

June 2022 | Initial Study

SPORTS FACILITIES LIGHTING AT SANTIAGO HIGH SCHOOL

Garden Grove Unified School District

Prepared for:

Garden Grove Unified School District

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Abbreviations and Acronyms

AAQS	ambient air quality standards
AB	Assembly Bill
AQMD	air quality management district
AQMP	air quality management plan
CAL FIRE	California Department of Forestry and Fire Protection
CALGreen	California Green Building Standards Code
CARB	California Air Resources Board
CBC	California Building Code
CCR	California Code of Regulations
CEQA	California Environmental Quality Act
CNEL	community noise equivalent level
CO	carbon monoxide
CO _{2e}	carbon dioxide equivalent
dB	decibel
dBA	A-weighted decibel
DPM	diesel particulate matter
DSA	Division of the State Architect
fc	foot-candle
FHSZ	fire hazard severity zone
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
GHG	greenhouse gases
GWP	global warming potential
L _{dn}	day-night noise level
L _{eq}	equivalent continuous noise level
LST	localized significance thresholds
MRZ	mineral resources zone
MT	metric ton
NO _x	nitrogen oxides
O ₃	ozone
PM	particulate matter
ppm	parts per million
PPV	peak particle velocity

Abbreviations and Acronyms

RCNM	Roadway Construction Noise Model
RPS	renewable portfolio standard
SB	Senate Bill
SCAG	Southern California Association of Governments
SCE	Southern California Edison
SoCAB	South Coast Air Basin
SO _x	sulfur oxides
VOC	volatile organic compound

Abbreviations and Acronyms

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1. Introduction

Garden Grove Unified School District (GGUSD or District) is proposing to install competitive sports lighting at Santiago High School. The proposed project is required to undergo an environmental review pursuant to the California Environmental Quality Act (CEQA). This initial study provides an evaluation of the potential environmental consequences associated with this proposed project.

1.1 CALIFORNIA ENVIRONMENTAL QUALITY ACT

The completion of the environmental compliance process is governed by two principal regulations: CEQA and the State CEQA Guidelines (California Code of Regulations Section 15000 et seq.). CEQA was enacted in 1970 by the California Legislature to disclose to decision makers and the public the significant environmental effects of proposed activities and to identify ways to avoid or reduce the environmental effects through feasible alternatives or mitigation measures. Compliance with CEQA applies to California government agencies at all levels: local, regional, and state agencies, boards, commissions, and special districts (such as school districts and water districts).

GGUSD is lead agency for the proposed project and is therefore required to analyze the potential environmental effects associated with the project.

Public Resources Code Section 21080(a) states that analysis of a project's environmental impact is required for any "discretionary projects proposed to be carried out or approved by public agencies...." In this case, GGUSD has determined that an initial study is required to determine whether there is substantial evidence that implementation of the project would result in environmental impacts. An initial study is a preliminary environmental analysis to determine whether an environmental impact report (EIR), a mitigated negative declaration (MND), or a negative declaration (ND) is required for a project (CEQA Guidelines Section 15063). An initial study must have a project description; a description of the environmental setting; an identification of environmental effects by checklist or other similar form; an explanation of environmental effects; a discussion of mitigation for significant environmental effects; an evaluation of the project's consistency with existing, applicable land use controls; the names of persons who prepared the study; and identification of data sources (CEQA Guidelines Section 15063(d)).

When an initial study identifies substantial evidence of the potential for significant environmental impacts, the lead agency must prepare an EIR (CEQA Guidelines Section 15064); however, if all impacts can be mitigated to a less than significant level, the lead agency can prepare an MND that incorporates mitigation measures into the project (CEQA Guidelines Section 15070).

1. Introduction

1.1.1 Environmental Process

A “project” means the whole of an action that 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:

- An activity directly undertaken by any public agency, including but not limited to public works construction and related activities clearing or grading of land, improvements to existing public structures, enactment and amendment of zoning ordinances, and the adoption and amendment of local General Plans or elements thereof pursuant to Government Code Sections 65100 to 65700.
- An activity undertaken by a person which is supported in whole or in part through public agency contacts, grants, subsidies, loans, or other forms of assistance from one or more public agencies.
- An activity involving the issuance to a person of a lease, permit, license, certificate, or other entitlement for use by one or more public agencies (CCR § 15378[a]).

The proposed actions by GGUSD constitute a “project” because the activity would result in a direct physical change in the environment and would be undertaken by a public agency. All “projects” in the State of California are required to undergo an environmental review to determine the environmental impacts associated with implementation of the project.

1.1.2 Initial Study

This initial study was prepared in accordance with CEQA and the CEQA Guidelines, as amended, to determine if the project could have a significant impact on the environment. The purposes of this initial study, as described in the State CEQA Guidelines Section 15063, are to 1) provide the lead agency with information to use as the basis for deciding whether to prepare an EIR or ND; 2) enable the lead agency to modify a project, mitigating adverse impacts before an EIR is prepared, thereby enabling the project to qualify for an ND; 3) assist the preparation of an EIR, if one is required; 4) facilitate environmental assessment early in the design of a project; 5) provide documentation of the factual basis for the finding in an ND that a project will not have a significant effect on the environment; 6) eliminate unnecessary EIRs; and 7) determine whether a previously prepared EIR could be used with the project. The findings in this initial study have determined that an MND is the appropriate level of environmental documentation for this project.

1.1.3 Mitigated Negative Declaration

The MND includes information necessary for agencies to meet statutory responsibilities related to the proposed project. State and local agencies will use the MND when considering any permit or other approvals necessary to implement the project. A preliminary list of the environmental topics that have been identified for study in the MND is provided in the Initial Study Checklist (Chapter 2).

One of the primary objectives of CEQA is to enhance public participation in the planning process, because public involvement is an essential feature of CEQA. Community members are encouraged to participate in the

1. Introduction

environmental review process, request to be notified, monitor newspapers for formal announcements, and submit substantive comments at every possible opportunity afforded by the District. The environmental review process provides several opportunities for the public to participate through public notice and public review of CEQA documents and public meetings.

1.2 PROJECT LOCATION

The project area refers to all improvement areas within the Santiago High School— football field, softball field, baseball field, a soccer field, and eight tennis courts—as described below, collectively.

The City of Garden Grove is in northern Orange County and is bounded by the City of Santa Ana to the southeast, the City of Anaheim and the City of Stanton to the north, the City of Los Alamitos to the northwest, and the City of Westminster and the City of Fountain Valley to the south. Regional access to the City is provided by State Route 22 traversing the City east to west horizontally and Interstate 5 traversing in a northwest-southeast direction diagonally near the City’s northeastern boundary. See Figure 1, *Regional Location*, Figure 2, *Local Vicinity*, and Figure 3 *Aerial Photograph*.

1.3 ENVIRONMENTAL SETTING

1.3.1 Existing Land Use

Garden Grove Unified School District

The Garden Grove Unified School District provides public education in the City of Garden Grove and portion of Anaheim, Cypress, Fountain Valley, Santa Ana, Stanton, and Westminster. The District operates 71 schools: 48 elementary schools, 10 intermediate schools, 8 high schools, and 5 alternative schools.¹ Total District enrollment during the 2020/21 school year was 40,124 students (CDE 2022).²

Santiago High School

Santiago High School is a comprehensive high school serving students in grades 9 through 12. Santiago High School campus is approximately 36.8-acres and is developed with classroom buildings, administration buildings, library and media center, cafeteria, surface parking lot, and various athletic facilities. Athletic facilities include a football field, softball field, baseball field, a soccer field, a swimming pool, and eight tennis courts. The 2020/21 school year enrollment for the school was 1,984 students.³

¹ Garden Grove Unified School District. 2022. School Boundaries and Information. <https://www.ggusd.us/schools/>

² California Department of Education (CDE). 2022. 2020-21 Enrollment by Grade. Garden Grove Unified Report (30-66522). Dataquest. <https://dq.cde.ca.gov/dataquest/dqcensus/EnrEthGrd.aspx?cds=3066522&aggllevel=district&year=2020-21>

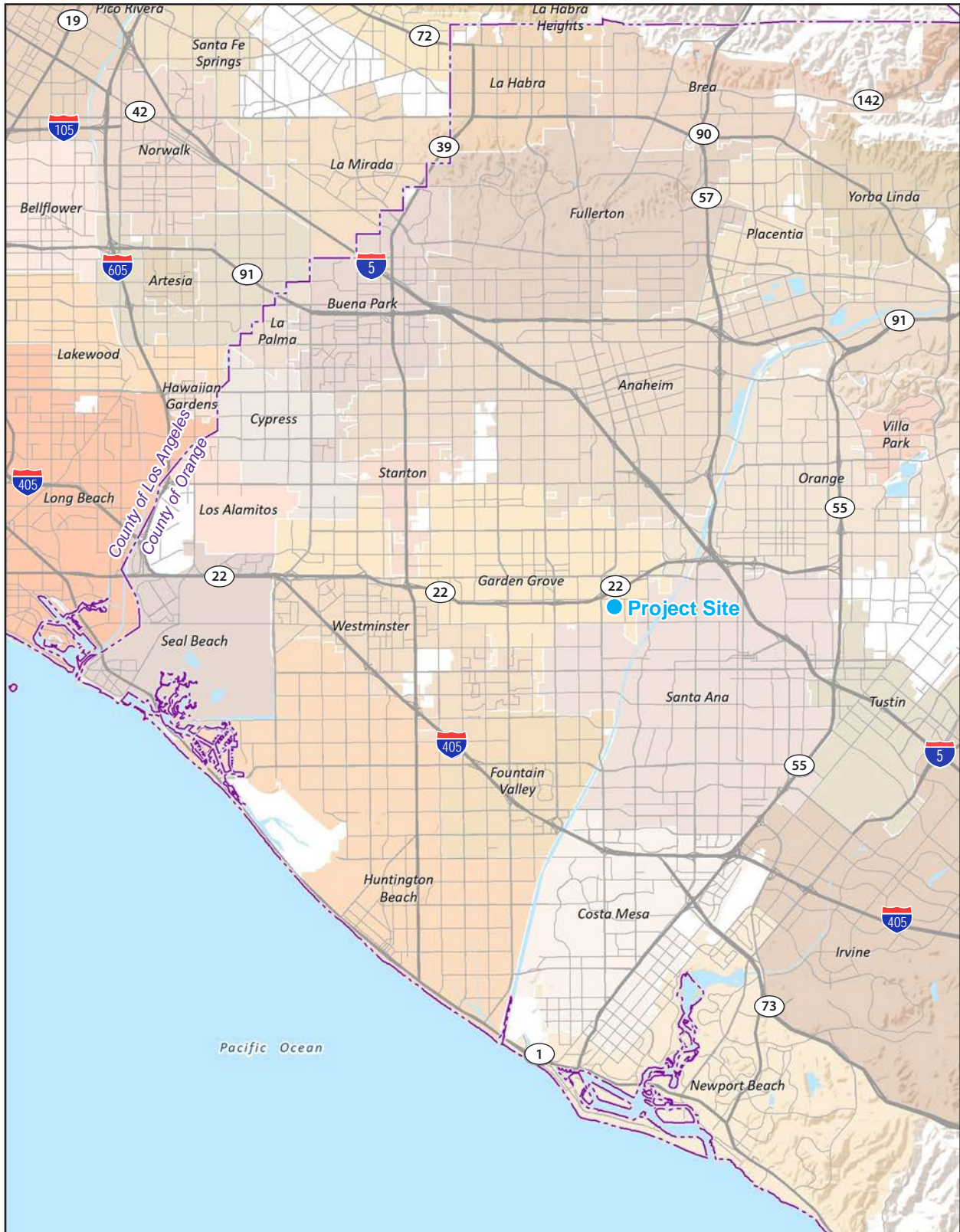
³ California Department of Education (CDE). 2022. 2020-21 Enrollment by Grade. Santiago High Report (30-66522-3036555). Dataquest. <https://dq.cde.ca.gov/dataquest/dqcensus/EnrEthGrd.aspx?cds=30665223036555&aggllevel=school&year=2020-21>

1. Introduction

1.3.2 Surrounding Land Use

Santiago High School is surrounded by Trask Avenue and residential to the north; Clinton Corner Family Campus, Clinton Elementary School, Clinton Street, and residential to the east; residential to the south; and commercial to the west. Other major uses in the area includes State Route 22 (Garden Grove Freeway) to the north northwest, Orangewood Academy to the east, and the Santa Ana River to the southeast.

Figure 1 - Regional Location



--- County Boundary

Note: Unincorporated county areas are shown in white.

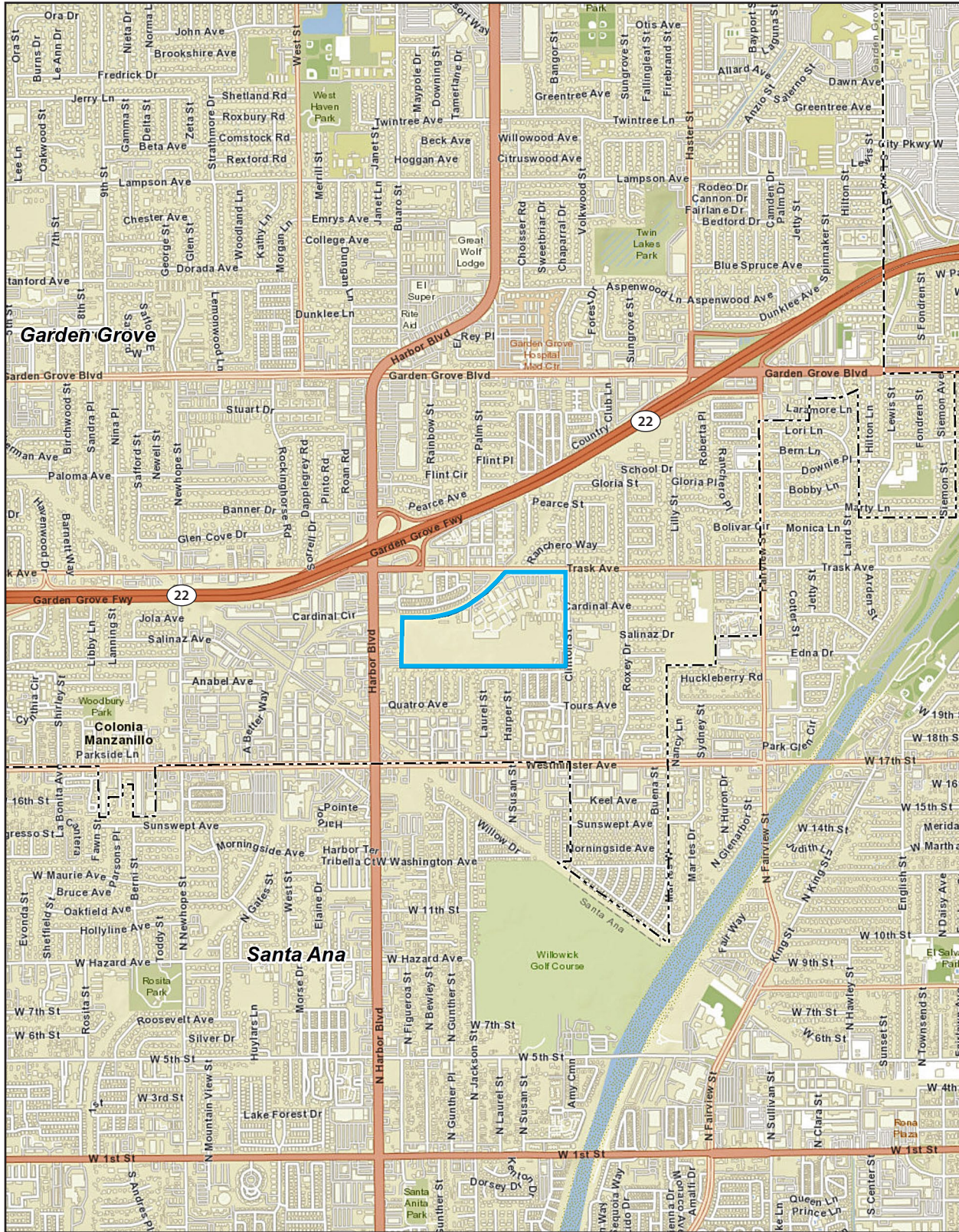
Source: ESRI, 2022



1. Introduction

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Figure 2 - Local Vicinity



— School Boundary
- - - City Boundary

0 2,000
Scale (Feet)

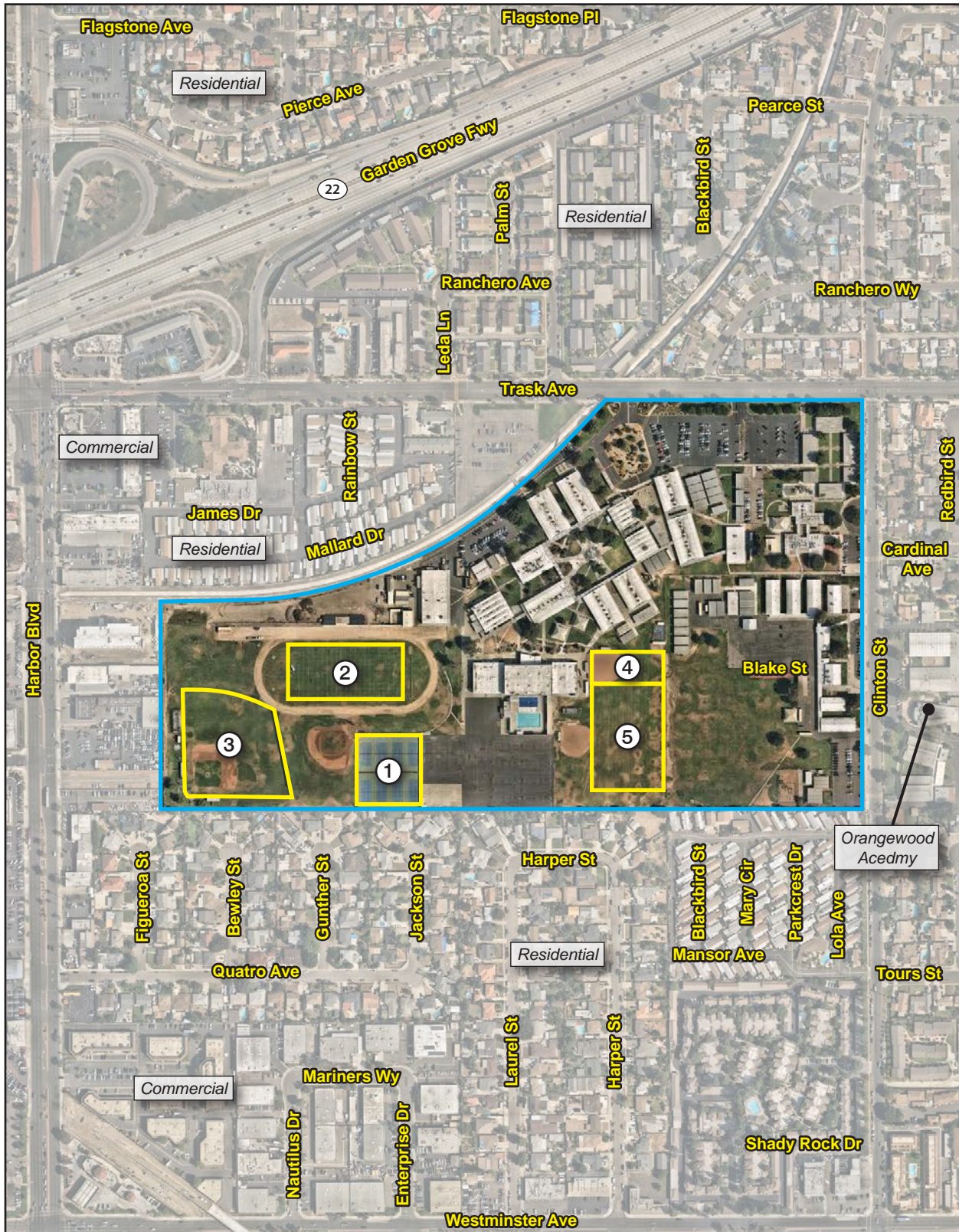


Source: ESRI, 2022

1. Introduction

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Figure 3 - Aerial Photograph



— School Boundary
 1 Tennis Courts
 3 Baseball Field
 5 Soccer Field
2 Football Field
 4 Softball Field
 0 275
 Scale (Feet)

Source: Nearmap, 2022

1. Introduction

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1.4 PROJECT DESCRIPTION

1.4.1 Proposed Land Use

The Garden Grove Unified School District plans to add competitive sports lighting to its seven comprehensive high schools (see Figure 4, *Cumulative District High School Lighting Projects*). The proposed lighting improvements are prompted by the passage of Senate Bill (SB) 328, which requires high schools to start no earlier than 8:30 am. Instituting a later start time is expected to reduce the negative impacts of sleep deprivation on adolescents and give them multiple health, safety, and learning benefits. However, with the later start time, schools will also end later, which will affect sports activities unless the athletic fields and courts are lighted for evening use.

The District plans to light the tennis courts, football field, baseball field, softball field, and soccer field at Santiago High School. Public address (PA) systems are not part of the proposed sports lighting project.

The proposed sports lighting project would allow extended use of the listed athletic facilities into evening hours for the benefit of existing students. No additional sports programs would be added that could increase participants or spectators. The proposed project would require limited demolition of hardscape and softscape to install lighting poles at the existing sports facilities. No structural demolition would be required.

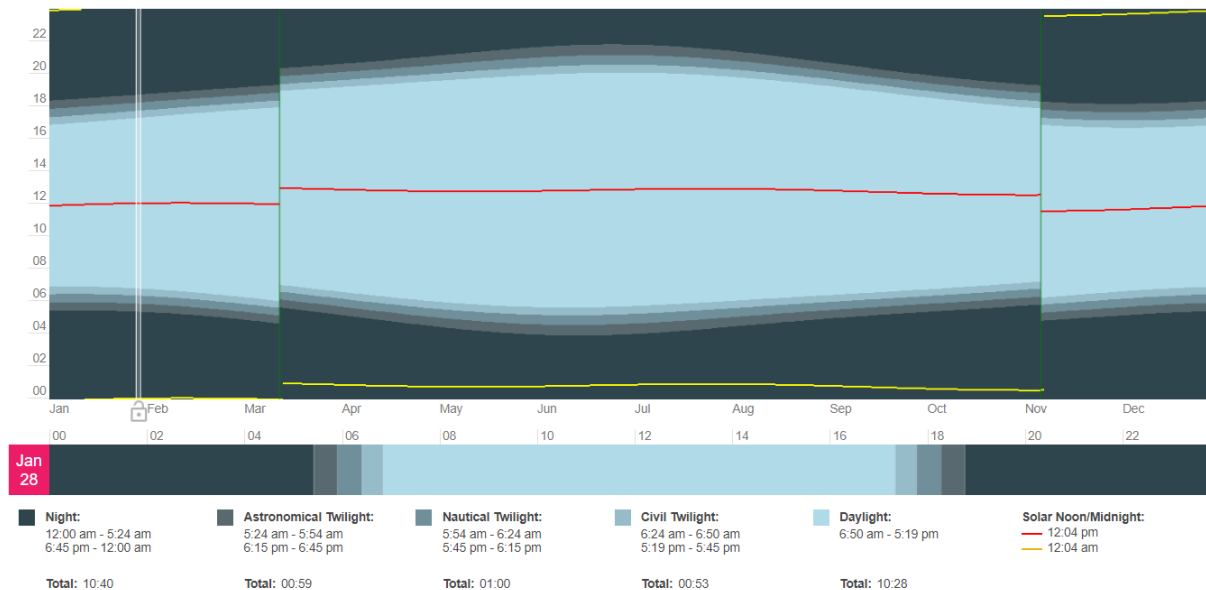
As with the existing conditions, the newly lit athletic facilities would be available for use by community groups after school hours when the facilities are not in use by students and during weekends, as provided by the District's use policy under the Civic Center Act.

The lighting has been designed to meet the California Interscholastic Federation field lighting recommendations for competitive events. Sports lighting would consist of concrete bases with galvanized steel poles between 50 and 90 feet tall, with LED luminaires mounted at various heights.

As shown in *Exhibit A, 2021 Sun Graph for Garden Grove*, from November to February, daylight is available until around 4:30 pm or 5:45 pm when the sun starts to set; from March to October, daylight is available until around 7 pm and as late as around 8 pm from June to July (Timeanddate.com 2022). In general, all activities are scheduled to end by 6:30 pm. For most days, operating hours for the lights would be up to two hours during winter months. Details of the proposed facilities and activities schedule at each school are further described, below.

1. Introduction

Exhibit A: 2021 Sun Graph for Garden Grove



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

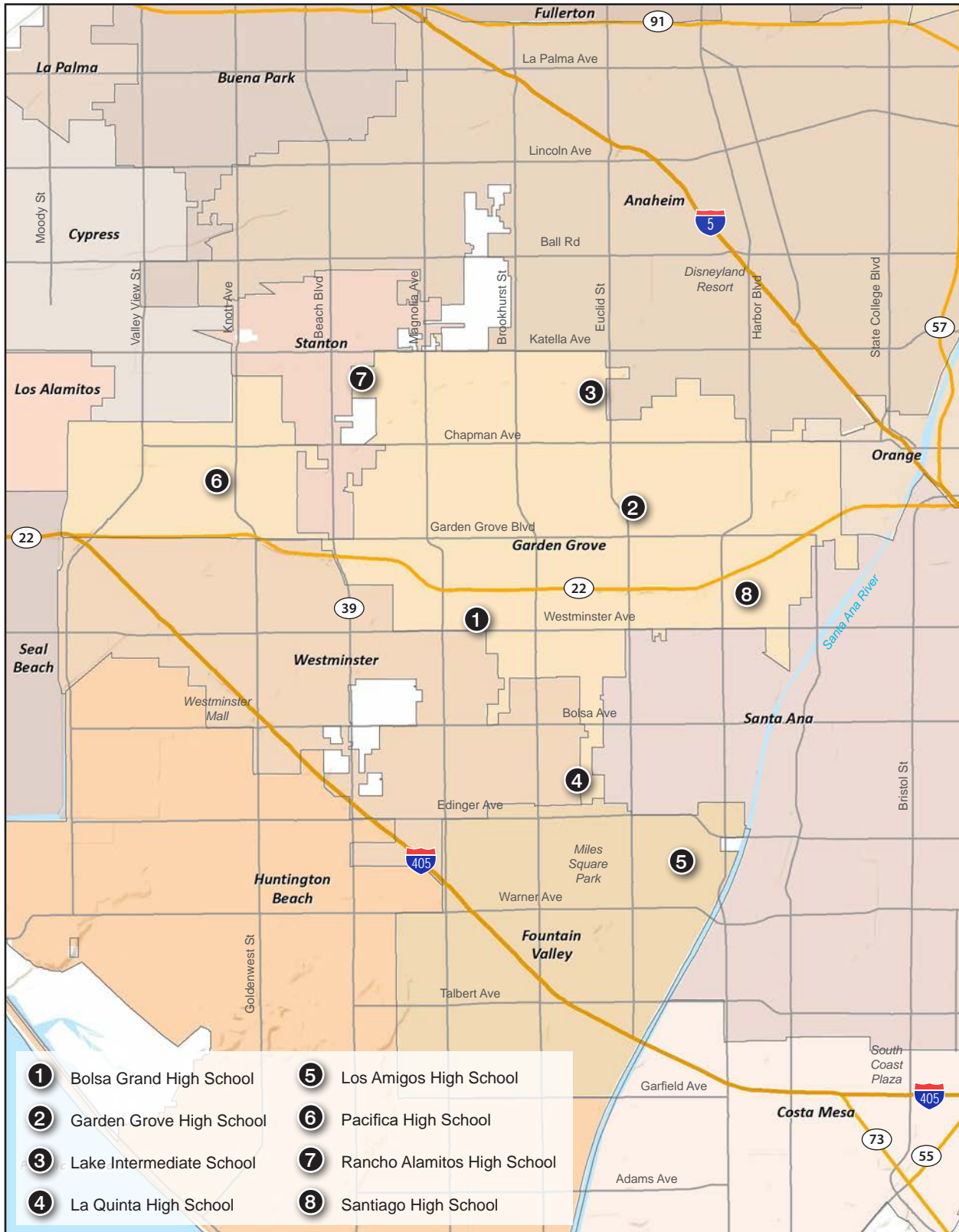
Temporary Lighting

There is insufficient time to design and construct permanent lights by the start of the 2022-2023 school year, so the District proposed to rent lights for one season. The District has identified the rentable lights shown in Figure 5, *Temporary Musco Lights Available for Rent*. Depending on the availability, the lights may be LED or Metal Halide on light poles with wheels. The temporary lights are proposed for the soccer field only. Figure 6, *Temporary Lights at Santiago High School Soccer Field*, shows the location of the light poles. The scan average would be 34.67 footcandles (fc). Temporary electrical power will be provided.

Permanent Lighting Santiago High School

The District proposes to light the tennis courts, football field, baseball field, practice field, softball field, the soccer field, and track by installing 21 light poles—seven 60-foot poles, nine 70-foot poles, and five 80-foot poles—and providing 144 LED luminaires mounted at various heights. The light pole locations and direction of their illumination are shown on Figure 7, *Lighting Plan*.

Figure 4 - Cumulative District High School Lighting Projects



Note: Unincorporated county areas are shown in white.

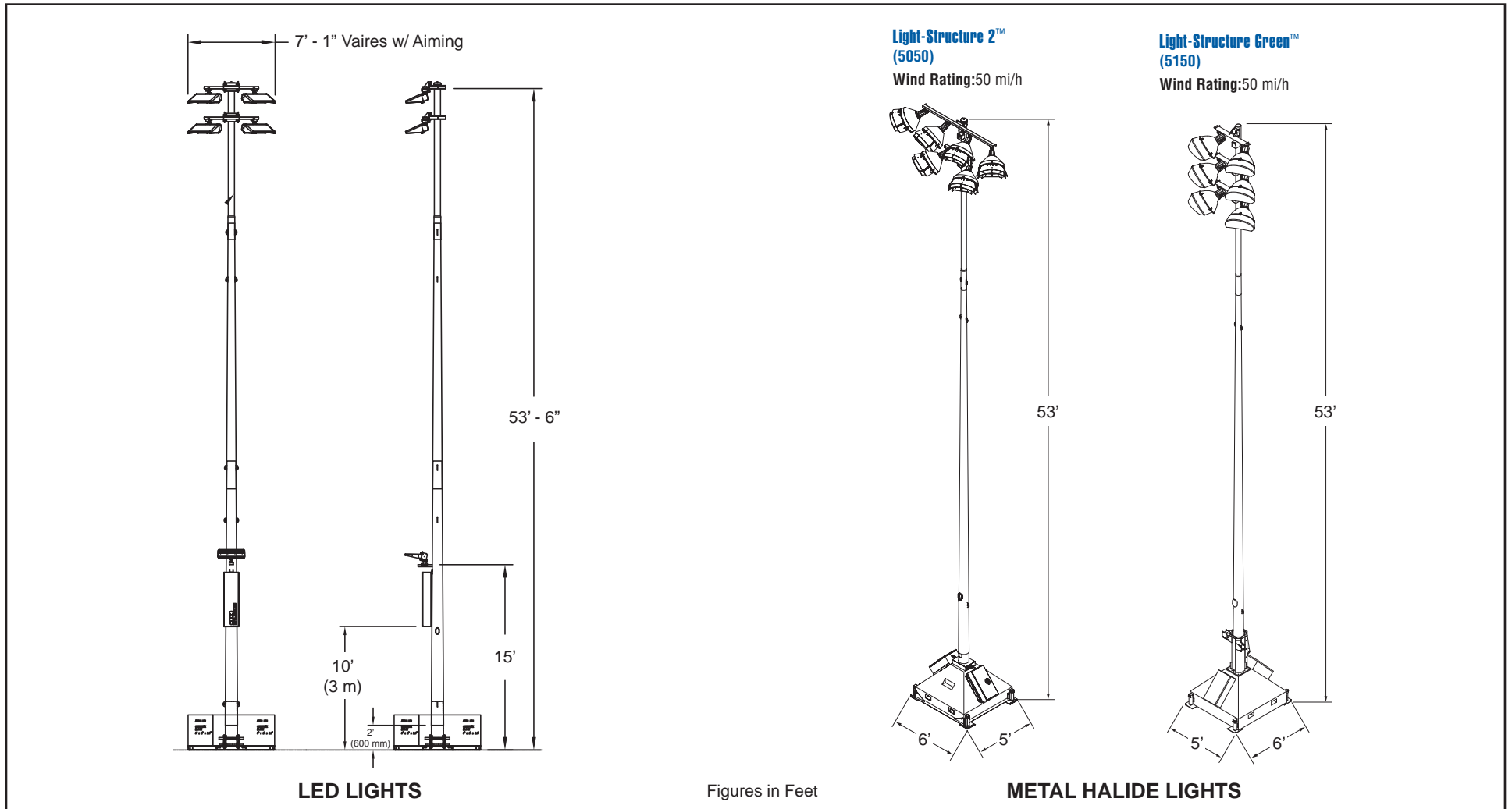
Source: ESRI, 2022



1. Introduction

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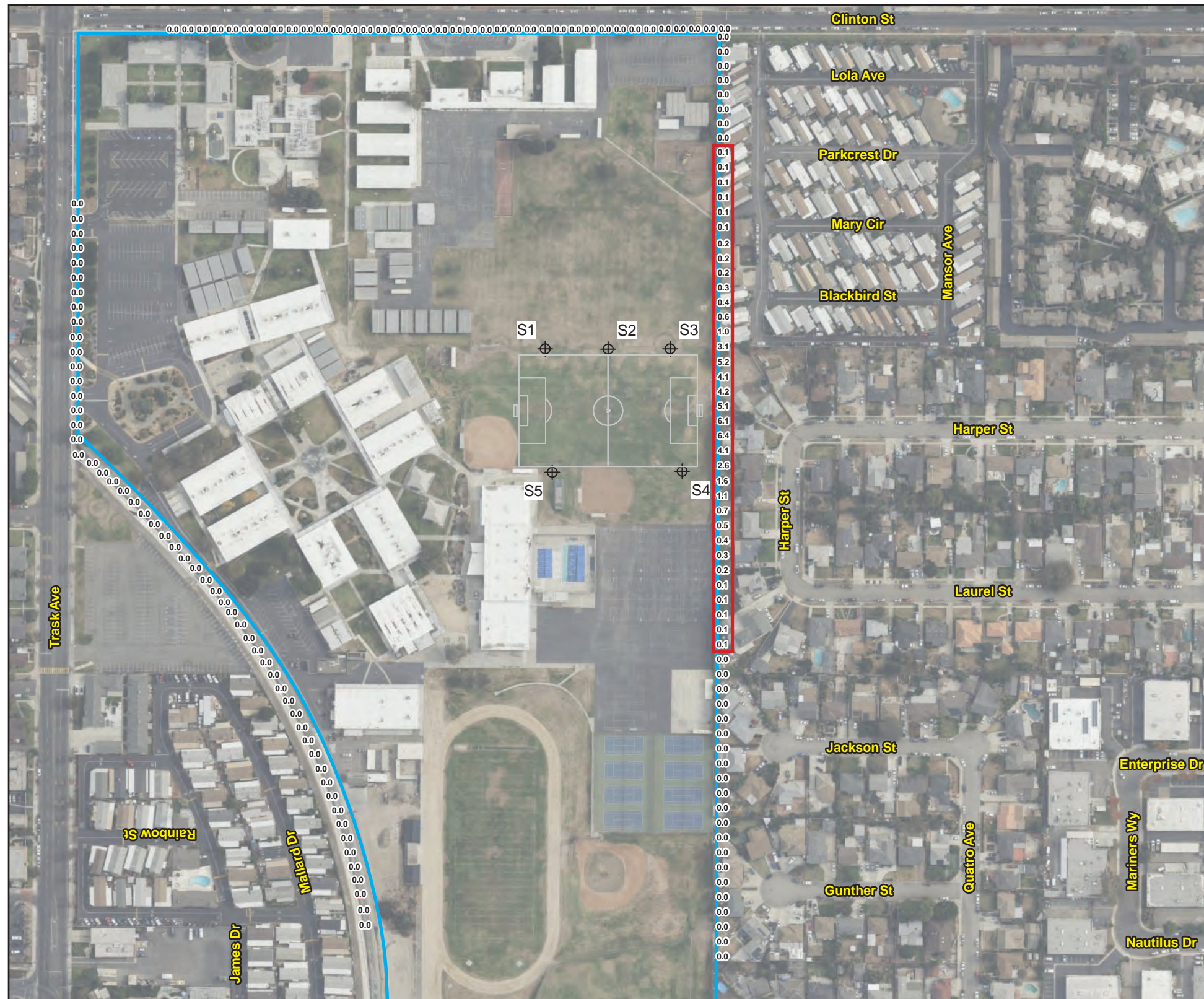
Figure 5 - Temporary MUSCO Lights Available for Rent



1. Introduction

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Figure 6 - Temporary Lights at Santiago High School Soccer Field



EQUIPMENT LIST FOR AREAS SHOWN							
Pole				Luminaires			
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE	THIS GRID / OTHER GRIDS
4	S1, S3-S5	50'	-	50'	TLC-LED-1200	6	6 / 0
1	S2	50'	-	50'	TLC-LED-1200	4	4 / 0
5	TOTALS					28	28 / 0

GRID SUMMARY	
Name:	Spill Line
Spacing:	30.0'
Height:	3.0' above grade

ILLUMINATION SUMMARY	
MAX VERTICAL FOOTCANDLES	
Entire Grid	
Scan Average:	0.3202
Maximum:	6.39
Minimum:	0.00
No. of Points:	206
LUMINAIRE INFORMATION	
Applied Circuits:	A
No. of Luminaires:	28
Total Load:	32.76 kW

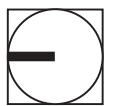
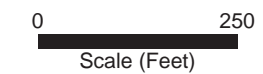
Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Musco Warranty document.

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.

— School Boundary Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊗ [Red Box] Areas that exceed 0.0 fc.



Source: MUSCO, 2022

1. Introduction

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Figure 7 - Lighting Plan



EQUIPMENT LAYOUT	
INCLUDES:	
<ul style="list-style-type: none"> · Baseball · Football · Practice · Soccer · Softball · Tennis · 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						
QTY	LOCATION	Pole		Luminaires		
		SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY/POLE
1	A1	70'	-	70'	TLC-LED-1200	1
				15.5'	TLC-BT-575	1
				70'	TLC-LED-900	4
1	A2	60'	-	60'	TLC-LED-900	3
				15.5'	TLC-BT-575	1
				60'	TLC-LED-1200	2
2	A3-A4	60'	-	60'	TLC-LED-900	1
				15.5'	TLC-BT-575	1
				60'	TLC-LED-1200	2
1	B1	80'	-	15.5'	TLC-BT-575	1
				80'	TLC-LED-1500	6
1	B2	70'	-	70'	TLC-LED-900	4
				15.5'	TLC-BT-575	1
1	B3	70'	-	70'	TLC-LED-1500	3
				15.5'	TLC-BT-575	1
				70'	TLC-LED-1500	6
1	B4	70'	-	15.5'	TLC-BT-575	1
				70'	TLC-LED-1500	7
1	C1	70'	-	15.5'	TLC-BT-575	2
				70'	TLC-LED-1500	5
1	C2	70'	-	70'	TLC-LED-900	2
				15.5'	TLC-BT-575	2
				70'	TLC-LED-1500	3
4	F1-F4	80'	-	15.5'	TLC-BT-575	2
				80'	TLC-LED-1500	11
3	S1, S3-S4	70'	-	70'	TLC-LED-900	1
				70'	TLC-LED-1200	3
4	T1-T4	60'	-	60'	TLC-LED-900	4
				TOTALS		

SINGLE LUMINAIRE AMPERAGE DRAW CHART						
Ballast Specifications (.90 min power factor)	Line Amperage Per Luminaire (max draw)					
	208 (60)	220 (60)	240 (60)	277 (60)	347 (60)	480 (60)
TLC-LED-1500	8.5	8.1	7.4	6.4	5.1	4.7
TLC-LED-1200	7.0	6.6	6.1	5.2	4.2	4.0
TLC-LED-900	5.3	5.0	4.6	4.0	3.2	2.9
TLC-BT-575	3.4	3.2	2.9	2.5	2.0	1.8

— School Boundary
 Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊗
 Source: MUSCO, 2022



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1. Introduction

Tennis Courts

There are eight tennis courts at Santiago High School, and four 60-foot light poles would be provided, two on the eastern side and two on the western side of the upper courts. The proposed lighting plan would provide an average of 50 fc across the tennis courts. The location of lights, number of luminaires, and additional details are provided in Figure 7, *Lighting Plan*.

Football/Soccer Field and Track

The football field would be lighted using four 80-foot poles with a total of 52 luminaires, providing an average of 50 fc across the field. The lighting plan will also light the track for evening use, providing a range of 4 to 25 fc.

Baseball and Softball Fields

The baseball field would be lighted using six light poles ranging in height from 60 feet to 80 feet, providing an average of 50 fc for infield and 30 fc for outfield.

The softball field would be lighted with four light poles—two 60-foot poles and two 70-foot poles—and would provide an average of 50 fc for infield and 30 fc for outfield.

Practice Field

The practice field would include four 70-foot poles with an average of 30 fc.

Activities Schedule

The proposed activities schedule for Santiago High School is shown in Table 1, *Santiago High School – Proposed Lighting by Sport and Hours*. All student activities are scheduled to end by 6:30 pm, and no new sports programs are proposed for the project. Community use activities would end by 9:00 pm.

Table 1 Santiago High School – Proposed Lighting by Sport and Hours

Field #	Sport	Proposed Start Time	Typical Game Duration	Starting Date	Sunset time	Ending Date	Sunset Time	Typical Late Game Ending Time
2	FS/JV Football	3:30 PM	2.5 Hours +/- 30 Minutes	8/18/2022	7:35 PM	10/28/2022	6:02 PM	6/6:30 PM
1	Girls Tennis	3:30 PM	2.5 Hours +/- 30 Minutes	8/22/2022	7:30 PM	11/11/2022	4:50 PM	6/6:30 PM
5	Soccer	3:30 PM	1.67 Hours +/- 30 Minutes	11/14/2022	4:48 PM	2/4/2022	5:25 PM	5:10/5:40 PM
3	Baseball	3:30 PM	2.25 Hours +/- 30 Minutes	2/11/2023	5:32 PM	4/29/2023	7:34 PM	5:45/6:15 PM
4	Softball	3:30 PM	1.75 Hours +/- 30 Minutes	2/11/2023	5:32 PM	4/29/2023	7:34 PM	5:15/5:45 PM

Yellow highlighting represents when the lights are turned on.

1. Introduction

Community Use – Santiago High School

A breakdown of community use per athletic facility is shown below. The total evening use at the school is estimated to be 292 people and approximately 117 cars.⁴ This assumption is conservative and assumes a robust use of all athletic facilities at the same time.

Baseball/Softball Fields

- 15 players/team
- 5 coaches/assistants
- 20 spectators
- Total: 40 people/team
- Total 1 Field: 80 people/field
- **Total 2 Fields: 160 people**

Tennis Courts

- 4 players per court (assuming doubles)
- 8 courts
- 32 players
- 10 coaches/spectators
- **Total: 42 people**

Football/Soccer Field

- 20 players/team
- 5 coaches/assistants
- 20 spectators
- Total: 45 people/team
- **Total: 90 people**

Community Access

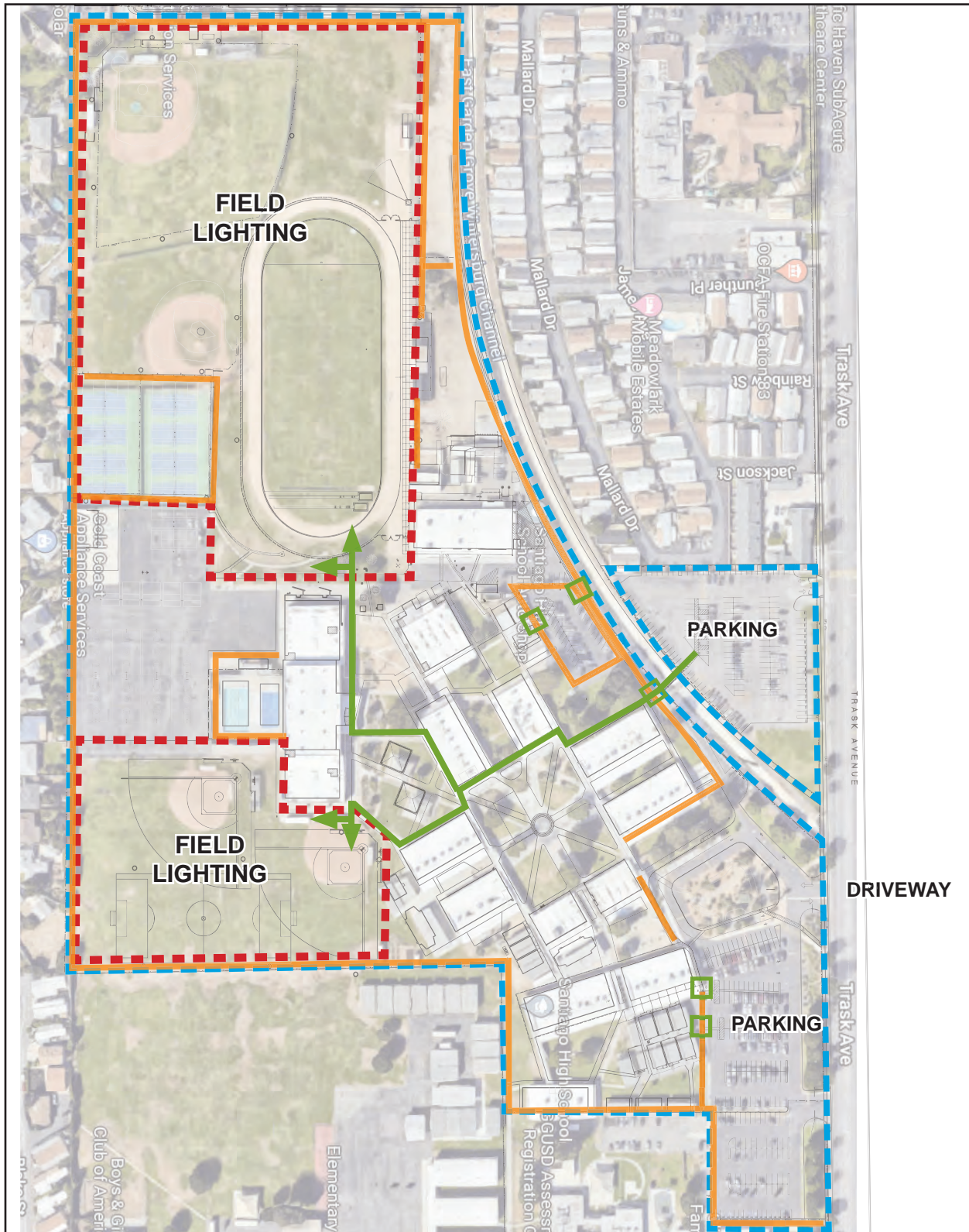
Figure 8, *Santiago High School Community Access*, shows that the public would access the school through the driveway on Trask Avenue. Community members would be able to park in this lot and access the sports facilities through this parking lot.

1.4.2 Project Phasing

The District proposes to install the temporary lights in July 2022, and begin use in August 2022. Construction of permanent lights is anticipated to take about five months and is scheduled to start on March 1, 2023, and finish by August 30, 2023.

⁴ 2.5 people / car
 $292/2.5 = 116.8 = 117$ cars

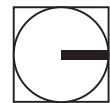
Figure 8 - Santiago High School Community Access



- - - School Boundary
- - - Field Lighting Area
- Existing Fence

- Existing Gate Along Public Path of Travel
- ↔ Public Path of Travel

0 320
 Scale (Feet)



Source: GBA

1. Introduction

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1.5 EXISTING ZONING AND GENERAL PLAN

Santiago High School is zoned as O-S (Open Space) on the City of Garden Grove zoning map and is designated as CI (Civic/Institutional) in the city's general plan.

1.6 DISTRICT ACTION REQUESTED

- Adopt the Mitigated Negative Declaration
- Adopt the Mitigation Monitoring and Reporting Program
- Approve the project

1. Introduction

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2. Environmental Checklist

2.1 PROJECT INFORMATION

1. **Project Title:** Sports Facilities Lighting at Santiago High School Project.

2. **Lead Agency Name and Address:**

Garden Grove Unified School District
10331 Stanford Avenue
Garden Grove, CA 92840

3. **Contact Person and Phone Number:**

Kevin Heerschap, Interim Assistant Director, Facilities
714.663.6442

4. **Project Location:**

- Santiago High School at 12342 Trask Avenue, Garden Grove, CA 92844. The project site consists of the tennis courts, football field, baseball field, softball field, and soccer field on the Santiago HS campus.
-

5. **Project Sponsor's Name and Address:**

Garden Grove Unified School District
10331 Stanford Avenue
Garden Grove, CA 92840

6. **General Plan Designation:**

- CI (Civic/Institutional)
-

7. **Zoning:**

- O-S (Open Space)
-

8. **Description of Project:**

The Garden Grove Unified School District plans to add competitive sports lighting to its five athletic fields on the Santiago High School Campus. The proposed lighting improvements are prompted by the passage of Senate Bill (SB) 328, which requires high schools to start no earlier than 8:30 am. With the later start time, schools will also end later, which will affect sports activities unless the athletic fields and courts are lighted for evening use.

The District plans to light the tennis courts, football field, baseball field, softball field, soccer field, practice field, and track at Santiago High School. The proposed sports lighting project would allow extended use of the listed athletic facilities into evening hours for the benefit of existing students. No additional sports programs would be added that could increase participants or spectators. The proposed

2. Environmental Checklist

project would require limited demolition of hardscape and softscape to install lighting poles at the existing sports facilities. No structural demolition would be required.

9. Surrounding Land Uses and Setting:

- Santiago High School is surrounded by Trask Avenue and residential to the north; Clinton Corner Family Campus, Clinton Elementary School, Clinton Street, and residential to the east; residential to the south; and commercial to the west. Other major uses in the area includes State Route 22 (Garden Grove Freeway) to the north northwest, Orangewood Academy to the east, and the Santa Ana River to the southeast.

10. Other Public Agencies Whose Approval Is Required (e.g., permits, financing approval, or participating agreement):

- Division of State Architect -Approval of construction plans

11. Have California Native American tribes traditionally and culturally affiliated with the project area requested consultation pursuant to Public Resources Code section 21080.3.1? If so, is there a plan for consultation that includes, for example, the determination of significance of impacts to tribal cultural resources, procedures regarding confidentiality, etc.?

Note: Conducting consultation early in the CEQA process allows tribal governments, lead agencies, and project proponents to discuss the level of environmental review, identify and address potential adverse impacts to tribal cultural resources, and reduce the potential for delay and conflict in the environmental review process. (See Public Resources Code section 21080.3.2.) Information may also be available from the California Native American Heritage Commission's Sacred Lands File per Public Resources Code section 5097.94 and the California Historical Resources Information System administered by the California Office of Historic Preservation. Please also note that Public Resources Code section 21082.3(c) contains provisions specific to confidentiality.

The District has not received notification from California Native American tribes per Public Resources Code section 21080.3.1 and therefore the provisions for consultation have not been triggered.

2. Environmental Checklist

2.2 ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "Potentially Significant Impact," as indicated by the checklist on the following pages.

- | | | |
|--|---|---|
| <input type="checkbox"/> Aesthetics | <input type="checkbox"/> Agriculture / Forestry Resources | <input type="checkbox"/> Air Quality |
| <input type="checkbox"/> Biological Resources | <input checked="" type="checkbox"/> Cultural Resources | <input type="checkbox"/> Energy |
| <input checked="" type="checkbox"/> Geology/Soils | <input type="checkbox"/> Greenhouse Gas Emissions | <input type="checkbox"/> Hazards and Hazardous Materials |
| <input type="checkbox"/> Hydrology/Water Quality | <input type="checkbox"/> Land Use / Planning | <input type="checkbox"/> Mineral Resources |
| <input type="checkbox"/> Noise | <input type="checkbox"/> Population / Housing | <input type="checkbox"/> Public Services |
| <input type="checkbox"/> Recreation | <input type="checkbox"/> Transportation | <input checked="" type="checkbox"/> Tribal Cultural Resources |
| <input type="checkbox"/> Utilities / Service Systems | <input type="checkbox"/> Wildfire | <input type="checkbox"/> Mandatory Findings of Significance |

2.3 DETERMINATION (TO BE COMPLETED BY THE LEAD AGENCY)

On the basis of this initial evaluation:

I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.

I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.



Signature

6.15.22

Date

2. Environmental Checklist

2.4 EVALUATION OF ENVIRONMENTAL IMPACTS

1. A brief explanation is required for all answers except “No Impact” answers that are adequately supported by the information sources a lead agency cites in the parentheses following each question. A “No Impact” answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved (e.g., the project falls outside a fault rupture zone). A “No Impact” answer should be explained where it is based on project-specific factors, as well as general standards (e.g., the project would not expose sensitive receptors to pollutants, based on a project-specific screening analysis).
2. All answers must take account of the whole action involved, including off-site as well as on-site, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts.
3. Once the lead agency has determined that a particular physical impact may occur, then the checklist answers must indicate whether the impact is potentially significant, less than significant with mitigation, or less than significant. “Potentially Significant Impact” is appropriate if there is substantial evidence that an effect may be significant. If there are one or more “Potentially Significant Impact” entries when the determination is made, an EIR is required.
4. “Negative Declaration: Less Than Significant With Mitigation Incorporated” applies where the incorporation of mitigation measures has reduced an effect from “Potentially Significant Impact” to a “Less Than Significant Impact.” The lead agency must describe the mitigation measures, and briefly explain how they reduce the effect to a less than significant level.
5. Earlier analyses may be used where, pursuant to the tiering, program EIR, or other CEQA process, an effect has been adequately analyzed in an earlier EIR or negative declaration. Section 15063(c)(3)(D). In this case, a brief discussion should identify the following:
 - a) **Earlier Analyses Used.** Identify and state where they are available for review.
 - b) **Impacts Adequately Addressed.** Identify which effects from the above checklist were within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards, and state whether such effects were addressed by mitigation measures based on the earlier analysis.
 - c) **Mitigation Measures.** For effects that are “Less than Significant with Mitigation Measures Incorporated,” describe the mitigation measures which were incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the project.
6. Lead agencies are encouraged to incorporate into the checklist references to information sources for potential impacts (e.g., general plans, zoning ordinances). Reference to a previously prepared or outside document should, where appropriate, include a reference to the page or pages where the statement is substantiated.
7. Supporting Information Sources: A source list should be attached, and other sources used or individuals contacted should be cited in the discussion.

2. Environmental Checklist

8. This is only a suggested form, and lead agencies are free to use different formats; however, lead agencies should normally address the questions from this checklist that are relevant to a project's environmental effects in whatever format is selected.
9. The explanation of each issue should identify:
 - a) the significance criteria or threshold, if any, used to evaluate each question; and
 - b) the mitigation measure identified, if any, to reduce the impact to less than significance.

2. Environmental Checklist

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3. Environmental Analysis

Section 2.4 provided a checklist of environmental impacts. This section provides an evaluation of the impact categories and questions contained in the checklist and identifies mitigation measures, if applicable.

3.1 AESTHETICS

Issues	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
I. AESTHETICS. Except as provided in Public Resources Code Section 21099, would the project:				
a) Have a substantial adverse effect on a scenic vista?			X	
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?				X
c) In nonurbanized 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?			X	
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?			X	

a) Have a substantial adverse effect on a scenic vista?

Less Than Significant Impact. A scenic vista is a viewpoint that provides expansive views of a highly valued landscape for the benefit of the public. No scenic vista is officially designated by the City of Garden Grove General Plan. The proposed project would provide sports lighting to existing sport facilities, and implementation of the proposed project would not obstruct or alter views of any scenic vistas. Impacts would be less than significant.

b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?

No Impact. The proposed project would install nighttime lighting on existing sport facilities within the Santiago High School campus to serve existing athletic fields. The project site is already developed with various sports facilities used for school programs. The nearest officially designated state scenic highway is State Route 91 (SR-91) from SR 55 to east city limit of Anaheim, which is approximately 7.3 miles northeast of Santiago High School (Caltrans 2022). Due to the distance and intervening development, Santiago High School is not visible from scenic routes. No scenic resources would be damaged, and no impact would occur.

3. Environmental Analysis

- c) **In nonurbanized 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?**

Less Than Significant Impact. The high school is located within a fully urbanized area with development surrounding the site in all directions. The lighting improvements are proposed on an existing high school campus, consistent with its O-S (Open Space) zoning and CI (Civic/Institutional) land use. There are no scenic resources visible from the perimeter of the campus. The proposed lights would not adversely affect scenic views as none exist in the area.

The existing vertical elements of the campus that are visible from the residential area to the north include lighting poles, power lines, and school buildings, and from the south include baseball netting, buildings, and power lines. The Santiago High School is in an urbanized area, the project would not degrade views of any scenic resource, the project is consistent with zoning and would not violate any regulations governing scenic quality. Impacts would be less than significant.

- d) **Create a new source of substantial light or glare, which would adversely affect day or nighttime views in the area?**

Less Than Significant Impact. The two major causes of light pollution are glare and spill light.

New lighting fixtures would be installed on existing sports facilities, as described in Section 1.4, *Project Description*. The existing school generates nighttime light from parking lots and building lights (interior and exterior). Surrounding land uses also generate lights from streetlights, vehicle lights, and building lights, typical in urban neighborhoods.

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 2, *General Light Levels Benchmark*.

3. Environmental Analysis

Table 2 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.

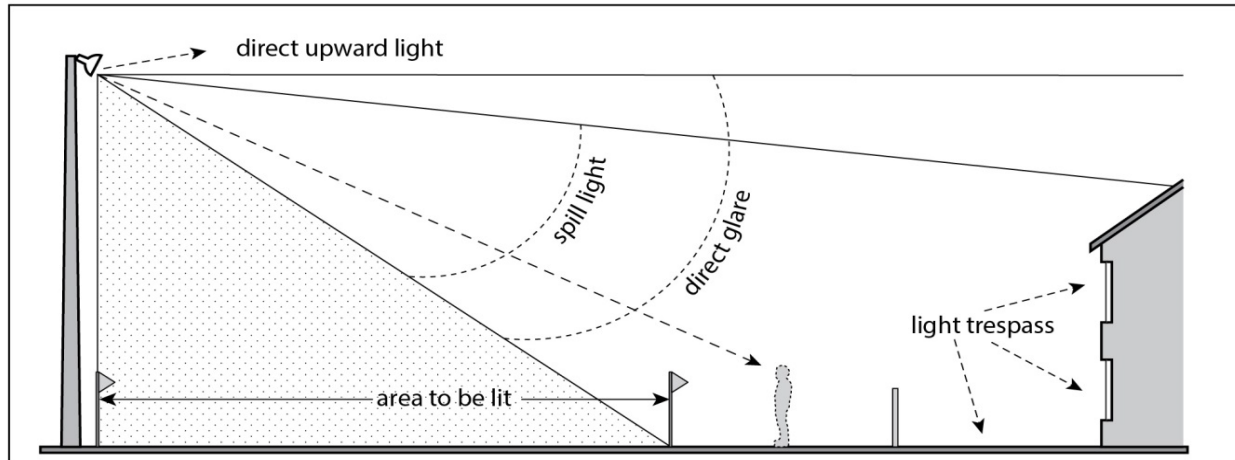
Vertical foot-candle. The amount of light received on a vertical surface such as a billboard or building façade.

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 B, *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.

3. Environmental Analysis

Exhibit B: 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:

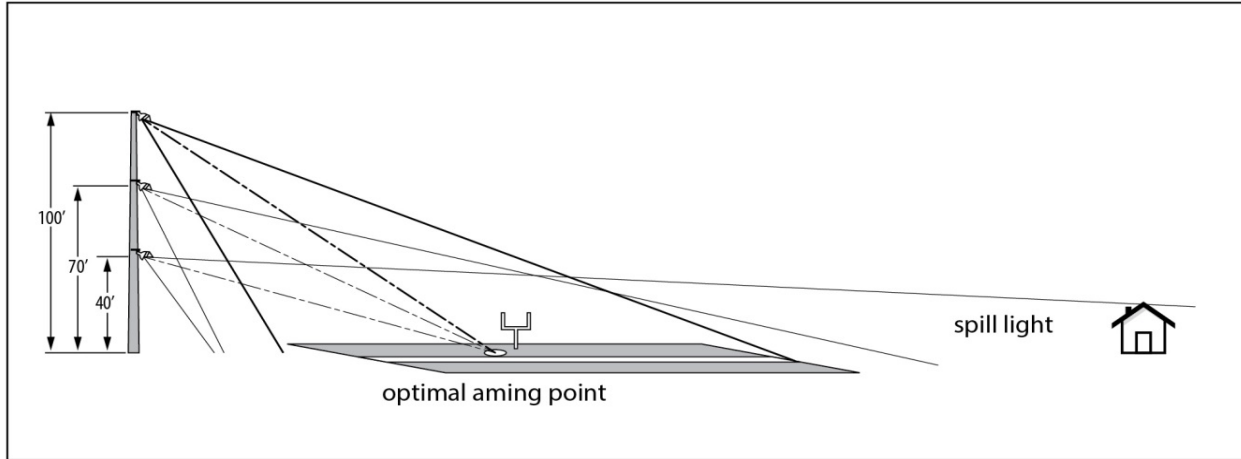
- **Fully shielded.** A luminaire emitting no light above the horizontal plane.
- **Shielded.** A luminaire emitting less than 2 percent of its light above the horizontal plane.
- **Partly shielded.** A luminaire emitting less than 10 percent of its light above the horizontal plane.
- **Unshielded.** 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 C, *Pole Heights and Lighting Angles*.

3. Environmental Analysis

Exhibit C: 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.

Garden Grove Municipal Code does not have any specific spill light threshold levels or guidance related to exterior lights.

Some of the design elements for light control and reduced spill lighting impact include mounting height and steep aiming angles, various lighting modes, visors and shielding, reflective housing around the lamp, number of lamps, and appropriate light levels. Higher poles could increase off-site glare, and shorter poles could increase off-site spill light and detrimentally affect lighting levels and performance. The proposed lighting poles incorporate all these elements, and each element can be arranged individually to control and minimize any potential spill lighting impacts. Each light assembly would be adjusted, and additional shields would be installed as necessary to ensure that light levels at the sensitive receptors do not exceed the light threshold and to reduce sky glow impacts. For the purposes of this analysis, an industry standard of 0.8 fc was used for a significance determination because 0.8 fc would be close to twilight light levels.

Temporary Lights

As shown in Figure 6, *Temporary Lights at Santiago High School Soccer Field*, five temporary 50-foot light poles would be installed. The nearest sensitive receptor would be the residences approximately 54 feet to the south. The highest light level would be 6.4 fc. Although these lights would exceed the 0.8 fc threshold, these lights would be temporary and used for one season. As shown in Figure 9, *Light Spillover*, permanent lights would not exceed this threshold. Impacts would be less than significant.

3. Environmental Analysis

Permanent Lights

Figure 7, *Lighting Plan*, shows how the fields and tennis courts would be lighted for evening use. The Plan shows the location of each light pole and the orientation of the fixtures. The table on Figure 7 provides more details, including pole heights, and quantity and type of luminaires.

The proximity of the proposed lights to the residences to the north and south present the potential for light spillover and glare impacts. Figure 9, *Light Spillover*, shows the lighting level at the property line. The numbers shown are projected maximum vertical footcandles, which 0.0 to 0.4 fc, well below the significance threshold of 0.8 fc. The red box in the figure highlights the only areas that exceed 0.0.

The LED luminaires would be shielded and directed downward and away from the adjacent sensitive uses and public rights-of-way so that glare impacts are minimized. Spill light and glare impacts to the adjacent sensitive uses would be less than significant.

Figure 9 - Light Spillover

EQUIPMENT LIST FOR AREAS SHOWN									
Pole				Luminaires					
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE	THIS GRID	OTHER GRIDS	
1	A1	70'	-	70'	TLC-LED-1200	1	1	0	
				15.5'	TLC-BT-575	1	1	0	
				70'	TLC-LED-900	4	4	0	
				60'	TLC-LED-900	3	3	0	
1	A2	60'	-	15.5'	TLC-BT-575	1	1	0	
				60'	TLC-LED-1200	2	2	0	
				60'	TLC-LED-900	1	1	0	
2	A3-A4	60'	-	60'	TLC-LED-900	1	1	0	
				15.5'	TLC-BT-575	1	1	0	
				60'	TLC-LED-1200	2	2	0	
1	B1	80'	-	15.5'	TLC-BT-575	1	1	0	
				80'	TLC-LED-1500	6	6	0	
1	B2	70'	-	70'	TLC-LED-900	4	4	0	
				15.5'	TLC-BT-575	1	1	0	
				70'	TLC-LED-1500	3	3	0	
1	B3	70'	-	15.5'	TLC-BT-575	1	1	0	
				70'	TLC-LED-1500	6	6	0	
1	B4	70'	-	15.5'	TLC-BT-575	1	1	0	
				70'	TLC-LED-1500	7	7	0	
1	C1	70'	-	15.5'	TLC-BT-575	2	2	0	
				70'	TLC-LED-1500	5	5	0	
1	C2	70'	-	70'	TLC-LED-900	2	2	0	
				15.5'	TLC-BT-575	2	2	0	
				70'	TLC-LED-1500	3	3	0	
4	F1-F4	80'	-	15.5'	TLC-BT-575	2	2	0	
				80'	TLC-LED-1500	11	11	0	
3	S1, S3-S4	70'	-	70'	TLC-LED-900	1	1	0	
				70'	TLC-LED-1200	3	3	0	
4	T1-T4	60'	-	60'	TLC-LED-900	4	4	0	
21	TOTALS					144	144	0	

GRID SUMMARY	
Name:	Property Line Spill
Spacing:	30.0'
Height:	3.0' above grade

ILLUMINATION SUMMARY	
MAX VERTICAL FOOTCANDLES	
Entire Grid	
Scan Average:	0.060
Maximum:	0.43
Minimum:	0.00
No. of Points:	145
LUMINAIRE INFORMATION	
Applied Circuits:	A, B, C, D, E, F, G
No. of Luminaires:	144
Total Load:	166.3 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.



— School Boundary
 Areas that exceed 0.0 fc.
 Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊗

Source: MUSCO, 2022



3. Environmental Analysis

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3. Environmental Analysis

3.2 AGRICULTURE AND FORESTRY RESOURCES

Issues	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
II. AGRICULTURE AND FORESTRY RESOURCES. In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. 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?				X
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?				X
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))?				X
d) Result in the loss of forest land or conversion of forest land to non-forest use?				X
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?				X

- 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 nighttime sports lighting on an existing high school to serve existing sport facilities. There are no agricultural uses within the Santiago High School, and the proposed project would not convert any specially designated farmland identified on the state's Farmland Mapping and Monitoring Program. The high school campus is designated as Urban and Built-Up Land (DOC 2022a). No impact would occur.

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

No Impact. The proposed project would install nighttime sports lighting on an existing high school in Garden Grove to serve existing sport facilities, and the campus is not zoned for agricultural use. Santiago High School is zoned for open space and the general plan land use designation for the campus is civic/institutional.

3. Environmental Analysis

Implementation of the proposed project would not conflict with existing zoning for agricultural use, or a Williamson Act contract. 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. The proposed project would occur within the boundaries of an existing high school and the campus is not zoned for forest land or timberland. 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 proposed project would occur within the boundaries of an existing high school and no forest land would be converted. No impact 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 high school and no farmland or agricultural land would be converted to nonagricultural use or non-forest use. No impact would occur.

3.3 AIR QUALITY

Issues	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
III. AIR QUALITY. Where available, the significance criteria established by the applicable air quality management district or air pollution control district may be relied upon to make the following determinations. Would the project:				
a) Conflict with or obstruct implementation of the applicable air quality plan?			X	
b) 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?			X	
c) Expose sensitive receptors to substantial pollutant concentrations?			X	
d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?			X	

Criteria air pollutant emissions modeling is included in Appendix B, *Air Quality and Greenhouse Gas Emissions Assessment*, of this Initial Study. The modeling shown in Appendix B was performed for Rancho Alamitos High School, another high school within the District that would also include sports facilities lighting on its campus.

3. Environmental Analysis

As both projects would result in similar levels of construction and operations, the modeling is applicable to the proposed project at Santiago High School.

This section addresses the impacts of the proposed project on ambient air quality and the exposure of people, especially sensitive individuals, to unhealthful pollutant concentrations. A background discussion on the air quality regulatory setting, meteorological conditions, existing ambient air quality in the vicinity of the project site, and air quality modeling can be found in Appendix B.

The primary air pollutants of concern for which ambient air quality standards (AAQS) have been established are ozone (O₃), carbon monoxide (CO), coarse inhalable particulate matter (PM₁₀), fine inhalable particulate matter (PM_{2.5}), sulfur dioxide (SO₂), nitrogen dioxide (NO₂), and lead (Pb). Areas are classified under the federal and California Clean Air Act as either in attainment or nonattainment for each criteria pollutant based on whether the AAQS have been achieved. The South Coast Air Basin (SoCAB), which is managed by the South Coast Air Quality Management District (South Coast AQMD), is designated nonattainment for O₃, and PM_{2.5} under the California and National AAQS, nonattainment for PM₁₀ under the California AAQS, and nonattainment for lead (Los Angeles County only) under the National AAQS.

Where available, the significance criteria established by the applicable air quality management district or air pollution control district may be relied upon to make the following determinations. Would the project:

a) Conflict with or obstruct implementation of the applicable air quality plan?

Less Than Significant Impact. South Coast AQMD adopted the 2016 Air Quality Management Plan on March 3, 2017. Regional growth projections are used by South Coast AQMD to forecast future emission levels in the SoCAB. For southern California, these regional growth projections are provided by the Southern California Association of Governments (SCAG) and are partially based on land use designations included in city/county general plans. Typically, only large, regionally significant projects have the potential to affect the regional growth projections. In addition, the consistency analysis is generally only required in connection with the adoption of General Plans, specific plans, and significant projects.

The proposed project would install numerous light poles to existing sports facilities at seven high schools. No new permanent buildings would be developed and no increase in staff due to the proposed lighting would occur. Therefore, the project would not have the potential to substantially affect SCAG's demographic projections. Additionally, as demonstrated below, the regional emissions that would be generated by the operational phase of the proposed project would be less than the South Coast AQMD regional emissions thresholds and would therefore not be considered a substantial source of air pollutant emissions that would have the potential to affect the attainment designations in the SoCAB. Therefore, the proposed project would not affect the regional emissions inventory or conflict with strategies in the AQMP and impacts would be less than significant.

b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or state ambient air quality standard?

Less Than Significant Impact. The following describes project-related impacts from regional short-term construction activities and regional long-term operation of the proposed project.

3. Environmental Analysis

Regional Short-Term Construction Impacts

The proposed project would result in the installation of competitive sports lighting to existing sports facilities on the project site. Installation of the competitive sports lighting would occur over a five-month period. Construction of the proposed project would generate criteria air pollutants associated with construction equipment exhaust and fugitive dust from site preparation and light pole installation. The proposed project construction-related emissions are shown in Table 3, *Construction-Related Emissions (Regional Significance Analysis)*, which were quantified using California Emissions Estimator Model, version 2020.4.0 (CalEEMod) and are based on the construction duration and equipment mix for the project provided by the project architect.

Table 3 Construction-Related Emissions (Regional Significance Analysis)

Construction Year	Criteria Air Pollutant Emissions (lbs/day) ^{1,2}					
	VOC	NO _x	CO	SO ₂	PM ₁₀	PM _{2.5}
Construction Year One	1.33	12.50	14.46	<1	2.67	1.5
South Coast AQMD Regional Significance Threshold	75	100	550	150	150	55
Exceeds Threshold?	No	No	No	No	No	No

Source: ECORP 2022
 CalEEMod version 2020.4.0.

Notes: Emissions taken of the season, summer or winter, with the highest outputs. Emission reduction/credits for construction emissions are applied based on the required implementation of SCAQMD Rule 403. The specific Rule 403 measures applied in CalEEMod include the following: sweeping/cleaning adjacent roadway access areas daily; washing equipment tires before leaving the construction site; water exposed surfaces three times daily; and limit speeds on unpaved roads to 15 miles per hour. Reductions percentages from the SCAQMD CEQA Handbook (Tables XI-A through XI-E) were applied.

As shown in Table 3, the maximum daily emissions for VOC, NO_x, CO, SO₂, PM₁₀, and PM_{2.5} from construction-related activities would be less than significant threshold values. Therefore, air quality impacts from project-related construction activities would be less than significant.

Regional Long-Term Operation-Phase Impacts

Typical long-term air pollutant emissions are generated by area sources (e.g., landscape fuel use, aerosols, architectural coatings, and asphalt pavement), energy use (natural gas), and mobile sources (i.e., on-road vehicles). Though the proposed project would result in competitive sports lighting for various sports facilities at the high school, the project would not result in increase in staff or students or introduce new community events. The proposed project would not increase vehicle miles traveled in the City, but could capture trips that now must travel to remote facilities due to the absence of lighted facilities at the school. In addition, the lighting equipment would result in electricity demand only and would not result in direct generation of criteria air pollutants. Thus, the proposed project would not generate operation-related criteria air pollutant emissions that would exceed the South Coast AQMD regional operation-phase significance thresholds. Therefore, impacts to the regional air quality associated with operation of the project would be less than significant.

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c) Expose sensitive receptors to substantial pollutant concentrations?

Less Than Significant Impact. The following describes changes in localized impacts from short-term construction activities and long-term operation of the proposed project.

Localized Construction Impacts

A project could expose sensitive receptors to elevated pollutant concentrations during construction activities if it would cause or contribute significantly to elevated levels. Unlike the construction emissions shown in the regional emissions analysis in Table 2, which are described in pounds per day, localized concentrations refer to an amount of pollutant in a volume of air (ppm or $\mu\text{g}/\text{m}^3$) and can be correlated to potential health effects. The screening-level localized significance thresholds (LST) are the amount of project-related emissions at which localized concentrations (ppm or $\mu\text{g}/\text{m}^3$) could exceed the California AAQs for criteria air pollutants for which the SoCAB is designated nonattainment and are based on the proposed project site size and distance to the nearest sensitive receptor. The California AAQS, which are the most stringent AAQS, were established to provide a margin of safety in the protection of the public health and welfare. The screening-level LSTs are designed to protect sensitive receptor areas 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.

Air pollutant emissions generated by construction activities are anticipated to cause temporary increases in air pollutant concentrations. Table 4, *Construction-Related Emissions (Localized Significance Analysis)*, shows the maximum daily construction emissions (pounds per day) generated during onsite construction activities compared with the South Coast AQMD’s screening-level LSTs. The nearest sensitive receptors to the lighting improvements are the residences adjacent to the southern boundary of the campus.

Table 4 Construction-Related Emissions (Localized Significance Analysis)

Construction Activity	Pollutants (lbs/day)			
	NO _x	CO	PM ₁₀	PM _{2.5}
Site Preparation	6.93	3.95	0.46	0.25
Grading	12.00	5.93	2.58	1.47
Building Construction/Light Installation	7.02	7.15	0.37	0.34
Paving	5.08	6.34	0.26	0.24
Combined Total	31.03	23.37	3.67	2.30
<i>SCAQMD Localized Significance Threshold (1.0 acre of disturbance)</i>	81	485	4	3
Exceed SCAQMD Localized Threshold?	No	No	No	No

Source: ECORP 2022.

CalEEMod version 2020.4.0..

Notes: Emission reduction/credits for construction emissions are applied based on the required implementation of SCAQMD Rule 403. The specific Rule 403 measures applied in CalEEMod include the following: sweeping/cleaning adjacent roadway access areas daily; washing equipment tires before leaving the construction site; water exposed surfaces three times daily; and limit speeds on unpaved roads to 15 miles per hour. Reductions percentages from the SCAQMD CEQA Handbook (Tables XI-A through XI-E) were applied.

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As shown in Table 4, the construction of the proposed project would not generate construction-related onsite emissions that would exceed the screening level LSTs. Therefore, impacts would be less than significant.

Construction Health Risk

The South Coast AQMD currently does not require health risk assessments to be conducted for short-term emissions from construction equipment. Emissions from construction equipment primarily consist of diesel particulate matter (DPM). The Office of Environmental Health Hazard Assessment adopted new guidance for the preparation of health risk assessments in March 2015 (OEHHA 2015). It has also developed a cancer risk factor and noncancer chronic reference exposure level for DPM, but these factors are based on continuous exposure over a 30-year time frame. No short-term acute exposure levels have been developed for DPM. The South Coast AQMD currently does not require the evaluation of long-term excess cancer risk or chronic health impacts for a short-term project. The proposed project would be constructed over an approximately five-month period. The relatively short duration, compared to a 30-year time frame, would limit exposures to on-site and off-site receptors. In addition, exhaust emissions from off-road vehicles associated with overall project-related construction activities would not exceed the screening-level LSTs. Table 4 shows that the emissions of these pollutants on the peak day of construction would not result in significant concentrations of pollutants at nearby sensitive receptors. For these reasons, it is anticipated that construction emissions would not pose a threat to off-site receptors near the proposed project, and project-related construction health impacts would be less than significant.

Operation

Regional Operation-Phase Impacts

The proposed project would install competitive sports lighting to the athletic facilities at the project site. No additional school sports programs would be added. The operational emissions would solely be generated from the lighting of the sports fields and would have a negligible contribution to existing conditions. The proposed project would not increase vehicle miles traveled in the City, but could capture trips that now must travel to remote facilities due to the absence of lighted facilities at the school. Therefore, by its very nature, the proposed project would not generate quantifiable criteria emissions from proposed project operations.

Localized Operation-Phase Impacts

According to the South Coast AQMD localized significance threshold methodology, LSTs would apply to the operational phase of a proposed project only if the project includes stationary sources (e.g., smokestacks) or attracts heavy-duty trucks that may spend long periods queuing and idling at the site (e.g., warehouse or transfer facilities). The proposed project does not include such uses. Therefore, in the case of the proposed project, the operational LST protocol is not applied.

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 parts per million (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 ambient air quality standards is typically demonstrated through an

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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.

The SoCAB has been designated attainment under 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—in order to generate a significant CO impact (BAAQMD 2017).

No additional school sports programs would be added with implementation of the proposed project, and therefore, the number of students and staff at the school would remain the same. Additionally, the proposed project could capture existing trips of community users that now must travel to remote facilities due to the absence of lighted facilities at the school. As such, the number of community users or vehicle miles traveled in the City would not increase as a result of the proposed project. Lighting of the athletic facilities on campus would provide additional recreational sources for the local population. Therefore, the proposed project would not generate traffic volumes at any intersection of more than 100,000 vehicles per day, and there is no likelihood of the proposed project's traffic exceeding CO values. Impacts would be less than significant.

d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

Less Than Significant Impact. The proposed project would not result in objectionable odors. 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 treatments 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. The proposed project would not fall within the aforementioned land uses; no operational odors are anticipated.

During the development of the proposed project, emissions from construction equipment, such as diesel exhaust, may generate odors. However, these odors would be low in concentration, temporary, disperse rapidly, and are not expected to affect a substantial number of people. Any odors produced during the light pole installation process are not expected to be significant or highly objectionable and would be in compliance with South Coast AQMD Rule 402. Therefore, impacts would be less than significant. ..

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3.4 BIOLOGICAL RESOURCES

Issues	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
IV. 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?			X	
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?				X
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?				X
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?				X
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?				X
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?				X

- 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?**

Less Than Significant 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 tennis courts, baseball field, softball field, soccer field, practice field, and track. The City of Garden Grove’s Conservation Element notes that biological resources are almost non-existent due to urban development in the City and surrounding area. The Conservation Element highlights incorporation of natural and altered biotic habitat in development. These areas are already disturbed and developed as part of the high school campus and there is no suitable breeding or foraging habitat on-site for any sensitive species. Project development would not impact any special status species. Impacts would be less than significant.

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- 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. There are no wetlands mapped on the National Wetlands Mapper maintained by the US Fish and Wildlife Service within the boundaries of Santiago High School (USFWS 2022). Although there is an unnamed riverine adjacent to Santiago High School, this is a concrete channel outside of the high school boundaries, to the north of the school. The proposed lighting installation would occur within the limits of an existing high school and would not impact the adjacent drainage channels. The project site does not contain any sensitive natural community or riparian habitat. 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 National Wetlands Mapper maintained by the US Fish and Wildlife Service within the boundaries of the Santiago High School (USFWS 2022). Implementation of the proposed project would not impact any wetlands.

- 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 movement corridors facilitate movement of species between large patches of natural habitat. The proposed project would provide sports lighting to existing sports facilities at an existing high school in Garden Grove. Santiago High School is an existing campus and the project site is already disturbed and being used for various sports activities and do not provide connection for wildlife populations. The proposed project would not remove any trees, which can be used by migratory birds. 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. No impact would occur.

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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 Santiago High School. The proposed project would not conflict with the provisions of a habitat conservation plan or natural community conservation plan. No impact would occur.

3.5 CULTURAL RESOURCES

Issues	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
V. CULTURAL RESOURCES. Would the project:				
a) Cause a substantial adverse change in the significance of a historical resource pursuant to § 15064.5?				X
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to § 15064.5?		X		
c) Disturb any human remains, including those interred outside of dedicated cemeteries?			X	

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

No Impact. Section 15064.5 defines historic resources as resources listed or determined to be eligible for listing by the State Historical Resources Commission, a local register of historical resources, or the lead agency. Generally a resource is considered “historically significant” if it meets one of the following criteria:

- i) Is associated with events that have made a significant contribution to the broad patterns of California’s history and cultural heritage;
- ii) Is associated with the lives of persons important in our past;
- iii) Embodies the distinctive characteristics of a type, period, region or method of construction, or represents the work of an important creative individual, or possesses high artistic values;
- iv) Has yielded, or may be likely to yield, information important in prehistory or history.

The proposed sports lighting would be installed on the existing tennis courts, football field, baseball and softball fields, soccer field, practice field, and track of Santiago High School. Santiago High School is not listed as historical resources 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 that can potentially meet any of the criteria listed above (Garden Grove 2021). Therefore, there are no resources on the project site that would be considered “historically significant.” No impact to historical resource would occur.

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

Less Than Significant Impact With Mitigation Incorporated. Implementation of the proposed project would result in limited soil disturbance to install the permanent light poles and utilities. Augers would be used to drill holes to install light poles within the existing sports facilities. No grading or excavation would be required. The proposed project would occur within the existing high school boundaries that have already been developed with various buildings and athletic facilities—soccer field, football field, track, swimming pool, tennis courts, and baseball and softball fields— 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 customary caution and a halt-work would be required to ensure that adverse impacts to archaeological resources do not occur. Mitigation Measure CUL-1 requires that if any evidence of cultural resources is discovered, all work within the vicinity of the find will stop until a qualified archaeological consultant can assess the find and make recommendations. Therefore, impacts to archaeological resources would be reduced to a less than significant impact with mitigation.

Mitigation Measures

CUL-1 If cultural resources are encountered during ground-disturbing activities, work in the immediate area shall cease, and an archaeologist meeting the Secretary of the Interior’s Professional Qualifications Standards for archaeology (National Park Service 1983) shall be contacted immediately to evaluate the find(s). If the discovery proves to be significant under CEQA, additional work such as data recovery excavation may be warranted and will be reported to the Garden Grove Unified School District.

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

Less Than Significant Impact. The proposed project would not require grading or excavation. 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. mandate 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. Compliance with existing regulations would ensure that impacts to human remains would be less than significant.

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3.6 ENERGY

Issues	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
VI. 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?			X	
b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?				X

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 construction and light poles.

Short-Term Construction Impacts

Construction of the proposed project would create temporary increased demands for electricity and vehicle fuels compared to existing conditions and would result in short-term transportation-related energy use.

Electrical Energy

Electricity use during construction of the proposed project would vary during different phases of construction. Light pole installation could result in the use of electricity-powered equipment, but mostly construction equipment is anticipated to be gasoline- or diesel-powered. Therefore, electricity usage during construction activities would be minimal, and project-related construction activities would not result in wasteful or unnecessary electricity demands. 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, and no natural gas demand is anticipated during construction. No impact with respect to wasteful natural gas usage would occur.

Transportation Energy

Transportation energy use during construction of the proposed project would come from delivery vehicles, haul trucks, 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 is used during demolition and site preparation, would be gasoline or diesel powered. The use of energy resources by these vehicles would fluctuate according to the phase of construction.

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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 California Code of Regulations (CCR) Section 2449. In addition, construction trips would not result in unnecessary use of energy since the school is 0.2-mile south of SR-22 which provides a direct route from various areas of the region. Furthermore, electrical energy would be available for use during construction from existing power lines and connections, precluding the use of less efficient generators. 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

Transportation Energy and Natural Gas Energy

The proposed project would not result in new sport programs or community events or increase students and staff to generate new trips that would consume additional transportation energy or natural gas energy. Lighting of the athletic fields on campus would provide additional recreational resources for the local population. The area is short of parkland and recreation facilities, as shown in Figure 4.12-3 of the Garden Grove Focused General Plan Update and Zoning Amendments DEIR, and the enhanced campus facilities presents the potential to capture trips that now must travel to remote facilities (Garden Grove 2021). Energy consumption related to natural gas and transportation would be less than significant.

Electrical Energy

Operation would consume electricity to power the proposed light poles. Electrical service to the proposed project would be provided by Southern California Edison (SCE) through connections to existing off-site electrical lines and new on-site infrastructure. The lights are needed to support physical education for students and the community and 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.

Though the proposed project would increase electricity demand, lights would be limited to the hours of 4:30 pm to 8:00 pm November through February and 6:00 pm to 8:00 pm March through October. 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.

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

No Impact.

California Renewables Portfolio Standard

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). 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,

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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. In 2018, Governor Brown signed SB 100, which supersedes the SB 350 requirements. The RPS for publicly owned facilities and retail sellers now consists 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.

The statewide RPS goal is not directly applicable to individual development projects, but to utilities and energy providers such as SCE, which is the utility that would provide all of electricity needs for the proposed project. Therefore, implementation of the proposed project would not conflict or obstruct plans for renewable energy and energy efficiency, and no impact would occur.

3.7 GEOLOGY AND SOILS

Issues	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
VII. 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.			X	
ii) Strong seismic ground shaking?			X	
iii) Seismic-related ground failure, including liquefaction?			X	
iv) Landslides?			X	
b) Result in substantial soil erosion or the loss of topsoil?			X	
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?			X	
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?			X	
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?				X
f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?		X		

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- 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.⁵ 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).

Garden Grove is surrounded by earthquake faults, and the Newport-Inglewood Fault and Whitter Fault are two of the major fault lines in the surrounding region. However, there are no faults mapped within the campus or immediate surrounding area and Santiago High School 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. Garden Grove is situated between the Newport-Inglewood Fault and the Whitter Fault, so there is the potential for strong ground shaking at the campus. Considering the seismic history of the region and the nearby faults, the project would be designed in compliance with seismic requirements of the CBC and the DSA criteria for seismic safety. Compliance with established standards would reduce the risk of structural collapse or other shaking-related hazards to a less than significant level.

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. According to the California Department of Conservation Data Viewer map, much of the City is susceptible to liquefaction because of its high water

⁵ A trace is a line on the earth's surface defining a fault.

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table. Therefore, the potential for liquefaction exists for Santiago High School. However, the proposed project would be designed in compliance with seismic requirements of the CBC and the DSA criteria for seismic safety, including from liquefaction impacts. Compliance with established standards would reduce the risk of liquefaction hazards to a less than significant level.

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 Santiago High School campus adjacent properties are flat and exhibit no unusual geographic features or slopes. In the absence of significant ground slopes, the potential for landslides is considered negligible. Furthermore, the California Department of Conservation does not map the campus within a landslide zone. The proposed light poles would not impact the stability of the adjacent soils by grading or excavation. The proposed project would be designed in compliance with seismic requirements of the CBC and the DSA criteria for seismic safety, and the proposed project would not result in significant safety impacts due to landslides. 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; a swimming pool; track; tennis courts; and turf baseball, practice, football, soccer, and softball fields. Implementation of the proposed project would require limited softscape and hardscape demolition to drill holes for the installation of the permanent light poles and trenching for the utilities. The areas to be disturbed would be approximately nine square feet per pole, with a total of 21 poles for Santiago High School. Therefore, the area disturbed for the project would be approximately 189 square feet. Utilities trenching would be approximately 18 inches wide and 24 inches deep and total about 0.12 to 0.18 acre. 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 since the light poles would be installed in compliance with the applicable seismic requirements of the CBC and DSA.

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

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facilities at Santiago High School 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. The City of Garden Grove and Santiago High School campus are in areas of recorded subsidence due to groundwater pumping (USGS 2022). However, 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.

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 soils on campus consist of Metz loamy sand, San Emigdio, Hueneme, Corralitos, and Riverwash. These are all well-drained sandy soils 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.

f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

Less Than Significant Impact With Mitigation Incorporated. Paleontological resources or fossils are the remains of ancient plants and animals that can provide scientifically significant information about the history of life on earth. Paleontological “sensitivity” is defined as the potential for a geologic unit to produce scientifically significant fossils. This sensitivity is determined by rock type, history of the geologic unit in producing significant fossils, and fossil localities that are recorded from that unit. The Santiago High School is anticipated to be underlain by Young Alluvial Fan Deposits (Qyf) from Holocene to Late Pleistocene (DOC 2022d). These younger Quaternary deposits typically do not contain significant fossils. Additionally, implementation of the proposed project would not require grading or excavation, and no unique geologic features would be impacted. However, soil borings to characterize soil types at the high school were not conducted, and the type of soils underlying the site have not been confirmed. Therefore, the potential for discovering paleontological resources remains if installation of the permanent light poles disturbs soils beyond previously disturbed artificial fill and the underlain sediments are older Quaternary deposits with some potential

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for discovery of paleontological resources. Therefore, a mitigation measure has been incorporated to reduce impacts to a less than significant level.

Mitigation Measures

GEO-1 A qualified paleontologist shall be on call in the event that paleontological resources are found during ground-disturbing activities. The paleontologist shall be equipped to salvage fossils as they are unearthed to avoid construction delays and to remove samples of sediments that are likely to contain the remains of small fossils. The paleontologist shall be empowered to temporarily halt or divert equipment to allow for the removal of abundant or large specimens in a timely manner.

3.8 GREENHOUSE GAS EMISSIONS

Issues	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
VIII. GREENHOUSE GAS EMISSIONS. Would the project:				
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?			X	
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?			X	

Scientists have concluded that human activities are contributing to global climate change by adding large amounts of heat-trapping gases, known as greenhouse gases (GHGs), into the atmosphere. The primary source of these GHG is fossil fuel use. The Intergovernmental Panel on Climate Change has identified four major GHGs—water vapor, carbon dioxide (CO₂), methane (CH₄), and ozone (O₃)—that are the likely cause of an increase in global average temperatures observed within the 20th and 21st centuries. The panel identified other GHGs that contribute to global warming to a lesser extent, such as nitrous oxide (N₂O), sulfur hexafluoride (SF₆), hydrofluorocarbons, perfluorocarbons, and chlorofluorocarbons.⁶

Information on manufacture of cement, steel, and other “life cycle” emissions that would occur as a result of the project are not applicable and are not included in the analysis.⁷ Black carbon emissions are not included in

⁶ Water vapor (H₂O) is the strongest GHG and the most variable in its phases (vapor, cloud droplets, ice crystals). However, water vapor is not considered a pollutant, but part of the feedback loop rather than a primary cause of change.

⁷ 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 (CNRA 2018). 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).

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the GHG analysis because the California Air Resources Board (CARB) does not include this short-lived climate pollutant in the state's Senate Bill 32 inventory but treats it separately.

Greenhouse gas emissions modeling is included in Appendix B, *Air Quality and Greenhouse Gas Emissions Assessment*, of this Initial Study. The modeling shown in Appendix B was performed for Rancho Alamitos High School, another high school within the District that would also include sports facilities lighting on its campus. As both projects would result in similar levels of construction and operations, the modeling is applicable to the proposed project at Santiago High School.

a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

Less Than Significant Impact.

Construction

Construction-related activities that would generate GHG emissions include worker commute trips, haul trucks carrying supplies and materials to and from the project site, and off-road construction equipment (e.g., dozers, loaders, excavators). Table 5, *Construction-Related Greenhouse Gas Emissions*, illustrates the specific construction generated GHG emissions that would result from construction of the Project. Once construction is complete, the generation of these GHG emissions would cease.

Table 5 Construction-Related Greenhouse Gas Emissions

Source	CO ₂ e (Metric Tons/ Year)
Construction Year One	91
SCAQMD Significance Threshold	3,000
Exceeds SCAQMD Threshold?	No

Source: ECORP 2022.
CalEEMod version 2020.4.0.

As shown in Table 5, the proposed project construction would result in the generation of approximately 91 metric tons of CO₂e over the course of construction. Once construction is complete, the generation of these GHG emissions would cease.

Operation

The proposed project would add competitive sports lighting to the athletic facilities at the high school. No additional school sports programs would be added, and therefore, the number of students and staff would remain the same. The project simply shifts existing student activities into evening hours. The proposed project is expected to capture trips that would have to travel to remote facilities once SB 328 takes effect if lighted facilities were not added at the school as proposed by the project. Capture of these trips would reduce GHG emissions associated with the new law, as vehicle miles traveled would not increase.

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Lighting of the athletic facilities on campus would provide additional recreational sources for the local population. While community use of these facilities during non-school hours would generate GHG travel-related emissions, these facilities represent infill development as they are located within communities, near existing residences and again, provide an opportunity to capture trips that now must travel to more distant athletic facilities. The operational GHG emissions would solely be generated from the lighting of the sports fields and would have a negligible contribution to existing conditions. Therefore, by its very nature, the proposed project would not generate quantifiable criteria GHG emissions from proposed project operations.

b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

Less Than Significant Impact. The State of California promulgates several mandates and goals to reduce statewide GHG emissions, including the goal to reduce statewide GHG emissions to 40 percent below 1990 levels by the year 2030 (SB 32) and 80 percent below 1990 levels by the year 2050 (Executive Order S-3-05). The proposed project is subject to compliance with SB 32. As discussed previously, the proposed project generated GHG emissions would not surpass GHG significance thresholds, which were prepared with the purpose of complying with these requirements. The 3,000 MTCO₂e threshold was prepared with the purpose of complying with statewide GHG-reduction efforts. Once implementation of the proposed project is complete it would contribute negligible to operational GHG emissions beyond current conditions.

3.9 HAZARDS AND HAZARDOUS MATERIALS

A hazardous material is defined as any material that, because of quantity, concentration, or physical or chemical characteristics, poses a significant present or potential hazard to human health and safety or to the environment if released into the workplace or the environment (Health and Safety Code § 25501(o)). The term “hazardous materials” refers to both hazardous substances and hazardous wastes. Under federal and state laws, any material, including wastes, may be considered hazardous if it is specifically listed by statute as such or if it is toxic (causes adverse human health effects), ignitable (has the ability to burn), corrosive (causes severe burns or damage to materials), or reactive (causes explosions or generates toxic gases).

Hazardous wastes are hazardous substances that no longer have a practical use, such as materials that have been spent, discarded, discharged, spilled, contaminated, or are being stored until they can be disposed of properly (22 CCR Section 66261.10). Soil that is excavated from a site containing hazardous materials is a hazardous waste if it exceeds specific criteria in CCR Title 22.

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Issues	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
IX. 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?				X
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?				X
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?			X	
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code § 65962.5 and, as a result, would it create a significant hazard to the public or the environment?				X
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?				X
f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?			X	
g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?			X	

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. No routine transport, use, or disposal of hazardous materials currently occurs on-site, and no new or expanded handling of hazardous materials would result from project implementation. 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.

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- 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 sports lighting facilities 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 of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?**

No Impact. The Santiago High School is outside of any airport influence area. The nearest airport to the campus is the John Wayne Airport, located approximately 6.4 miles southeast of the project site. The John Wayne Airport's influence area is restricted to within the immediate surroundings of the airport and does not extend near Garden Grove or the project site. The proposed project would not interfere with inbound or

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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. The parking lot on campus would be open for community members to park their vehicles while they use the sports facilities, thereby ensuring that surrounding roadways and site access are not impaired. 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. Santiago High School is not in or near a very high fire hazard severity zone (FHSZ) on the California Department of Forestry and Fire Protection’s (CAL FIRE) FHSZs map (CAL FIRE 2022). Installation of sports lighting at the existing athletic fields would not change the existing school boundaries to place the sports facilities or students any closer to wildland fires. Impacts would be less than significant.

3.10 HYDROLOGY AND WATER QUALITY

Issues	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
X. 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?			X	
b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?				X
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:			X	
i) result in a substantial erosion or siltation on- or off-site;			X	
ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;			X	
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; or			X	

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Issues	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
iv) impede or redirect flood flows?			X	
d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?				X
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?				X

h) 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 189 square feet (9 square feet x 21 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 permanent light poles are drilled, they would be cured with concrete, so soil erosion and sediment impacts would be minimized. Utilities trenching would also be temporary and limited. 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 189 square feet). Impacts would be less than significant.

i) 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 Santiago 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.

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- j) **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—tennis courts; swimming pool; track; and football, baseball, softball, soccer, and practice fields—that are subject to imperceptible urban erosion and siltation. The areas disturbed by the proposed project would be limited to 21 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— tennis courts; swimming pool; track; and football, baseball, softball, soccer, and practice fields. The areas impacted by the proposed project would be limited to 21 poles. Considering that each pole with concrete base would impact approximately 9 square feet, the proposed project would result in an additional 189 square feet (9 square feet x 21 poles). Assuming that the tennis courts are already covered by impervious surfaces, the actual softscape areas to be developed with light poles would be less than 189 square feet. 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 21 poles. Considering that each pole's concrete base would impact approximately 9 square feet, the proposed project would result

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in an additional 189 square feet (9 square feet x 21 poles) of impervious areas. Assuming that the tennis courts are already covered by impervious surfaces, the actual softscape areas that would be developed with light poles would be less than 189 square feet. 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 sport facilities at Santiago High School would not create additional sources of polluted runoff. Impacts would be less than significant.

iv) Impede or redirect flood flows?

Less Than Significant Impact. Santiago High School is within Flood Zone A (FEMA Map ID# 06059C0143J) (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.

k) 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. Santiago High School is not within a dam inundation area (CDWR 2022). Furthermore, the proposed project would serve the existing sports programs and would not expose more people or structures to potential inundation impacts. As discussed in Section 3.10(c)(ii), the proposed project would not increase the rate or amount of surface runoff in a manner that would result in flooding on- or off-site. Additionally, the campus is 9.6-miles north of the Pacific Ocean and would not increase the risk of exposure to a tsunami. The proposed project would not increase the risk of releasing pollutants due to project inundation. No impact would occur.

l) 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.

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3.11 LAND USE AND PLANNING

Issues	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
XI. LAND USE AND PLANNING. Would the project:				
a) Physically divide an established community?				X
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?				X

a) Physically divide an established community?

No Impact. The proposed project would occur within the boundaries of an 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. No land use changes would occur. The addition of lighting would not conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect.

3.12 MINERAL RESOURCES

Issues	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
XII. 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?				X
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?				X

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:

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- **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 Santiago High School is located is mapped within an MRZ-3 (DOC 2022e). Although Santiago High School is in an area where mineral deposits are likely to exist, this site is an existing high school, and no mineral resources are being extracted. 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. Although Santiago High School is located within an MRZ-3 where there could be mineral resources, this 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.

3.13 NOISE

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. Based on these known adverse effects of noise, the federal, state, and city governments have established criteria to protect public health and safety and to prevent the disruption of certain human activities, such as classroom instruction, communication, or sleep. Additional information on noise and vibration fundamentals and applicable regulations are contained in Appendix C.

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Issues	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
XIII. NOISE. Would the project result in:				
a) 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?			X	
b) Generation of excessive groundborne vibration or groundborne noise levels?			X	
c) 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, would the project expose people residing or working in the project area to excessive noise levels?				X

Existing Noise Environment

Sensitive Receptors

Certain land uses are particularly sensitive to noise and vibration. These uses include residences, schools, hospital facilities, houses of worship, and open space/recreation areas where quiet environments are necessary for the enjoyment, public health, and safety of the community. The nearest sensitive receptors to the project site are residences adjacent to the south and residences to the north across the Wintersburg Channel.

Ambient Noise Measurements

To determine baseline noise levels in the project area, ambient noise monitoring was conducted by PlaceWorks on Monday, April 25, 2022. Three short-term (15-minute) measurements were made during the weekday in the evening hours of 6:45 pm and 8:00 pm in the vicinity of the project site. Meteorological conditions during the measurement periods were favorable for outdoor sound measurements and were noted to be typical for the season. With average winds up to 3 mph and temperatures of 80 to 76 degrees Fahrenheit.

The sound level meter used (Larson Davis LxT) for noise monitoring satisfied the American National Standards Institute (ANSI) standard for Type 1 instrumentation. The sound level meter was set to “slow” response and “A” weighting (dBA). The meter was calibrated prior and after the monitoring period. All measurements were at least five feet above the ground and away from reflective surfaces. The results of the short-term noise monitoring are summarized in Table 6, *Short-Term Noise Measurement Summary*. The noise measurement location is shown in Figure 10, *Approximate Noise Monitoring Locations*.

- **Short-Term Location 1 (ST-1)** was conducted onsite, behind 12152 Mallard Drive (residence). A 15-minute noise measurement took place beginning at 6:46 pm on Monday, April 25, 2022. The noise environment is primarily characterized by traffic from SR-22. Traffic noise generally ranged from 54 to 59 dBA.

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- **Short-Term Location 2 (ST-2)** was conducted onsite, behind 13741 Gunther Street (residence). A 15-minute noise measurement took place beginning at 7:10 pm on Monday, April 25, 2022. The noise environment is primarily characterized by traffic from SR-22. Traffic noise generally ranged from 56 to 58 dBA. Secondary noise sources including dogs barking and aircraft overflights which both measured up to 62 dBA.
- **Short-Term Location 3 (ST-3)** was conducted onsite, behind 13762 Harper Street (residence). A 15-minute noise measurement took place beginning at 7:33 pm on Monday, April 25, 2022. The noise environment is primarily characterized by traffic from SR-22 and bird singing. Traffic noise generally ranged from 52 to 53 dBA and bird singing noise levels ranged from 58 to 62 dBA. Secondary noise sources included dogs barking and aircraft overflights with noise levels ranging from 57 to 61 dBA.

Table 6 Short-Term Noise Measurement Summary

Monitoring Location	Description	15-minute Noise Level, dBA						
		Leq	Lmax	Lmin	L2	L8	L25	L50
ST-1	behind 12152 Mallard Drive 04/25/2022, 6:46 pm	56.6	62.1	53.0	59.0	58.0	57.2	56.4
ST-2	behind 13741 Gunther Street 04/25/2022, 7:10 pm	57.7	76.8	54.0	61.2	58.7	57.4	56.4
ST-3	behind 13762 Harper Street 04/25/2022, 7:33 pm	52.9	63.0	48.9	58.7	56.0	52.7	51.6

Figure 10 - Approximate Noise Monitoring Locations



-  School Boundary
-  Short-Term Noise Measurement Locations (3)



Source: Nearmap, 2022

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Applicable Standards

City of Garden Grove

The City of Garden Grove Municipal Code Chapter 8.47, Noise Control, provides community-wide noise standards. Section 8.47.040, Ambient Base Noise Levels, provides presumed ambient base noise levels (exterior noise standards) for different land use designations. However, when the measured ambient noise level exceeds the presumed ambient, the measured ambient shall become the new baseline ambient (new exterior noise standard). For residential uses, the presumed ambient is 55 dBA between 7:00 am to 10:00 pm and 50 dBA from 10:00 pm to 7:00 am. However, Section 8.47.070 exempts community activities including school bands and athletic events from the noise code.

Federal Transit Administration

The City of Garden Grove does not have quantified limits for construction noise and vibration. Therefore, to determine impact significance, the following Federal Transit Administration (FTA) criteria are used in this analysis.

A construction noise or vibration impact would occur if:

- Project construction activities would generate noise levels greater than 80 dBA L_{eq} at the residential property line.
 - Vibration levels would exceed 0.20 inches/second (in/sec) peak particle velocity (PPV) at the façade of a non-engineered structure (e.g., wood-frame residential).
- a) **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?**

Less Than Significant Impact. 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.

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 temporary.

Construction Equipment

Existing uses surrounding the project site would be exposed to temporary construction noise. 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-

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needed basis, such as where concrete would have to be removed to install a light pole. Neither blasting nor pile-driving techniques would be required.

The District proposes to install the temporary lights in July of 2022 and begin use in August of 2022. Construction associated with the installation of the permanent lights is anticipated to take about six months and is scheduled to start on March 1, 2023, and finish by August 30, 2023. Permanent lighting is proposed at the tennis courts, baseball field, softball field, and the soccer practice field. A total of 21 light poles— seven 60-foot poles, nine 70-foot poles, and five 80-foot poles would be installed. The light pole locations are shown on Figure 7, *Lighting Plan*.

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.

The noise produced at each activity is dominated by the loudest piece of equipment needed for light pole installation. Construction noise quite often exhibits a high degree of variability because factors such as noise attenuation due to distance, type of equipment, and the load and power requirements to accomplish tasks result in different noise levels at a given sensitive receptor. Some heavy-duty equipment can have maximum, short-duration noise levels of 85 dBA L_{eq} at 50 feet. Construction noise impacts at sensitive receptors are determined based on loudness and noise exposure duration at a sensitive receptor.

Offsite 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 and 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. It is assumed that workers will drill and set the base of other light pole locations while cement cures.

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. Table 7, *Project-Related Construction Noise dBA L_{eq}* , shows the approximate noise levels at the nearest sensitive receptors to proposed light poles.

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Table 7 Project-Related Construction Noise dBA L_{eq}

Equipment	RCNM Reference	Residences to South	Residences to the North
<i>Distance in feet</i>	50	35	140
Drill Rig	77	80	68
<i>Distance in feet</i>	50	120	NA
Concrete Saw	83	75	NA
Maximum Noise Level at Receptors		80	68
Exceed 80 dBA L_{eq} Threshold?		No	No
Source: RCNM NA = Not Applicable			

Construction noise as mentioned above would be short-term and occur only during the first and last day of light pole installation. In addition, as shown in Table 2, construction noise levels would not exceed 80 dBA L_{eq} at the nearest off-site noise sensitive receptors. Therefore, construction noise impacts would be less than significant.

On-Site Receptors

There are two proposed light pole within 50 feet of non-administrative school buildings. As mentioned above, the loudest pieces of equipment would be between 77 and 83 dBA L_{eq} at 50 feet. Though construction noise would temporarily elevate interior noise levels at the nearest classrooms, elevated noise levels would be limited to the first and last day of light pole installation. Therefore, temporary construction noise would not substantially interfere with the learning environment. On-site construction noise impacts would be less than significant.

Operational Stationary Noise

Outdoor Playfields

All student activities are proposed to end by 6:30 pm and no new sports programs are proposed. As with the existing conditions, the newly lit athletic facilities would be available for use by community groups after school hours when the facilities are not in use by students and during weekends (as provided by the District's use policy under the Civic Center Act). However, the shifting of the school schedule could result in an ambient noise increase during the winter months where the light poles would be used after dark as late as 6:30 pm, when all student activities are scheduled to end. Any approved community use of the playfields would end no later than 9:00 pm. All activities would still take place during the daytime hours of 7:00 am to 10:00 pm, as defined in Chapter 8.47 of the Garden Grove Municipal Code and no installation of public address system or speakers is proposed.

PlaceWorks staff have collected noise measurement data at various sports fields. Noise levels for various playfields (soccer, tennis, softball, and baseball) vary between 49 and 60 dBA L_{eq} at 50 feet (see Table 8, *Project-Related Recreational Noise*). The nearest noise sensitive receptors to the existing playfields range between 80 and 210 feet. As shown in Table 8, noise levels could potentially exceed the City of Garden Grove daytime exterior noise standard of 55 dBA at the residences south of the softball field by 1 dBA. However, the ambient noise

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monitoring results indicates that the existing ambient at the southern residences is 58 dBA L_{eq} . The project would not elevate noise levels above existing conditions. Therefore, impacts would be less than significant.

Table 8 Project-Related Recreational Noise

Noise Source	Noise Level at 50 Feet dBA L_{eq}	Nearest Receptors (Residences)	Attenuated Noise Level at Receptors dBA L_{eq}
Softball/Baseball	60	80 feet to south	56
Tennis Courts	52	120 feet to south	44
Soccer	49	100 feet to south	43
Football ¹	60	210 feet to north	48

¹ Softball/Baseball noise levels assigned to football practices as noise levels would be similar.

Traffic Noise

As mentioned above, the proposed lighting project would not result in an increase of in students, but the extended hours could result in additional trips from community groups after school hours. However, these trips would be minimal and would not substantially increase the overall existing daily traffic. Therefore, the project would not result in a substantial CNEL noise increase. Traffic noise impacts would be less than significant.

b) Generation of excessive groundborne vibration or groundborne noise levels?

Less Than Significant Impact. 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.

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 9, *Vibration Impact Levels for Typical Construction Equipment*, shows typical construction equipment vibration levels at a reference distance of 25 feet and estimated vibration levels at the nearest sensitive receptors to the south at approximately 35 feet. Proposed light pole locations are shown in Figure 7, *Lighting Plan*. At 35 feet, construction vibration levels would be up to 0.054 in/sec PPV, which would not exceed the threshold of 0.20 in/sec PPV. Therefore, construction vibration impacts would be less than significant.

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Table 9 Vibration Impact Levels for Typical Construction Equipment

Equipment	Reference Levels at 25 Feet (in/sec PPV)	Residences at 35 Feet South ¹ (in/sec PPV)
Large Bulldozer	0.089	0.054
Caisson Drilling	0.089	0.054
Loaded Trucks	0.076	0.046
Jackhammer	0.035	0.021
Small Bulldozer	0.003	0.002

Source: FTA 2018.\

In/sec PPV = inches per second peak particle velocity

¹ As measured from the edge of construction site using Google Earth Pro.

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.

- c) 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, would the project expose people residing or working in the project area to excessive noise levels?

No Impact. The nearest airport to the project site is the John Wayne Airport approximately 6.2 miles to the southeast. There are no airports or private airstrips within 2 miles of the project site. The project would not expose people working in the project area to excessive noise levels. There would be no impact.

3.14 POPULATION AND HOUSING

Issues	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
XIV. 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)?				X
b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?				X

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- 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 proposed project would be served by existing roads and other infrastructure. No new roads, expanded utility lines, or housing would be constructed or required as part of the project. The proposed project would serve students already living in the area. 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.

3.15 PUBLIC SERVICES

Issues	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
XV. PUBLIC SERVICES. Would the project:				
a) Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:				
Fire protection?			X	
Police protection?			X	
Schools?				X
Parks?			X	
Other public facilities?				X

- a) **Fire protection?**

Less Than Significant Impact. The Orange County Fire Authority (OCFA) provides fire and emergency medical services to the City of Garden Grove, including Santiago High School. The nearest OCFA stations to Santiago High School is the OCFA Fire Station 83, which 0.19-mile west of the high school.

The proposed project is intended to extend usable hours of the existing sports facilities by installing lighting so that existing sports programs are not impacted by the passage of SB 328, which requires high schools to start no earlier than 8:30 am. Therefore, the proposed project would not increase enrollment or capacity of Santiago 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

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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. Santiago High School and surrounding areas are already served by existing police 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 Garden Grove 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 athletic facilities 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.

3.16 RECREATION

Issues	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
XVI. RECREATION.				
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?				X
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?			X	

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- 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 District sports facilities by installing nighttime sports lighting at Santiago 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 Santiago High School. Physical effects of providing sports lighting are addressed throughout this Initial Study. 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 Initial Study, the proposed project would not result in adverse physical effect on the environment with mitigation. No other mitigation measures are required.

3.17 TRANSPORTATION

Issues	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
XVII. TRANSPORTATION. Would the project:				
a) Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?			X	
b) Conflict or be inconsistent with CEQA Guidelines § 15064.3, subdivision (b)?			X	
c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?				X
d) Result in inadequate emergency access?			X	

- a) **Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?**

Less Than Significant Impact. Construction of the proposed project would entail large construction equipment, transportation of equipment to and from the construction sites, and worker vehicles. However, construction traffic would be temporary, and all construction activity and staging areas would occur within the

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existing campus of Santiago High School. Therefore, the proposed project would not obstruct traffic lanes or have any long-term effects on the circulation system.

At project completion, the proposed project would allow existing athletic programs to continue without interruption even with the later start school hours. The proposed project would mainly serve students already on campus, and the new lights would allow students to participate in practices and games after daylight hours. No new student programs or uses are proposed with the newly lit sports facilities at the high school, and no increase in participants or attendance are anticipated. No roadways, transit system, or bicycle and pedestrian facilities would be impacted by the proposed project. Therefore, the proposed project would not conflict with any programs, plans, ordinances, or policies addressing the circulation system. Impacts would be less than significant.

b) Conflict or be inconsistent with CEQA Guidelines § 15064.3, subdivision (b)?

Less Than Significant Impact. CEQA Guidelines section 15064.3 eliminates auto delay, LOS, and similar measures of vehicular capacity or traffic congestion as the basis for determining significant impacts:

Generally, vehicle miles traveled is the most appropriate measure of transportation impacts. For the purposes of this section, “vehicle miles traveled” refers to the amount and distance of automobile travel attributable to a project. Other relevant considerations may include the effects of the project on transit and non-motorized travel. Except as provided ... (regarding roadway capacity), a project’s effect on automobile delay shall not constitute a significant environmental impact.

The proposed lighting would not increase student use of the athletic facilities but would simply shift these activities to later in the day. This shift in time would not increase vehicle miles traveled (VMT).

Lighting of the athletic fields on campus would provide additional recreational resources for the local population. The area is short of parkland and recreation facilities, as shown in Figure 4.12-3 of the Garden Grove Focused General Plan Update and Zoning Amendments DEIR, and the enhanced campus facilities presents the potential to capture trips that now must travel to remote facilities (Garden Grove 2021). The ability to capture trips for local residents is consistent with the City’s General Plan policies related to both parks and recreation, and transportation. The project site is located within a Transit Priority Area, as shown in Figure 4.14-6 of the Garden Grove Focused General Plan Update and Zoning Amendments DEIR, and its impact is beneficial from a VMT efficiency perspective (Garden Grove 2021). Therefore, impacts would be less than significant.

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

Less Than Significant Impact. The proposed project would occur within the existing high school boundaries and would not modify the existing on- or off-site circulation systems. No new land uses would be created that could potentially increase or impact any design features of the existing high school facilities. All construction

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staging would also occur within the existing school boundaries. No sharp curves or dangerous intersections would be created due to project implementation. Impacts would be less than significant.

d) Result in inadequate emergency access?

Less Than Significant Impact. The proposed project would not result in inadequate emergency access. The proposed project would accommodate existing sports programs at Santiago high school and would not increase attendance by participants or spectators from existing conditions. The proposed project would allow practices and games to start later and end later, and no modification to layout or configuration of the existing sports facilities or emergency access would occur. These sports lights are programmable and light would be provided after the end of events to allow safe exit.

Community access to these athletic facilities outside of school hours and on weekends would be through Trask Avenue. As shown in Figure 8, *Santiago High School Community Access*, parking would be provided in the parking lot and community members would access the sports facilities through the gate in this lot. As such, community members would not need to park on adjacent streets as this parking lot provides the closest and most direct access to the sports facilities. Community use of these facilities is controlled by District policy under the Civic Center Act. Impacts would be less than significant.

3.18 TRIBAL CULTURAL RESOURCES

Issues	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
XVIII. TRIBAL CULTURAL RESOURCES.				
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				X
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.		X		

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- a) **Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 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 at the existing athletic facilities at the Santiago High School. 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 (Garden Grove 2021). 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 section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.**

Less Than Significant Impact With Mitigation Incorporated. 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. Furthermore, the proposed project would result in minimal ground disturbance and excavation at the project site which currently operates as an existing high school.

The high school is not identified as historically significant in a California Register of Historic Resources or meets any of the criteria for listing in the National Register of Historic Places. The proposed project would install 21 light poles at the high school, and each pole would disturb about 9 square feet of area. Therefore, approximately 189 square feet of areas within the existing sports facilities would be disturbed. Additionally, approximately 18-inch-wide and 24-inch-deep utilities trenching would be necessary to provide connection from the poles to electrical panels. Because the campus has already been developed, the utilities trenching would occur within the artificial fill layer of the soil and would not disturb native soils that may contain tribal cultural resources. However, although the likelihood of discovering tribal cultural resources is minimal, the potential for discovering previously unidentified subsurface tribal cultural resources exists. Therefore, a mitigation measure has been incorporated to reduce impacts to a less than significant level.

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Mitigation Measures

TCR-1 Prior to any ground disturbing construction activities, the Garden Grove Unified School District (District) shall retain a Native American monitor. The tribal monitor shall only be present on-site during the construction phases that involve ground-disturbing activities. Ground-disturbing activities are defined as activities that may include, but are not limited to, pavement removal, potholing or auguring, grubbing, tree removals, boring, grading, excavation, drilling, and trenching within the project area. The tribal monitor will complete daily monitoring logs that will provide descriptions of the day's activities, including construction activities, locations, soil, and any cultural materials identified. The on-site monitoring shall end when the grading and excavation activities are completed or when the tribal representatives and monitor have indicated that the project site has a low potential for affecting tribal cultural resources.

Upon discovery of any tribal cultural resources, construction activities shall cease in the immediate vicinity of the find until the tribal monitor can assess the find. The evaluation of all tribal cultural resources unearthed by project construction activities shall be evaluated by a qualified archaeologist and/or tribal monitor. If the resources are Native American in origin, the tribal monitor shall coordinate with the District regarding treatment and curation of these resources as well as notifying local tribes of the find. Typically, the tribe(s) will request reburial or preservation for educational purposes. The District may continue work on other parts of the project site while evaluation and, if necessary, mitigation takes place (CEQA Guidelines Section 15064.5[f]). If the tribal monitor determines a resource to constitute a "historical resource" or "unique archaeological resource," time and funding sufficient to allow for implementation of avoidance measures or appropriate mitigation must be available. The treatment plan established for the resources shall be in accordance with CEQA Guidelines Section 15064.5(f) for historical resources and Public Resources Code Section 21083.2(b) for unique archaeological resources. If preservation in place is not feasible, treatment may include implementation of archaeological data recovery excavations to remove the resource along with subsequent laboratory processing and analysis. The District shall be responsible for ensuring that a public, nonprofit institution with a research interest in the materials, such as the Natural Museum of Los Angeles County or the Fowler Museum, curate any historic archaeological material that is not Native American in origin if such an institution agrees to accept the material. If no institution accepts the archaeological material, the District shall offer it to a local historical society for educational purposes or retain the material and use it for educational purposes.

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3.19 UTILITIES AND SERVICE SYSTEMS

Issues	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
XIX. UTILITIES AND SERVICE SYSTEMS. Would the project:				
a) 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?			X	
b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?				X
c) Result in a determination by the waste water 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?				X
d) 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?			X	
e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?			X	

- a) **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 Garden Grove Water Services Division provides water services to the city, including the Santiago High School campus. The proposed project involves installation of sports lighting to existing athletic facilities within the footprint of the existing Santiago 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 Garden Grove Water Services Division also provides wastewater collection and treatment services to the city, including Santiago High School. The project site is part of an existing high school 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.

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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 Santiago High School would not result in substantial increase of impervious surfaces at existing campuses. A total of 21 poles would be installed at athletic facilities on the campus, and each pole would cover approximately nine square feet. Assuming that light poles on the tennis courts would be installed on hardscapes, the increase in impervious surfaces due to installation of light poles would be negligible⁸ 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. The proposed project would require connecting to existing and new electric power infrastructure for operation. Trenching for power lines would be necessary to connect to existing electrical facilities within the campus. 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. However, if necessary, there are available SoCalGas lines to connect to because the site is already developed and operating as a high school. 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.

⁸ 9 square feet per pole x 21 poles = 189 square feet.

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- b) 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.

- c) Result in a determination by the waste water 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.

- d) 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 the existing Santiago 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.

- e) 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.

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3.20 WILDFIRE

Issues	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
XX. WILDFIRE. If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:				
a) Substantially impair an adopted emergency response plan or emergency evacuation plan?			X	
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?			X	
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?			X	
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?			X	

a) Substantially impair an adopted emergency response plan or emergency evacuation plan?

Less Than Significant Impact. Santiago High School is not in or near a very high fire hazard severity zone (FHSZ) on the California Department of Forestry and Fire Protection’s (CAL FIRE) FHSZs map (CAL FIRE 2022). Furthermore, installation of sports lighting at existing athletic facilities at Santiago 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. Santiago High School is not in or near a very high FHSZ (CAL FIRE 2022). Installation of sports lighting at existing athletic fields 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.

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- 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. Santiago High School is not in or near a very high FHSZ (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. Santiago High School is not in or near a very high 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.

3.21 MANDATORY FINDINGS OF SIGNIFICANCE

Issues	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
XXI. MANDATORY FINDINGS OF SIGNIFICANCE.				
a) Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?			X	
b) Does the project have the potential to achieve short-term environmental goals to the disadvantage of long-term environmental goals?			X	
c) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)			X	
d) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?			X	

- a) **Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to**

3. Environmental Analysis

drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?

Less Than Significant Impact. As discussed under Section 3.4, *Biological Resources*, the proposed project would not degrade the quality of the environment or substantially reduce the habitat of a fish or wildlife species. The project site does not contain a sensitive plant or animal community. As discussed under Section 3.5, *Cultural Resources*, and Section 3.7, *Geology and Soils*, the project site has been disturbed previously, and considering the limited scale of the proposed project, adverse impacts to buried archaeological resources and/or fossils are not anticipated. However, a customary caution and a halt-work during earth-disturbing activities measure has been incorporated as a mitigation measure to further ensure that impacts are less than significant (see Mitigation Measure CUL-1 and Mitigation Measure GEO-1). Additionally, a tribal monitor would monitor earth-disturbing activities as part of mitigation (see Mitigation Measure TCR-1).

b) Does the project have the potential to achieve short-term environmental goals to the disadvantage of long-term environmental goals?

Less Than Significant Impact. As discussed through this Initial Study, without mitigation, the proposed project would not have short-term and/or long-term environmental impacts except during earth-disturbing activities for archaeological, paleontological, and tribal cultural resources impacts. With implementation of the mitigation measures, the short-term construction impact would also be reduced to a less than significant level. Therefore, the proposed project would not result in failure to achieve short-term or long-term environmental goals. Impacts would be less than significant with mitigation incorporated.

c) Does the project have impacts that are individually limited, but cumulatively considerable? (“Cumulatively considerable” means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)

Less Than Significant Impact. A cumulative impact could occur if the project would result in an incrementally considerable contribution to a significant cumulative impact in consideration of past, present, and reasonably foreseeable future projects for each resource area. Because the proposed project would accommodate existing sports programs within the boundaries of the existing high school campus, the impacts would be limited to short-term construction, and would not be cumulatively considerable. Impacts would be less than significant.

d) Does the project have environmental effects, which will cause substantial adverse effects on human beings, either directly or indirectly?

Less Than Significant Impact. The project would comply with applicable local, state, and federal laws governing general welfare and environmental protection. The implementation of required mitigation measures specified in this Initial Study would reduce impacts to less than significant for cultural, paleontological, and tribal cultural resources. Project impacts on human beings, either directly or indirectly, would be less than significant.

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