/subsidence inversion and the radiation inversion. The height of the base of the inversion at any given time is known as the "mixing height." The combination of winds and inversions are critical determinants in leading to the highly degraded air quality in summer and the generally good air quality in the winter in the Project Area (South Coast AQMD 2005).

SoCAB Nonattainment Areas

The AQMP provides the framework for air quality basins to achieve attainment of the state and federal ambient air quality standards through the SIP. Areas are classified as attainment or nonattainment areas for particular pollutants depending on whether they meet the AAQS. Severity classifications for ozone nonattainment range in magnitude from marginal, moderate, and serious to severe and extreme.

- *Unclassified.* A pollutant is designated unclassified if the data are incomplete and do not support a designation of attainment or nonattainment.
- *Attainment.* A pollutant is in attainment if the AAQS for that pollutant was not violated at any site in the area during a three-year period.
- *Nonattainment.* A pollutant is in nonattainment if there was at least one violation of an AAQS for that pollutant in the area.
- *Nonattainment/Transitional.* A subcategory of the nonattainment designation. An area is designated nonattainment/transitional to signify that the area is close to attaining the AAQS for that pollutant.

The attainment status for the SoCAB is shown in Table 5.2-3, *Attainment Status of Criteria Air Pollutants in the South Coast Air Basin.*

Table 5.2-3 Attainment Status of Criteria Air Pollutants in the South Coast Air Basin

Pollutant	State	Federal
Ozone – 1-hour	Extreme Nonattainment	No Federal Standard
Ozone – 8-hour	Extreme Nonattainment	Extreme Nonattainment
PM_{10}	Serious Nonattainment	Attainment
$PM_{2.5}$	Nonattainment	Nonattainment
CO	Attainment	Attainment
NO_2	Attainment	Attainment/Maintenance
SO_2	Attainment	Attainment
Lead	Attainment	Nonattainment (Los Angeles County only)[1]
All others	Attainment/Unclassified	Attainment/Unclassified

Source: CARB 2022a.

[1] On February 21, 2019, CARB's board approved the separation of the area that runs along State Route 60 corridor through portions of Riverside, San Bernardino, and Los Angeles counties from the remainder of the SoCAB for State nonattainment designation purposes. The board designated this corridor as nonattainment. The remainder of the SoCAB remains in attainment for NO_2 (CARB 2019). CARB is proposing to redesignate SR-60 Near-Road Portion of San Bernardino, Riverside, and Los Angeles Counties in the SoCAB as attainment for NO_2 at the February 24, 2022, board hearing (CARB 2022b).

[2] The SoCAB is pending a resignation request from nonattainment to attainment for the 24-hour federal $PM_{2.5}$ standards. The *2021 PM2.5 Redesignation Request and Maintenance Plan* demonstrates that the South Coast meets the requirements of the CAA to allow the EPA to redesignate the SoCAB to attainment for the 65 μg/m^3 and 35 μg/m^3 24-hour $PM_{2.5}$ standards. CARB will submit the 2021 PM2.5 Redesignation Request to the US EPA as a revision to the California SIP (CARB 2021).

[3] In 2010, the Los Angeles portion of the SoCAB was designated nonattainment for lead under the new 2008 federal AAQS as a result of large industrial emitters. Remaining areas in the SoCAB are unclassified.

Existing Ambient Air Quality

Existing levels of ambient air quality and historical trends and projections in the vicinity of the project site are best documented by measurements taken by the South Coast AQMD. The proposed project is located within Source Receptor Area (SRA) 16: North Orange County.[4] The air quality monitoring station closest to the proposed project is the Anaheim – Pampas Lane Monitoring Station, which is one of 31 monitoring stations South Coast AQMD operates and maintains within the SoCAB.[5] Data from this station includes O_3, NO_2, PM_{10}, and $PM_{2.5}$ and is summarized in Table 5.2-4, *Ambient Air Quality Monitoring Summary*. The data show regular violations of the state and federal O_3, state PM_{10}, and federal $PM_{2.5}$ standards in the last five years.

Table 5.2-4 Ambient Air Quality Monitoring Summary

Pollutant/Standard	Number of Days Thresholds Were Exceeded and Maximum Levels[1]				
	2017	2018	2019	2020	2021
Ozone (O_3)					
State 1-Hour ≥ 0.09 ppm (days exceed threshold)	0	4	1	6	0
Federal 8-hour ≥ 0.070 ppm (days exceed threshold)	4	1	1	15	0
Max. 1-Hour Conc. (ppm)	0.090	0.112	0.096	0.142	0.089
Max. 8-Hour Conc. (ppm)	0.076	0.071	0.082	0.097	0.068
Nitrogen Dioxide (NO_2)					
State 1-Hour ≥ 0.18 ppm (days exceed threshold)	0	0	0	0	0
Max. 1-Hour Conc. (ppm)	0.0812	0.0660	0.0594	0.0709	0.0671
Coarse Particulates (PM_{10})					
State 24-Hour > 50 µg/m³ (days exceed threshold)	5	2	4	5	1
Federal 24-Hour > 150 µg/m³ (days exceed threshold)	0	0	0	0	0
Max. 24-Hour Conc. (µg/m³)	95.7	94.6	127.1	74.5	63.3
Fine Particulates ($PM_{2.5}$)					
Federal 24-Hour > 35 µg/m³ (days exceed threshold)	8	7	4	12	10
Max. 24-Hour Conc. (µg/m³)	53.9	63.1	36.1	60.2	54.4

Source: CARB 2022c.
Notes: ppm = parts per million; ppb = parts per billion; µg/m³ = micrograms per cubic meter; * = Data not available
[1] Data for O_3 and NO_2 obtained from the Anaheim – Pampas Lane Monitoring Station.

Multiple Air Toxics Exposure Study V

The Multiple Air Toxics Exposure Study (MATES) is a monitoring and evaluation study on existing ambient concentrations of TACs and the potential health risks from air toxics in the SoCAB. In April 2021, South Coast AQMD released the latest update to the MATES study, MATES V. The first MATES analysis began in 1986 but was limited because of the technology available at the time. Conducted in 1998, MATES II was the first

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[4] Per South Coast AQMD Rule 701, an SRA is defined as: "A source area is that area in which contaminants are discharged and a receptor area is that area in which the contaminants accumulate and are measured. Any of the areas can be a source area, a receptor area, or both a source and receptor area." There are 37 SRAs in the South Coast AQMD's jurisdiction.

[5] Locations of the SRAs and monitoring stations are shown here: http://www.aqmd.gov/docs/default-source/default-document-library/map-of-monitoring-areas.pdf.

MATES iteration to include a comprehensive monitoring program, an air toxics emissions inventory, and a modeling component. MATES III was conducted in 2004 to 2006, with MATES IV following in 2012 to 2013.

MATES V uses measurements taken during 2018 and 2019, with a comprehensive modeling analysis and emissions inventory based on 2018 data. The previous MATES studies quantified the cancer risks based on the inhalation pathway only. MATES V includes information on the chronic noncancer risks from inhalation and non-inhalation pathways for the first time. Cancer risks and chronic noncancer risks from MATES II through IV measurements have been re-examined using current Office of Environmental Health Hazards Assessment and California Environmental Protection Agency risk assessment methodologies and modern statistical methods to examine the trends over time.

The MATES V study showed that cancer risk in the SoCAB decreased to 454 in a million from 997 in a million in the MATES IV study. Overall, air toxics cancer risk in the SoCAB decreased by 54 percent since 2012 when MATES IV was conducted. MATES V showed the highest risk locations near the Los Angeles International Airport and the Ports of Long Beach and Los Angeles. DPM continues to be the major contributor to air toxics cancer risk (approximately 72 percent of the total cancer risk). Goods movement and transportation corridors have the highest cancer risk. Transportation sources account for 88 percent of carcinogenic air toxics emissions, and the remainder is from stationary sources, which include large industrial operations such as refineries and power plants as well as smaller businesses such as gas stations and chrome-plating facilities (South Coast AQMD 2021a).

Existing Emissions

The project site currently houses El Dorado High School, which currently generates criteria air pollutant emissions from transportation, area sources, and energy use.

Sensitive Receptors

Some land uses are considered more sensitive to air pollution (i.e., TACs) than others due to the types of population groups or activities involved. Sensitive population groups include children, the elderly, the acutely ill, and the chronically ill, especially those with cardiorespiratory diseases.

Residential areas are also 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 any pollutants present. Other sensitive receptors include retirement facilities, hospitals, and schools. Recreational land uses are considered moderately sensitive to air pollution. Although exposure periods are generally short, exercise places a high demand on respiratory functions, which can be impaired by air pollution. In addition, noticeable air pollution can detract from the enjoyment of recreation. Industrial, commercial, retail, and office areas are considered the least sensitive to air pollution. Exposure periods are relatively short and intermittent because the majority of workers tend to stay indoors most of the time. In addition, the workforce is generally the healthiest segment of the population.

The nearest off-site sensitive receptors are the single-family residences surrounding the project site to the north along Bower Avenue and west along Brookhaven Avenue as well as Brookhaven Elementary School to the northwest.

5.2.2 Thresholds of Significance

According to Appendix G of the CEQA Guidelines, a project would normally have a significant effect on the environment if the project would:

AQ-1 Conflict with or obstruct implementation of the applicable air quality plan.

AQ-2 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.

AQ-3 Expose sensitive receptors to substantial pollutant concentrations.

AQ-4 Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.

5.2.2.1 SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT THRESHOLDS

South Coast AQMD has adopted regional construction and operational emissions thresholds to determine a project's cumulative impact on air quality in the SoCAB, as shown in Table 5.2-5, *South Coast AQMD Significance Thresholds*. The table lists thresholds that are applicable for all projects uniformly, regardless of size or scope. There is growing evidence that although ultrafine particulate matter contributes a very small portion of the overall atmospheric mass concentration, it represents a greater proportion of the health risk from PM. However, the EPA and CARB have not adopted AAQS to regulate ultrafine particulate matter; therefore, South Coast AQMD has not developed thresholds for it.

Table 5.2-5 South Coast AQMD Significance Thresholds

Air Pollutant[1]	Construction Phase	Operational Phase
Reactive Organic Gases (ROGs)/Volatile Organic Compounds (VOCs)	75 lbs/day	55 lbs/day
Nitrogen Oxides (NO_X)	100 lbs/day	55 lbs/day
Carbon Monoxide (CO)	550 lbs/day	550 lbs/day
Sulfur Oxides (SO_X)	150 lbs/day	150 lbs/day
Particulates (PM_{10})	150 lbs/day	150 lbs/day
Particulates ($PM_{2.5}$)	55 lbs/day	55 lbs/day

Source: South Coast AQMD 2019.

Health Outcomes Associated with the Regional Significance Thresholds

Projects that exceed the regional significance threshold contribute to the nonattainment designation of the SoCAB. The attainment designations are based on the AAQS, which are set at levels of exposure that are determined to not result in adverse health effects. Exposure to fine particulate pollution and ozone causes myriad health impacts, particularly to the respiratory and cardiovascular systems:

- Increases cancer risk ($PM_{2.5}$, TACs)
- Aggravates respiratory disease (O_3, $PM_{2.5}$)

- Increases bronchitis (O_3, $PM_{2.5}$)
- Causes chest discomfort, throat irritation, and increased effort to take a deep breath (O_3)
- Reduces resistance to infections and increases fatigue (O_3)
- Reduces lung growth in children ($PM_{2.5}$)
- Contributes to heart disease and heart attacks ($PM_{2.5}$)
- Contributes to premature death (O_3, $PM_{2.5}$)
- Contributes to lower birth weight in newborns ($PM_{2.5}$) (South Coast AQMD 2015a)

Exposure to fine particulates and ozone aggravates asthma attacks and can amplify other lung ailments such as emphysema and chronic obstructive pulmonary disease. Exposure to current levels of $PM_{2.5}$ is responsible for an estimated 4,300 cardiopulmonary-related deaths per year in the SoCAB. In addition, a landmark children's health study by University of Southern California scientists found that lung growth improved as air pollution declined for children aged 11 to 15 in five communities in the SoCAB (South Coast AQMD 2015b).

South Coast AQMD is the primary agency responsible for ensuring the health and welfare of sensitive individuals exposed to elevated concentrations of air pollutants in the SoCAB and has established thresholds that would be protective of these individuals. To achieve the health-based standards established by the EPA, South Coast AQMD prepares an AQMP that details regional programs to attain the AAQS. Mass emissions shown in Table 5.2-5 are not correlated with concentrations of air pollutants but contribute to the cumulative air quality impacts in the SoCAB. The thresholds are based on the trigger levels for the federal New Source Review Program. This program was created to ensure projects are consistent with attainment of health-based federal AAQS. Regional emissions from a single project do not single-handedly trigger a regional health impact, and it is speculative to identify how many more individuals in the air basin would be affected by the health effects listed previously. Projects that do not exceed the South Coast AQMD regional significance thresholds in Table 5.2-5 would not violate any air quality standards or contribute substantially to an existing or projected air quality violation.

If projects exceed the emissions in Table 5.2-5, emissions would cumulatively contribute to the nonattainment status and would contribute to elevating health effects associated with these criteria air pollutants. Known health effects related to ozone include worsening of bronchitis, asthma, and emphysema and a decrease in lung function. Health effects associated with particulate matter include premature death of people with heart or lung disease, nonfatal heart attacks, irregular heartbeat, decreased lung function, and increased respiratory symptoms. Reducing emissions would further contribute to reducing possible health effects related to criteria air pollutants. However, for projects that exceed the emissions in Table 5.2-5, it is speculative to determine how exceeding the regional thresholds would affect the number of days the region is in nonattainment, because mass emissions are not correlated with concentrations of emissions or how many additional individuals in the air basin would be affected by the health effects cited previously.

South Coast AQMD has not provided methodology to assess the specific correlation between mass emissions generated and the effect on health to address the issue raised in *Sierra Club v. County of Fresno (Friant Ranch, L.P.) (2018) 6 Cal.5th 502, Case No. S21978*. Ozone concentrations are dependent on a variety of complex factors, including the presence of sunlight and precursor pollutants, natural topography, nearby structures that cause building downwash, atmospheric stability, and wind patterns. Because of the complexities of predicting ground-level ozone concentrations in relation to the National and California AAQS, it is not possible to link health risks to the magnitude of emissions exceeding the significance thresholds. However, if a project in the SoCAB exceeds the regional significance thresholds, the project could contribute to an increase in health effects in the basin until the attainment standards are met in the SoCAB.

CO Hotspots

Areas of vehicle congestion have the potential to create pockets of CO called hotspots. These pockets have the potential to exceed the state one-hour standard of 20 parts per million (ppm) or the eight-hour standard of 9 ppm. Because CO is produced in greatest quantities from vehicle combustion and does not readily disperse into the atmosphere, adherence to ambient air quality standards is typically demonstrated through an analysis of localized CO concentrations. Hotspots are typically produced at intersections, where traffic congestion is highest because vehicles queue for longer periods and are subject to reduced speeds. With the turnover of older vehicles and introduction of cleaner fuels, as well as implementation of control technology on industrial facilities, CO concentrations in the SoCAB and the state have steadily declined.

In 2007, the SoCAB was designated in attainment for CO under both the California AAQS and National AAQS. The CO hotspot analysis conducted for attainment by South Coast AQMD did not predict a violation of CO standards at the busiest intersections in Los Angeles during the peak morning and afternoon periods.[6] As identified in South Coast AQMD's 2003 AQMP and the 1992 Federal Attainment Plan for Carbon Monoxide (1992 CO Plan), peak carbon monoxide concentrations in the SoCAB in years before redesignation were a result of unusual meteorological and topographical conditions and not of congestion at a particular intersection. Under existing and future vehicle emission rates, a project would have to increase traffic volumes at a single intersection by more than 44,000 vehicles per hour—or 24,000 vehicles per hour where vertical and/or horizontal air does not mix—to generate a significant CO impact (BAAQMD 2017).[7]

Localized Significance Thresholds

South Coast AQMD identifies localized significance thresholds (LST), shown in Table 5.2-6, *South Coast AQMD Localized Significance Thresholds*. Emissions of NO_2, CO, PM_{10}, and $PM_{2.5}$ generated at a project site could expose sensitive receptors to substantial concentrations of criteria air pollutants. Off-site mobile-source emissions are not included in the LST analysis. A project that would generate a significant impact if it generates emissions that, when added to the local background concentrations, violates the AAQS.

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[6] The four intersections were: Long Beach Boulevard and Imperial Highway; Wilshire Boulevard and Veteran Avenue; Sunset Boulevard and Highland Avenue; and La Cienega Boulevard and Century Boulevard. The busiest intersection evaluated (Wilshire and Veteran) had a daily traffic volume of approximately 100,000 vehicles per day with LOS E in the morning peak hour and LOS F in the evening peak hour.

[7] The CO hotspot analysis refers to the modeling conducted by the Bay Area Air Quality Management District for its CEQA Guidelines because it is based on newer data and considers the improvement in mobile-source CO emissions. Although meteorological conditions in the Bay Area differ from those in the Southern California region, the modeling conducted by BAAQMD demonstrates that the net increase in peak hour traffic volumes at an intersection in a single hour would need to be substantial. This finding is consistent with the CO hotspot analysis South Coast AQMD prepared as part of its 2003 AQMP to provide support in seeking CO attainment for the SoCAB. Based on the analysis prepared by South Coast AQMD, no CO hotspots were predicted for the SoCAB. As noted in the preceding footnote, the analysis included some of Los Angeles' busiest intersections, with daily traffic volumes of 100,000 or more peak hour vehicle trips operating at LOS E and F.

Table 5.2-6 South Coast AQMD Localized Significance Thresholds

Air Pollutant (Relevant AAQS)	Concentration
1-Hour CO Standard (CAAQS)	20 ppm
8-Hour CO Standard (CAAQS)	9.0 ppm
1-Hour NO_2 Standard (CAAQS)	0.18 ppm
Annual NO_2 Standard (CAAQS)	0.03 ppm
24-Hour PM_{10} Standard – Construction (South Coast AQMD)[1]	10.4 $\mu g/m^3$
24-Hour $PM_{2.5}$ Standard – Construction (South Coast AQMD)[1]	10.4 $\mu g/m^3$
24-Hour PM_{10} Standard – Operation (South Coast AQMD)[1]	2.5 $\mu g/m^3$
24-Hour $PM_{2.5}$ Standard – Operation (South Coast AQMD)[1]	2.5 $\mu g/m^3$
Annual Average PM_{10} Standard (South Coast AQMD)[1]	1.0 $\mu g/m^3$

Source: South Coast AQMD 2019.
ppm – parts per million; $\mu g/m^3$ – micrograms per cubic meter
[1] Threshold is based on South Coast AQMD Rule 403. Since the SoCAB is in nonattainment for PM_{10} and $PM_{2.5}$, the threshold is established as an allowable change in concentration. Therefore, background concentration is irrelevant.

To assist lead agencies, South Coast AQMD developed screening-level LSTs to back-calculate the mass amount (pounds per day) of emissions generated on-site that would trigger the levels shown in Table 5.2-6 for projects under five acres. These "screening-level" LST tables are the LSTs for all projects of five acres and less and are based on emissions over an 8-hour period; however, they can be used as screening criteria for larger projects to determine whether or not dispersion modeling may be required.

The screening-level LSTs in SRA 16 are shown in Table 5.2-7, *South Coast AQMD Screening-Level Localized Significance Thresholds*. For construction activities, the screening-level LSTs are based on the distance to the nearest sensitive receptors and the acreage disturbed per day and equipment use (South Coast AQMD 2011) up to the project site acreage. The different types of construction activities would require different equipment mixes, resulting in multiple LSTs. The screening-level LSTs reflect the thresholds for receptors within 82 feet (25 meters) for NOx, CO, PM_{10} and $PM_{2.5}$.

Table 5.2-7 South Coast AQMD Screening-Level Localized Significance Thresholds

	Threshold (lbs/day)			
Acreage Disturbed	Nitrogen Oxides (NO_X)	Carbon Monoxide (CO)	Coarse Particulates (PM_{10})	Fine Particulates ($PM_{2.5}$)
≤1.00 Acre Disturbed Per Day	103	522	4.00	3.00

Source: South Coast AQMD 2008, South Coast AQMD 2011. Based on receptors in SRA 16.
[1] The screening-level LSTs are based on receptors with exposure durations less than 24-hours within 82 feet (25 meters) for NO_x, CO, PM_{10}, and $PM_{2.5}$.

Health Risk

Whenever a project would require use of chemical compounds that have been identified in South Coast AQMD Rule 1401, placed on CARB's air toxics list pursuant to AB 1807, or placed on the EPA's National Emissions Standards for Hazardous Air Pollutants, a health risk assessment is required by the South Coast AQMD. Table 5.2-8, *South Coast AQMD Toxic Air Contaminants Incremental Risk Thresholds*, lists the TAC incremental risk thresholds for operation of a project. The type of land uses that typically generate substantial quantities of criteria air pollutants and TACs from operations include industrial (stationary sources) and warehousing (truck idling) land uses (CARB 2005). Residential and commercial uses do not use substantial quantities of TACs, thus these thresholds are typically applied to new industrial projects only. Additionally, the purpose of this environmental evaluation is to identify the significant effects of the proposed project on the environment, not the significant effects of the environment on the proposed project. (*California Building Industry Association v. Bay Area Air Quality Management District* (2015) 62 Cal.4th 369 (Case No. S213478).) However, the environmental document must analyze the impacts of environmental hazards on future users when a proposed project exacerbates an existing environmental hazard or condition. Residential, school, commercial, and office uses do not use substantial quantities of TACs and typically do not exacerbate existing hazards, so these thresholds are typically applied to new industrial projects.

Table 5.2-8 South Coast AQMD Toxic Air Contaminants Incremental Risk Thresholds

Maximum Incremental Cancer Risk	≥ 10 in 1 million
Cancer Burden (in areas ≥ 1 in 1 million)	> 0.5 excess cancer cases
Hazard Index (project increment)	≥ 1.0

Source: South Coast AQMD 2019.

5.2.3 Environmental Impacts

5.2.3.1 METHODOLOGY

This air quality evaluation was prepared in accordance with the requirements of CEQA to determine if significant air quality impacts are likely to occur in conjunction with future development that would be accommodated by the proposed project. South Coast AQMD's *CEQA Air Quality Handbook* (Handbook) and updates on its website are intended to provide local governments with guidance for analyzing and mitigating project-specific air quality impacts. The Handbook provides standards, methodologies, and procedures for conducting air quality analyses in environmental impact reports, and they were used in this analysis.

Criteria Air Pollutant Emissions

Air pollutant emissions are calculated using the California Emissions Estimator Model (CalEEMod), version 2022.1.0 (CAPCOA 2022). CalEEMod compiles an emissions inventory of construction (fugitive dust, off-gas emissions, on-road emissions, and off-road emissions), area sources, indirect emissions from energy use, mobile sources, indirect emissions from waste disposal (annual only), and indirect emissions from water/wastewater (annual only). Criteria air pollutant emissions modeling is included in Appendix C of this DEIR. The calculated emissions of the proposed project are compared to thresholds of significance for individual projects using the South Coast AQMD's Handbook. Following is a summary of the assumptions used for the proposed project analysis.

Construction Phase

Construction would entail demolition, site preparation, hauling of the light poles to the project site, and light pole installation on the project site. The proposed project is anticipated to be constructed over a period of approximately 4 weeks, from summer 2023 to August 2023. Construction air pollutant emissions are based on the preliminary information provided or verified by the applicant.

Operational Phase

Typically, the main sources of criteria air pollutant emissions associated with operation are transportation, area sources, and energy consumption. However, enrollment, staffing, and types of activities used by both the school and the community would operate in the same manner as existing conditions. In addition, because the sports teams and band attending practices off-campus would instead use the existing El Dorado HS synthetic track/field, there would not be an increase in criteria air pollutant emissions from the project site.

5.2.3.2 IMPACT ANALYSIS

The following impact analysis addresses the thresholds of significance; the applicable thresholds are identified in brackets after the impact statement.

Impact 5.2-1: The proposed project would be consistent with the applicable air quality management plan. [Threshold AQ-1]

A consistency determination with the AQMP plays an important role in local agency project review by linking local planning and individual projects to the AQMP. It fulfills the CEQA goal of informing decision makers of the environmental effects of the proposed project under consideration early enough to ensure that air quality concerns are fully addressed. It also provides the local agency with ongoing information as to whether they are contributing to the clean air goals in the AQMP.

The regional emissions inventory for the SoCAB is compiled by South Coast AQMD and SCAG. Regional population, housing, and employment projections developed by SCAG are based, in part, on cities' general plan land use designations. These projections form the foundation for the emissions inventory of the AQMP. These demographic trends are incorporated into SCAG's Regional Transportation Plan/Sustainable Communities Strategy to determine priority transportation projects and vehicle miles traveled in the SCAG region. Because the AQMP strategy is based on projections from local general plans, projects that are consistent with the local general plan are considered consistent with the air-quality-related regional plan.

The proposed project would involve the installation and operation of four permanent light poles for a high school sports stadium, which would not directly or indirectly result in population growth. Thus, the proposed project is not considered a project of statewide, regional, or areawide significance that would require intergovernmental review under Section 15206(b) of the CEQA Guidelines. The project would not have the potential to substantially affect SCAG's demographic projections. In addition, due to the nature of the proposed project, it would not result in new long-term employment. Construction activities associated with the proposed project would result in short-term employment only and would end upon project completion. The long-term emissions generated by the proposed project would not produce criteria air pollutants that exceed the South Coast AQMD significance thresholds for proposed project operations (see Impact 5.2-3). South Coast AQMD's significance thresholds identify whether a project has the potential to cumulatively contribute to the SoCAB's nonattainment designations. Because the proposed project would not exceed the South Coast AQMD's regional significance thresholds (see Impact 5.2-2 and Impact 5.2-3) and growth is consistent with regional growth projections, the proposed project would not interfere with South Coast AQMD's ability to achieve the long-term air quality goals identified in the AQMP. Therefore, the proposed project would not conflict nor obstruct implementation of the AQMP, and impacts would be less than significant.

Impact 5.2-2: Construction activities associated with the proposed project would not generate short-term emissions in exceedance of South Coast AQMD's threshold criteria. [Threshold AQ-2]

Construction activities produce combustion emissions from various sources, such as on-site heavy-duty construction vehicles, vehicles hauling materials to and from the site, and motor vehicles transporting the construction crew. Construction of the proposed project would generate criteria air pollutants associated with construction equipment exhaust and fugitive dust from demolition, site preparation, hauling of the light poles to the project site, and light pole installation on the project site. Air pollutant emissions from construction activities on-site would vary daily as construction activity levels change. An estimate of maximum daily construction emissions for the proposed project is provided in Table 5.2-9, *Maximum Daily Regional Construction Emissions*. The table shows the highest daily emissions that would be generated over the anticipated development period. The SoCAB is designated nonattainment for O_3 and $PM_{2.5}$ under the California and National AAQS, nonattainment for PM_{10} under the California AAQS,[8] and nonattainment for lead (Los Angeles County only) under the National AAQS. According to South Coast AQMD methodology, any project that does not exceed or can be mitigated to less than the daily threshold values would not add significantly to a cumulative impact (South Coast AQMD 1993). As shown in Table 5.2-9, the maximum daily emissions for VOC, NOx, CO, SO_2, PM_{10}, and $PM_{2.5}$ from construction-related activities would be less than their respective South Coast AQMD regional significance threshold values. Therefore, short-term air quality impacts from proposed project-related construction activities would be less than significant.

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[8] Portions of the SoCAB along SR-60 in Los Angeles, Riverside, and San Bernardino Counties are proposed as nonattainment for NO_2 under the California AAQS.

Table 5.2-9 Maximum Daily Regional Construction Emissions

Construction Phase	Pollutants (lb/day)[1, 2]					
	VOC	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$
Year 2023						
Demolition and Site Preparation	1	10	13	<1	1	1
Demolition, Site Preparation, and Light Pole Haul	1	11	13	<1	1	1
Demolition, Site Preparation, Light Pole Haul, and Light Pole Installation	2	15	19	<1	1	1
Demolition, Site Preparation, Light Pole Installation	2	14	18	<1	1	1
Maximum Daily Construction Emissions						
Maximum Daily Emissions	2	15	19	<1	1	1
South Coast AQMD Regional Construction Threshold	75	100	550	150	150	55
Significant?	No	No	No	No	No	No

Source: CalEEMod Version 2022.1.0. Highest winter or summer emissions are reported.

[1] Based on the preliminary information provided by the applicant. Where specific information regarding proposed project-related construction activities was not available, construction assumptions were based on CalEEMod defaults, which are based on construction surveys conducted by South Coast AQMD of construction equipment.

[2] Includes implementation of fugitive dust control measures required by South Coast AQMD under Rule 403, including watering disturbed areas a minimum of two times per day, reducing speed limit to 15 miles per hour on unpaved surfaces, replacing ground cover quickly, and street sweeping with Rule 1186–compliant sweepers.

Impact 5.2-3: Long-term operation of the proposed project would not generate additional vehicle trips and associated emissions in exceedance of South Coast AQMD's threshold criteria. [Threshold AQ-2]

Upon buildout, the proposed project would not generate an increase in criteria air pollutant emissions. The proposed project would not result in an increase in enrollment, staffing, or activities on Campus. Overall, the proposed would operate in the same manner as existing conditions. The project would not generate an increase in vehicle trips and associated mobile-source emissions. The proposed project would eliminate the additional vehicle trips currently required for the students to practice off-site. Therefore, the project would not result in an increase in long-term criteria air pollutant emissions. Therefore, no impacts to the regional air quality associated with operation of the project would occur.

Impact 5.2-4: The proposed project could expose sensitive receptors to substantial pollutant concentrations during construction. [Threshold AQ-3]

This impact analysis describes changes in localized impacts from short-term construction activities. The proposed project could expose sensitive receptors to elevated pollutant concentrations during construction activities if it would cause or contribute significantly to elevated levels. Unlike the mass of emissions shown in the regional emissions analysis shown in Table 5.2-9, which are described in pounds per day, localized concentrations refer to an amount of pollutant in a volume of air (ppm or $\mu g/m^3$) and can be correlated to potential health effects.

Construction-Phase Localized Significance Thresholds

Screening-level LSTs (pounds per day) are the amount of project-related mass emissions at which localized concentrations (ppm or µg/m^3) could exceed the AAQS for criteria air pollutants for which the SoCAB is designated nonattainment. They are based on the acreage disturbed and distance to the nearest sensitive receptor. Screening-level LSTs are based on the proposed project site size and distance to the nearest sensitive receptor. Thresholds are based on the California AAQS, which are the most stringent, established to provide a margin of safety in the protection of the public health and welfare. They are designed to protect sensitive receptors most susceptible to further respiratory distress, such as asthmatics, the elderly, very young children, people already weakened by other disease or illness, and persons engaged in strenuous work or exercise. The nearest off-site sensitive receptors are the single-family residences to the north and west of the project site.

Construction activities from the proposed project are anticipated to occur on less than one acre of the project site. Table 5.2-10, *Maximum Daily On-Site Localized Construction Emissions,* shows the maximum daily construction emissions (pounds per day) generated during on-site construction activities. The on-site PM_{10} and $PM_{2.5}$ emissions shown represent the total on-site particulate matter emissions from vehicle exhaust and fugitive dust. On-site NO_X emissions are from off-road equipment exhaust. As shown in Table 5.2-10, the maximum daily construction emissions (pounds per day) for NO_x, CO, PM_{10}, and $PM_{2.5}$ construction emissions would be less than their respective South Coast AQMD screening-level LSTs. Therefore, air quality impacts from project-related construction activities would be less than significant.

Table 5.2-10 Maximum Daily On-Site Localized Construction Emissions

	Pollutants (lbs/day)[1,2]			
	NO_X	CO	PM_{10}[3]	$PM_{2.5}$[3]
South Coast AQMD ≤1.00-Acre LST	**103**	**522**	**4.00**	**3.00**
Demolition and Site Preparation	10	11	1.01	0.51
Demolition, Site Preparation, and Light Pole Haul	10	11	1.01	0.51
Demolition, Site Preparation, Light Pole Haul, and Light Pole Installation	14	17	1.21	0.69
Demolition, Site Preparation, and Light Pole Installation	14	17	1.21	0.69
Exceeds LST?	No	No	No	No

Sources: CalEEMod Version 2022.1.0, and South Coast AQMD 2008 and 2011. Highest winter or summer emissions are reported.

[1] In accordance with South Coast AQMD methodology, only on-site stationary sources and mobile equipment occurring on the project area are included in the analysis. LSTs are based on non-sensitive receptors within 82 feet (25 meters) of the project site in Source Receptor Area (SRA) 16.

[2] Based on information provided or verified by the applicant. Where specific information regarding project-related construction activities or processes was not available, construction assumptions were based on CalEEMod defaults, which are based on construction surveys conducted by the South Coast AQMD.

[3] Includes implementation of fugitive dust control measures required by South Coast AQMD under Rule 403, including watering disturbed areas a minimum of two times per day, reducing speed limit to 15 miles per hour on unpaved surfaces, replacing ground cover quickly, and street sweeping with Rule 1186–compliant sweepers.

Impact 5.2-5: The proposed project would not expose sensitive receptors to substantial pollutant concentrations during operation. [Threshold AQ-3]

This impact analysis describes changes in localized impacts from long-term operational activities. The proposed project could expose sensitive receptors to elevated pollutant concentrations during operation of the proposed project if it would cause or contribute significantly to elevated levels. Additionally, the proposed project would not result in new changes to the project site's current operations.

Operational Phase LSTs

The screening-level LSTs are the amount of project-related stationary and area sources of emissions at which localized concentrations (ppm or $\mu g/m^3$) would exceed the ambient air quality standards for criteria air pollutants for which the SoCAB is designated a nonattainment area. The proposed project would involve installation of four permanent stadium light poles that would not be associated with generating a high or substantial number of vehicle trips. Typical sources of criteria air pollutant emissions associated with the proposed project from stationary and area sources include energy use (natural gas used for cooking and water heating) and landscaping fuel and aerosols. Types of land uses that typically generate substantial quantities of criteria air pollutants and TACs include industrial (stationary sources) and warehousing (truck idling) land uses. These types of major air pollutant emissions sources would not be included or expanded under the proposed project. Thus, the proposed project would not result in creation of land uses that would generate substantial concentrations of criteria air pollutant emissions. Therefore, no localized operation-related air quality impacts would occur.

Carbon Monoxide Hotspots

Areas of vehicle congestion have the potential to create pockets of CO called hotspots. These pockets have the potential to exceed the state one-hour standard of 20 ppm or the eight-hour standard of 9.0 ppm. Because CO is produced in greatest quantities from vehicle combustion and does not readily disperse into the atmosphere, adherence to AAQS is typically demonstrated through an analysis of localized CO concentrations. Hot spots are typically produced at intersections, where traffic congestion is highest because vehicles queue for longer periods and are subject to reduced speeds. The SoCAB has been designated in attainment of both the National and California AAQS for CO. Under existing and future vehicle emission rates, a project would have to increase traffic volumes at a single intersection by more than 44,000 vehicles per hour—or 24,000 vehicles per hour where vertical and/or horizontal mixing is substantially limited—to generate a significant CO impact (BAAQMD 2017). As identified in Section 5.5, *Transportation*, the installation of lights at the El Dorado HS track/field would provide the opportunity for student athletes to attend practices at their school, which would eliminate the need to travel to another field. Therefore, implementation of the proposed project would not generate an increase in vehicle trips and would not have the potential to substantially increase CO hotspots at intersections in the vicinity of the project site. No impact would occur.

Impact 5.2-6: The proposed project would not result in other emissions (such as those leading to odors) that would adversely affect a substantial number of people. [Threshold AQ-4]

The threshold for odor is if a project creates an odor nuisance pursuant to South Coast AQMD Rule 402, Nuisance, which states:

> A person shall not discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health or safety of any such persons or the public, or which cause, or have a natural tendency to cause, injury or damage to business or property. The provisions of this rule shall not apply to odors emanating from agricultural operations necessary for the growing of crops or the raising of fowl or animals.

The type of facilities that are considered to have objectionable odors include wastewater treatment plants, compost facilities, landfills, solid waste transfer stations, fiberglass manufacturing facilities, paint/coating operations (e.g., auto body shops), dairy farms, petroleum refineries, asphalt batch plants, chemical manufacturing, and food manufacturing facilities.

Operation of the stadium lights would not fall within the aforementioned land uses typically associated with objectionable odors. In addition, construction activities could also generate odors from construction equipment, such as diesel exhaust, and from VOCs from architectural coatings and paving activities. However, these odors would be temporary and confined to the immediate vicinity of the construction equipment. Furthermore, South Coast AQMD Rule 402 would minimize and provide a control for odors. Therefore, no impacts related to objectionable operational and construction-related odors would occur.

5.2.4 Cumulative Impacts

In accordance with South Coast AQMD's methodology, any project that produces a significant project-level regional air quality impact in an area that is in nonattainment contributes to the cumulative impact. The greatest source of emissions in the SoCAB is mobile sources. Due to the extent of the area potentially impacted from cumulative project emissions (i.e., the SoCAB), South Coast AQMD considers a project cumulatively significant when project-related emissions exceed the South Coast AQMD regional emissions thresholds shown in Table 5.2-5. No significant cumulative impacts were identified with regard to CO hotspots.

Construction

The SoCAB is designated nonattainment for O_3 and $PM_{2.5}$ under the California and National AAQS and nonattainment for PM_{10} under the California AAQS,[9] and nonattainment for lead (Los Angeles County only) under the National AAQS. Construction of cumulative projects will further degrade the regional and local air quality. Air quality will be temporarily impacted during construction activities. As shown in Table 5.2-9, the proposed project's short-term emissions would not exceed the South Coast AQMD regional emissions thresholds. In addition, construction of the proposed project would not exceed localized significance

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[9] Portions of the SoCAB along SR-60 in Los Angeles, Riverside, and San Bernardino counties are proposed nonattainment for NO_2 under the California AAQS.

thresholds. Therefore, the proposed project's contribution to cumulative air quality impacts would not be cumulatively considerable and impacts would be less than significant.

Operation

For operational air quality emissions, any project that does not exceed or can be mitigated to less than the daily regional threshold values is not considered by South Coast AQMD to be a substantial source of air pollution and does not make a cumulatively considerable contribution to a cumulative air quality impact. Operation of the proposed project would not result in an increase in emissions. The project would not cumulatively contribute to significant health impacts in the SoCAB. Therefore, no cumulative impact would occur, and the air pollutant emissions associated with the proposed project would not be cumulatively considerable.

5.2.5 Level of Significance Before Mitigation

Upon implementation of regulatory requirements and standard conditions of approval, some impacts would be less than significant: Impacts 5.2-1, 5.2-2, 5.2-3, 5.2-4, 5.2-5 and 5.2-6.

5.2.6 Mitigation Measures

No mitigation measures required.

5.2.7 Level of Significance After Mitigation

Air quality impacts are less than significant.

5.2.8 References

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5.3 GREENHOUSE GAS EMISSIONS

This section of the Draft Environmental Impact Report (DEIR) evaluates the potential for implementation of the El Dorado High School Field Lighting Project (proposed project) to cumulatively contribute to greenhouse gas (GHG) emissions impacts. Because no single project is large enough to result in a measurable increase in global concentrations of GHG, climate change impacts of a project are considered on a cumulative basis. This evaluation is based on the methodology recommended by the South Coast Air Quality Management District (South Coast AQMD). GHG emissions modeling was conducted using the California Emissions Estimator Model (CalEEMod), version 2020.4.0, and model outputs are in Appendix C of this DEIR. Transportation-sector impacts are based on trip generation and vehicle miles traveled as provided by Garland Associates. Cumulative impacts related to GHG emissions are based on the regional boundaries of the South Coast Air Basin (SoCAB).

No comments were received in response to the Initial Study/Notice of Preparation (IS/NOP) in regard to greenhouse gas emissions. The IS/NOP and all scoping comment letters are included as Appendix A of this DEIR.

5.3.1 Environmental Setting

Terminology

The following are definitions for terms used throughout this section.

- **Greenhouse gases (GHG).** Gases in the atmosphere that absorb infrared light, thereby retaining heat in the atmosphere and contributing to a greenhouse effect.
- **Global warming potential (GWP).** Metric used to describe how much heat a molecule of a greenhouse gas absorbs relative to a molecule of carbon dioxide (CO_2) over a given period of time (20, 100, and 500 years). CO_2 has a GWP of 1.
- **Carbon-dioxide equivalent (CO_2e).** The standard unit to measure the amount of greenhouse gases in terms of the amount of CO_2 that would cause the same amount of warming. CO_2e is based on the GWP ratios between the various GHGs relative to CO_2.
- **$MTCO_2e$.** Metric ton of CO_2e.
- **$MMTCO_2e$.** Million metric tons of CO_2e.

5.3.1.1 EXISTING CONDITIONS

Greenhouse Gases and Climate Change

Scientists have concluded that human activities are contributing to global climate change by adding large amounts of heat-trapping gases, known as GHGs, to the atmosphere. The primary source of these GHGs is fossil fuel use. The Intergovernmental Panel on Climate Change (IPCC) has identified four major GHGs—

water vapor, carbon dioxide (CO_2), methane (CH_4), and ozone (O_3)—that are the likely cause of an increase in global average temperatures observed in the 20th and 21st centuries. Other GHGs identified by the IPCC that contribute to global warming to a lesser extent are nitrous oxide (N_2O), sulfur hexafluoride (SF_6), hydrofluorocarbons, perfluorocarbons, and chlorofluorocarbons (IPCC 2001).[1,2] The major GHGs applicable to the proposed project are briefly described.

- **Carbon dioxide (CO_2)** enters the atmosphere through the burning of fossil fuels (oil, natural gas, and coal), solid waste, trees and wood products, and respiration, and also as a result of other chemical reactions (e.g., manufacture of cement). Carbon dioxide is removed from the atmosphere (sequestered) when it is absorbed by plants as part of the biological carbon cycle.
- **Methane (CH_4) i**s emitted during the production and transport of coal, natural gas, and oil. Methane emissions also result from livestock and other agricultural practices and from the decay of organic waste in landfills and water treatment facilities.
- **Nitrous oxide (N_2O)** is emitted during agricultural and industrial activities as well as during the combustion of fossil fuels and solid waste.

GHGs are dependent on the lifetime, or persistence, of the gas molecule in the atmosphere. Some GHGs have stronger greenhouse effects than others. These are referred to as high GWP gases. The GWP of GHG emissions are shown in Table 5.3-1, *GHG Emissions and Their Relative Global Warming Potential Compared to* CO_2. The GWP is used to convert GHGs to CO_2-equivalence (CO_2e) to show the relative potential that different GHGs have to retain infrared radiation in the atmosphere and contribute to the greenhouse effect. For example, under IPCC's Fifth Assessment Report (AR5) GWP values for CH_4, a project that generates 10 MT of CH_4 would be equivalent to 280 MT of CO_2.

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[1] Water vapor (H_2O) is the strongest GHG and the most variable in its phases (vapor, cloud droplets, ice crystals). However, water vapor is not considered a pollutant because it is considered part of the feedback loop rather than a primary cause of change.

[2] Black carbon contributes to climate change both directly, by absorbing sunlight, and indirectly, by depositing on snow (making it melt faster) and by interacting with clouds and affecting cloud formation. Black carbon is the most strongly light-absorbing component of particulate matter (PM) emitted from burning fuels such as coal, diesel, and biomass. Reducing black carbon emissions globally can have immediate economic, climate, and public health benefits. California has been an international leader in reducing emissions of black carbon, with close to 95 percent control expected by 2020 due to existing programs that target reducing PM from diesel engines and burning activities (CARB 2017a). However, state and national GHG inventories do not include black carbon due to ongoing work resolving the precise global warming potential of black carbon. Guidance for CEQA documents does not yet include black carbon.

Table 5.3-1 GHG Emissions and Their Relative Global Warming Potential Compared to CO_2

GHGs	Second Assessment Report Global Warming Potential Relative to CO_2[1]	Fourth Assessment Report Global Warming Potential Relative to CO_2[1]	Fifth Assessment Report Global Warming Potential Relative to CO_2[1]
Carbon Dioxide (CO_2)	1	1	1
Methane (CH_4)[2]	21	25	28
Nitrous Oxide (N_2O)	310	298	265

Source: IPCC 1995, 2007, 2013.

Notes: The IPCC published updated GWP values in its Fifth Assessment Report (AR5) that reflect new information on atmospheric lifetimes of GHGs and an improved calculation of the radiative forcing of CO_2. However, GWP values identified in AR4 are used by South Coast AQMD to maintain consistency in statewide GHG emissions modeling. In addition, the 2017 Scoping Plan Update was based on the GWP values in AR4.

[1] Based on 100-year time horizon of the GWP of the air pollutant compared to CO_2.

[2] The methane GWP includes direct effects and indirect effects due to the production of tropospheric ozone and stratospheric water vapor. The indirect effect due to the production of CO_2 is not included.

Human Influence on Climate Change

For approximately 1,000 years before the Industrial Revolution, the amount of GHGs in the atmosphere remained relatively constant. During the 20th century scientists observed a rapid change in the climate and the quantity of climate change pollutants in the Earth's atmosphere that is attributable to human activities. The amount of CO_2 in the atmosphere has increased by more than 35 percent since preindustrial times and has increased at an average rate of 1.4 parts per million per year since 1960, mainly due to the combustion of fossil fuels and deforestation (IPCC 2007). These recent changes in the quantity and concentration of climate change pollutants far exceed the extremes of the ice ages, and the global mean temperature is warming at a rate that cannot be explained by natural causes alone. Human activities are directly altering the chemical composition of the atmosphere through the buildup of climate change pollutants (CAT 2006). In the past, gradual changes in the earth's temperature changed the distribution of species, availability of water, etc. Human activities are accelerating this process so that environmental impacts associated with climate change no longer occur in a geologic time frame but within a human lifetime (IPCC 2007).

Like the variability in the projections of the expected increase in global surface temperatures, the environmental consequences of gradual changes in the Earth's temperature are hard to predict. Projections of climate change depend heavily upon future human activity. Therefore, climate models are based on different emission scenarios that account for historical trends in emissions and on observations of the climate record that assess the human influence of the trend and projections for extreme weather events. Climate-change scenarios are affected by varying degrees of uncertainty. For example, there are varying degrees of certainty on the magnitude of the trends for:

- Warmer and fewer cold days and nights over most land areas.
- Warmer and more frequent hot days and nights over most land areas.
- An increase in the frequency of warm spells and heat waves over most land areas.
- An increase in frequency of heavy precipitation events (or proportion of total rainfall from heavy falls) over most areas.

- Larger areas affected by drought.
- Intense tropical cyclone activity increases.
- Increased incidence of extreme high sea level (excluding tsunamis).

Potential Climate Change Impacts for California

Observed changes over the last several decades across the western United States reveal clear signs of climate change. Statewide, average temperatures increased by about 1.7°F from 1895 to 2011, and warming has been greatest in the Sierra Nevada (CCCC 2012). The years from 2014 through 2016 showed unprecedented temperatures, with 2014 being the warmest (OEHHA 2018). By 2050, California is projected to warm by approximately 2.7°F above 2000 averages, a threefold increase in the rate of warming over the last century. By 2100, average temperatures could increase by 5.6 to 8.8°F, depending on emissions levels (CNRA 2019).

In California and western North America, observations of the climate have shown: 1) a trend toward warmer winter and spring temperatures; 2) a smaller fraction of precipitation falling as snow; 3) a decrease in the amount of spring snow accumulation in the lower- and middle-elevation mountain zones; 4) advanced shift in the timing of snowmelt of 5 to 30 days earlier in the spring; and 5) a similar shift (5 to 30 days earlier) in the timing of spring flower blooms (CAT 2006). Overall, California has become drier over time, with five of the eight years of severe to extreme drought occurring between 2007 and 2016, and unprecedented dry years in 2014 and 2015 (OEHHA 2018). Statewide precipitation has become increasingly variable from year to year, with the driest consecutive four years from 2012 to 2015 (OEHHA 2018). According to the California Climate Action Team—a committee of state agency secretaries and the heads of agencies, boards, and departments, led by the California Environmental Protection Agency—even if actions could be taken to immediately curtail climate change emissions, the potency of emissions that have already built up, their long atmospheric lifetimes (see Table 5.3-1), and the inertia of the Earth's climate system could produce as much as 0.6°C (1.1°F) of additional warming. Consequently, some impacts from climate change are now considered unavoidable. Global climate change risks to California are shown in Table 5.3-2, *Summary of GHG Emissions Risks to California*, and include impacts to public health, water resources, agriculture, coastal sea level, forest and biological resources, and energy.

Table 5.3-2 Summary of GHG Emissions Risks to California

Impact Category	Potential Risk
Public Health Impacts	Heat waves will be more frequent, hotter, and longer Fewer extremely cold nights Poor air quality made worse Higher temperatures increase ground-level ozone levels
Water Resources Impacts	Decreasing Sierra Nevada snowpack Challenges in securing adequate water supply Potential reduction in hydropower Loss of winter recreation
Agricultural Impacts	Increasing temperature Increasing threats from pests and pathogens Expanded ranges of agricultural weeds Declining productivity Irregular blooms and harvests
Coastal Sea Level Impacts	Accelerated sea level rise Increasing coastal floods Shrinking beaches Worsened impacts on infrastructure
Forest and Biological Resource Impacts	Increased risk and severity of wildfires Lengthening of the wildfire season Movement of forest areas Conversion of forest to grassland Declining forest productivity Increasing threats from pests and pathogens Shifting vegetation and species distribution Altered timing of migration and mating habits Loss of sensitive or slow-moving species
Energy Demand Impacts	Potential reduction in hydropower Increased energy demand

Sources: CEC 2006; CEC 2009; CCCC 2012; CNRA 2014.

Specific climate change impacts that could affect the project include:

- **Water Resources Impacts.** By late this century, all projections show drying, and half of the projections suggest 30-year average precipitation will decline by more than 10 percent below the historical average. This drying trend is caused by an apparent decline in the frequency of rain and snowfall. Even in projections with relatively small or no declines in precipitation, central and southern parts of the state can be expected to be drier from the warming effects alone—the spring snowpack will melt sooner, and the moisture in soils will evaporate during long dry summer months (CCCC 2012).

- **Wildfire Risks.** Earlier snowmelt, higher temperatures, and longer dry periods over a longer fire season will directly increase wildfire risk. Indirectly, wildfire risk will also be influenced by potential climate-related changes in vegetation and ignition potential from lightning. Human activities will continue to be the biggest factor in ignition risk. The number of large fires statewide is estimated to increase from 58 percent to 128 percent above historical levels by 2085. Under the same emissions scenario, estimated burned area will increase by 57 percent to 169 percent, depending on location (CCCC 2012).

- **Health Impacts.** Many of the gravest threats to public health in California stem from the increase of extreme conditions—principally, more frequent, more intense, and longer heat waves. Particular concern centers on the increasing tendency for multiple hot days in succession and simultaneous heat waves in several regions throughout the state. Public health could also be affected by climate change impacts on air quality, food production, the amount and quality of water supplies, energy pricing and availability, and the spread of infectious diseases. Higher temperatures also increase ground-level ozone levels. Furthermore, wildfires can increase particulate air pollution in the major air basins of California (CCCC 2012).
- **Increase Energy Demand.** Increases in average temperature and higher frequency of extreme heat events combined with new residential development across the state will drive up the demand for cooling in the increasingly hot and longer summer season and decrease demand for heating in the cooler season. Warmer, drier summers also increase system losses at natural gas plants (reduced efficiency in the electricity generation process at higher temperatures) and hydropower plants (lower reservoir levels). Transmission of electricity will also be affected by climate change. Transmission lines lose 7 percent to 8 percent of transmitting capacity in high temperatures while needing to transport greater loads. This means that more electricity will need to be produced to make up for both the loss in capacity and the growing demand (CCCC 2012).

5.3.1.2 REGULATORY BACKGROUND

Federal

United States Environmental Protection Agency

The US Environmental Protection Agency (EPA) announced on December 7, 2009, that GHG emissions threaten the public health and welfare of the American people and that GHG emissions from on-road vehicles contribute to that threat. The EPA's final findings respond to the 2007 U.S. Supreme Court decision that GHG emissions fit within the Clean Air Act definition of air pollutants. The findings do not impose any emission reduction requirements, but allow the EPA to finalize the GHG standards proposed in 2009 for new light-duty vehicles as part of the joint rulemaking with the Department of Transportation (USEPA 2009).

To regulate GHGs from passenger vehicles, EPA was required to issue an endangerment finding. The finding identified emissions of six key GHGs—CO_2, CH_4, N_2O, hydrofluorocarbons, perfluorocarbons, and SF_6—that have been the subject of scrutiny and intense analysis for decades by scientists in the United States and around the world. The first three are applicable to the Specific Plan's GHG emissions inventory because they constitute the majority of GHG emissions, and according to guidance by the South Coast Air Quality Management District (South Coast AQMD), are the GHG emissions that should be evaluated as part of a project's GHG emissions inventory.

US Mandatory Reporting Rule for GHGs (2009)

In response to the endangerment finding, the EPA issued the Mandatory Reporting of GHG Rule that requires substantial emitters of GHG emissions (large stationary sources, etc.) to report GHG emissions data. Facilities that emit 25,000 $MTCO_2e$ or more per year are required to submit an annual report.

Update to Corporate Average Fuel Economy Standards (2021 to 2026)

The federal government issued new Corporate Average Fuel Economy (CAFE) standards in 2012 for model years 2017 to 2025, which required a fleet average of 54.5 miles per gallon in 2025. On March 30, 2020, the EPA finalized an updated CAFE and GHG emissions standards for passenger cars and light trucks and established new standards covering model years 2021 through 2026, known as the Safer Affordable Fuel Efficient (SAFE) Vehicles Final Rule for Model Years 2021 to 2026. Under SAFE, the fuel economy standards will increase 1.5 percent per year compared to the 5 percent per year under the CAFE standards established in 2012. Overall, SAFE requires a fleet average of 40.4 MPG for model year 2026 vehicles (85 Federal Register 24174 (April 30, 2020)).

On December 21, 2021, under direction of Executive Order (EO) 13990 issued by President Biden, the National Highway Traffic Safety Administration repealed Safer Affordable Fuel Efficient Vehicles Rule Part One, which had preempted state and local laws related to fuel economy standards. In addition, on March 31, 2022, the National Highway Traffic Safety Administration finalized new fuel standards in response to EO 13990. Fuel efficiency under the standards proposed will increase 8 percent annually for model years 2024 to 2025 and 10 percent annual for model year 2026. Overall, the new CAFE standards require a fleet average of 49 MPG for passenger vehicles and light trucks for model year 2026, which would be a 10 MPG increase relative to model year 2021 (NHTSA 2022).

State

Current State of California guidance and goals for reductions in GHG emissions are generally embodied in EO S-03-05 and EO B-30-15, EO B-55-18, Assembly Bill 32 (AB 32), Senate Bill 32 (SB 32), AB 1279, and SB 375.

Executive Order S-03-05

EO S-03-05 was signed June 1, 2005, and set the following GHG reduction targets for the state:

- 2000 levels by 2010
- 1990 levels by 2020
- 80 percent below 1990 levels by 2050

Assembly Bill 32, the Global Warming Solutions Act (2006)

AB 32 was passed by the California state legislature on August 31, 2006, to place the state on a course toward reducing its contribution of GHG emissions. AB 32 follows the 2020 tier of emissions reduction targets established in EO S-03-05. CARB prepared the 2008 Scoping Plan to outline a plan to achieve the GHG emissions reduction targets of AB 32.

Executive Order B-30-15

EO B-30-15, signed April 29, 2015, set a goal of reducing GHG emissions within the state to 40 percent of 1990 levels by year 2030. EO B-30-15 also directed CARB to update the Scoping Plan to quantify the 2030 GHG reduction goal for the state and requires state agencies to implement measures to meet the interim 2030 goal as well as the long-term goal for 2050 in EO S-03-05. It also requires the Natural Resources Agency to conduct triennial updates of the California adaption strategy, "Safeguarding California", in order to ensure climate change is accounted for in state planning and investment decisions.

Senate Bill 32 and Assembly Bill 197

In September 2016, Governor Brown signed SB 32 and AB 197 into law, making the EO B-30-15 goal for year 2030 into a statewide mandated legislative target. AB 197 established a joint legislative committee on climate change policies and requires CARB to prioritize direct emissions reductions rather than the market-based cap-and-trade program for large stationary, mobile, and other sources.

2017 Climate Change Scoping Plan Update

EO B-30-15 and SB 32 required CARB to prepare another update to the Scoping Plan to address the 2030 target for the state. On December 24, 2017, CARB adopted the 2017 Climate Change Scoping Plan Update, which outlined potential regulations and programs, including strategies consistent with AB 197 requirements, to achieve the 2030 target. The 2017 Scoping Plan established a new emissions limit of 260 $MMTCO_2e$ for the year 2030, which corresponds to a 40 percent decrease in 1990 levels by 2030 (CARB 2017b).

California's climate strategy will require contributions from all sectors of the economy, including enhanced focus on zero- and near-zero emission (ZE/NZE) vehicle technologies; continued investment in renewables such as solar roofs, wind, and other types of distributed generation; greater use of low carbon fuels; integrated land conservation and development strategies; coordinated efforts to reduce emissions of short-lived climate pollutants (methane, black carbon, and fluorinated gases); and an increased focus on integrated land use planning to support livable, transit-connected communities and conservation of agricultural and other lands. Requirements for GHG reductions at stationary sources complement local air pollution control efforts by the local air districts to tighten criteria air pollutants and toxic air contaminants emissions limits on across a broad spectrum of industrial sources. Major elements of the 2017 Scoping Plan framework include:

- Implementing and/or increasing the standards of the Mobile Source Strategy, which include increasing ZE buses and trucks.
- Low Carbon Fuel Standard (LCFS), with an increased stringency (18 percent by 2030).
- Implementation of SB 350, which expands the Renewables Portfolio Standard (RPS) to 50 percent RPS and doubles energy efficiency savings by 2030.
- California Sustainable Freight Action Plan, which improves freight system efficiency, utilizes near-zero emissions technology, and deployment of ZE trucks.

- Implementing the Short-Lived Climate Pollutant Strategy, which focuses on reducing methane and hydrofluorocarbon emissions by 40 percent and anthropogenic black carbon emissions by 50 percent by year 2030.
- Continued implementation of SB 375.
- Post-2020 Cap-and-Trade Program that includes declining caps.
- Development of a Natural and Working Lands Action Plan to secure California's land base as a net carbon sink.

In addition to the statewide strategies listed above, the 2017 Climate Change Scoping Plan identified local governments as essential partners in achieving the state's long-term GHG reduction goals and recommended local actions to reduce GHG emissions. Part of the recommended actions are statewide targets of no more than 6 $MTCO_2e$ or less per capita by 2030 and 2 $MTCO_2e$ or less per capita by 2050. CARB recommends that local governments evaluate and adopt robust and quantitative locally appropriate goals that align with the state's per capita targets and sustainable development objectives and develop plans to achieve the local goals. The statewide per capita goals were developed by applying the percentage reduction necessary to reach the 2030 and 2050 climate goals (i.e., 40 percent and 80 percent, respectively) to the state's 1990 emissions limit established under AB 32.

For CEQA projects, CARB states that lead agencies have the discretion to develop evidenced-based numeric thresholds (mass emissions, per capita, or per service population—consistent with the Scoping Plan and the state's long-term GHG goals. To the degree a project relies on GHG mitigation measures, CARB recommends that lead agencies prioritize on-site design features that reduce emissions, especially from VMT, and direct investments in GHG reductions within the project's region that contribute potential air quality, health, and economic co-benefits. Where further project design or regional investments are infeasible or not proven to be effective, CARB recommends mitigating potential GHG impacts through purchasing and retiring carbon credits.

The 2017 Scoping Plan scenario is set against what is called the "business as usual" yardstick—that is, what would the GHG emissions look like if the state did nothing at all beyond the existing policies that are required and already in place to achieve the 2020 limit, as shown in Table 5.3-3, *2017 Climate Change Scoping Plan Emissions Reductions Gap*. It includes the existing renewables requirements, advanced clean cars, the "10 percent" LCFS, and the SB 375 program for more vibrant communities, among others. However, it does not include a range of new policies or measures that have been developed or put into statute over the past two years. Also shown in the table, the known commitments, which are expected to result in emissions that are 60 $MMTCO_2e$ above the target in 2030. If the estimated GHG reductions from the known commitments are not realized due to delays in implementation or technology deployment, the post-2020 Cap-and-Trade Program would deliver the additional GHG reductions in the sectors it covers to ensure the 2030 target is achieved.

Table 5.3-3 2017 Climate Change Scoping Plan Emissions Reductions Gap

Modeling Scenario	2030 GHG Emissions MMTCO$_2$e
Reference Scenario (Business-as-Usual)	398
With Known Commitments	320
2030 GHG Target	**260**
Gap to 2030 Target	**60**

Source: CARB 2017b.

Table 5.3-4, *2017 Climate Change Scoping Plan Emissions Change by Sector*, provides estimated GHG emissions by sector at 1990 levels, and the range of emissions for each sector estimated for 2030. The following sectors would be applicable to the proposed project: residential and commercial, electric power, recycling and waste, and transportation.

Table 5.3-4 2017 Climate Change Scoping Plan Emissions Change by Sector

Scoping Plan Sector	1990 MMTCO$_2$e	2030 Proposed Plan Ranges MMTCO$_2$e	% Change from 1990
Agricultural	26	24-25	-4% to -8%
Residential and Commercial	44	38-40	-9% to -14%
Electric Power	108	30-53	-51% to -72%
High GWP	3	8-11	267% to 367%
Industrial	98	83-90	-8% to -15%
Recycling and Waste	7	8-9	14% to 29%
Transportation (including TCU)	152	103-111	-27% to -32%
Net Sink[1]	-7	TBD	TBD
Sub Total	431	294-339	-21% to -32%
Cap-and-Trade Program	NA	34-79	NA
Total	**431**	**260**	**-40%**

Source: CARB 2017b
Notes: TCU = Transportation, Communications, and Utilities; TBD: To Be Determined.
[1] Work is underway through 2017 to estimate the range of potential sequestration benefits from the natural and working lands sector.

Executive Order B-55-18

Executive Order B-55-18, signed September 10, 2018, sets a goal "to achieve carbon neutrality as soon as possible, and no later than 2045, and achieve and maintain net negative emissions thereafter." Executive Order B-55-18 directs CARB to work with relevant state agencies to ensure future Scoping Plans identify and recommend measures to achieve the carbon neutrality goal. The goal of carbon neutrality by 2045 is in addition to other statewide goals, meaning not only should emissions be reduced to 80 percent below 1990 levels by 2050, but that, by no later than 2045, the remaining emissions be offset by equivalent net removals of CO2e from the atmosphere, including through sequestration in forests, soils, and other natural landscapes.

2022 Climate Change Scoping Plan Update

CARB released the Draft 2022 Scoping Plan on May 10, 2022. The Scoping Plan was updated to address the carbon neutrality goals of EO B-55-18. Previous Scoping Plans focused on specific GHG reduction targets for our industrial, energy, and transportation sectors—to meet 1990 levels by 2020, and then the more aggressive 40 percent below that for the 2030 target. Carbon neutrality takes it one step further by expanding actions to capture and store carbon including through natural and working lands and mechanical technologies, while drastically reducing anthropogenic sources of carbon pollution at the same time. The measures in the Scoping Plan would achieve 80 percent below 1990 levels by 2050. Final adoption of the 2022 Scoping Plan is anticipated in late fall 2022 (CARB 2022). CARB's 2022 Scoping Plan identifies strategies that would be most impactful at the local level for ensuring substantial process towards the state's carbon neutrality (see Table 5.3-5).

Table 5.3-5 Priority Strategies for Local Government Climate Action Plans

Priority Area	Priority Strategies
Transportation Electrification	Convert local government fleets to zero-emission vehicles (ZEV).
	Create a jurisdiction-specific ZEV ecosystem to support deployment of ZEVs statewide (such as permit streamlining, infrastructure siting, consumer education, or preferential parking policies).
VMT Reduction	Reduce or eliminate minimum parking standards in new developments,
	Adopt and implement Complete Streets policies and investments, consistent with general plan circulation element requirements,
	Increase public access to shared clean mobility options (such as planning for and investing in electric shuttles, bike share, car share, transit).
	Implement parking pricing or transportation demand management pricing strategies.
	Amend zoning or development codes to enable mixed-use, walkable, and compact infill development (such as increasing allowable density of the neighborhood).
	Preserve natural and working lands.
Building Decarbonization	Adopt policies and incentive programs to implement energy efficiency retrofits (such as weatherization, lighting upgrades, replacing energy intensive appliances and equipment with more efficient systems, etc.).
	Adopt policies and incentive programs to electrify all appliances and equipment in existing buildings.
	Adopt policies and incentive programs to reduce electrical loads from equipment plugged into outlets (such as purchasing Energy Star equipment for municipal buildings, occupancy sensors, smart power strips, equipment controllers, etc.).
	Facilitate deployment of renewable energy production and distribution and energy storage.

Source: CARB 2022

For CEQA projects for proposed land use developments, CARB recommends demonstrating that they are aligned with state climate goals based on the attributes of land use development that reduce operational GHG emissions while simultaneously advancing fair housing. Attributes that accommodate growth in a manner consistent with the GHG and equity goals of SB 32 have all the following attributes:

- At least 20 percent of the units are affordable to lower-income residents;
- Result in no net loss of existing affordable units;

- Utilize existing infill sites that are surrounded by urban uses, and reuse or redevelop previously developed, underutilized land presently served by existing utilities and essential public services (e.g., transit, streets, water, sewer);
- Include transit-supportive densities (minimum of 20 residential dwelling units/acre), or are in proximity to existing transit (within ½ mile), or satisfy more detailed and stringent criteria specified in the region's Sustainable Communities Strategy (SCS), for "SCS consistency" that would go further to reduce emissions;
- Do not result in the loss or conversion of the state's natural and working lands;
- Use all electric appliances, without any natural gas connections, and would not use propane or other fossil fuels for space heating, water heating, or indoor cooking;
- Provide EV charging infrastructure at least in accordance with the California Green Building Standards Code (CalGreen) Tier 2 standards; and
- Relax parking requirements by:
    - Eliminating parking requirements or including maximum allowable parking ratios.
    - Providing residential parking supply at a ratio of <1 parking space per unit;
    - Unbundling residential parking costs from costs to rent or lease (CARB 2022).

The second approach to project-level alignment with state climate goals is net zero GHG emissions. The third approach to demonstrating project-level alignment with state climate goals is to align with GHG thresholds of significance, which many local air quality management (AQMDs) and air pollution control districts (APCDs) have developed or adopted (CARB 2022).

Assembly Bill 1279

On August 31, 2022, the California Legislature passed AB 1279, which requires California to achieve net-zero GHG emissions no later than 2045 and to achieve and maintain negative GHG emissions thereafter. Additionally, AB 1279 also establishes a GHG emissions reduction goal of 85 percent below 1990 levels by 2045. CARB will be required to update the scoping plan to identify and recommend measures to achieve the net-zero and GHG emissions-reduction goals.

Senate Bill 375

SB 375, the Sustainable Communities and Climate Protection Act, was adopted in 2008 to connect the GHG emissions reduction targets established in the 2008 Scoping Plan for the transportation sector to local land use decisions that affect travel behavior. Its intent is to reduce GHG emissions from light-duty trucks and automobiles (excludes emissions associated with goods movement) by aligning regional long-range transportation plans, investments, and housing allocations to local land use planning to reduce VMT and vehicle trips. Specifically, SB 375 required CARB to establish GHG emissions reduction targets for each of the 18 metropolitan planning organizations (MPO). The Southern California Association of Governments (SCAG) is the MPO for the Southern California region, which includes Los Angeles, Orange, San Bernardino, Riverside, Ventura, and Imperial counties. Pursuant to the recommendations of the Regional Transportation Advisory Committee, CARB adopted per capita reduction targets for each of the MPOs rather than a total magnitude reduction target.

2017 Update to the SB 375 Targets

CARB is required to update the targets for the MPOs every eight years. CARB adopted revised SB 375 targets for the MPOs in March 2018. The updated targets became effective in October 2018. All SCSs adopted after October 1, 2018, are subject to these new targets. CARB's updated SB 375 targets for the SCAG region were an 8 percent per capita GHG reduction in 2020 from 2005 levels (unchanged from the 2010 target) and a 19 percent per capita GHG reduction in 2035 from 2005 levels (compared to the 2010 target of 13 percent) (CARB 2018).

The targets consider the need to further reduce VMT, as identified in the 2017 Scoping Plan Update (for SB 32), while balancing the need for additional and more flexible revenue sources to incentivize positive planning and action toward sustainable communities. Like the 2010 targets, the updated SB 375 targets are in units of "percent per capita" reductions in GHG emissions from automobiles and light trucks relative to 2005; this excludes reductions anticipated from implementation of state technology and fuels strategies and any potential future state strategies, such as statewide road user pricing. The proposed targets call for greater per-capita GHG emission reductions from SB 375 than are currently in place, which for 2035 translate into proposed targets that either match or exceed the emission reduction levels in the MPOs' currently adopted SCSs to achieve the SB 375 targets. CARB foresees that the additional GHG emissions reductions in 2035 may be achieved from land use changes, transportation investment, and technology strategies (CARB 2018).

SCAG's 2020-2045 RTP/SCS

SB 375 requires each MPO to prepare a sustainable communities strategy in its regional transportation plan. For the SCAG region, the 2020-2045 RTP/SCS, *Connect SoCal*, was adopted on September 3, 2020, and is an update to the 2016-2040 RTP/SCS (SCAG 2020). In general, the RTP/SCS outlines a development pattern for the region that, when integrated with the transportation network and other transportation measures and policies, would reduce VMT from automobiles and light duty trucks and thereby reduce GHG emissions from these sources.

Connect SoCal focuses on the continued efforts of the previous RTP/SCSs to integrate transportation and land use strategies in development of the SCAG region through the horizon year 2045 (SCAG 2020). Connect SoCal forecasts that the SCAG region will meet its GHG per capita reduction targets of 8 percent by 2020 and 19 percent by 2035. It also forecasts that implementation of the plan will reduce VMT per capita in year 2045 by 4.1 percent compared to baseline conditions for that year. *Connect SoCal* includes a "Core Vision" that centers on maintaining and better managing the transportation network for moving people and goods, while expanding mobility choices by locating housing, jobs, and transit closer together; and increasing investments in transit and complete streets (SCAG 2020).

Transportation Sector Specific Regulations

Assembly Bill 1493

California vehicle GHG emission standards were enacted under AB 1493 (Pavley I). Pavley I is a clean-car standard that reduces GHG emissions from new passenger vehicles (light-duty auto to medium-duty vehicles) from 2009 through 2016 and was anticipated to reduce GHG emissions from new passenger vehicles by 30 percent in 2016. California implements the Pavley I standards through a waiver granted to California by the EPA. In 2012, the EPA issued a Final Rulemaking that sets even more stringent fuel economy and GHG emissions standards for model years 2017 through 2025 light-duty vehicles (see also the discussion on the update to the Corporate Average Fuel Economy standards under *Federal Laws*, above). In January 2012, CARB approved the Advanced Clean Cars program (formerly known as Pavley II) for model years 2017 through 2025. The program combined the control of smog, soot, and GHGs with requirements for greater numbers of ZE vehicles into a single package of standards. Under California's Advanced Clean Car program, by 2025, new automobiles will emit 34 percent less GHG emissions and 75 percent less smog-forming emissions.

Executive Order S-01-07

On January 18, 2007, the state set a new LCFS for transportation fuels sold in the state. EO S-01-07 set a declining standard for GHG emissions measured in grams of CO_2e per unit of fuel energy sold in California. The LCFS required a reduction of 2.5 percent in the carbon intensity of California's transportation fuels by 2015 and a reduction of at least 10 percent by 2020. The standard applied to refiners, blenders, producers, and importers of transportation fuels, and used market-based mechanisms to allow these providers to choose the most economically feasible methods for reducing emissions during the "fuel cycle."

Executive Order B-16-2012

On March 23, 2012, the state identified that CARB, the California Energy Commission (CEC), the Public Utilities Commission, and other relevant agencies worked with the Plug-in Electric Vehicle Collaborative and the California Fuel Cell Partnership to establish benchmarks to accommodate ZE vehicles in major metropolitan areas, including infrastructure to support them (e.g., electric vehicle charging stations). EO B-16-2012 also directed the number of ZE vehicles in California's state vehicle fleet to increase through the normal course of fleet replacement, so that at least 10 percent of fleet purchases of light-duty vehicles are ZE by 2015 and at least 25 percent by 2020. The EO also established a target for the transportation sector of reducing GHG emissions to 80 percent below 1990 levels.

Executive Order N-79-20

On September 23, 2020, Governor Newsom signed EO N-79-20 whose goal is that 100 percent of in-state sales of new passenger cars and trucks will be ZE by 2035. Additionally, the fleet goals for truck are that 100 percent of drayage trucks are ZE by 2035 and 100 percent of medium- and heavy-duty vehicles in the state are ZE by 2045, where feasible. The EO's identifies a goal for the state to transition to 100 percent ZE off-road vehicles and equipment by 2035, where feasible.

Renewables Portfolio: Carbon Neutrality Regulations

Senate Bills 1078, 107, and X1-2, and Executive Order S-14-08

A major component of California's Renewable Energy Program is the renewable portfolio standard (RPS) established under Senate Bills 1078 (Sher) and 107 (Simitian). Under the RPS, certain retail sellers of electricity were required to increase the amount of renewable energy each year by at least 1 percent in order to reach at least 20 percent by December 30, 2010. EO S-14-08 was signed in November 2008, which expanded the state's RPS to 33 percent renewable power by 2020. This standard was adopted by the legislature in 2011 (SB X1-2). Renewable sources of electricity include wind, small hydropower, solar, geothermal, biomass, and biogas. The increase in renewable sources for electricity production decreases indirect GHG emissions from development projects, because electricity production from renewable sources is generally considered carbon neutral.

Senate Bill 350

Senate Bill 350 (de Leon), was signed into law in September 2015 and establishes tiered increases to the RPS—40 percent by 2024, 45 percent by 2027, and 50 percent by 2030. SB 350 also set a new goal to double the energy efficiency savings in electricity and natural gas through energy efficiency and conservation measures.

Senate Bill 100

On September 10, 2018, Governor Brown signed SB 100. Under SB 100, the RPS for public-owned facilities and retail sellers consists of 44 percent renewable energy by 2024, 52 percent by 2027, and 60 percent by 2030. SB 100 also established a new RPS requirement of 50 percent by 2026. Furthermore, the bill establishes an overall state policy that eligible renewable energy resources and zero-carbon resources supply 100 percent of all retail sales of electricity to California end-use customers and 100 percent of electricity procured to serve all state agencies by December 31, 2045. Under the bill, the state cannot increase carbon emissions elsewhere in the western grid or allow resource shuffling to achieve the 100 percent carbon-free electricity target.

Energy Efficiency Regulations

California Building Code: Building Energy Efficiency Standards

Energy conservation standards for new residential and nonresidential buildings were adopted by the California Energy Resources Conservation and Development Commission (now the CEC) in June 1977 (Title 24, Part 6, of the California Code of Regulations [CCR]). Title 24 requires the design of building shells and building components to conserve energy. The standards are updated periodically to allow for consideration and possible incorporation of new energy efficiency technologies and methods. The 2019 Building Energy Efficiency Standards were adopted on May 9, 2018, and went into effect on January 1, 2020.

The 2019 standards move toward cutting energy use in new homes by more than 50 percent and require installation of solar photovoltaic systems for single-family homes and multifamily buildings of three stories and less. The 2019 standards focus on four key areas: 1) smart residential photovoltaic systems; 2) updated thermal envelope standards (preventing heat transfer from the interior to exterior and vice versa); 3) residential and nonresidential ventilation requirements; 4) and nonresidential lighting requirements (CEC 2018b). Under the 2019 standards, nonresidential buildings are generally 30 percent more energy efficient than under the 2016 standards, and single-family homes are generally 7 percent more energy efficient (CEC 2018a). When accounting for the electricity generated by the solar photovoltaic system, single-family homes would generally use 53 percent less energy compared to homes built to the 2016 standards (CEC 2018a).

Furthermore, on August 11, 2021, the CEC adopted the 2022 Building Energy Efficiency Standards, which were subsequently approved by the California Building Standards Commission in December 2021. The 2022 standards become effective and replace the existing 2019 standards on January 1, 2023. The 2022 standards would require mixed-fuel single-family homes to be electric-ready to accommodate replacement of gas appliances with electric appliances. In addition, the new standards also include prescriptive photovoltaic system and battery requirements for high-rise, multifamily buildings (i.e., more than three stories) and noncommercial buildings such as hotels, offices, medical offices, restaurants, retail stores, schools, warehouses, theaters, and convention centers (CEC 2021).

California Building Code: CALGreen

On July 17, 2008, the California Building Standards Commission adopted the nation's first green building standards. The California Green Building Standards Code (24 CCR, Part 11, known as "CALGreen") was adopted as part of the California Building Standards Code. CALGreen established planning and design standards for sustainable site development, energy efficiency (in excess of the California Energy Code requirements), water conservation, material conservation, and internal air contaminants.[3] The mandatory provisions of CALGreen became effective January 1, 2011, and were last updated in 2019. The 2019 CALGreen standards became effective January 1, 2020. In 2021, the CEC approved the 2022 CALGreen, which become effective on January 1, 2023.

2006 Appliance Efficiency Regulations

The 2006 Appliance Efficiency Regulations (20 CCR secs. 1601–1608) were adopted by the CEC on October 11, 2006, and approved by the California Office of Administrative Law on December 14, 2006. The regulations include standards for both federally regulated appliances and non–federally regulated appliances. Though these regulations are now often viewed as "business as usual," they exceed the standards imposed by all other states, and they reduce GHG emissions by reducing energy demand.

Solid Waste Diversion Regulations

AB 939: Integrated Waste Management Act of 1989

California's Integrated Waste Management Act of 1989 (AB 939, Public Resources Code secs. 40050 et seq.) set a requirement for cities and counties throughout the state to divert 50 percent of all solid waste from landfills by January 1, 2000, through source reduction, recycling, and composting. In 2008, the requirements were modified to reflect a per capita requirement rather than tonnage. To help achieve this, the act required that each city and county prepare and submit a source reduction and recycling element. AB 939 also established the goal for all California counties to provide at least 15 years of ongoing landfill capacity.

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[3] The green building standards became mandatory in the 2010 edition of the code.

AB 341

AB 341 (Chapter 476, Statutes of 2011) increased the statewide goal for waste diversion to 75 percent by 2020 and requires recycling of waste from commercial and multifamily residential land uses. Section 5.408 of CALGreen also requires that at least 65 percent of the nonhazardous construction and demolition waste from nonresidential construction operations be recycled and/or salvaged for reuse.

AB 1327

The California Solid Waste Reuse and Recycling Access Act (AB 1327, Public Resources Code secs. 42900 et seq.) required areas to be set aside for collecting and loading recyclable materials in development projects. The act required the California Integrated Waste Management Board to develop a model ordinance for adoption by any local agency requiring adequate areas for collection and loading of recyclable materials as part of development projects. Local agencies are required to adopt the model or an ordinance of their own.

AB 1826

In October 2014 Governor Brown signed AB 1826 requiring businesses to recycle their organic waste on and after April 1, 2016, depending on the amount of waste they generate per week. This law also requires that on and after January 1, 2016, local jurisdictions across the state implement an organic waste recycling program to divert organic waste generated by businesses and multifamily residential dwellings with five or more units. Organic waste means food waste, green waste, landscape and pruning waste, nonhazardous wood waste, and food-soiled paper waste that is mixed with food waste.

Water Efficiency Regulations

SBX7-7

The 20x2020 Water Conservation Plan was issued by the Department of Water Resources (DWR) in 2010 pursuant to Senate Bill 7, which was adopted during the 7th Extraordinary Session of 2009–2010 and therefore dubbed "SBX7-7." SBX7-7 mandated urban water conservation and authorized the DWR to prepare a plan implementing urban water conservation requirements (20x2020 Water Conservation Plan). In addition, it required agricultural water providers to prepare agricultural water management plans, measure water deliveries to customers, and implement other efficiency measures. SBX7-7 required urban water providers to adopt a water conservation target of 20 percent reduction in urban per capita water use by 2020 compared to 2005 baseline use.

AB 1881: Water Conservation in Landscaping Act

The Water Conservation in Landscaping Act of 2006 (AB 1881) requires local agencies to adopt the updated DWR model ordinance or an equivalent. AB 1881 also required the CEC to consult with the DWR to adopt, by regulation, performance standards and labeling requirements for landscape irrigation equipment, including irrigation controllers, moisture sensors, emission devices, and valves to reduce the wasteful, uneconomic, inefficient, or unnecessary consumption of energy or water.

Short-Lived Climate Pollutant Reduction Strategy

Senate Bill 1383

On September 19, 2016, the Governor signed SB 1383 to supplement the GHG reduction strategies in the Scoping Plan to consider short-lived climate pollutants, including black carbon and CH_4. Black carbon is the light-absorbing component of fine particulate matter produced during the incomplete combustion of fuels. SB 1383 required the state board, no later than January 1, 2018, to approve and begin implementing a comprehensive strategy to reduce emissions of short-lived climate pollutants to achieve a reduction in methane by 40 percent, hydrofluorocarbon gases by 40 percent, and anthropogenic black carbon by 50 percent below 2013 levels by 2030. The bill also established targets for reducing organic waste in landfills. On March 14, 2017, CARB adopted the Short-Lived Climate Pollutant Reduction Strategy, which identifies the state's approach to reducing anthropogenic and biogenic sources of short-lived climate pollutants. Anthropogenic sources of black carbon include on- and off-road transportation, residential wood burning, fuel combustion (charbroiling), and industrial processes. According to CARB, ambient levels of black carbon in California are 90 percent lower than in the early 1960s, despite the tripling of diesel fuel use (CARB 2017a). In-use on-road rules were expected to reduce black carbon emissions from on-road sources by 80 percent between 2000 and 2020. South Coast AQMD is one of the air districts that requires air pollution control technologies for chain-driven broilers, which reduces particulate emissions from these charbroilers by over 80 percent (CARB 2017a). Additionally, South Coast AQMD Rule 445 limits installation of new fireplaces in the South Coast Air Basin.

5.3.1.3 EXISTING CONDITIONS

California's GHG Sources and Relative Contribution

In 2021, the statewide GHG emissions inventory was updated for 2000 to 2019 emissions using the GWPs in IPCC's AR4 (IPCC 2013). Based on these GWPs, California produced 418.2 $MMTCO_2e$ GHG emissions in 2019. California's transportation sector was the single largest generator of GHG emissions, producing 39.7 percent of the state's total emissions. Industrial sector emissions made up 21.1 percent, and electric power generation made up 14.1 percent of the state's emissions inventory. Other major sectors of GHG emissions include commercial and residential (10.5 percent), agriculture and forestry (7.6 percent), high GWP (4.9 percent), and recycling and waste (2.1 percent) (CARB 2021).

Since the peak level in 2004, California's GHG emission shave generally followed a decreasing trend. In 2016, California statewide GHG emissions dropped below the AB 32 target for year 2020 of 431 $MMTCO_2e$ and have remained below this target since then. In 2019, emissions from routine GHG-emitting activities statewide were almost 13 $MMTCO_2e$ lower than the AB 32 target for year 2020. Per-capita GHG emissions in California have dropped from a 2001 peak of 14.0 $MTCO_2e$ per person to 10.5 $MTCO_2e$ per person in 2019, a 25 percent decrease.

Transportation emissions continued to decline in 2019 statewide as they had done in 2018, with even more substantial reductions due to a significant increase in renewable diesel. Since 2008, California's electricity sector has followed an overall downward trend in emissions. In 2019, solar power generation continued its rapid growth since 2013. Emissions from high-GWP gases comprised 4.9 percent of California's emissions in 2019.

This continues the increasing trend as the gases replace ozone-depleting substances being phased out under the 1987 Montreal Protocol. Overall trends in the inventory also demonstrate that the carbon intensity of California's economy (the amount of carbon pollution per million dollars of gross domestic product) has declined 45 percent since the 2001 peak, though the state's gross domestic product grew 63 percent during this period (CARB 2021).

Existing Emissions

The project site currently houses El Dorado High School, which currently generates GHG emissions.

5.3.2 Thresholds of Significance

According to Appendix G of the CEQA Guidelines, a project would normally have a significant effect on the environment if the project would:

GHG-1 Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment.

GHG-2 Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases.

5.3.2.1 SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

South Coast AQMD adopted a significance threshold of 10,000 $MTCO_2e$ per year for permitted (stationary) sources of GHG emissions for which South Coast AQMD is the designated lead agency. To provide guidance to local lead agencies on determining significance for GHG emissions in their CEQA documents, South Coast AQMD convened a GHG CEQA Significance Threshold Working Group. Based on the last Working Group meeting in September 2010 (Meeting No. 15), the South Coast AQMD Working Group identified a tiered approach for evaluating GHG emissions for development projects where South Coast AQMD is not the lead agency (South Coast AQMD 2010a). The following tiered approach has not been formally adopted by South Coast AQMD.

- **Tier 1.** If a project is exempt from CEQA, project-level and contribution to significant cumulative GHG emissions are less than significant.

- **Tier 2.** If the project complies with a GHG emissions reduction plan or mitigation program that avoids or substantially reduces GHG emissions in the project's geographic area (e.g., city or county), project-level and contribution to significant cumulative GHG emissions are less than significant.

- **Tier 3.** If GHG emissions are less than the screening-level criterion, project-level and contribution to significant cumulative GHG emissions are less than significant.

  For projects that are not exempt or where no qualifying GHG reduction plans are directly applicable, South Coast AQMD Working Group requires an assessment of GHG emissions. Project-related GHG emissions include on-road transportation, energy use, water use, wastewater generation, solid waste disposal, area sources, off-road emissions, and construction activities. The South Coast AQMD Working Group decided that because construction activities would result in a "one-time" net increase in GHG emissions, construction activities should be amortized into the operational phase GHG emissions inventory based on the service life of a building. For buildings in general, it is reasonable to look at a 30-year time frame, since this is a typical interval before a new building requires the first major renovation. South Coast AQMD Working Group identified a screening-level threshold of 3,000 $MTCO_2e$ annually for all land use types. The bright-line screening-level criteria are based on a review of the Governor's Office of Planning and Research database of CEQA projects. Based on review of 711 CEQA projects, 90 percent of CEQA projects would exceed the bright-line thresholds. Therefore, projects that do not exceed the bright-line threshold would have a nominal and less than cumulatively considerable impact on GHG emissions. South Coast AQMD Working Group recommends use of the 3,000 $MTCO_2e$ interim bright-line screening-level criterion for all project types (South Coast AQMD 2010b).

- **Tier 4.** If emissions exceed the screening threshold, a more detailed review of the project's GHG emissions is warranted.

The South Coast AQMD Working Group's bright-line screening-level criterion of 3,000 $MTCO_2e$ per year is used as the significance threshold for the proposed project. If the project operation-phase emissions exceed this criterion, GHG emissions would be considered potentially significant without mitigation measures.

5.3.2.2 MASS EMISSIONS AND HEALTH EFFECTS

On December 24, 2018, in *Sierra Club et al. v. County of Fresno et al.* (Friant Ranch), the California Supreme Court determined that the EIR for the proposed Friant Ranch project failed to adequately analyze the project's air quality impacts on human health. The EIR prepared for the project, which involved a master planned retirement community in Fresno County, showed that project-related mass emissions would exceed the San Joaquin Valley Air Pollution Control District's regional significance thresholds. In its findings, the California Supreme Court affirmed the holding of the Court of Appeal that EIRs for projects must not only identify impacts to human health, but also provide an "analysis of the correlation between the project's emissions and human health impacts" related to each criterion air pollutant that exceeds the regional significance thresholds or explain why it could not make such a connection. In general, the ruling focuses on the correlation of emissions of toxic air contaminants and criteria air pollutants and their impact to human health.

In 2009, the EPA issued an endangerment finding for six GHGs (CO_2, CH_4, N_2O, HFCs, PFCs, and SF_6) in order to regulate GHG emissions from passenger vehicles. The endangerment finding is based on evidence that shows an increase in mortality and morbidity associated with increases in average temperatures, which increase the likelihood of heatwaves and ozone levels. The effects of climate change are identified in Table 5.3-2. Though identified effects such as sea level rise and increased extreme weather can indirectly impact human health, neither the EPA nor CARB has established ambient air quality standards for GHG emissions. The state's GHG reduction strategy outlines a path to avoid the most catastrophic effects of climate change. Yet the state's GHG reduction goals and strategies are based on the state's path toward reducing statewide cumulative GHGs as outlined in AB 32, SB 32, and EO S-03-05.

As mentioned above, the two significance thresholds that the County uses to analyze GHG impacts are based on achieving the statewide GHG reduction goals based on a no net increase in GHG emissions (GHG-1) and consistency with policies or plans adopted to reduce GHG emissions (GHG-2). Further, because no single project is large enough to result in a measurable increase in global concentration of GHG emissions, climate change impacts of a project are considered on a cumulative basis. Without federal ambient air quality standards for GHG emissions and given the cumulative nature of GHG emissions and the County's significance thresholds, which are tied to reducing the state's cumulative GHG emissions, it is not feasible at this time to connect the project's specific GHG emissions to the potential health impacts of climate change.

5.3.3 Environmental Impacts

5.3.3.1 METHODOLOGY

This GHG evaluation was prepared in accordance with the requirements of CEQA to determine if significant GHG impacts are likely in conjunction with the proposed project. South Coast AQMD has published guidelines that are intended to provide local governments with guidance for analyzing and mitigating environmental impacts, and they were used in this analysis. The analysis in this section is based on buildout of the proposed project as modeled using CalEEMod, version 2022.1.0, for the following sectors:

Construction Phase

Construction would entail demolition, site preparation, hauling of the light poles to the project site, and light pole installation on the project site. The proposed project is anticipated to be constructed over a period of approximately four weeks, from July 2023 to August 2023. Annual construction emissions were amortized over 30 years and included in the emissions inventory to account for one-time GHG emissions from the construction phase of the proposed project.

Operational Phase

Typically, the main sources of criteria air pollutant emissions associated with operation are transportation, area sources, energy consumption, solid waste disposal, water use and wastewater generation. However, enrollment, staffing, and types of activities used by both the school and the community would operate in the same manner as existing conditions. In addition, because the sports teams and band attending practices off campus would instead practice on the existing track/field, there would not be an increase in any GHG emissions from the project site, except for energy. The new permanent stadium lights would generate an increase in electricity use on the project site, which was calculated using the energy demand of the lighting and the proposed number of events on the project site per year. Furthermore, modeling used the reported Southern California Edison's 2021 Sustainability Report carbon intensity factor, which is based on the CO2e intensity factor of 452 pounds per megawatt hour (lbs/MWh) (SCE 2022). Overall, using the AR4 GWPs and the default CalEEMod intensity factors of 0.033 lb/MWh for CH_4 and 0.004 lb/MWh for N_2O, the adjusted intensity factor for CO_2 is 449.98 lbs/MWh.

Life cycle emissions are not included in the GHG analysis, consistent with California Resources Agency directives.[4] Black carbon emissions are not included in the GHG analysis because CARB does not include this pollutant in the state's AB 32/SB 32 inventory but treats this short-lived climate pollutant separately.[5] Additionally, while not anticipated, industrial sources of emissions that require a permit from South Coast AQMD (permitted sources) are not included in the proposed project community inventory since they have separate emission reduction requirements. GHG modeling is included in Appendix C of this DEIR.

5.3.3.2 IMPACT ANALYSIS

The following impact analysis addresses the thresholds of significance; the applicable thresholds are identified in brackets after the impact statement.

Impact 5.3-1: The proposed project would not generate greenhouse gas (GHG) emissions, either directly or indirectly, that may have a significant impact on the environment. [Threshold GHG-1])

Global climate change is not confined to a particular project area and is generally accepted as the consequence of global industrialization over the last 200 years. A typical project, even a very large one, does not generate enough greenhouse gas emissions on its own to influence global climate change significantly; hence, the issue of global climate change is, by definition, a cumulative environmental impact.

Implementation of the proposed project would result in the installation and operation of 4 permanent light poles for a high school sports stadium. The permanent lighting would provide the opportunity for student athletes to attend practices at their school, which would eliminate the need to travel to another field. Furthermore, because the proposed project would operate in the same manner as existing conditions, there would not be an increase in mobile trips, water demand, wastewater and solid waste generation, area sources (e.g., consumer cleaning products), or refrigerants. Annual average construction emissions were amortized over 30 years and included in the emissions inventory to account for one-time GHG emissions from the construction phase of the proposed project. The proposed project emissions and construction-related emissions are quantified and shown in Table 5.3-6, *Project-Related GHG Emissions*. Overall, development and operation of the proposed project would not generate annual emissions that exceed the South Coast AQMD bright-line threshold of 3,000 metric tons of carbon dioxide equivalent ($MTCO_2e$) per year (South Coast AQMD 2010). The modeled total amount of GHGs would actually be less because the model results do not

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[4] Life cycle emissions include indirect emissions associated with materials manufacture. However, these indirect emissions involve numerous parties, each of which is responsible for GHG emissions of their particular activity. The California Resources Agency, in adopting the CEQA Guidelines Amendments on GHG emissions found that lifecycle analyses was not warranted for project-specific CEQA analysis in most situations, for a variety of reasons, including lack of control over some sources, and the possibility of double-counting emissions (see Final Statement of Reasons for Regulatory Action, December 2009). Because the amount of materials consumed during the operation or construction of the proposed project is not known, the origin of the raw materials purchased is not known, and manufacturing information for those raw materials are also not known, calculation of life cycle emissions would be speculative. A life-cycle analysis is not warranted (OPR 2008).

[5] Particulate matter emissions, which include black carbon, are analyzed in Section 5.3, *Air Quality*. Black carbon emissions have sharply declined due to efforts to reduce on-road and off-road vehicle emissions, especially diesel particulate matter. The State's existing air quality policies will virtually eliminate black carbon emissions from on-road diesel engines within 10 years (CARB 2017a).

include the existing GHGs produced from the existing lights and field use. Therefore, the proposed project's cumulative contribution to GHG emissions would be less than significant.

Table 5.3-6 Project-Related GHG Emissions

Source	GHG Emissions[1]	
	$MTCO_2e$ Per Year	Percent Proportion
Energy	6	83%
Amortized Construction Emissions[1]	1	14%
Total	**7**	**100%**
South Coast AQMD Bright-Line Threshold	3,000 $MTCO_2e$/Yr	NA
Exceeds Bright-Line Threshold?	**No**	NA

Source: CalEEMod, Version 2022.1.0.

Notes: MTons = metric tons; $MTCO_2e$ = metric ton of carbon dioxide equivalent

[1] Total construction emission are amortized over 30 years per South Coast AQMD methodology (South Coast AQMD 2009).

Impact 5.3-2: The proposed project would not conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases. [Threshold GHG-2])

Applicable plans adopted for the purpose of reducing GHG emissions include CARB's Scoping Plan and the SCAG's RTP/SCS. A consistency analysis with these plans is presented below.

CARB Scoping Plan

The CARB Scoping Plan is applicable to state agencies but is not directly applicable to cities/counties and individual projects (i.e., the Scoping Plan does not require the City to adopt policies, programs, or regulations to reduce GHG emissions). However, new regulations adopted by the state agencies outlined in the Scoping Plan result in GHG emissions reductions at the local level. As a result, local jurisdictions benefit from reductions in transportation emissions rates, increases in water efficiency in the building and landscape codes, and other statewide actions that affect a local jurisdiction's emissions inventory from the top down. Statewide strategies to reduce GHG emissions include the LCFS and changes in the corporate average fuel economy standards (e.g., Pavley I and Pavley California Advanced Clean Cars program).

The proposed project would adhere to the programs and regulations identified by the Scoping Plan and implemented by state, regional, and local agencies to achieve the statewide GHG reduction goals of AB 32 and SB 32. For example, new buildings are required to meet the current CALGreen and Building Energy Efficiency standards at the time they are constructed. Proposed project GHG emissions shown in Table 5.3-6 include reductions associated with statewide strategies that have been adopted since AB 32 and SB 32. Therefore, the proposed project would generate GHG emissions consistent with the reduction goals of AB 32 and SB 32.

SCAG's Regional Transportation Plan / Sustainable Communities Strategy

SCAG adopted the 2020-2045 RTP/SCS (Connect SoCal) in September 2020. Connect SoCal finds that land use strategies that focus on new housing and job growth in areas rich with destinations and mobility options would be consistent with a land use development pattern that supports and complements the proposed transportation network. The overarching strategy in Connect SoCal is to plan for the southern California region to grow in more compact communities in transit priority areas and priority growth areas; provide neighborhoods with efficient and plentiful public transit; establish abundant and safe opportunities to walk, bike, and pursue other forms of active transportation; and preserve more of the region's remaining natural lands and farmlands (SCAG 2020). Connect SoCal's transportation projects help more efficiently distribute population, housing, and employment growth, and forecast development is generally consistent with regional-level general plan data to promote active transportation and reduce GHG emissions. The projected regional development, when integrated with the proposed regional transportation network in Connect SoCal, would reduce per-capita GHG emissions related to vehicular travel and achieve the GHG reduction per capita targets for the SCAG region.

The Connect SoCal Plan does not require that local general plans, specific plans, or zoning be consistent with the SCS, but provides incentives for consistency to governments and developers. The proposed project would involve installation of permanent stadium lighting. As identified in Section 5.5, *Transportation*, the proposed project would provide the opportunity for student athletes to attend practices at their school, which would eliminate the need to travel to another field, thereby minimizing VMT. Therefore, the proposed project would not interfere with SCAG's ability to implement the regional strategies in Connect SoCal.

5.3.4 Cumulative Impacts

Project-related GHG emissions are not confined to a particular air basin but are dispersed worldwide. Therefore, Impact 5.3-1 is not a project-specific impact, but the proposed project's contribution to a cumulative impact. Implementation of the proposed project would not result in annual emissions that would exceed South Coast AQMD's bright-line threshold. Therefore, project-related GHG emissions and their contribution to global climate change would not be cumulatively considerable, and GHG emissions impacts would be less than significant.

5.3.5 Level of Significance Before Mitigation

Upon implementation of regulatory requirements, the following impacts would be less than significant: 5.3-1 and 5.3-2.

5.3.6 Mitigation Measures

No mitigation measures required.

5.3.7 Level of Significance After Mitigation

All impacts are less than significant.

5.3.8 References

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5.4 NOISE

This section of the Draft Environmental Impact Report (DEIR) evaluates the El Dorado High School Field Lighting Project's (proposed project) potential noise and vibration impacts to sensitive receptors. This section discusses the fundamentals of sound; examines federal, state, and local noise guidelines, policies, and standards; characterizes existing noise levels in the project area; evaluates potential noise and vibration impacts associated with the proposed project; and provides applicable mitigation to reduce noise impacts at sensitive receptor locations. Noise modeling worksheets are in Appendix D of this DEIR.

In response to the Notice of Preparation (NOP) circulated for the proposed project, three comment letters from residents were received regarding the proposed project's potential noise impacts. The NOP and all scoping comments letters are included as Appendix A to this DEIR.

5.4.1 Noise and Vibration Fundamentals

Noise is defined as unwanted sound and is known to have several adverse effects on people, including hearing loss, speech and sleep interference, physiological responses, and annoyance. Although sound can be easily measured, the perception of noise and the physical response to sound complicate the analysis of its impact on people. People judge the relative magnitude of sound sensation in subjective terms such as "noisiness" or "loudness." The following are brief definitions of terminology used in this section:

5.4.1.1 TECHNICAL TERMINOLOGY

- **Sound.** A disturbance created by a vibrating object, which, when transmitted by pressure waves through a medium such as air, is capable of being detected by a receiving mechanism, such as the human ear or a microphone.

- **Noise.** Sound that is loud, unpleasant, unexpected, or otherwise undesirable.

- **Decibel (dB).** A unitless measure of sound on a logarithmic scale.

- **A-Weighted Decibel (dBA).** An overall frequency-weighted sound level in decibels that approximates the frequency response of the human ear.

- **Equivalent Continuous Noise Level (L_{eq}); also called the Energy-Equivalent Noise Level.** The value of an equivalent, steady sound level which, in a stated time period (often over an hour) and at a stated location, has the same A-weighted sound energy as the time-varying sound. Thus, the L_{eq} metric is a single numerical value that represents the equivalent amount of variable sound energy received by a receptor over the specified duration.

- **Statistical Sound Level (L_n).** The sound level that is exceeded "n" percent of time during a given sample period. For example, the L_{50} level is the statistical indicator of the time-varying noise signal that is exceeded 50 percent of the time (during each sampling period); that is, half of the sampling time, the changing noise levels are above this value and half of the time they are below it. This is called the "median sound level."

The L_{10} level, likewise, is the value that is exceeded 10 percent of the time (i.e., near the maximum) and this is often known as the "intrusive sound level." The L_{90} is the sound level exceeded 90 percent of the time and is often considered the "effective background level" or "residual noise level."

- **Day-Night Sound Level (Ldn or DNL).** The energy-average of the A-weighted sound levels occurring during a 24-hour period, with 10 dB added to the sound levels occurring during the period from 10:00 pm to 7:00 am.
- **Community Noise Equivalent Level (CNEL).** The energy average of the A-weighted sound levels occurring during a 24-hour period, with 5 dB added from 7:00 pm to 10:00 pm and 10 dB from 10:00 pm to 7:00 am. For general community/environmental noise, CNEL and L_{dn} values rarely differ by more than 1 dB (with the CNEL being only slightly more restrictive, that is, higher than the L_{dn} value). As a matter of practice, L_{dn} and CNEL values are interchangeable and are treated as equivalent in this assessment.
- **Sensitive Receptor.** Noise- and vibration-sensitive receptors include land uses where quiet environments are necessary for enjoyment and public health and safety. Residences, schools, motels and hotels, libraries, religious institutions, hospitals, and nursing homes are examples.
- **Peak Particle Velocity (PPV).** The peak rate of speed at which soil particles move (e.g., inches per second) due to ground vibration.

5.4.1.2 SOUND FUNDAMENTALS

Sound is a pressure wave transmitted through the air. It is described in terms of loudness or amplitude (measured in decibels), frequency or pitch (measured in Hertz [Hz] or cycles per second), and duration (measured in seconds or minutes). The standard unit of measurement of the loudness of sound is the decibel (dB). Changes of 1 to 3 dBA are detectable under quiet, controlled conditions and changes of less than 1 dBA are usually indiscernible. A 3 dBA change in noise levels is considered the minimum change that is detectable with human hearing in outside environments. A change of 5 dBA is readily discernable to most people in an exterior environment, and a 10 dBA change is perceived as a doubling (or halving) of the sound.

The human ear is not equally sensitive to all frequencies. Sound waves below 16 Hz are not heard at all and are "felt" more as a vibration. Similarly, while people with extremely sensitive hearing can hear sounds as high as 20,000 Hz, most people cannot hear above 15,000 Hz. In all cases, hearing acuity falls off rapidly above about 10,000 Hz and below about 200 Hz. Since the human ear is not equally sensitive to sound at all frequencies, a special frequency dependent rating scale is usually used to relate noise to human sensitivity. The A-weighted decibel scale (dBA) performs this compensation by discriminating against frequencies in a manner approximating the sensitivity of the human ear.

5.4.1.3 SOUND MEASUREMENT

Sound pressure is measured through the A-weighted measure to correct for the relative frequency response of the human ear. That is, an A-weighted noise level de-emphasizes low and very high frequencies of sound similar to the human ear's de-emphasis of these frequencies.

Unlike linear units such as inches or pounds, decibels are measured on a logarithmic scale, representing points on a sharply rising curve. On a logarithmic scale, an increase of 10 dBA is 10 times more intense than 1 dBA, while 20 dBA is 100 times more intense, and 30 dBA is 1,000 times more intense. A sound as soft as human breathing is about 10 times greater than 0 dBA. The decibel system of measuring sound gives a rough connection between the physical intensity of sound and its perceived loudness to the human ear. Ambient sounds generally range from 30 dBA (very quiet) to 100 dBA (very loud).

Sound levels are generated from a source and their decibel level decreases as the distance from that source increases. Sound dissipates exponentially with distance from the noise source. This phenomenon is known as "spreading loss." For a single point source, sound levels decrease by approximately 6 dBA for each doubling of distance from the source. This drop-off rate is appropriate for noise generated by on-site operations from stationary equipment or activity at a project site. If noise is produced by a line source, such as highway traffic, the sound decreases by 3 dBA for each doubling of distance in a hard site environment. Line source noise in a relatively flat environment with absorptive vegetation decreases by 4.5 dBA for each doubling of distance.

Time variation in noise exposure is typically expressed in terms of a steady-state energy level equal to the energy content of the time varying period (called L_{eq}), or alternately, as a statistical description of the sound level that is exceeded over some fraction of a given observation period. For example, the L_{50} noise level represents the noise level that is exceeded 50 percent of the time. Half the time the noise level exceeds this level and half the time the noise level is less than this level. This level is also representative of the level that is exceeded 30 minutes in an hour. Similarly, the L_2, L_8, and L_{25} values represent the noise levels that are exceeded 2, 8, and 25 percent of the time or 1, 5, and 15 minutes per hour. These "L" values are typically used to demonstrate compliance for stationary noise sources with a city's noise ordinance, as discussed below. Other values typically noted during a noise survey are the L_{min} and L_{max}. These values represent the minimum and maximum root-mean-square noise levels obtained over the measurement period.

Because community receptors are more sensitive to unwanted noise intrusion during the evening and at night, an artificial dBA increment be added to quiet time noise levels in a 24-hour noise descriptor called the Community Noise Equivalent Level (CNEL) or Day-Night Noise Level (L_{dn}). The CNEL descriptor requires that an artificial increment of 5 dBA be added to the actual noise level for the hours from 7:00 pm to 10:00 pm and 10 dBA for the hours from 10:00 pm to 7:00 am. The L_{dn} descriptor uses the same methodology except that there is no artificial increment added to the hours between 7:00 pm and 10:00 pm. Both descriptors give roughly the same 24-hour level with the CNEL being only slightly more restrictive (i.e., higher).

5.4.1.4 PSYCHOLOGICAL AND PHYSIOLOGICAL EFFECTS OF NOISE

Physical damage to human hearing begins at prolonged exposure to noise levels higher than 85 dBA. Exposure to high noise levels affects our entire system, with prolonged noise exposure in excess of 75 dBA increasing body tensions, and thereby affecting blood pressure, functions of the heart and the nervous system. In comparison, extended periods of noise exposure above 90 dBA could result in permanent hearing damage. When the noise level reaches 120 dBA, a tickling sensation occurs in the human ear even with short-term exposure. This level of noise is called the threshold of feeling. As the sound reaches 140 dBA, the tickling sensation is replaced by the feeling of pain in the ear. This is called the threshold of pain. Table 5.4-1, *Typical Noise Levels*, shows typical noise levels from familiar noise sources.

Table 5.4-1 Typical Noise Levels

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
Onset of physical discomfort	120+	
	110	Rock Band (near amplification system)
Jet Flyover at 1,000 feet		
	100	
Gas Lawn Mower at three feet		
	90	
Diesel Truck at 50 feet, at 50 mph		Food Blender at 3 feet
	80	Garbage Disposal at 3 feet
Noisy Urban Area, Daytime		
	70	Vacuum Cleaner at 10 feet
Commercial Area		Normal speech at 3 feet
Heavy Traffic at 300 feet	60	
		Large Business Office
Quiet Urban Daytime	50	Dishwasher Next Room
Quiet Urban Nighttime	40	Theater, Large Conference Room (background)
Quiet Suburban Nighttime		
	30	Library
Quiet Rural Nighttime		Bedroom at Night, Concert Hall (background)
	20	
		Broadcast/Recording Studio
	10	
Lowest Threshold of Human Hearing	0	Lowest Threshold of Human Hearing

Source: Caltrans 2013.

5.4.1.5 VIBRATION FUNDAMENTALS

Vibration is an oscillating motion in the earth. Like noise, vibration is transmitted in waves, but in this case through the earth or solid objects. Unlike noise, vibration is typically of a frequency that is felt rather than heard. Vibration amplitudes are usually described in terms of either the peak particle velocity (PPV) or the root mean square (RMS) velocity. PPV is the maximum instantaneous peak of the vibration signal, and RMS is the square root of the average of the squared amplitude of the signal. PPV is more appropriate for evaluating potential building damage and RMS (typically expressed in VdB) for potential annoyance. The units for PPV are normally inches per second (in/sec). Typically, groundborne vibration generated by human activities attenuates rapidly with distance from the source of the vibration.

The way in which vibration is transmitted through the earth is called propagation. As vibration waves propagate from a source, the energy is spread over an ever-increasing area such that the energy level striking a given point is reduced with the distance from the energy source. This geometric spreading loss is inversely proportional to the square of the distance. The amount of attenuation provided by material damping varies with soil type and condition as well as the frequency of the wave.

5.4.2 Regulatory Background

State

General Plan Guidelines

The State of California, through its General Plan Guidelines, discusses how ambient noise should influence land use and development decisions and includes a table of normally acceptable, conditionally acceptable, normally unacceptable, and clearly unacceptable uses at different noise levels expressed in CNEL. A conditionally acceptable designation implies new construction or development should be undertaken only after a detailed analysis of the noise reduction requirements for each land use is made and needed noise insulation features are incorporated in the design. By comparison, a normally acceptable designation indicates that standard construction can occur with no special noise reduction requirements. Local municipalities adopt these compatibility standards as part of their General Plan and modify them as appropriate for their local environmental setting. The City of Placentia standards are discussed below.

City of Placentia

City of Placentia General Plan

The City of Placentia General Plan Noise Element includes noise goals and policies that aim to minimize the impact of various noise sources in the City. Applicable goals and policies to the proposed project are identified below.

Goal N-1: Reduce noise impacts from transportation noise sources.

- **Policy N-1.3.** Enforce all applicable City State, and federal noise standards.

Goal N-5: Reduce noise impacts from transportation noise sources.

- **Policy N-5.2:** Continue to enforce the Noise Ordinance and make the public more aware of its utility.
- **Policy N-5.3.** Where possible, resolve existing and potential conflicts between various noise sources and other human activities.
- **Policy N-5.4.** Require sound attenuation devices on construction equipment.
- **Policy N-5.5.** Encourage additional sound attenuation measures to reduce noise impacts to sensitive uses.

- **Policy N-5.6.** Continue to enforce and ensure agency coordination of noise abatement and control measures, particularly within residential neighborhoods and around noise sensitive land uses.
- **Policy N-5.7.** Require construction activity to comply with the City Noise Ordinance. Ensure adequate noise control measures at all construction sites through good sound attenuation practices.

In addition to noise goals and policies, the Noise Element has adopted the following noise and land use compatibility guidelines, shown in Table 5.4-2, *Land Use Compatibility for Community Noise Environments.*

Table 5.4-2 Land Use Compatibility for Community Noise Environments.

Land Use Category	Community Noise Exposure, dBA CNEL			
	Normally Acceptable	Conditionally Acceptable	Normally Unacceptable	Clearly Unacceptable
Residential-Low Density, Single Family, Duplex, Mobile Homes	50 - 60	55 - 70	70 - 75	75 - 85
Residential – Multiple Family	50 - 60	60 - 70	70 - 75	70 - 85
Transient Lodging – Motel, Hotels	50 - 60	60 - 70	70 - 80	80 - 85
Schools, Libraries, Churches, Hospitals, Nursing Homes	50 - 70	60 - 70	70 - 80	80 - 85
Auditoriums, Concert Halls, Amphitheaters	NA	50 - 70	NA	65 - 85
Sports Arenas, Outdoor Spectator Sports	NA	50 - 70	NA	70 - 85
Playgrounds, Neighborhood Parks	50 - 70	NA	67.5 - 77.5	72.5 - 85
Golf Courses, Riding Stables, Water Recreation, Cemeteries	50 - 70	NA	70 - 80	80 - 85
Office Buildings, Business Commercial and Professional	50 - 70	67.5 - 77.5	75 - 85	NA
Industrial, Manufacturing, Utilities, Agriculture	50 - 75	70 - 80	75 - 85	NA

Source: City of Placentia General Plan Table 8-5.
Notes:
NA = Not Applicable
Normally Acceptable: Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements.
Conditionally Acceptable: New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features have been included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning, will normally suffice.
Normally Unacceptable: New construction or development should 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 must be included in the design.
Clearly Unacceptable: New construction or development should generally not be undertaken.

Note that City's noise and land use compatibility guidelines noise exposure levels overlap between the normally acceptable, conditionally acceptable, normally unacceptable, and clearly unacceptable categories. The OPR's State of California General Plan Guidelines, note that noise planning policy needs to be rather flexible and dynamic to reflect not only technological advances in noise control, but also economic constraints governing application of noise-control technology and anticipated regional growth and demands of the community. In project-specific analyses, each community must decide the level of noise exposure its residents are willing to tolerate within a limited range of values below the known levels of health impairment. Therefore, the City may use their discretion to determine which noise levels are considered acceptable or unacceptable, based on land use, project location, and other project factors.

City of Placentia Municipal Code

While the District is not subject to local jurisdictional municipal codes, the District typically considers local plans and policies for the communities surrounding its facilities. The proposed Project is located within the City of Placentia. Applicable City of Placentia noise standards are described below to inform the CEQA analysis as to what noise levels could represent a significant impact to the surrounding community.

The City of Placentia's regulations with respect to noise are included in Chapter 23.76, Noise Control of Title 23, of the Municipal Code, also known as the Noise Ordinance. Section 23.76.050(a) define the exterior noise level limits for three zones: residential, commercial, and industrial land uses. The exterior noise standards per each zone are summarized in Table 5.4-3, *City of Placentia Noise Level Standards*, below.

Table 5.4-3 City of Placentia Noise Level Standards

Noise Zone	Description	Time Period	Exterior	Interior
			L_{eq}	
1	All residential property	7:00 am to 10:00 pm	55	55
		10:00 pm to 7:00 am	50	45
2	All commercial property	Anytime	65	NA
3	All industrial property	Anytime	70	NA

Source: City of Placentia, City of Placentia Municipal Code Sections 23.76.050 and 23.76.060
NA = Not Applicable

Exemptions

As described above, the on-campus activities at PYLUSD's EL Dorado HS are not subject to the City's permit requirements. The following information is provided as background information to inform the CEQA analysis.

Section 23.76.070, Activities – Special Provisions, exempts the following from the provisions of the Noise Ordinance:

- Regularly scheduled school bands, school athletic and school entertainment events between the hours of 7:00 a.m. and 11:00 p.m., provided a parade permit is also submitted from the police department for band activities on city streets.
- Outdoor gatherings, including outdoor public dances and outdoor entertainment events, provided said events are conducted pursuant to an activity permit issued by the city recreation division pursuant to Chapters 6.52 and 6.56 of Placentia's Municipal Code and are limited to between the hours of 9:30 a.m. and 11:00 p.m.
- Regularly scheduled activities conducted on public parks, public playgrounds, and public or private school grounds. However, the use of public address or amplified music systems is not permitted to exceed the exterior noise standard of adjacent property at the property line;

- Noise sources associated with grading, construction and the maintenance of real property shall not be subject to the provisions of this chapter provided grading, construction and maintenance activities occur during the permitted hours as codified in Section 23.81.170, Grading, Construction, and Maintenance of Real Property, which are summarized in Table 5.4-4, *Permitted Hours of Construction Activities*, below.

Table 5.4-4 Permitted Hours of Construction Activities

Construction Phase	Monday – Friday	Saturday	Sundays and Holidays
Initial construction	7:00 a.m. to 7:00 p.m.	9:00 a.m. to 6:00 p.m.	Prohibited
Remodeling, repair work	7:00 a.m. to 7:00 p.m.	9:00 a.m. to 6:00 p.m.	10:00 a.m. to 5:00 p.m.
Maintenance of real property	7:00 a.m. to 7:00 p.m.	9:00 a.m. to 6:00 p.m.	10:00 a.m. to 5:00 p.m.

Notes:
Initial construction work includes new residential, commercial and industrial developments. These are projects constructed on vacant property, which require the approval of the planning commission and, in particular cases, approval by the city council.
Remodeling, repair work pertains to construction activity on properties where structures already exist. This includes structural additions, rehabilitation work, miscellaneous projects, re-roofing, the construction of swimming pools, etc. These projects typically require over-the-counter permit approval only.
Maintenance of real property including, but not limited to: the mowing of lawns, trimming of trees and shrubs, general landscape maintenance.

5.4.3 Existing Conditions

5.4.3.1 AMBIENT NOISE MEASUREMENTS

To determine baseline noise levels within the project site area, ambient noise monitoring was conducted in the vicinity of the El Dorado HS campus between the evening hours of 6:45 p.m. and 8:30 p.m. on September 8, 2022, during after school sports field practices. Additional measurements were taken on November 4, 2022, between the morning hours of 7:30 a.m. and 8:30 a.m. during morning marching band practice. All measurements were short-term (15-minutes). Figure 5.4-1, Approximate Noise Monitoring Locations, shows the approximate noise monitoring locations conducted by PlaceWorks staff.

The primary noise source during the evening measurements were from soccer practice, off-site traffic, and generator noise use for the temporary lights. Meteorological conditions during the measurement period were favorable for outdoor sound measurements. Generally, weather conditions included clear skies with evening temperatures of 94 degrees Fahrenheit (°F) on September 8th, 2022, and morning temperatures of 60 degrees °F on November 4, 2022. Average winds on both days were approximately 2 miles per hour (mph). The sound level meter was equipped with a windscreen during all measurements.

Figure 5.4-1 - Approximate Noise Monitoring Locations

Source: Nearmap, Ltd., 2022.

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The sound level meter used (Larson Davis LxT) for noise monitoring satisfies the American National Standards Institute (ANSI) standard for Type 1 instrumentation.[1] The sound level meter was set to "slow" response and "A" weighting (dBA). The meter was calibrated prior to and after the monitoring period. All measurements were at least 5 feet above the ground and away from reflective surfaces. Approximate noise measurement locations are described below, and results are summarized in Table 5.4-5, *Short-Term Noise Measurements Summary in A-weighted Sound Levels*.

Table 5.4-5 Short-Term Noise Measurements Summary in A-weighted Sound Levels

Monitoring Location	Description	15-minute Noise Level, dBA						
		L_{eq}	L_{max}	L_{min}	L_{50}	L_{25}	L_8	L_2
ST-1A	Next to 337 Little Big Horn Avenue (residences) 9/8/2022, 7:59 p.m.	50.6	59.5	42.6	57.9	53.8	50.5	49.9
ST-2A	Onsite between football field and adjacent residences to north. 9/8/2022, 6:53 PM	55.9	77.4	50.2	62.4	59.4	56.4	54.0
ST-1B	Next to 337 Little Big Horn Avenue (residences) 11/4/2022, 8:04 a.m.	63.4	71.6	50.6	61.1	65.0	67.8	69.6
ST-2B	Onsite between football field and adjacent residences to north. 11/4/2022, 7:30 a.m.	67.5	81.5	50.0	56.3	61.3	73.0	78.3

- **Short-Term Location 1A (ST-1A)** next to 337 Little Big Horn Avenue (residences) and approximately 25 feet west of the nearest southbound travel lane centerline. A 15-minute noise measurement began at 7:59 p.m. on Thursday, September 8, 2022. The noise environment is characterized primarily by soccer practice (i.e., voices, whistles, shouting, kicking the ball), generator noise from the temporary lights, and vehicular traffic along Brookhaven Avenue. Noise levels associated with soccer practice including generator noise generally ranged from 50 dBA to 52 dBA. Vehicle pass-by noise levels ranged from 60 dBA to 62 dBA.

- **Short-Term Location 2A (ST-2A)** onsite next to the adjacent residences north of the track/field. A 15-minute noise measurement began at 6:53 p.m. on Thursday, September 8, 2022. The noise environment is characterized primarily by soccer practice. There were three to four groups at any given time practicing different drills. Most noise from practice consisted of communication between players and coaches and the sound of players kicking soccer balls. Generator noise from the temporary lights across the field could also be heard. Raised voices from coaches ranged between 55 dBA to 64 dBA which was intermittent and general noise levels ranged between 52 dBA to 59 dBA.

- **Short-Term Location 1B (ST-1B)** next to 337 Little Big Horn Avenue (residences) and approximately 25 feet west of the nearest southbound travel lane centerline. A 15-minute noise measurement began at 8:04 a.m. on Friday, November 4, 2022. The noise environment is characterized primarily by marching band

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[1] Monitoring of ambient noise was performed using Larson-Davis model LxT sound level meters.

practice and occasional pass-by traffic. Band practice noise was intermittent with pauses every few minutes. A small portable speaker was used by the band instructor to communicate with and correct students in between pauses. Generally, the speaker noise was observed to be up to 55 dBA, but noise from the band playing ranged from 57 to up to 72 dBA.

- **Short-Term Location 2B (ST-2B)** onsite next to the adjacent residences north of the track and field. A 15-minute noise measurement began at 7:30 a.m. on Friday, November 4, 2022. The noise environment is characterized primarily by marching band practice. Band practice noise was intermittent with pauses every few minutes. A small portable speaker was used by the band instructor to communicate with and correct students in between pauses. Generally, the speaker noise was observed to range between 60 to 65 dBA. Band practice noise levels ranged from 63 to 78 dBA depending on the instruments played. Band practice noise at times reached a maximum of 80 dBA with all instruments engaged, including bass drums.

5.4.3.2 SENSITIVE RECEPTORS

Certain land uses, such as residences, schools, and hospitals, are particularly sensitive to noise and vibration. Sensitive noise receptors include residences, senior housing, schools, places of worship, and recreational areas. These uses are regarded as sensitive because they are where citizens most frequently engage in activities which are likely to be disturbed by noise, such as reading, studying, sleeping, resting, working from home, or otherwise engaging in quiet or passive recreation. Commercial and industrial uses are not particularly sensitive to noise. The nearest off-site noise-sensitive receptors to the proposed project are adjacent residences to the north and residences across Brookhaven Avenue to the west. On-campus noise sensitive receptors include school classrooms that are analyzed for temporary construction noise impacts.

5.4.4 Thresholds of Significance

According to Appendix G of the CEQA Guidelines, a project would normally have a significant effect on the environment if the project would result in:

N-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.

N-2 Generation of excessive groundborne vibration or groundborne noise levels.

N-3 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, if the project would expose people residing or working in the project area to excessive noise levels.

5.4.5 Environmental Impacts

5.4.5.1 IMPACT ANALYSIS

The following impact analysis addresses the thresholds of significance; the applicable thresholds are identified in brackets after the impact statement.

Impact 5.4-1: Construction activities would result in temporary noise increases in the vicinity of the proposed project that would not exceed standards. [Threshold N-1]

Two types of short-term noise impacts could occur during construction: (1) mobile-source noise from transport of workers, material deliveries, and debris and soil haul and (2) stationary-source noise from use of construction equipment. The proposed lighting project would consist of four pre-cast concrete bases with four galvanized steel poles 80 feet tall, with luminaires mounted at 80 feet at the existing track/field. The light pole locations are shown on Figure 3-4, *Pole Locations*.

Construction Vehicles

The transport of workers and materials to and from the construction site could potentially increase noise levels along local access roadways to the project site. Individual construction vehicle passes-bys and haul trucks may create momentary and short-lived noise levels of up to 85 dBA (L_{max}) at 50 feet from the vehicle. However, daily construction trips would be minimal and cease upon completion of construction activities. Therefore, the **impacts would be less than significant**.

Construction Equipment

Noise generated during construction is based on the type of equipment used, the location of the equipment relative to sensitive receptors, and the timing and duration of the noise-generating activities. Noise levels from construction activities are dominated by the loudest piece of construction equipment. The dominant noise source is typically the engine, although work piece noise (such as dropping of materials) can also be noticeable. For the proposed project, construction noise is dominated by the loudest piece of equipment needed for light pole installation.

Construction equipment for the installation of light poles typically includes a crane, backhoe, concrete saw/jackhammer, and a drill rig. A concrete saw or jackhammer would not be used at every proposed pole location, but on an as-needed basis for demolition and removal of hardscape to install a light pole. Based on available lighting plans (See Figure 3-4, *Pole Locations*), it is assumed that all four proposed light pole locations would require the demolition of some hardscape. No blasting nor pile-driving techniques would be required.

Off-site Receptors

Based on PlaceWorks' experience with previous lighting projects, the installation schedule of a single light pole takes approximately one week to complete. Initially workers drill at the proposed light pole location to set the concrete pole bases on the first day. The cement base sits for approximately 4 days to cure, and workers return to install the light pole with the use of a crane. Most of the noise generated would occur during the first and last day of this process because that's when construction equipment is used. However, as stated above and in the project description, the light pole bases are pre-cast. Therefore, this step in the process would be avoided, further expediting the construction schedule. The installation of an individual light pole would be reduced to approximately a two-day period (consecutive).

The anticipated construction equipment (auger drill rig, backhoe, concrete saw, and a crane) were modeled using the Federal Highway Administration (FHWA) Roadway Construction Noise Model (RCNM). RCNM modeling indicates that the loudest piece of equipment (concrete saw) would be up to 83 dBA L_{eq} at a distance of 50 feet. The second loudest piece of equipment (drill rig) would be up to 77 dBA L_{eq} at a distance of 50 feet. The nearest sensitive receptor property line to project construction activities (light pole installation) are single-family homes approximately 35 feet to the north. These residences would be exposed to periodic noise levels of up to 86 dBA L_{eq} during hardscape removal over a two-day period. Provided that construction noise would be limited to a two-day period, the project would not expose sensitive receptors to substantial construction noise, and therefore, impacts would be **less than significant.**

On-Campus Receptors

The nearest proposed light pole to an on-campus receptor, such as classroom building, is approximately 435 feet to the south across the hardcourts. At that distance exterior noise levels from construction activities would attenuate to 64 dBA L_{eq} or less. Though construction noise would temporarily elevate interior noise levels at the nearest classrooms, elevated noise levels would be limited to two-day periods per light pole (four total poles). Therefore, temporary construction noise would not substantially interfere with classroom learning environments. In addition, exterior to interior noise attenuation is typically 20 dBA with windows closed, resulting in interior noise levels of 44 dBA. Construction would not significantly increase interior noise levels and on-site construction noise impacts would be **less than significant.**

Impact 5.4-2 Project implementation would result in long-term operation-related noise that would cause substantial increases in ambient noise levels. [Threshold N-1]

Traffic Noise

The proposed project would add permanent lighting to the athletic track/field at El Dorado High School which would allow students to use the track/field, particularly in the winter months. Currently, students travel to an off-site location for winter evening track/field use. Therefore, the proposed project would not result in a student increase, but just redirect existing trips back to the project site during the winter months. In addition, some students travel directly from the classroom to the track/field after school. Therefore, the proposed project would not result in a substantial traffic noise increase and impacts would be **less than significant**.

Athletic Field Noise

As discussed above, the project would install permanent lighting at the existing track/field. Currently, students use the track/field in the evening hours during spring and fall seasons, but the athletic teams and the band use an off-site location with evening lighting during the winter months. The proposed project would allow students to access their home track/field during the winter months.

Installing permanent lighting could result in a substantial permanent increase during the evening hours at nearby noise sensitive receptors. The noisiest activity that occurs on-site is band practice. Band practice currently practices in the morning only during non-winter months. Current activities that take place in the evening hours include soccer and football practice. Under the proposed project, the band would remain practicing in the morning but would also practice in the evening hours during winter months. Therefore, the change in noise ambience due to the project would occur in the evening hours due to band practice.

As discussed above in Section 5.4.2, *Regulatory Background*, under Section 23.76.070 of the Municipal Code, regularly scheduled school bands, school athletic and school entertainment events between the hours of 7:00 a.m. and 11:00 p.m. are exempt. However, operation of the proposed project, specifically band practice in the evening hours could still cause a significant periodic increase in ambient noise levels. Most people can detect changes in sound levels of approximately 3 dBA under normal, quiet conditions, and changes of 1 to 3 dBA are detectable under quiet, controlled conditions. Changes of less than 1 dBA are usually indiscernible. A change of 5 dBA is readily discernible and a change in 10 dBA is perceived to be twice as loud to most people in an exterior environment. Because band practice could potentially occur twice a day (morning and evening), most days, a threshold of 5 dBA increase above existing conditions is used.

To determine the noise increase, baseline noise measurements were conducted in the evening hours during soccer practice and band practice measurements were conducted on-site (see Table 5.4-5). Table 5.4-6, *Project-Related Evening Ambient Noise Increase*, compares the measured evening baseline noise levels to the measured morning band practice noise levels to estimate the noise increase. It should be noted that both morning and evening noise measurements were taken at the same location for comparison accuracy (See Figure 5.4-1).

Table 5.4-6 Project-Related Evening Ambient Noise Increase

	dBA, Leq		
Measurement Location	**Measured Evening Baseline, dBA Leq**	**Measured Morning Band Practice**	**Net Increase in Evening Noise Levels due to Proposed Evening Band Practice**
ST-1A/B Next to 337 Little Big Horn Avenue (residences).	50.6	63.4	12.8
ST-1A/B Onsite between football field and adjacent residences to north.	55.9	67.5	11.6

As shown in Table 5.4-6, the proposed lighting project would increase evening ambient noise levels by up to 12.8 dBA. As stated in Table 5.4-3, the interior noise standard during the daytime hours (7:00 am to 10:00 pm) is 55 dBA. Typical exterior to interior noise attenuation with windows closed for residential structures is 25 dBA. As shown in Table 5.4-6, noise levels at the nearest residences range between 63.4 and 67.5 dBA. Applying the standard 25 dBA attenuation would result in interior noise levels between 38.4 and 42.5 dBA meeting the City of Placentia's interior noise standards. However, this does not address the increase in exterior noise levels. This would be perceived as a doubling in exterior noise at the nearest noise receptors. Therefore, impacts would be **potentially significant**.

Impact 5.4-3: The project would not create excessive groundborne vibration and groundborne noise. [Threshold N-2]

Construction Vibration

Potential vibration impacts associated with development projects are usually related to the use of heavy construction equipment during the demolition and grading phases of construction. Construction can generate varying degrees of ground vibration depending on the construction procedures and equipment. Construction equipment generates vibration that spreads through the ground and diminishes with distance from the source. The effect on buildings in the vicinity of the construction site varies depending on soil type, ground strata, and receptor-building construction. The effects from vibration can range from no perceptible effects at the lowest vibration levels, to low rumbling sounds and perceptible vibrations at moderate levels, to slight structural damage at the highest levels. Vibration from construction activities rarely reaches the levels that can damage structures. Pile driving is not proposed as part of the project.

For reference, a peak particle velocity of 0.20 in/sec PPV is used as the limit for nonengineered timber and masonry buildings, which would apply to the off-site surrounding residential structures (FTA 2018). Table 5.4-7, *Vibration Levels for Typical Construction Equipment*, shows typical construction equipment vibration levels at a refence distance of 25 feet and estimated vibration levels at the nearest sensitive receptors to the north at approximately 40 feet. Proposed light pole locations are shown in Figure 3-4, *Pole Locations*. At 40 feet, construction vibration levels would be up to 0.013 in/sec PPV, which would not exceed the threshold of 0.20 in/sec PPV. Therefore, construction vibration impacts would be **less than significant**.

Table 5.4-7 Vibration Levels for Typical Construction Equipment

Equipment	Reference Levels at 25 Feet (in/sec PPV)	Residences at 40 Feet north [1] (in/sec PPV)
Large Bulldozer	0.089	0.044
Caisson Drilling	0.089	0.044
Loaded Trucks	0.076	0.038
Jackhammer	0.035	0.017
Small Bulldozer	0.003	0.001

Source: FTA 2018.
In/sec PPV = inches per second peak particle velocity
[1] As measured from the light pole to nearest building structure.

Operational Vibration

The operation of the proposed project would not include any substantial long-term vibration sources. Thus, no significant vibration effects from operations sources would occur. Therefore, impacts would be **less than significant**.

Impact 5.4-4: The proximity of the project site to an airport or airstrip would not result in exposure of future workers to excessive airport-related noise. [Threshold N-3]

The nearest airport or airstrip to the campus is Fullerton Municipal Airport, approximately 6.8 miles to the southwest. Therefore, the proposed project would not expose future workers in the project site area to excessive aircraft noise. **No impact** would occur.

5.4.6 Cumulative Impacts

Operation

There are no other nearby sources of stationary noise in the project area that would significantly contribute to the ambient noise environment during evening track/field use. Therefore, there would be no cumulative operational stationary noise impacts.

A significant cumulative traffic noise increase would be identified if project traffic noise would substantially contribute to cumulative plus project conditions. However, the proposed project would reduce trips by eliminating the additional vehicle trips currently required for the students to practice off-site. The proposed project's contribution to the cumulative noise impacts would be less than cumulatively considerable.

Construction

The project site is in an urbanized area surrounded by built out residential parcels where major construction due to new development would be uncommon. Additionally, the proposed project itself would require minimal equipment with a short construction schedule. Therefore, any potential construction overlap from nearby planned and approved projects would be minimal. Therefore, cumulative construction noise impacts would be **less than significant.**

5.4.7 Level of Significance Before Mitigation

Upon implementation of regulatory requirements and standard conditions of approval, the following impacts would be less than significant: 5.4-1, 5.4-3, and 5.4-4.

However, without mitigation, the following impacts would be **potentially significant**:

- **Impact 5.4-2:** Permanent evening lighting would result in band practice playing on the track/field during evening hours in addition to morning hours and would substantially increase the evening noise baseline at noise sensitive receptors.

5.4.8 Mitigation Measures

Impact 5.4-2

Mitigation Measures Considered

In compliance with CEQA, "each public agency shall mitigate or avoid the significant effects on the environment of the project it carries out or approves whenever it is feasible to do so."[2] The term "feasible" is defined in CEQA to mean "capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, social, and technological factors."[3]

Typical noise attenuation measures would include the installation of a sound wall. An approximate seven-foot sound wall already exists along the northern boundary of the project site adjacent to the nearest noise sensitive receptors; however, the sound wall is not tall enough to block the increased noise from two-story homes. The block wall currently blocks the line of sight to the backyard/patio area and increasing the wall beyond its existing height would not significantly further reduce noise levels. Typically, when a wall breaks the line of sight of the receptor to the noise source, only a 1.5 dB attenuation will be achieved for every meter (3.28 feet) in height added to the wall (FHWA 2017). To reduce the exterior noise at the residences level to less-than-significant levels, noise should be reduced by 6.6 dBA. That would mean that the existing wall would need to be extended by 4.4 meters (14.5 feet) in height (1.5 dBA *4.4 meters = 6.6 dBA reduction). Note lower frequencies from drums, bass and baritone notes could still diffract over the wall as lower frequency have longer wavelengths. With the equation above, the total required block wall height would have to be 21.5 feet (7 feet + 14.5 feet). Caltrans protocol is to typically limit wall heights to no more than 16 feet for seismic (earthquake) considerations. While a 21.5-foot-tall block wall would mitigate the noise impact, the wall would create its own significant, obtrusive visual impact. This potential mitigation measure is therefore infeasible to include.

A sound wall along the nearest receptors to the west would be too far from the noise source (marching band) to provide a substantial reduction in noise. Sound barriers work best when placed right next to the noise source. Secondly, a sound wall along the project site's western property line would be close enough to Brookhaven Avenue to reflect traffic noise onto the residences to the west. This would not be a desired outcome as it would increase traffic noise at the western residential receptors. Therefore, this mitigation measure would also not be feasible. There is no mitigation measure that would effectively reduce noise levels to less than significant.

Other noise attenuation measures include planting vegetation along the property line. According to the U.S. Department of Transportation (DOT) FHWA (1976), plants absorb and scatter sound waves. However, the effectiveness of trees, shrubs, and other plantings as noise reducers is the subject of some debate. Some conclusions can, however, be drawn:

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[2] Public Resources Code Section 21002.1(b)

[3] Public Resources Code Section 21061.1

- Plantings in a buffer strip, high, dense, and thick enough to be visually opaque, will provide more attenuation than that provided by the mere distance which the buffer strip represents. A reduction of 3-5 dBA per 100 feet can be expected. Shrubs or other ground cover are necessary in this respect to provide the required density near the ground.
- The principal effect of plantings is psychological. By removing the noise source from view, plantings can reduce human annoyance to noise. The fact that people cannot see the source of noise can reduce their awareness of it, even though the noise remains.
- Time must be allowed for trees and shrubs to attain their desired height.
- Because they lose their leaves, deciduous trees do not provide year-round noise protection.

Plantings by themselves do not provide much sound attenuation. It is more effective, therefore, to use plantings in conjunction with other noise reduction techniques and for aesthetic enhancement. Vegetation could be cost prohibitive because the cost of vegetation varies with the species selected, the climate, and the width of the buffer strip. Planting shrubs between the trees to form a dense ground cover would double the price (FHWA 1976). This noise attenuation technique is rejected as not effectively mitigating the noise impact.

5.4.9 Level of Significance After Mitigation

Impact 5.4-2 would be significant and unavoidable for exterior noise at the adjacent properties at the property line.

5.4.10 References

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5.5 TRANSPORTATION

This section of the Draft Environmental Impact Report (DEIR) evaluates the El Dorado High School Field Lighting Project's (proposed project's) potential impacts on traffic and transportation conditions at the campus and surrounding community.

No comment letters were received related to transportation in response to the Notice of Preparation (NOP) circulated for the proposed project.

5.5.1 Environmental Setting

5.5.1.1 REGULATORY BACKGROUND

State, regional, and local laws, regulations, plans, or guidelines related to transportation that are applicable to the proposed project are summarized in this section.

State

Senate Bill 375: Sustainable Communities and Climate Protection Act

The Sustainable Communities and Climate Protection Act (SB 375) was signed into law on September 30, 2008. The SB 375 regulation provides incentives for cities and developers to bring housing and jobs closer together and to improve public transit. The goal behind SB 375 is to reduce automobile commuting trips and length of automobile trips, thus helping to meet the statewide targets for reducing greenhouse gas emissions set by AB 32, the California Global Warming Solutions Act of 2006. SB 375 requires each metropolitan planning organization to add a broader vision for growth, called a "sustainable communities strategy" (SCS), to its transportation plan. The SCS must lay out a plan to meet the region's transportation, housing, economic, and environmental needs in a way that enables the area to lower greenhouse gas emissions. The SCS should integrate transportation, land use, and housing policies to plan for achievement of the regional emissions target.

Senate Bill 743

On September 27, 2013, Senate Bill (SB) 743 was signed into law. The legislature found that with the adoption of SB 375, the state had signaled its commitment to encourage land use and transportation planning decisions and investments that reduce vehicle miles traveled (VMT) and thereby contribute to the reduction of greenhouse gas (GHG) emissions, as required by AB 32. Additionally, AB 1358, described above, requires local governments to plan for a balanced, multimodal transportation network that meets the needs of all users.

SB 743 started a process that fundamentally changes transportation impact analysis as part of California Environmental Quality Act (CEQA) compliance. These changes include the elimination of auto delay, level of service (LOS), and similar measures of vehicular capacity or traffic congestion as the basis for determining significant impacts. As part of the new CEQA Guidelines, the new criteria "shall promote the reduction of greenhouse gas emissions, the development of multimodal transportation networks, and a diversity of land uses" (California Public Resources Code section 21099[b][1]). On January 20, 2016, the Governor's Office of Planning and Research (OPR) released proposed revisions to its CEQA Guidelines for the implementation of

SB 743. OPR developed alternative metrics and thresholds based on VMT. The guidelines were certified by the Secretary of the Natural Resources Agency in December 2018. As of July 1, 2020, lead agencies were required to consider VMT as the metric for determining transportation impacts. The guidance provided relative to VMT significance criteria is focused primarily on land use projects, such as residential, office, and retail uses. However, as noted in the updated CEQA Guidelines, agencies are directed to choose metrics that are appropriate for their jurisdiction to evaluate the potential impacts of a project in terms of VMT.

Regional

Southern California Association of Governments

The South California Association of Governments' (SCAG's) Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) provides a regional transportation plan for six counties in Southern California: Orange, San Bernardino, Riverside, Los Angeles, Ventura, and Imperial. The primary goal of the regional transportation plan is to increase mobility for the region. With recent legislation, this plan also encompasses sustainability as a key principle in future development. Current and recent transportation plan goals generally focus on balanced transportation and land use planning that:

- Maximize mobility and accessibility for all people and goods in the region.
- Ensure travel safety and reliability for all people and goods in the region.
- Preserve and ensure a sustainable regional transportation system.
- Maximize the productivity of our transportation system.
- Protect the environment and health of residents by improving air quality and encouraging active transportation (e.g., bicycling and walking).
- Encourage land use and growth patterns that facilitate transit and active transportation.

On September 3, 2020, SCAG's Regional Council unanimously voted to approve and fully adopt Connect SoCal (2020–2045 RTP/SCS) and the addendum to the Connect SoCal Program EIR. Connect SoCal is a long-range visioning plan that builds upon and expands land use and transportation strategies established over several planning cycles to increase mobility options and achieve a more sustainable growth pattern. The 2020-2045 RTP/SCS focuses on the continued efforts for an integrated approach in transportation and land uses strategies in development of the SCAG region through horizon year 2045. It projects that the SCAG region will meet its GHG per capita reduction targets of 8 percent by 2020 and 19 percent by 2035. Additionally, it is projected that implementation of the plan would reduce VMT per capita for year 2045 by 4.1 percent compared to baseline conditions for the year. The 2020-2045 RTP/SCS includes a "core vision" that centers on maintaining and better managing the transportation network for moving people and goods while expanding mobility choices by locating housing, jobs, and transit closer together and increasing investments in transit and complete streets.

Local

City of Placentia General Plan

Mobility Element

The Mobility Element includes the following goals and policies related to transportation:

Goal MOB-2: Maintain a safe, efficient, economical, and aesthetically pleasing transportation system providing for the movement of people, goods, and services to serve the existing and future needs of the City of Placentia.

- **Policy MOB-2.5.** Encourage development which contributes to a balanced land use, which in turn serves to reduce overall trip lengths (i.e., locate retail in closer proximity to residents).

Goal MOB-3: Encourage transit and active transportation modes, including public transportation, bicycles, ridesharing, and walking, and other alternative modes of transportation to support land use plans and related transportation needs.

- **Policy MOB-3.1.** Encourage development and improvements which incorporate innovative methods of accommodating transportation demands.

- **Policy MOB-3.2.** Support the development of a high quality- public transit system that minimizes dependency on the automobile.

5.5.1.2 EXISTING CONDITIONS

Existing Parking

Vehicular access to the El Dorado HS Campus and track/field is via the driveway off Valencia Avenue and existing parking lot. Parking for school employees, students, and visitors would be provided on-site in the existing parking lot west of Valencia Avenue. There is currently sufficient parking on-site during events at the El Dorado HS track/field. Parking is restricted to vehicles with permits along part of Brookhaven Avenue near the school site.

Existing Road Network and Existing Pedestrian Facilities

The following paragraphs provide a brief description of the streets that run adjacent to or near the El Dorado HS campus.

Valencia Avenue

Valencia Avenue is a four lane north-south street that abuts the east side of the school campus. It has sidewalks on both sides of the street. There are five school access driveways along the west side of Valencia Avenue that provide access to the school's parking lots. The speed limit on Valencia Avenue is 40 miles per hour and 25 miles per hour when children are present.

Brookhaven Avenue

Brookhaven Avenue is a two lane north-south street that abuts the west side of the school campus and runs adjacent to the west end zone of the track/field. It has sidewalks on both sides of the street and there are no bike lanes. There are two gated driveways on the east side of Brookhaven; one that provides access to a fire lane on the south end of the campus and one that provides access for maintenance vehicles. Public access is not provided at these driveways. There is a pedestrian gate along Brookhaven Avenue where student drop-off/pick-up often occurs. Parking is restricted to vehicles with permits along part of Brookhaven Avenue near the school site. The speed limit on Brookhaven Avenue is 30 miles per hour and 25 miles per hour when children are present.

Brower Avenue

Brower Avenue is a two lane east-west street located approximately 100 feet north of the school campus. It has sidewalks on both sides of the street and there are no bike lanes. Brower Avenue intersects with Brookhaven Avenue and provides access to a residential neighborhood located immediately north of the school campus and the track/field. The speed limit on Brower Avenue is 25 miles per hour.

Yorba Linda Boulevard

Yorba Linda Boulevard is a four lane east-west street located approximately 600 feet south of the school campus. It has sidewalks on both sides of the street and there are no bike lanes. The speed limit on Yorba Linda Boulevard is 40 miles per hour.

Bastanchury Road

Bastanchury Road is a four lane east-west street located approximately 600 feet north of the school campus. It has sidewalks and bike lanes on both sides of the street. The speed limit on Bastanchury Road is 45 miles per hour and 25 miles per hour when children are present.

Intersections Adjacent to the School

The key intersections that are adjacent to or near the school campus and the types of traffic control at each intersection are shown in Table 5.5-1, *Intersections Adjacent to the School Campus*. There are also some minor intersections that intersect with Valencia Avenue and Brookhaven Avenue in the vicinity of the school campus.

Table 5.5-1 Intersections Adjacent to the School Campus

Intersection	Traffic Control	School Crosswalks (Yellow)
Valencia Avenue at Bastanchury Road	Traffic Signal	Yes
Valencia Avenue at Shady Lane	Traffic Signal	Yes
Valencia Avenue at Yorba Linda Boulevard	Traffic Signal	Yes
Brookhaven Avenue at Bastanchury Road	Traffic Signal	Yes
Brookhaven Avenue at Brower Avenue	Stop Sign on Brower Avenue	Yes (north of intersection)
Brookhaven Avenue at Yorba Linda Boulevard	Stop Sign on Brookhaven Avenue	No

Existing Bicycle Facilities

The Placentia General Plan Mobility Element identifies three classes of bike lanes in the City. Class I bikeways are located off roadways and do not allow motor vehicle traffic. Class I bikeways are typically along rivers, flood control channels, and railroad rights-of-way. Class II bikeways are signed and striped lanes located to the right of the vehicle traffic lane along a roadway. Class II bikeways are typically along collector and arterial roadways. Class III bikeways are signed as bikeways intended to provide continuity to the bikeway system. Typically, Class III bike routes have no designated area for bicyclists as they are shared with motor vehicles on the street.

A Class II bike lane runs along the east side of Valencia Avenue north of Holmes Avenue beginning near the northeast corner of the campus. Another Class II bike lane runs north of the high school campus along the north and south side of East Bastanchury Road. A Class III bike lane is south of the intersection of Holmes Avenue and Valencia Avenue.

Existing Transit Service

The Orange County Transportation Authority (OCTA) operates the Route 26 bus line on Yorba Linda Boulevard approximately 600 feet south of El Dorado High School. Bus stops are located at the Yorba Linda Boulevard/Brookhaven Avenue and Yorba Linda Boulevard/Valencia Avenue intersections. Route 26 operates from 5:24 am to 10:55 pm on the weekday schedule.

The District provides home-to-school transportation for students that apply for passes and that live beyond the distance established by the Board of Education. For high school students, the District provides transportation for high school students that live 3.25-miles from the school. Distance is measured from the entrance of the school to points around the school forming a circle with the established distance being the radius of the circle.

5.5.2 Thresholds of Significance

According to Appendix G of the CEQA Guidelines, a project would normally have a significant effect on the environment if the project would:

T-1 Conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities.

T-2 Conflict or be inconsistent with CEQA Guidelines § 15064.3, subdivision (b).

T-3 Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).

T-4 Result in inadequate emergency access.

5.5.3 Environmental Impacts Analysis

Impact 5.5-1: The proposed project would not conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities. [Threshold T-1]

The proposed project would enable sports teams and band to practice on the existing El Dorado HS athletic field during winter months and reduce travel to off-site locations for practice during the winter months.

Vehicular access to the campus parking lot is provided via Valencia Avenue. From the parking lots, pedestrian access to the fields is through the security fencing surrounding the field. The vehicular and pedestrian access features would not be altered because of the proposed project. There is no vehicular access to the track/field from Brookhaven Avenue. However, there is a pedestrian gate along Brookhaven Avenue where drop-off/pick-up often occurs. As described above in 5.5.1.2, Existing Conditions, parking is restricted to vehicles with permits along part of Brookhaven Avenue near the campus. Currently, there is sufficient parking provided on-site during El Dorado HS or community use of the track/field. The proposed project would not result in an increase in seating and would not result in large spectator events. On-site parking would continue to adequately serve after school track/field use.

The proposed project would not result in an overall increase in the number of practices for the El Dorado HS athletics teams. The proposed project would just shift the location of practices from off-site locations to the existing on-campus athletic field. The proposed project would not result in an overall increase in the volumes of traffic generated by practices on-campus. It would, however, result in an increase in traffic on the streets in the immediate vicinity of the school during the evening hours when the lights would be operational (i.e., from dusk until 10:00 p.m. during winter months). Table 5.5-2, *Anticipated Increase in Traffic Volumes at the Football Field* shows the estimated traffic volumes by time of day for the "with field lighting" scenario.

Table 5.5-2 Anticipated Increase in Traffic Volumes at the Football Field

Time of Year & Activity	Number of People	Time of Day	Traffic Volumes		
			Inbound	Outbound	Total
August to December – Weekday Football Practice	45 Players 5 Coaches	3:30 to 5:00 PM	30 Parents 15 Players 5 Coaches 50 Total	30 Parents 0 Players 0 Coaches 30 Total	60 Parents 15 Players 5 Coaches 80 Total
		5:30 to 10:00 PM	30 Parents 0 Players 0 Coaches 30 Total	30 Parents 15 Players 5 Coaches 50 Total	60 Parents 15 Players 5 Coaches 80 Total

The traffic volumes shown in Table 5.5-2 assume that two-thirds of the players (30 players) would be driven to and from the track/field by parents and that one-third of the players (15 players) would drive a car to and from the school. The arrival and departure numbers shown in the "Traffic Volumes" columns are based on the worst-case scenario that each of the players and coaches would travel in a single vehicle. It is highly likely that there would be multiple players traveling in many of the vehicles, which would reduce the traffic volumes shown in the table. Also, many of the students and some of the coaches would already be on-campus and would walk across the campus to the track/field, which would further reduce the number of arrivals shown in the table. The traffic volumes shown in Table 5.5-2 represent a conservative (high end) worst-case scenario.

As shown in Table 5.5-2, traffic would be generated during the evening hours as players and coaches would enter and exit the campus at the end of the practice sessions. The proposed project would result in 30 arrivals of parents' vehicles and 50 departures by parents, players that drive, and coaches for a total of 80 vehicle trips that would occur sometime between 5:30 and 9:00 p.m., depending on the practice schedules. Most of this traffic would travel on Valencia Avenue and then be dispersed onto Yorba Linda Boulevard, Bastanchury Road, and other streets in the area. As the daily traffic volumes are approximately 10,000 vehicles per day on Valencia Avenue, 20,000 vehicles per day on Bastanchury Road, and 26,000 vehicles per day on Yorba Linda Boulevard, an additional 80 vehicle trips during the afternoon and 80 trips during the evening hours would be negligible and would not result in a significant impact, particularly since these project-generated trips would occur during non-peak hours.

It is possible that the track/field would also be used by the public for soccer matches or practice during times when school-sponsored events would not be occurring. It is anticipated that this would attract approximately 20 to 30 participant/spectator trips per event (20 to 30 inbound and 20 to 30 outbound).

The proposed project would generate a demand for non-motorized travel as some students/participants would travel to and from the track/field as pedestrians or on bicycles. The streets adjacent to and near the school have sidewalks along both sides of the street and the Valencia Avenue/Bastanchury Road, Valencia Avenue/Shady Lane, Valencia Avenue/Yorba Linda Boulevard, and Bastanchury Road/Brookhaven Avenue intersections are equipped with traffic signals and painted crosswalks. The signalized intersections have pedestrian WALK signals with pedestrian push buttons and bike lanes are provided on Bastanchury Road and on the east side of Valencia Avenue north of Holmes Avenue. In addition, bike racks are available at the school. So, there are multiple features at and near the track/field that can accommodate bicycle and pedestrian travel.

Some students, participants, and/or coaches could potentially use public transit to travel to and/or from the school site, which would involve the OCTA Route 26 bus line on Yorba Linda Boulevard approximately 600 feet south of El Dorado High School. The impact on this bus route would be negligible.

In summary, the proposed project would not adversely affect traffic conditions on the study area street network or the performance of any transit or non-motorized transportation facilities. The project would not conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities and no mitigation measures would be required. Impacts would be less than significant.

Impact 5.5-2: The proposed project would not conflict or be inconsistent with CEQA Guidelines § 15064.3, subdivision (b). [Threshold T-2]

Vehicle delays and levels of service (LOS) have historically been used as the basis for determining the significance of traffic impacts as standard practice in California Environmental Quality Act (CEQA) documents. On September 27, 2013, SB 743 was signed into law, starting a process that fundamentally changed transportation impact analyses as part of CEQA compliance. SB 743 eliminated auto delay, LOS, and other similar measures of vehicular capacity or traffic congestion as the sole basis for determining significant impacts under CEQA. As part of the new CEQA Guidelines, the new criteria "shall promote the reduction of greenhouse gas emissions, the development of multimodal transportation networks, and a diversity of land uses" (Public Resources Code Section 21099(b)(1)). Pursuant to SB 743, the California Natural Resources Agency adopted revisions to the CEQA Guidelines on December 28, 2018, to implement SB 743. CEQA Guidelines Section 15064.3 describes how transportation impacts are to be analyzed after SB 743. Under the new Guidelines, metrics related to "vehicle miles traveled" (VMT) were required beginning July 1, 2020, to evaluate the significance of transportation impacts under CEQA for development projects, land use plans, and transportation infrastructure projects. The State provided an "opt-in period" and did not require lead agencies to apply a VMT metric until July 1, 2020. However, in January 2020, State courts stated that under the Public Resources Code Section 21099, subdivision (b)(2), "automobile delay, as described solely by level of service or similar measures of vehicular capacity or traffic congestion shall not be considered a significant impact on the environment" under CEQA, except for roadway capacity projects.

The CEQA Guidelines state that projects that decrease vehicle miles traveled in the project area compared to existing conditions should be presumed to have a less than significant transportation impact. Currently, football practice for El Dorado HS is held at remote locations, i.e., the fields at other high schools in the area. For example, Bradford Stadium, which is at Valencia High School, is located approximately 1.5 miles from El Dorado HS. The installation of lights at the El Dorado HS track/field would provide the opportunity for student athletes to attend practices at their school, which would eliminate the need to travel to another field, result in shorter travel distances, and thereby reduce the vehicle miles traveled compared to existing conditions. The proposed project would, therefore, have a positive impact on VMT and would not have a significant adverse impact.

Furthermore, the County of Orange "Guidelines for Evaluating VMT Under CEQA" states that the development of public facilities, which includes institutional/government and public service uses, can be screened from a CEQA VMT analysis. The proposed project, which involves the installation of field lights at a public high school, is included in the public facilities category.

The County of Orange guidelines also state that a project that generates 500 or fewer average daily trips (ADT) can be screened from a CEQA VMT analysis. As the proposed project would generate an estimated 160 daily trips as a worst-case maximum, the proposed project can be screened from a VMT analysis. In addition, the project-generated trips are not to be considered as an incremental increase in the VMT calculations because these trips would occur regardless of the status of the proposed project. The traffic would simply be destined to another location if the proposed field lights were not installed. Therefore, the proposed project would not result in an increase in VMT. The proposed project would not conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b). There would be no impact.

Impact 5.5-3: The proposed project would not substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections), or incompatible uses (e.g., farm equipment). [Thresholds T-3]

The proposed project would not modify the existing on- or off-site access or circulation system. Public access to the track/field would continue to occur through the campus from the parking lots that are accessed via the existing driveways on Valencia Avenue. The streets, intersections, and driveways are designed to accommodate the anticipated levels of vehicular and pedestrian activity and have historically been accommodating school and athletics-related traffic on a daily basis. The addition of field lights would be compatible with the design and operation of a high school.

As the proposed project would not result in any modifications to the existing access or circulation features at the school or on the surrounding streets, there would be no impacts involving increased hazards due to a geometric design feature or incompatible uses. Therefore, there would be no impact.

Impact 5.5-4: The proposed project would not result in inadequate emergency access. [Thresholds T-4]

The existing access and circulation features at the school, including the driveways, on-site circulation roads, parking lots, and fire lanes, would continue to accommodate emergency ingress and egress by fire trucks, police units, and ambulance/paramedic vehicles. The proposed field lights would not alter any emergency access features at the school. Therefore, the proposed project would not result in inadequate emergency access. No impact would occur.

5.5.4 Cumulative Impacts

The proposed project would be consistent with adopted policies, plans, and programs regarding circulation, including roadway, transit, bicycle, and pedestrian facilities. Construction and operation of the proposed project would comply with the Placentia General Plan's Circulation Element. The proposed project would not affect LOS at any intersection or roadways within the vicinity of the project site and would not restrict access to and from the project site. The proposed project would not contribute to any cumulative VMT impacts in the city or region. The proposed project impacts would not combine with other area traffic impacts to result in a significant cumulative impact on circulation or create hazardous conditions. Therefore, the proposed project would be less than cumulatively significant.

5.5.5 Level of Significance Before Mitigation

There would be no impacts under thresholds 5.5-2, 5.5-3, and 5.5-4. Impact 5.5-1 would be less than significant.

5.5.6 Mitigation Measures

No mitigation measures are required.

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6. Significant Unavoidable Adverse Impacts

At the end of Chapter 1, *Executive Summary*, is a table that summarizes the impacts, mitigation measures, and levels of significance before and after mitigation. Mitigation measures would reduce the level of impact, but the following impacts would remain significant, unavoidable, and adverse after mitigation measures are applied:

Noise

- **Impact 5.4-2:** Project implementation would result in long-term operation-related noise that would cause substantial increases in ambient noise levels. [Threshold N-1]

  Installing permanent lighting could result in a substantial permanent increase during the evening hours at nearby noise sensitive receptors. The noisiest activity that occurs on-site is band practice. Band practice currently practices in the morning only during non-winter months. Current activities that take place in the evening hours include soccer and football practice. Under the proposed project, the band would remain practicing in the morning but would also practice in the evening hours during winter months. Therefore, the change in noise ambience would occur in the evening hours due to band practice. The proposed lighting project would increase evening ambient noise levels by up to 12.8 dBA. The interior noise standard during the daytime hours (7:00 am to 10:00 pm) is 55 dBA. Typical exterior to interior noise attenuation with windows closed for residential structures is 25 dBA. Noise levels at the nearest residences range between 63.4 and 67.5 dBA. Applying the standard 25 dBA attenuation would result in interior noise levels between 38.4 and 42.5 dBA meeting the City of Placentia's interior noise standards. However, this does not address the increase in exterior noise levels. This would be perceived as a doubling in exterior noise at the nearest noise receptors.

  Typical noise attenuation measures would include the installation of a sound wall. An approximate seven-foot sound wall already exists along the northern boundary of the project site adjacent to the nearest noise sensitive receptors; however, the sound wall is not tall enough to block the increased noise from two-story homes. The block wall currently blocks the line of sight to the backyard/patio area and increasing the wall beyond its existing height would not significantly further reduce noise levels. Typically, when a wall breaks the line of sight of the receptor to the noise source, only a 1.5 dB attenuation will be achieved for every meter (3.28 feet) in height added to the wall. To reduce the exterior noise at the residences level to less-than-significant levels, noise should be reduced by 6.6 dBA. That would mean that the existing wall would need to be extended by 4.4 meters (14.5 feet) in height (1.5 dBA *4.4 meters = 6.6 dBA reduction). Note lower frequencies from drums, bass and baritone notes could still diffract over the wall as lower frequency have longer wavelengths. With the equation above, the total required block wall height would have to be 21.5 feet (7 feet + 14.5 feet). Caltrans protocol is to typically limit wall heights to no more than 16 feet for seismic (earthquake) considerations. While a 21.5-foot-tall block wall would mitigate the noise impact, the wall would create its own significant, obtrusive visual impact. This potential mitigation measure is rejected as unacceptable.

A sound wall along the nearest receptors to the west would be too far from the noise source (marching band) to provide a substantial reduction in noise. Sound barriers work best when placed right next to the noise source. Secondly, a sound wall along the project site's western property line would be close enough to Brookhaven Avenue to reflect traffic noise onto the residences to the west. This would not be a desired outcome as it would increase traffic noise at the western residential receptors. Therefore, this mitigation measure would not be feasible. There is no mitigation measure that would effectively reduce noise levels to less than significant. Impact 5.4-2 would be significant and unavoidable for exterior noise at the adjacent properties at the property line.

Other noise attenuation measures include planting vegetation along the property line. According to the U.S. Department of Transportation (DOT) FHWA (1976), plants absorb and scatter sound waves. However, the effectiveness of trees, shrubs, and other plantings as noise reducers is the subject of some debate. Some conclusions can, however, be drawn:

- Plantings in a buffer strip, high, dense, and thick enough to be visually opaque, will provide more attenuation than that provided by the mere distance which the buffer strip represents. A reduction of 3-5 dBA per 100 feet can be expected. Shrubs or other ground cover are necessary in this respect to provide the required density near the ground.
- The principal effect of plantings is psychological. By removing the noise source from view, plantings can reduce human annoyance to noise. The fact that people cannot see the source of noise can reduce their awareness of it, even though the noise remains.
- Time must be allowed for trees and shrubs to attain their desired height.
- Because they lose their leaves, deciduous trees do not provide year-round noise protection.

Plantings by themselves do not provide much sound attenuation. It is more effective, therefore, to use plantings in conjunction with other noise reduction techniques and for aesthetic enhancement. Vegetation could be cost prohibitive because the cost of vegetation varies with the species selected, the climate, and the width of the buffer strip. Planting shrubs between the trees to form a dense ground cover would double the price (FHWA 1976). This noise attenuation technique is rejected as not effectively mitigating the noise impact.

7. Alternatives to the Proposed Project

7.1 INTRODUCTION

7.1.1 Purpose and Scope

This chapter presents the alternatives analysis for the El Dorado High School Field Lighting Project. The discussion includes an explanation of the methodology used to select alternatives to the proposed project, with the intent of identifying potentially feasible alternatives that could avoid or substantially lessen the significant impacts identified for the proposed project while still meeting most of the basic project objectives. This chapter identifies a reasonable range of alternatives that meet these criteria, and these alternatives are evaluated with respect to minimizing adverse environmental effects as compared to the proposed project. It describes other alternatives and alternative concepts that were considered but eliminated from detailed consideration and reasons for their elimination. For the alternatives selected for analysis, this chapter evaluates the impacts of the alternatives against baseline environmental conditions and compares the potential impacts of the alternatives with those of the proposed project. As required under CEQA Guidelines § 15126.6(e), based on this analysis, this chapter then discusses the Environmentally Superior Alternative.

CEQA requires that an Environmental Impact Report (EIR) include a discussion of reasonable project alternatives that would "feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any significant effects of the project and evaluate the comparative merits of the alternatives" (CEQA Guidelines Section 15126.6[a]). As required by CEQA, this chapter identifies and evaluates potential alternatives to the proposed project.

Section 15126.6 of the CEQA Guidelines explains the foundation and legal requirements for the alternatives analysis in an EIR. Key provisions are:

- "[T]he discussion of alternatives shall focus on alternatives to the project or its location which are capable of avoiding or substantially lessening any significant effects of the project, even if these alternatives would impede to some degree the attainment of the project objectives, or would be more costly." (15126.6[b])
- "The specific alternative of 'no project' shall also be evaluated along with its impact." (15126.6[e][1])
- "The no project analysis shall discuss the existing conditions at the time the notice of preparation is published, or if no notice of preparation is published, at the time environmental analysis is commenced, as well as what would be reasonably expected to occur in the foreseeable future if the project were not approved, based on current plans and consistent with available infrastructure and community services. If the environmentally superior alternative is the 'no project' alternative, the EIR shall also identify an environmentally superior alternative among the other alternatives." (15126.6[e][2])

- “The range of 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 alternatives shall be limited to ones that would avoid or substantially lessen any of the significant effects of the project.” (15126.6[f])

- “Among the factors that may be taken into account when addressing the feasibility of alternatives are site suitability, economic viability, availability of infrastructure, general plan consistency, other plans or regulatory limitations, jurisdictional boundaries…, and whether the proponent can reasonably acquire, control or otherwise have access to the alternative site (or the site is already owned by the proponent)” (15126.6[f][1]).

- “Only locations that would avoid or substantially lessen any of the significant effects of the project need be considered for inclusion in the EIR.” (15126.6[f][2][A])

- “An EIR need not consider an alternative whose effect cannot be reasonably ascertained and whose implementation is remote and speculative.” (15126.6[f][3])

For each development alternative, this analysis:

- Describes the alterative.
- Analyzes the impact of the alternative as compared to the proposed project.
- Identifies the impacts of the project that would be avoided or lessened by the alternative.
- Assesses whether the alternative would meet most of the basic project objectives.
- Evaluates the comparative merits of the alternative and the project.

According to Section 15126.6(d) of the CEQA Guidelines, “[i]f an alternative would cause…significant effects in addition those that would be caused by the project as proposed, the significant effects of the alternative shall be discussed, but in less detail than the significant effects of the project as proposed.”

7.2 FACTORS CONSIDERED WHEN DEVELOPING ALTERNATIVES

This section describes the basis for determining the range of CEQA alternatives and identifies the specific alternatives that are analyzed in this DEIR. The primary factors considered when determining feasible alternatives to the proposed project are the identified project objectives and those impacts that have been identified for the proposed project. Therefore, these two considerations are summarized below.

7.2.1 Project Objectives

As described in Section 3.3, the following objectives have been established for the proposed project and will aid decision makers in their review of the proposed project, the proposed project’s alternatives, and associated environmental impacts.

1. Provide lighting to allow for safe night use of existing track/field to accommodate school events and activities.

2. Enable sports teams and band to practice on existing El Dorado HS track/field during winter months. Reduce logistics and travel issues associated with transporting students and equipment off-site for practice during the winter months.

3. Eliminate travel time to off-site sports facilities to allow for increased practice time.

4. Provide improved lighting technology to reduce light spill and energy consumption.

7.2.1 Summary of Significant Effects of the Proposed Project

The following impacts have been identified for the proposed project, as discussed in Chapter 5, *Environmental Analysis*, of this DEIR and summarized in Chapter 6, *Significant Unavoidable Adverse Impacts*.

- Impact 5.4-2: Project implementation would result in long-term operation-related noise that would cause substantial increases in ambient noise levels. [Threshold N-1] There is no feasible mitigation measure that would effectively reduce noise levels to less than significant. Impact 5.4-2 would be significant and unavoidable for exterior noise at the adjacent properties at the property line.

7.3 ALTERNATIVES CONSIDERED AND REJECTED DURING THE SCOPING/PROJECT PLANNING PROCESS

The following is a discussion of the land use alternatives considered during the scoping and planning process and the reasons why they were not selected for detailed analysis in this DEIR.

7.3.1 Alternative Development Areas

CEQA requires the discussion of alternatives to focus on alternatives to the project or its location that are capable of avoiding or substantially lessening any significant effects of the project. The key question and first step in the analysis is whether any of the significant effects of the project would be avoided or substantially lessened by putting the project in another location. Only locations that would avoid or substantially lessen any of the significant effects of the project need be considered for inclusion in the EIR (CEQA Guidelines Section 15126[5][B][1]). Key factors in evaluating the feasibility of potential off-site locations for EIR project alternatives include:

- If it is in the same jurisdiction.
- Whether development as proposed would require a general plan amendment.
- Whether the project applicant could reasonably acquire, control, or otherwise have access to the alternative site (or the site is already owned by the proponent). (CEQA Guidelines Section 15126.6[f][1])

The Alternative Development Area Alternative would result in moving the existing track/field away from the residences to the west and north. This Alternative was eliminated from further consideration in the EIR because the demolition of the existing track/field, demolition of other structures on the campus, and construction of a new track/field to another portion of the campus away from the impacted residences; would be economically infeasible and would result in greater significant impacts to the environment related to air quality, energy, greenhouse gas emissions, and noise due to the extent of construction that would be required. It was determined, therefore, that it is unlikely that there is an alternative project site that could potentially meet the objectives of the proposed project and reduce significant impacts of the project as proposed.

7.3.2 No Band in the Evening

The No Band in the Evening Alternative was considered because the noise characteristics as a result of band practice on the athletic field are concerning to the neighbors around the El Dorado HS campus. The proposed project is intended for the El Dorado HS student use on-site rather than traveling off-site. Consequently, an alternative that would restrict the band from using the track/field would not meet the District's basic objectives of the proposed project, which is to enable El Dorado HS student use of the existing track/field during winter months and in the evening. An alternative to restrict band practice would result in additional vehicle trips off-site compared to the proposed project. For these reasons, this alternative was not considered further.

7.4 ALTERNATIVES SELECTED FOR FURTHER ANALYSIS

Based on the criteria listed above, the following two alternatives have been determined to represent a reasonable range of alternatives which have the potential to feasibly attain most of the basic objectives of the project, but which may avoid or substantially lessen any of the significant effects of the project. These alternatives are analyzed in detail in the following sections.

- No Project Alternative
- Restricted Hours Alternative

An EIR must identify an "environmentally superior" alternative and where the No Project Alternative is identified as environmentally superior, the EIR is then required to identify as environmentally superior an alternative from among the others evaluated. Each alternative's environmental impacts are compared to the proposed project and determined to be environmentally superior, neutral, or inferior. Section 7.7 identifies the Environmentally Superior Alternative. The preferred land use alternative (proposed project) is analyzed in detail in Chapter 5 of this DEIR.

7.5 NO PROJECT ALTERNATIVE

The CEQA Guidelines require analysis of a No Project Alternative. The purpose of this alternative is to describe and analyze a scenario under which the proposed project is not implemented so that decision makers can compare the impacts of approving the proposed project with the impacts of not approving the proposed project. The No Project Alternative analysis must discuss the existing site conditions as well as what would reasonably be expected to occur in the foreseeable future based on any current plans, and it must be consistent with available infrastructure and community services.

Under the No Project Alternative, the proposed improvements at El Dorado High School would not be implemented. The project site on campus would not have permanent lighting, and students would continue to practice at an off-site location during the evening and winter months. Portable lights would continue to be used on the athletic field.

7.5.1 Aesthetics

Under this alternative, the project site would not have permanent lighting on the track/field and portable lights would still be used during evening practice and sporting events. No structural or other visible changes to the existing El Dorado HS track/field would occur. Since no physical or operational changes would occur at the project site, this alternative would result in no new impacts to visual/aesthetic resources. Specifically, this alternative would not create new sources of light and spill light as a result of installing light poles. This alternative would eliminate the proposed project's significant impacts on aesthetics. However, the temporary portable lights would continue to be used for athletic activities and events. These temporary lights are shorter than the proposed light poles and could result in spill light and glare. Additionally, the portable lights are not using the latest technologies, such as shielding, which could result in increased glare and spill light exposure for residences north of the project site in comparison to the proposed project. The No Project Alternative would result in slightly greater lighting impacts than the proposed project due to the project's overall reduction of average light spill and impacts under this alternative would be greater than those of the proposed project.

7.5.2 Air Quality

No construction would be required under this alternative; therefore, no construction-related air quality impacts would occur. Under the No Project Alternative, students will continue to travel off-site to other lighted facilities. Implementation of the proposed project would eliminate the need for students to travel off-site for athletic activities and events. Therefore, the long-term emissions from these vehicle trips would continue and would be greater than the proposed project under the No Project Alternative. The No Project Alternative would have less construction air quality impacts compared to the proposed project, but it would continue to have greater operational emissions from vehicle trips.

7.5.3 Greenhouse Gas Emissions

The No Project Alternative would not require construction to occur. Therefore, no construction-related greenhouse gas (GHG) emissions would occur, and this alternative's GHG emissions would be less than the proposed project's less-than-significant impact. As with the proposed project, the No Project Alternative would not conflict with any applicable plans or policies. Overall, the No Project Alternative would avoid the less-than-significant GHG emissions impacts of the project and impacts under this alternative would be less than those of the project.

7.5.4 Noise

No construction would be required under this alternative; therefore, no construction-related noise impacts would occur. Under this Alternative, the band would continue practicing on a daytime-only schedule, which is the current baseline. The proposed project would enable the band to add an additional practice during the evening during winter months and would result in significant and unavoidable exterior noise impacts at the adjacent properties north of the project site. Under the No Project Alternative, the band would not be able to remain on-site for evening practice and this would eliminate impacts related to band noise.

7.5.5 Transportation

No construction would be required under this alternative; therefore, no construction-related transportation impacts would occur and impacts would be less than the proposed project. Under the No Project Alternative, students would continue to travel to off-site locations for practice. Analysis in Chapter 5.5 *Transportation*, states that the proposed project would have no impact to VMT. However, the No Project Alternative would not capture off-site vehicle trips. Under this alternative, impacts related to VMT would be greater than the proposed project because students would travel off-site for practice.

7.5.6 Conclusion

The No Project Alternative would eliminate the proposed project's significant aesthetic impacts and no mitigation would be required. The No Project Alternative would eliminate the significant and unavoidable operational noise impact. This Alternative would not reduce less than significant air quality impacts or transportation impacts related to VMT because students would still be required to leave off-site for practice. The No Project Alternative would not meet any of the project objectives.

7.6 RESTRICTED HOURS ALTERNATIVE

Under the Restricted Hours Alternative, the proposed El Dorado High School Field Lighting Project would be implemented and would include installing four pre-cast concrete bases with four galvanized steel poles 80 feet tall, with light emitting diode (LED) luminaires mounted at 16 feet and 80 feet. The maximum field illumination level would remain at approximately 32 fc. Under this Alternative, the difference from the proposed project is that track/field use would be required to stop at 9:00 p.m. and lights would turn off at 9:00 p.m., instead of 10:00 p.m.

7.6.1 Aesthetics

Under this alternative, impacts to views, scenic quality, light and glare would be similar to the proposed project. The proposed light poles would be installed on campus, however athletic activities and events would be required to end and lights turned off at 9:00 p.m., instead of 10:00 p.m. as proposed. The proposed alternative would result in the same lighting level as the proposed project and would not exceed 0.8 fc at the northern property line. The duration of lighting would be reduced. Therefore, under this alternative, aesthetic impacts would be reduced but remain less than significant.

7.6.2 Air Quality

This Alternative would require the same amount of construction as with the proposed project. Operations under this Alternative would be similar to the proposed project and would result in reducing vehicle trips off-site. Therefore, this alternative would result in similar air quality impacts compared to the proposed project's impacts.

7.6.3 Greenhouse Gas Emissions

Construction would still occur under this alternative similar to the proposed project. Operations would also remain the same as the proposed project. Therefore, this alternative would result in similar greenhouse gas emission impacts compared to the proposed project's impacts to air quality, which are less than significant and do not require any mitigation measures.

7.6.4 Noise

Construction noise, vibration, and operational noise would still be generated under this alternative. Additionally, sensitive receptors close to the project site would still be exposed to significant operational noise due to nighttime band practice. Under this alternative, athletic activities and events would be required to end and lights to be shut off by 9:00 p.m. compared to the project plan of having track/field use end by 10:00 p.m. Compared to the proposed project, this alternative would reduce the impact by shortening the duration of exposure. However, the Restricted Hours Alternative would still result in a significant and unavoidable noise impact.

7.6.5 Transportation

Under this alternative, the proposed light poles would be installed on campus, and therefore, students would be required to travel off-site to athletic fields with lighting in the evenings and during winter. This Alternative would allow students to remain on campus would result in a decrease in VMT compared to existing conditions. Therefore, this alternative would result in similar less-than-significant impacts to transportation.

7.6.6 Conclusion

Alternative 2 would result in similar impacts as the proposed project related to aesthetics, air quality, greenhouse gas emissions, noise, and transportation. This Alternative would reduce the duration of exposure to light and noise; however, impacts would remain similar to the proposed project. Operational noise impacts would remain significant and unavoidable.

Alternative 2 would meet all of the objectives of the project.

7.7 ENVIRONMENTALLY SUPERIOR ALTERNATIVE

CEQA requires a lead agency to identify the "environmentally superior alternative" and, in cases where the "No Project" Alternative is environmentally superior to the proposed project, the environmentally superior development alternative must be identified. One alternative has been identified as "environmentally superior" to the proposed project:

The Restricted Hours Alternative would reduce the duration of impacts associated with band noise in the evening. The Restricted Hours Alternative meets the project objectives, but with reduced hours of El Dorado HS track/field use. However, even with reduced hours of allowed field usage, operational noise impacts remain significant and unavoidable.

8. Impacts Found Not to Be Significant

California Public Resources Code Section 21003 (f) states:

> *…it is the policy of the state that…[a]ll persons and public agencies involved in the environmental review process be responsible for carrying out the process in the most efficient, expeditious manner in order to conserve the available financial, governmental, physical, and social resources with the objective that those resources may be better applied toward the mitigation of actual significant effects on the environment.*

This policy is reflected in the California Environmental Quality Act (CEQA) Guidelines (Guidelines) Section 15126.2(a), which states that

> *… [a]n EIR [environmental impact report] shall identify and focus on the significant environmental impacts of the proposed project…*

and Section 15143, which states that

> *…[t]he EIR shall focus on the significant effects on the environment.*

Guidelines Section 15128 requires that an EIR contain a statement briefly indicating the reasons that various possible significant effects of a project were determined not to be significant and were therefore not discussed in detail in the DEIR.

This chapter includes an environmental analysis and finding of no impact or less than significant impact for the topics that were precluded from detailed discussion in Chapter 5, *Environmental Analysis*, of this DEIR.

Impacts to agriculture and forestry resources, biological resources, cultural resources, energy, geology and soils, hazards and hazardous materials, hydrology and water quality, land use and planning, mineral resources, population and housing, public services, recreation, tribal cultural resources, utilities and service systems, and wildfire were determined to be less than significant during scoping for the EIR. The following sections provide the thresholds of significance and a brief analysis supporting the determination of no impact or less than significant impacts. Threshold letters correspond to the lettering in Appendix G of the CEQA Guidelines.

8.1 AGRICULTURE AND FORESTRY RESOURCES

In determining whether impacts on agriculture and farmland are significant environmental effects, lead agencies may refer to the California Important Farmland Finder Map prepared by the California Department of Conservation's (DOC) Farmland Mapping and Monitoring Program (FMMP), updated in 2022. The FMMP identifies and maps significant farmland. Farmland is classified using a system of five categories: Prime Farmland, Farmland of Statewide Importance, Unique Farmland, Farmland of Local Importance, and Grazing Land. The classification of farmland as Prime Farmland, Unique Farmland, and Farmland of Statewide

Importance is based on the suitability of soils for agricultural production, as determined by a soil survey conducted by the Natural Resources Conservation Service. The DOC manages the Williamson Act Contract Land Map showing William Act Contracts, updated in 2017.

Would the project:

a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?

No Impact. The proposed project would install permanent lighting on an existing high school synthetic track/field within an existing high school campus. There are no agricultural uses within the El Dorado HS campus. The campus is identified as Urban Built-Up Land and is not identified as an area of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (DOC 2022a). The campus is adjacent to a residential area and is not located adjacent to areas designated as unique farmland, prime farmland, or farmland of statewide importance; thus, the proposed project would not physically impact nor alter the use of agricultural fields. Therefore, the proposed project would not alter any farmland resources, and no impacts would occur.

b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?

No Impact. Williamson Act contracts restrict the use of privately owned land to agriculture and compatible open-space uses under contract with local governments; in exchange, the land is taxed based on actual use rather than potential market value. The campus is not subject to a Williamson Act contract, and the existing zoning is R-1 (Single-Family Residential District) and the general plan land use designation for the campus is Schools. The campus is not zoned for agricultural use. Implementation of the proposed project would not conflict with zoning for agricultural use, or a Williamson Act contract. Therefore, no impact would occur.

c) Conflict with existing zoning for, or cause rezoning of, forest land (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))?

No Impact. Forest land is defined as "land that can support 10-percent native tree cover of any species, including hardwoods, under natural conditions, and that allows for management of one or more forest resources, including timber, aesthetics, fish and wildlife, biodiversity, water quality, recreation, and other public benefits" (PRC §12220(g)). Timberland is defined as "land….which is available for, and capable of, growing a crop of trees of any commercial species used to produce lumber and other forest products, including Christmas trees" (PRC §4526). The proposed project would occur within the boundaries of an existing high school and the campus is not zoned for forest land or timberland. There are no timberland-zoned production areas within the campus or surrounding areas Implementation of the proposed project would not conflict with existing zoning for forest land or timberland. No impact would occur.

d) Result in the loss of forest land or conversion of forest land to non-forest use?

No Impact. The project site is located on the existing El Dorado HS campus within a built-out area of the City of Placentia. There are no significant forest land uses present on-site nor in the immediate vicinity. Implementation of the proposed project would not require any changes to the existing environment that would result in the conversion of forest land to non-forest use. Therefore, no impacts would occur.

e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?

No Impact. The proposed project would occur within the boundaries of the existing El Dorado HS in a built-out area of the City of Placentia, and no significant agricultural uses or forest land uses are present on-site nor in the immediate vicinity. Installation of the four light poles would not result in the conversion of farmland to non-agricultural uses or forest land to non-forest use. Therefore, no impact would occur.

8.2 BIOLOGICAL RESOURCES

Would the project:

a) 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 the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?

No Impact. Special status species include those listed as endangered or threatened under the federal Endangered Species Act or California Endangered Species Act; species otherwise given certain designations by the California Department of Fish and Wildlife; and plant species listed as rare by the California Native Plant Society. The areas to be disturbed by the proposed project are developed with the existing athletic facilities of the high school campus, which is located within the City of Placentia. The City of Placentia's Conservation Element notes that the City is almost completely urbanized and landscaped with mostly nonnative species. The project site is already disturbed and developed as part of an existing high school campus and there is no suitable breeding or foraging habitat on-site for any sensitive species. There is no native habitat and no suitable habitat for threatened, endangered, or rare species on or near the site. The likelihood of species dispersal, whether plants or wildlife, from surrounding areas to the campus is very low. Therefore, no impact would occur to special-status species.

b) 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?

No Impact. Sensitive natural communities are natural communities that are considered rare in the region by regulatory agencies; that are known to provide habitat for sensitive animal or plant species; or are known to be important wildlife corridors. Riparian habitats are those occurring along the banks of rivers and streams. The U.S. Fish and Wildlife Service (USFWS) manages the National Wetlands Inventory (NWI), a digital Wetlands

Mapper with vetted data to represent current information on wetlands, riparian, and deep-water habitats (USFWS 2022). There are no riparian habitats mapped on the National Wetlands Mapper maintained by the USFWS within the boundaries of the existing campus (USFWS 2022). The proposed lighting installation would occur within the boundaries of an existing high school and would not impact riparian or other sensitive habitat. The project site does not contain any sensitive natural community or riparian habitat. Therefore, no impact would occur.

c) Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

No Impact. Wetlands are defined under the federal Clean Water Act as land that is flooded or saturated by surface water or groundwater at a frequency and duration sufficient to support, and that normally does support, a prevalence of vegetation adapted to life in saturated soils. Wetlands include areas such as swamps, marshes, and bogs. There are no wetlands mapped on the USFWS's NWI Wetlands Mapper within the boundaries of the campus (USFWS 2022). Implementation of the proposed project would not impact any wetlands. Therefore, no impact would occur.

d) 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?

No Impact.

Wildlife corridors refer to established migration routes commonly used by resident and migratory species for passage from one geographic location to another. Movement corridors may provide favorable locations for wildlife to travel between different habitat areas, such as foraging sites, breeding sites, cover areas, and preferred summer and winter range locations. They may also function as dispersal corridors allowing animals to move between various locations within their range.

The proposed project would require minimal ground disturbance around the existing track/field; however, the entire campus is fully developed with an existing high school and is not suitable to function as a corridor for migratory wildlife. The proposed project would not remove any trees, which can be used by migratory birds. The proposed project would not interfere with the movement of any wildlife species or impede the use of native wildlife nursery sites. Therefore, no impact would occur.

e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

No Impact. The proposed project would not require removal of any trees. Therefore, no impact would occur.

f) **Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?**

No Impact. The proposed project would install sports lighting within the boundaries of the existing El Dorado HS campus. The proposed project would not conflict with the provisions of a habitat conservation plan or natural community conservation plan. Therefore, no impact would occur.

8.3 CULTURAL RESOURCES

Would the project:

a) **Cause a substantial adverse change in the significance of a historical resource pursuant to § 15064.5?**

No Impact. The proposed four light poles would be installed at the existing track/field on the campus. El Dorado HS is not listed in the National Register of Historic Places, California Historical Landmarks and Points of Historical Interest, or State Historic Structures, and the proposed project would not demolish any structures or buildings (NPS 2022; OHP 2022). Therefore, the project would not cause a substantial adverse change in the significance of a historical resource. No impact to historical resources would occur.

b) **Cause a substantial adverse change in the significance of an archaeological resource pursuant to § 15064.5?**

Less than Significant Impact. Implementation of the proposed project would result in limited soil disturbance to install light poles. Augers would be used to drill holes to install light poles within the existing sports facilities. No grading or trenching would be required. The proposed project would occur within the existing campus boundaries developed with various buildings and athletic facilities; therefore, the potential discovery of archaeological resources would be minimal. However, if any buried resources are unearthed during any of the ground-disturbing activities, a custom caution and a halt-work would be required to ensure that adverse impacts to archaeological resources do not occur. Impacts would be less than significant.

c) **Disturb any human remains, including those interred outside of dedicated cemeteries**

Less than Significant Impact. There are no cemeteries or known human burials at the campus, which has been previously disturbed during construction of the existing school. The proposed project would not require grading or trenching. Augers would be used to drill holes to install light poles within the existing sports facilities. In the unlikely event that human remains are uncovered during project construction, Government Code Sections 27460 et seq. mandates that there shall be no further excavation or soil disturbance until the county coroner has determined that the remains are not subject to the provisions of Section 27491 of the Government Code or any other related provisions of law concerning investigation of the circumstances, manner, and cause of death, and the required recommendations concerning the treatment and disposition of the human remains have been made to the person responsible for the excavation, or to his or her authorized representative, in the manner provided in PRC Section 5097.98.

Pursuant to California Health and Safety Code Section 7050.5, the coroner shall make his or her determination within two working days of notification of the discovery of the human remains. If the coroner determines that the remains are not subject to his or her authority and has reason to believe that they are those of a Native American, he or she shall contact the Native American Heritage Commission within 24 hours. Adherence to existing legal requirements associated with human remains would reduce impacts associated with the disturbance of human remains. Therefore, impacts would be less than significant, and this impact will not be further analyzed in the EIR.

8.4 ENERGY

Would the project:

a) **Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?**

Less Than Significant Impact. The proposed project would result in short-term construction and long-term operational energy consumption. The following discusses the potential energy demands from activities associated with the installation and operation of stadium lighting at El Dorado HS.

Short-Term Construction Impacts

Construction of the proposed project would create temporary increased demands for electricity and vehicle fuels compared to existing conditions.

Electrical Energy

Electricity use during construction of the proposed project would vary during different phases of construction. The majority of construction equipment would be gas- or diesel-powered, and electricity would not be used to power most of the construction equipment. If electric-powered construction equipment is needed, it would likely be hand tools (e.g., power drills) and lighting, which would result in minimal electricity usage during construction activities. Therefore, project-related construction activities would not result in wasteful or unnecessary electricity demands, and impacts would be less than significant.

Natural Gas Energy

It is not anticipated that construction equipment used for the proposed project would be powered by natural gas. Therefore, no natural gas demand is anticipated during construction and there would be no impact with respect to natural gas usage.

Transportation Energy

Transportation energy use during construction of the proposed project would come from delivery vehicles and construction employee vehicles. In addition, transportation energy demand would come from use of off-road construction equipment. It is anticipated that the majority of off-road construction equipment, such as those used during site preparation, would be gas or diesel powered. The use of energy resources by these vehicles would fluctuate according to the phase of construction.

To limit wasteful and unnecessary energy consumption, the construction contractors are anticipated to minimize nonessential idling of construction equipment during construction, in accordance with 13 CCR § 2449. In addition, construction trips would not result in unnecessary use of energy since the project site is centrally located and is served by numerous regional freeway systems (e.g., SR-90 and SR-57) that provide the most direct routes from various areas of the region. Moreover, all construction equipment would cease operating upon completion of project construction. Thus, energy use during construction of the proposed project would not be considered inefficient, wasteful, or unnecessary. Impacts would be less than significant.

Long-Term Impacts During Operation

Operation of the proposed project would generate new demand for electricity on the project site. Operational use of energy would include stadium lighting for the existing field.

Electrical Energy

Electrical service to the proposed project would be provided by Southern California Edison through connections to existing off-site electrical lines and new on-site infrastructure. As shown in Table 8-1, *Electricity Consumption*, implementation of the proposed project would result in 27,066 kilowatt hours of electricity use per year.

Table 8-1 Electricity Consumption

Land Use	Electricity (kWh/year)
Proposed Project Conditions	
Stadium Lighting[1]	27,066

Note: kWh = kilowatt hour(s)

[1] Based on Musco lighting plans provided by the District. See Appendix B for calculations.

The new stadium lighting would use LED lights and would replace the temporary diesel-powered and electric-powered portable lighting currently in use. In addition, these lights would only be operated during the evening. Therefore, operation of the proposed project would not result in wasteful or unnecessary electricity demands and would not result in a significant impact related to electricity.

Natural Gas Energy

The proposed project would involve installation of stadium lighting, which would not generate demand for natural gas. Therefore, operation of the proposed project would have no impact with respect to natural gas usage.

Transportation Energy

As shown in Section 5.5, *Transportation*, the installation of lights at the El Dorado HS track/field would provide the opportunity for student athletes to attend practices at their school. The proposed project would eliminate the need to travel to another field and would serve as a project benefit, as it would minimize VMT and transportation-related fuel usage. Therefore, impacts would be less than significant with respect to operation-related fuel usage.

b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?

No Impact. The state's electricity grid is transitioning to renewable energy under California's Renewable Energy Program. Renewable sources of electricity include wind, small hydropower, solar, geothermal, biomass, and biogas. Electricity production from renewable sources is generally considered carbon neutral. Executive Order S-14-08, signed in November 2008, expanded the state's renewable portfolios standard (RPS) to 33 percent renewable power by 2020. This standard was adopted by the legislature in 2011 (SB X1-2). Senate Bill (SB) 350 (de Leon) was signed into law September 2015 and establishes tiered increases to the RPS—40 percent by 2024, 45 percent by 2027, and 50 percent by 2030. SB 350 also set a new goal to double the energy-efficiency savings in electricity and natural gas through energy efficiency and conservation measures. On September 10, 2018, Governor Brown signed SB 100, which supersedes the SB 350 requirements. Under SB 100, the RPS for publicly owned facilities and retail sellers consist of 44 percent renewable energy by 2024, 52 percent by 2027, and 60 percent by 2030. Additionally, SB 100 established a new RPS requirement of 50 percent by 2026. The bill also established a state policy that eligible renewable energy resources and zero-carbon resources supply 100 percent of all retail sales of electricity to California end-use customers and 100 percent of electricity procured to serve all state agencies by December 31, 2045. Under SB 100 the state cannot increase carbon emissions elsewhere in the western grid or allow resource shuffling to achieve the 100 percent carbon-free electricity target. In addition, SB 1020 was signed into law on September 16, 2022. It requires renewable energy and zero-carbon resources to supply 90 percent of all retail electricity sales by 2035 and 95 percent by 2040. Additionally, SB 1020 requires all state agencies to procure 100 percent of electricity from renewable energy and zero-carbon resources by 2035.The proposed project would eliminate the need for the temporary diesel-powered lighting currently in use and would instead use electricity supplied by SCE. While the statewide RPS goal is not directly applicable to individual development projects, it would apply to utilities and energy providers such as SCE, which is the utility that would provide all of electricity needs for the proposed project. Compliance of SCE in meeting the RPS goals would ensure the State meets its objective in transitioning to renewable energy. Therefore, implementation of the proposed project would not conflict or obstruct plans for renewable energy and energy efficiency, and no impact would occur.

8.5 GEOLOGY AND SOILS

Would the project:

a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:

i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning map, issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.

Less Than Significant Impact. The Alquist-Priolo Earthquake Fault Zoning Act was signed into California law in 1972 to reduce losses from surface fault rupture. California created this law following the destructive 1971 San Fernando earthquake (magnitude 6.6), which was associated with extensive surface fault ruptures that damaged numerous structures.

Alquist-Priolo Earthquake Fault Zones are regulatory zones surrounding the surface traces of active faults in California.[1] Wherever an active fault exists, if it has the potential for surface rupture, a structure for human occupancy cannot be placed over the fault and must be a minimum distance from the fault (generally 50 feet). An active fault, for the purposes of the Alquist-Priolo Act, is one that has ruptured in the last 11,000 years (DOC 2022b).

According to the City's General Plan, there are no Alquist-Priolo Earthquake Fault Zones within the city limits. Although the City is located in a seismically active Southern California, there are no faults mapped within the campus or immediate surrounding area; El Dorado HS is not located within an Alquist-Priolo Earthquake study zone (DOC 2022c). Additionally, provided that the light poles are installed in accordance with the applicable California Building Code (CBC) and Division of the State Architect (DSA) criteria for seismic safety, less than significant impacts from these major faults are anticipated.

ii) Strong seismic ground shaking?

Less Than Significant Impact. Southern California is a seismically active region. Impacts from ground shaking could occur many miles from an earthquake epicenter. The potential severity of ground shaking depends on many factors, including the distance from the originating fault, the earthquake magnitude, and the nature of the earth materials beneath a given site. Although there are no active faults running through the City, all of southern California is a seismically active area and shaking from nearby faults could result in significant damage (Placentia 2019). The nearest active faults to the project site are the Whittier Fault (2.5 miles to the north), Peralta Fault (4 miles to the southeast), the Norwalk Fault (6.9 miles to the west), Puente Hills Fault (7.7 miles to the west), the Newport-Inglewood Fault (16.4 miles to the southwest), the Sierra Madre Fault (27 miles to the north), the San Jacinto Fault (31 miles to the northeast), and the San Andreas Fault (34 miles to the north-northeast). The project would be designed in compliance with seismic requirements of the DSA criteria for seismic safety. Compliance with established standards would reduce the risk of structural collapse or other shaking-related hazards. Impacts would be less than significant.

iii) Seismic-related ground failure, including liquefaction?

Less Than Significant Impact. Liquefaction refers to loose, saturated sand or gravel deposits that lose their load-supporting capability when subjected to intense shaking. The California Department of Conservation (DOC) maintains an interactive map that shows Alquist-Priolo Hazard Zones, Landslide Zones, Liquefaction Zones, Fault Activity, etc. According to the DOC Data Viewer map, much of the project site is not in an area known to be susceptible to liquefaction (DOC 2022d). Additionally, the proposed project would be designed in compliance with seismic requirements of the most current CBC

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[1] A trace is a line on the earth's surface defining a fault.

and the DSA criteria for seismic safety, including from liquefaction impacts. The potential for liquefaction is low. Therefore, impacts would be less than significant.

iv) Landslides?

Less Than Significant Impact. Landslides are a type of erosion in which masses of earth and rock move downslope as a single unit. Susceptibility of slopes to landslides and lurching (earth movement at right angles to a cliff or steep slope during ground shaking) depend on several factors that are usually present in combination—steep slopes, condition of rock and soil materials, presence of water, formational contacts, geologic shear zones, and seismic activity. The campus is not within a landslide zone (DOC 2022d). The El Dorado HS campus and adjacent properties lack significant topography, are generally flat, and exhibit no significant geologic formations such as geologic shear zones. In the absence of significant ground slopes, the potential for landslides is considered negligible. Implementation of the proposed project would not expose people or structures to substantial adverse hazards due to landslides, and impacts would be less than significant. Impacts would be less than significant.

b) Result in substantial soil erosion or the loss of topsoil?

Less Than Significant Impact. Erosion is a normal and inevitable geologic process whereby earthen materials are loosened, worn away, decomposed, or dissolved and removed from one place and transported to another. The project site is developed with buildings and athletic facilities. Implementation of the proposed project would require limited softscape and hardscape demolition to drill holes for the installation of the light poles. The areas to be disturbed would be approximately nine square feet per pole, with a total of four light poles. Therefore, the area disturbed for the project would be approximately 36 square feet. Considering the limited areas to be disturbed and exposed, the proposed project would not result in substantial soil erosion or the loss of topsoil. Impacts would be less than significant.

c) 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?

Less Than Significant Impact. As discussed in Sections 3.7.a.iii and 3.7.a.iv, impacts from liquefaction and landslides would be less than significant.

Lateral spreading is a phenomenon where large blocks of intact, nonliquefied soil move downslope on a large, liquefied substratum. The mass moves toward an unconfined area, such as a descending slope or stream-cut bluff and has been known to move on slope gradients as little as one degree. The topography of the sports facilities at El Dorado HS is generally flat. Therefore, impacts from lateral spreading would be less than significant.

Subsidence and collapse are generally due to substantial overdraft of groundwater or underground petroleum reserves. Collapsible soils may appear strong and stable in their natural (dry) state, but they rapidly consolidate under wetting, generating large and often unexpected settlements. Seismically induced settlement consists of dynamic settlement of unsaturated soil (above groundwater) and liquefaction-induced settlement (below groundwater). These settlements occur primarily in low-density sandy soil due to the reduction in volume during and shortly after an earthquake. El Dorado HS campus is not in an area of recorded subsidence (USGS 2022). Impacts would be less than significant.

d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?

Less Than Significant Impact. Highly expansive soils swell when they absorb and shrink as they dry and can cause structural damage to building foundations. Therefore, they are less suitable for development than nonexpansive soils. The soil on campus and around the track/field consist of Mocho Loam (USDA 2022). Mocho Loam is well-drained sandy soil with low to very low runoff class rates and low shrink-swell or expansion characteristics. Moreover, the light poles would be installed in compliance with the applicable CBC and DSA requirements. Therefore, potential impacts related to subsidence and collapsible soil would be reduced to a less than significant level.

e) 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?

No Impact. The proposed project would not use any septic tanks or alternative wastewater disposal system. No impact would occur.

8.6 HAZARDS AND HAZARDOUS MATERIALS

Would the project:

a) Create a significant hazard to the public or the environment through the routine transport, use or disposal of hazardous materials?

No Impact. Installation of nighttime sports lighting at the existing high school would not require extensive use of hazardous materials or substances. The project would not result in new or expanded routine transport, use or disposal of hazardous materials. No impact is anticipated.

b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?

No Impact. Installation and operation of nighttime sports lighting at the project site would not create a significant hazard to the public or the environment. The location of the existing sports facilities would not change, and the proposed project would not place students or public any closer to existing hazardous conditions or materials. Use of hazardous materials during construction or operation of the proposed project is not anticipated. No impact would occur.

c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

Less Than Significant Impact. Installation and operation of nighttime sports lighting at the project site would not emit hazardous emissions or involve handling hazardous materials, substances, or waste. Construction of light poles would not involve hazardous materials other than diesel fuels used for construction equipment such as backhoes, augers, concrete saws, etc. Therefore, impacts would be less than significant.

d) 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?

No Impact. California Government Code Section 65962.5 requires the California Environmental Protection Agency to compile a list (updated at least annually) of hazardous waste and substances release sites, known as the Cortese List or California Superfund. Section 65962.5 requires compiling lists of the following types of hazardous materials sites: hazardous waste facilities; hazardous waste discharges for which the State Water Quality Control Board has issued certain types of orders; public drinking water wells containing detectable levels of organic contaminants; underground storage tanks with reported unauthorized releases; and solid waste disposal facilities from which hazardous waste has migrated. Five environmental lists were searched for hazardous materials sites on the project site.

- GeoTracker. State Water Resources Control Board (SWRCB 2022)
- EnviroStor. Department of Toxic Substances Control (DTSC 2022).
- EJScreen. US Environmental Protection Agency (USEPA 2022a).
- EnviroMapper. US Environmental Protection Agency (USEPA 2022b).
- Solid Waste Information System. California Department of Resources Recovery and Recycling (CalRecycle 2022).

The project site is not listed on any of the databases. The project would not create a hazard to the public because of a hazardous materials site pursuant to Government Code Section 65962.5. No impact is anticipated.

e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles or 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?

No Impact. The El Dorado HS campus is outside of any airport influence area. The nearest airport to the campus is the Fullerton Municipal Airport, located approximately 10-miles west southwest of the project site. The Fullerton Municipal Airport's influence area is restricted to within the immediate surroundings of the airport and does not extend to the project site. The proposed project would not interfere with inbound or outbound flights of any airport. Implementation of the proposed project would not result in safety hazards or excessive noise impacts for people residing or working in the project area. No impact would occur.

f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

Less Than Significant Impact. The proposed project would occur within the existing high school boundaries, and operation of the lighted sports facilities would not impair or interfere with any existing vehicular or pedestrian emergency response plan or evacuation plan. All construction staging would be within the high school boundaries, and no off-site roadway or lane closures are anticipated. Therefore, impacts would be less than significant.

g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?

Less Than Significant Impact. El Dorado HS is not in or near a very high fire hazard severity zone (VHFHSZ) according to the California Department of Forestry and Fire Protection's (CAL FIRE) FHSZs map (CAL FIRE 2022). The campus is in an urban area, and there are no wildlands susceptible to wildfire on or near the campus. Installation of sports lighting at the existing track/field would not change the existing school boundaries and would not place new track/field or students closer to wildlands or a VHFHSZ. Therefore, the proposed project would not directly or indirectly expose people or structures to a significant risk of loss, injury, or death involving wildland fires. Impacts would be less than significant.

8.7 HYDROLOGY AND WATER QUALITY

Would the project:

a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?

Less Than Significant Impact. A significant impact would occur if the project discharges water that does not meet the quality standards of agencies that regulate surface water quality and discharges into the stormwater drainage system. During construction, water quality impacts could occur from discharge of soil through erosion, sediments, and other pollutants. The State Water Resources Control Board's National Pollutants Discharge Elimination System (NPDES) program regulates industrial pollutant discharges, including construction activities for sites larger than one acre. Because each pole would disturb about 9 square feet, the proposed project would disturb from about 36 square feet (9 square feet x 4 poles) of impervious areas at the campus, the NPDES program would not be applicable, and a significant construction water quality impact is not anticipated. Also, after the holes for the light poles are drilled, they would be cured with concrete, so soil erosion and sediment impacts would be minimized. Construction of the proposed project would not violate any water quality standards.

The proposed project would not change the land uses of the existing sports facilities causing a violation of any water quality standards or waste discharge requirements. Long-term water quality impacts generally result from impervious surfaces (e.g., buildings, roads, parking lots, and walkways), which prevent water from soaking into the ground and can increase the concentration of pollutants in stormwater runoff, such as oil, fertilizers, pesticides, trash, soil, and animal waste. The project would be constructed on an existing high school campus, and the impervious surfaces created by the proposed project would be negligible (up to 36 square feet). Impacts would be less than significant.

b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?

No Impact. The high school campus is not used for intentional groundwater recharge, and the proposed project would not create additional demand for groundwater because it would accommodate existing sports programs for students already attending the school. The project does not include new groundwater wells that would extract groundwater from the aquifer. Construction and operation of the proposed project would not lower the groundwater table or deplete groundwater supplies. Therefore, the project would not interfere with groundwater recharge. No impact would occur.

c) 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:

i) Result in a substantial erosion or siltation on- or off-site?

Less Than Significant Impact. Erosion is a normal and inevitable geologic process whereby earthen materials are loosened, worn away, decomposed or dissolved, and moved from one place to another. Precipitation, running water, waves, and wind are all agents of erosion. Ordinarily, erosion proceeds imperceptibly, but when the natural equilibrium of the environment is changed, the rate of erosion can greatly accelerate. This can create aesthetic as well as engineering problems on undeveloped sites. Accelerated erosion in an urban area can cause damage by undermining structures; blocking storm drains; and depositing silt, sand, or mud on roads and in tunnels. Eroded materials can eventually be deposited in local waters, where the carried silt remains suspended in the water for some time, constituting a pollutant and altering the normal balance of plant and animal life.

The project site is already developed with an existing campus and various sports facilities that are subject to imperceptible urban erosion and siltation. The areas disturbed by the proposed project would be limited to four poles at the school. It is anticipated that each hole drilled for the light pole would be approximately 9 square feet, and once the hole is drilled, it would be backfilled with concrete and cured within a week. Therefore, impacts from erosion or siltation from installation of poles would be less than significant.

ii) Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite?

Less Than Significant Impact. The project site is already developed with sports facilities. The areas impacted by the proposed project would be limited to four poles. Considering that each pole with concrete base would impact approximately 9 square feet, the proposed project would result in an additional 36 square feet (9 square feet x 4 poles). Therefore, considering the total acreage of the high school, the increase in impervious areas is negligible, and the proposed project would not substantially increase the rate or amount of surface runoff to result in on- or off-site flooding. Impacts would be less than significant.

iii) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?

Less Than Significant Impact. The proposed project would result in a negligible increase in the overall impervious surface areas of the high school. Therefore, the proposed project would not substantially change the volume and quality of the runoff from existing sports facilities. The areas impacted by the proposed project would be limited to the number of poles installed, which would be four poles. Considering that each pole's concrete base would impact approximately 9 square feet, the proposed project would result in an additional 36 square feet (9 square feet x 4 poles) of impervious areas. Therefore, implementation of the proposed project would not substantially increase runoff water to existing drainage systems compared to existing conditions. Project-related changes to the existing synthetic track/field would not create additional sources of polluted runoff. Impacts would be less than significant.

iv) Impede or redirect flood flows?

Less Than Significant Impact. El Dorado HS campus is not within a 100-year or 500-year Flood Zone (FEMA Map ID# 06059C0063J) (FEMA 2009). As discussed in 3.10(c)(ii), the proposed project would not substantially increase the overall quantity of impervious areas or runoff speed, and any impacts on flooding would be negligible. The proposed project would not increase the flooding hazard at the school. The project would not impede or redirect flood flows. Impacts would be less than significant.

d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?

No Impact. A seiche is a surface wave created when a body of water is shaken, usually by earthquake activity. Seiches are of concern relative to water storage facilities because inundation from a seiche can occur if the wave overflows a containment wall, such as the wall of a reservoir, water storage tank, dam, or other artificial body of water. El Dorado HS is not within a dam inundation area (CDWR 2022). The campus is approximately 17 miles northeast of the Pacific Ocean and would not increase the risk of exposure to a tsunami. Operation of the proposed lights would not require additional storage and use of hazardous materials on-site. The proposed project would not increase the risk of releasing pollutants due to project inundation. No impact would occur.

e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

No Impact. The proposed project would not obstruct or conflict with the implementation of a water quality control plan or sustainable water management plan. Considering the size and scale of the proposed project, the proposed project would not create substantial water quality impacts during construction and operation, and therefore would not conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan. No impact would occur.

8.8 LAND USE AND PLANNING

Would the project:

a) Physically divide an established community?

No Impact. The project site is within an established and operating high school campus. The surrounding area is fully developed with urban lands uses, including residential land uses. The proposed project would occur within the boundaries of the existing high school to serve its existing athletic facilities. No community would be physically divided, and no impact would occur.

b) 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?

No Impact. The proposed project would occur on an existing high school to serve its athletic facilities. The campus is zoned as R-1 (Single-Family Residential District) and the general plan land use designation for the campus is Schools. Installation of the light poles would not result in land use changes or require modifications to the land use and zoning designations of the project site. Installation of the light poles would not conflict with any applicable land use plans, policies, or regulations. Therefore, no impact would occur.

8.9 MINERAL RESOURCES

Would the project:

a) Result in the loss of availability of a known mineral resource that would be a value to the region and the residents of the state?

No Impact. In 1975, the State legislature adopted the Surface Mining and Reclamation Act (SMARA). This designated Mineral Resources Zones that were of statewide or regional importance. The classifications used to define MRZs are:

- **MRZ-1:** Areas where the available geologic information indicates no significant mineral deposits or a minimal likelihood of significant mineral deposits.
- **MRZ-2:** Areas where the available geologic information indicates that there are significant mineral deposits or that there is a likelihood of significant mineral deposits.

- **MRZ-3:** Areas where the available geologic information indicates that mineral deposits are likely to exist, however, the significance of the deposit is undetermined.
- **MRZ-4:** Areas where there is not enough information available to determine the presence or absence of mineral deposits.

The California Department of Conservation Division of Geological Survey produces Mineral Land Classification studies that identify areas with potentially important mineral resources. The Department of Conservation Mineral Land Classification Map shows that the area where El Dorado HS is located is mapped within an MRZ-1 (DOC 2022d). Additionally, no mineral resources are being extracted from the campus. Implementation of the proposed project would not result in the loss of availability of a known mineral resource. No impact to known mineral resources would occur.

b) 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?

No Impact. El Dorado HS is located within an MRZ-1 where information indicates no significant mineral deposits or a minimal likelihood of significant mineral deposits. The project site is developed as a high school and is not a locally important mineral resource recovery site. Implementation of the proposed project would not result in the loss of a locally important mineral resource recovery site. No impact would occur.

8.10 POPULATION AND HOUSING

Would the project:

a) 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)?

No Impact. The campus is located within a built-out, urbanized community, and no new roads or extensions of existing roads are proposed. The proposed project does not include the construction of any new homes or businesses or changes to the existing land uses onsite. The proposed project is designed to serve the current and planned student population. The proposed project would not result in increased student capacity. No impacts related to population growth would occur.

b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?

No Impact. No housing exists on the high school campus. The proposed project would not require relocation or construction of replacement housing; therefore, no impact would occur.

8.11 PUBLIC SERVICES

Would the project:

a) Fire protection?

Less Than Significant Impact. The Orange County Fire Authority (OCFA) provides fire and emergency medical services to the City of Placentia, including the project site. The nearest fire station to El Dorado HS is the Placentia Fire And Life Safety Station 2, which is 0.2-mile southeast of the high school.

The proposed project is intended to extend usable hours of the existing sports facilities by installing lighting so that students are not required to travel off-site. Therefore, the proposed project would not increase enrollment or capacity of high school, including bleacher seat capacity. Additionally, the proposed project would not modify any existing fire lanes at the school. The project site is already served by OCFA, and the proposed project would accommodate the existing school programs and students. Therefore, the nighttime use of the school sports facilities would not substantially increase the fire protection demands compared to the existing conditions. Project implementation would have a less than significant impact on fire protection facilities.

b) Police protection?

Less Than Significant Impact. El Dorado HS and surrounding areas are already served by existing polices forces, and the proposed project would not substantially increase the need for police protection services because the student enrollment and capacity would not increase. This project would not require Placentia Police Department to expand or build new facilities, and impacts would be less than significant.

c) Schools?

No Impact. The proposed project would not increase the demand for new or expanded public schools. No impact would occur.

d) Parks?

Less Than Significant Impact. Impacts to public parks are generally caused by population or employment growth. The proposed project would provide improvements to an existing high school's track/field and would not induce growth or influence housing in the area to create additional demands for parks. Therefore, no physical impacts to parks and recreation would occur.

e) Other public facilities?

No Impact. Physical impacts to public services are usually associated with population in-migration and growth, which increase the demand for public services and facilities. The project would not result in impacts associated with the provision of other new or physically altered public facilities (e.g., libraries, hospitals, childcare, teen or senior centers). The project would not induce population growth. No impacts to other public facilities would occur.

8.12 RECREATION

Would the project:

a) **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?**

No Impact. Implementation of the proposed project would allow extended use of the existing El Dorado HS track/Field by installing nighttime sports lighting at the high school. The proposed project would accommodate the existing school programs and students already served by the District. The proposed lighting would allow additional community use of these facilities, but this use is limited and would not result in substantial physical deterioration. Implementation of the proposed project would not increase the number of people served by the existing parks or other recreational facilities or displace existing recreational facilities so that the use of other parks or recreational facilities would be increased. No impact would occur.

b) **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?**

Less Than Significant Impact. Implementation of the proposed project would allow extended use of the existing District sports facilities by installing nighttime sports lighting at El Dorado HS. Physical effects of providing sports lighting are addressed throughout this DEIR. No other construction or expansion of recreational facilities other than the proposed project would be required as part of the proposed project. As discussed in various sections of this DEIR, the proposed project would not result in adverse physical effect on the environment with mitigation. Impacts would be less than significant.

8.13 TRIBAL CULTURAL RESOURCES

Would the project:

a) **Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code § 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:**

   i) **Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or**

No Impact The proposed sports lighting would be installed on the existing El Dorado HS track/field. The area to be disturbed by the proposed project is not in the listings or eligible for listing on the California Register of Historical Resources, or in a local register of historical resources. Therefore, implementation of the proposed project would not impact tribal cultural resources pursuant to Public Resources Code Section 21074(a)(1). No impact to historical resource would occur.

ii) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code § 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code § 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.

No Impact. As part of the AB 52 process, Native American tribes must submit a written request to the District to be notified of projects within their traditionally and culturally affiliated area. District must provide written, formal notification to those tribes within 14 days of deciding to undertake a project. The tribe must respond to the District within 30 days of receiving this notification if they want to engage in consultation on the project, and the District must begin the consultation process within 30 days of receiving the tribe's request. Consultation concludes under these circumstances 1) the parties agree to mitigation measures to avoid a significant effect on a tribal cultural resource; 2) a party, acting in good faith and after reasonable effort, concludes mutual agreement cannot be reached; or 3) a tribe does not engage in the consultation process or provide comments.

The District has not been contacted, per AB 52, and the consultation process has not been triggered.

No known tribal cultural resources are within the project site. The area to be disturbed by the proposed project is not in the listings or eligible for listing on the California Register of Historical Resources, or in a local register of historical resources. Therefore, implementation of the proposed project would not impact tribal cultural resources pursuant to Public Resources Code Section 21074(a)(1). No impact to tribal cultural resources would occur.

8.14 UTILITIES AND SERVICE SYSTEMS

Would the project:

b) Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?

Less Than Significant Impact.

Water Treatment

The Municipal Water District of Orange County provides water services to the city, including the El Dorado HS campus. The proposed project involves installation of sports lighting to the existing synthetic track/field within the footprint of the existing high school campus. The proposed project would not increase the existing student capacity or expand school programs to require additional water demand. Therefore, the overall demand for water treatment would not increase. The proposed project would not require the relocation or construction of new or expanded water treatment facilities; impacts would be less than significant.

Wastewater Treatment

The Placentia Public Works Department provides wastewater collection and treatment services to the City, including the El Dorado HS campus. The project site is part of the existing high school campus that is served by existing wastewater facilities. Installation of sports lighting to existing athletic facilities would not increase wastewater demands. The proposed project would not increase the existing student capacity or expand school programs. The project would not require the relocation or construction of new or expanded wastewater treatment facilities; impacts would be less than significant.

Stormwater Drainage

Installation of sports lighting to existing athletic facilities at El Dorado HS would not result in substantial increase of impervious surfaces at existing campuses. A total of four poles would be installed at athletic facilities on the campus, and each pole would cover approximately nine square feet. The increase in impervious surfaces due to installation of light poles would be negligible[2] and would not change the stormwater volume, rate, or pattern. The proposed project would not result in the relocation or construction of storm water drainage. Impacts would be less than significant.

Electric Power

Electricity is provided by Southern California Edison (SCE). The proposed project would require connecting to existing and new electric power infrastructure for operation. Though the proposed project would result in a higher electricity demand than existing conditions, the increase would be negligible to a regional provider like SCE. The proposed project would use LED luminaires that are energy efficient and last longer than metal halide or high-pressure sodium lights. Implementation of the proposed project would not result in major construction related to electrical power facilities that could cause significant environmental impacts. Impacts would be less than significant.

Natural Gas

Natural gas service is provided by the Southern California Gas Company. The proposed project would not require use of natural gas during operation. The project would not require the construction of new or expanded facilities. No impact would occur.

Telecommunications

There are existing telecommunications facilities and services in the immediate area for the proposed project to connect to, if necessary. However, the proposed project would not require additional telecommunications facilities demand. The project would not require off-site construction or relocation of utilities, and therefore would not cause significant environmental effects from such action. Impacts would be less than significant.

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[2] 9 square feet per pole x 4 poles = 36 square feet.

c) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?

No Impact. The proposed project involves installation of sports lighting to existing athletic facilities within an existing high school. The proposed project would not increase the existing student capacity or expand school programs to require additional water demand. No impact to existing water supplies would occur.

d) Result in a determination by the wastewater treatment provider, which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?

No Impact. The proposed project involves installation of sports lighting to existing athletic facilities within an existing high school. No restrooms or other facilities generating wastewater would be developed as part of the proposed project. The proposed project would not increase the existing student capacity or expand school programs to require additional wastewater demand. No impact would occur.

e) Generate solid waste in excess of state or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?

Less Than Significant Impact. The proposed project involves installation of sports lighting to existing athletic facilities within an existing high school campus. During construction, the proposed project would generate some demolition debris from clearance and waste and debris from construction. However, construction solid waste generation would be minimal due to the relatively small-scale construction effort and lack of any buildings on the project site to be disturbed by the proposed project. CALGreen Section 5.408.1.1 requires that at least 65 percent of the nonhazardous construction and demolition waste from nonresidential construction operations be recycled and/or salvaged for reuse. The proposed project would comply with the required regulation pertaining to construction and demolition waste and would not exceed the capacity of regional landfills or impair the attainment of solid waste reduction goals in the city. The proposed project would not increase the existing student capacity or expand school programs that may result in increased demand for solid waste. Therefore, the proposed project would not result in additional solid waste during operation. Impacts would be less than significant.

f) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?

Less Than Significant Impact. The proposed project is required to comply with federal, state, and local statutes and regulations related to solid waste and would continue this practice. CALGreen Section 5.408 requires that at least 65 percent of the nonhazardous construction and demolition waste from nonresidential construction operation be recycled and/or salvaged for reuse. Solid waste demand from the proposed sports lighting at the high school would be minimal and would not impact the City's ability to comply with AB 939 and maintain the 15-year countywide solid waste landfill capacity. Project development would not conflict with laws governing solid waste disposal, and impacts would be less than significant.

8.15 WILDFIRE

Would the project:

a) Substantially impair an adopted emergency response plan or emergency evacuation plan?

Less Than Significant Impact. El Dorado HS is not in or near a VHFHSZ according to the CAL FIRE FHSZs map (CAL FIRE 2022). Furthermore, installation of sports lighting at existing athletic facilities at the existing high school would not increase student capacity or other school programs that would affect the existing emergency response plan or emergency evacuation plan. Impacts would be less than significant.

b) 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?

Less Than Significant Impact. El Dorado HS is not in or near a very high FHSZ (CAL FIRE 2022). Installation of sports lighting at existing track/field would not exacerbate wildfire risks. The light poles are made of steel on a concrete base and would be installed on flat ground. The proposed project would not result in increased exposure to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire. Impacts would be less than significant.

c) 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?

Less Than Significant Impact. El Dorado HS is not in or near a VHFHSZ (CAL FIRE 2022). Additionally, the project site is an existing high school served by existing infrastructure. Installation of sports lighting and necessary utility lines would not exacerbate fire risk or result in temporary or ongoing impacts to the environment. Impacts would be less than significant.

d) 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?

Less Than Significant Impact. El Dorado HS is not in or near a VH FHSZ (CAL FIRE 2022). Installation of sports lighting and necessary utility lines would have minimal impact on the existing drainage and runoff. The sports lighting would be installed on flat surfaces of existing sports facilities, and no slope instability would occur. Implementation of the proposed project would not expose people or structures to significant downslope or downstream flooding or landslide. Impacts would be less than significant.

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9. Significant Irreversible Changes Due to the Proposed Project

The CEQA Guidelines requires that an Environmental Impact Report (EIR) describe any significant irreversible environmental changes that would be caused by the proposed project should it be implemented. Specifically, Section 15126.2(d) of the CEQA Guidelines states:

> Use of nonrenewable resources during the initial and continued phases of the project may be irreversible since a large commitment of resources makes removal or nonuse thereafter unlikely. Primary impacts and, particularly, secondary impacts (such as highways improvement which provides access to a previously inaccessible area) generally commit future generations to similar uses. Also, irreversible damage can result from environmental accidents associated with the project. Irretrievable commitments of resources should be evaluated to assure that such current consumption is justified.

The following significant irreversible changes would be caused by implementation of the proposed project:

- Construction of the proposed light poles would require the commitment of nonrenewable and/or slowly renewable energy resources, including gasoline, diesel fuel, and electricity; human resources; and natural resources such as sand and gravel, steel and other metals, and water.
- Operation of the proposed project would require continued use of electricity, petroleum-based fuels, fossil fuels, and water, similar to existing school operations.
- Operation of the proposed project would require a continued commitment of social services and public maintenance services (e.g., police, fire, electricity).

The commitment of resources required for the construction of the proposed project and associated improvements would limit the availability of resources for future generations or for other uses during the life of the project.

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10. Growth-Inducing Impacts of the Proposed Project

Pursuant to Sections 15126(d) and 15126.2(d) of the CEQA Guidelines, this section is provided to examine ways in which the proposed project could foster economic or population growth or the construction of additional housing in the surrounding environment, either directly or indirectly. Also required is an assessment of other projects that would foster other activities which could affect the environment, individually or cumulatively. To address this issue, potential growth-inducing effects will be examined through analysis of the following questions:

- Would this project remove obstacles to growth, e.g., through the construction or extension of major infrastructure facilities that do not presently exist in the project area, or through changes in existing regulations pertaining to land development?
- Would this project result in the need to expand one or more public services to maintain desired levels of service?
- Would this project encourage or facilitate economic effects that could result in other activities that could significantly affect the environment?
- Would approval of this project involve some precedent-setting action that could encourage and facilitate other activities that could significantly affect the environment?

Please note that growth-inducing effects are not to be construed as necessarily beneficial, detrimental, or of little significance to the environment. This issue is presented to provide additional information on ways in which this project could contribute to significant changes in the environment, beyond the direct consequences of developing the land use concept examined in the preceding sections of this EIR.

Would this project remove obstacles to growth, e.g., through the construction or extension of major infrastructure facilities that do not presently exist in the project area, or through changes in existing regulations pertaining to land development?

The proposed project would result in the construction of light poles at the existing track/field to allow for events to take place beyond daylight hours. The proposed project would not increase student enrollment and would not increase seating. Implementation of the proposed project could have the potential to capture trips that now must travel to remote facilities due to the absence of lighted facilities at El Dorado HS. The project site is part of an existing campus and is located in an urbanized area served by existing infrastructure, including water and sewer mains and electricity and natural gas services. The improvements would only affect the existing school site and would not remove obstacles to growth or affect population growth.

Would this project result in the need to expand one or more public services to maintain desired levels of service?

The proposed project would provide lighting at the existing track/field at the project site and would not result in an increase in student population. The proposed project would not result in the need for additional public government services or expanded utility infrastructure. See Chapter 8, *Impacts Found Not to be Significant,* of this DEIR.

Would this project encourage or facilitate economic effects that could result in other activities that could significantly affect the environment?

Construction of the proposed project would generate short-term employment that would be absorbed from the regional labor force, so it would not attract new workers to the region. There would be no operational changes under the proposed project compared to existing conditions.

Would approval of this project involve some precedent-setting action that could encourage and facilitate other activities that could significantly affect the environment?

The proposed project would support athletic programs at the school. District approval would not set a precedent that could encourage and facilitate local and regional activities and government actions that could significantly affect the environment. School construction activities to enhance educational and athletic programs are common state- and nationwide.

11. Organizations and Persons Consulted

Placentia-Yorba Linda Unified School District

Bradd Runge, Director – Maintenance, Facilities, Construction

Shawna Boyle, Supervisor – Maintenance & Facilities

Garland Associates

Richard Garland, Principal Traffic Engineer

Musco Sports Lighting, LLC

Karin Anderson

Tyler Knoot

Studio +

Jason Dontje, AIA, NCARB

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12. Qualifications of Persons Preparing EIR

PLACEWORKS

Dwayne Mears, AICP Principal, Environmental Services and School Facilities Planning	■ BS, California Polytechnic State University, San Luis Obispo, City and Regional Planning ■ MRP, University of North Carolina, Chapel Hill, City and Regional Planning
Arabesque Said-Abdelwahed Senior Associate II	■ BA, University of California, Riverside, Anthropology ■ Master of Public Policy, University of California, Irvine
Nicole Vermilion Principal	■ BA Environmental Studies and BS Ecology and Evolutionary Biology, University of California, Santa Cruz ■ MURP, University of California, Irvine
Alejandro Garcia, INCE-USA Senior Associate, Noise, Vibration & Acoustics	■ BS Acoustics, Columbia College, Chicago
Kristie Nguyen Associate I, Air Quality and GHG	■ BS, Biological Sciences, UC Irvine ■ MS, Chemistry, UC San Diego
Danielle Clendening Project Planner	■ BA, University of California, Santa Cruz, History Minor in Anthropology ■ MURP, California Polytechnic State University, Pomona
Cary Nakama Graphics	■ AA Computer Graphic Design, Platt College of Computer Graphic Design ■ BA Business Administration: Data Processing and Marketing, California State University, Long Beach

Appendix A Notice of Preparation (NOP) and Comment Letters

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PLACENTIA-YORBA LINDA
UNIFIED SCHOOL DISTRICT
1301 E. Orangethorpe Avenue
Placentia, CA 92870
www.pylusd.org

James Elsasser, Ed.D.
Superintendent

NOTICE OF PREPARATION
OF A DRAFT ENVIRONMENTAL IMPACT REPORT

Date: April 29, 2022

TO: Agencies, Organizations, and Interested Parties

PROJECT TITLE: El Dorado High School Field Lighting Project

SUBJECT: Notice of Preparation of a Draft Environmental Impact Report

NOTICE IS HEREBY GIVEN that the Placentia-Yorba Linda Unified School District (District), as Lead Agency under the California Environmental Quality Act (CEQA), will prepare a Draft Environmental Impact Report (Draft EIR) for the El Dorado High School Field Lighting Project. The purpose of this notice is to (1) serve as a public notice of an EIR pursuant to the CEQA Guidelines Section 15082, (2) advise and solicit comments and suggestions regarding the scope and content of the EIR to be prepared, and (3) notice the public scoping meeting.

DEFINITIONS:

California Environmental Quality Act requires an objective, public process where public agencies address and disclose the potential environmental effects of projects under consideration. One of the methods used to inform the public and decisionmakers of potential environmental harm is the preparation of an environmental impact report (EIR), which is circulated for public review to allow comments and input by public agencies, interested parties and the public.

An **EIR** is a detailed statement that describes and analyzes a project's potential significant environmental impacts and proposes ways to mitigate or avoid the negative effects.

NOTICE OF PREPARATION (NOP): The Placentia-Yorba Linda Unified School District, as lead agency, requests that responsible and trustee agencies respond in a manner consistent with Section 15082(b) of the CEQA Guidelines. Pursuant to CEQA Guidelines Sections 15060(d) and 15082, the District will not prepare an initial study but will begin work directly on the Draft EIR. Pursuant to CEQA Guidelines Section 21080.4, responsible agencies and interested parties must submit any comments in response to this notice no later than 30 days after receipt. The public review period will commence on April 29, 2022 and will close on May 30, 2022. A copy of the NOP can be viewed electronically on the District's webpage at: https://www.pylusd.org/edhsfieldlights

WRITTEN COMMENTS: We ask that any person wishing to comment on the NOP provide written comments by the end of the public review period at 5:00 pm, May 30, 2022, to:

https://www.pylusd.org/edhsfieldlights
Bradd Runge, Director, Maintenance, Facilities & Construction
(Please include *"CEQA El Dorado High School"* in the subject line)

or by U.S. mail to:

Placentia-Yorba Linda Unified School District
1301 E. Orangethorpe Ave., Placentia, CA 92870
Attn: Bradd Runge, Director, Maintenance, Facilities & Construction

PUBLIC SCOPING MEETING: The District will hold a scoping meeting in conjunction with this NOP in order to present the project and the EIR process, and to provide an opportunity for agency representatives and the public to assist the lead agency in determining the scope and content of the environmental analysis for the EIR. "Scope and content" refers to the environmental issues that should be addressed in the EIR, such as lighting, noise and traffic. Interested parties are invited to attend the scoping meeting at the time and location presented below:

Scoping Meeting Date: May 24, 2022 from 5:30 PM to 6:30 PM
Location: Gai Jones Theater, El Dorado High School, 1651 Valencia Ave., Placentia, CA 92870

PROJECT LOCATION: El Dorado High School (EDHS) is at 1651 Valencia Avenue, Placentia, CA 92870. The school is surrounded by residential in all four directions. The track/field is surrounded by residential directly adjacent to the north and Brookhaven Avenue and residential to the west and to the south and west is the remainder of the campus. Vehicular access to the campus is provided by five driveways along Valencia Avenue. Figure 1, *Aerial Photo*, shows the campus, immediate surrounding area and access controls.

The high school site is zoned R1, Residential and the General Plan Land Use Map designates the site as Schools and Institutional.

PROJECT DESCRIPTION: The District proposes to install permanent lighting on its existing track and field at El Dorado High School. Various sports teams and the band currently practice at other schools because of the lack of access during winter months. The installation of lights would allow those activities to move to their home field. Detailed plans and use policies for this field have not been determined. Lights may be used during early morning and as late at 10 PM. A permanent public address system with speakers installed on the light poles may be included. Seating will not be added as this is intended as a practice facility and no major events are proposed.

Figure 2, *Lighting Plan*, shows the proposed locations of four 70-foot-high poles, each with thirteen 1500-watt luminaires, for a total of 52 luminaires.

The District currently uses electric-powered portable lights for student-related activities on the field. Strikers, a youth soccer group, currently uses diesel-powered portable lights. Striker uses the field Monday through Thursday, ending at 8 pm.

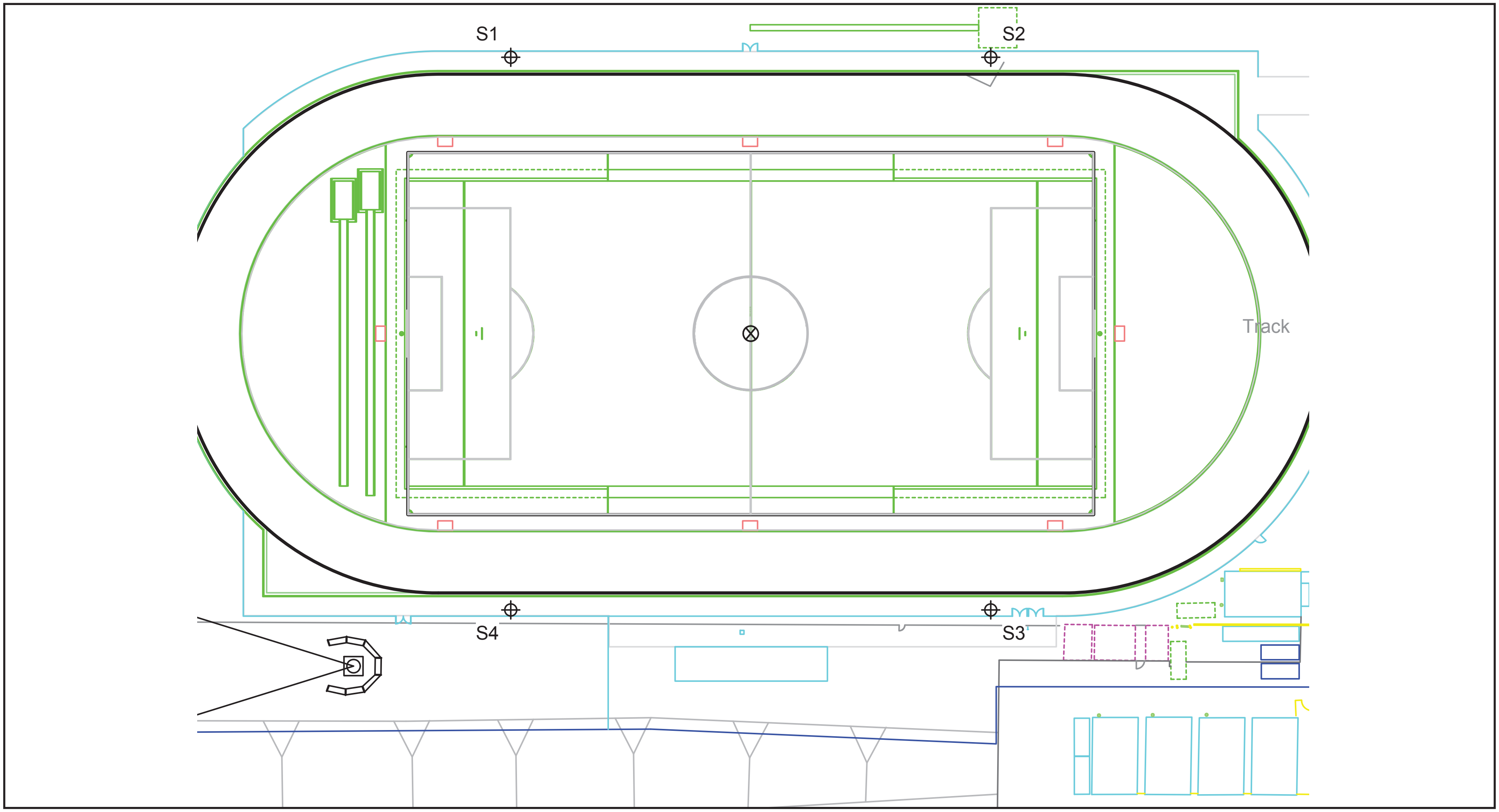
POTENTIAL ENVIRONMENTAL EFFECTS: In accordance with Section 15082 of the CEQA Guidelines, the District has prepared this Notice of Preparation to provide agencies, organizations, and interested parties with information describing the proposed project and its potential environmental effects. As authorized by the CEQA Guidelines, the District determined, based on preliminary review, that it would prepare an EIR for the proposed project. Therefore, it is beginning work directly on the EIR process and will focus on potentially significant effects of the project in the EIR; it will also briefly explain why the other effects will not be potentially significant. An Initial Study is not required to determine that an EIR will be prepared and is therefore not attached. The Draft EIR will analyze potential environmental effects of the proposed project related to Aesthetics (visual/light and glare), Air Quality, Greenhouse Gas Emissions, Noise, and Transportation.

If you require additional information, please contact Bradd Runge, Director, Maintenance, Facilities & Construction, brunge@pylusd.org.

Figure 1 - Aerial Photograph

Source: Nearmap, 2022

Figure 2 - Lighting Plan



⌖ S1-S4 - Location of 70’ Light Poles

Source: MUSCO, 2021

The following table provides the comments submitted via the comment form provided on the PYLUSD website during the NOP public review and comment period, which was from April 29, 2022 to May 30, 2022.

Timestamp	Email Address	First Name	Last Name	Address	Address 2	City	State	ZIP Code	Please share your written comments regarding the Notice of Preparation (NOP) below.
4/29/2022 17:10:55	cwammari@gmail.com	Chrystine	Ammari	2621 Cambridge Ave		Fullerton	CA	92835	I would like lights added to the field. The lighting now is inadequate. And, it feels unsafe. It would be great if El Dorado could have more games on campus instead of using Bradford. The practice spaces at ElDo are constantly being used. Having a field available later into the evening is a benefit. Especially with school starting later. Thanks.
5/3/2022 12:26:59	youn52j@aol.com	James	Young	1537 Havasu Place		Placentia	CA	92870	We've been here before. As a homeowner sharing a wall with the EDHS campus, I had received a campus meeting invitation letter dated September 23, 2013 from the then school principal Carey Cecil. The letter's subject line read "Request from Boosters for Sports Lighting" in the same area of the campus as is currently proposed. I attended this meeting where information was presented to the public on the process involved in pursuing field lighting at EDHS. At meeting's end, the procedure for initiating a Draft Environmental Impact Report (EIR) was to commence for the proposed field lighting. Since this request for field lighting was in year 2013, am I to assume that this EIR Report proved to be negative for the project? If so, why is the School District expending the time and funding towards the same project now?
5/19/2022 16:46:16	shannah1806@gmail.com	Steve	Hannah	1806 Geeting Pl		Placentia	CA	92870	CEQA El Dorado High School I am responding to the Notice of Preparation (NOP) of a Draft Environmental Impact Report. You have requested that we provide comments in a manner consistent with CEQA Guidelines Section 15082(b). Section 15082(b) states that a response to Notice of Preparation shall: (1) The response at a minimum shall identify: (A) The significant environmental issues and reasonable alternatives and mitigation measures that the responsible or trustee agency, or the Office of Planning and Research will need to have explored in the draft EIR; and (B) Whether the agency will be a responsible agency or trustee agency for the project. (2) If a responsible or trustee agency, or the Office of Planning and Research fails by the end of the 30-day period to provide the lead agency with either a response to the notice or a well-justified request for additional time, the lead agency may presume that none of those entities have a response to make. (3) A generalized list of concerns not related to the specific project shall not meet the requirements of this section for a response. In keeping with the guidelines, I am offering several comments regarding environmental issues, reasonable alternatives, mitigation efforts and concerns directly related to this specific project. I would like to provide a short summary of my concerns and then provide more detailed information along with potential alternatives or mitigation. We have lived in our home since 1998 and have sent 4 children through EDHS. We have always been supporters of the high school and wish to see it continue to be an excellent educational facility. We have multiple concerns with the proposal to add 70' tall permanent lighting structures in the EDHS upper practice field. We are concerned that the light from the powerful lighting clusters will flood our property in the evenings and cause severe impairment to our lives. We are concerned that the establishment of these lights will bring about an increase in after hours activity and associated noise and litter. Of particular concern is the use of the facility by non-EDHS entities. We were surprised to read in the NOP that the diesel generators currently in use were brought in to support the non-EDHS entity "Fullerton Strikers". Allowing non-EDHS entities to impact the daily lives of neighbors to EDHS should not be allowed. The stated operating hours of the lighting appears to be dusk until 10pm 7 days a week. By making the facility available for these hours we are concerned that it will be utilized continuously thereby increasing the light pollution, noise, traffic and litter to levels far beyond what we already experience. Concern 1 Excessive light and glare leading to disruption of our normal living routine. When we purchased our home there were no permanent light fixtures installed in the practice field area. We have integrated our backyard into our home and have no window shades. We have done this so we can enjoy the view of our pool in the evening while in our kitchen or living room. Our viewing position will face the direction where the proposed lighting will be installed. The proposed lighting will completely overwhelm our property and destroy our view. We are concerned the glare from the lights will make it impossible for us to watch TV from our vantage point, render our evenings spent in our backyard untenable, and will disrupt our lives. We believe the addition of the proposed lighting will be an unwelcome encroachment. This is not something we signed up for when we bought our home. We are extremely concerned that we will not only suffer environmental impact but we may suffer significant financial impairment due to the potential devaluation of our property. Concern 1 Alternatives/Mitigation The upper practice field has functioned well for EDHS use since its inception. In the NOP sent to residents, it was noted that the Fullerton Strikers utilize diesel powered lights Monday through Thursday ending at 8PM. Since this use is not related to an EDHS school activity it should be curtailed, the diesel generators should be removed, and the field should be left as it always has been, without permanent lighting. We understand that various sports teams and the band sometimes practice at other fields during winter months due to lack of access. This has always been the case since EDHS was constructed in 1966. There is no stated reason for this longstanding operating mechanism to be altered. Therefore, eliminating the request for the lighting from EDHS and removing the diesel generator lighting will resolve Concern 1. Concern 2 Noise We are concerned that the noise level will increase dramatically and the daily duration of exposure to the noise will also increase. We are not concerned with the traditional use of the field by EDHS students and faculty. The traditional use of the field, under natural lighting, for band practice in the mornings and occasional weekend or late afternoons as well as EDHS athletic events are all normal activities. We did notice that when the upper field was renovated several years ago the traditional pattern of band practice in the lower field shifted to the upper field. This increased the noise level for the homes on Brower Ave. With the installation of the 70' tall floodlight structures, we feel that the band will now extend its practice sessions well beyond what they have traditionally done. This will elevate the noise levels for the homes along Brower Ave. The band has not needed this access level since EDHS was built, so it seems excessive for it to alter its course now. In addition to concerns over increased band noise, we will obviously be subjected to elevated noise levels from the sports activities on the newly formed sports park which was once the unlit upper practice field at EDHS. Such activities include non EDHS events. Over the years we have seen some excessive noise from non-EDHS activities on the upper practice field. One such event resulted in our need to file a police complaint due to the excessively loud music being played by a third party football coaching event. Increasing the availability of the upper practice field to non-EDHS entities should not be allowed. It effectively transforms the unlit upper practice field into a permanent sports park and the noise levels will increase accordingly. In addition to the noise increase associated with extended hours of operation, it was stated in the NOP that permanent loudspeakers may be installed. This is another encroachment on our livelihood. There has never been a permanent loudspeaker installed on permanent lighting fixtures. This unprecedented act will further add to the excessive noise profile and subject the neighborhood to noise levels far, far beyond what was intended by EDHS when it was formed or by what the homeowners have lived with since 1966. This will also serve to attract even more activity to the EDHS upper practice field thereby moving it more towards the role of a permanent sports park rather than a high school practice field. Concern 2 Alternatives/Mitigation The noise level concerns can be mitigated. First, non-EDHS entities should not be allowed to increase the lighting footprint in order to satisfy their desires. The Diesel generators used by the Fullerton Strikers should be removed. Secondly, eliminating the plan to install 70' tall lighting structures will mitigate all other noise related concerns. Concern 3 Increased litter along Brookhaven Ave We frequently walk along the sidewalk bordering the EDHS practice fields. Over the past few years we have noticed that there has been an increase in litter along the fence between the EDHS practice fields and Brookhaven Ave. We noticed an uptick of activity and associated litter when the decision was made to install generators and lighting on the upper and lower practice fields. We have complained to the City of Placentia about the litter recently because it rose to an unacceptable level. Now that EDHS wishes to alter the intended use of the upper practice field from a high school practice facility utilized by students during school hours into a practice facility serving non-student organizations such as the Fullerton Strikers. We feel that this will permanently alter the profile of the facility. The stated intent to operate the lighting until 10pm will only serve to attract more attendance at the facility and thereby increase the already unacceptable levels of trash and litter along Brookhaven. When we first moved to the neighborhood, there was no lighting (temporary or otherwise), there was very limited after hours activity, and litter was not at the level it is now. EDHS was always a good neighbor and hope this cooperation continues. Concern 3 Alternatives/Mitigation The concern about increased litter can be mitigated by daily cleaning of the property line bordering Brookhaven Ave, the sidewalk bordering EDHS property, and gutter along the sidewalk bordering EDHS property. Concern 4 Impact to longstanding bird populations in the neighborhood. We are concerned that the very large and obtrusive lighting structures will disrupt the natural bird habitat which we have come to love and enjoy. We enjoy the many varied bird species which frequent our backyard. Several species have called our backyard home for many years. We are concerned the lighting will potentially disrupt the natural environment and could repel many of the species thereby further disrupting our quality of life as well as altering the wildlife ecosystem. The tall structures could also serve as a perch which could attract other predatory bird species such as crows which would further disrupt the bird population. Concern 4 Alternatives/Mitigation The upper practice field has functioned well for EDHS use since its inception. Since there is no need for the added 70' tall permanent lighting structures it would seem intuitive that if the structures are not constructed then the wildlife will not be affected.
5/24/2022 12:14:41	bnddietz@sbcglobal.net	Bernice	Dietz	325 Little Big Horn		Placentia	CA	92870	I am against the lights because it will bring more traffic to the area. It will also bring more noise through the p a system, The lights will make living along Brower street a night mare. Their back yards and the whole area will be too bright for comfort. Our real estate values will go down. This is empire building at its worst. The people in this whole neighborhood would suffer if you install the lights. Bernice Dietz
5/25/2022 13:27:36	dfulmer674@gmail.com	Diana Cruz	Fulmer	500 Brower Ave		PLACENTIA	CA	92870	This is an unnecessary expenditure and a waste of money for High School Students. It is also a BIG problem for the homeowners surrounding the school. Yes, we were aware when we bought our house the school was behind us, but we did not buy the house with a parking lot behind our house, and we have experienced loud school noises, lots of weekend noise "not" from student play in the PRACTICE fields. As the school population is stagnate, if not declining, this expense is not warranted. You all should get rid of the portables, make other cosmetic repairs to the school, update the smaller older theater on campus, but permanent lights are not a good expense or need for the school. Every school district has schools who have lights and don't have lights, these lights do not fit with in our neighborhood. There are other schools in our district that have lights, we don't need lights with Daylight Saving times, and as I understand a late start will give the students plenty of time to practice before school!! Also the times "scheduled" are not conducive to good student achievement. We are ELDO parents, but this is not acceptable.
5/26/2022 14:22:14	susandolliver@gmail.com	Susan	Dolliver	337 Little Big Horn Ave		Placentia	CA	92870	I am not opposed to the use of permanent lights on the field but do however, feel that the use of those lights after 9:00 pm creates an undo inconvenience to the homes surrounding the field. As there is no plan to create new seating I also do not understand the need for a public address system. I am opposed to a public address system. I also did not see in the information already submitted the impact that these changes would have on the parking situation, especially on Brookhaven Ave.

Timestamp	Email Address	First Name	Last Name	Address	Address 2	City	State	ZIP Code	Please share your written comments regarding the Notice of Preparation (NOP) below.
5/27/2022 8:03:53	cstonegolf@msn.com	craig	fulmer	500 Brower Ave.		Placentia	CA	92870	Approximate student population: 1,500 in 1966 when the school "opened" The population slowly rose to +/- 2,000 students in the early 2000's, peaking at 2,500 students in 2009 (prior to YL High School opening). In 2012 the population dropped AND has since remained constant at +/- 1,950. LIGHTING: EVERY high school in a district does not need (or have) lighted fields. In Fullerton Unified: Troy, Sunny Hills, Sonora – do NOT have lights. La Habra, Fullerton, Buena Park – do have lights. In Orange Unified: Villa Park and Canyon do NOT have lights. Orange and El Modena do have lights. PUBLIC ADDRESS SYSTEM: The "Notice of Preparation" states that "seating is not to be added, this is a practice facility". Then why a public address system? IMPACT ON "NEIGHBORS": Valencia's lighting: The lights adjacent to the neighboring houses, facing away from the houses are 200' from the houses. The lights facing the houses are +/-500' from the houses. El Dorado's proposed lighting: The lights facing away from neighboring houses are AT MOST 15' behind the properties. The lights facing the houses will ONLY be 200' from the houses. THIS IS A HUGE BURDEN ON THE NEIGHBORING HOUSES. Additionally, the Public Address System will be a huge imposition on neighbors…as late as 10PM. NOTES: The parking lot adjacent to the field (which was added +/-10 years ago) has lights that come on at 5:30 in the morning, and turn off 11:30-midnight. This is an imposition on the neighboring residences. NOW it is proposed to have field lights on as late as 10PM. SO, lighting would be negatively affecting the neighbors from 5:30 in the morning until 10PM/11:30 at night. That is not behaving as a good neighbor. The excellent EDHS field/marching band takes the field at 7AM from mid-August until mid-November. Now it is proposed to have EDHS and non-EDHS teams on the field until 10PM… SO – potentially having activities on the field from 7AM until 10PM. Does that seem fair to your neighbors? IN SUMMARY: EDHS has survived/thrived for 55+ years without field lights. The STUDENT population has not grown over the past decade. This is a huge imposition on the neighborhood with no apparent need by the school. We are vehemently opposed to the installation of the lighting/speaker system. Thank you for your attention to this matter,
5/27/2022 16:17:09	marfrejo29@yahoo.com	Martha	Jones	331 Little Big Horn Ave		Placentia	CA	92870	I have owned this property since 1971and have enjoyed hearing the Brookhaven and EDHS students enjoying their school life, but, I am not pleased with the prospect of a large Sports Field being slowly installed in this established neighborhood. The lights, The late hours, street parking, noise and eventual PA system are NOT ACCEPTABLE. On another note, if your proposal does go through, I would like to suggest that the 8' chain link fence on Brookhaven (and along the houses on Brower) be set back 3-4 feet to the East and a line of tall narrow trees (Italian Cypress?) be planted, along with some lower plants. This might help improve the appearance of this eyesore, and hopefully, block the bright lights and noise from the PA system. Thank You, Martha M. Jones
5/27/2022 19:05:54	bitsforbarb@me.com	Barbara	Thomas	1538 Brookhaven Ave		Placentia	CA	92870	Opposed to field lights due to negative impact on the neighborhood near EDHS
5/27/2022 21:24:31	timjagxj1@yahoo.com	Mike	Rogers	337 Susquehanna		Placentia	CA	92870	I live on Susquehanna Avenue behind the High School and feel this a very unnecessary project. Other than Football, I have only seen the private soccer group (or individuals who show up late and seem to have access to the lights) practice soccer with the temporary lights there now. This seems to be a complete waste of school money. On many occasions they have left the lights on all night wasting energy and cost in these unique times. And to add an P.A. system seems beyond any consideration for the neighborhood.
5/28/2022 8:57:09	danarodine@gmail.com	Dana	Rodine	448 Brower Ave		Placentia	CA	92870	This proposal to install stadium lights and speakers is extremely disrespectful to all the neighbors surrounding the track and field. I live right behind the goal line closet to the parking lot. We do not want you to turn this field into a SPORT STADIUM COMPLEX. for outside school functions not related to EDHS. The district or city should consider buying exiting land to build a sports complex if the need in this area not literally sitting on top of our houses. List of reasons to ban this proposal: -Speakers until 10pm every night even with double pain windows way to loud I no I live it every day. - Four seventy foot light poles on both sides of the field is overkill. They are way to bright. We have 3 sliding doors and 6 windows in our house. Even the portable lights used right now are a problem. -Will draw an increase of teens loitering in the parking lot having parties and skidding around the lot. THIS IS ALREADY A PROBLEM especially in summer. -Increase of kids climbing chair link fence behind my property, climbing on our wall due to no gate access to the field. THIS IS ALREADY A PROBLEM -EDHS not intended to be SPORT COMPLEX. Or would have been build for that originally. -Hours of light and speaker use way to late, every day udderly rediculous. Invasion of our privacy, to be able to have family time and a good night sleep. -Decreases values of our properties due to noise and bright light disclosures required for resell. -Should not have to close all 9 windows, and blinds and live like a rat in a cave due to this proposal. Above are just a few issues I listed in the short amount of time we were given to respond, again very disrespectful very sneaky over a three day weekend. Thank you for your time. We will be fighting against this proposal!
5/29/2022 17:37:24	shannah1806@gmail.com	Steve	Hannah	1806 Geeting Pl		Placentia	CA	92870	CEQA El Dorado High School After attending the public scoping meeting held on May 24, 2022 I was left with several questions regarding the intent of the project and the circumstances under which the CEQA study was being initiated. First, there were inconsistencies in the presentation given during the scoping meeting. The content of the presentation displayed during the scoping meeting clearly stated that permanent loud speakers would be installed. This was not consistent with the NOP delivered to us. It was verbally explained away in the scoping meeting and it was stated that loudspeakers would not be part of the project. However, this correction still has not been made to the published NOP on the PYLUSD website. This leads me to believe that the plan to install permanent loudspeakers still exists. This adds to the air of lack of transparency surrounding this project. Upon asking where we could find out the history behind approving the CEQA process to begin I was told that the minutes are viewable on the PYLUSD website. The only video or audio recording on the website which discusses this project were from 11/16 2021. Previous meetings where the topic was introduced were not available and no record of a vote to move forward could be found. But, I noted several inconsistencies when viewing the 11/16/2021 video recording of the presentation. First, it appeared that one of the reasons for installation of permanent lighting and conducting the CEQA study was perhaps portrayed as a safety concern in a previous board meeting. The board had a discussion regarding incidents and safety concerns on the school property. I found this very questionable as a reason to begin this process. Several board members seemed to also question the validity of safety concerns by citing the nature of reported incidents as being related to standard football activities. Also, it was highlighted that the primary users of the diesel generator lights, which are in question as part of the safety concern, are non EDHS entities and, in particular, the Fullerton Strikers. If there is a legitimate interest regarding safety and the use of these diesel generator lighting systems then it would seem obvious that the PYLUSD board would want to minimize it's risk exposure and immediately curtail the use of this type of lighting, especially for non EDHS entities. So, it appears that the safety concern is merely a ruse to try and force the district to consider the proposal for permanent lighting. Therefore, one of the considerations for embarking on the CEQA study seems to be disingenuous. Second, the NOP states that this is intended to be a practice facility. It was stated in the NOP "Various sports teams and the band currently practice at other schools because of the lack of access during winter months. The installation of lights would allow those activities to move to their home field". However, during the 11/16 board meeting it was stated by a PYLUSD board member that the intent would be to rent the field out to various non EDHS events and activities and "it's not like we're going to throw up a million dollars in lights and not get the money back". This clearly indicates that the purpose of the lighting will be to turn the practice facility into a for-profit Sports Park. This was not stated in the NOP and completely alters the noise, litter, and traffic profile of the facility. That alters the baseline of the proposed CEQA study. Once again, the reasoning behind the lights seems to be hidden and disingenuous. Third, the NOP made no reference to how such a project was going to be funded. During the 11/16 board meeting an estimate for expenses totaling more than $1.1 million dollars was given. PYLUSD board members questioned this and asked where the funding was going to come from. It didn't appear that a solid funding source was identified. Rather, it was stated that the funding could be taken away from the maintenance budget for the schools. There was even an inquiry as to whether or not a private funding source could be located. This was not highlighted in the NOP. The lack of funding or the diversion of much needed resources away from the aging school buildings in PYLUSD seems disingenuous and is hiding the impact to the school district. One of the board members on the 11/16 board meeting recording stated that "we're here for the kids" yet the board is taking money away from the majority of the non-sports participants or non-band members and cutting into the budget allocated to keep their schools in top shape, safe, and comfortable (HVAC budget was mentioned several times as a potential target for funding this project). The other disingenuous aspect of this is that the project will primarily benefit non-EDHS entities since they are the primary users of the current lighting systems. The benefit is not for EDHS or PYLUSD yet EDHS and PYLUSD students and faculty along with the neighboring community will have to suffer. Therefore, these points should have been made clear in the NOP as it would need to be factored into the environmental impact assessment due to the increased traffic, noise, and litter from disinterested third parties not under the direct supervision of EDHS personnel. With these inconsistencies and lack of transparency surrounding the nature of this project and why it is moving forward, it seems that the parameters for the CEQA study should be reviewed and the baseline for the usage of the facility should be reviewed for accuracy and transparency.
5/30/2022 10:20:19	dfulmer674@gmail.com	Diana Cruz	Fulmer	500 Brower Ave		PLACENTIA	CA	92870	It seems that BEFORE lights should even be considered, everyone should consider the real need for lights with Daylight Saving in effect all year long, it's light longer and teams may not need additional lights for practice. And if this is a High School practice field do we want students out so late on a school night. Football and other sports have Yorba Linda High School and Valencia for "regular" events. And it seems excessive to have such lights on a "practice" field!
5/30/2022 10:28:55	dfulmer674@gmail.com	Diana Cruz	Fulmer	500 Brower Ave		PLACENTIA	CA	92870	It seems that it was a plan to have the community meeting then have the deadline for responses due on a "Holiday" weekend. It seems that the meeting was not well attended because several people left and were not re directed to the "correct" theater!
5/30/2022 15:57:05	bethhall27@yahoo.com	Beth	Hall	318 Swanee Ave		Placentia	CA	92870	Hello PYLUSD, I am writing with concerns about lighting the athletic field at El Dorado High School. I am an alumni of EDHS and still live in the area behind the school. My children participated in band and sports at EDHS. I am required to pay annually for a permit to park in front of my home that I have lived in for 36 years. I have also received tickets and endured the inconvenience of calling to schedule no ticket days or buy extra day passes to entertain guests. I enjoy the baseball soundtrack every spring and sometimes walk up to watch games. I bought my home because of the good neighborhood and good schools. The lighting that is planned for the track area is not necessary and is a liability to the school and neighborhood. Not all high schools have lights. Just as not all high schools have performing arts theaters and two gymnasiums. The band and football team have flourished for over 50 years. Why now ? Is this a decision made for profit? Who benefits from renting the fields to outside teams? More traffic, more trash, more noise, more strangers. The lights will invade many family homes before and after school everyday, til 10 PM. This is unreasonable and unfair to the homes that neighbor the school. Not only are the lights intrusive, the noise, litter and traffic need to be considered. Brookhaven Avenue had to have two stop signs installed to slow traffic for the neighboring elementary school traffic every morning and afternoon. Daily, families park on Brookhaven and throw their child and soccer gear over the fence. They often watch practice from their illegally parked vehicle. I have watched the entire cross country team hop this same fence. Sounds like liability for PYLUSD. I am against the installation of lights on 70 foot poles and the inevitable speakers and stadium seating that will follow. No one should have lights and megaphones in their windows til 10PM. I am very curious as to who the beneficiary of any rental fees collected from these groups that are not PYLUSD students is. Please consider your neighbors when making this very permanent decision, Beth Hall 318 Swanee Ave Placentia, CA 92870

Timestamp	Email Address	First Name	Last Name	Address	Address 2	City	State	ZIP Code	Please share your written comments regarding the Notice of Preparation (NOP) below.
5/30/2022 16:25:54	unklelea56@gmail.com	James	Young	1537 Havasu Place		Placentia	CA	92870	The Project Description is extremely broad and misleading. Within the Project Description it's stated that 'various sports teams and the band' would benefit from installation of the proposed lighting as it would allow those activities "to move to their home field'. Yet, within the same 'Project Description', mention is made of a non-EDHS youth soccer team 'Strikers', who currently enjoy the usage of the EDHS facility four days a week. So while this project is proposed as needed for EDHS activities, it clearly is not for their exclusive use only. And since the project's intent, at this juncture, is to not add spectator seating or a PA system (as stated in the public meeting at EDHS on May 24, 2022), it is only field lighting that is being proposed for use on a 'practice facility' at EDHS. The problem that I perceive is there is a non-EDHS sports team currently using the school's fields, which will mean others will follow once the field lights are installed. During the public meeting on May 24, public concerns were mentioned as it relates to 'mission creep', whereby the initial intent of the project might expand from current indications, and, as the current Project Description reads, "Detailed plans and use policies for this field have not been determined"; an indication that this exact scenario will most likely occur. As I understand, any facility built with taxpayer funds can be used by the public it serves. And since this project would be built with public tax funds, it will result in increased usage well beyond the initial intended scope of the project. Increased traffic, noise, and lighting usage will be magnified, which for such a densely populated area surrounding the field in question would lead to a lower quality of life for residents nearby, as well as reduced property values. The purported aim of this project is based solely on the need of field lighting for EDHS team/band practices at night. Not every district campus needs it's own field lighting For years the solution has been met by using other district facilities that do have night lighting. Most school districts share their lighted facilities district wide which historically is and has been viewed as good economic stewardship of public funds by taxpayers. On a side note, California's Governor recently stated that electricity brown/black outs are likely planned going forward due to the state's power grid's deficiency. Is it a good time to increase power consumption by using newly installed field lighting that will be on many hours during the academic school year but most likely the entire year? How would this fit into the District's annual energy costs? This project is an expensive and over-amplified solution for the desire indicated in the Project Description.
5/30/2022 16:54:26	pspongetti@sbcglobal.net	Paul	Pongetti	1807 Jones Pl.		Placentia	CA	92870	I'm writing to oppose the El Dorado High School Field Lighting Project described in the April 29, 2022 Draft Environmental Impact Report (Draft EIR). It's not clear why the school needs this lighting project and the most significant impact of this project will be the adjacent neighbors, whose children are also students at PYLUSD. It's unreasonable to subject a current and future kindergarten student, whose bedroom may be adjacent to this project, to the lights a public address system until 10 PM at night. The school and neighborhood layout was not designed for this. The night users of the field are Strikers youth soccer group so it's not clear why PYLUSD is funding this project? The Draft EIR describes the use of diesel-powered portable lights by Strikers youth soccer group. Diesel exhaust contains toxic air contaminants including cancer-causing substances and these diesel powered lights are a health risk for soccer participants and neighbors, and should not be operated at El Doroado. It's also unclear how the lights described in the Draft EIR will replace the multiple lights operated by Strikers on the grass field. Instead of the proposed project, instead consider the installation of electric-powered portable lights throughout the El Dorado fields, similar to the ones currently used by PYLUSD on the North side of the track. As stated above, the school and neighborhood layout was not designed for this. If PYLUSD determines that the currently proposed lighting project is necessary, the synthetic grass field should be moved to closer the center of campus where it is less impactful o surrounding neighborhoods. Any lighting project should use the most modern technology to avoid light spillover to adjacent neighborhoods. Lights should turn off no later than 8 PM to be compatible with the neighborhood, and PYLUSD children's sleep schedules. A public address system with speakers is totally unreasonable for this location due to the proximity homes. Strikers should find another location of lighted soccer practice that is less impactful to neighbors.
5/30/2022 16:57:43	kcbarner1@gmail.com	Cole	Barner	400 Brower		Placentia	CA	92870	I object to the installation of field lights, a public addess system, and increased seating at ElDorado High School. This action will wreck the community arround the school through increase noise pollution, light pollution, and increased traffic in the neighborhoods around the school. Additionally there is no limitation on field use; the school could rent out the field to anyone it chooses, and this much was said at the PLYUSD meeting of November 2021. Uncontrolled use of the field is simply unacceptible to the surrounding community.
N/A	N/A	Craig & Diana	Fulmer	500 Brower Avenue		Placentia	CA	92870	Click here to see comment.

From: Dwayne Mears
To: Arabesque Said-Abdelwahed; Danielle Clendening
Subject: FW: CEQA El Dorado High School
Date: Tuesday, May 31, 2022 8:08:42 AM

DWAYNE MEARS, AICP
Principal
714.966.9220 ext. 2316

From: Bradd Runge <brrunge@pylusd.org>
Sent: Tuesday, May 31, 2022 7:51 AM
To: Dwayne Mears <dmears@placeworks.com>
Cc: Shawna Boyle <sboyle@pylusd.org>
Subject: Fwd: CEQA El Dorado High School

Morning Dwayne,

Please add this to your comments page.

Thanks

---------- Forwarded message ---------
From: **Dennis Lewis** <dvlewis1533@att.net>
Date: Sun, May 29, 2022 at 3:51 PM
Subject: CEQA El Dorado High School
To: brunge@pylusd.org <brunge@pylusd.org>

As Brookhaven Avenue residents for the past 22 years, we are writing in opposition to the proposed installation of permanent lighting on the El Dorado High School practice field..

1. The current temporary lighting shines directly into the front of our home so brightly you can read by it. There are no guarantees that the new permanent lighting will be any different, but could be worse, especially given the proposed hours of use.

2. The persons using the field are many times not related to EDHS. There appears to be no oversite by the school or the District while the fields are in use. People using the field are parking illegally, hopping fences, and don't have common respect for the school or neighborhood. Apparently the District's Use of Facility Department does not stress any rules to be followed, or the people involved just blatantly ignore them.

3. The proposed use of the fields from 7:00 am - 10:00 pm, 6 or 7 days a week, is unacceptable to those of us living near the school. Evironmentally speaking, the new lighting will invite increased noise and nightly activity leading to a detrimental impact on our neighborhood and the value of our properties.

Dennis & Virginia Lewis
1707 Brookhaven Avenue
Placentia, CA 92870

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Bradd Runge | DIRECTOR - MAINTENANCE, FACILITIES, CONSTRUCTION
Placentia-Yorba Linda Unified School District
1301 E. Orangethorpe Ave., Placentia, CA 92870
Office: 714-985-8751

Why does EDHS *need* lighting on the football/soccer field?

Approximate student population:
1,500 in 1966 when the school "opened"
The population slowly rose to +/- 2,000 students in the early 2000's, peaking at 2,500 students in 2009 (prior to YL High School opening).
In 2012 the population dropped AND has since remained constant at +/- 1,950.

LIGHTING:
EVERY high school in a district does not need (or *have)* lighted fields.
In Fullerton Unified:
Troy, Sunny Hills, Sonora – do NOT have lights.
La Habra, Fullerton, Buena Park – do have lights.

In Orange Unified:
Villa Park and Canyon do NOT have lights.
Orange and El Modena do have lights.

PUBLIC ADDRESS SYSTEM:
The "Notice of Preparation" states that "seating is not to be added, this is a practice facility". Then why a public address system?

IMPACT ON "NEIGHBORS":
Valencia's lighting:
The lights adjacent to the neighboring houses, facing away from the houses are 200' from the houses.
The lights *facing* the houses are +/-500' from the houses.

El Dorado's proposed lighting:
The lights facing away from neighboring houses are AT MOST 15' behind the properties.
The lights facing the houses will ONLY be 200' from the houses.
THIS IS A **HUGE BURDEN** ON THE NEIGHBORING HOUSES.

Additionally, the Public Address System will be a huge imposition on neighbors...as late as 10PM.

NOTES:
The parking lot adjacent to the field (which was added +/-10 years ago) has lights that come on at 5:30 in the morning, and turn off 11:30-midnight. This is an imposition on the neighboring residences. NOW it is proposed to have field lights on as late as 10PM. SO, lighting would be negatively affecting the neighbors from 5:30 in the morning until 10PM/11:30 at night. That is not behaving as a *good* neighbor.

The excellent EDHS field/marching band takes the field at 7AM from mid-August until mid-November. Now it is proposed to have EDHS *and* non-EDHS teams on the field until 10PM... SO – potentially having activities on the field from 7AM until 10PM. Does that seem fair to your neighbors?

IN SUMMARY:
EDHS has survived/thrived for 55+ years without field lights.
The STUDENT population has not grown over the past decade.
This is a huge imposition on the neighborhood with no apparent need by the school.

We are vehemently opposed to the installation of the lighting/speaker system.
Thank you for your attention to this matter,

Craig and Diana Fulmer
500 Brower Ave., Placentia 92870

Helmer
500 Brower Ave
Placentia, CA
92870

SANTA ANA CA 926
9 MAY 2022 PM 7 L

836010526072249
OREVER
USA

Placentia-Yorba Linda Unified Sch Dist.
1301 E. Orangethrope Ave
Placentia, CA 92870

Attention: Brad Runge
Director Maintenance Facilities & Construction

From: Dwayne Mears
To: Danielle Clendening; Arabesque Said-Abdelwahed
Subject: FW: CEQA El Dorado High School
Date: Friday, May 27, 2022 12:35:45 PM

Sent from my Verizon, Samsung Galaxy smartphone

-------- Original message --------
From: Bradd Runge <brrunge@pylusd.org>
Date: 5/27/22 12:11 PM (GMT-08:00)
To: Dwayne Mears <dmears@placeworks.com>
Cc: Shawna Boyle <sboyle@pylusd.org>
Subject: Fwd: CEQA El Dorado High School

Hi Dwayne,

Forwarding this email so you can add it to the EIR.

Thanks

---------- Forwarded message ---------
From: **Heather Fields** <loluma001@gmail.com>
Date: Fri, May 27, 2022 at 10:58 AM
Subject: CEQA El Dorado High School
To: <brunge@pylusd.org>
Cc: Nik Mattheus <nikjazbas@hotmail.com>

As neighbors that share a property line with the El Dorado High School field, we are strongly opposed to the proposed construction of permanent field lights with a public address system for multiple reasons.

1. Light Trespass - This project will have a significant negative effect on the neighborhood as it will create a new source of substantial light or glare which would adversely affect residents in their homes as well as nighttime views in the area. Due to the very close proximity of neighboring residents immediately adjacent to the playfield, light pollution into resident's homes as a result of this is inevitable. Families that face the play fields should not be expected to accept blinding field lights trespassing into their homes as late as 10 pm or before sunrise. The current use of lights on generators until 8 pm is already an imposition.
2. Noise Pollution - The proposed public address system is unnecessary and will have a significant negative effect on noise levels in the neighborhood. A public address system would expose neighbors to noise levels in excess of standards established by the City of

Placentia. According to Chapter 9 of the General Plan, the maximum noise level for residential neighborhoods during daytime hours is 55 dB. (Due to the immediate proximity of the school playfield to homes and the current zoning of the school as residential, it is most appropriate to consider residential noise level requirements.) Currently, the school already regularly exceeds these limits, as residents living adjacent to the school property and even across the street are already subjected to excessive noise from marching band practice every fall starting at 7 am which undoubtedly exceeds both residential and commercial noise limits. The inclusion of a public address system and additional band practice would create a substantial permanent increase in ambient noise levels in the neighborhood. To ask the neighbors to accept additional excess noise as early as 7 am and as late as 10 pm at night will certainly exceed community noise standards, will significantly affect neighboring residents, and is unacceptable. Additionally, if this will be a practice facility only with no major events as stated, there is no reasonable need for a public address system.

3. Rental of field – It is concerning that the district is proposing this project to increase the ability of sports teams and bands to practice on their home field, but is not limiting the usage to school related events only. The rental of the field to non-school related sports teams and events would further disrupt the neighborhood with excessive light and noise pollution, particularly if it is allowed as late as 10 pm and on weekends.

4. Parking Issues – Already, the use of the high school field during non-school hours results in many people illegally parking along Brookhaven Avenue to access the fields from the back side in zones that are no parking except by permit. Increased use of the fields, particularly for non-student related events, will inevitably result in an increase in traffic and parking in the surrounding neighborhoods.

5. Project is Unnecessary – Many high schools do not have fields with permanent lighting, particularly schools which do not host major events, and it is not unusual for various schools within the district to share their facilities. El Dorado, for example, is the only high school in the district with a performing arts center, and its use is shared with other district schools. Additionally, the other district schools which do have stadium lighting similar to what is currently proposed for El Dorado do not have residential neighbors immediately adjacent to the fields like El Dorado does.

Overall, this project is not needed and will impose a significant negative effect on the neighboring residences by exacerbating existing nuisance issues due to excessive light and noise pollution and an increase in traffic and parking in the surrounding residential neighborhood.

As an individual family that has recently purchased a new home and moved into the neighborhood within the past year, we also have more personal concerns. As new parents of an infant we already find it difficult to maintain a healthy bedtime with the lights that currently stay on until 8 pm, let alone if there was to be additional lighting and noise as late as 10 pm. We are aware of multiple studies that have shown the negative impacts to quality of sleep from noise and light pollution and how that can affect academic performance and behavior for young children. Having our child/children kept awake due to noise and light trespass potentially jeopardizes their academic futures and our family life. These nuisances will require additional investment costs to deal with the excess noise and light into bedroom windows at night. Additionally, if we had known that this system may be installed in the high school fields, it would have significantly impacted our decision to purchase a home in the neighborhood. We are not only concerned how it will affect our quality of life, but also our future home value. The addition of 70-ft tall lights with speakers in the field will more than likely have a negative effect on property values for us and all of our neighbors.

Thank you for your consideration of our concerns. We sincerely hope this project will not move forward as it will provide significant negative effects for the neighborhood while providing very limited benefit to the school.

Heather Fields and Nik Mattheus
406 Brower Avenue

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Bradd Runge | DIRECTOR - MAINTENANCE, FACILITIES, CONSTRUCTION

Placentia-Yorba Linda Unified School District

1301 E. Orangethorpe Ave., Placentia, CA 92870

Office: 714-985-8751

Appendix B Musco Light Measurement Summary

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El Dorado High School Stadium/Track DSA

Placentia,CA

Lighting System

Pole / Fixture Summary

Pole ID	Pole Height	Mtg Height	Fixture Qty	Luminaire Type	Load	Circuit
S1-S2	80'	80'	3	TLC-LED-1500	4.29 kW	A
		80'	4	TLC-LED-900	3.56 kW	A
		80'	1	TLC-LED-900	0.89 kW	B
		16'	2	TLC-BT-575	1.15 kW	A
S3-S4	80'	80'	5	TLC-LED-1500	7.15 kW	A
		80'	1	TLC-LED-900	0.89 kW	B
		80'	2	TLC-LED-900	1.78 kW	A
		16'	2	TLC-BT-575	1.15 kW	A
4			***40***		***41.72 kW***	

Circuit Summary

Circuit	Description	Load	Fixture Qty
A	Soccer/Football	38.16 kW	36
B	Egress	3.56 kW	4

Fixture Type Summary

Type	Source	Wattage	Lumens	L90	L80	L70	Quantity
TLC-LED-1500	LED 5700K - 75 CRI	1430W	160,000	>120,000	>120,000	>120,000	16
TLC-LED-900	LED 5700K - 75 CRI	890W	89,600	>120,000	>120,000	>120,000	16
TLC-BT-575	LED 5700K - 75 CRI	575W	52,000	>120,000	>120,000	>120,000	8

Single Luminaire Amperage Draw Chart

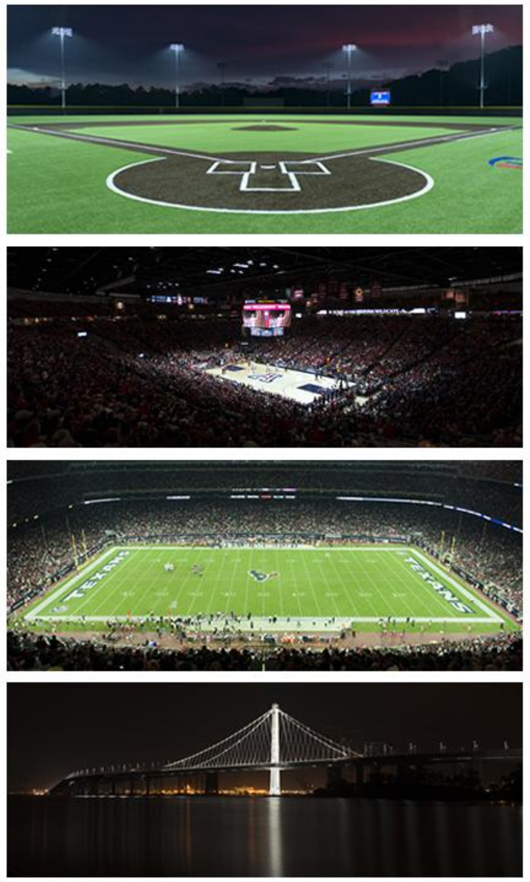
Driver (.90 min power factor)	Max Line Amperage Per Luminaire						
Single Phase Voltage	208 (60)	220 (60)	240 (60)	277 (60)	347 (60)	380 (60)	480 (60)
TLC-LED-1500	8.5	8.1	7.4	6.4	5.1	4.7	3.7
TLC-LED-900	5.3	5.0	4.6	4.0	3.2	2.9	2.3
TLC-BT-575	3.4	3.2	2.9	2.5	2.0	1.8	1.5

Light Level Summary

Calculation Grid Summary

Grid Name	Calculation Metric	Illumination					Circuits	Fixture Qty
		Ave	Min	Max	Max/Min	Ave/Min		
Blanket Grid	Horizontal	4.68	0	44	0.00		A,B	40
Football	Horizontal Illuminance	33.3	28	39	1.39	1.19	A,B	40
Long Jump/High Jump Area	Horizontal	21.7	9	40	4.67	2.41	A,B	40
Soccer	Horizontal Illuminance	32.9	24	39	1.63	1.37	A,B	40
Track	Horizontal Illuminance	16.1	4	30	7.08	4.01	A,B	40

From Hometown to Professional



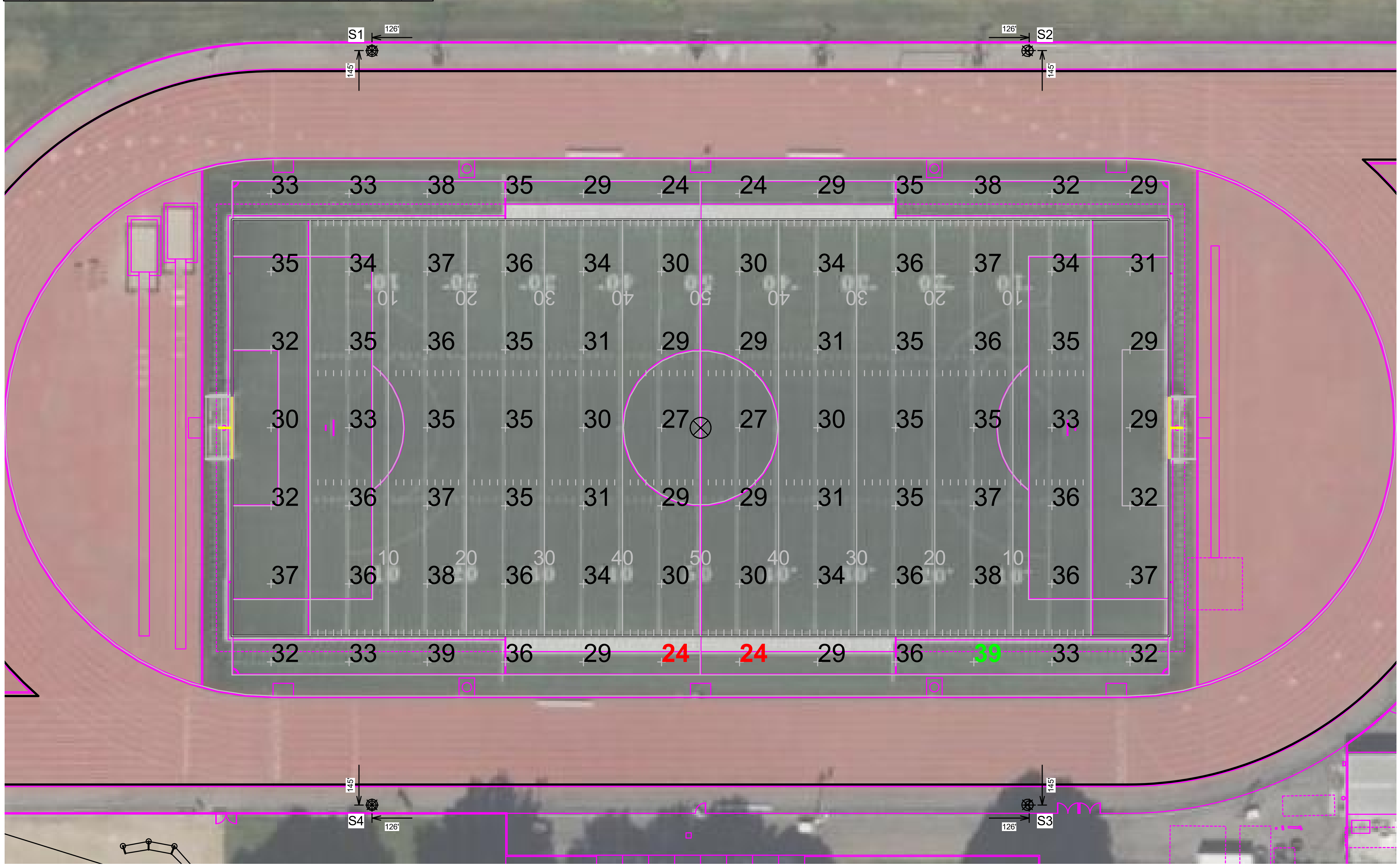
ENGINEERED DESIGN By: H.Sabers · File #141643H · 22-Mar-23

We Make It Happen.

PROJECT SUMMARY

EQUIPMENT LIST FOR AREAS SHOWN

Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE	THIS GRID	OTHER GRIDS
2	S1-S2	80'	-	80'	TLC-LED-900	5	5	0
				15.5'	TLC-BT-575	2	2	0
				80'	TLC-LED-1500	3	3	0
2	S3-S4	80'	-	80'	TLC-LED-900	3	3	0
				15.5'	TLC-BT-575	2	2	0
				80'	TLC-LED-1500	5	5	0
4	TOTALS					40	40	0



33	33	38	35	29	24	24	29	35	38	32	29
35	34	37	36	34	30	30	34	36	37	34	31
32	35	36	35	31	29	29	31	35	36	35	29
30	33	35	35	30	27	27	30	35	35	33	29
32	36	37	35	31	29	29	31	35	37	36	32
37	36	38	36	34	30	30	34	36	38	36	37
32	33	39	36	29	24	24	29	36	39	33	32

SCALE IN FEET 1 : 40

0' 40' 80'

Pole location(s) ✛ dimensions are relative to 0,0 reference point(s) ⊗

ENGINEERED DESIGN By: H.Sabers · File #141643H · 22-Mar-23

El Dorado High School Stadium/Track DSA
Placentia,CA

GRID SUMMARY

Name:	**Soccer**
Size:	360' x 190'
Spacing:	30.0' x 30.0'
Height:	3.0' above grade

ILLUMINATION SUMMARY

MAINTAINED HORIZONTAL FOOTCANDLES

	Entire Grid
Guaranteed Average:	**30**
Scan Average:	32.86
Maximum:	39
Minimum:	24
Avg / Min:	1.37
Guaranteed Max / Min:	**2.5**
Max / Min:	1.63
UG (adjacent pts):	1.25
CU:	0.55
No. of Points:	84

LUMINAIRE INFORMATION

Applied Circuits:	A, B
No. of Luminaires:	**40**
Total Load:	41.72 kW

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Musco Warranty document and includes a 0.95 dirt depreciation factor.

Field Measurements: Individual field measurements may vary from computer-calculated predictions and should be taken in accordance with IESNA RP-6-15.

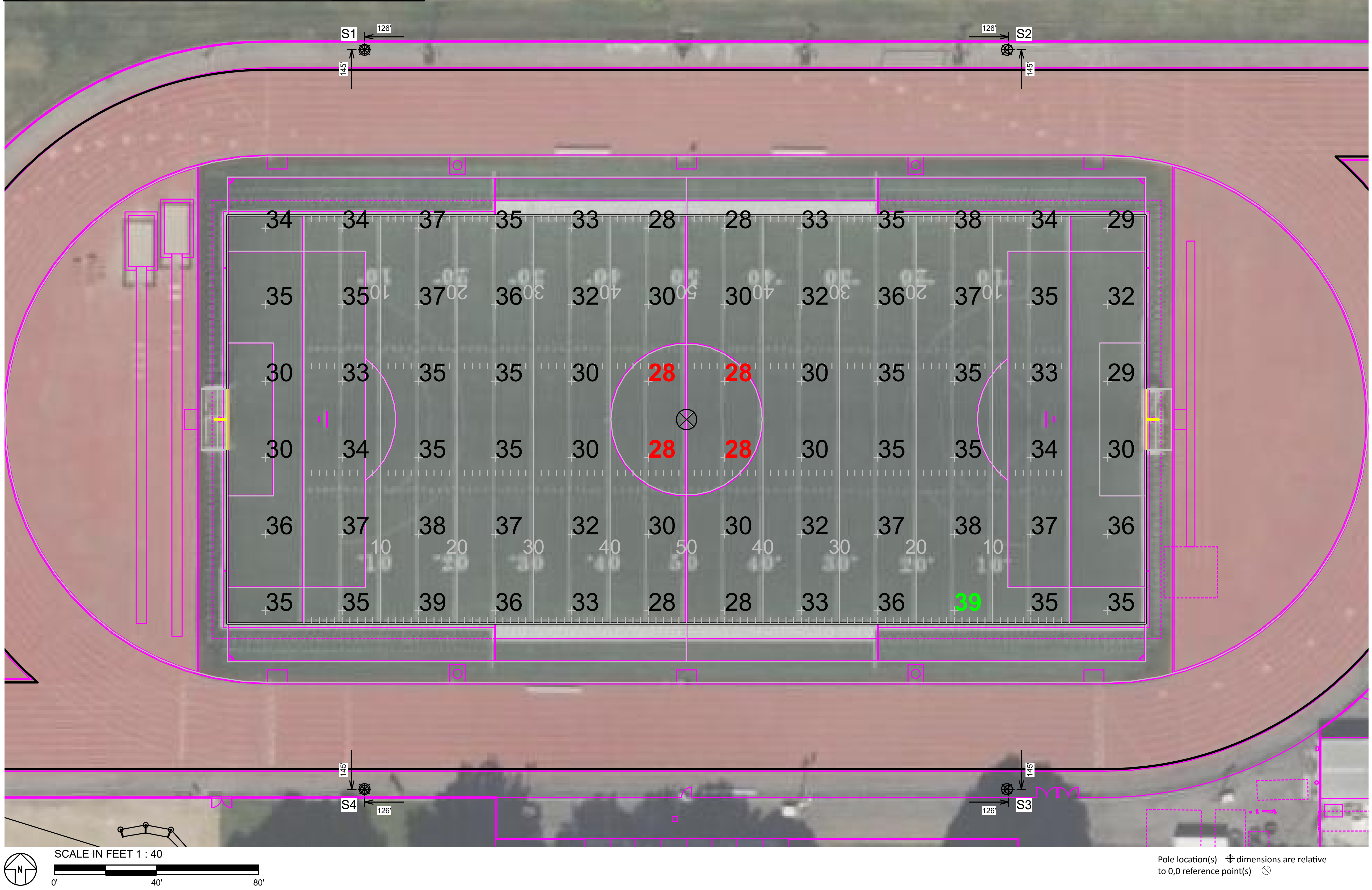
Electrical System Requirements: Refer to Amperage Draw Chart and/or the **"Musco Control System Summary"** for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.

We Make It Happen.

EQUIPMENT LIST FOR AREAS SHOWN

Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE	THIS GRID	OTHER GRIDS
2	S1-S2	80'	0'	80'	TLC-LED-900	5	5	0
				15.48'	TLC-BT-575	2	2	0
				80'	TLC-LED-1500	3	3	0
2	S3-S4	80'	0'	80'	TLC-LED-900	3	3	0
				15.48'	TLC-BT-575	2	2	0
				80'	TLC-LED-1500	5	5	0
4	TOTALS					40	40	0



34	34	37	35	33	28	28	33	35	38	34	29
35	35	37	36	32	30	30	32	36	37	35	32
30	33	35	35	30	28	28	30	35	35	33	29
30	34	35	35	30	28	28	30	35	35	34	30
36	37	38	37	32	30	30	32	37	38	37	36
35	35	39	36	33	28	28	33	36	39	35	35

Pole location(s) ✛ dimensions are relative to 0,0 reference point(s) ⊗

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El Dorado High School Stadium/Track DSA
Placentia,CA

GRID SUMMARY

Name:	Football
Size:	360' x 160'
Spacing:	30.0' x 30.0'
Height:	3.0' above grade

ILLUMINATION SUMMARY

MAINTAINED HORIZONTAL FOOTCANDLES

	Entire Grid
Guaranteed Average:	30
Scan Average:	33.30
Maximum:	39
Minimum:	28
Avg / Min:	1.20
Guaranteed Max / Min:	2.5
Max / Min:	1.39
UG (adjacent pts):	1.19
CU:	0.48
No. of Points:	72

LUMINAIRE INFORMATION

Applied Circuits:	A, B
No. of Luminaires:	40
Total Load:	41.72 kW

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Musco Warranty document and includes a 0.95 dirt depreciation factor.

Field Measurements: Individual field measurements may vary from computer-calculated predictions and should be taken in accordance with IESNA RP-6-15.

Electrical System Requirements: Refer to Amperage Draw Chart and/or the **"Musco Control System Summary"** for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.

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ILLUMINATION SUMMARY

EQUIPMENT LIST FOR AREAS SHOWN

Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE	THIS GRID	OTHER GRIDS
2	S1-S2	80'	0'	80'	TLC-LED-900	5	5	0
				15.52'	TLC-BT-575	2	2	0
				80'	TLC-LED-1500	3	3	0
2	S3-S4	80'	0'	80'	TLC-LED-900	3	3	0
				15.52'	TLC-BT-575	2	2	0
				80'	TLC-LED-1500	5	5	0
4	TOTALS					40	40	0

El Dorado High School Stadium/Track DSA
Placentia,CA

GRID SUMMARY

Name:	Track
Size:	Irregular
Spacing:	30.0' x 30.0'
Height:	3.0' above grade

ILLUMINATION SUMMARY

MAINTAINED HORIZONTAL FOOTCANDLES

	Entire Grid
Guaranteed Average:	**15**
Scan Average:	16.05
Maximum:	30
Minimum:	4
Avg / Min:	3.77
Max / Min:	**7.08**
UG (adjacent pts):	0.00
CU:	0.15
No. of Points:	48

LUMINAIRE INFORMATION

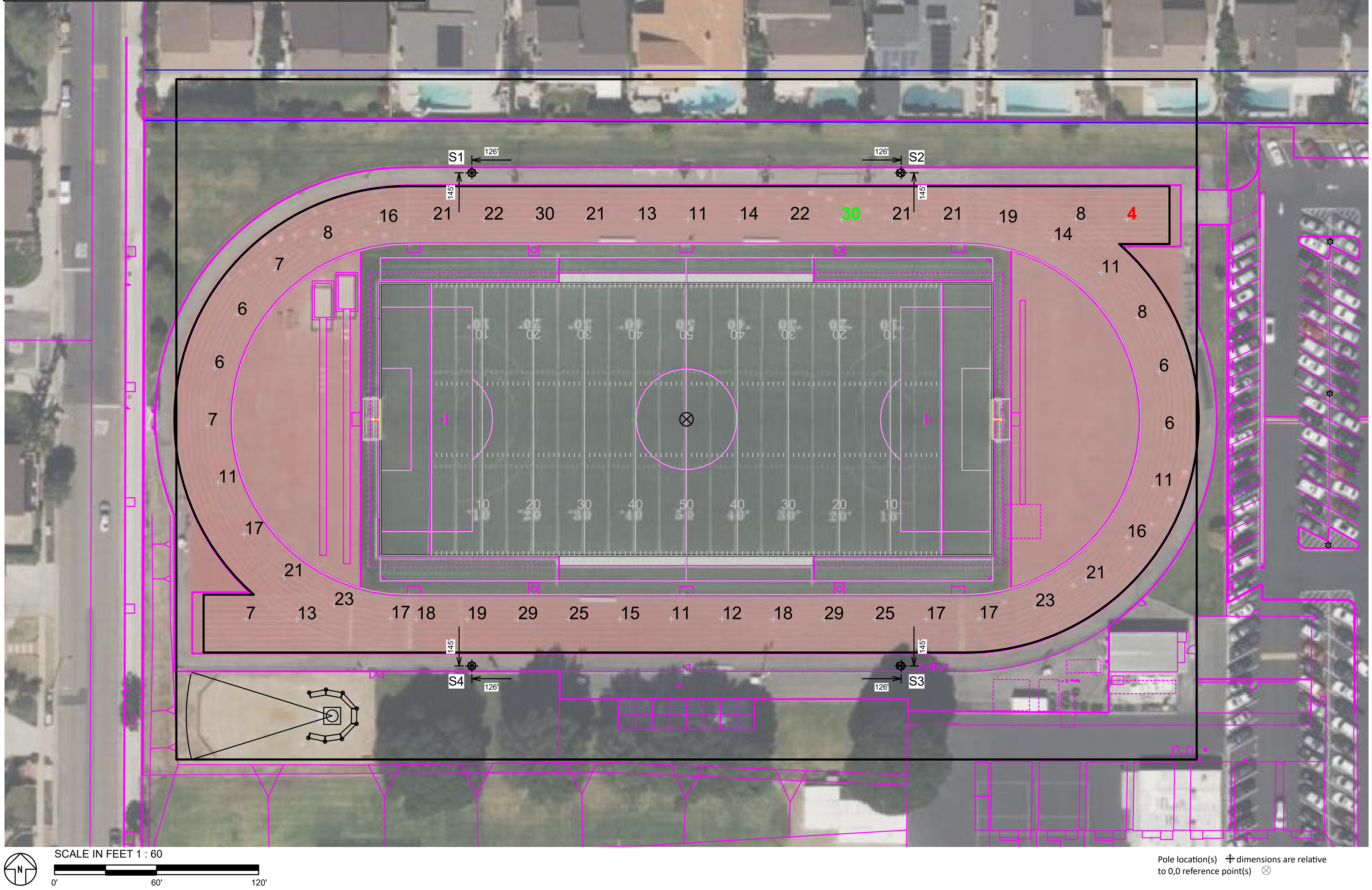
Applied Circuits:	A, B
No. of Luminaires:	**40**
Total Load:	41.72 kW

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Musco Warranty document and includes a 0.95 dirt depreciation factor.

Field Measurements: Individual field measurements may vary from computer-calculated predictions and should be taken in accordance with IESNA RP-6-15.

Electrical System Requirements: Refer to Amperage Draw Chart and/or the **"Musco Control System Summary"** for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.



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EQUIPMENT LIST FOR AREAS SHOWN

Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE	THIS GRID	OTHER GRIDS
2	S1-S2	80'	0'	80'	TLC-LED-900	5	5	0
				15.52'	TLC-BT-575	2	2	0
				80'	TLC-LED-1500	3	3	0
2	S3-S4	80'	0'	80'	TLC-LED-900	3	3	0
				15.52'	TLC-BT-575	2	2	0
				80'	TLC-LED-1500	5	5	0
4	TOTALS					40	40	0

SCALE IN FEET 1 : 50

0' 50' 100'

Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊗

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El Dorado High School Stadium/Track DSA
Placentia,CA

GRID SUMMARY

Name:	**Long Jump/High Jump Area**
Size:	Irregular
Spacing:	20.0' x 20.0'
Height:	3.0' above grade

ILLUMINATION SUMMARY

MAINTAINED HORIZONTAL FOOTCANDLES	
	Entire Grid
Scan Average:	**21.65**
Maximum:	40
Minimum:	9
Avg / Min:	2.55
Max / Min:	**4.67**
UG (adjacent pts):	1.76
CU:	0.11
No. of Points:	58
LUMINAIRE INFORMATION	
Applied Circuits:	A, B
No. of Luminaires:	**40**
Total Load:	41.72 kW

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Musco Warranty document and includes a 0.95 dirt depreciation factor.

Field Measurements: Individual field measurements may vary from computer-calculated predictions and should be taken in accordance with IESNA RP-6-15.

Electrical System Requirements: Refer to Amperage Draw Chart and/or the **"Musco Control System Summary"** for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.

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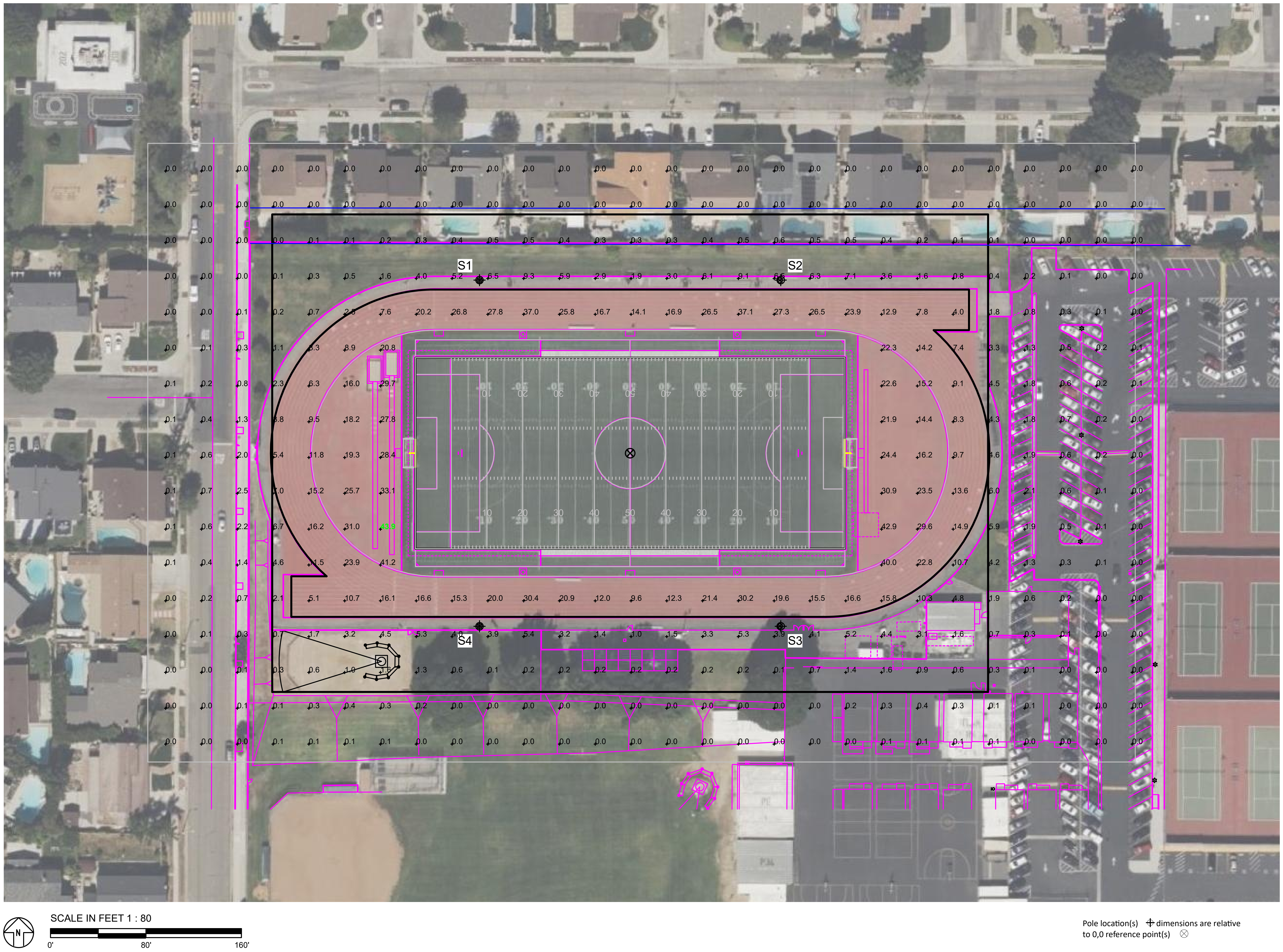

Pole location(s) ✛ dimensions are relative to 0,0 reference point(s) ⊗

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El Dorado High School Stadium/Track DSA
Placentia,CA

GRID SUMMARY

Name:	**Blanket Grid**
Spacing:	30.0' x 30.0'
Height:	3.0' above grade

ILLUMINATION SUMMARY

MAINTAINED HORIZONTAL FOOTCANDLES

	Entire Grid
Scan Average:	**4.68**
Maximum:	44
Minimum:	0
Avg / Min:	-
Max / Min:	-
UG (adjacent pts):	894.81
CU:	0.30
No. of Points:	385

LUMINAIRE INFORMATION

Applied Circuits:	A, B
No. of Luminaires:	**40**
Total Load:	41.72 kW

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Musco Warranty document and includes a 0.95 dirt depreciation factor.

Field Measurements: Individual field measurements may vary from computer-calculated predictions and should be taken in accordance with IESNA RP-6-15.

Electrical System Requirements: Refer to Amperage Draw Chart and/or the **"Musco Control System Summary"** for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.

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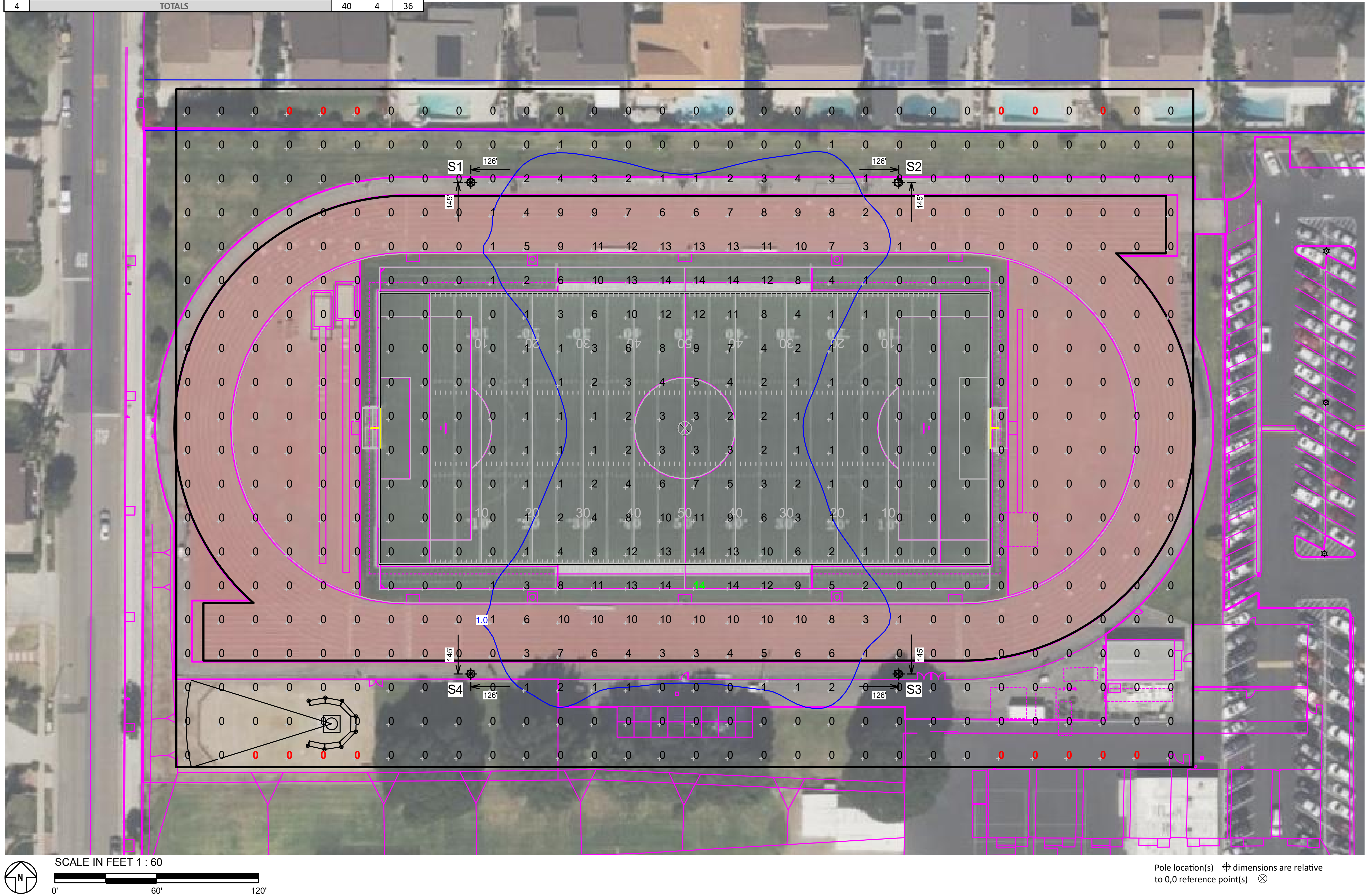
EQUIPMENT LIST FOR AREAS SHOWN

Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE	THIS GRID	OTHER GRIDS
2	S1-S2	80'	0'	80'	TLC-LED-900	5	1	4
				15.48'	TLC-BT-575	2	0	2
				80'	TLC-LED-1500	3	0	3
2	S3-S4	80'	0'	80'	TLC-LED-900	3	1	2
				15.48'	TLC-BT-575	2	0	2
				80'	TLC-LED-1500	5	0	5
4	TOTALS					40	4	36



0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	2	4	3	2	1	1	2	3	4	3	1	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	1	4	9	9	7	6	6	7	8	9	8	2	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	1	5	9	11	12	13	13	13	11	10	7	3	1	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	1	2	6	10	13	14	14	14	12	8	4	1	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	1	3	6	10	12	12	11	8	4	1	1	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	1	1	3	6	8	9	7	4	2	1	0	0	0	0	0	0	0	0	0	0
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0	0	0	0	0	0	0	0	0	0	1	1	1	2	3	3	2	2	1	1	0	0	0	0	0	0	0	0	0	0
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0	0	0	0	0	0	0	0	0	0	1	1	2	4	6	7	5	3	2	1	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	1	2	4	8	10	11	9	6	3	1	1	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	1	4	8	12	13	14	13	10	6	2	1	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	1	3	8	11	13	14	14	14	12	9	5	2	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	1	6	10	10	10	10	10	10	10	10	8	3	1	0	0	0	0	0	0	0	0
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0	0	0	0	0	0	0	0	0	0	1	2	1	1	0	0	0	1	1	2	0	0	0	0	0	0	0	0	0	0
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0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Pole location(s) ✛ dimensions are relative to 0,0 reference point(s) ⊗

ENGINEERED DESIGN By: H.Sabers · File #141643H · 22-Mar-23

El Dorado High School Stadium/Track DSA
Placentia,CA

GRID SUMMARY

Name:	**Egress Area**
Size:	600' x 400'
Spacing:	20.0' x 20.0'
Height:	3.0' above grade

ILLUMINATION SUMMARY

MAINTAINED HORIZONTAL FOOTCANDLES

	Entire Grid
Scan Average:	**1.55**
Maximum:	14
Minimum:	0
Avg / Min:	-
Max / Min:	-
UG (adjacent pts):	190.49
CU:	0.96
No. of Points:	600

LUMINAIRE INFORMATION

Applied Circuits:	B
No. of Luminaires:	**4**
Total Load:	3.56 kW

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Musco Warranty document and includes a 0.95 dirt depreciation factor.

Field Measurements: Individual field measurements may vary from computer-calculated predictions and should be taken in accordance with IESNA RP-6-15.

Electrical System Requirements: Refer to Amperage Draw Chart and/or the **"Musco Control System Summary"** for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.

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EQUIPMENT LIST FOR AREAS SHOWN

Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE	THIS GRID	OTHER GRIDS
2	S1-S2	80'	0'	80'	TLC-LED-900	5	5	0
				15.48'	TLC-BT-575	2	2	0
				80'	TLC-LED-1500	3	3	0
2	S3-S4	80'	0'	80'	TLC-LED-900	3	3	0
				15.48'	TLC-BT-575	2	2	0
				80'	TLC-LED-1500	5	5	0
4	TOTALS					40	40	0

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El Dorado High School Stadium/Track DSA
Placentia,CA

GRID SUMMARY

Name:	**Property Line Spill**
Spacing:	30.0'
Height:	3.0' above grade

ILLUMINATION SUMMARY

HORIZONTAL FOOTCANDLES

	Entire Grid
Scan Average:	0.2889
Maximum:	0.66
Minimum:	0.00
No. of Points:	27

LUMINAIRE INFORMATION

Applied Circuits:	A, B
No. of Luminaires:	**40**
Total Load:	41.72 kW

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Musco Warranty document.

Field Measurements: Individual field measurements may vary from computer-calculated predictions and should be taken in accordance with IESNA RP-6-15.

Electrical System Requirements: Refer to Amperage Draw Chart and/or the **"Musco Control System Summary"** for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.

Pole location(s) ✛ dimensions are relative to 0,0 reference point(s) ⊗

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ILLUMINATION SUMMARY

EQUIPMENT LIST FOR AREAS SHOWN

Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE	THIS GRID	OTHER GRIDS
2	S1-S2	80'	0'	80'	TLC-LED-900	5	5	0
				15.48'	TLC-BT-575	2	2	0
				80'	TLC-LED-1500	3	3	0
2	S3-S4	80'	0'	80'	TLC-LED-900	3	3	0
				15.48'	TLC-BT-575	2	2	0
				80'	TLC-LED-1500	5	5	0
4	TOTALS					40	40	0

El Dorado High School Stadium/Track DSA
Placentia,CA

GRID SUMMARY

Name:	**Property Line Spill**
Spacing:	30.0'
Height:	3.0' above grade

ILLUMINATION SUMMARY

MAX VERTICAL FOOTCANDLES

	Entire Grid
Scan Average:	0.3782
Maximum:	0.79
Minimum:	0.00
No. of Points:	27

LUMINAIRE INFORMATION

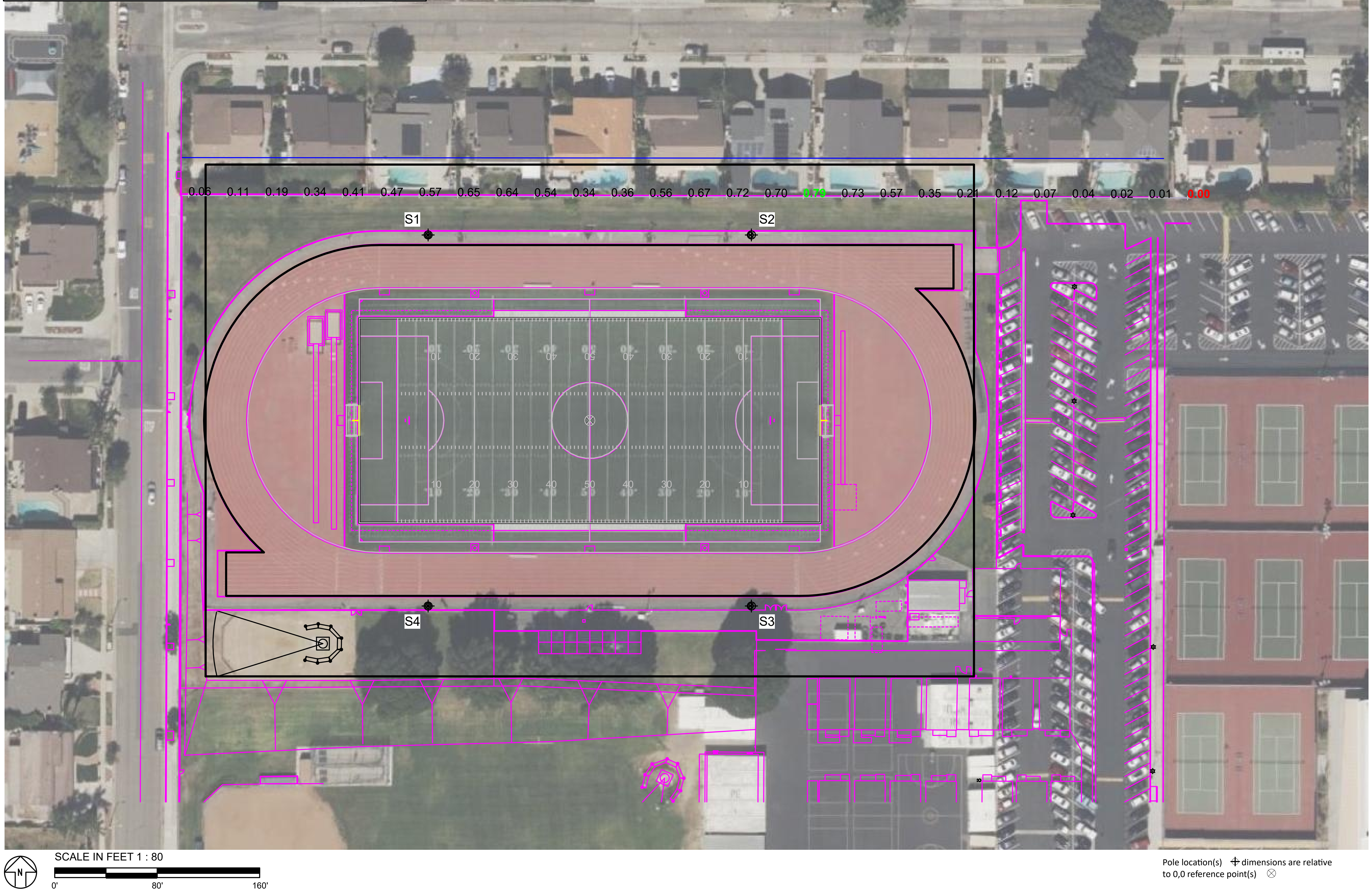
Applied Circuits:	A, B
No. of Luminaires:	**40**
Total Load:	41.72 kW

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Musco Warranty document.

Field Measurements: Individual field measurements may vary from computer-calculated predictions and should be taken in accordance with IESNA RP-6-15.

Electrical System Requirements: Refer to Amperage Draw Chart and/or the **"Musco Control System Summary"** for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.



Pole location(s) ✛ dimensions are relative to 0,0 reference point(s) ⊗

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EQUIPMENT LIST FOR AREAS SHOWN

Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE	THIS GRID	OTHER GRIDS
2	S1-S2	80'	0'	80'	TLC-LED-900	5	5	0
				15.48'	TLC-BT-575	2	2	0
				80'	TLC-LED-1500	3	3	0
2	S3-S4	80'	0'	80'	TLC-LED-900	3	3	0
				15.48'	TLC-BT-575	2	2	0
				80'	TLC-LED-1500	5	5	0
4	TOTALS					40	40	0

El Dorado High School Stadium/Track DSA
Placentia,CA

GRID SUMMARY

Name:	**Property Line Spill**
Spacing:	30.0'
Height:	3.0' above grade

ILLUMINATION SUMMARY

CANDELA (PER FIXTURE)

	Entire Grid
Scan Average:	2515.2422
Maximum:	4651.79
Minimum:	56.92
No. of Points:	27

LUMINAIRE INFORMATION

Applied Circuits:	A, B
No. of Luminaires:	**40**
Total Load:	41.72 kW

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Musco Warranty document.

Field Measurements: Individual field measurements may vary from computer-calculated predictions and should be taken in accordance with IESNA RP-6-15.

Electrical System Requirements: Refer to Amperage Draw Chart and/or the **"Musco Control System Summary"** for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.

SCALE IN FEET 1 : 80

Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊗

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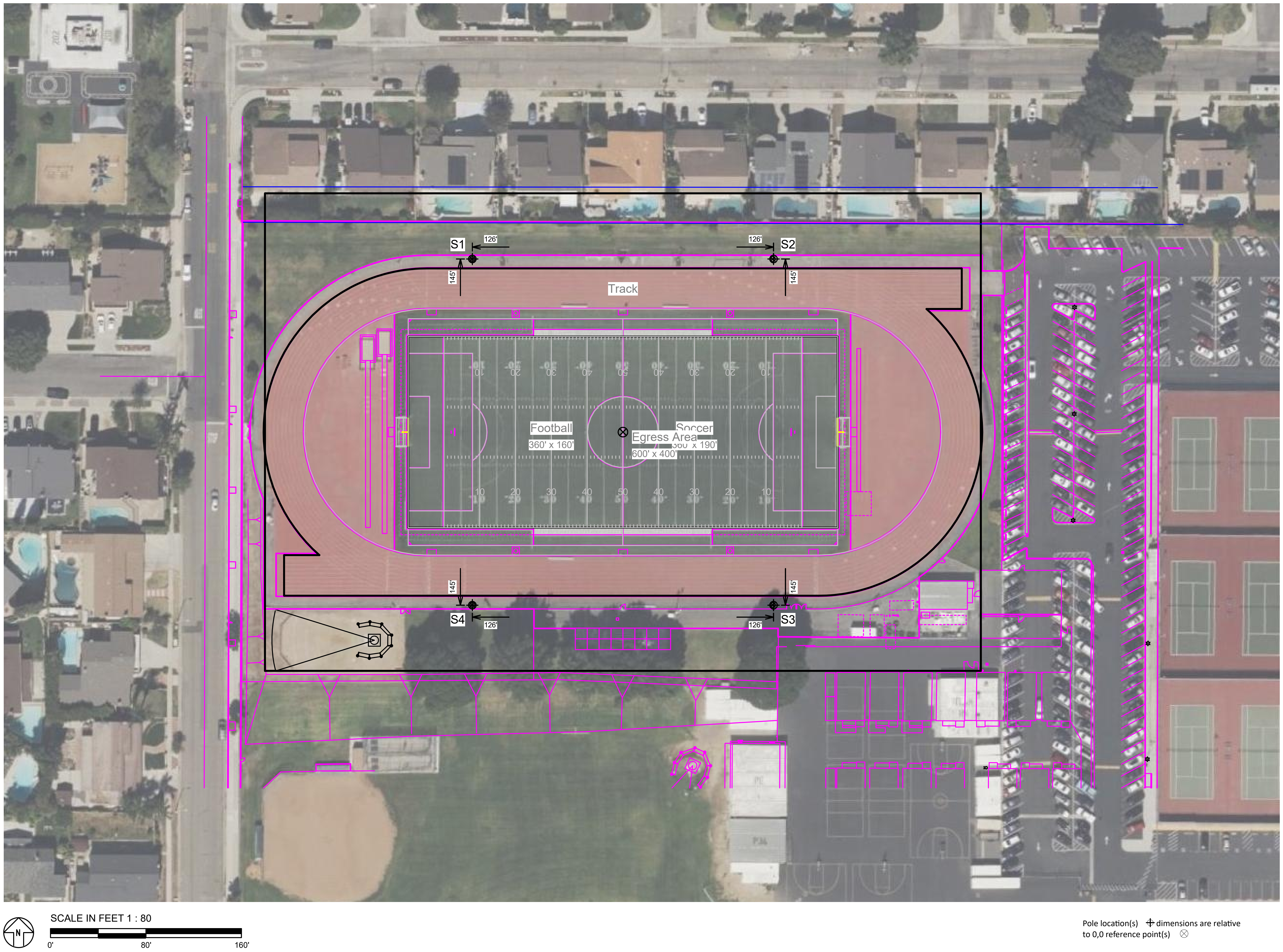
ILLUMINATION SUMMARY



SCALE IN FEET 1 : 80

ENGINEERED DESIGN By: H.Sabers · File #141643H · 22-Mar-23

El Dorado High School Stadium/Track DSA
Placentia,CA

EQUIPMENT LAYOUT

INCLUDES:
- Egress Area
- Football
- Soccer
- Track

Electrical System Requirements: Refer to Amperage Draw Chart and/or the **"Musco Control System Summary"** for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.

EQUIPMENT LIST FOR AREAS SHOWN

Pole				Luminaires		
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE
2	S1-S2	80'	-	80'	TLC-LED-900	5
				15.5'	TLC-BT-575	2
				80'	TLC-LED-1500	3
2	S3-S4	80'	-	80'	TLC-LED-900	3
				15.5'	TLC-BT-575	2
				80'	TLC-LED-1500	5
4	TOTALS					40

SINGLE LUMINAIRE AMPERAGE DRAW CHART

Driver (.90 min power factor)	Line Amperage Per Luminaire (max draw)						
Single Phase Voltage	208 (60)	220 (60)	240 (60)	277 (60)	347 (60)	380 (60)	480 (60)
TLC-LED-1500	8.5	8.1	7.4	6.4	5.1	4.7	3.7
TLC-LED-900	5.3	5.0	4.6	4.0	3.2	2.9	2.3
TLC-BT-575	3.4	3.2	2.9	2.5	2.0	1.8	1.5

Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊗

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Appendix C Air Quality and Greenhouse Data

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Air Quality and Greenhouse Gas Appendix

Emissions Worksheet

Regional Construction Emissions Worksheet:

3.2 Demolition (2023)

	ROG	NOx	CO	SO_2	PM10 Total	PM2.5Total
Onsite						
Off-Road Equipment	0.54	4.99	5.91	0.01	0.21	0.20
Demolition					0.00	0.00
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00
Total	**0.54**	**4.99**	**5.91**	**0.01**	**0.21**	**0.20**
Offsite						
Worker	0.04	0.04	0.65	0.00	0.01	0.00
Vendor	0.01	0.21	0.11	0.01	0.01	0.01
Hauling	0.00	0.00	0.00	0.00	0.00	0.00
Total	**0.05**	**0.25**	**0.76**	**0.01**	**0.02**	**0.01**
TOTAL	***0.59***	***5.24***	***6.67***	***0.02***	***0.23***	***0.21***
Onsite						
Off-Road Equipment	0.03	0.30	0.36	0.01	0.01	0.01
Demolition					0.00	0.00
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00
Total	**0.03**	**0.30**	**0.36**	**0.01**	**0.01**	**0.01**
Offsite						
Worker	0.01	0.01	0.01	0.00	0.01	0.00
Vendor	0.01	0.01	0.01	0.01	0.01	0.01
Hauling	0.00	0.00	0.00	0.00	0.00	0.00
Total	**0.01**	**0.01**	**0.02**	**0.01**	**0.01**	**0.01**
TOTAL	***0.04***	***0.31***	***0.38***	***0.01***	***0.02***	***0.02***
Onsite						
Off-Road	0.54	4.99	5.91	0.01	0.21	0.20
Demolition	0.00	0.00	0.00	0.00	0.00	0.00
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00
Total	**0.54**	**4.99**	**5.91**	**0.01**	**0.21**	**0.20**
Offsite						
Worker	0.04	0.04	0.65	0.00	0.01	0.00
Vendor	0.01	0.21	0.11	0.01	0.01	0.01
Hauling	0.00	0.00	0.00	0.00	0.00	0.00
Total	**0.05**	**0.25**	**0.76**	**0.01**	**0.02**	**0.01**
TOTAL	***0.59***	***5.24***	***6.67***	***0.02***	***0.23***	***0.21***

3.4. Site Preparation (2023)

	ROG	NOx	CO	SO2	PM10 Total	PM2.5 Total
Onsite						
Off-Road Equipment	0.54	5.02	5.57	0.01	0.27	0.25
Dust From Material Movement					0.53	0.06
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00
Total	**0.54**	**5.02**	**5.57**	**0.01**	**0.80**	**0.31**
Offsite						
Worker	0.02	0.02	0.33	0.00	0.01	0.00
Vendor	0.01	0.21	0.11	0.01	0.01	0.01
Hauling	0.00	0.00	0.00	0.00	0.00	0.00
Total	**0.03**	**0.23**	**0.44**	**0.01**	**0.02**	**0.01**
TOTAL	***0.57***	***5.25***	***6.01***	***0.02***	***0.82***	***0.32***
Onsite						
Off-Road Equipment	0.03	0.30	0.34	0.01	0.02	0.01
Dust From Material Movement					0.03	0.01
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00
Total	**0.03**	**0.30**	**0.34**	**0.01**	**0.05**	**0.02**
Offsite						
Worker	0.01	0.01	0.02	0.00	0.01	0.00
Vendor	0.01	0.01	0.01	0.01	0.01	0.01
Hauling	0.00	0.00	0.00	0.00	0.00	0.00
Total	**0.01**	**0.02**	**0.03**	**0.01**	**0.01**	**0.01**
TOTAL	***0.04***	***0.32***	***0.37***	***0.01***	***0.06***	***0.02***
Onsite						
Off-Road Equipment	0.54	5.02	5.57	0.01	0.27	0.25
Dust From Material Movement	0.00	0.00	0.00	0.00	0.53	0.06
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00
Total	**0.54**	**5.02**	**5.57**	**0.01**	**0.80**	**0.31**
Offsite						
Hauling	0.02	0.02	0.33	0.00	0.01	0.00
Vendor	0.01	0.21	0.11	0.01	0.01	0.01
Worker	0.00	0.00	0.00	0.00	0.00	0.00
Total	**0.03**	**0.23**	**0.44**	**0.01**	**0.02**	**0.01**
TOTAL	***0.57***	***5.25***	***6.01***	***0.02***	***0.82***	***0.32***

3.6. Light Pole Haul (2023)

		ROG	NOx	CO	SO2	PM10 Total	PM2.5 Total
Onsite							
	Off-Road Equipment	0.00	0.00	0.00	0.00	0.00	0.00
	Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00
	Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Offsite							
	Worker	0.00	0.00	0.00	0.00	0.00	0.00
	Vendor	0.00	0.00	0.00	0.00	0.00	0.00
	Hauling	0.01	0.73	0.32	0.01	0.05	0.02
	Total	**0.01**	**0.73**	**0.32**	**0.01**	**0.05**	**0.02**
TOTAL		***0.01***	***0.73***	***0.32***	***0.01***	***0.05***	***0.02***
Onsite							
	Off-Road Equipment	0.00	0.00	0.00	0.00	0.00	0.00
	Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00
	Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Offsite							
	Worker	0.00	0.00	0.00	0.00	0.00	0.00
	Vendor	0.00	0.00	0.00	0.00	0.00	0.00
	Hauling	0.01	0.01	0.01	0.01	0.01	0.01
	Total	**0.01**	**0.01**	**0.01**	**0.01**	**0.01**	**0.01**
TOTAL		***0.01***	***0.01***	***0.01***	***0.01***	***0.01***	***0.01***
Onsite							
	Off-Road Equipment	0.00	0.00	0.00	0.00	0.00	0.00
	Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00
	Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Offsite							
	Hauling	0.00	0.00	0.00	0.00	0.00	0.00
	Vendor	0.00	0.00	0.00	0.00	0.00	0.00
	Worker	0.01	0.73	0.32	0.01	0.05	0.02
	Total	**0.01**	**0.73**	**0.32**	**0.01**	**0.05**	**0.02**
TOTAL		***0.01***	***0.73***	***0.32***	***0.01***	***0.05***	***0.02***

3.8. Light Pole Installation (2023)

		ROG	NOx	CO	SO2	PM10 Total	PM2.5 Total
Onsite							
	Off-Road Equipment	0.38	3.83	5.40	0.01	0.20	0.18
	Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00
	Total	**0.38**	**3.83**	**5.40**	**0.01**	**0.20**	**0.18**
Offsite							
	Worker	0.01	0.01	0.13	0.00	0.01	0.00
	Vendor	0.01	0.04	0.02	0.01	0.01	0.01
	Hauling	0.00	0.00	0.00	0.00	0.00	0.00
	Total	**0.02**	**0.05**	**0.15**	**0.01**	**0.01**	**0.01**
TOTAL		***0.40***	***3.88***	***5.55***	***0.02***	***0.21***	***0.19***
Onsite							
	Off-Road Equipment	0.01	0.13	0.18	0.01	0.01	0.01
	Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00
	Total	**0.01**	**0.13**	**0.18**	**0.01**	**0.01**	**0.01**
Offsite							
	Worker	0.01	0.01	0.01	0.00	0.01	0.00
	Vendor	0.01	0.01	0.01	0.01	0.01	0.01
	Hauling	0.00	0.00	0.00	0.00	0.00	0.00
	Total	**0.01**	**0.01**	**0.01**	**0.01**	**0.01**	**0.01**
TOTAL		***0.02***	***0.14***	***0.19***	***0.01***	***0.02***	***0.02***
Onsite							
	Off-Road Equipment	0.38	3.83	5.40	0.01	0.20	0.18
	Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00
	Total	**0.38**	**3.83**	**5.40**	**0.01**	**0.20**	**0.18**
Offsite							
	Hauling	0.01	0.01	0.13	0.00	0.01	0.00
	Vendor	0.01	0.04	0.02	0.01	0.01	0.01
	Worker	0.00	0.00	0.00	0.00	0.00	0.00
	Total	**0.02**	**0.05**	**0.15**	**0.01**	**0.01**	**0.01**
TOTAL		***0.40***	***3.88***	***5.55***	***0.02***	***0.21***	***0.19***

	ROG	NOx	CO	SO2	PM10 Total	PM2.5 Total
Demolition and Site Preparation	*1*	*10*	*13*	*0*	*1*	*1*
Demolition, Site Preparation, and Light Pole Haul	*1*	*11*	*13*	*0*	*1*	*1*
Demolition, Site Preparation, Light Pole Haul, and Light Pole Installation	*2*	*15*	*19*	*0*	*1*	*1*
Demolition, Site Preparation, Light Pole Installation	*2*	*14*	*18*	*0*	*1*	*1*
MAX DAILY	**2**	**15**	**19**	**0**	**1**	**1**
Regional Thresholds	**75**	**100**	**550**	**150**	**150**	**55**
Exceeds Thresholds?	No	No	No	No	No	No

Construction LST Worksheet:

3.2 Demolition (2023)

	NOx	CO	PM10 Total	PM2.5Total
Onsite				
Off-Road Equipment	4.99	5.91	0.21	0.20
Demolition			0.00	0.00
Onsite truck	0.00	0.00	0.00	0.00
Total	**4.99**	**5.91**	**0.21**	**0.20**
TOTAL	***4.99***	***5.91***	***0.21***	***0.20***
Onsite				
Off-Road Equipment	0.30	0.36	0.01	0.01
Demolition			0.00	0.00
Onsite truck	0.00	0.00	0.00	0.00
Total	**0.30**	**0.36**	**0.01**	**0.01**
TOTAL	***0.30***	***0.36***	***0.01***	***0.01***
Onsite				
Off-Road	4.99	5.91	0.21	0.20
Demolition	0.00	0.00	0.00	0.00
Onsite truck	0.00	0.00	0.00	0.00
Total	**4.99**	**5.91**	**0.21**	**0.20**
TOTAL	***4.99***	***5.91***	***0.21***	***0.20***

3.4. Site Preparation (2023)

	NOx	CO	PM10 Total	PM2.5 Total
Onsite				
Off-Road Equipment	5.02	5.57	0.27	0.25
Dust From Material Movement			0.53	0.06
Onsite truck	0.00	0.00	0.00	0.00
Total	**5.02**	**5.57**	**0.80**	**0.31**
TOTAL	***5.02***	***5.57***	***0.80***	***0.31***
Onsite				
Off-Road Equipment	0.30	0.34	0.02	0.01
Dust From Material Movement			0.03	0.01
Onsite truck	0.00	0.00	0.00	0.00
Total	**0.30**	**0.34**	**0.05**	**0.02**
TOTAL	***0.30***	***0.34***	***0.05***	***0.02***
Onsite				
Off-Road Equipment	5.02	5.57	0.27	0.25
Dust From Material Movement	0.00	0.00	0.53	0.06
Onsite truck	0.00	0.00	0.00	0.00
Total	**5.02**	**5.57**	**0.80**	**0.31**
TOTAL	***5.02***	***5.57***	***0.80***	***0.31***

3.6. Light Pole Haul (2023)

		NOx	CO	PM10 Total	PM2.5 Total
Onsite					
	Off-Road Equipment	0.00	0.00	0.00	0.00
	Onsite truck	0.00	0.00	0.00	0.00
	Total	**0.00**	**0.00**	**0.00**	**0.00**
TOTAL		***0.00***	***0.00***	***0.00***	***0.00***
Onsite					
	Off-Road Equipment	0.00	0.00	0.00	0.00
	Onsite truck	0.00	0.00	0.00	0.00
	Total	**0.00**	**0.00**	**0.00**	**0.00**
TOTAL		***0.00***	***0.00***	***0.00***	***0.00***
Onsite					
	Off-Road Equipment	0.00	0.00	0.00	0.00
	Onsite truck	0.00	0.00	0.00	0.00
	Total	**0.00**	**0.00**	**0.00**	**0.00**
TOTAL		***0.00***	***0.00***	***0.00***	***0.00***

3.8. Light Pole Installation (2023)

		NOx	CO	PM10 Total	PM2.5 Total
Onsite					
	Off-Road Equipment	3.83	5.40	0.20	0.18
	Onsite truck	0.00	0.00	0.00	0.00
	Total	**3.83**	**5.40**	**0.20**	**0.18**
TOTAL		***3.83***	***5.40***	***0.20***	***0.18***
Onsite					
	Off-Road Equipment	0.13	0.18	0.01	0.01
	Onsite truck	0.00	0.00	0.00	0.00
	Total	**0.13**	**0.18**	**0.01**	**0.01**
TOTAL		***0.13***	***0.18***	***0.01***	***0.01***
Onsite					
	Off-Road Equipment	3.83	5.40	0.20	0.18
	Onsite truck	0.00	0.00	0.00	0.00
	Total	**3.83**	**5.40**	**0.20**	**0.18**
TOTAL		***3.83***	***5.40***	***0.20***	***0.18***

	NOx	**CO**	**PM10 Total**	**PM2.5 Total**
Demolition and Site Preparation	***10***	***11***	***1.01***	***0.51***
≤1.00 Acre LST	***103***	***522***	***4.00***	***3.00***
Exceeds LST?	***no***	***no***	***no***	***no***
Demolition, Site Preparation, and Light Pole Haul	***10***	***11***	***1.01***	***0.51***
≤1.00 Acre LST	***103***	***522***	***4.00***	***3.00***
Exceeds LST?	***no***	***no***	***no***	***no***
Demolition, Site Preparation, Light Pole Haul, and Light Pole Installation	***14***	***17***	***1.21***	***0.69***
≤1.00 Acre LST	***103***	***522***	***4.00***	***3.00***
Exceeds LST?	***no***	***no***	***no***	***no***
Demolition, Site Preparation, and Light Pole Installation	***14***	***17***	***1.21***	***0.69***
≤1.00 Acre LST	***103***	***522***	***4.00***	***3.00***
Exceeds LST?	***no***	***no***	***no***	***no***

GHG Emissions Inventory

Proposed Project Buildout

Construction[1]

	$MTCO_2e$
2023	29
30-Year Amortization[2]	**1**

Notes

[1] CalEEMod, Version 2022.1

[2] Total construction emissions are amortized over 30 years per SCAQMD methodology; SCAQMD. 2009, November 19. Greenhouse Gases (GHG) CEQA Significance Thresholds Working Group Meeting 14. http://www.aqmd.gov/docs/default-source/ceqa/handbook/greenhouse-gases-(ghg)-ceqa-significance-thresholds/year-2008-2009/ghg-meeting-14/ghg-meeting-14-main-presentation.pdf?sfvrsn=2.

Operations[1]

	$MTCO_2e$/Year[2] Operations	%
Mobile	0	0%
Area	0	0%
Energy	6	83%
Water	0	0%
Solid Waste	0	0%
Refrigerants	0	3%
30-Year Construction Amortization	1	14%
	7	100%
South Coast AQMD Bright-Line Screening Threshold	**3,000**	
Exceed Threshold?	**No**	

Notes

[1] CalEEMod, Version 2022.1

[2] $MTCO_2e$=metric tons of carbon dioxide equivalent.

Assumptions Worksheet

CalEEMod Inputs- El Dorado High School Lighting Project, Construction

Name:	El Dorado High School Lighting Project, Construction
Project Number:	PYL-05
Project Location:	1651 Valencia Ave, Placentia, CA 92870
County/Air Basin:	Orange County
Climate Zone:	8
Land Use Setting:	Urban
Operational Year:	2023
Utility Company:	Southern California Edison
Air Basin:	South Coast Air Basin
Air District:	South Coast AQMD
SRA:	16 - North Orange County

CalEEMod Land Use Inputs

Land Use Type	Land Use Subtype	Unit Amount	Size Metric	Lot Acreage	Land Use Square Feet
Parking	Other Non-Asphalt Surfaces	4.000	1000 sqft	0.09	4,000
				0.09	

Construction Mitigation

SCAQMD Rule 403

Replace Ground Cover	PM10:	5	% Reduction
	PM25:	5	% Reduction
Water Exposed Area	Frequency:	2	per day
	PM10:	61	% Reduction
	PM25:	61	% Reduction
Unpaved Roads	Vehicle Speed:	25	mph

SCAQMD Rule 1186

	Clean Paved Road	9	% PM Reduction

Southern California Edison Carbon Intensity Factors

CO2:[1,2]	449.98	pounds per megawatt hour
CH4:[3]	0.033	pound per megawatt hour
N2O:[3]	0.004	pound per megawatt hour

Notes:

1 Based on CO2e intensity factor of 452 pounds per megawatt hour; Southern California Edison. 2022. 2021 Sustainability Report. https://www.edison.com/home/sustainability/sustainability-report.html

2 Based on Intergovernmental Panel on Climate Change Fourth Assessment Report global warming potentials for CH4 and N2O; Intergovernmental Panel on Climate Change (IPCC). 2007. Fourth Assessment Report: Climate Change 2007.

3 CalEEMod default values.

Global Warming Potentials (GWP)

	AR4	AR5
CO_2	1	1
CH_4	25	28
N_2O	298	265

Based on Intergovernmental Panel on Climate Change Fourth Assessment Report global warming potentials for CH4 and N2O; Intergovernmental Panel on Climate Change (IPCC).

Construction Activities and Schedule Assumptions

* based on schedule from similar project in the region

		Construction Schedule		
Construction Activities	**Phase Type**	**Start Date**	**End Date**	**CalEEMod Duration (Workday)**
Demolition	Demolition	7/1/2023	8/1/2023	22
Site Preparation	Site Preparation	7/1/2023	8/1/2023	22
Light Pole Haul	Building Construction	7/13/2023	7/15/2023	2
Light Pole Installation	Building Construction	7/15/2023	8/1/2023	12
			Total Days	**31**

Overlapping Construction Schedule (CalEEMod)

Construction Activities	Start Date	End Date	CalEEMod Duration (Workday)
Demolition and Site Preparation	7/1/2023	7/12/2023	8
Demolition, Site Preparation, and Light Pole Haul	7/13/2023	7/14/2023	2
Demolition, Site Preparation, Light Pole Haul, and Light Pole Installation	7/15/2023	7/15/2023	0
Demolition, Site Preparation, Light Pole Installation	7/16/2023	8/1/2023	12

CalEEMod Construction Off-Road Equipment Inputs

Water Truck Vendor Trip Calculation

Amount of Water (gal/acre/day)[1]	Water Truck Capacity (gallons)[2]
10,000	4,000

Notes:

[1] *Based on data provided in Guidance for Application for Dust Control Permit*
Maricopa County Air Quality Department. 2005, June. Guidance for Application of Dust Control Permit.
https://www.epa.gov/sites/default/files/2019-

[2] *Based on standard water truck capacity:*
McLellan Industries. 2022, January (access). Water Trucks. https://www.mclellanindustries.com/trucks/water-trucks/

[3] *Assumes that dozers, tractors/loaders/backhoes, and graders can disturb 0.50 acres per day and scrapers can disturb 1 acre per day.*

Construction Equipment Details					
Equipment	**# of Equipment**	**hr/day**	**hp**	**load factor***	**total trips per day**
Demolition					
Concrete/Industrial Saws	1	8	33	0.73	
Rubber Tired Dozers	1	1	367	0.40	
Tractors/Loaders/Backhoes	2	6	84	0.37	
Worker Trips					10
Vendor Trips					0
Hauling Trips					0
Water Trucks		Acres Disturbed:	0.8125		6
Site Preperation					
Graders	1	8	148	0.41	
Tractors/Loaders/Backhoes	1	8	84	0.37	
Worker Trips					5
Vendor Trips					0
Hauling Trips					0
Water Trucks		Acres Disturbed:	1		6

Number of Light Poles	Assumed Hauling Trucks per Light Pole	Total One-Way Trips
4	2	16

Light Pole Haul					
no additional equipment required for light pole hauling					
Worker Trips					0
Vendor Trips					0
Hauling Trips					8
Light Pole Installation					
Forklift	2	8	82	0.2	
Tractors/Loaders/Backhoes	2	8	84	0.37	
Worker Trips					2
Vendor Trips					1
Hauling Trips					0

Phase Name	Worker Trip Ends Per Day	Vendor Trip Ends Per Day	Haul Truck Trip Ends Per Day	Total Haul Truck Trip Ends	Total Trip Ends Per Day
Demolition	10	6	0	0	16
Site Preparation	5	6	0	0	11
Light Pole Haul	0	0	8	16	8
Light Pole Installation	2	1	0	0	2

Construction Activity (Overlapping)	Worker Trip Ends Per Day	Vendor Trip Ends Per Day	Haul Truck Trip Ends Per Day	Total Trip Ends Per Day	
Demolition and Site Preparation	15	12	0	27	
Demolition, Site Preparation, and Light Pole Haul	15	12	8	35	
Demolition, Site Preparation, Light Pole Haul, and Light Pole Installation	17	13	8	37	
Demolition, Site Preparation, Light Pole Installation	17	13	0	29	
Maximum Daily Trips	**17**	**13**	**8**	**37**	

CalEEMod Inputs- El Dorado High School Lighting Project, Operations

Name:	El Dorado High School Lighting Project, Operations
Project Number:	PYL-05
Project Location:	1651 Valencia Ave, Placentia, CA 92870
County/Air Basin:	Orange County
Climate Zone:	8
Land Use Setting:	Urban
Operational Year:	2023
Utility Company:	Southern California Edison
Air Basin:	South Coast Air Basin
Air District:	South Coast AQMD
SRA:	16 - North Orange County

CalEEMod Land Use Inputs

Land Use Type	Land Use Subtype	Unit Amount	Size Metric	Lot Acreage	Land Use Square Feet
Parking	Other Non-Asphalt Surfaces	4.000	1000 sqft	0.09	4,000
				0.09	

Lighting (Electricity Use)

Electricity:

	Total Average kW/Event [1]	Events/Year[2]	Hours[3]	Kwh (Annual)
Practices/Games	38.92	209	3.33	27,066
			Total Annual kWh	**27,066**

Calculation of GHGs from Field Lighting

CO_2 [4]	CH_4 [4]	N_2O [4]	CO_2e	CO_2e
lbs/Mwh	lbs/Mwh	lbs/Mwh	lbs/Mwh	MT/Kwh
449.98	0.03300	0.00400	450.02	0.0002

CO_2e from Lighting (MT/Year)	**5.52**

Notes

[1] Based on Musco Lighting Plan for the proposed lighting as provided by the District.

[2] Based on the practice schedule from District. Assumes 4 days of use per week.

[3] Based on average hours of lighting per event

Southern California Edison Carbon Intensity Factors

CO2:[1,2]	449.98	pounds per megawatt hour
CH4:[3]	0.033	pound per megawatt hour
N2O:[3]	0.004	pound per megawatt hour

Notes:

1 Based on CO2e intensity factor of 452 pounds per megawatt hour; Southern California Edison. 2022. 2021 Sustainability Report. https://www.edison.com/home/sustainability/sustainability-report.html

2 Based on Intergovernmental Panel on Climate Change Fourth Assessment Report global warming

3 CalEEMod default values.

Global Warming Potentials (GWP)

	AR4	AR5
CO_2	1	1
CH_4	25	28
N_2O	298	265

Based on Intergovernmental Panel on Climate Change Fourth Assessment Report global warming potentials for CH4 and N2O; Intergovernmental Panel on Climate Change (IPCC).

CalEEMod Outputs

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	El Dorado High School Lighting Project
Lead Agency	
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	1.8
Precipitation (days)	21.2
Location	33.89424892713437, -117.8581416193211
County	Orange
City	Placentia
Air District	South Coast AQMD
Air Basin	South Coast
TAZ	5767
EDFZ	7
Electric Utility	Southern California Edison
Gas Utility	Southern California Gas

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
Other Non-Asphalt Surfaces	4	1000sqft	0.09	0	0			

1.3. User-Selected Emission Reduction Measures by Emissions Sector

Sector	#	Measure Title
Construction	C-10-C	Water Unpaved Construction Roads
Construction	C-11	Limit Vehicle Speeds on Unpaved Roads
Construction	C-12	Sweep Paved Roads

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

Un/Mit.	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Daily, Summer (Max)																		
Unmit.	1.92	1.55	15.1	18.5	0.03	0.69	1.01	1.7	0.64	0.18	0.82		3756	3756	0.18	0.18	3.37	3817
Mit.	1.92	1.55	15.1	18.5	0.03	0.69	1.01	1.7	0.64	0.18	0.82		3756	3756	0.18	0.18	3.37	3817
% Reduced																		
Average Daily (Max)																		
Unmit.	0.1	0.08	0.77	0.94	< 0.005	0.04	0.05	0.09	0.03	0.01	0.04		171	171	0.01	0.01	0.06	172
Mit.	0.1	0.08	0.77	0.94	< 0.005	0.04	0.05	0.09	0.03	0.01	0.04		171	171	0.01	0.01	0.06	172
% Reduced																		
Annual (Max)																		
Unmit.	0.02	0.01	0.14	0.17	< 0.005	0.01	0.01	0.02	0.01	< 0.005	0.01		28.2	28.2	< 0.005	< 0.005	0.01	28.5
Mit.	0.02	0.01	0.14	0.17	< 0.005	0.01	0.01	0.02	0.01	< 0.005	0.01		28.2	28.2	< 0.005	< 0.005	0.01	28.5
% Reduced																		

2.2. Construction Emissions by Year, Unmitigated

Year	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Daily - Summer (Max)																		
2023	1.92	1.55	15.1	18.5	0.03	0.69	1.01	1.7	0.64	0.18	0.82		3756	3756	0.18	0.18	3.37	3817
Daily - Winter (Max)																		
Average Daily																		
2023	0.1	0.08	0.77	0.94	< 0.005	0.04	0.05	0.09	0.03	0.01	0.04		171	171	0.01	0.01	0.06	172
Annual																		
2023	0.02	0.01	0.14	0.17	< 0.005	0.01	0.01	0.02	0.01	< 0.005	0.01		28.2	28.2	< 0.005	< 0.005	0.01	28.5

2.3. Construction Emissions by Year, Mitigated

Year	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Daily - Summer (Max)																		
2023	1.92	1.55	15.1	18.5	0.03	0.69	1.01	1.7	0.64	0.18	0.82		3756	3756	0.18	0.18	3.37	3817
Daily - Winter (Max)																		
Average Daily																		
2023	0.1	0.08	0.77	0.94	< 0.005	0.04	0.05	0.09	0.03	0.01	0.04		171	171	0.01	0.01	0.06	172
Annual																		
2023	0.02	0.01	0.14	0.17	< 0.005	0.01	0.01	0.02	0.01	< 0.005	0.01		28.2	28.2	< 0.005	< 0.005	0.01	28.5

3. Construction Emissions Details

3.1. Demolition (2023) - Unmitigated

Location	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Onsite																		
Daily, Summer (Max)																		
Off-Road Equipment	0.65	0.54	4.99	5.91	0.01	0.21		0.21	0.2		0.2		852	852	0.03	0.01		855
Demolition							0	0		0	0							
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Daily, Winter (Max)																		
Average Daily																		
Off-Road Equipment	0.04	0.03	0.3	0.36	< 0.005	0.01		0.01	0.01		0.01		51.4	51.4	< 0.005	< 0.005		51.5
Demolition							0	0		0	0							
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Annual																		
Off-Road Equipment	0.01	0.01	0.05	0.06	< 0.005	< 0.005		< 0.005	< 0.005		< 0.005		8.5	8.5	< 0.005	< 0.005		8.53
Demolition							0	0		0	0							
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Offsite																		
Daily, Summer (Max)																		
Worker	0.04	0.04	0.04	0.65	0	0	0.01	0.01	0	0	0		138	138	0.01	< 0.005	0.61	141
Vendor	0.02	0.01	0.21	0.11	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.01		197	197	0.01	0.03	0.52	205
Hauling	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Daily, Winter (Max)																		
Average Daily																		
Worker	< 0.005	< 0.005	< 0.005	0.04	0	0	< 0.005	< 0.005	0	0	0		8.04	8.04	< 0.005	< 0.005	0.02	8.15
Vendor	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005		11.9	11.9	< 0.005	< 0.005	0.01	12.4
Hauling	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Annual																		
Worker	< 0.005	< 0.005	< 0.005	0.01	0	0	< 0.005	< 0.005	0	0	0		1.33	1.33	< 0.005	< 0.005	< 0.005	1.35
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005		1.96	1.96	< 0.005	< 0.005	< 0.005	2.05
Hauling	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0

3.2. Demolition (2023) - Mitigated

Location	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Onsite																		
Daily, Summer (Max)																		
Off-Road Equipment	0.65	0.54	4.99	5.91	0.01	0.21		0.21	0.2		0.2		852	852	0.03	0.01		855
Demolition							0	0		0	0							
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Daily, Winter (Max)																		
Average Daily																		
Off-Road Equipment	0.04	0.03	0.3	0.36	< 0.005	0.01		0.01	0.01		0.01		51.4	51.4	< 0.005	< 0.005		51.5
Demolition							0	0		0	0							
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Annual																		
Off-Road Equipment	0.01	0.01	0.05	0.06	< 0.005	< 0.005		< 0.005	< 0.005		< 0.005		8.5	8.5	< 0.005	< 0.005		8.53
Demolition							0	0		0	0							
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Offsite																		
Daily, Summer (Max)																		
Worker	0.04	0.04	0.04	0.65	0	0	0.01	0.01	0	0	0		138	138	0.01	< 0.005	0.61	141
Vendor	0.02	0.01	0.21	0.11	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.01		197	197	0.01	0.03	0.52	205
Hauling	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Daily, Winter (Max)																		
Average Daily																		
Worker	< 0.005	< 0.005	< 0.005	0.04	0	0	< 0.005	< 0.005	0	0	0		8.04	8.04	< 0.005	< 0.005	0.02	8.15
Vendor	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005		11.9	11.9	< 0.005	< 0.005	0.01	12.4
Hauling	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Annual																		
Worker	< 0.005	< 0.005	< 0.005	0.01	0	0	< 0.005	< 0.005	0	0	0		1.33	1.33	< 0.005	< 0.005	< 0.005	1.35
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005		1.96	1.96	< 0.005	< 0.005	< 0.005	2.05
Hauling	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0

3.3. Site Preparation (2023) - Unmitigated

Location	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Onsite																		
Daily, Summer (Max)																		
Off-Road Equipment	0.64	0.54	5.02	5.57	0.01	0.27		0.27	0.25		0.25		858	858	0.03	0.01		861
Dust From Material Movement							0.53	0.53		0.06	0.06							
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Daily, Winter (Max)																		
Average Daily																		
Off-Road Equipment	0.04	0.03	0.3	0.34	< 0.005	0.02		0.02	0.01		0.01		51.7	51.7	< 0.005	< 0.005		51.9
Dust From Material Movement							0.03	0.03		< 0.005	< 0.005							
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Annual																		
Off-Road Equipment	0.01	0.01	0.06	0.06	< 0.005	< 0.005		< 0.005	< 0.005		< 0.005		8.56	8.56	< 0.005	< 0.005		8.59
Dust From Material Movement							0.01	0.01		< 0.005	< 0.005							
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Offsite																		
Daily, Summer (Max)																		
Worker	0.02	0.02	0.02	0.33	0	0	< 0.005	< 0.005	0	0	0		69.1	69.1	< 0.005	< 0.005	0.31	70.3
Vendor	0.02	0.01	0.21	0.11	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.01		197	197	0.01	0.03	0.52	205
Hauling	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Daily, Winter (Max)																		
Average Daily																		
Worker	< 0.005	< 0.005	< 0.005	0.02	0	0	< 0.005	< 0.005	0	0	0		4.02	4.02	< 0.005	< 0.005	0.01	4.08
Vendor	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005		11.9	11.9	< 0.005	< 0.005	0.01	12.4
Hauling	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Annual																		
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0	0	< 0.005	< 0.005	0	0	0		0.67	0.67	< 0.005	< 0.005	< 0.005	0.67
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005		1.96	1.96	< 0.005	< 0.005	< 0.005	2.05
Hauling	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0

3.4. Site Preparation (2023) - Mitigated

Location	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Onsite																		
Daily, Summer (Max)																		
Off-Road Equipment	0.64	0.54	5.02	5.57	0.01	0.27		0.27	0.25		0.25		858	858	0.03	0.01		861
Dust From Material Movement							0.53	0.53		0.06	0.06							
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Daily, Winter (Max)																		
Average Daily																		
Off-Road Equipment	0.04	0.03	0.3	0.34	< 0.005	0.02		0.02	0.01		0.01		51.7	51.7	< 0.005	< 0.005		51.9
Dust From Material Movement							0.03	0.03		< 0.005	< 0.005							
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Annual																		
Off-Road Equipment	0.01	0.01	0.06	0.06	< 0.005	< 0.005		< 0.005	< 0.005		< 0.005		8.56	8.56	< 0.005	< 0.005		8.59
Dust From Material Movement							0.01	0.01		< 0.005	< 0.005							
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Offsite																		
Daily, Summer (Max)																		
Worker	0.02	0.02	0.02	0.33	0	0	< 0.005	< 0.005	0	0	0		69.1	69.1	< 0.005	< 0.005	0.31	70.3
Vendor	0.02	0.01	0.21	0.11	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.01		197	197	0.01	0.03	0.52	205
Hauling	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Daily, Winter (Max)																		
Average Daily																		
Worker	< 0.005	< 0.005	< 0.005	0.02	0	0	< 0.005	< 0.005	0	0	0		4.02	4.02	< 0.005	< 0.005	0.01	4.08
Vendor	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005		11.9	11.9	< 0.005	< 0.005	0.01	12.4
Hauling	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Annual																		
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0	0	< 0.005	< 0.005	0	0	0		0.67	0.67	< 0.005	< 0.005	< 0.005	0.67
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005		1.96	1.96	< 0.005	< 0.005	< 0.005	2.05
Hauling	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0

3.5. Building Construction (2023) - Unmitigated

Location	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Onsite																		
Daily, Summer (Max)																		
Off-Road Equipment	0	0	0	0	0	0		0	0		0		0	0	0	0		0
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Daily, Winter (Max)																		
Average Daily																		
Off-Road Equipment	0	0	0	0	0	0		0	0		0		0	0	0	0		0
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Annual																		
Off-Road Equipment	0	0	0	0	0	0		0	0		0		0	0	0	0		0
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Offsite																		
Daily, Summer (Max)																		
Worker	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Vendor	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Hauling	0.06	0.01	0.73	0.32	< 0.005	0.01	0.04	0.05	0.01	0.01	0.02		576	576	0.05	0.09	1.19	605
Daily, Winter (Max)																		
Average Daily																		
Worker	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Vendor	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005		3.16	3.16	< 0.005	< 0.005	< 0.005	3.31
Annual																		
Worker	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Vendor	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005		0.52	0.52	< 0.005	< 0.005	< 0.005	0.55

3.6. Building Construction (2023) - Mitigated

Location	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Onsite																		
Daily, Summer (Max)																		
Off-Road Equipment	0	0	0	0	0	0		0	0		0		0	0	0	0		0
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Daily, Winter (Max)																		
Average Daily																		
Off-Road Equipment	0	0	0	0	0	0		0	0		0		0	0	0	0		0
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Annual																		
Off-Road Equipment	0	0	0	0	0	0		0	0		0		0	0	0	0		0
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Offsite																		
Daily, Summer (Max)																		
Worker	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Vendor	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Hauling	0.06	0.01	0.73	0.32	< 0.005	0.01	0.04	0.05	0.01	0.01	0.02		576	576	0.05	0.09	1.19	605
Daily, Winter (Max)																		
Average Daily																		
Worker	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Vendor	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005		3.16	3.16	< 0.005	< 0.005	< 0.005	3.31
Annual																		
Worker	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Vendor	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005		0.52	0.52	< 0.005	< 0.005	< 0.005	0.55

3.7. Building Construction (2023) - Unmitigated

Location	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Onsite																		
Daily, Summer (Max)																		
Off-Road Equipment	0.46	0.38	3.83	5.4	0.01	0.2		0.2	0.18		0.18		809	809	0.03	0.01		812
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Daily, Winter (Max)																		
Average Daily																		
Off-Road Equipment	0.02	0.01	0.13	0.18	< 0.005	0.01		0.01	0.01		0.01		26.6	26.6	< 0.005	< 0.005		26.7
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Annual																		
Off-Road Equipment	< 0.005	< 0.005	0.02	0.03	< 0.005	< 0.005		< 0.005	< 0.005		< 0.005		4.41	4.41	< 0.005	< 0.005		4.42
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Offsite																		
Daily, Summer (Max)																		
Worker	0.01	0.01	0.01	0.13	0	0	< 0.005	< 0.005	0	0	0		27.7	27.7	< 0.005	< 0.005	0.12	28.1
Vendor	< 0.005	< 0.005	0.04	0.02	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005		32.8	32.8	< 0.005	< 0.005	0.09	34.2
Hauling	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Daily, Winter (Max)																		
Average Daily																		
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0	0	< 0.005	< 0.005	0	0	0		0.88	0.88	< 0.005	< 0.005	< 0.005	0.89
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005		1.08	1.08	< 0.005	< 0.005	< 0.005	1.12
Hauling	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Annual																		
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0	0	< 0.005	< 0.005	0	0	0		0.15	0.15	< 0.005	< 0.005	< 0.005	0.15
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005		0.18	0.18	< 0.005	< 0.005	< 0.005	0.19
Hauling	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0

3.8. Building Construction (2023) - Mitigated

Location	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Onsite																		
Daily, Summer (Max)																		
Off-Road Equipment	0.46	0.38	3.83	5.4	0.01	0.2		0.2	0.18		0.18		809	809	0.03	0.01		812
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Daily, Winter (Max)																		
Average Daily																		
Off-Road Equipment	0.02	0.01	0.13	0.18	< 0.005	0.01		0.01	0.01		0.01		26.6	26.6	< 0.005	< 0.005		26.7
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Annual																		
Off-Road Equipment	< 0.005	< 0.005	0.02	0.03	< 0.005	< 0.005		< 0.005	< 0.005		< 0.005		4.41	4.41	< 0.005	< 0.005		4.42
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Offsite																		
Daily, Summer (Max)																		
Worker	0.01	0.01	0.01	0.13	0	0	< 0.005	< 0.005	0	0	0		27.7	27.7	< 0.005	< 0.005	0.12	28.1
Vendor	< 0.005	< 0.005	0.04	0.02	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005		32.8	32.8	< 0.005	< 0.005	0.09	34.2
Hauling	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Daily, Winter (Max)																		
Average Daily																		
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0	0	< 0.005	< 0.005	0	0	0		0.88	0.88	< 0.005	< 0.005	< 0.005	0.89
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005		1.08	1.08	< 0.005	< 0.005	< 0.005	1.12
Hauling	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Annual																		
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0	0	< 0.005	< 0.005	0	0	0		0.15	0.15	< 0.005	< 0.005	< 0.005	0.15
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005		0.18	0.18	< 0.005	< 0.005	< 0.005	0.19
Hauling	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Demolition	Demolition	45108	45139	5	22	
Site Preparation	Site Preparation	45108	45139	5	22	
Light Pole Haul	Building Construction	45120	45122	5	2	
Light Pole Installation	Building Construction	45122	45139	5	12	

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Demolition	Concrete/Industrial Saws	Diesel	Average	1	8	33	0.73
Demolition	Rubber Tired Dozers	Diesel	Average	1	1	367	0.4
Demolition	Tractors/Loaders/Backhoes	Diesel	Average	2	6	84	0.37
Site Preparation	Graders	Diesel	Average	1	8	148	0.41
Site Preparation	Tractors/Loaders/Backhoes	Diesel	Average	1	8	84	0.37
Light Pole Haul	Cranes	Diesel	Average	0	4	367	0.29
Light Pole Haul	Forklifts	Diesel	Average	0	6	82	0.2
Light Pole Haul	Tractors/Loaders/Backhoes	Diesel	Average	0	8	84	0.37
Light Pole Installation	Cranes	Diesel	Average	0	4	367	0.29
Light Pole Installation	Forklifts	Diesel	Average	2	6	82	0.2
Light Pole Installation	Tractors/Loaders/Backhoes	Diesel	Average	2	8	84	0.37

5.2.2. Mitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Demolition	Concrete/Industrial Saws	Diesel	Average	1	8	33	0.73
Demolition	Rubber Tired Dozers	Diesel	Average	1	1	367	0.4
Demolition	Tractors/Loaders/Backhoes	Diesel	Average	2	6	84	0.37
Site Preparation	Graders	Diesel	Average	1	8	148	0.41
Site Preparation	Tractors/Loaders/Backhoes	Diesel	Average	1	8	84	0.37
Light Pole Haul	Cranes	Diesel	Average	0	4	367	0.29
Light Pole Haul	Forklifts	Diesel	Average	0	6	82	0.2
Light Pole Haul	Tractors/Loaders/Backhoes	Diesel	Average	0	8	84	0.37
Light Pole Installation	Cranes	Diesel	Average	0	4	367	0.29
Light Pole Installation	Forklifts	Diesel	Average	2	6	82	0.2
Light Pole Installation	Tractors/Loaders/Backhoes	Diesel	Average	2	8	84	0.37

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Demolition				
Demolition	Worker	10	18.5	LDA,LDT1,LDT2
Demolition	Vendor	6	10.2	HHDT,MHDT
Demolition	Hauling	0	20	HHDT
Demolition	Onsite truck	0		HHDT
Site Preparation				
Site Preparation	Worker	5	18.5	LDA,LDT1,LDT2
Site Preparation	Vendor	6	10.2	HHDT,MHDT
Site Preparation	Hauling	0	20	HHDT
Site Preparation	Onsite truck	0		HHDT
Light Pole Haul				
Light Pole Haul	Worker	0	18.5	LDA,LDT1,LDT2
Light Pole Haul	Vendor	0	10.2	HHDT,MHDT
Light Pole Haul	Hauling	8	20	HHDT
Light Pole Haul	Onsite truck	0		HHDT
Light Pole Installation				
Light Pole Installation	Worker	2	18.5	LDA,LDT1,LDT2
Light Pole Installation	Vendor	1	10.2	HHDT,MHDT
Light Pole Installation	Hauling	0	20	HHDT
Light Pole Installation	Onsite truck	0		HHDT

5.3.2. Mitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Demolition				
Demolition	Worker	10	18.5	LDA,LDT1,LDT2
Demolition	Vendor	6	10.2	HHDT,MHDT
Demolition	Hauling	0	20	HHDT
Demolition	Onsite truck	0		HHDT
Site Preparation				
Site Preparation	Worker	5	18.5	LDA,LDT1,LDT2
Site Preparation	Vendor	6	10.2	HHDT,MHDT
Site Preparation	Hauling	0	20	HHDT
Site Preparation	Onsite truck	0		HHDT
Light Pole Haul				
Light Pole Haul	Worker	0	18.5	LDA,LDT1,LDT2
Light Pole Haul	Vendor	0	10.2	HHDT,MHDT
Light Pole Haul	Hauling	8	20	HHDT
Light Pole Haul	Onsite truck	0		HHDT
Light Pole Installation				
Light Pole Installation	Worker	2	18.5	LDA,LDT1,LDT2
Light Pole Installation	Vendor	1	10.2	HHDT,MHDT
Light Pole Installation	Hauling	0	20	HHDT
Light Pole Installation	Onsite truck	0		HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Control Strategies Applied	PM10 Reduction	PM2.5 Reduction

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (Ton of Debris)	Material Exported (Ton of Debris)	Acres Graded (acres)	Material Demolished (Ton of Debris)	Acres Paved (acres)
Demolition	0	0	0	0	
Site Preparation	0	0	11	0	

5.6.2. Construction Earthmoving Control Strategies

Control Strategies Applied	Frequency (per day)	PM10 Reduction	PM2.5 Reduction

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
Other Non-Asphalt Surfaces	0.09	0

5.8. Construction Electricity Consumption and Emissions Factors

Year	kWh per Year	CO2	CH4	N2O
2023	0	450	0.03	< 0.005

8. User Changes to Default Data

Screen	Justification
Characteristics: Project Details	s
Characteristics: Utility Information	SCE 2021 Sustainability Report
Construction: Construction Phases	limited construction for lighting project, based on data from similar lighting project
Construction: Off-Road Equipment	no additional equipment required for light pole hauling, assumes cranes will not be used to install lighting based on data from similar lighting projects
Construction: Trips and VMT	see water truck calculations in assumptions file. 4 light poles to be installed, assumes 2 trips each to bring in light pole
Construction: Electricity	2021 SCE Sustainability Report

LST Worksheets

Construction Localized Significance Thresholds: 1 Acre

		NOx & CO		*PM10 & PM2.5*		
SRA No.	Acres	Source Receptor Distance (meters)	Source Receptor Distance (Feet)	Source Receptor Distance (meters)	Source Receptor Distance (Feet)	Construction / Project Site Size (Acres)
16	0.00	25	82	25	82	1.00

Source Receptor	**North Orange County**	**Equipment**	**Acres/8-hr Day**		**Daily hours**	**Equipment Used**	**Acres**
Distance (meters)	25	Tractors	0.5	0.0625			0
NOx	**103**	Tractors	0.5	0.0625			0
CO	**522**	Graders	0.5	0.0625			0
PM10	**4.00**	Dozers	0.5	0.0625			0
PM2.5	**3.00**	Scrapers	1	0.125			0
						Acres	0.00

	Acres	**25**	**50**	**100**	**200**	**500**
NOx	1	103	104	121	159	252
	1	103	104	121	159	252
		103	104	121	159	252
CO	1	522	685	1014	1975	6531
	1	522	685	1014	1975	6531
		522	685	1014	1975	6531
PM10	1	4	10	24	53	137
	1	4	10	24	53	137
		4	10	24	53	137
PM2.5	1	3	4	9	20	74
	1	3	4	9	20	74
		3	4	9	20	74

North Orange County

0.00 Acres

	25	**50**	**100**	**200**	**500**
NOx	103	104	121	159	252
CO	522	685	1014	1975	6531
PM10	4	10	24	53	137
PM2.5	3	4	9	20	74

Acre Below		**Acre Above**	
SRA No.	Acres	SRA No.	Acres
16	1	16	1
Distance Increment Below			
25			
Distance Increment Above			
25			

Updated: 10/21/2009 - Table C-1. 2006 – 2008

Appendix D Noise Data and Calculations

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LOCAL REGULATIONS AND STANDARDS

8

Noise Element

contents

tables, figures, & exhibits

8.1 HOW DO WE MEASURE NOISE?

Noise Descriptors

Sound is described in terms of the loudness (amplitude) of the sound and frequency (pitch) of the sound. The standard unit of measurement of the loudness of sound is the decibel (dB). Since the human ear is not equally sensitive to sound at all frequencies, a special frequency-dependent rating scale has been devised to relate noise to human sensitivity. The A-weighted decibel scale (dBA) performs this balance by discriminating against frequencies in a manner approximating the sensitivity of the human ear.

The perceived loudness of sound is dependent upon many factors, including sound pressure level and frequency content. However, within the usual range of environmental noise levels, perception of loudness is relatively predictable, and should be approximated by the A-weighted sound levels (expressed as dBA) and the way the human ear perceives noise. For this reason, the A-weighted sound level has become the standard tool of environmental noise assessment.

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 descriptor, Ldn (level day-night), and shows very good correlation with community response to noise.

Decibels are based on the logarithmic scale. The logarithmic scale compresses the wide range in sound pressure levels to a more usable range of numbers in a manner similar to the Richter scale used to measure earthquakes. In terms of human response to noise, a sound 10 dBA higher than another is judged to be twice as loud and 20 dBA higher four times as loud, and so forth. Everyday sounds normally range from 30 dBA (very quiet) to 100 dBA (very loud). Examples of various sound levels in different environments are illustrated on Exhibit 1, *Sound Levels and Human Response*.

Many methods have been developed for evaluating community noise to account for, among other things:

- The variation of noise levels over time;
- The influence of periodic individual loud events; and
- The community response to changes in the community noise environment.

Numerous methods have been developed to measure sound over a period of time; refer to Table 1, *Noise Descriptors*.

Table 8-1. Noise Descriptors

Term	Definition
Decibel (dB)	The unit for measuring the volume of sound equal to 10 times the logarithm (base 10) of the ratio of the pressure of a measured sound to a reference pressure (20 micropascals).
A-Weighted Decibel (dBA)	A sound measurement scale that adjusts the pressure of individual frequencies according to human sensitivities. The scale accounts for the fact that the region of highest sensitivity for the human ear is between 2,000 and 4,000 cycles per second (hertz).
Equivalent Sound Level (L_{eq})	The sound level containing the same total energy as a time varying signal over a given time period. The L_{eq} is the value that expresses the time averaged total energy of a fluctuating sound level.
Maximum Sound Level (L_{max})	The highest individual sound level (dBA) occurring over a given time period.
Minimum Sound Level (L_{min})	The lowest individual sound level (dBA) occurring over a given time period.
Community Noise Equivalent Level (CNEL)	A rating of community noise exposure to all sources of sound that differentiates between daytime, evening, and nighttime noise exposure. These adjustments are +5 dBA for the evening, 7:00 PM to

Term	Definition
	10:00 PM, and +10 dBA for the night, 10:00 PM to 7:00 AM
Day/Night Average (L_{dn})	The L_{dn} is a measure of the 24-hour average noise level at a given location. It was adopted by the U.S. Environmental Protection Agency (EPA) for developing criteria for the evaluation of community noise exposure. It is based on a measure of the average noise level over a given time period called the L_{eq}. The L_{dn} is calculated by averaging the L_{eq}'s for each hour of the day at a given location after penalizing the "sleeping hours" (defined as 10:00 PM to 7:00 AM), by 10 dBA to account for the increased sensitivity of people to noises that occur at night.
Exceedance Level (L_n)	The A-weighted noise levels that are exceeded 1%, 10%, 50%, and 90% (L_{01}, L_{10}, L_{50}, L_{90}, respectively) of the time during the measurement period.

Source: Cyril M. Harris, *Handbook of Noise Control*, dated 1979.

It is difficult to specify noise levels that are generally acceptable to everyone; what is annoying to one person may be unnoticed by another. Standards may be based on documented complaints in response to documented noise levels or based on studies of the ability of people to sleep, talk, or work under various noise conditions. Regulatory requirements related to environmental noise are typically promulgated at the local level. However, Federal and State agencies provide standards and guidelines to local jurisdictions.

Human Response to Noise

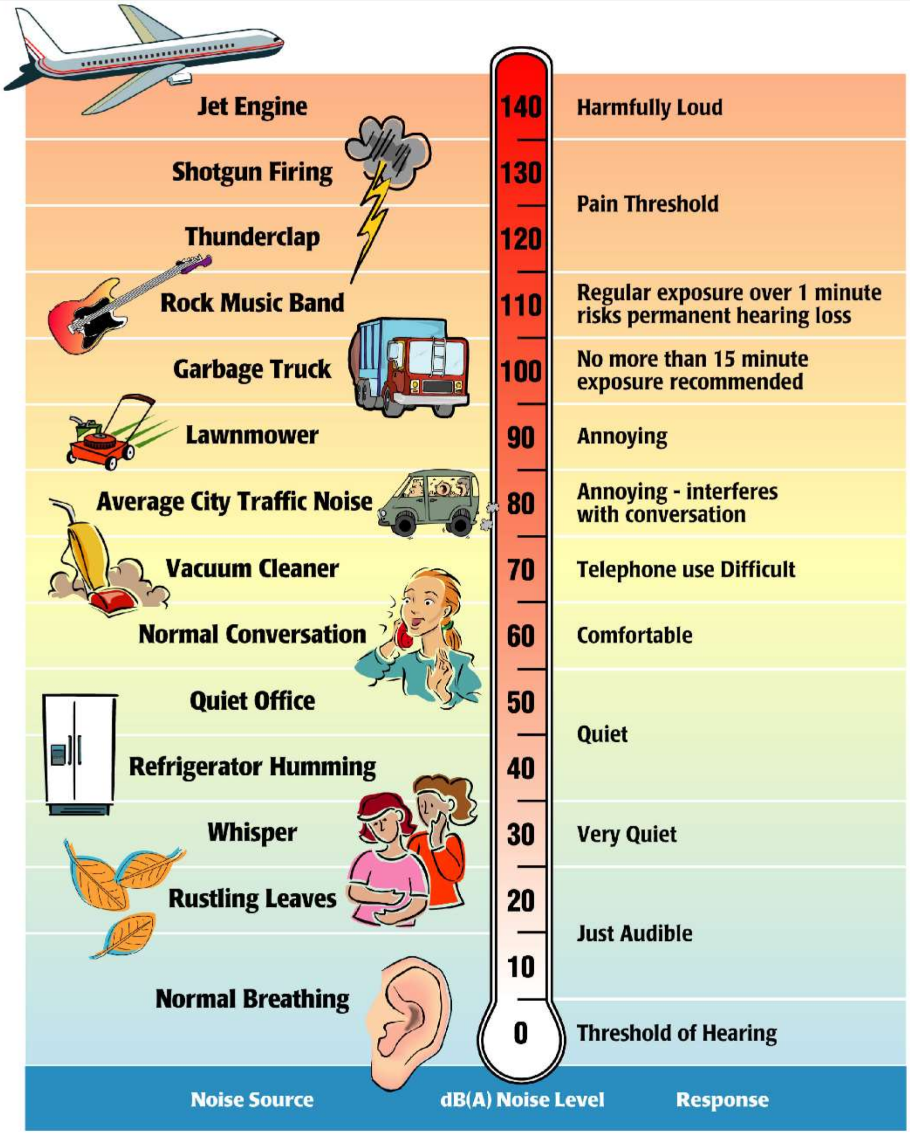
Human response to sound is highly individualized. Annoyance is the most common issue regarding community noise. The percentage of people claiming to be annoyed by noise generally increases with the environmental sound level. However, many factors also influence people's response to noise. The factors can include the character of the noise, the variability of the sound level, the presence of tones or impulses, and the time of day of the occurrence. Additionally, non-acoustical factors, such as the person's opinion of the noise source, the ability to adapt to the noise, the attitude towards the source and those associated with it, and the predictability of the noise, all influence people's response. As such, response to noise varies widely from one person to another and with any particular noise, individual responses will range from "not annoyed" to "highly annoyed."

When the noise level of an activity rises above 70 dBA, the chance of receiving a complaint is probable, and as the noise level rises, dissatisfaction among the public steadily increases. However, an individual's reaction to a particular noise depends on many factors, such as the source of the sound, its loudness relative to the background noise, and the time of day. The reaction to noise can also be highly subjective; the perceived effect of a particular noise can vary widely among individuals in a community.

The effects of noise are often only transitory, but adverse effects can be cumulative with prolonged or repeated exposure. The effects of noise on the community can be organized into six broad categories:

1. Noise-Induced Hearing Loss
2. Interference with Communication
3. Effects of Noise on Sleep
4. Effects on Performance and Behavior
5. Extra-Auditory Health Effects
6. Annoyance

Exhibit 8-1. Sound Levels and Human Response



Noise Source	dB(A) Noise Level	Response
Jet Engine	140	Harmfully Loud
Shotgun Firing	130	Pain Threshold
Thunderclap	120	
Rock Music Band	110	Regular exposure over 1 minute risks permanent hearing loss
Garbage Truck	100	No more than 15 minute exposure recommended
Lawnmower	90	Annoying
Average City Traffic Noise	80	Annoying - interferes with conversation
Vacuum Cleaner	70	Telephone use Difficult
Normal Conversation	60	Comfortable
Quiet Office	50	Quiet
Refrigerator Humming	40	
Whisper	30	Very Quiet
Rustling Leaves	20	Just Audible
Normal Breathing	10	
	0	Threshold of Hearing

Source:

Melville C. Branch and R. Dale Beland, *Outdoor Noise in the Metropolitan Environment*, 1970.

Environmental Protection Agency, *Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety (EPA/ONAC 550/9-74-004)*, March 1974.

PLACENTIA
Rich Heritage, Bright Future

Michael Baker
INTERNATIONAL

Sound Levels and Human Response

8-6

Noise-Induced Hearing Loss

Although it often causes discomfort and sometimes pain, noise-induced hearing loss usually takes years to develop. Noise-induced hearing loss can impair the quality of life through a reduction in the ability to hear important sounds and to communicate with family and friends. Hearing loss is one of the most obvious and easily quantified effects of excessive exposure to noise. While the loss may be temporary at first, it could become permanent after continued exposure. When combined with hearing loss associated with aging, the amount of hearing loss directly caused by the environment is difficult to quantify. Although the major cause of noise-induced hearing loss is occupational, substantial damage can be caused by non-occupational sources. According to the United States Public Health Service, nearly ten million of the estimated 21 million Americans with hearing impairments owe their losses to noise exposure.

Interference with Communication

Noise can mask important sounds and disrupt communication between individuals in a variety of settings. This process can cause anything from a slight irritation to a serious safety hazard, depending on the circumstance. Noise can disrupt face-to-face communication and telephone communication, and the enjoyment of music and television in the home. It can also disrupt effective communication between teachers and pupils in schools and can cause fatigue and vocal strain in those who need to communicate in spite of the noise. Interference with communication has proved to be one of the most important components of noise-related annoyance.

Effects of Noise on Sleep

Noise-induced sleep interference is one of the critical components of community annoyance. Sound level, frequency distribution, duration, repetition, and variability can make it difficult to fall asleep and may cause momentary shifts in the natural sleep pattern, or level of sleep. It can produce short-term adverse effects on mood changes and job performance, with the possibility of more serious effects on health if it continues over long periods. Noise can cause adverse effects on task performance and behavior at work, and non-occupational and social settings. These effects are the subject of some controversy, since the presence and degree of effects depends on a variety of intervening variables. Most research in this area has focused mainly on occupational settings, where noise levels must be sufficiently high and the task sufficiently complex for effects on performance to occur.

Effects on Performance and Behavior

Recent research indicates that more moderate noise levels can produce disruptive after-effects, commonly manifested as a reduced tolerance for frustration, increased anxiety, decreased incidence of “helping” behavior, and increased incidence of “hostile” behavior.

Extra-Auditory Health Effects

Noise has been implicated in the development or exacerbation of a variety of health problems, ranging from hypertension to psychosis. As with other categories, quantifying these effects is difficult due to the amount of variables that need to be considered in each situation. As a biological stressor, noise can influence the entire physiological system. Most effects seem to be transitory, but with continued exposure some effects have been shown to be chronic in laboratory animals.

Annoyance

Annoyance can be viewed as the expression of negative feelings resulting from interference with activities, as well as the disruption of one's peace of mind and the enjoyment of one's environment. Field evaluations of community annoyance are useful for predicting the consequences of planned actions involving highways, airports, road traffic, railroads, or other noise sources. The consequences of noise-induced annoyance are privately held dissatisfaction, publicly expressed complaints to authorities, and potential adverse health effects, as discussed above. In a study conducted by the United States Department of Transportation, the effects of annoyance to the community were quantified. In areas where noise levels were consistently above 60 dBA CNEL, approximately nine percent of the community is highly annoyed. When levels exceed 65 dBA CNEL, that percentage rises to 15 percent. Although evidence for the various effects of noise have differing levels of certainty, it is clear that noise can affect human health. Most of the effects are, to a varying degree, stress related.

8.2 MOTOR VEHICLE NOISE

Existing Motor Vehicle Noise

Traffic noise is a significant noise source in Placentia. By 2016, five railroad crossings in the City have been improved to either lower the railroad line or to raise the road overhead, thus reducing existing rail noise (elimination of train horns), and vehicular traffic will become the primary source of noise. Traffic noise on surface streets is a significant source of noise within the community.

Noise levels along roadways are determined by a number of traffic characteristics, most important of which is the average daily traffic (ADT). Additional factors include the percentage of trucks on the roadways, vehicle speed, the time distribution of traffic and gradient of the roadway. All roadway classifications within the City, excluding collectors, would be considered significant noise generators since these roadways would be the most frequently traveled. Roadways in the City are designated according to seven classifications (See the Mobility Element for Functional Roadway Classification information):

- principal arterials;
- major arterials;
- primary arterials;
- secondary arterials;
- divided collector;
- collectors; and
- local streets.

Roadway noise levels throughout the City were projected using the Federal Highway Administration's (FHWA) Highway Noise Prediction Model (FHWA RD-77-108) together with several roadway and site parameters. The FHWA model is based upon reference energy mean emission levels (REMELS) for automobiles, medium trucks (two axles) and heavy trucks (three or more axles), with consideration given to vehicle volume, speed, roadway configuration, distances to the receiver, and the acoustical characteristics of the site. To predict CNEL values, it is necessary to determine the hourly distribution of traffic for a typical day and adjust the traffic volume input data to yield an equivalent hourly distribution of traffic for a typical day and adjust the traffic volume input data to yield an equivalent hourly traffic volume. The California Vehicle Noise (Calveno) traffic noise emission curves are used as recommended by the California Department of Transportation (Caltrans) to more accurately calculate noise levels generated by traffic in California. Additionally, freeway noise levels and contours were projected using the FHWA Traffic Noise Model version 2.5 (TNM 2.5). TNM 2.5 uses advances in personal computer hardware and software to improve upon the accuracy and ease of modeling noise from high volumes of traffic and high vehicle speeds associated with freeways.

Noise projections are based on vehicular traffic as derived from site reconnaissance and measurement and the City of Placentia General Plan Mobility Element, *Draft Technical Traffic Study Report*, dated July 27, 2018. These parameters determine the projected impact of vehicular traffic noise and include the roadway cross-section (i.e., number of lanes), the roadway width, the average daily traffic (ADT), vehicle travel speed, percentages of automobile and truck traffic, roadway grade, angle of view, and site conditions (hard or soft). The model does not account for ambient noise levels (i.e., noise from adjacent land uses) or topographical differences between the roadway and adjacent land uses.

Existing noise contours were calculated for the City's primary and major arterials; refer to Table 2, *Existing Traffic Noise Levels*. In addition, a number of secondary and commuter streets were modeled as well. Noise generation for each roadway link was calculated and the distance to the 60 dBA CNEL, 65 dBA CNEL, and 70 dBA CNEL contours was determined. Exhibit 2, *Existing Roadway Noise Contours*, depicts the approximate location of the existing noise contours within the City.

Table 8-2. Existing Traffic Noise Levels

Roadway Segment	Existing Conditions				
	ADT	dBA @ 100 Feet from Roadway Centerline	Distance from Roadway Centerline to: (Feet)		
			60 CNEL Noise Contour	65 CNEL Noise Contour	70 CNEL Noise Contour
Golden Avenue					
Valencia Avenue to East City Limit	3,400	57.0	59	19	6
Kraemer Boulevard to Valencia Avenue	5,400	59.0	93	29	9
Bastanchury Road					
West City Limits to Kraemer Boulevard	25,100	68.2	780	247	78
Kraemer Boulevard to Valencia Avenue	20,400	67.3	634	201	63
Valencia Avenue to East City Limit	16,800	66.6	522	165	52
Yorba Linda Boulevard					
Bradford Avenue to Kraemer Boulevard	34,300	68.1	803	254	80
Kraemer Boulevard to Valencia Avenue	26,300	67.2	617	195	62
Valencia Avenue to Rose Drive	23,400	66.7	548	173	55
Rose Drive to Eastern City Limit	25,700	67.1	603	191	60

Roadway Segment	Existing Conditions				
	ADT	dBA @ 100 Feet from Roadway Centerline	Distance from Roadway Centerline to: (Feet)		
			60 CNEL Noise Contour	65 CNEL Noise Contour	70 CNEL Noise Contour
Palm Drive					
Yorba Linda Boulevard to Valencia Avenue	8,400	62.3	197	62	20
Valencia Avenue to Rose Drive	11,000	65.9	444	140	44
Madison Avenue					
West City Limits to Bradford Avenue	6,200	59.6	107	34	11
Bradford Avenue to Kraemer Boulevard	8,600	61.2	148	47	15
Buena Vista Avenue					
Rose Drive to East City Limit	13,100	65.4	407	129	41
Alta Vista Street					
Angelina Drive to Kraemer Boulevard	4,100	55.0	35	11	4
Kraemer Boulevard to Rose Drive	15,000	66.1	466	147	47
Rose Drive to Van Buren Street	10,000	64.3	311	98	31
Chapman Avenue					
Placentia Avenue to Bradford Avenue	21,700	65.1	374	118	37
Bradford Avenue to Kraemer Boulevard	19,300	64.6	333	105	33
Kraemer Boulevard to Orangethorpe Avenue	8,000	62.0	188	59	19
Crowther Avenue					
Placentia Avenue to Melrose Street	5,200	60.3	122	39	12
Melrose Street to East City Limit	4,000	59.2	94	30	9
Orangethorpe Avenue					
Placentia Avenue to Melrose Street	23,900	66.6	560	177	56

Roadway Segment	Existing Conditions				
	ADT	dBA @ 100 Feet from Roadway Centerline	Distance from Roadway Centerline to: (Feet)		
			60 CNEL Noise Contour	65 CNEL Noise Contour	70 CNEL Noise Contour
Melrose Street to Kraemer Boulevard	17,600	65.5	413	130	41
City Limit w/o Chapman Avenue to Chapman Avenue	7,300	62.8	227	72	23
Chapman Avenue to Rose Drive	13,300	65.3	413	131	41
Rose Drive to East City Limit	13,800	65.7	429	136	43
Miraloma Avenue					
Van Buren Street to Richfield Road	5,000	58.9	86	27	9
Richfield Road to Lakeview Avenue	5,000	58.9	86	27	9
Placentia Avenue					
South City Limit to Orangethrope Avenue	11,500	63.7	270	85	27
Orangethrope Avenue to Crowther Avenue	17,400	65.4	407	129	41
Crowther Avenue to Chapman Avenue	17,700	65.5	415	131	41
Chapman Avenue to n/o Primrose Avenue	22,300	66.6	523	165	52
Macadamia Lane to Bastanchury Road	20,300	66.1	476	151	48
Bastanchury Road to Rolling Hills Drive	11,500	63.7	269	85	27
Melrose Street					
South City Limit to Orangethorpe Avenue	15,500	63.7	267	85	27
Orangethorpe Avenue to Crowther Avenue	9,000	62.6	211	67	21
Crowther Avenue to Santa Fe Avenue	7,500	59.1	93	29	9
Bradford Avenue					

Roadway Segment	Existing Conditions				
	ADT	dBA @ 100 Feet from Roadway Centerline	Distance from Roadway Centerline to: (Feet)		
			60 CNEL Noise Contour	65 CNEL Noise Contour	70 CNEL Noise Contour
Santa Fe Avenue to Chapman Avenue	4,300	55.2	37	12	4
Chapman Avenue to Madison Avenue	9,400	60.0	116	37	12
Madison Avenue to North City Limit	11,500	60.8	142	45	14
Kraemer Boulevard					
South City Limits to Orangethorpe Avenue	23,500	66.7	551	174	55
Crowther Avenue to Chapman Avenue	21,700	66.4	509	161	51
Chapman Avenue to Madison Avenue	21,500	66.3	503	159	50
Madison Avenue to Yorba Linda Boulevard	24,600	66.9	577	182	58
Yorba Linda Boulevard to Bastanchury Road	21,800	67.6	678	214	68
Bastanchury Road to North City Limit	20,800	66.2	488	154	49
Valencia Avenue					
Palm Drive to Yorba Linda Boulevard	5,700	60.7	134	42	13
Yorba Linda Boulevard to Bastanchury Road	9,800	61.7	169	53	17
Bastanchury Road to Northern City Limit	8,300	66.3	488	154	49
Rose Drive					
Orangethorpe Avenue to Alta Vista Street	26,700	68.5	829	262	83
Alta Vista Street to Palm Drive	31,500	69.2	980	310	98
Palm Drive to Yorba Linda Boulevard	22,700	66.5	532	168	53

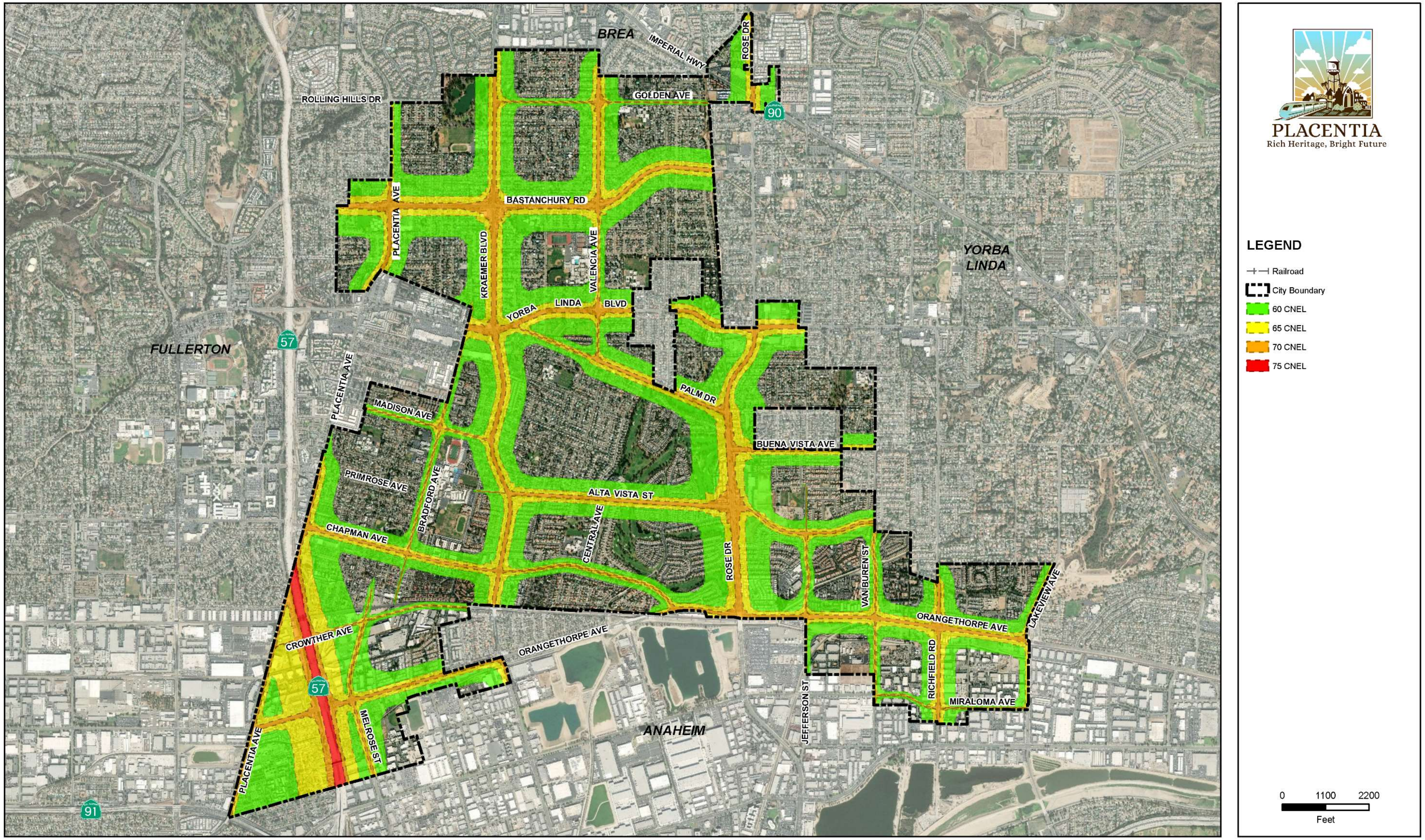
Roadway Segment	Existing Conditions				
	ADT	dBA @ 100 Feet from Roadway Centerline	Distance from Roadway Centerline to: (Feet)		
			60 CNEL Noise Contour	65 CNEL Noise Contour	70 CNEL Noise Contour
City Limit s/o Golden Avenue to North City Limit	24,000	66.7	563	178	56
Jefferson Street					
South City Limits to Orangethorpe Avenue	5,300	60.2	124	39	12
Orangethorpe Avenue to Alta Vista Street	4,800	61.1	149	47	15
Alta Vista Street to Garten Drive	1,900	51.7	16	5	2
Van Buren Street					
South City Limits to Orangethorpe Avenue	5,700	60.8	134	42	13
Orangethorpe Avenue to North City Limit	7,300	61.9	171	54	17
Richfield Road					
South City Limits to Orangethorpe Avenue	13,700	65.7	426	135	43
Orangethorpe Avenue to North City Limit	12,700	65.4	395	125	39
Lakeview Avenue					
South City Limit to North City Limit	7,300	63.0	227	72	23

Notes: ADT = average daily traffic; dBA = A-weighted decibels; CNEL = community noise equivalent level
"-" = contour is located within the roadway right-of-way

Source: Traffic noise modeling is based on traffic data provided in the City of Placentia General Plan Mobility Element, *Update Technical Traffic Study*, August 2018.

As shown in Table 2, the existing traffic noise levels range from a low of 51.7 CNEL along Jefferson Street from Alta Vista Street to Garten Drive to a high of 69.2 CNEL along Rose Drive from Alta Vista Street to Palm Drive when measured at 100 feet from the centerline.

Exhibit 8-2. Existing Roadway Noise Contours



Existing Roadway Noise Contours

Source: City of Placentia, August 2018, ESRI

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Future Motor Noise

In addition, Proposed General Plan noise contours were calculated for the City's primary and major arterials; refer to Table 3, *Proposed General Plan Traffic Noise Levels*. Noise generation for each roadway link was calculated and the distance to the 60 dBA CNEL, 65 dBA CNEL, and 70 dBA CNEL contours was determined. Exhibit 3, *Proposed General Plan Roadway Noise Contours*, depicts the approximate location of the Proposed General Plan noise contours within the City.

Table 8-3. Proposed 2040 General Plan Traffic Noise Levels

Roadway Segment	Proposed 2040 General Plan Conditions				
	ADT	dBA @ 100 Feet from Roadway Centerline	Distance from Roadway Centerline to: (Feet)		
			60 CNEL Noise Contour	65 CNEL Noise Contour	70 CNEL Noise Contour
Golden Avenue					
Valencia Avenue to East City Limit	3,980	57.7	69	22	7
Kraemer Boulevard to Valencia Avenue	5,930	59.4	102	32	10
Bastanchury Road					
West City Limits to Kraemer Boulevard	27,910	68.7	867	274	87
Kraemer Boulevard to Valencia Avenue	22,430	67.1	697	220	70
Valencia Avenue to East City Limit	19,250	67.2	598	189	60
Yorba Linda Boulevard					
Bradford Avenue to Kraemer Boulevard	37,690	68.5	883	279	88
Kraemer Boulevard to Valencia Avenue	28,990	67.6	679	215	68
Valencia Avenue to Rose Drive	25,720	67.1	602	190	60
Rose Drive to Eastern City Limit	28,310	67.5	664	210	66
Palm Drive					
Yorba Linda Boulevard to Valencia Avenue	9,200	62.7	215	68	22
Valencia Avenue to Rose Drive	11,740	66.2	473	150	47

Roadway Segment	Proposed 2040 General Plan Conditions				
	ADT	dBA @ 100 Feet from Roadway Centerline	Distance from Roadway Centerline to: (Feet)		
			60 CNEL Noise Contour	65 CNEL Noise Contour	70 CNEL Noise Contour
Madison Avenue					
West City Limits to Bradford Avenue	7,020	60.2	121	38	12
Bradford Avenue to Kraemer Boulevard	9,510	61.7	164	52	16
Buena Vista Avenue					
Rose Drive to East City Limit	14,400	65.8	447	142	45
Alta Vista Street					
Angelina Drive to Kraemer Boulevard	4,530	55.4	39	12	4
Kraemer Boulevard to Rose Drive	16,240	66.4	505	160	50
Rose Drive to Van Buren Street	10,640	64.6	331	105	33
Chapman Avenue					
Placentia Avenue to Bradford Avenue	26,790	66.0	462	146	46
Bradford Avenue to Kraemer Boulevard	22,000	65.2	379	120	38
Kraemer Boulevard to Orangethorpe Avenue	10,900	63.3	255	81	26
Crowther Avenue					
Placentia Avenue to Melrose Street	7,960	62.1	186	59	19
Melrose Street to East City Limit	5,100	60.3	119	38	12
Orangethorpe Avenue					
Placentia Avenue to Melrose Street	27,280	67.2	640	202	64
Melrose Street to Kraemer Boulevard	19,950	66.1	467	148	47
City Limit w/o Chapman Avenue to Chapman Avenue	8,870	63.7	275	87	28
Chapman Avenue to Rose Drive	17,140	66.4	533	169	53

Roadway Segment	Proposed 2040 General Plan Conditions				
	ADT	dBA @ 100 Feet from Roadway Centerline	Distance from Roadway Centerline to: (Feet)		
			60 CNEL Noise Contour	65 CNEL Noise Contour	70 CNEL Noise Contour
Rose Drive to East City Limit	16,180	66.4	503	159	50
Miraloma Avenue					
Van Buren Street to Richfield Road	6,530	60.1	113	36	11
Richfield Road to Lakeview Avenue	5,610	59.4	97	31	10
Placentia Avenue					
South City Limit to Orangethrope Avenue	14,240	64.6	334	106	33
Orangethrope Avenue to Crowther Avenue	22,000	66.4	515	163	52
Crowther Avenue to Chapman Avenue	19,820	66.0	464	147	46
Chapman Avenue to n/o Primrose Avenue	24,640	67.0	577	183	58
Macadamia Lane to Bastanchury Road	22,370	66.5	525	166	52
Bastanchury Road to Rolling Hills Drive	12,600	64.1	295	93	30
Melrose Street					
South City Limit to Orangethorpe Avenue	18,290	64.4	315	100	31
Orangethorpe Avenue to Crowther Avenue	12,670	64.1	297	94	30
Crowther Avenue to Santa Fe Avenue	8,620	59.7	107	34	11
Bradford Avenue					
Santa Fe Avenue to Chapman Avenue	4,690	55.6	40	13	4
Chapman Avenue to Madison Avenue	10,350	60.4	128	40	13
Madison Avenue to North City Limit	12,600	61.2	156	49	16
Kraemer Boulevard					

Roadway Segment	Proposed 2040 General Plan Conditions				
	ADT	dBA @ 100 Feet from Roadway Centerline	Distance from Roadway Centerline to: (Feet)		
			60 CNEL Noise Contour	65 CNEL Noise Contour	70 CNEL Noise Contour
South City Limits to Orangethorpe Avenue	25,840	67.2	605	191	61
Crowther Avenue to Chapman Avenue	24,180	66.9	567	179	57
Chapman Avenue to Madison Avenue	24,150	66.8	566	179	57
Madison Avenue to Yorba Linda Boulevard	27,200	67.3	637	201	64
Yorba Linda Boulevard to Bastanchury Road	24,130	68.0	750	237	75
Bastanchury Road to North City Limit	22,980	66.6	538	170	54
Valencia Avenue					
Palm Drive to Yorba Linda Boulevard	6,250	61.1	147	46	15
Yorba Linda Boulevard to Bastanchury Road	10,740	62.1	185	59	19
Bastanchury Road to Northern City Limit	9,140	62.7	214	68	21
Rose Drive					
Orangethorpe Avenue to Alta Vista Street	29,460	69.0	916	290	92
Alta Vista Street to Palm Drive	34,760	69.6	1082	342	108
Palm Drive to Yorba Linda Boulevard	25,380	67.0	594	188	59
City Limit s/o Golden Avenue to North City Limit	29,680	67.6	695	220	70
Jefferson Street					
South City Limits to Orangethorpe Avenue	6,260	60.9	147	46	15
Orangethorpe Avenue to Alta Vista Street	5,530	61.8	172	54	17

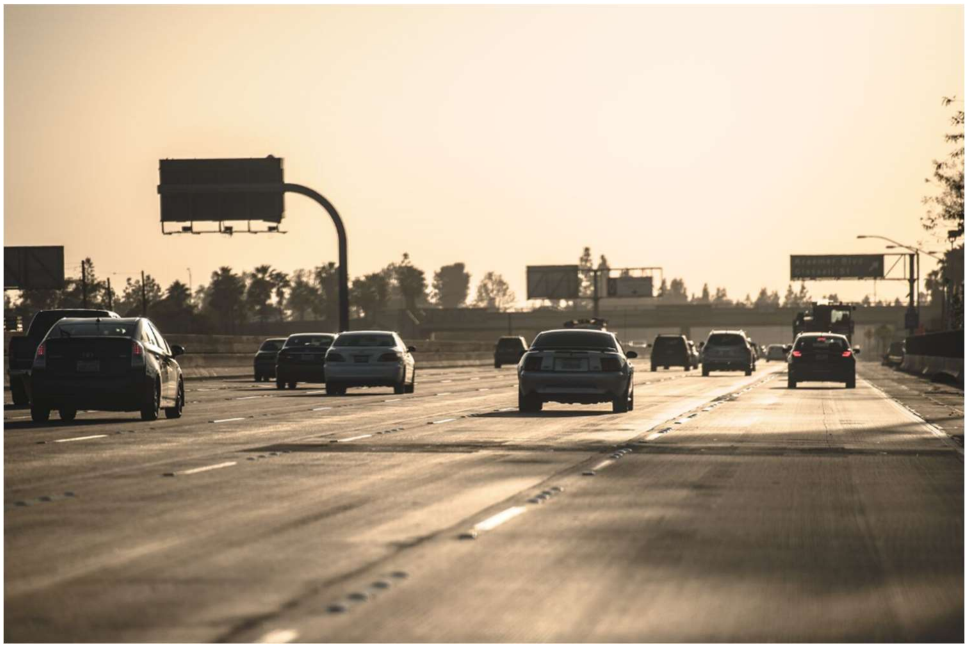
Roadway Segment	Proposed 2040 General Plan Conditions				
	ADT	dBA @ 100 Feet from Roadway Centerline	Distance from Roadway Centerline to: (Feet)		
			60 CNEL Noise Contour	65 CNEL Noise Contour	70 CNEL Noise Contour
Alta Vista Street to Garten Drive	2,220	52.3	19	6	2
Van Buren Street					
South City Limits to Orangethorpe Avenue	6,350	61.3	149	47	15
Orangethorpe Avenue to North City Limit	8,040	62.3	188	60	19
Richfield Road					
South City Limits to Orangethorpe Avenue	16,710	66.6	519	164	52
Orangethorpe Avenue to North City Limit	16,480	66.5	512	162	51
Lakeview Avenue					
South City Limit to North City Limit	9,570	64.1	297	94	30

Notes: ADT = average daily traffic; dBA = A-weighted decibels; CNEL = community noise equivalent level
"-" = contour is located within the roadway right-of-way

Source: Traffic noise modeling is based on traffic data provided in the City of Placentia General Plan Mobility Element, Update Technical Traffic Study, August 2018.

As shown in Table 8-3, the proposed General Plan traffic noise levels range from a low of 52.3 CNEL along Jefferson Street from Alta Vista Street to Garten Drive to a high of 69.6 CNEL along Rose Drive from Alta Vista Street to Palm Drive.

Freeways typically result in greater noise levels than other roadways due to higher traffic volumes and vehicle speeds. As shown on Exhibit 2 and Exhibit 3, SR-57 traverses the City of Placentia and represents a primary source of traffic noise in the southwestern portion of the City. The following describes the traffic volumes and general characteristics of the freeway within the City of Placentia.



State Route 57

SR-57 is a major north-south freeway that traverses through the southwestern portion of the City of Placentia. Based on data from Caltrans, average daily traffic along the segments of SR-57 that pass through Placentia ranges from 278,400 vehicles to 279,300 vehicles for both northbound and southbound traffic.[1]

Under existing and proposed General Plan conditions, no areas within the City experience traffic noise levels in excess of 70 dBA CNEL at 100 feet from the roadway centerline. Moreover, it should be noted that the FHWA RD-77-108 models do not account for variations in topography, intervening structures, or soundwalls. However, many of the City's commercial areas experience noise levels in excess of 65 CNEL adjacent to major arterial roadways and freeway rights-of-way. Residences located within this area may experience unacceptable noise levels. It should be noted that these are modeled traffic noise levels and are not based upon actual site measurements.

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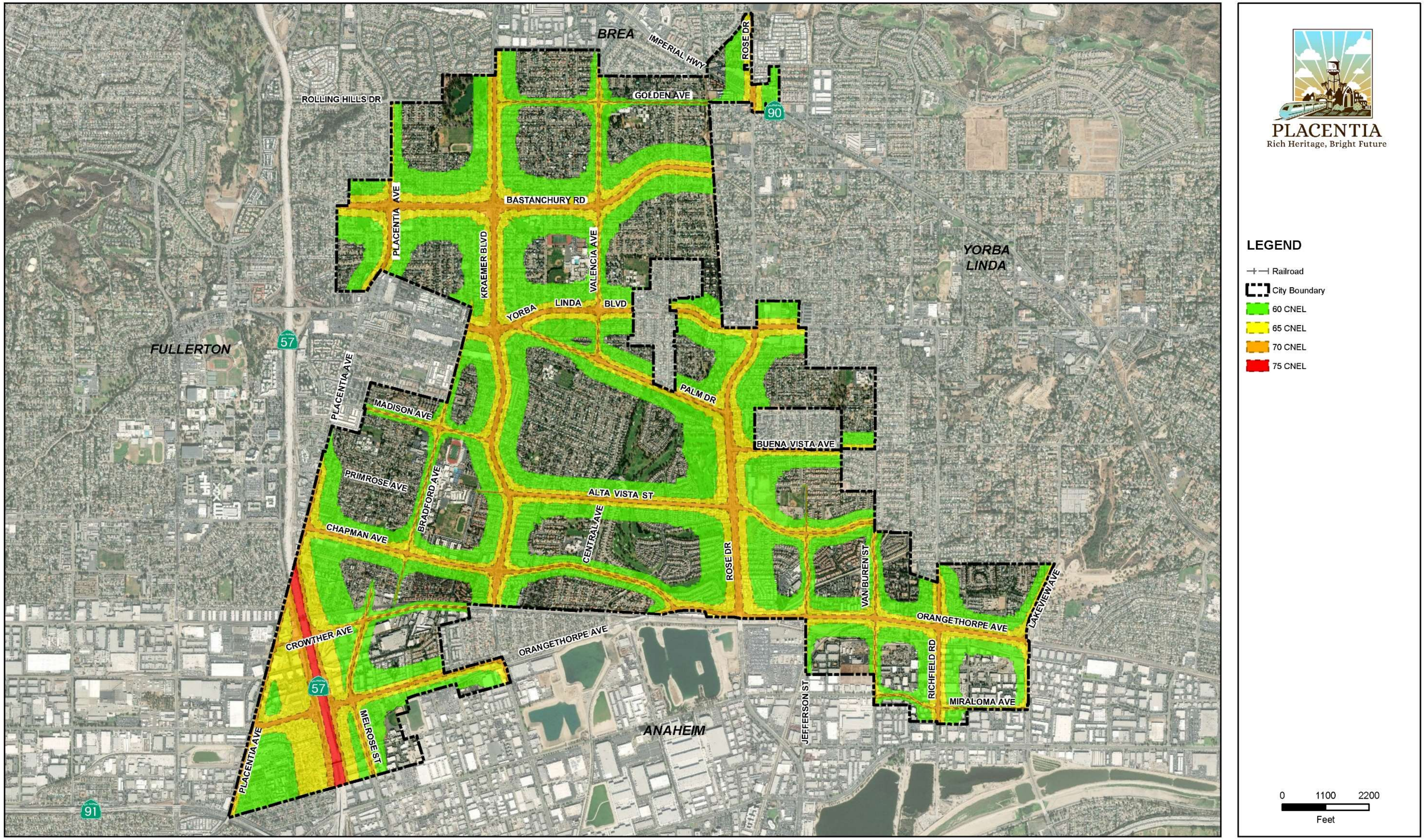
[1] California Department of Transportation, 2016 Traffic Volumes on California State Highways, http://www.dot.ca.gov/trafficops/census/docs/2016_aadt_volumes.pdf, accessed October 22, 2018.

Exhibit 8-3. Proposed Roadway Noise



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Proposed Roadway Noise Contours

Source: City of Placentia, August 2018, ESRI

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8.3 TRUCK ROUTES, RAIL, AIRCRAFT/AIRPORT NOISE

Truck Routes

Truck routes direct large trucks onto roadways that are designed to accommodate them. Truck routes are typically distant from sensitive receptor locations or noise levels have been appropriately mitigated to acceptable levels. Currently, designated truck routes within the City's limit are along the Orange Freeway (SR-57), Placentia Avenue, Melrose Street, Rose Drive, Lakeview Avenue, Imperial Highway, Yorba Linda Boulevard, Chapman Avenue, Crowther Avenue, and Orangethorpe Avenue. Crowther Avenue will be removed from the approved list of truck routes once the TOD project area is fully developed. Trucks use the shortest possible route to arrive at their destination but must use these designated truck routes. As the City grows and traffic levels increase, there is a potential for increased truck noise conflicts with adjacent land uses.

Rail Noise

One of the primary noise sources in the City of Placentia is the BNSF Railway Company (BNSF) line located in the southern portion of the City. This rail line traverses the City in an east-west direction, generally parallel to Crowther Avenue and Orangethorpe Avenue. The railroad easement passes through residential, commercial, and industrial areas along its transect through the City. The BNSF operates a major double-track freight rail line known as the Orange County Gateway along the Orangethorpe Corridor. This rail line connects the Port of Los Angeles with the Inland Empire and Midwest United States. The track serves BNSF freight trains as well as the Metrolink 91 Line. The line supports the freight transportation needs of local industry and freight train frequency changes according to local market demand. Currently more than 70 freight trains and 12 passenger trains per day use this rail line. By Year 2030 it is forecast that over 150 trains per day will use this line.

Plans are underway to begin construction of a Metrolink commuter train station in 2020, to be located at the intersection of Melrose Avenue and Crowther Avenue.[2] Currently 10 Metrolink trains per day use this line. Metrolink train frequency is expected to increase to 13 trains per day by the time the Placentia Metrolink station is completed.

The OCTA railroad grade separation (OC Bridges) projects have been completed, physically separating rail and highway traffic at five at-grade rail/highway grade crossings in the City. The grade separation projects eliminate significant delays to north-south vehicle traffic due to increasing freight and passenger rail traffic on the double-track BNSF rail line adjacent to and south of Orangethorpe Avenue.

In addition, in 2007, the City adopted the Placentia "Quiet Zone," the first in Orange County and one of only a few in the nation and was put in effect to silence unnecessary train whistles. All trains are prohibited from using horns, 24 hours a day, in the quiet zone unless an engineer feels an emergency exists that threatens human or animal injury or property damage. There are three railroad crossings in Placentia which have no grade separations and a Quiet Zone is in effect to reduce the train noise at these locations.

Aircraft and Airport Noise

Noise exposure contours around airports are determined from the number and type of aircraft using the airport, the magnitude and duration of each fly over, flight paths, and the time of day when flights occur. The Airport Noise Standards contained in Title 4 of the *California Administrative Code* specify that airports shall not permit noise exposures of 65 dB CNEL or greater to extend into residential or school areas. The State Aeronautics Act specifies 65 dB CNEL as the criterion which airports must meet to protect existing residential communities from unacceptable exterior exposures to aircraft noise. The exterior maximum of 65 dB CNEL is given as the level deemed acceptable to a reasonable person residing in urban residential areas where houses are of typical California construction and may have windows partially open.

There are no airports within the City of Placentia. The Fullerton Municipal Airport, approximately 5 miles to the west of the City, is the nearest airport to the City. The Orange County Airport Land Use Commission (ALUC) is an advisory body that ensures airport land use compatibility and reviews local agency land use actions and airport plans. Lead agencies are required to use the Airport Land Use Planning Handbook as a technical resource when assessing the airport related noise and safety impacts of airport vicinity projects. According to the ALUC, the City of

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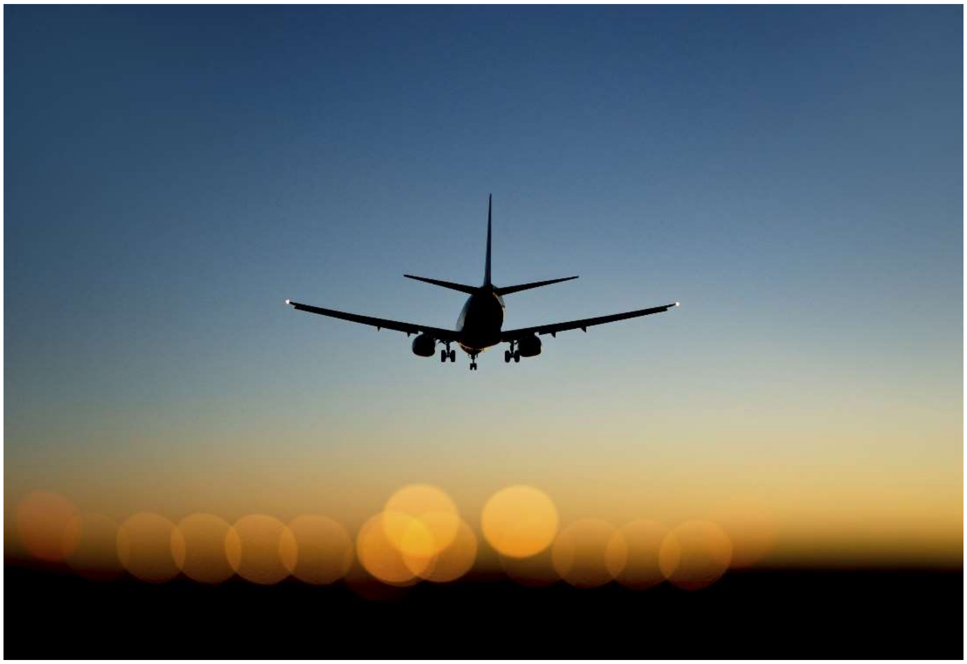
[2] KOA Corporation, City of Placentia General Plan Mobility Element Update Technical Traffic Study, August 2018.

Placentia is located outside of Fullerton Municipal Airport Impact Zone. Therefore, airport noise does not currently cause annoyance within the City.



Although Placentia is outside of the impact zone of Fullerton Airport, planes do fly overhead to and from John Wayne Airport. Principal regulation of air traffic is with the Federal Aviation Administration (FAA), although any neighboring airport, such as the John Wayne Airport, has to consult surrounding cities when proposing to change hours, flight patterns or increase number of flights.

8.4 STATIONARY NOISE SOURCES

Stationary noise sources are defined as stationary devices that emit sound while fixed or motionless. These include but are not limited to parking lots, delivery areas, outdoor loudspeakers and mechanical equipment of various types (i.e., air compressors, generators, heating/ventilation/air conditioning units). Other significant stationary noise sources in the City may include noise from construction activities and landscaping equipment. These noise sources are typically associated with commercial and industrial land uses, which if located in proximity to residential land uses, may generate occasional noise impacts. Residential land uses and areas identified as noise-sensitive must be protected from excessive noise from stationary sources including commercial and industrial centers. Commercial uses are found throughout the City, primarily along major arterials. These impacts are best controlled through effective land use planning and application of the City Noise Ordinance, with site-specific noise mitigation where required.

Construction Noise

Construction noise is one of the most common stationary noise sources in the City. The use of pile drivers, drills, trucks, pavers, graders, and a variety of other equipment can result in short, sporadic elevated noise levels. Although construction noise impacts are generally short-term in nature, it can often disturb nearby sensitive uses.

Commercial Noise

Commercial development covers a broad spectrum of uses including retail, office, and service commercial. Commercial uses consist of 212.7 acres, or 6.1% of the City's total acreage. Commercial uses are primarily concentrated along major arterials, serving Placentia residents and the surrounding region.

A variety of stationary noise sources associated with commercial activities exists throughout the City of Placentia. Commercial noise sources may include mechanical equipment and engines in non-moving motors such as power tools. Additional stationary noise sources include animals, stereos, musical instruments, sporting events, and horns. These noise sources have the potential to temporarily disrupt the noise environment of an area.

Industrial Noise

Industrial noise sources are located in industrial zoned properties throughout the City. In general, industrial noise sources are not creating large-scale problems, but some localized noise problems related to industrial sources do exist. The existing industrial designation encompasses approximately 326 acres, or 8% of the City's total acreage. Under the proposed General Plan, future industrial uses encompass approximately 311 acres, or 7% of the City's total acreage. Industrial developments are generally located in the southern portion of the City, adjacent to the BNSF Railroad. The City's Zoning Ordinance establishes three types of districts dedicated to industrial uses: Manufacturing, Commercial Manufacturing, and Combining Planned Manufacturing districts.

The existing Atwood oil field yields approximately 200 barrels per day, down from 600 at its peak. There is some noise associated with the pump jacks, but this noise has not caused impacts to the surrounding uses. This oil field remains, but its use is in decline.

Industrial land uses have the potential to generate noise that can be considered intrusive to nearby sensitive land uses. Depending on the type of industrial operation, noise sources could involve mechanical equipment, loading and unloading of vehicles and trucks, as well as amplified or un-amplified communications. The level and intrusiveness of the noise generated also vary depending on the size and type of the facility, type of business, hours of operation, and location relative to sensitive land uses.

8.5 SENSITIVE RECEPTORS

Sensitive populations are more susceptible to the effects of noise than are the general population. Land uses considered sensitive by the State of California include schools, playgrounds, athletic facilities, hospitals, assisted living or retirement homes, rehabilitation centers, long-term care, and mental care facilities. Some jurisdictions also consider day care centers, single-family dwellings, mobile home parks, churches, and libraries to be sensitive to noise and air pollutants. Generally, a sensitive receptor is identified as a location where human populations (especially children, senior citizens, and sick persons) are present, and where there is a reasonable expectation of lower levels of human exposure to noise.

Land uses less sensitive to noise are business, commercial, and professional developments. Noise receptors categorized as being least sensitive to noise include industrial, manufacturing, utilities, agriculture, natural open space, undeveloped land, parking lots, motorcycle parks, rifle ranges, warehousing, liquid and solid waste facilities, salvage yards, and transit terminals. These types of land uses also often generate high noise levels. Moderately sensitive land uses typically include: multi-family dwellings, hotels, motels, dormitories, and outpatient clinics. Current land uses located within the City of Placentia that are sensitive to intrusive noise include residential uses, schools, libraries, hospitals, churches, and parks.

8.6 AMBIENT NOISE

Placentia's noise environment is dominated by vehicular traffic, including vehicular generated noise along SR-57 as well as major and primary arterials. The major arterials that serve the City are Imperial Highway, Bastanchury Road, Rose Drive, Yorba Linda Boulevard, and Orangethorpe Avenue. Chapman Avenue, Placentia Avenue, Kraemer Boulevard, and Lakeview Avenue are classified as primary arterials. Secondary arterials within the City are Palm Drive, Madison Avenue, Alta Vista Street, Miraloma Avenue, Melrose Street, Bradford Avenue, Jefferson Street, Richfield Road and Van Buren Street. These roadways have been designed to specifically carry large volumes of traffic, although long-established land use patterns have placed residential uses along some portions of these roadways.

8.7 NOISE MEASUREMENT SITES

Noise measurements were taken throughout the City of Placentia at 11 locations as illustrated in Exhibit 4, *Noise Measurement Locations*. Based upon the research conducted for the City's development patterns, the City was divided into Acoustical Analysis Zones (AAZ) to identify areas of homogenous acoustical conditions. Aerial imagery with a one-foot pixel resolution was utilized for a visual representation of the City's roadway and land use layout. In addition, the City's existing General Plan land use map and Zoning map were utilized to determine the City's existing and proposed patterns of development.

The noise measurement locations were selected as a representative sample of the more urbanized portions of the City in order to identify ambient baseline levels. Noise measurements were conducted during non-peak traffic hours because free flowing traffic conditions yield higher noise levels, as opposed to rush hour traffic during peak hours when vehicle speeds and heavy truck volumes are low. The noise measurements described in Table 4, *Existing Noise Levels*, were taken adjacent to major roadways in the City to determine peak noise levels at worst-case sensitive receptor locations.

Table 8-4. Existing Noise Levels

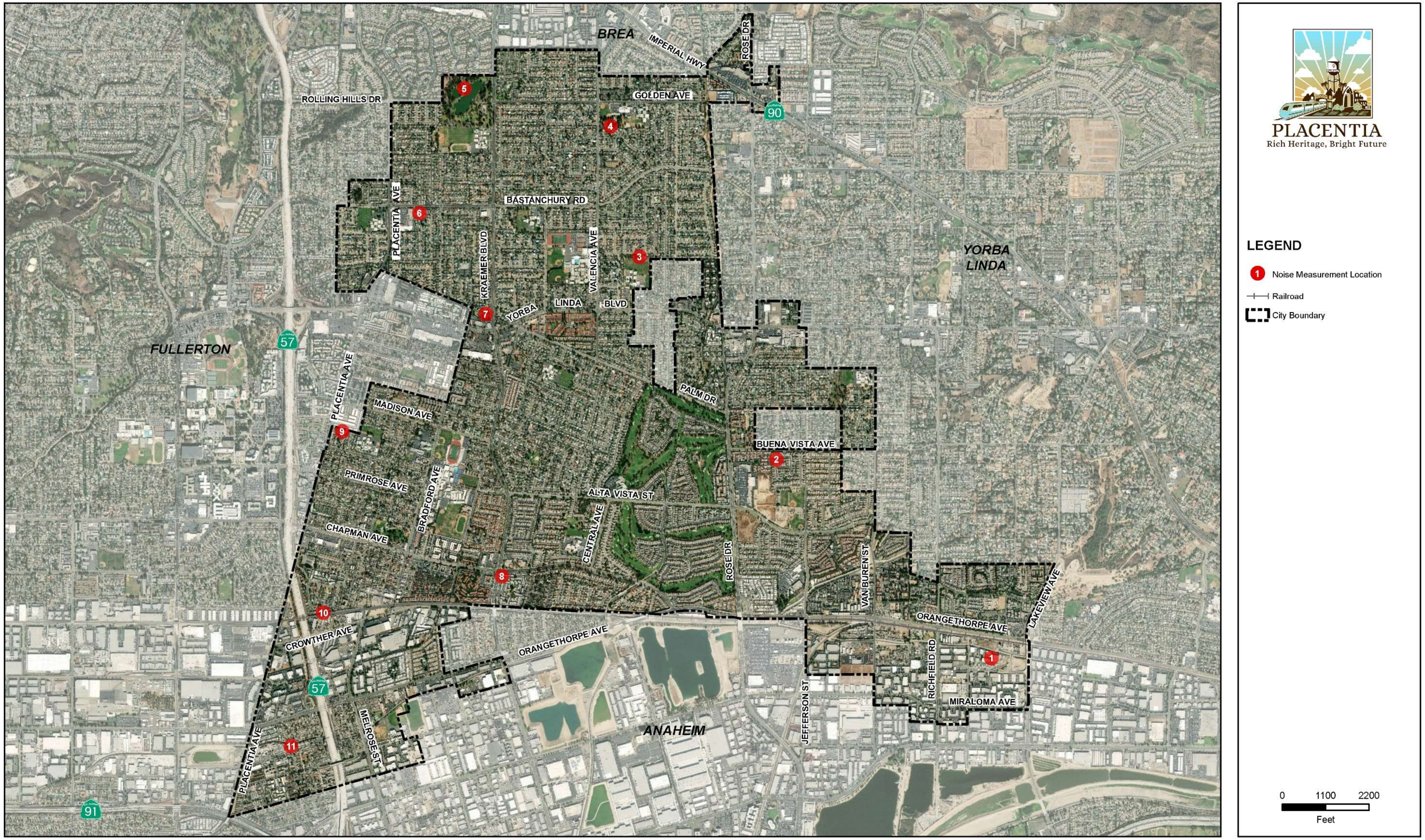
Site No.	Location	Leq (dBA)	Lmin (dBA)	Lmax (dBA)	Peak (dBA)	Date and Time
1	Nancita Circle cul-de-sac	61.0	50.5	73.8	91.8	June 5, 2014 8:58 a.m. – 9:08 a.m.
2	East Corbett Drive cul-de-sac; off of Buena Vista Avenue	50.1	39.6	71.0	91.8	June 5, 2014 9:23 a.m. – 9:33 a.m.
3	Wagner Park	51.0	40.4	73.8	92.6	June 5, 2014 9:46 a.m. – 9:56 a.m.
4	Koch Park	53.8	44.3	72.0	92.3	June 5, 2014 10:09 a.m. – 10:19 a.m.

Site No.	Location	Leq (dBA)	Lmin (dBA)	Lmax (dBA)	Peak (dBA)	Date and Time
5	Tri-City Park	49.7	41.1	67.5	92.8	June 5, 2014 10:32 a.m. – 10:42 a.m.
6	Beal Avenue/Stanley Avenue cul-de-sac	51.0	41.7	71.6	92.8	June 5, 2014 10:51 a.m. – 11:01 a.m.
7	Bradford Park	52.3	45.7	65.2	88.9	June 5, 2014 11:10 a.m. – 11:20 a.m.
8	Southeast corner of Kramer Boulevard and Chapman Avenue intersection (next to condo complex)	65.0	50.4	87.8	109.1	June 5, 2014 11:39 a.m. – 11:49 a.m.
9	Northernmost portion of Moonbeam Street, east of Placentia Avenue	44.6	52.8	48.2	71.7	June 5, 2014 1:04 p.m. – 1:14 p.m.
10	Monterey Way cul-de-sac, to the north of existing railroad	64.7	52.1	85.7	109.1	June 5, 2014 1:21 p.m. – 1:31 p.m.
11	Northernmost portion of Arnold Drive, east of Placentia Avenue	57.5	45.8	78.1	92.3	June 5, 2014 1:43 p.m. – 1:53 p.m.

Leq = equivalent sound level; dBA = A-weighted decibel.

Source: RBF Consulting, *Noise Monitoring Survey*, June 5, 2014.

Exhibit 8-4. Noise Measurement Locations



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Noise Measurement Locations

Source: City of Placentia, August 2018, ESRI

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Noise levels at the selected sensitive receptor sites were measured by RBF Consulting on June 5, 2014, using a Brüel & Kjær model 2250 sound level meter (SLM) equipped with Brüel & Kjær pre-polarized freefield microphone, which meets standards of the American National Standards Institute (ANSI) for general environmental noise measurement instrumentation. Each measurement was for 10 minutes, and the sound meter was calibrated before each measurement was taken.

Measurement Site 1

Measurement Site 1 was located within an industrial area, at the Nancita Circle cul-de-sac, to the east of Richfield Road. Sources of peak noise included a beeping sound and mechanical equipment from the adjacent industrial use, a leaf blower, two cars and one heavy truck driving along Nancita Circle. The noise level monitored at Site 1 was 61.0 dBA.

Measurement Site 2

Measurement Site 2 was located within a single-family residential area at the East Corbett Drive cul-de-sac, to the south of Buena Vista Avenue. The monitored noise level was 50.1 dBA, with the majority of noise from birds chirping, traffic on Buena Vista Avenue, and dogs barking.

Measurement Site 3

Measurement Site 3 was located at Wagner Park, south of Trumpet Avenue. The monitored noise level was 51.0 dBA with peak noise from cars on Trumpet Avenue, children playing outside at Wagner Elementary School to the south, and birds chirping.

Measurement Site 4

Measurement Site 4 was located at Koch Park, east of Valencia Avenue. Peak noise emanated from a leaf blower, cars driving on nearby roadways, and birds chirping. The monitored noise level was 53.8 dBA.

Measurement Site 5

Measurement Site 5 was located at Tri-City Park. The monitored noise level was 49.7 dBA. The source of peak noise included people walking and talking along the adjacent pedestrian path, traffic on Kramer Boulevard, and birds chirping.

Measurement Site 6

Measurement Site 6 was located at the Beal Avenue/Stanley Avenue cul-de-sac, to the south of Bastanchury Road. The monitored noise level was 51.0 dBA. Sources of peak noise were from ambient traffic noise on nearby roadways, two cars driving by on Beal Avenue, and birds chirping.

Measurement Site 7

Measurement Site 7 was located at Bradford Park, to the west of Kramer Boulevard. Sources of peak noise included traffic on Kramer Boulevard, an airplane flying overhead, and birds chirping. The monitored noise level was 52.3 dBA.

Measurement Site 8

Measurement Site 8 was located at the southeast corner of Kramer Boulevard and Chapman Avenue intersection, next to an existing condominium complex. Sources of peak noise included traffic on Kramer Boulevard and Chapman Avenue, wind, and a garbage truck passing by. The monitored noise level was 65.0 dBA.

Measurement Site 9

Measurement Site 9 was located within a residential area, at the northernmost portion of Moonbeam Street. Sources of peak noise included ambient traffic noise on nearby roadways, and birds chirping. The monitored noise level was 44.6 dBA.

Measurement Site 10

Measurement Site 10 was located at the Monterey Way cul-de-sac, within a multi-family residential area, to the north of an existing railroad. The monitored noise level was 64.7 dBA and peak noise included traffic noise from SR-57, two trains passing by, three cars driving on Monterey Way, birds chirping, and wind.

Measurement Site 11

Measurement Site 11 was located within a residential area, at the northernmost portion of Arnold Drive. Peak noise included birds chirping, wind, ambient traffic noise on nearby roadways, and two planes flying overhead. The monitored noise level was 57.5 dBA.

8.8 THE REGULATORY FRAMEWORK

Federal

The Federal Noise Control Act of 1972 established programs and guidelines to identify and address the effects of noise on public health, welfare, and the environment. In 1981, the U.S. Environmental Protection Agency (EPA) administrators determined that subjective issues such as noise would be better addressed at more local levels of government, thereby allowing more individualized control for specific issues by designated Federal, State, and local government agencies. Consequently, in 1982 responsibilities for regulating noise control policies were transferred to specific federal agencies, and state and local governments. However, noise control guidelines and regulations contained in the EPA rulings in prior years remain in place.

State

The State of California has adopted noise standards in areas of regulation not preempted by the federal government. State standards regulate noise levels of motor vehicles, sound transmission through buildings, occupational noise control, and noise insulation. State regulations governing noise levels generated by individual motor vehicles (i.e., the *California Vehicle Code*) and those governing occupational noise control (i.e., Occupational Safety and Health Administration) are not applicable to planning efforts nor are these areas typically subject to CEQA analysis. Thus, these regulatory guidelines are not included in this analysis. The following is State of California and state agency regulation that has been deemed applicable to this project.

Title 24

In 1974, the California Commission on Housing and Community Development adopted noise insulation standards for residential buildings (*CCR Title 24*, Part 2, Chapter 12, Section 1207.11.2). *Title 24* establishes standards for interior room noise attributable to outside noise sources. *Title 24* also specifies that acoustical studies should be prepared whenever a residential building or structure is proposed to be located in areas with exterior noise levels 60 dB Ldn or greater. The acoustical analysis must show that the building has been designed to limit intruding noise to an interior level not exceeding 45 dB Ldn for any habitable room.

Government Office of Planning and Research

The State of California General Plan Guidelines, published by the State Governor's Office of Planning and Research (OPR), provides guidance for the acceptability of specific land use types within areas of specific noise exposure. Table 8-5, *Land Use Compatibility for Community Noise Environments*, presents guidelines for determining acceptable and unacceptable community noise exposure limits for various land use categories. The guidelines also present adjustment factors that may be used to arrive at noise acceptability standards that reflect the noise control goals of the community, the particular community's sensitivity to noise, and the community's assessment of the relative importance of noise pollution. OPR guidelines are advisory in nature. Local jurisdictions, including the City of Placentia, have the responsibility to set specific noise standards based on local conditions.

Table 8-5. Land Use Compatibility for Community Noise Environments

Land Use Category	Community Noise Exposure (CNEL)			
	Normally Acceptable	Conditionally Acceptable	Normally Unacceptable	Clearly Unacceptable
Residential-Low Density, Single-Family, Duplex, Mobile Homes	50 – 60	55 – 70	70 – 75	75 – 85
Residential – Multiple Family	50 – 65	60 – 70	70 – 75	70 – 85
Transient Lodging – Motel, Hotels	50 – 65	60 – 70	70 – 80	80 – 85
Schools, Libraries, Churches, Hospitals, Nursing Homes	50 – 70	60 – 70	70 – 80	80 – 85
Auditoriums, Concert Halls, Amphitheaters	NA	50 – 70	NA	65 – 85
Sports Arenas, Outdoor Spectator Sports	NA	50 – 75	NA	70 – 85
Playgrounds, Neighborhood Parks	50 – 70	NA	67.5 – 77.5	72.5 – 85
Golf Courses, Riding Stables, Water Recreation, Cemeteries	50 – 70	NA	70 – 80	80 – 85
Office Buildings, Business Commercial and Professional	50 – 70	67.5 – 77.5	75 – 85	NA
Industrial, Manufacturing, Utilities, Agriculture	50 – 75	70 – 80	75 – 85	NA

CNEL = community noise equivalent level; NA = not applicable

NORMALLY ACCEPTABLE: Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements.
CONDITIONALLY ACCEPTABLE: New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features have been included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning, will normally suffice.
NORMALLY UNACCEPTABLE: New construction or development should 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 must be included in the design.
CLEARLY UNACCEPTABLE: New construction or development should generally not be undertaken.

Source: Office of Planning and Research, California, *General Plan Guidelines*, 2017.

As depicted in Table 5, the range of noise exposure levels overlap between the normally acceptable, conditionally acceptable, normally unacceptable, and clearly unacceptable categories. The OPR's *State of California General Plan Guidelines*, note that noise planning policy needs to be rather flexible and dynamic to reflect not only technological advances in noise control, but also economic constraints governing application of noise-control technology and anticipated regional growth and demands of the community. In project specific analyses, each community must decide the level of noise exposure its residents are willing to tolerate within a limited range of values below the known levels of health impairment. Therefore, the City may use their discretion to determine which noise levels are considered acceptable or unacceptable, based on land use, project location, and other project factors.

Local

City of Placentia General Plan

The State of California has mandated that local governments prepare a noise element as part of their general plans. The Noise Element of the proposed General Plan will be the guiding document for the City's noise policy and contains various goals and accompanying policies and objectives designed to protect residents and businesses from excessive and persistent noise intrusions. The Noise Element will describe the existing noise environment, goals and policies, as well as Federal, State and City noise regulations.

City of Placentia Municipal Code

The City of Placentia's regulations with respect to noise are included in Chapter 23.76 (Noise Control) of Title 23 (Zoning) of the Municipal Code, also known as the Noise Ordinance. Construction-related and operational noise restrictions are discussed below.

Section 23.76.010 of the Noise Ordinance sets forth the general prohibition:

> *In order to control unnecessary, excessive and annoying sounds emanating from incorporated areas of the city, it is declared to be the policy of the city to prohibit such sounds generated from all sources as specified in this chapter.*
>
> *It is determined that certain noise levels are detrimental to the public health, welfare and safety and contrary to public interest, therefore, the city council declares that creating, maintaining, causing or allowing to create, maintain or cause any noise in a manner prohibited by or not in conformity with the provisions of this chapter is a public nuisance and shall be punishable as such. (Ord. 75-O-105 § 1, 1975)*

Section 23.76.040 assigns three noise zones for the properties within the City of Placentia as follows:

- Noise Zone 1: All Residential Property
- Noise Zone 2: All Commercial Property
- Noise Zone 3: All Industrial Property

Sections 23.76.050 (a) and 23.76.060 (a) define the exterior and interior noise level limits for residential, commercial, and industrial land uses (Noise Zone 1 through 3); refer to Table 8-6, *City of Placentia Noise Level Limits*. The City does not have specific interior noise level limits for commercial and industrial land uses (Zone 2 and 3).

Table 8-6. City of Placentia Noise Level Limits

Noise Zone	Noise Level Limits dBA L_{eq}– 1-hour average	Time Period
Exterior Noise Standard		
1	55	7:00 a.m. – 10:00 p.m.
	50	10:00 p.m. – 7:00 a.m.
2	65	Anytime
3	70	Anytime
Interior Noise Standard		
1	55	7:00 a.m. – 10:00 p.m.
	45	10:00 p.m. – 7:00 a.m.

Noise Zone 1: All Residential Property
Noise Zone 2: All Commercial Property
Noise Zone 3: All Industrial Property

Source: City of Placentia, City of Placentia Municipal Code Sections 23.76.050 and 23.76.060, March 2018.

It should be noted that in the event the alleged offensive noise consists entirely of impact noise, simple tone noise, speech, music, or any combination thereof, each of the above noise levels shall be reduced by 5 dBA.

Sections 23.76.050 (b) and 23.76.060 (b) identify how the noise level limits identified in Sections 23.76.050 (a) and 23.76.060 (a), Table 6 above, will be enforced.

Sections 23.76.050 (b) states "It is unlawful for any person at any location within the incorporated area of the city to create any noise, or to allow the creation of any noise on property owned, leased, occupied, or otherwise controlled by such person, when the foregoing causes the noise level, when measured on any other residential, commercial, or industrial property, either incorporated or unincorporated to exceed:

1. The noise standards for a cumulative period of time more than 30 minutes in any hour; or
2. The noise standard plus 5 dBA for a cumulative period of more than 15 minutes in any hour; or
3. The noise standard plus 10 dBA for a cumulative period of more than 5 minutes in any hour; or
4. The noise standard plus 15 dBA for a cumulative period of more than one minute in any hour; or

5. The noise standard plus 20 dBA for any period of time."

Section 23.76.050 (c) states "In the event the ambient noise level exceeds any of the first four noise limit categories above, the cumulative period applicable to said category shall be increased to reflect said ambient noise level. In the event the ambient noise level exceeds the fifth noise limit category, the maximum allowable noise level under said category shall be increased to reflect the maximum ambient noise level."

Additionally, Section 23.76.050 (d) states "In the event that the noise source and the affected property are within different noise zones, the noise standard applicable to the affected property shall apply." (Ord. 75-O-105 § 5, 1975)

Sections 23.76.060 (b) states "It is unlawful for any person at any location within the incorporated area of the city to create any noise, or to allow the creation of any noise on property owned, leased, occupied, or otherwise controlled by such person, when the foregoing causes the noise level when measured within any other dwelling unit on any residential property, either incorporated or unincorporated, to exceed:

1. The interior noise standard for a cumulative period of more than 5 minutes in any hour; or
2. The interior noise standard plus 5 dBA for a cumulative period of more than one minute in any hour; or
3. The interior noise standard plus 10 dBA for any period of time."

Section 23.76.060 (c) states "In the event the ambient noise level exceeds either of the first two noise limit categories above, the cumulative period applicable to said category shall be increased to reflect said ambient noise level. In the event the ambient noise level exceeds the third noise limit category, the maximum allowable noise level under said category shall be increased to reflect the maximum ambient noise level." (Ord. 75-O-105 § 6, 1975)

Section 23.76.080 (Schools, hospitals and churches - Special provisions) states "It is unlawful for any person to create any noise which causes the noise level at any school, hospital or church while the same is in use to exceed the noise limits as specified in Section 23.76.050 prescribed for the assigned noise zone in which the school, hospital or church is located, or which noise level unreasonably interferes with the use of such institutions or which unreasonably disturbs or annoys patients in the hospital; provided conspicuous signs are displayed in three separate locations within one-tenth (1/10) of a mile of the institution indicating the presence of a school, church, or hospital. (Ord. 75-O-105 § 8, 1975)."

Construction Noise

Section 23.81.170 (Grading, construction and maintenance of real property) of the Chapter 23.81 (General Regulations and Exceptions) is the relevant ordinance controlling construction noise. According to the Section 23.81.170, all grading of any real property shall be permitted only between the hours of 7:00 a.m. and 7:00 p.m. Monday through Friday, and between the hours of 9:00 a.m. and 6:00 p.m. on Saturday, and shall be prohibited at any time on Sunday and on all federal holidays, unless other hours are approved by the chief building official or city engineer upon receipt of evidence that an emergency exists which would constitute a hazard to persons or property.

Table 8-7, *Construction, Remodeling, and Maintenance Hours* depicts permitted time periods for construction activities and the maintenance of real property.

Table 8-7. Construction, Remodeling, and Maintenance Hours

Activity	Monday – Friday	Saturday	Sunday
Initial Construction	7:00 a.m. - 7:00 p.m.	9:00 a.m. - 6:00 p.m.	Prohibited
Remodeling, Repair work	7:00 a.m. - 7:00 p.m.	9:00 a.m. - 6:00 p.m.	10:00 a.m. - 5:00 p.m.
Maintenance of real property	7:00 a.m. - 7:00 p.m.	9:00 a.m. - 6:00 p.m.	10:00 a.m. - 5:00 p.m.

Source: City of Placentia, City of Placentia Municipal Code Section 23.81.170, March 2018.

Section 23.81.170 of the Municipal Code also notes the following:

1. Initial construction work includes new residential, commercial, and industrial developments. These are projects constructed on vacant property, which require the approval of the planning commission and, in particular cases, approval by the city council.
2. Remodeling, repair work pertains to construction activity on properties where structures already exist. This includes structural additions, rehabilitation work, miscellaneous projects, re-roofing, the construction of swimming pools, etc. These projects typically require over-the-counter permit approval only.
3. Maintenance of real property including, but not limited to: the mowing of lawns, trimming of trees and shrubs, general landscape maintenance. (Ord. 94-O-143 § 1, 1994)

Vibration

Vibrations caused by construction activities can be interpreted as energy transmitted in waves through the soil mass. These energy waves generally dissipate with distance from the vibration source as a result of spreading of the energy and frictional losses. The energy transmitted through the ground as vibration, if great enough, can result in structural damage. To assess the potential for structural damage associated with vibration from construction activities, the vibratory ground motion in the vicinity of an affected structure is measured in terms of peak particle velocity (PPV), typically in units of inches/second.

8.9 NOISE ATTENUATION TECHNIQUES

Noise impacts can be mitigated in three basic ways; (1) by reducing the sound level of the noise generator, (2) by increasing the distance between the source and receiver and (3) insulating the receiver.

Noise reduction can be accomplished by the appropriate placement of walls, landscaped berms, or a combination of the two, between the noise source and the receiver. Generally, effective noise shielding requires a solid barrier with a mass of at least four pounds per square-foot of surface area which is large enough to block the line of sight between source and receiver. Variations may be appropriate in individual cases based on distance, nature and orientation of buildings behind the barrier, and a number of other factors. Garages or other buildings may be used to shield dwelling units and outdoor living areas from traffic noise.

Noise insulation can also be accomplished through proper building design. Nearby noise generators should be recognized in determining the location of doors, windows and vent openings. Sound-rated windows (extra thick or multi-paned) and wall insulation are also effective. These measures cannot realize their full potential unless care is taken in actual construction: doors and windows fitted properly; openings sealed; joints caulked; plumbing adequately insulated from structural members.

Insulation of noise sensitive uses, such as residences, schools, libraries, hospitals, care homes and certain types of stationary noise sources can reduce noise impacts. More efficient approaches involve limiting the level of noise generation at the source.

Traffic noise is greatest at intersections due to acceleration, deceleration and gear shifting. Measures such as signal synchronization can help to minimize this problem. Likewise, reduction of congestion aids in reduction of noise. This can be accomplished through the application of traffic engineering techniques such as channelization of turning movements, parking restrictions, separation of modes (bus, auto, bicycle, pedestrian) and restrictions on truck traffic.

Noise reduction through reduction of traffic volumes can also be accomplished with incentive programs for use of public transit facilities, bicycles and high-occupancy vehicles, staggering of work hours and land use controls. Vehicle trips can be turned into pedestrian trips with integration of housing and employment into the same project or area, construction of high-density, affordable housing in proximity to employment, shopping and public transit facilities and other techniques.

8.10 GOALS AND POLICIES

Noise goals and policies are also located in the Health and Wellness Element of the General Plan.

GOAL N - 1	***Reduce noise impacts from transportation noise sources.***
Policy N - 1.1	Ensure the inclusion of noise mitigation measures in the design of new roadway projects in Placentia. Special attention should be given to shielding noise sensitive uses.
Policy N - 1.2	Reduce transportation noise through proper design and coordination of new or remodeled transportation and circulation facilities.
Policy N - 1.3	Enforce all applicable City, State, and federal noise standards.
Policy N - 1.4	Ensure that the Zoning Ordinance, Mobility Element, and Land Use Element fully integrates the policies adopted as part of the Noise Element.
Policy N - 1.5	Consider alternate circulation routes for buses and other heavy vehicles using residential streets.
Policy N - 1.6	Require that new equipment purchased by the City of Placentia comply with noise performance standards.
Policy N - 1.7	Encourage use of public transit and other traffic reducing incentives to lessen noise through reduction of traffic volumes.
Policy N - 1.8	Continue to support the federal “quiet zones.”
Policy N - 1.9	Work with BNSF to develop pedestrian barriers to allow trains to minimize horn usage adjacent to residential areas.
GOAL N - 2	***Incorporate noise considerations into land use planning decisions.***
Policy N - 2.1	Land use planning decisions should be guided by the “normally acceptable” and “conditionally acceptable” community noise exposures, as established by the Office of Planning and Research and shown on Table 5.

Policy N - 2.2 Require noise-reduction techniques and mitigation measures in site planning, architectural design, and construction where new projects do not meet the land use compatibility standards in Table 5.

Policy N - 2.3 Discourage and, if necessary, prohibit the exposure of noise-sensitive land uses to noisy environments. Incorporate noise-reduction features during site planning to mitigate anticipated noise impacts on affected noise-sensitive land uses.

Policy N - 2.4 Allow flexibility in planning policy to reflect technological advances in noise control and the economic constraints governing the application of noise-control technology.

Policy N - 2.5 Require proposed development and building projects to demonstrate compliance with the Noise Element and Noise Ordinance prior to project approval. Inform building permit applicants of the relevant sections of the Noise Element and Ordinance.

GOAL N - 3 ***Minimize noise spillover from commercial uses into nearby residential neighborhoods.***

Policy N - 3.1 Require adherence to City and State exterior noise requirements, specifying exterior and interior noise levels.

Policy N - 3.2 Use increased setbacks where necessary to ensure noise from new development does not impact adjoining residentially used or zoned property.

Policy N - 3.3 Require that automobile and truck access to commercial properties located adjacent to residential parcels be located at the maximum practical distance from the residential parcel.

Policy N - 3.4 Truck deliveries within the City to commercial and industrial properties abutting residential uses shall fully comply with the City's Noise Ordinance.

Policy N - 3.5 Limit delivery hours for commercial and industrial uses with loading areas or docks fronting, siding, bordering, or gaining access on driveways adjacent to noise-sensitive uses.

Policy N - 3.6 Require adherence to City and State building codes that specify indoor noise levels.

Policy N - 3.7 Incorporate noise considerations into the site plan review process, particularly with regard to parking and loading areas, ingress/egress points and refuse collections areas.

GOAL N - 4 ***Minimize the noise impacts associated with the development of residential units above ground floor commercial uses in mixed use developments.***

Policy N - 4.1	Require that commercial uses developed as part of a mixed-use project (with residential uses) not be noise-intensive, or that noise attenuation practices are used that substantially reduce or eliminate significant noise impacts.
Policy N - 4.2	Require the inclusion of noise-reducing design features in development consistent with Title 24 California Code of Regulations and the Municipal Code.

GOAL N - 5 ***Develop measures to control objectionable noise impacts.***

Policy N - 5.1	Review the City's existing noise ordinance and revise as necessary to better regulate noise-generating uses.
Policy N - 5.2	Continue to enforce the Noise Ordinance and make the public more aware of its utility.
Policy N - 5.3	Where possible, resolve existing and potential conflicts between various noise sources and other human activities.
Policy N - 5.4	Require sound attenuation devices on construction equipment.
Policy N - 5.5	Encourage additional sound attenuation measures to reduce noise impacts to sensitive uses.
Policy N - 5.6	Continue to enforce and ensure agency coordination of noise abatement and control measures, particularly within residential neighborhoods and around noise sensitive land uses.
Policy N - 5.7	Require construction activity to comply with City Noise Ordinance. Ensure adequate noise control measures at all construction sites through good sound attenuation practices.

Placentia, California Municipal Code

Title 23 ZONING

Chapter 23.76 NOISE CONTROL

Note

* For provisions regarding music and sound amplifying systems, see Ch. 10.32 of this code.

23.76.010 Declaration of policy.

In order to control unnecessary, excessive and annoying sounds emanating from incorporated areas of the city, it is declared to be the policy of the city to prohibit such sounds generated from all sources as specified in this chapter.

It is determined that certain noise levels are detrimental to the public health, welfare and safety and contrary to public interest, therefore, the city council declares that creating, maintaining, causing or allowing to create, maintain or cause any noise in a manner prohibited by or not in conformity with the provisions of this chapter is a public nuisance and shall be punishable as such. (Ord. 75-O-105 § 1, 1975)

23.76.020 Definitions.

The following words, phrases and terms as used in this chapter shall have the meaning as indicated below:

(1) “Ambient noise level” means the all-encompassing noise level associated with a given environment, being a composite of sounds from all sources, excluding the alleged offensive noise, at the location and approximate time at which a comparison with the alleged offensive noise is to be made.

(2) “Commercial property” means a parcel of real property which is zoned for or developed and used either in part or in whole for commercial purposes including but not limited to retail and wholesale businesses and professional offices.

(3) “Cumulative period” means an additive period of time composed of individual time segments which may be continuous or interrupted.

(4) “Decibel (dB)” means a unit which denotes the ratio between two (2) quantities which are proportional to power: The number of decibels corresponding to the ratio of two (2) amounts of power is ten (10) times the logarithm to the base ten (10) of this ratio.

(5) “Dwelling unit” means a single unit providing complete independent living facilities for one (1) or more persons including permanent provisions for living, sleeping, eating, cooking and sanitation.

(6) “Emergency machinery, vehicle or work” means any machinery, vehicle or work used, employed or performed in an effort to protect, provide or restore safe conditions in the community or for the citizenry, or work by private utilities when restoring utility service.

(7) “Fixed noise source” means a stationary device which creates sounds while fixed or motionless including but not limited to industrial and commercial machinery and equipment, pumps, fans, compressors, generators, air conditioners and refrigeration equipment.

(8) "Grading" means any excavating or filling of earth material, or any combination thereof, conducted at a site to prepare said site for construction or other improvements thereon.

(9) "Impact noise" means the noise produced by the collision of one (1) mass in motion with a second mass which may be either in motion or at rest.

(10) "Industrial property" means a parcel of real property which is zoned for or developed and used either in part or in whole for manufacturing purposes.

(11) "Mobile noise source" means any noise source other than a fixed noise source.

(12) "Noise level" means the "A" weighted sound pressure level in decibels obtained by using a sound level meter at slow response with a reference pressure of twenty (20) micronewtons per square meter. The unit of measurement shall be designated as dB(A).

(13) "Noise variance board" means an administrative board of five (5) members appointed by the city council of the city of Placentia.

(14) "Person" means a person, firm, association, copartnership, joint venture, corporation of any entity, public or private in nature.

(15) "Residential property" means a parcel of real property which is developed and used either in part or in whole for residential purposes, other than transient uses such as hotels and motels.

(16) "Simple tone noise" means a noise characterized by a predominant frequency or frequencies so that other frequencies cannot be readily distinguished.

(17) "Sound level meter" means an instrument meeting American National Standard Institute's Standard S1.4-1971 for Type 1 or Type 2 sound level meters or an instrument and the associated recording and analyzing equipment which will provide equivalent data.

(18) "Sound pressure level" of a sound, in decibels, means twenty (20) times the logarithm to the base ten (10) of the ratio of the pressure of the sound to a reference pressure, which reference pressure shall be explicitly stated. (Ord. 75-O-105 § 2, 1975)

23.76.030 Noise level measurement criteria.

Any noise level measurements made pursuant to the provisions of this chapter shall be performed using a sound level meter as defined in Section 23.76.020(17). (Ord. 75-O-105 § 3, 1975)

23.76.040 Designated noise zones.

The properties hereinafter described, whether incorporated or unincorporated, are assigned to the following noise zones:

Noise Zone 1	All residential property
Noise Zone 2	All commercial property

Noise Zone 3	All industrial property.

(Ord. 75-O-105 § 4, 1975)

23.76.050 Exterior noise standards.

(a) The following noise standards, unless otherwise specifically indicated, shall apply to all real property within a designated noise zone:

Noise Standards

Noise Zone	Noise Level	Time Period
1	55 dB(A)	7:00 a.m.—10:00 p.m.
	50 dB(A)	10:00 p.m.—7:00 a.m.
2	65 dB(A)	Anytime
3	70 dB(A)	Anytime

In the event the alleged offensive noise consists entirely of impact noise, simple tone noise, speech, music, or any combination thereof, each of the above noise levels shall be reduced by 5 dB(A).

(b) It is unlawful for any person at any location within the incorporated area of the city to create any noise, or to allow the creation of any noise on property owned, leased, occupied, or otherwise controlled by such person, when the foregoing causes the noise level, when measured on any other residential, commercial, or industrial property, either incorporated or unincorporated to exceed:

(1) The noise standards for a cumulative period of time more than thirty (30) minutes in any hour; or

(2) The noise standard plus five (5) dB(A) for a cumulative period of more than fifteen (15) minutes in any hour; or

(3) The noise standard plus ten (10) dB(A) for a cumulative period of more than five (5) minutes in any hour; or

(4) The noise standard plus fifteen (15) dB(A) for a cumulative period of more than one (1) minute in any hour; or

(5) The noise standard plus twenty (20) dB(A) for any period of time.

(c) In the event the ambient noise level exceeds any of the first four (4) noise limit categories above, the cumulative period applicable to said category shall be increased to reflect said ambient noise level. In the event the ambient noise level exceeds the fifth noise limit category, the maximum allowable noise level under said category shall be increased to reflect the maximum ambient noise level.

(d) In the event that the noise source and the affected property are within different noise zones, the noise standard applicable to the affected property shall apply. (Ord. 75-O-105 § 5, 1975)

23.76.060 Interior noise standards.

(a) The following interior noise standards, unless otherwise specifically indicated, shall apply to all residential property within a designated noise zone:

Interior Noise Standards

Noise Zone	Noise Level	Time Period
1	55 dB(A)	7:00 a.m.—10:00 p.m.
	45 dB(A)	10:00 p.m.—7:00 a.m.

In the event the alleged offensive noise consists entirely of impact noise, simple tone noise, speech, music, or any combination thereof, each of the above noise levels shall be reduced by 5 dB(A).

(b) It is unlawful for any person at any location within the incorporated area of the city to create any noise, or to allow the creation of any noise on property owned, leased, occupied, or otherwise controlled by such person, when the foregoing causes the noise level when measured within any other dwelling unit on any residential property, either incorporated or unincorporated, to exceed:

(1) The interior noise standard for a cumulative period of more than five (5) minutes in any hour; or

(2) The interior noise standard plus five (5) dB(A) for a cumulative period of more than one (1) minute in any hour; or

(3) The interior noise standard plus ten (10) dB(A) for any period of time.

(c) In the event the ambient noise level exceeds either of the first two (2) noise limit categories above, the cumulative period applicable to said category shall be increased to reflect said ambient noise level. In the event the ambient noise level exceeds the third noise limit category, the maximum allowable noise level under said category shall be increased to reflect the maximum ambient noise level. (Ord. 75-O-105 § 6, 1975)

23.76.070 Activities—Special provisions.

The following activities shall be exempted from the provisions of this chapter:

(1) Regularly scheduled school bands, school athletic and school entertainment events between the hours of seven a.m. and eleven p.m., provided a parade permit is also submitted from the police department for band activities on city streets, applying the standards of Sections 13.60.010 through 13.60.130 of this code;

(2) Outdoor gatherings, including outdoor public dances and outdoor entertainment events, provided said events are conducted pursuant to an activity permit issued by the city recreation division pursuant to Chapters 6.52 and 6.56 of this code and are limited to between the hours of nine-thirty a.m. and eleven p.m.;

(3) Regularly scheduled activities conducted on public parks, public playgrounds, and public or private school grounds. However, the use of public address or amplified music systems is not permitted to exceed the exterior noise standard of adjacent property at the property line;

(4) Any mechanical devices, apparatus or equipment used, related to or connected with emergency machinery, vehicle or work;

(5) All mechanical devices, apparatus or equipment which are utilized for the protection or salvage of agricultural crops during periods of potential or actual frost damage or other adverse weather conditions;

(6) Mobile noise sources associated with agricultural operations provided such operations do not take place between the hours of six p.m. and seven a.m. on weekdays, including Saturday, or at any time on Sunday or a federal holiday;

(7) Mobile noise sources associated with agricultural pest control through pesticide application; provided, that the application is made in accordance with restricted material permits issued by or regulations enforced by the agricultural commissioner;

(8) Noise sources associated with grading, construction and the maintenance of real property shall not be subject to the provisions of this chapter. However, grading, construction and maintenance activities are prohibited at all times other than the permitted hours indicated in Section 23.81.170 of this code;

(9) Any activity to the extent regulation thereof has been preempted by state or federal law. (Ord. 94-O-141 § 1, 1994; Ord. 94-O-119 § 1, 1994; Ord. 75-O-105 § 7, 1975)

23.76.080 Schools, hospitals and churches—Special provisions.

It is unlawful for any person to create any noise which causes the noise level at any school, hospital or church while the same is in use to exceed the noise limits as specified in Section 23.76.050 prescribed for the assigned noise zone in which the school, hospital or church is located, or which noise level unreasonably interferes with the use of such institutions or which unreasonably disturbs or annoys patients in the hospital; provided conspicuous signs are displayed in three (3) separate locations within one-tenth (1/10) of a mile of the institution indicating the presence of a school, church, or hospital. (Ord. 75-O-105 § 8, 1975)

23.76.085 Use of locomotive whistle.

Generally. The use of locomotive bell, air siren, steam or air whistle within the city at all gate-protected grade crossings shall be prohibited.

Exception. Any locomotive engineer shall be permitted to use his bell, air siren, steam or air whistle, if, in his opinion, it is necessary to avert an immediate threat to life or property. (Ord. 76-O-120 § 1, 1976)

23.76.090 Air conditioning and refrigeration—Special provisions.

Until January 19, 1979, the noise standards enumerated in Sections 23.76.050 and 23.76.060 shall be increased eight (8) dB(A) where the alleged offensive noise source is an air-conditioning or refrigeration system or associated equipment which was installed prior to the effective date of the ordinance codified in this chapter. (Ord. 75-O-105 § 9, 1975)

23.76.100 Noise level measurement.

The location selected for measuring exterior noise levels shall be at any point on the affected residential, commercial or industrial property. Interior noise measurements shall be made within the affected residential unit. The measurement shall be made at a point at least four (4) feet from the wall, ceiling or floor nearest the noise source and may be made with the windows of the affected dwelling unit open. (Ord. 75-O-105 § 10, 1975)

23.76.110 Manner of enforcement.

The city's authorized agent and his duly authorized representatives are directed to enforce the provisions of this chapter. The city's authorized agent and his duly authorized representatives are authorized, pursuant to Penal Code Section 836.5, to arrest any person without a warrant when they have reasonable cause to believe that such person has committed a misdemeanor in their presence.

No person shall interfere with, oppose or resist any authorized person charged with enforcement of this chapter while such person is engaged in the performance of his duty. (Ord. 75-O-105 § 11, 1975)

23.76.120 Variance procedure.

The owner or operator of a noise source which violates any of the provisions of this chapter may file an application with the city's authorized agent for a variance from the provisions thereof wherein said owner or operator shall set forth all actions taken to comply with said provisions, the reasons why immediate compliance cannot be achieved, a proposed method of achieving compliance, and a proposed time schedule for its accomplishment. Said application shall be accompanied by a fee in the amount of seventy-five dollars ($75.00). A separate application shall be filed for each noise source; provided, however, that several mobile sources under common ownership, or several fixed sources on a single property may be combined into one (1) application. Upon receipt of said application fee, the city's authorized agent shall refer it with his recommendation thereon within thirty (30) days to the noise variance board for action thereon in accordance with the provisions of this chapter.

An applicant for a variance shall remain subject to prosecution under the terms of this chapter until a variance is granted. (Ord. 75-O-105 § 12, 1975)

23.76.130 Noise variance board.

The noise variance board shall evaluate all applications for variance from the requirements of this chapter and may grant said variances with respect to time for compliance, subject to such terms, conditions and requirements as it may deem reasonable to achieve maximum compliance with the provisions of this chapter. Said terms, conditions and requirements may include, but shall not be limited to limitations on noise levels and operating hours. Each such variance shall set forth in detail the approved method of achieving maximum compliance and a time schedule for its accomplishment.

In its determinations, said board shall consider the magnitude of nuisance caused by the offensive noise; the uses of property within the area of impingement by the noise; the time factors related to study, design, financing and construction of remedial work; the economic factors related to age and useful life of equipment; and the general public interest and welfare. Any variance granted by said board shall be by resolution and shall be transmitted to the city's authorized agent for enforcement. Any violation of the terms of said variance shall be unlawful. (Ord. 75-O-105 § 13, 1975)

23.76.140 Appeals.

Within fifteen (15) calendar days following the decision of the variance board on an application, the applicant, the city's authorized agent, or any member of the city council, may appeal the decision to the city council, by filing a notice of appeal with the secretary of the variance board. In the case of an appeal by the applicant for a variance, the notice of appeal shall be accompanied by a fee to be computed by the secretary on the basis of the estimated cost of preparing the materials required to be forwarded to the city council as discussed hereafter. If the actual cost of such preparation differs from the estimated cost, appropriate payments shall be made either to or by the secretary.

Within fifteen (15) days following receipt of a notice of appeal and the appeal fee, the secretary of the variance board shall forward to the city council copies of the application for variance; the recommendation of the city's authorized agent; the notice of appeal; all evidence concerning said application received by the variance board and its decision thereon. In addition, any person may file with the city council written arguments supporting or attaching said decision and the city council may, in its discretion, hear oral arguments thereon. The city clerk shall mail to the applicant a notice of the date set for hearing of the appeal. The notice shall be mailed at least ten (10) days prior to the hearing date.

Within sixty (60) days following its receipt of the notice of the appeal, the city council shall either affirm, modify or reverse the decision of the variance board. Such decision shall be based upon the city council's evaluation of the matters submitted to the city council in light of the powers conferred on the variance board and the factors to be considered. Both as enumerated in Sections 23.76.120 and 23.76.130.

As part of its decision, the council may direct the variance board to conduct further proceedings on said application. Failure of the city council to affirm, modify or reverse the decision of the variance board within said sixty (60) day period shall constitute an affirmance of the decision. (Ord. 75-O-105 § 14, 1975)

23.76.150 Violations—Misdemeanors.

Any person violating any of the provisions of this chapter is guilty of a misdemeanor. Each day such violation is committed or permitted to continue shall constitute a separate offense and shall be punishable as such. The provisions of this chapter shall not be construed as permitting conduct not prescribed herein and shall not affect the enforcement of any other applicable provisions of law. (Ord. 75-O-105 § 15, 1975)

Contact:

City Clerk: 714-993-8231

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CONSTRUCTION NOISE MODELING

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                Roadway Construction Noise Model (RCNM),Version 1.1

Report date:          09/16/2022
Case Description:       PYL-05

                    **** Receptor #1 ****

                          Baselines (dBA)
Description              Land Use       Daytime    Evening    Night
-----------              --------       -------    -------    -----
Light Pole Installation    Residential       65.0       60.0     55.0

                       Equipment
                       ---------
                      Spec    Actual    Receptor    Estimated
             Impact  Usage    Lmax    Lmax      Distance    Shielding
Description       Device  (%)     (dBA)   (dBA)     (feet)      (dBA)
-----------       ------  -----    -----   -----     --------    ---------
Crane               No     16          80.6        50.0          0.0
Backhoe               No     40          77.6        50.0          0.0
Auger Drill Rig       No     20          84.4        50.0          0.0
Concrete Saw         No     20          89.6        50.0          0.0

                       Results
                       -------
                                    Noise Limits (dBA)                  Noise Limit Exceedance (dBA)
                          ----------------------------------------------    ----------------------------------------------
                Calculated (dBA)        Day          Evening        Night            Day          Evening         Night
                ----------------   --------------   -------------  --------------    --------------  --------------  --------------
Equipment             Lmax    Leq       Lmax    Leq      Lmax    Leq     Lmax    Leq       Lmax    Leq     Lmax     Leq
Lmax    Leq
----------------------  ------  ------     ------  ------  ------  ------  ------  ------    ------  ------  ------  ------  ------  ------
Crane                80.6    72.6       N/A     N/A     N/A     N/A     N/A     N/A       N/A     N/A     N/A     N/A     N/A
N/A
Backhoe                77.6    73.6       N/A     N/A     N/A     N/A     N/A     N/A       N/A     N/A     N/A     N/A     N/A
N/A
Auger Drill Rig          84.4    77.4       N/A     N/A     N/A     N/A     N/A     N/A       N/A     N/A     N/A     N/A     N/A
N/A
Concrete Saw            89.6    82.6       N/A     N/A     N/A     N/A     N/A     N/A       N/A     N/A     N/A     N/A     N/A
N/A
         Total      89.6    84.4       N/A     N/A     N/A     N/A     N/A     N/A       N/A     N/A     N/A     N/A     N/A
N/A
```

NOISE MONITORING DATA

Summary

File Name on Meter	LxT_Data.005.s
File Name on PC	LxT_0005426-20220908 195904-LxT_Data.005
Serial Number	0005426
Model	SoundTrack LxT®
Firmware Version	2.404
User	
Location	ST-1A
Job Description	PYL-05
Note	

Measurement

Description	
Start	2022-09-08 19:59:04
Stop	2022-09-08 20:14:06
Duration	00:15:02.1
Run Time	00:15:02.1
Pause	00:00:00.0
Pre-Calibration	2022-09-08 18:43:04
Post-Calibration	None
Calibration Deviation	---

Overall Settings

RMS Weight	A Weighting
Detector	Slow
Preamplifier	PRMLxT1
Microphone Correction	Off
Integration Method	Exponential

Results

	A	
	dB	**Time Stamp**
L_{eq}	50.6	
$L_{S(max)}$	62.2	2022/09/08 20:08:43
$L_{S(min)}$	42.6	2022/09/08 20:13:05
$L_{Peak(max)}$		

Statistics

LAI1.00	60.1 dB
LAI2.00	57.9 dB
LAI8.00	53.8 dB
LAI25.00	50.5 dB
LAI50.00	49.9 dB
LAI90.00	44.3 dB

Summary

File Name on Meter	LxT_Data.003.s
File Name on PC	LxT_0005426-20221104 080425-LxT_Data.003.ldbin
Serial Number	0005426
Model	SoundTrack LxT®
Firmware Version	2.404
User	
Location	
Job Description	
Note	

Measurement

Description	
Start	2022-11-04 08:04:25
Stop	2022-11-04 08:19:28
Duration	00:15:02.6
Run Time	00:10:01.8
Pause	00:05:00.8
Pre-Calibration	2022-11-04 07:19:49
Post-Calibration	None
Calibration Deviation	---

Overall Settings

RMS Weight	A Weighting
Detector	Slow
Preamplifier	PRMLxT1
Microphone Correction	Off
Integration Method	Exponential

Results

	A	
	dB	**Time Stamp**
L_{eq}	63.4	
$L_{S(max)}$	71.6	2022/11/04 8:14:20
$L_{S(min)}$	50.6	2022/11/04 8:11:55
$L_{Peak(max)}$		

Statistics

LAS 2.00	69.6 dB
LAS 8.00	67.8 dB
LAS 25.00	65.0 dB
LAS 50.00	61.1 dB
LAS 90.00	54.4 dB
LAS 99.99	50.7 dB

Summary

File Name on Meter	LxT_Data.001.s
File Name on PC	LxT_0005426-20220908 185315-LxT_Data.001.ld
Serial Number	0005426
Model	SoundTrack LxT®
Firmware Version	2.404
User	
Location	
Job Description	
Note	

Measurement

Description	
Start	2022-09-08 18:53:15
Stop	2022-09-08 19:08:21
Duration	00:15:06.0
Run Time	00:15:06.0
Pause	00:00:00.0
Pre-Calibration	2022-09-08 18:43:12
Post-Calibration	None
Calibration Deviation	---

Overall Settings

RMS Weight	A Weighting
Detector	Slow
Preamplifier	PRMLxT1
Microphone Correction	Off
Integration Method	Exponential

Results

	A	
	dB	**Time Stamp**
Leq	55.9	
LS(max)	67.4	2022/09/08 19:05:17
LS(min)	50.2	2022/09/08 18:55:16
LPeak(max)		

Statistics

LAI1.00	63.7 dB
LAI2.00	62.4 dB
LAI8.00	59.4 dB
LAI25.00	56.4 dB
LAI50.00	54.0 dB
LAI90.00	51.7 dB

Summary

File Name on Meter	LxT_Data.002.s
File Name on PC	LxT_0005426-20221104 073044-LxT_Data.002.ldbin
Serial Number	0005426
Model	SoundTrack LxT®
Firmware Version	2.404
User	
Location	
Job Description	
Note	

Measurement

Description	
Start	2022-11-04 07:30:44
Stop	2022-11-04 07:45:50
Duration	00:15:05.4
Run Time	00:14:41.8
Pause	00:00:23.6
Pre-Calibration	2022-11-04 07:19:49
Post-Calibration	None
Calibration Deviation	---

Overall Settings

RMS Weight	A Weighting
Detector	Slow
Preamplifier	PRMLxT1
Microphone Correction	Off
Integration Method	Exponential

Results

	A	
	dB	Time Stamp
Leq	67.5	
LS(max)	81.5	2022/11/04 7:45:28
LS(min)	50.0	2022/11/04 7:38:51
LPeak(max)		

Statistics

LAS 2.00	78.3 dB
LAS 8.00	73.0 dB
LAS 25.00	61.3 dB
LAS 50.00	56.3 dB
LAS 90.00	52.0 dB
LAS 99.99	50.1 dB