

September 2024 | Initial Study and Mitigated Negative Declaration

# PAAKUMA PARK SPORTS LIGHTING PROJECT

San Bernardino City Unified School District

*Prepared for:*

**San Bernardino City Unified School District**  
Contact: Thomas Pace, Director  
SBCUSD - Facilities Planning and Development  
956 W. 9th Street  
San Bernardino, California 92411  
tom.pace@sbcusd.k12.ca.us

*Prepared by:*

**PlaceWorks**  
Contact: Malia Durand, Associate Principal  
3 MacArthur Place, Suite 1100  
Santa Ana, California 92707  
714.966.9220  
info@placeworks.com  
www.placeworks.com





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## Abbreviations and Acronyms

°C	degrees Celsius
AAQS	ambient air quality standards
AB	Assembly Bill
ADT	average daily trips/traffic
AFY	acre-feet per year
APN	Assessor's Parcel Number
AQMP	air quality management plan
BMP	best management practice
CAL FIRE	California Department of Forestry and Fire Protection
CALGreen	California Green Building Standards Code
Cal/OSHA	California Occupational Safety and Health Administration
Caltrans	California Department of Transportation
CARB	California Air Resources Board
CBC	California Building Code
CDE	California Department of Education
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CGS	California Geological Survey
CH <sub>4</sub>	methane
CIF	California Interscholastic Federation
CO	carbon monoxide
CO <sub>2</sub>	carbon dioxide
CO <sub>2</sub> e	carbon dioxide equivalent
dB	decibel
dba	A-weighted decibel
DOC	Department of Conservation
DSA	Division of the State Architect
DTSC	Department of Toxic Substances Control
EIR	environmental impact report
EOP	Emergency Operations Plan
EPA	United States Environmental Protection Agency
FC	foot-candle
FEMA	Federal Emergency Management Agency

## Abbreviations and Acronyms

FHWA	Federal Highway Administration
FMMP	Farmland Mapping and Monitoring Program
FTA	Federal Transit Administration
GHG	greenhouse gas
I-	Interstate
IEPR	Integrated Energy Policy Report
IPCC	Intergovernmental Panel on Climate Change
L <sub>dn</sub>	day-night noise level
L <sub>eq</sub>	equivalent continuous noise level
LED	light-emitting diode
LOS	level of service
LRA	local responsibility area
LST	localized significance thresholds
MBTA	Migratory Bird Treaty Act
mgd	million gallons per day
MMRP	Mitigation Monitoring and Reporting Program
MND	mitigated negative declaration
MT	metric ton
N <sub>2</sub> O	Nitrous oxide
NAHC	Native American Heritage Commission
ND	Negative Declaration
NO <sub>x</sub>	nitrogen oxides
NPDES	National Pollution Discharge Elimination System
O <sub>3</sub>	ozone
OSHA	Occupational Safety and Health Administration
PM	particulate matter
RWQCB	Regional Water Quality Control Board
SB	Senate Bill
SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
SCE	Southern California Edison
SoCAB	South Coast Air Basin
SoCalGas	Southern California Gas Company

## Abbreviations and Acronyms

SO <sub>x</sub>	sulfur oxides
SR-	State Route
SRA	source receptor area [or state responsibility area]
SWRCB	State Water Resources Control Board
TAC	toxic air contaminant
USDA	United States Department of Agriculture
USDOT	United States Department of Transportation
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
UWMP	urban water management plan
VdB	velocity decibels
VHFHSZ	very high fire hazard severity zone
VMT	vehicle miles traveled
VOC	volatile organic compound
WRD	Water Replenishment District of Southern California

# 1. Introduction

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## 1.1 PROJECT OVERVIEW

The San Bernardino City Unified School District (District) proposes to install new lighting on the existing baseball and softball fields at Paakuma Park (Paakuma Park Sports Lighting Project; project). Currently, the baseball and softball fields do not have lighting for evening uses.

In compliance with the California Environmental Quality Act (CEQA), the District, as lead agency, is preparing the environmental documentation for the proposed project to determine if implementation and associated discretionary actions would have a significant impact on the environment. As defined by Section 15063 of the CEQA Guidelines, an initial study (IS) is prepared primarily to provide the lead agency with information to use as the basis for determining whether an environmental impact report (EIR), negative declaration (ND), or mitigated negative declaration (MND) would provide the necessary environmental documentation and clearance for the proposed project. This IS has been prepared to support the adoption of an MND.

## 1.2 PURPOSE OF CEQA AND THE INITIAL STUDY

CEQA (Public Resources Code Section 21000 et seq.) requires that before a lead agency<sup>1</sup> makes a decision to approve a project that could have one or more adverse effects on the physical environment, the agency must inform itself about and consider the project's potential environmental impacts, inform members of the public about the project's potential environmental impacts and provide them an opportunity to comment on the environmental issues, and take feasible measures to avoid or reduce potential harm to the physical environment.

The District—in its capacity as lead agency pursuant to CEQA Guidelines Section 15050—is responsible for preparing environmental documentation in accordance with CEQA to determine if approval of the discretionary actions and subsequent development associated with the proposed project would have a significant impact on the environment. As part of the project's environmental review, the District authorized preparation of this IS in accordance with the provisions of CEQA Guidelines Section 15063. Pursuant to Section 15063, purposes of an IS are to:

- Provide the lead agency information as the basis for deciding whether to prepare an EIR or ND.
- Enable an applicant or lead agency to modify a project, mitigating adverse impacts before an EIR is prepared, thereby enabling the project to qualify for an ND.
- Assist in the preparation of an EIR, if one is required.

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<sup>1</sup> Pursuant to Public Resources Code Section 21067, lead agency refers to the public agency that has the principal responsibility for carrying out or approving a project that may have a significant effect on the environment.

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- Facilitate environmental assessment early in the design of a project.
- Provide documentation of the factual basis for the finding in an ND that a project will not have a significant effect on the environment.
- Eliminate unnecessary EIRs.
- Determine whether a previously prepared EIR could be used with the project.

As further defined by Section 15063, an IS is prepared to provide the District with information as the basis for determining whether an EIR, ND, or MND would be appropriate for providing the necessary environmental documentation and clearance for the proposed project.

In its preparation of this document, the District determined that the IS supports the adoption of an MND. An MND is a written statement by the lead agency that briefly describes why a project that is not exempt from the requirements of CEQA will not have a significant effect on the environment and therefore does not require preparation of an EIR (CEQA Guidelines Section 15371). The CEQA Guidelines require preparation of an MND if the IS prepared for a project identifies potentially significant effects, but 1) revisions in the project plans or proposals made by, or agreed to by the applicant before a proposed MND and IS are released for public review would avoid the effects or mitigate the effects to a point where clearly no significant effects would occur; and 2) there is no substantial evidence, in light of the whole record before the lead agency, that the project may have a significant effect on the environment (CEQA Guidelines Section 15070[b]).

The District has considered the information in this IS in its decision-making processes. Although the IS was prepared with consultant support, the analysis, conclusions, and findings made as part of its preparation fully represent the independent judgment and analysis of the District.

### 1.3 PROJECT LOCATION

The project is located at 17875 Sycamore Creek Loop Parkway (Assessor Parcel Numbers [APNs] 111601213 and 111601214), in unincorporated San Bernardino County (project site). The proposed project site is situated within the 7.93-acre Paakuma Park (Park) and on a 0.94-acre portion of the Paakuma K–8 School site. Although the total project site is 8.87 acres, the proposed project impact area (PIA) or area proposed for disturbance is only 0.31 acre. This unincorporated area of San Bernardino County is surrounded by the City of San Bernardino to the east, the City of Rialto to the south, the City of Fontana to the west, and the Angeles National Forest to the north. The project site is approximately one mile to the southeast of Interstate (I) 15 and approximately four miles northeast of I-215. See Figure 1, Regional Location.

Sycamore Creek Loop Parkway traverses the northern boundary of the project site, Clove Way lies to the east, and single-family residences border the project site to the south and west (Figure 2, Local Vicinity).

## 1.4 ENVIRONMENTAL SETTING

### 1.4.1 Existing Land Use

The Park and Paakuma K–8 School site are owned by the District (Figure 3, Site Plan Location with APNs). The Park is used by the Paakuma K–8 School students and the public. The northern portion of the Park includes a parking lot, a playground, a covered seating area with picnic benches and a restroom, and two half-court basketball courts. The eastern portion of the Park consists of two baseball/softball fields and includes fencing surrounding the baseball/softball fields, dugouts, walkways, trees, landscaping, and benches. The southern portion of the Park includes two soccer fields, a block wall, and landscaping. The western portion of the Park includes an open grass field, walkways, landscaping, and fencing. The soccer fields, baseball/softball fields, and open grass field are enclosed with wrought iron fencing and include wrought iron gates that limit access.

The eastern side of the Park contains two baseball/softball fields, dugouts, benches, lighting, walkways, fencing, gates, landscaping, and trees. The soccer fields are on the western side of the Park.

The 0.94-acre District-owned eastern portion of the school site consists of classrooms, electrical rooms, concrete walkways, and landscaping.

#### Baseball/Softball Fields

Paakuma Park has two baseball/softball fields. Each of these baseball/softball fields consists of a chain link backstop, a dirt infield, a grass outfield, chain link fencing surrounding each baseball/softball field, inserts for baseball/softball bases, and two dugouts paved with concrete. Walkways leads from the parking lot, the covered picnic seating area, and playground to each baseball/softball field. The walkway in between the two baseball/softball fields also provides pedestrian access connection to Clove Way and the surrounding residences. The areas adjacent to the outfields are landscaped and include open grass areas.

The baseball/softball fields are utilized by community baseball and softball leagues, local little leagues, and Paakuma K–8 School students. Events on the baseball/softball fields include baseball and softball games and practices, and American Youth Soccer Organization (AYSO) soccer practices and games. During the spring sports season, events occur throughout the week, Monday through Friday, and on Saturdays and Sundays. Most games and practices on the baseball/softball fields occur Monday through Friday between 4:00 pm and 9:00 pm. Games and practices on Saturdays and Sundays occur on the baseball/softball fields between the hours of 6:00 am and 10:00 pm. The Paakuma K-8 School utilizes the park facilities Monday through Friday between 7:00 am and 4:00 pm. The public is allowed to utilize the park facilities Monday through Friday between 4:00 pm and 9:00 pm and on Saturdays and Sundays from 6:00 am to 10:00 pm.

#### Soccer Fields

The Park includes two soccer fields in the southern and western portions of the Park. The soccer fields are utilized for AYSO soccer games and practices and little league flag football games and cheer. Soccer fields are available for use during the same days and times as events on the baseball/softball fields.

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### Other Uses

The Park is also used for non-sporting uses. Paakuma Park is used for recreation by residents in the area, including residents of the local Rosena Ranch, local Boy Scout troops, and students from Paakuma K–8 School.

General operation hours of the Park are 5:00 am to 9:00 pm, Monday through Sunday, but special events are permitted until 10:00 pm on weekends. Paakuma K–8 School is open 7:00 am to 6:00 pm, Monday through Friday.

### Lighting

Lighting at Paakuma Park consists of light poles and exterior lighting on the restroom and maintenance building. Currently, there are three light poles in the parking lot. Throughout the Park, there are 20 light poles that light the walkways from the parking lot to the playground and covered picnic area and light the walkways in front of and in the middle of the two baseball fields. Additionally, there are exterior wall sconces in the covered picnic area.

### Parking and Circulation

Vehicular access to the Park is provided via Sycamore Creek Loop Parkway. Parking lot ingress and egress is at the four-way stop intersection of Sycamore Creek Loop Parkway and Flowering Plum Way. Pedestrian access is provided at this location via a crosswalk. Pedestrian access is also provided off Sycamore Creek Loop Parkway to the north and Clove Way to the east via sidewalks. The parking lot includes 38 parking spaces, including two Americans with Disabilities Act (ADA) parking spaces. Emergency access to the park is off Sycamore Creek Loop Parkway.

### 1.4.2 Surrounding Land Use

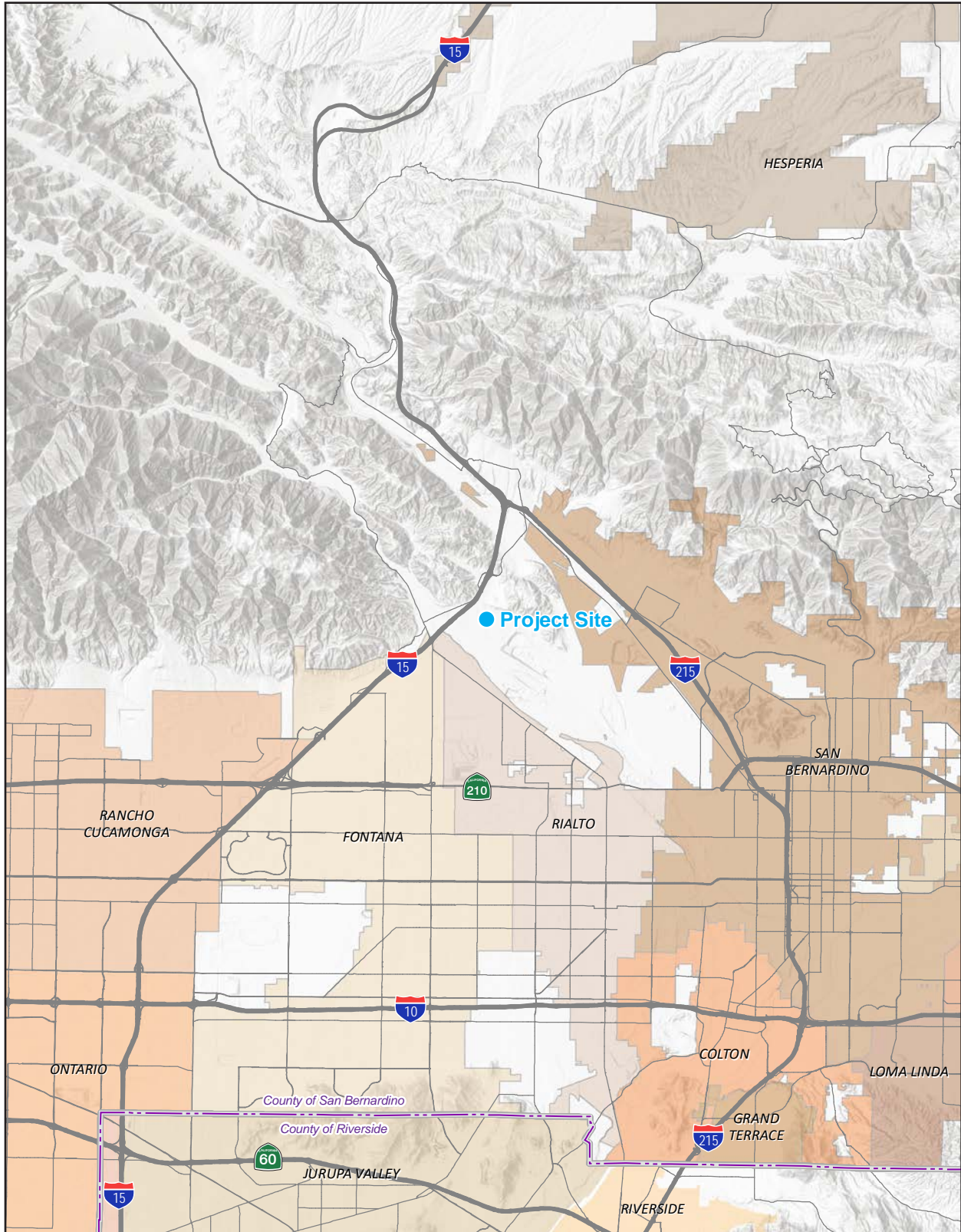
The Park is in a residential neighborhood in the southwest portion of unincorporated San Bernardino County. The Paakuma K–8 School is directly west of the Park, and single-family residential uses surround the Park site to the north, east, and south (Figure 4, Aerial View).

### 1.4.3 General Plan Land Use and Zoning

The Park and Paakuma K–8 School are zoned SD-RES (Special Development - Residential), which is intended for developments intermixing residential, commercial, and industrial uses. The Park and Paakuma K–8 School also have a general plan designation of Public Facility (PF), which is the designation for the use and development of public facilities, including, but not limited to, federal agencies, special districts, public schools and associated administrative offices, and public and private utilities. The surrounding area is designated Medium-Density Residential (MDR) 5 to 20 dwelling units per acre and is also zoned SD-RES (San Bernardino County 2020a).



Figure 1 - Regional Location



--- County Boundary

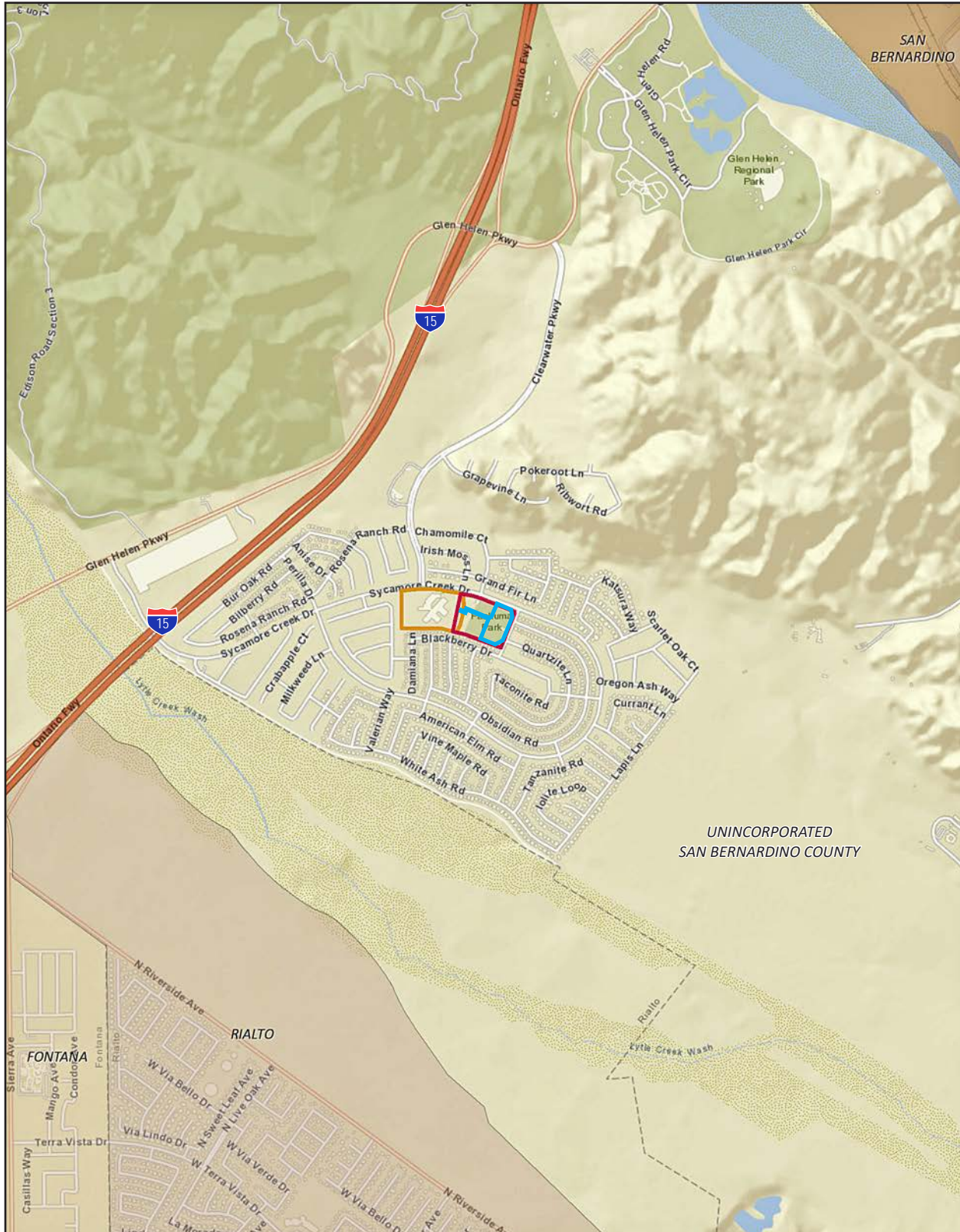
Note: Unincorporated county areas are shown in white.  
Source: Generated using ArcMap 2024.



## 1. Introduction

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Figure 2 - Local Vicinity



-  School Boundary
-  Project Boundary
-  Project Impact Area (PIA)

0 2,000  
Scale (Feet)



Source: Generated using ArcMap 2024.

## 1. Introduction

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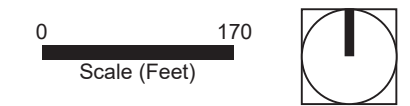


Figure 3 - Site Plan Location with APNs



- School Boundary
- Project Boundary
- Project Impact Area (PIA)

Source: County of San Bernardino 2024.



# 1. Introduction

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Figure 4 - Aerial View



- School Boundary
- Project Boundary
- Project Impact Area (PIA)

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Scale (Feet)



Source: Nearmap 2024.

## 1. Introduction

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# 1. Introduction

## 1.5 PROJECT DESCRIPTION

The proposed project would consist of ground disturbance to approximately 0.31 acre of the 8.87-acre project site (7.93-acre Park and a 0.94-acre portion on the eastern side of the Paakuma K–8 School). The proposed ground disturbance would occur around the two baseball/softball fields, along the walkways in front of and in between the two baseball/softball fields for installation of light poles, and through a portion of the soccer fields where the utility trench would be dug.

The proposed project would include installing 11 stadium light poles, demolishing hardscape, and trenching for an electrical utility line to the proposed stadium light poles. No trees would be removed, and no new landscaping or off-site improvements are proposed. Fencing adjacent to the basketball courts and around the baseball/softball fields’ perimeter would be demolished and replaced with similar fencing. The proposed project would not construct any new buildings and does not propose improvements to the parking lot or driveway.

The proposed project would enhance the usability of the baseball/softball fields by installing stadium lights for nighttime games and events. The proposed project would not extend the Park hours of operation.

### Stadium Lighting

The proposed stadium lighting would consist of the installation of 11 stadium lights. The pole height for each of the stadium lights would be 60 feet. The LED light fixtures for each pole would be installed at heights ranging from 15.5 feet to 60 feet. Among the 11 stadium lights, there would be 52 fixtures in total with a total electric energy consumption of 38.02 kW. The stadium lights would face toward the baseball/softball infields and outfields, from all directions.

Table 1, Lighting System, displays the pole identification, pole heights, fixture heights, number of fixtures, lighting loads in kilowatts (kW), and the total number of poles, fixtures, and load.

**Table 1** Lighting System

Pole ID	Pole Height (feet)	Fixture Height (feet)	Fixture Quantity	Load (kW)
A1	60	60	1	0.88
—	—	60	2	1.08
—	—	16	1	0.575
A2	60	60	1	0.88
—	—	60	1	0.88
—	—	60	2	1.08
—	—	60	2	1.08
—	—	16	1	0.575
—	—	16	1	0.575
A3	60	60	1	0.88
—	—	60	2	1.08
—	—	16	1	0.575
B1	60	60	1	0.54
—	—	60	3	2.64

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**Table 1 Lighting System**

Pole ID	Pole Height (feet)	Fixture Height (feet)	Fixture Quantity	Load (kW)
—	—	16	1	0.575
B2	60	60	1	0.54
—	—	60	3	2.64
—	—	16	1	0.575
B3	60	60	1	0.54
—	—	60	3	2.64
—	—	16	1	0.575
B4	60	60	1	0.54
—	—	60	3	2.64
—	—	16	1	0.575
C1	60	60	3	2.64
—	—	16	1	0.575
C2	60	60	3	2.64
—	—	16	1	0.575
C3	60	60	3	2.64
—	—	16	1	0.575
C4	60	60	3	2.64
—	—	16	1	0.575
<b>Total</b>				
11	NA	NA	52	38.02

Source: Mosher Drew Architects 2024.

Note: ID = identification; kW = kilowatt; NA = not applicable

Table source is from architectural package submitted to PlaceWorks from the San Bernardino Unified School District on April 16, 2024.

The northern baseball/softball field would receive five stadium lights facing the field. Two would be on the western side, two on the northeastern side, and one on the southern side of the field. Three of the five stadium lights would illuminate the infield and two stadium lights would illuminate the outfield. The southern baseball/softball field would receive six stadium lights facing the field. Two would be on the western side, two on the northern side, and two on the southeastern side of the field. Four of the six stadium lights would illuminate the infield and the other two lights would illuminate the outfield (Figure 5, Stadium Lights Plan).

Table 2, Proposed Baseball/Softball Field Lighting, provides the average infield and outfield foot-candles (fc) and the minimum and maximum fc for the infield and outfield for each of the northern and southern baseball/softball fields.

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**Table 2 Proposed Baseball/Softball Field Lighting**

Baseball/Softball Field	Location	Illumination (foot-candle)		
		Minimum	Maximum	Average
North Baseball/Softball Field	Infield	39	65	51.03
North Baseball/Softball Field	Outfield	24	44	32.58
South Baseball/Softball Field	Infield	44	63	53.63
South Baseball/Softball Field	Outfield	20	45	32.66

Source: Mosher Drew Architects 2024.

Note: Table source is from architectural package submitted to PlaceWorks from the San Bernardino Unified School District on April 16, 2024.

The lighting will be focused downward on the infield and outfield of the baseball/softball fields. The lights would also be equipped with shields that would reduce light spreading outside of the baseball/softball field areas.

## Electrical Connection

The proposed project would establish an electrical connection from an existing lighting panel in the 0.94-acre portion of the school site to a lighting control panel just west of the baseball/softball fields. This would include trenching approximately 400 feet across the soccer fields that would connect the lighting panel on the school site to the proposed lighting panel adjacent to the baseball/softball fields. An electrical connection would also be constructed from the proposed electrical panel to the 11 stadium lights. This would include demolition of turf and 7,000 square feet of concrete walkways surrounding the baseball/softball fields (Figure 6, Project Site Plan). All grass turf and approximately 6,000 square feet of concrete walkways would be replaced after the utility trenching and an electrical connection has been completed.

## Landscaping

The proposed project would not include new landscaping. Any landscaping disturbed by project construction would be replaced.

## 1.5.2 Construction

Project construction would occur in one phase from March 2025 to June 2025. Though the District is not responsible for relocating Park patrons, throughout the construction period, the District will notify Park users of the proposed construction schedule.

## 1.5.3 Operation

### Proposed Uses

The existing field uses would remain the same. AYSO soccer games and practices occur on the soccer fields and the baseball/softball fields. Flag football games, practices, and cheer events occur on the soccer fields. Community baseball/softball games and practices also occur on the baseball/softball fields. Practices and

## 1. Introduction

games for the spring sports season occur from 4:00 pm to 9:00 pm, Monday through Friday, and occur 6:00 am to 10:00 pm, Saturdays and Sundays.

Non-sporting events would also continue to occur at the baseball/softball fields and soccer fields. These types of events include events hosted by the District and movie nights and other events hosted by the Rosena Ranch Homeowners' Association (HOA). Specifically, District events occur from 8:00 am to 6:00 pm on Saturdays, movie nights occur from 3:00 pm to 10:00 pm on Fridays, and other events hosted by the Rosena Ranch HOA occur on Sundays from 7:00 am to 5:00 pm.

The proposed project and installation of field lighting would provide efficient lighting for current operations and use of the Park during the evenings.

Other uses at the Park and school operations would not change as a result of the proposed project.

### 1.5.4 Access and Circulation

#### **Pedestrian Access**

The proposed project does not include changes to the pedestrian access provided along the south side of Sycamore Creek Loop Parkway and the western side of Clove Way via sidewalks.

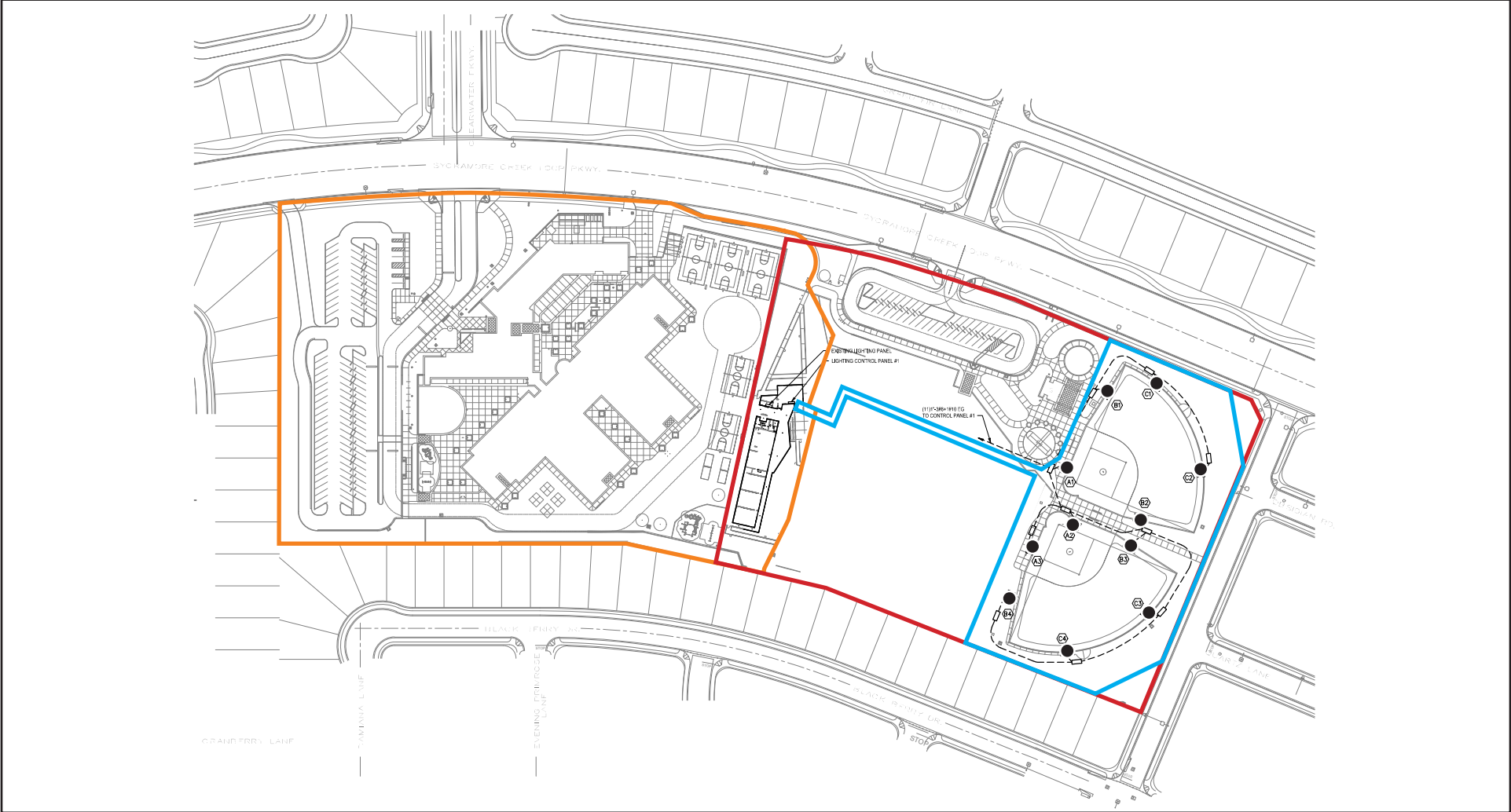
#### **Vehicular Access**

The proposed project does not include changes to the existing driveways or circulation systems around the Park. Parking for visitors would continue to be provided at the existing parking lot at the intersection of Sycamore Creek Loop Parkway and Flowering Plum Way.

#### **Emergency Access**

Emergency access would continue be provided via the existing parking lot at the intersection between Sycamore Creek Loop Parkway and Flowering Plum Way.

Figure 5 - Stadium Lights Plan



- Project Boundary
- School Boundary
- Project Impact Area (PIA)
- Light Locations

0 235  
Scale (Feet)

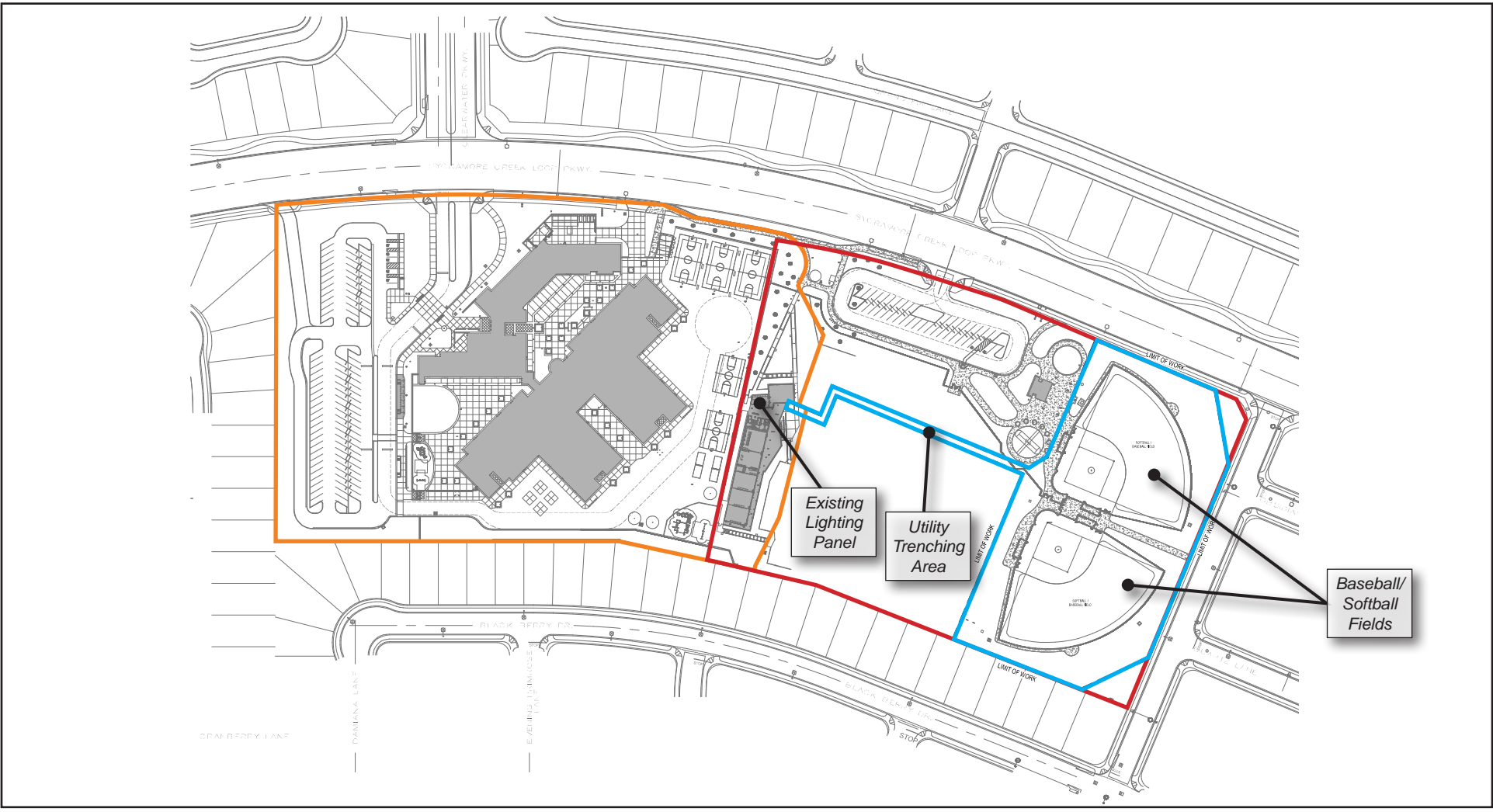


Source: Mosher Drew Architects 2024.

## 1. Introduction

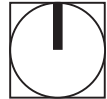
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Figure 6 - Project Site Plan



- Project Boundary
- School Boundary
- Project Impact Area (PIA)

0 235  
Scale (Feet)



Source: Mosher Drew Architects 2024.

## 1. Introduction

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# 1. Introduction

## 1.6 DISCRETIONARY APPROVALS

### 1.6.1 Lead Agency

The District is the lead agency under CEQA and is carrying out the proposed project. The District Board of Education (Board) must approve the proposed project and adopt the IS/MND and Mitigation Monitoring and Reporting Program (MMRP). The Board will consider the information in the IS/MND when making its decision to approve or deny the proposed project, or in directing modifications to the proposed project in response to the IS/MND’s findings and mitigation measures. The IS/MND is intended to disclose to the public the proposed project’s details, analyses of the proposed project’s potential environment impacts, and identification of feasible mitigation that would lessen or reduce significant impacts to less-than-significant levels.

### 1.6.2 Other Agency Action Requested

The District is the lead agency under CEQA and has approval authority over the proposed project. The proposed project would require approval and/or coordination from the following responsible agencies.

Lead Agency	Action
San Bernardino City Unified School District	<ul style="list-style-type: none"> <li>• Approve the proposed project</li> <li>• Adopt the Initial Study/Mitigated Negative Declaration</li> <li>• Adopt the Mitigation Monitoring and Reporting Program</li> </ul>
Responsible Agencies	Action
Department of General Services, Division of State Architect	<ul style="list-style-type: none"> <li>• Approval of construction drawings</li> </ul>

## 1. Introduction

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## 2. Environmental Checklist

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### 2.1 PROJECT INFORMATION

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1. **Project Title:** Paakuma Park Sport Lighting Project

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

San Bernardino City Unified School District  
956 W. 9th Street  
San Bernardino, CA 92411

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

Thomas Pace, Director  
909.388.6100

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4. **Project Location:**

17875 Sycamore Creek Loop Parkway  
San Bernardino, CA 92407

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

San Bernardino City Unified School District  
956 W. 9th Street  
San Bernardino, CA 92411

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6. **General Plan Designation:** Public Facility (PF)

---

7. **Zoning:** Special Development - Residential (SD-RES)

---

8. **Description of Project:**

The District proposes to install 11 stadium lights along the perimeter of the two existing baseball/softball fields at the District-owned Paakuma Park in unincorporated San Bernardino County.

---

9. **Surrounding Land Uses and Setting:**

The Park is in a residential neighborhood in the southwest portion of unincorporated San Bernardino County. The Paakuma K-8 School is directly west of the park, and single-family residential uses surround the park site to the north, east, and south.

---

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

▪ State Agencies

- Division of the State Architect (DSA) (for approval of construction drawings)
- 

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**

## 2. Environmental Checklist

**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 (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 notified the Gabrieleño Band of Mission Indians - Kizh Nation and the Yuhaaviatam of San Manuel Nation Cultural Resources Management Department (YSMN) (formerly San Manuel Band of Mission Indians) of the proposed project in a written letter dated June 6, 2024, via certified mail. Confirmation of the certified letter was received on June 14, 2024. No response was received from the Gabrieleño Band of Mission Indians - Kizh Nation during the AB52 consultation period (30 days). One response was received from the YSMN on June 28, 2024, via email.

The response letter acknowledged receipt of the certified letter by the YSMN Cultural Resources Management Department on June 24, 2024. The tribe stated that the project site exists within Serrano ancestral territory and is of interest to the Tribe. However, given the nature of the project, the Tribe has no concerns with the proposed project. Additionally, the Tribe requested that certain Mitigation Measures be inserted into this IS/MND (Section 3.5, Cultural, and 3.18, Tribal Cultural Resources). mitigation measures were shared with YSMN on July 19, 2024. The Tribe also requested that a final copy of the IS/MND be sent for review. The Notice of Intent (NOI) to Adopt a Mitigated Negative Declaration with a link to the IS/MND was sent to the Tribe on September 2, 2024, for review.

## 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 in Section 2.4.

- |  |   |   |
|--|---|---|
| <input type="checkbox"/> Aesthetics                | <input type="checkbox"/> Agriculture/Forestry Resources | <input type="checkbox"/> Air Quality                        |
| <input type="checkbox"/> Biological Resources      | <input type="checkbox"/> Cultural Resources             | <input type="checkbox"/> Energy                             |
| <input 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 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

8-30-2024  
\_\_\_\_\_  
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.

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

#### 3.1 AESTHETICS

**Except as provided in Public Resources Code Section 21099, would the project:**

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

**Less-Than-Significant Impact.** The proposed project is in a developed area in the unincorporated area of San Bernardino County. The San Bernardino County General Plan identifies scenic routes, highways, parks, and open space resources. Lytle Creek Canyon Drive is the nearest county-designated scenic route and is located 1.3 miles west of the project site. Glen Helen Regional Park is the nearest park or open space resource and is one mile north of the project site (San Bernardino County 2024a). Due to the distance and topography, the proposed project would not be visible from Lytle Creek Canyon Drive or Glen Helen Regional Park. The proposed project would provide sports lighting to sport facilities, and implementation of the proposed project would not obstruct or alter views of any scenic vistas. Impacts would be less than significant.

The General Plan also identified one policy regarding scenic resources. Policy NR-4.1 identifies the need to preserve regionally significant scenic vistas and natural features, including prominent hillsides, ridgelines, dominant landforms, and reservoirs. The proposed project is not near a reservoir or dominate landform. Additionally, the proposed project is not in or near an identified regionally significant hillside or ridgeline. The

### 3. Environmental Analysis

proposed project would provide sports lighting to existing sport facilities, and implementation of the proposed project would not obstruct or alter regionally significant scenic vistas and natural features, including prominent hillsides, ridgelines, dominant landforms, and reservoirs. 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 nearest eligible state-designated state scenic highway to the project site is a portion of State Route (SR) 138 near the Silverwood Lake State Recreation Area, approximately 7 miles northeast of the project site. The nearest officially state-designated state scenic highway to the project site is a portion of SR-2 near an unincorporated area of Los Angeles County named Big Pines, approximately 20 miles northwest of the project site (Caltrans 2024).

Due to the distance, topography, and intervening development, Paakuma Park is not visible from SR-2 or SR-138. No scenic resources within a state scenic highway would be damaged during project implementation. Therefore, no impact would occur.

**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 project site is an unincorporated area of San Bernardino County. The project area would not meet the definition of an urbanized area as defined in the CEQA Guidelines 15387. Urbanized Area. Additionally, the project area is defined by the U.S. Bureau of the Census as a nonurbanized area (USCB 2023).

Though the project site is not within an urbanized area, the surrounding land uses consist of residential uses and the Paakuma K–8 School. Paakuma Park is a use that is consistent with a predominately residential neighborhood as determined by the San Bernardino General Plan (San Bernardino County 2020a). The proposed project would include 11 new stadium lights surrounding the baseball/softball fields and would be visible from the residential areas to the north, south, and west and from Paakuma K–8 School to the west. However, the proposed stadium lights would be located on the project site, away from residences and the school. The stadium lights are narrow and would also be positioned in a way that would not create impacts from glare and lighting and would not dominate the existing visual character and quality of the public views. The four lights closest to the residential uses, off Sycamore Creek Loop Parkway and Clove Way, would face away from residential uses, toward the outfield of the baseball/softball fields. The remaining seven stadium lights would be close to the center of the park and would face toward the infields and outfields of the baseball/softball fields.

The stadium lights would be utilized to light the sports fields during the evening games, practices, and events. The stadium lights would be utilized to light the fields until 9:00 pm, Monday through Friday, and until 10:00 pm, Saturdays and Sundays, to allow for better use of the baseball/softball fields for evening sporting and non-sporting events. The proposed stadium lights would not operate past 10:00 pm.

### 3. Environmental Analysis

The existing landscaping and trees within the Park would not be impacted by the project and would continue to contribute to the visual character and quality of public views of the site. Trees would obscure some of the stadium lights during the daytime and evening hours of operation and would soften impacts on the existing visual character and quality of the public views.

The proposed project would not substantially degrade the existing visual character or quality of public views of the site and its surroundings. Therefore, impacts from the proposed project 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.** Existing sources of lighting on the project site and surrounding area include outdoor security lighting from residential homes, indoor home lights emanating from windows, streetlights, parking lights, vehicle headlights, outdoor security lighting at Paakuma K–8 School, and lights from Paakuma Park. Light sources from Paakuma Park include streetlights along Sycamore Creek Loop Parkway and Clove Way, exterior lighting on the restroom and maintenance building, and light poles illuminating the walkways. Lighting at Paakuma K–8 School includes exterior building lighting and light poles in the parking lot and throughout the campus.

*Terminology*

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 3, General Light Levels Benchmark.

**Table 3      General Light Levels Benchmark**

Outdoor Light	Foot-Candles
Direct Sunlight	10,000
Full Daylight	1,000
Overcast Day	100
Very Dark Day	10
Twilight	1
Deep Twilight	0.1
Full Moon	0.01
Quarter Moon	0.001
Starlight	0.0001
Overcast Night	0.00001

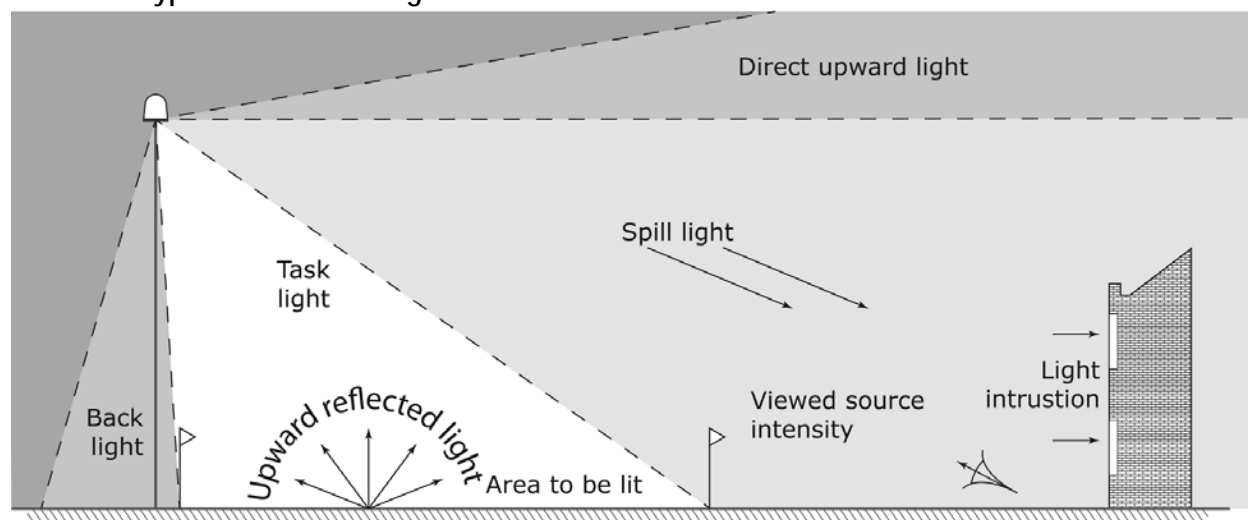
Source: HSI 2019.

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

### 3. Environmental Analysis

- **Vertical foot-candle.** The amount of light received on a vertical surface such as a billboard or building façade.
- **Glare.** 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, or sports lights. Any highly reflective façade material is a concern, because buildings can reflect bright sunrays. The concepts of spill light, direct glare, and light trespass are illustrated in Exhibit A, Types of Obtrusive Light adapted from the Institution of Lighting Professionals (ILP 2021).

#### Exhibit A: Types of Obtrusive Light



- **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 position of the light source.
- **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; or any 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.

### 3. Environmental Analysis

- **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** is spill light that—because of quantitative, directional, or type of light—causes annoyance, discomfort, or loss in visual performance and visibility. Light trespass is light cast where it is not wanted or needed such as light from a streetlight or a floodlight that illuminates a bedroom at night, making it difficult to sleep. 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 A (ILP 2021).
- **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.
- **Spill light** is caused by misdirected light that illuminates areas outside the area intended to be lit. Spill light can contribute to light pollution.

#### San Bernardino City Unified School District Threshold

The County of San Bernardino has established spill light thresholds for the valley, mountain, and desert regions of the County. The project site is in the valley region of the county (San Bernardino County 2024b). San Bernardino County Ordinance No. 4419 (the San Bernardino County Light Trespass Ordinance), establishes a 0.5 fc threshold for spill light at property line in the valley region of the county. The ordinance does allow for exemptions for short-term lighting for outdoor sports and recreational uses, and further indicates that the illumination exempted from the threshold shall be turned off no later than 11:00 pm (San Bernardino County 2021). Although the proposed project is exempt, as designed, lighting levels do not exceed 0.5 fc at any of the surrounding property lines, and use of the lighting will end by 10:00 pm.

In addition to the San Bernardino County Ordinance, the International Commission on Illumination (CIE) has set thresholds for spill light for different environmental lighting zones. The project site is considered an Environmental Lighting Zone 3 (E3), which is defined as a well inhabited rural and urban settlement. The CIE recommends a spill light threshold of 10 lux (one lumen per square meter) for pre-curfew illumination and 2 lux for post-curfew illumination (CIE 2017). When converted to fc, the spill light threshold recommendations are 0.92 fc for pre-curfew illumination and 0.18 fc for post-curfew illumination.

In previous projects, the District has taken a more conservative approach and applied a threshold of 0.8 fc, which is below the CIE recommended threshold for light spill. The 0.8 fc threshold represents spill light levels as equivalent to “close to twilight” and is considered an industry standard. The most recent District project utilizing this threshold was the Sports Facilities Lighting at Six High Schools Project, which was approved on November 12, 2021. As such, the District would continue to use this conservative threshold for subsequent projects.

### 3. Environmental Analysis

#### Stadium Lights

Figure 5 shows the location of the proposed baseball/softball stadium lights. The project would include the installation of 11 LED stadium lights, each pole at a height of 60 feet. The stadium lights would consist of 52 fixtures in total, and lights would be installed between 15 feet and 60 feet in height on the proposed poles. The stadium lights would be focused on the infields and outfields for each of the baseball/softball fields.

The proximity of the proposed lights to the residential areas presents the potential for light spillover and glare. As shown on Figure 5, the proposed stadium lights would be positioned around the exterior of the baseball/softball fields. The proposed stadium lights would be angled down and aimed inwards, toward the baseball/softball fields, and would be equipped with light shielding devices to minimize light spill.

The nearest sensitive receptor are single-family residences along the southern park boundary. As shown in Figure 7, Spill Light Levels at Southern Property Line, and Figure 8, Spill Light Levels at Southern Residences, light spill from the proposed stadium lights would not exceed the 0.8 fc threshold at the southern property line and would be reduced even further at the residential building façade. The highest fc measurement at the Park's southern property line is proposed at 0.49 fc and would be reduced to 0.04 fc at residential building facade. Trees on the project site would further reduce spill light from the project site for residences to the south.

Residential homes are also located to the east and north of the project site. The nearest property line to the east of the project site measures approximately 105 feet to the nearest stadium light. The nearest property line to the north of the nearest stadium light is approximately 177 feet. At the nearest property line to east, the highest fc light measurement would be 0.01 fc, and at the nearest property line to the north, the highest fc light measurement would be 0.00 fc. The existing trees on the project site would further reduce spill light from the project site to the residences to the east and north.

Light levels would continue to decrease as the distance increases from the light source. The LED luminaires would be directed downward and away from the adjacent sensitive uses and public rights-of-way, and all lights would be equipped with light shielding devices so glare impacts would be minimized. All activities on the proposed baseball/softball fields are scheduled to end by 10:00 pm and would not create a substantial source of new lighting that would affect nighttime views. In addition, the project is exempt from the valley region threshold established by the San Bernardino County Light Trespass Ordinance; the stadium lights would be turned off before the 11:00 pm curfew and would not emit any light post-curfew. Furthermore, the fc for the proposed project would be less than the District-established 0.8 fc threshold and less than the CIE-recommended fc thresholds of 0.92 fc for pre-curfew illumination and 0.18 fc for post-curfew illumination. Therefore, impacts would be less than significant.



Figure 7 - Spill Light Levels at Southern Property Line

Equipment List For Areas Shown								
Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	ABOVE GRADE LEVEL	LUMINAIRE TYPE	QTY/POLE	THIS GRID	OTHER GRIDS
2	A1	60'	-	60'	TLC-LED-550	2	2	0
	A3			60'	TLC-LED-900	1	1	0
1	A2	60'	-	15.5'	TLC-BT-575	1	1	0
				60'	TLC-LED-550	2/2*	4	0
				60'	TLC-LED-900	1/1*	2	0
4	B1-B4	60'	-	15.5'	TLC-BT-575	2	2	0
				60'	TLC-LED-550	1	1	0
				60'	TLC-LED-900	3	3	0
4	C1-C4	60'	-	15.5'	TLC-BT-575	1	1	0
				60'	TLC-LED-900	3	3	0
				60'	TLC-LED-550	1	1	0
11	Totals					52	52	0

\* Above Grade level relative to the field  
\* This structure utilizes a back-to-back mounting configuration



Grid Summary	
Name	South Property Line Spill
Spacing	30.0' x 10.0'
Height	3.0' above grade

Illumination Summary	
MAINTAINED HORIZONTAL FOOTCANDLES	
Entire Grid	
Scan Average	0.06
Maximum	0
Minimum	0
Avg/Min	-
Max/Min	-
UG (adjacent pts)	0.00
CU	0.00
No. of Points	28
LUMINAIRE INFORMATION	
Applied Circuits	A,B
No. of Luminaires	52
Total Load	38.02 kW

— School Boundary — Project Boundary  
— Project Impact Area (PIA)

Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊗

0 100  
Scale (Feet)



### 3. Environmental Analysis

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Figure 8 - Spill Light Levels at Southern Residences

Equipment List For Areas Shown								
Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	ABOVE GRADE LEVEL	LUMINAIRE TYPE	QTY/POLE	THIS GRID	OTHER GRIDS
2	A1	60'	-	60'	TLC-LED-550	2	2	0
	A3			60'	TLC-LED-900	1	1	0
1	A2	60'	-	15.5'	TLC-BT-575	1	1	0
				60'	TLC-LED-550	2/2*	4	0
				60'	TLC-LED-900	1/1*	2	0
4	B1-B4	60'	-	15.5'	TLC-BT-575	2	2	0
				60'	TLC-LED-550	1	1	0
				60'	TLC-LED-900	3	3	0
4	C1-C4	60'	-	15.5'	TLC-BT-575	1	1	0
				60'	TLC-LED-900	3	3	0
				15.5'	TLC-BT-575	1	1	0
11	Totals					52	52	0

\* Above Grade level relative to the field  
\* This structure utilizes a back-to-back mounting configuration



Grid Summary	
Name	Spill @ Houses
Spacing	30.0' x 10.0'
Height	3.0' above grade

Illumination Summary	
MAINTAINED HORIZONTAL FOOTCANDLES	
Entire Grid	
Scan Average	0.00
Maximum	0
Minimum	0
Avg/Min	-
Max/Min	-
UG (adjacent pts)	0.00
CU	0.00
No. of Points	29
LUMINAIRE INFORMATION	
Applied Circuits	A,B
No. of Luminaires	52
Total Load	38.02 kW

— School Boundary      — Project Boundary  
— Project Impact Area (PIA)

Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊗

0 100  
Scale (Feet)



Source: MUSCO 2024.

### 3. Environmental Analysis

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### 3. Environmental Analysis

Issues	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
<b>II. AGRICULTURE AND FORESTRY RESOURCES.</b> 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. <b>Would the project:</b>				
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?				<b>X</b>
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?				<b>X</b>
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))?				<b>X</b>
d) Result in the loss of forest land or conversion of forest land to non-forest use?				<b>X</b>
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?				<b>X</b>

### 3.2 AGRICULTURE AND FORESTRY RESOURCES

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 nonagricultural use?**

**No Impact.** The project site is within a residential neighborhood and is surrounded by single-family residences on the north, east, and the south. The Paakuma K–8 School borders the Park to the west. There are no agricultural uses surrounding Paakuma Park. The Department of Conservation (DOC) Farmland Mapping and Monitoring Program (FMMP) maps California’s agricultural resources and determines the suitability of land throughout the state for agriculture purposes. The DOC’s FMMP identifies the project site as “Urban and Built-Up Land” (DOC 2024a). No impact would occur, and no mitigation measures are required.

### 3. Environmental Analysis

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

**No Impact.** The project site is currently developed with existing athletic facilities and structures that are part of the Paakuma Park project site. The project site is zoned SD-RES, which is intended for developments intermixing residential, commercial, and industrial uses and is not zoned for any agricultural uses. Additionally, the site is not mapped as a site under the farmland Security Zone (Data Basin 2024). Therefore, the proposed project would not conflict with an existing zoning designation for agricultural use or conflict with a Williamson Act contract, and 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 project site is within a developed residential neighborhood in San Bernardino County. The proposed project would not conflict with any existing zoning for forest land, timberland, or timberland production. The project site is zoned Special Development - Residential (SD-RES) and is not zoned for nor used as forest land or timberland. Therefore, no impact would occur.

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

**No Impact.** The project site is within a developed residential neighborhood in San Bernardino County. The project site is currently developed with athletic fields and structures and does not contain forest land. Development of the proposed project would not result in the loss of forest land or the conversion of forest land to non-forest use. Therefore, 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 nonagricultural use or conversion of forest land to non-forest use?**

**No Impact.** The proposed project includes the installation of lighting structures for sports facilities at Paakuma Park. The project site is completely developed with athletic fields and structures and is in an area developed for public facility uses. There is no farmland and forest land within or surrounding the project site. The FMMP identifies the project site as Urban and Built-Up Land. The development of the proposed project would not result in the conversion of farmland to nonagricultural uses or the conversion of forest land to non-forest uses. Therefore, no impact would occur.



### 3. Environmental Analysis

Issues	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
<b>III. AIR QUALITY.</b> 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?			<b>X</b>	
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?			<b>X</b>	
c) Expose sensitive receptors to substantial pollutant concentrations?			<b>X</b>	
d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?			<b>X</b>	

### 3.3 AIR QUALITY

This section addresses the impacts of the proposed project on ambient air quality and the exposure of people, especially sensitive individuals, to unhealthy pollutant concentrations. Appendix A provides 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.

The primary air pollutants of concern for which ambient air quality standards (AAQS) have been established include ozone (O<sub>3</sub>), carbon monoxide (CO), coarse inhalable particulate matter (PM<sub>10</sub>), fine inhalable particulate matter (PM<sub>2.5</sub>), sulfur dioxide (SO<sub>2</sub>), nitrogen dioxide (NO<sub>2</sub>), 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 O<sub>3</sub> and PM<sub>2.5</sub> under the California and national AAQS, nonattainment for PM<sub>10</sub> under the California AAQS, and nonattainment for lead (Los Angeles County only) under the national AAQS (CARB 2024).

Furthermore, the South Coast AQMD has identified regional thresholds of significance for criteria pollutant emissions and criteria air pollutant precursors, including volatile organic compounds (VOC), CO, nitrogen oxides (NO<sub>x</sub>), SO<sub>2</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub>. Development projects below the regional significance thresholds are not expected to generate sufficient criteria pollutant emissions to violate any air quality standard or contribute substantially to an existing or projected air quality violation. Where available, the significance criteria established by the South Coast AQMD may be relied upon to make the following determinations.

### 3. Environmental Analysis

#### Would the project:

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

**Less-Than-Significant Impact.** The South Coast AQMD adopted the 2022 Air Quality Management Plan (AQMP) on December 2, 2022. 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, a consistency analysis is generally only required in connection with the adoption of general plans, specific plans, and significant projects. Changes in population, housing, or employment growth projections have the potential to affect SCAG's demographic projections and therefore the assumptions in South Coast AQMD's AQMP. These demographic trends are incorporated into SCAG's 2024–2050 Regional Transportation Plan (RTP)/Sustainable Communities Strategy (SCS) to determine priority transportation projects and vehicle miles traveled in the SCAG region.

Changes in population, housing, or employment growth projections have the potential to affect SCAG's demographic projections and the assumptions in South Coast AQMD's AQMP. The proposed project involves the installation of 11 light poles at the baseball/softball fields at Paakuma Park. No new permanent buildings would be developed, and no increase in student or staff capacity would occur upon implementation of the proposed lighting installation.

Based on its scope and nature, the proposed project would not substantially affect housing, employment, or population projections in the region. Additionally, as demonstrated in Section 3.3(b), the regional emissions generated by the operational phase of the proposed project would be less than the South Coast AQMD emissions thresholds and would not be considered by South Coast AQMD to be 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 2022 AQMP. 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 impacts from regional short-term construction activities and regional long-term operation of the proposed project.

#### Regional Short-Term Construction Impacts

Construction activities would generate air pollutants. These emissions would primarily be 1) exhaust from off-road diesel-powered construction equipment, 2) dust generated by construction activities, 3) exhaust from on-road vehicles, and 4) off-gassing of volatile organic compounds (VOCs) from paints and asphalt.

Construction activities associated with the proposed project are anticipated to disturb approximately 0.31 acre on the project site. The proposed project would involve asphalt demolition and debris haul, site preparation and soil haul, and field lighting installation. Construction would occur from March 2025 to June 2025.

### 3. Environmental Analysis

Construction emissions were estimated using the California Emissions Estimator Model (CalEEMod), Version 2022.1, and are based on the preliminary construction duration provided by the District. The results of the construction emissions modeling are shown in Table 4, Maximum Daily Regional Construction Emissions, and shows that the maximum daily emissions for NO<sub>x</sub>, CO, SO<sub>2</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub> from construction-related activities would be less than their respective South Coast AQMD regional significance threshold values.

**Table 4 Maximum Daily Regional Construction Emissions**

Construction Phase	Pollutants (lb/day) <sup>1,2</sup>					
	VOC	NO <sub>x</sub>	CO	SO <sub>2</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>
Asphalt Demolition	1	5	6	<1	<1	<1
Asphalt Demolition and Debris Haul	1	5	6	<1	1	<1
Asphalt Demolition Debris Haul	<1	1	<1	<1	1	<1
Site Preparation	<1	3	5	<1	<1	<1
Site Preparation Soil Haul	<1	<1	<1	<1	<1	<1
Field Lighting Installation	<1	2	2	<1	<1	<1
<b>Maximum Daily Construction Emissions</b>						
Maximum Daily Emissions	1	5	6	<1	1	<1
<b>South Coast AQMD Regional Construction Threshold</b>	<b>75</b>	<b>100</b>	<b>550</b>	<b>150</b>	<b>150</b>	<b>55</b>
<b>Significant?</b>	No	No	No	No	No	No

Source: CalEEMod Version 2022.1., South Coast AQMD 2023.

<sup>1</sup> Based on the preliminary information provided by the San Bernardino City Unified School District. Where specific information regarding project-related construction activities was not available, construction assumptions were based on CalEEMod defaults, which are based on construction surveys conducted by South Coast Air Quality Management District (South Coast AQMD) of construction equipment.

<sup>2</sup> Includes implementation of fugitive dust control measures required by South Coast AQMD under Rule 403, including watering disturbed areas a minimum of two times per day, reducing speed limit to 25 miles per hour on unpaved surfaces, replacing ground cover quickly, and street sweeping with Rule 1186-compliant sweepers.

#### Long-Term Operation-Related Air Quality Impact

Typical long-term air pollutant emissions are generated by area sources (e.g., landscape fuel use, aerosols, architectural coatings, asphalt pavement), energy use (natural gas), and mobile sources (i.e., on-road vehicles). As the proposed project only involves lighting installation of the baseball/softball fields, it would result in additional after-school activity opportunities for students and generate a net increase of 33 vehicle trips during the PM peak hour to the athletic fields (refer to Appendix C). In addition, the lighting equipment would result in only a nominal increase in electricity demand and would not result in direct generation of criteria air pollutants.

As shown in Table 5, Maximum Daily Regional Operation Emissions, it is anticipated that operation of the proposed project would result in minimal emissions overall and would not exceed the South Coast AQMD regional operation-phase significance thresholds. Impacts to the regional air quality associated with operation of the proposed project would be less than significant.

### 3. Environmental Analysis

**Table 5 Maximum Daily Regional Operation Emissions**

Source	Maximum Daily Emissions (lbs/Day)					
	VOC	NO <sub>x</sub>	CO	SO <sub>2</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>
<b>Emissions</b>						
Mobile <sup>1</sup>	<1	<1	<1	<1	<1	<1
Area	<1	<1	<1	<1	<1	<1
Energy	<1	<1	<1	<1	<1	<1
<b>Total</b>	<1	<1	<1	<1	<1	<1
<b>South Coast AQMD Regional Threshold</b>	<b>55</b>	<b>55</b>	<b>550</b>	<b>150</b>	<b>150</b>	<b>55</b>
<b>Exceeds Threshold?</b>	No	No	No	No	No	No

Source: CalEEMod Version 2022.1, South Coast AQMD 2023.

Notes: lbs = pounds; VOC = volatile organic compounds; NO<sub>x</sub> = nitrogen oxides; CO = carbon monoxide; SO<sub>2</sub> = sulfur dioxide; PM<sub>10</sub> = coarse inhalable particulate matter; PM<sub>2.5</sub> = fine inhalable particulate matter; South Coast AQMD = South Coast Air Quality Management District.

Highest winter or summer emissions report.

<sup>1</sup> Mobile emission calculations consider 33 weekday vehicle trips as provided by DJ&A Traffic Impact Study (Appendix C).

#### c) Expose sensitive receptors to substantial pollutant concentrations?

**Less-Than-Significant Impact.** The proposed project could expose sensitive receptors to elevated pollutant concentrations if it causes or significantly contributes to elevated pollutant concentration levels. Unlike regional emissions, localized emissions are typically evaluated in terms of air concentration rather than mass so they can be more readily correlated to potential health effects.

#### Construction Localized Significance Thresholds

Localized significance thresholds (LSTs) are based on the California AAQS, which are the most stringent AAQS to provide a margin of safety in the protection of public health and welfare. They are designated to protect sensitive receptors most susceptible to further respiratory distress such as asthmatics, the elderly, very young children, people already weakened by other disease or illness, and people engaged in strenuous work or exercise. The screening-level construction LSTs are based on the size of the project site, distance to the nearest sensitive receptor, and source receptor area (SRA). The off-site sensitive receptors nearest to the project site are the single-family residence along Blackberry Drive directly south of the project site. Other nearby receptors include the Paakuma K–8 School 140 feet to the west and single-family residences to the north and east of the project site.

Air pollutant emissions generated by construction activities would cause temporary increases in air pollutant concentrations. Table 6, Localized Construction Emissions, shows the maximum daily construction emissions (pounds per day) generated during on-site construction activities compared with the South Coast AQMD’s screening-level LSTs for sensitive receptors within 82 feet (25 meters) for NO<sub>x</sub>, CO, PM<sub>10</sub>, and PM<sub>2.5</sub>. As shown in Table 6, construction of the proposed project would not generate construction-related on-site emissions that would exceed the screening-level LSTs. Thus, project-related construction activities would not have the potential to expose sensitive receptors to substantial pollutant concentrations. Localized air quality impacts from construction activities would be less than significant.



### 3. Environmental Analysis

**Table 6 Localized Construction Emissions**

Construction Activity	Pollutants (lbs/day) <sup>a</sup>			
	NOX	CO	PM10 <sup>b</sup>	PM2.5 <sup>b</sup>
<b>South Coast AQMD ≤1.00 Acre LST</b>	<b>118</b>	<b>667</b>	<b>4.00</b>	<b>3.00</b>
Asphalt Demolition	4	6	0.29	0.15
Asphalt Demolition and Debris Haul	4	6	1.02	0.26
Asphalt Demolition Debris Haul	<1	<1	0.73	0.11
Site Preparation	2	4	0.16	0.08
Site Preparation Soil Haul	<1	<1	0.01	0.01
Field Lighting Installation	2	2	0.07	0.07
<b>Exceeds LST?</b>	No	No	No	No

Source: CalEEMod Version 2022.1. South Coast AQMD 2008, 2011, and 2023.

Notes: lbs = pounds; NO<sub>x</sub> = nitrogen oxides; CO = carbon monoxide; PM<sub>10</sub> = coarse inhalable particulate matter; PM<sub>2.5</sub> = fine inhalable particulate matter; South Coast AQMD = South Coast Air Quality Management District; LST = localized significance threshold.

<sup>a</sup> In accordance with South Coast AQMD methodology, only on-site stationary sources and mobile equipment are included in the analysis. Screening level LSTs are based on receptors within 82 feet (25 meters) in Source Receptor Area 34.

<sup>b</sup> Where specific information for project-related construction activities or processes was not available modeling was based on CalEEMod defaults. These defaults are based on construction surveys conducted by the South Coast AQMD.

<sup>c</sup> Includes fugitive dust control measures required by South Coast AQMD under Rule 403, such as watering disturbed areas a minimum of two times per day, reducing speed limit to 25 miles per hour on unpaved surfaces, replacing ground cover quickly, and street sweeping with Rule 1186-compliant sweepers.

#### Construction Health Risk

Emissions from construction equipment primarily consist of diesel particulate matter (DPM). In 2015, the Office of Environmental Health Hazards Assessment (OEHHA) adopted guidance for preparation of health risk assessments, which included the development of a cancer risk factor and non-cancer chronic reference exposure level for DPM over a 30-year time frame (OEHHA 2015). Currently, South Coast AQMD does not require the evaluation of long-term excess cancer risk or chronic health impacts for a short-term project. The proposed project is anticipated to be completed in approximately three months, which would limit the exposure to on-site and off-site receptors. Furthermore, construction activities would not generate on-site exhaust emissions that would exceed the screening-level construction LSTs. Thus, construction emissions would not pose a health risk to on-site and off-site receptors, and project-related construction health impacts would be less than significant.

#### Operation Localized Significance Thresholds

Operation of the proposed project would not generate substantial emissions from on-site stationary sources. Land uses that have the potential to generate substantial stationary sources of emissions include industrial land uses such as chemical processing and warehousing operations where truck idling would occur on site and would require a permit from South Coast AQMD. The proposed project involves the installation of light poles at the baseball/softball fields at the Park and would not include uses typically associated with generating substantial stationary sources of emissions. The baseball/softball field lighting would only generate a nominal increase in electricity demand and would not directly generate criteria pollutants. Therefore, the proposed project would not expose receptors to substantial concentrations of criteria air pollutants, operational criteria air pollutant emissions would not exceed the California AAQS, and impacts would be less than significant.

### 3. Environmental Analysis

#### Carbon Monoxide Hotspots

Vehicle congestion has the potential to create pockets of CO called hotspots. Hotspots are typically produced at intersections, where traffic congestion is highest because vehicles are backed –up, idle for longer periods, and are subject to reduced speeds. These pockets could 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 analysis of localized CO concentrations.

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 to 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 2023). As shown in the traffic impact study, the project-related 33 PM peak hour vehicle trips would be minimal compared to the AAQS screening levels (Appendix C). In addition, as seen in Figure 7 of the traffic impact study (Appendix C), the intersection with the greatest traffic volumes would yield 852 vehicles per hour, which is less than the 44,000 vehicles per hour threshold. The proposed project would not substantially increase CO hotspots at intersections, and 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 involves the installation of lighting at baseball/softball fields. Field lighting would not fall within the objectionable odors land uses or generate odors different than what is already generated on site. Emissions from construction equipment, such as diesel exhaust and VOCs from architectural coatings and paving activities, may generate odors. However, these odors would be low in concentration, would be temporary, and would not affect a substantial number of people. Odor impacts would be less than significant.

### 3. Environmental Analysis

Issues	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
<b>IV. BIOLOGICAL RESOURCES. Would the project:</b>				
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?			<b>X</b>	
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?			<b>X</b>	
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?				<b>X</b>
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?		<b>X</b>		
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?				<b>X</b>
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?				<b>X</b>

### 3.4 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?**

**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 (CDFW), and plant species listed as rare by the California Native Plant Society. The project site has been previously disturbed by the development of the athletic fields, paved walkways, and associated structures of the Park. According to the California Department of Fish and Wildlife Conservation Plan Boundaries - Habitat Conservation Plan (HCP)/National Community Conservation Plan (NCCP) Area Mapper, the Park and the surrounding area are not within an identified HCP/NCCP (CDFW 2024a). Additionally, as identified by the Draft San Bernadino Countywide Plan, Biological Resources Existing Conditions, the project site is not within any other conservation plan within the county (San Bernardino County 2019). The project site and surrounding area are within the San Bernardino

### 3. Environmental Analysis

Merriam's Kangaroo rat's critical habitat (USFWS 2024a). However, the project site is already disturbed and developed, and is surrounded by residential development. Due to the developed nature of the project site and surrounding area, and the daily operational uses of the site as an active sports park, it is unlikely to contain the biological resources to sustain the critical habitat for the species and, therefore, unlikely to contain the identified animal. Considering the existing development on the project site and current site conditions, the project site does not have capacity to support any candidate, sensitive, or special-status species. Therefore, impacts related to special-status species would be less than significant.

**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?**

**Less-Than-Significant 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. The project site is not within an identified HCP/NCCP (CDFW 2024a). The National Wetlands Mapper maintained by the United States Fish and Wildlife Service identified no wetlands or riparian habitats on the project site (USFWS 2024b). The project site and surrounding area are within the San Bernardino Merriam's Kangaroo rat's critical habitat (USFWS 2024a). However, the project site is already disturbed and developed, and is surrounded by residential development. Due to the developed nature of the project site and surrounding area, and the daily operational uses of the site as an active sports park, it is unlikely to contain biological resources to sustain the critical habitat for the species, and therefore unlikely to contain the identified animal. The project site does not contain any riparian habitat and would not impact an existing suitable habitat for the Merriam's Kangaroo rat. Therefore, impacts to riparian and or other sensitive natural communities would be less than significant.

**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.** As discussed in Section 3.4(b), the project site is developed with athletic fields and structures, and contains no wetlands or riparian habitats (USFWS 2024b). No waterway runs through or adjacent to the project site. The nearest wetland is approximately 0.25 mile northwest of the project site. Additionally, there would be no impacts to wetlands because of the distance from the project site to the nearest wetland, intervening development, and the limited development from the proposed project. Therefore, no impact to wetlands would occur.

**d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?**

**Less-Than-Significant Impact with Mitigation Incorporated.** The project site is in a developed area of unincorporated San Bernardino County. The project site is in an area that is completely developed with residential uses. The project site and the immediate surroundings do not contain any aquatic habitat that would support migratory fish (USFWS 2024b). According to CDFW BIOS6 mapper, the project site is rated a level

### 3. Environmental Analysis

four of terrestrial connectivity, as a conservation planning linkages area (CDFW 2024b). However, the project site and surrounding area are disturbed and developed by the existing Paakuma Park and residential uses. The proposed project would install sports lighting and would not substantially alter the existing conditions.

The Migratory Bird Treaty Act (MBTA) governs the taking, killing, possession, transportation, and importation of migratory birds, their eggs, parts, and nests (16 US Code Sections 703–712). The MBTA prohibits the take, possession, import, export, transport, sale, purchase, barter, or offering of these activities except under a valid permit or as permitted in the implementing regulations. Several trees are within the project site and may provide foraging and breeding opportunities for migratory birds. The proposed project would not remove any trees on the project site; however, Mitigation Measure BIO-1 would be implemented because the proposed construction timeframe would be from March 2025 to June 2025 during the bird nesting season. Mitigation Measure BIO-1 would include a qualified biologist conducting a nesting bird survey prior to the start of construction activities. Compliance with the existing CDFW regulations and implementation of Mitigation Measure BIO-1 would ensure that impacts to nesting and migratory birds are less than significant.

#### Mitigation Measure

BIO-1            If construction activities occur within the bird nesting season (generally defined as February 15 through September 15), a qualified biologist shall conduct a nesting bird survey within three days prior to the proposed start date to identify any active nests within 500 feet of the project site. If an active nest is found, the nest shall be avoided, and a suitable buffer zone shall be delineated in the field such that no impacts shall occur until the chicks have fledged the nest as determined by a qualified biologist. Construction buffers shall be 300 feet for passerines and up to 500 feet for any raptor species; however, avoidance buffers may be reduced at the discretion of the biologist, depending on the location of the nest, the species' tolerance to human presence, and construction-related noises and vibrations.

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

**No Impact.** There are no local biological-related policies or ordinances, such as a tree preservation policy or ordinance, applicable to the proposed project. The proposed project would not remove trees within the project site, and the proposed project would not conflict with policies or ordinances; therefore, no impact would occur.

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

**No Impact.** The project site and surrounding area is developed and disturbed with the Paakuma Park and surrounding residential uses. The project site is not within an identified HCP/NCCP (CDFW 2024a; San Bernardino County 2019). Thus, the proposed project would not be in a Habitat Conservation Plan; Natural Community Conservation Plan; or other approved local, regional, or state habitat conservation plan. Therefore, no impact would occur.

### 3. Environmental Analysis

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

### 3.5 CULTURAL RESOURCES

**Would the project:**

**a) Cause a substantial adverse change in the significance of a historical resource pursuant to CEQA Guidelines, Section 15064.5?**

**No Impact.** CEQA Guidelines 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;  
or
- iv) Has yielded, or may be likely to yield, information important in prehistory or history.

Construction of the stadium lights would occur on the District-owned Park, with trenching and electrical panel installation occurring on the Paakuma K–8 School site. The proposed sports lighting would be installed on the athletic facilities at the Park, and no structures would be altered during construction of the proposed project. The project site 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 (NPS 2024; OHP 2024). Therefore, there are no resources on the project site that would be considered historically significant, and no impact to historical resource would occur.

### 3. Environmental Analysis

**b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines, Section 15064.5?**

**Less-Than-Significant Impact With Mitigation Incorporated.** Implementation of the proposed project would result in limited ground disturbance to install baseball/softball field lighting. Construction of the proposed sports lighting and installation of associated underground electrical lines would require grading and trenching, with all disturbed soils balanced on site.

As part of the AB 52 Tribal Consultation process, the District notified the Gabrieleño Band of Mission Indians - Kizh Nation of the proposed project in a written letter dated June 6, 2024, via email. The District also notified the Yuhaaviatam of San Manuel Nation (YSMN) (formerly San Manuel Band of Mission Indians) of the proposed project in a written letter dated June 6, 2024, via certified mail. No response was received from the Gabrieleño Band of Mission Indians - Kizh Nation during the AB 52 consultation period (30 days). One response was received from the YSMN on June 28, 2024, via email and included a request for the inclusion of three mitigation measures, identified below as CUL-1, CUL-2, and CUL-3.

Although the potential for discovery of archaeological resources within the project site is minimal, implementation of Mitigation Measures CUL-1, CUL-2, and CUL-3 would address the treatment of cultural resources that may be inadvertently discovered. Therefore, impacts would be less than significant with Mitigation Measures CUL-1, CUL-2, and CUL-3 incorporated.

#### Mitigation Measure

CUL-1 In the event that cultural resources are discovered during project activities, all work in the immediate vicinity of the find (within a 60-foot buffer) shall cease and a qualified archaeologist meeting the Secretary of Interior standards shall be hired to assess the find. Work on the other portions of the project outside of the buffered area may continue during this assessment period. Additionally, the Yuhaaviatam of San Manuel Nation Cultural Resources Department (YSMN) shall be contacted, as detailed within TCR-1, regarding any pre-contact finds and be provided information after the archaeologist makes his/her initial assessment of the nature of the find, so as to provide Tribal input with regards to significance and treatment.

CUL-2 If significant pre-contact cultural resources, as defined by CEQA (as amended, 2015), are discovered and avoidance cannot be ensured, the archaeologist shall develop a Monitoring and Treatment Plan, the drafts of which shall be provided to YSMN for review and comment, as detailed within TCR-1. The archaeologist shall monitor the remainder of the project and implement the Plan accordingly.

CUL-3 If archaeological remains are uncovered, work at the place of discovery should be halted immediately until a qualified archaeologist can evaluate the finds (CEQA Guidelines 15064.5 [f]). Prehistoric archaeological site indicators include obsidian and chert flakes and chipped stone tools; grinding and mashing implements (e.g., slabs and hand stones, and mortars and pestles); bedrock outcrops and boulders with mortar cups; and locally darkened midden soils. Midden soils may contain a combination of any of the previously listed items with the possible

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addition of bone and shell remains, and fire affected stones. Historic period site indicators generally include: fragments of glass, ceramic, and metal objects; milled and split lumber; and structure and feature remains such as building foundations and discrete trash deposits (e.g., wells, privy pits, dumps).

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

**Less-Than-Significant Impact.** There are no cemeteries or known human burials at the project site, which was previously disturbed during construction of the Park; however, limited ground-disturbance activities (i.e., utility trenching and drill holes) would have the potential to result in discovery of human remains.

If human remains are encountered during ground-disturbing activities, California Health and Safety Code Section 7050.5 requires that disturbance of the site shall halt and remain halted. The San Bernardino County Coroner shall investigate the circumstances, manner, and cause of any death and recommend the treatment and disposition of the human remains to the person responsible for the excavation or to his or her authorized representative, in the manner provided in Section 5097.98 of the California Public Resources Code. The coroner is required to determine, within two working days of being notified of the discovery of the human remains. If the coroner determines that the remains are not subject to his or her authority or has reason to believe they are Native American, he or she shall contact, by telephone within 24 hours, the Native American Heritage Commission (NAHC), who will contact the “most likely descendant.” The most likely descendant shall receive access to the discovery and would provide recommendations or preferences for treatment of the remains within 48 hours of accessing the discovery site. Disposition of human remains and any associated grave goods, if encountered, shall be treated in accordance with procedures and requirements in Sections 5097.94 and 5097.98 of the Public Resources Code, Section 7050.5 of the California Health and Safety Code, and CEQA Guidelines Section 15064.5 (NAHC 2024; CHSC 2023; OHP 2024b).

While unlikely, any accidental discovery of human remains during project construction and operation, implementation of the YSMN-requested Mitigation Measure CUL-4 would be implemented. Mitigation Measure CUL-4 includes ceasing work within a 100-foot vicinity if human remains or funerary objects are found, contacting the County Coroner, and enforcing State Health and Safety Code 7050.5 for the duration of the project. Compliance with CUL-4 would ensure that the proposed project would result in a less-than-significant impact.

CUL-4            If human remains or funerary objects are encountered during any activities associated with the project, work in the immediate vicinity (within a 100-foot buffer of the find) shall cease and the County Coroner shall be contacted pursuant to State Health and Safety Code 7050.5 and that code enforced for the duration of the project.



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Issues	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
<b>VI. ENERGY. Would the project:</b>				
a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?			<b>X</b>	
b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?			<b>X</b>	

## 3.6 ENERGY

Would the project:

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

**Less-Than-Significant Impact.** The following section includes a discussion of the potential energy demands from construction activities associated with the construction and operation of the proposed project.

### Short-Term Construction Impacts

#### *Electrical Energy*

The following discusses the potential energy demands from construction activities associated with the construction and operation of the proposed project. The majority of construction equipment would be gas or diesel powered, and electricity would not be used to power most of the construction equipment. Electricity use during construction would vary during different phases of construction. Later construction phases could result in the use of electric-powered equipment for interior construction and architectural coatings (if applicable). It is anticipated that the majority of electric-powered construction equipment would be hand tools (e.g., power drills, table saws) and lighting, which would result in minimal electricity usage during construction activities. Therefore, project-related construction activities would not result in wasteful or unnecessary electricity demands, and impacts would be less than significant.

#### *Natural Gas Energy*

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

#### *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,

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such as those used during debris and soil haul, site preparation, and field installation, would be gas or diesel powered.

The use of energy resources by vehicles and equipment would fluctuate according to the phase of construction and would be temporary. In addition, all construction equipment would cease operating upon completion of project construction. Thus, impacts related to transportation energy use during construction would be temporary and would not require expanded energy supplies or the construction of new infrastructure. Furthermore, to limit wasteful and unnecessary energy consumption, the construction contractors are anticipated to minimize nonessential idling of construction equipment during construction, in accordance with the California Code of Regulations, Title 13, Article 4.8, Chapter 9, Section 2449.

Construction trips would also not result in unnecessary use of energy, because the project site is centrally located and is served by numerous regional freeway systems (e.g., I-15) that provide the most direct routes from various areas of the region. Thus, energy use during construction of the proposed project would not be considered inefficient, wasteful, or unnecessary. Impacts would be less than significant.

#### Long-Term Impacts During Operation

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

##### *Electrical Energy*

The proposed increase in electricity consumption from the proposed project is shown in Table 7, Operation-Related Electricity Consumption.

**Table 7      Operation-Related Electricity Consumption**

Land Use	Electricity (kWh/year) <sup>1</sup>
Field Lighting	49,426

Source: Appendix A.  
<sup>1</sup> kWh = kilowatt-hour.

Electrical service to the project site would continue to be provided by Southern California Edison (SCE) through connections to existing off-site electrical lines as needed. As shown in Table 7, the new electricity demand from field lighting would be 49,426 kilowatt-hours per year. The new baseball/softball field lighting would use LED lights and would only be operated during the evening till 10:00 pm. Therefore, operation of the proposed project would not result in wasteful, inefficient, or unnecessary electricity demands and would result in a less-than-significant impact related to electricity.

##### *Natural Gas Energy*

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

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#### *Transportation Energy*

The proposed project would result in the consumption of transportation energy during operation from the use of motor vehicles associated with students, staff, and visitors to the Park later in the evenings with the use of the new field lighting. The efficiency of the motor vehicles in use (average miles per gallon) is unknown and highly variable. Thus, estimates of transportation energy use are based on the overall vehicle miles traveled (VMT) and related transportation energy use.

Based on the traffic impact study, the proposed project would generate a net increase of 33 vehicle trips during the PM peak hour (Appendix C). However, since the proposed project would continue to be a local-serving public facility for existing sports and athletic activities, the proposed project would be screened from requiring a detailed VMT analysis. While the proposed project would allow for the evening and nighttime use of the baseball/softball fields at Paakuma Park, the field lighting would not change the nature of the existing use, which is to serve local sports and athletic activities. Therefore, the proposed project would not result in any VMT impacts after buildout.

Moreover, fuel efficiency of vehicles after buildout would on average improve compared to vehicle fuel efficiencies experienced under existing conditions, resulting in a lower per capita fuel consumption assuming travel distances, travel modes, and trip rates remain the same. The improvement in fuel efficiency would be attributable to the statewide fuel reduction strategies and regulatory compliances (e.g., CAFE standards), resulting in new cars that are more fuel efficient and the attrition of older, less fuel-efficient vehicles. The CAFE standards are not directly applicable to land use development projects, but to car manufacturers. Thus, the school employees do not have direct control in determining the fuel efficiency of vehicles that are manufactured and available. However, compliance with the CAFE standards by car manufacturers would ensure that vehicles produced in future years have greater fuel efficiency and would generally result in an overall benefit of reducing fuel usage by providing the population of the project site's region more fuel-efficient vehicle options.

As electricity consumed in California is required to meet the increasing renewable energy mix requirements under the state's renewable portfolios standard (RPS), accelerated by SB 100, greater and greater proportions of electricity consumed for transportation energy demand envisioned under the proposed project would continue to be sourced from renewable energy sources rather than fossil fuels. Since vehicle fuel efficiencies would improve year over year through the buildout and result in a decrease in overall per capita transportation energy consumption, impacts would be less than significant with respect to operation-related fuel usage.

#### **b) Conflict with or obstruct a State or local plan for renewable energy or energy efficiency?**

**Less-Than-Significant Impact.** The following evaluates consistency of the proposed project with California's Renewables Portfolio Standard program and the SCAG's RTP/SCS.

#### **California Renewables Portfolio Standard Program**

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 RPS to 33 percent renewable power by 2020. This standard

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was adopted by the legislature in 2011 (SB X1-2). Senate Bill 350 (de Leon) was signed into law September 2015 and establishes tiered increases to the RPS—40 percent by 2024, 45 percent by 2027, and 50 percent by 2030. Senate Bill 350 also set a new goal to double the energy-efficiency savings in electricity and natural gas through energy efficiency and conservation measures.

On September 10, 2018, Governor Brown signed SB 100, which supersedes the SB 350 requirements. Under SB 100, the RPS for public-owned facilities and retail sellers consist of 44 percent renewable energy by 2024, 52 percent by 2027, and 60 percent by 2030. Additionally, SB 100 also 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. Compliance of SCE in meeting the RPS goals would ensure the state in meeting its objective in transitioning to renewable energy. Therefore, implementation of the proposed project would not conflict with or obstruct implementation of California's RPS Program, and impacts would be less than significant.

#### **Southern California Association of Governments' (SCAG) Regional Transportation Plan/Sustainable Communities Strategy**

SCAG adopted the 2024–2050 RTP/SCS, Connect SoCal, in April 2024. Connect SoCal is a long-term plan for Southern California region that details the development, integrated management, and operation of transportation systems and facilities that will function as an intermodal transportation network for the SCAG metropolitan planning area (SCAG 2024). This plan outlines a forecasted development pattern that demonstrates how the region can sustainably accommodate needed housing and job centers with multimodal mobility options. The overarching vision is to expand alternatives to driving, advance the transition to clean-transportation technologies, promote integrated and safe transit networks, and foster transit-oriented development in compact and mixed-use developments (SCAG 2024). Connect SoCal's transportation projects help more efficiently distribute population, housing, and employment growth, and forecast development is generally consistent with regional-level general plan data to promote active transportation and reduce energy consumption.

As described in Section 3.14, Population and Housing, the proposed project would not create a significant number of new employment opportunities that would result in a greater demand for local housing and would serve the existing needs of the Park. Therefore, the proposed project would not induce substantial unplanned population growth in the area directly or indirectly. Thus, the proposed project would not exceed the growth projections described in SCAG's RTP/SCS.

Furthermore, the proposed project would continue to be a locally serving land use and would generate a demand for non-motorized travel as some event patrons would travel to and from the school as pedestrians or on bicycles. The proposed project would generate a nominal increase in traffic volumes for additional after-

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school activities at the baseball/softball fields and would not result in any VMT impacts. Overall, the proposed project would not interfere with implementation of Connect SoCal, and impacts would be less than significant.

Issues	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
<b>VII. GEOLOGY AND SOILS. Would the project:</b>				
a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:			<b>X</b>	
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.			<b>X</b>	
ii) Strong seismic ground shaking?			<b>X</b>	
iii) Seismic-related ground failure, including liquefaction?			<b>X</b>	
iv) Landslides?				<b>X</b>
b) Result in substantial soil erosion or the loss of topsoil?			<b>X</b>	
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?			<b>X</b>	
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?			<b>X</b>	
e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?				<b>X</b>
f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?		<b>X</b>		

### 3.7 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**

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**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 requires the delineation of zones along active faults in California. An active fault, as defined by the Alquist-Priolo Earthquake Fault Act, is one that has ruptured in the last 11,000 years. The Alquist-Priolo Earthquake Fault Zones are the regulatory zones that include surface traces of active faults.

There are multiple faults near the Paakuma Park project site, which include the Cucamonga Fault, San Jacinto Fault, Lytle Creek Fault, Glen Helen Fault, and San Andreas Fault. The nearest Alquist-Priolo Earthquake Fault Zone is the San Jacinto Fault zone, which is 0.35 miles northeast of the project site (DOC 2024c). The proposed project would be required to comply with the seismic design parameters of the California Building Code (CBC), which regulates all building and construction projects within the city and implements a minimum standard for building design and construction that includes specific requirements for seismic safety, evacuation, foundations, retaining walls, and site demolition. The proposed project design would be approved by the Division of the State Architect (DSA), and construction would be monitored by a DSA-approved inspector. The proposed project would comply with the legal requirements for school construction to reduce impacts associated with strong seismic ground shaking. Compliance with CBC and DSA measures would ensure that impacts are less than significant. Therefore, impacts associated with rupture due to a known Alquist-Priolo Earthquake Fault are less than significant.

#### ii) Strong seismic ground shaking?

**Less-Than-Significant Impact.** Similar to all areas in Southern California, movement associated with the active faults could cause strong ground motion at the project site. The degree of ground shaking, and earthquake-induced damage is dependent on multiple factors such as distances to causative faults, earthquake magnitudes, and expected ground accelerations. The closest active fault is a portion of the San Jacinto Fault (San Jacinto Fault zone), which is approximately 0.35 miles northeast of the project site. (DOC 2024c, 2024d). The proposed project would be required to comply with the seismic design parameters of the California Building Code (CBC), which regulates all building and construction projects within the city and implements a minimum standard for building design and construction that includes specific requirements for seismic safety, evacuation, foundations, retaining walls, and site demolition. The proposed project design would be approved by the Division of the State Architect (DSA), and construction would be monitored by a DSA-approved inspector. The proposed project would comply with the legal requirements for school construction to reduce impacts associated with strong seismic ground shaking. Compliance with CBC and DSA measures would ensure that impacts are less than significant.

#### iii) Seismic-related ground failure, including liquefaction?

**Less-Than-Significant Impact.** Liquefaction is the sudden decrease in the strength and stiffness of unconsolidated, saturated cohesionless soils typically resulting from seismic ground shaking. For soils to liquefy, the intensity and duration of the seismically induced cyclic loading must be sufficient to increase the excess pore water pressures to such an extent that the effective stresses on the soil particles reduces to

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zero. If liquefaction is initiated, the saturated soils behave temporarily as a viscous fluid and, consequently, lose their capacity to support the structures founded on them.

The California DOC maintains an interactive map that shows liquefaction zones. The California DOC maintains an interactive map that shows liquefaction zones. As previously described in Section 3.7(a)(ii), the proposed project would be required to comply with the most current CBC, and the DSA criteria for seismic activity, including from liquefaction impacts. According to the liquefaction zones mapping tool, the portion of San Bernardino County where the project site is located is not within a liquefaction hazard zone (DOC 2024c). As previously described in Section 3.7(a)(ii), the proposed project would be required to comply with the most current CBC, and the DSA criteria for seismic activity, including from liquefaction impacts. Therefore, compliance with CBC and DSA standards would reduce potential impacts related to liquefaction to less than significant.

#### iv) Landslides?

**No Impact.** Significant landslides and erosion typically occur on steep slopes where stormwater and high winds can carry topsoil down hillsides. The project site is relatively flat and developed. The United States Geological Survey (USGS) landslide inventory tool illustrates that no landslides have occurred at or in the immediate vicinity of the project site (USGS 2024). The proposed project has no potential to result in or be in the path of landslides. Therefore, the proposed project would not cause potentially substantial adverse effects related to slope and stability or seismically induced landslides, and no impact would occur.

#### 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 contains relatively flat terrain, which decreases the project's potential to accelerate erosion. The project site is developed within the Park facilities and would only require localized trenching on site and on a portion of the Paakuma K–8 School site. Implementation of the proposed project would require limited earthwork, which includes grading and drilling holes for installation of proposed light poles and utility trenching. Additionally, the proposed project does not contain any subterranean levels and would not require extensive excavation, meaning soils would not be exposed to erosion impacts. The construction contractor would be required to take all measures deemed necessary during grading to provide erosion-control devices to protect exposed soil and adjacent properties from storm damage and flood hazard originating on the proposed project. Additionally, adherence with existing state and local laws regulating construction activities would minimize soil erosion. Therefore, the proposed project would not result in substantial soil erosion or loss of topsoil, and 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.** The project site is relatively flat, and as previously discussed in Sections 3.7(a)(iii and iv), is not within an area subject to landslides or liquefaction. Additionally, compliance with the

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most current CBC and DSA criteria reduces potential impacts related to liquefaction and landslides to less than significant.

Seismically induced lateral spreading involves primarily lateral movement of earth materials due to ground shaking. It differs from the slope failure in that complete ground failure involving large movement does not occur due to the relatively smaller gradient of the initial ground surface. Lateral spreading is demonstrated by near-vertical cracks with predominantly horizontal movement of the soil mass involved. Due to the relatively flat nature of the project site and compliance with the most current CBC and DSA criteria, impacts related to lateral spreading would be less than significant.

The major cause of ground subsidence is the excessive withdrawal of groundwater. Soils with high silt or clay content are particularly susceptible to subsidence. The proposed project soil content is primarily composed of stony loamy sand and does not contain any clays. The proposed project site's soil content does not contain clays or silt (USDA 2024). The proposed project would not include earthwork to extreme depths and would not result in excessive withdrawal of groundwater during construction or operation. Therefore, impacts associated with subsidence would be less than significant.

Collapsible soils are typically geologically young, unconsolidated sediments of low density that may compress under the weight of structures. The proposed project would be developed in compliance with applicable laws pertaining to school construction (required by the DSA), including the CBC, and implement recommendations per the final engineering-level geotechnical report. Therefore, impacts associated with collapsible soils would be less than significant.

**d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?**

**Less-Than-Significant Impact.** Expansive soils contain certain types of clay minerals that shrink when they dry out and swell when soil becomes wet, resulting in the potential for cracking building foundations and in some cases, structural distress of the buildings themselves. Arid or semiarid areas with seasonal changes of soil moisture experiences, such as Southern California, have a higher potential of expansive soils than areas with higher rainfall.

The United States Department of Agriculture (USDA) maintains an interactive map that shows site-specific soil data. According to the USDA Web Soil Survey, the proposed project soil content is primarily composed of stony loamy sand and does not contain any clays. Although unlikely, clay soils may exist beneath the proposed project site; however, as described previously in Section 3.7(a), compliance with the CBC and DSA would ensure adequate structural integrity. Therefore, expansive soils are expected to have a less-than-significant impact on direct or indirect risk to life or property.

**e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?**

**No Impact.** The proposed project does not propose the use of septic tanks or alternative wastewater disposal systems. The proposed project is in a developed neighborhood within an unincorporated area of San



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Bernardino County and does not propose connection to city utilities. No impacts related to septic systems would occur.

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

**Less-Than-Significant Impact with Mitigation.** Paleontological resources or fossils are remains of ancient plants and animals that can provide scientifically significant information about the history of life on earth. 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 San Bernardino County General Plan Update's Paleontological Resources Technical report states the valley region, where the project site is located, is characterized by a broad valley floor deposit of Younger Alluvium that is too young to preserve fossil resources in the upper layers; however, the deeper layers and underlying sediments have high paleontological sensitivity. (San Bernardino 2018a). The project site has been developed for the park and associated athletic structures. The proposed project would include trenching and installation of the stadium lights, requiring subsurface work during construction. The operational phase would not include any subsurface activities. While fossils are not expected to be discovered during project construction, it is possible that fossils could be discovered during grading activities. Unknown fossils encountered during excavation would have the potential to be unintentionally damaged.

Implementation of Mitigation Measure GEO-1, which outlines precautionary measures and action measures for an event resulting in the discovery of unknown paleontological resources, would ensure that impacts to unknown paleontological resources are less than significant.

#### Mitigation Measure

GEO-1            In the event that fossils or fossil locality deposits are discovered during construction, excavation within 100 feet of the fossil locality shall be temporarily halted until removal occurs. The contractor shall notify a qualified paleontologist to investigate its significance. If the fossil locality is determined to be significant by the qualified paleontologist, the paleontologist shall work with the San Bernardino City Unified School District to follow accepted professional standards, such as further testing for evaluation or data recovery, as necessary. The paleontologist shall notify the appropriate agencies to determine procedures that would be followed before construction is allowed to resume at the location of the find. If the project proponent determines that avoidance is not feasible, the paleontologist shall prepare an excavation plan for mitigating the effect of the project based on the qualities that make the resource important.

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

### 3.8 GREENHOUSE GAS EMISSIONS

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 GHG is fossil fuel use. The Intergovernmental Panel on Climate Change (IPCC) has identified four major GHGs—water vapor, carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), and ozone (O<sub>3</sub>)—that are the likely cause of an increase in global average temperatures observed within the 20th and 21st centuries. Other GHG identified by the IPCC that contribute to global warming to a lesser extent include nitrous oxide (N<sub>2</sub>O), sulfur hexafluoride (SF<sub>6</sub>), hydrofluorocarbons, perfluorocarbons, and chlorofluorocarbons.<sup>2</sup>

Information on manufacturing 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.<sup>3</sup> Black carbon emissions are not included in the GHG analysis, because the California Air Resources Board (CARB) does not include this pollutant in the state’s Senate Bill (SB) 32 and Assembly Bill (AB) 1279 inventory and treats this short-lived climate pollutant separately.<sup>4</sup> Appendix A provides a background discussion on the GHG regulatory setting and GHG modeling.

**Would the project:**

<sup>2</sup> Water vapor (H<sub>2</sub>O) 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.

<sup>3</sup> 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).

<sup>4</sup> Particulate matter emissions, which include black carbon, are analyzed in Section 3.3, Air Quality. Black carbon emissions have sharply declined due to efforts to reduce on-road and off-road vehicle emissions, especially diesel particulate matter. The state’s existing air quality policies will virtually eliminate black carbon emissions from on-road diesel engines within 10 years (CARB 2017).

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

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

Global climate change is not confined to a particular project area and is generally accepted as the consequence of global industrialization over the last 200 years. A typical project, even a very large one, does not generate enough greenhouse gas emissions on its own to influence global climate change significantly; hence, the issue of global climate change is, by definition, a cumulative environmental impact. Implementation of the proposed project would result in the installation and operation of 11 stadium light poles for the Park baseball/softball fields. The permanent lighting would provide additional lighting to extend the hours available for use of the baseball/softball fields, which would generate an increase in mobile trips in the evening till 10:00 pm. However, because the proposed project would operate in the same manner as existing conditions, there would not be an increase in water demand, wastewater and solid waste generation, area sources (e.g., consumer cleaning products), or refrigerants.

Project-related construction and operation-phase GHG emissions are shown in Table 8, Project-Related Operation Greenhouse Gas Emissions. Annual average construction emissions from construction activities were amortized over 30 years and included in the emissions inventory to account for one-time GHG emissions from the construction phase of the proposed project. Overall, development and operation of the proposed project would not generate annual GHG emissions that exceed the South Coast AQMD Working Group bright-line threshold of 3,000 metric tons of carbon dioxide equivalent (MTCO<sub>2e</sub>) per year for development projects (South Coast AQMD 2010). Therefore, the proposed project’s cumulative contribution to GHG emissions would be less than significant.

**Table 8 Project-Related Operation Greenhouse Gas Emissions**

Source	GHG Emissions (MTCO <sub>2e</sub> /Year)	Percentage of Total Emissions
Field Lighting Energy <sup>1</sup>	8	81%
Mobile <sup>2</sup>	1	13%
Amortized Construction Emissions <sup>3</sup>	1	6%
<b>Total</b>	<b>10</b>	<b>100%</b>
South Coast AQMD Bright-Line Threshold	3,000 MTCO <sub>2e</sub> /Yr	NA
<b>Exceeds Bright-Line Threshold?</b>	<b>No</b>	NA

Source: CalEEMod, Version 2022.1.

Notes: GHG = greenhouse gas; MTCO<sub>2e</sub> = metric ton of carbon dioxide equivalent; South Coast AQMD = South Coast Air Quality Management District; NA = not applicable.

<sup>1</sup> Emissions from field lighting calculated off-model based on average hours of lighting per event (Appendix A).

<sup>2</sup> Vehicle trips provided by DJ&A Traffic Impact Study (Appendix C).

<sup>3</sup> Total construction emission are amortized over 30 years per South Coast AQMD Working Group methodology.

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

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

#### California Air Resources Board Scoping Plan

CARB's latest Climate Change Scoping Plan (2022) outlines the state's strategies to reduce GHG emissions in accordance with the targets established under AB 32, SB 32, and AB 1279 (CARB 2022). The Scoping Plan is applicable to state agencies and is not directly applicable to cities/counties and individual projects. Nonetheless, the Scoping Plan has been the primary tool that is used to develop performance-based and efficiency-based CEQA criteria and GHG reduction targets for climate action planning efforts.

Statewide strategies to reduce GHG emissions in the 2022 Climate Change Scoping Plan include:

- Implementing SB 100, which expands the RPS to 60 percent by 2030.
- Expanding the Low Carbon Fuel Standards (LCFS) to 18 percent by 2030.
- Implementing the Mobile Source Strategy to deploy zero-electric vehicle buses and trucks.
- Implementing the Sustainable Freight Action Plan; implementing the Short-Lived Climate Pollutant Reduction Strategy, which reduces methane and hydrofluorocarbons to 40 percent below 2013 levels by 2030 and black carbon emissions to 50 percent below 2013 levels by 2030.
- Continuing to implement SB 375.
- Creating a post-2020 Cap-and-Trade Program.
- Developing an Integrated Natural and Working Lands Action Plan to secure California's land base as a net carbon sink.

Statewide strategies to reduce GHG emissions include the low carbon fuel standards, California Appliance Energy Efficiency regulations, California Renewable Energy Portfolio standard, changes in the CAFE standards, and other early action measures as necessary to ensure the state is on target to achieve the GHG emissions reduction goals of AB 32, SB 32, and AB 1279. In addition, new developments are required to comply with the current Building Energy Efficiency Standards and California Green Building Standards Code (CALGreen). The proposed project would comply with these GHG emissions reduction measures since they are statewide strategies. The proposed project GHG emissions would be further reduced from compliance with statewide measures that have been adopted since AB 32, SB 32, and AB 1279 were adopted. Therefore, the proposed project would not obstruct implementation of the 2022 Scoping Plan, and impacts would be less than significant.

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#### Southern California Association of Governments' Regional Transportation Plan/Sustainable Communities Strategy

SCAG adopted the 2024–2050 RTP/SCS, Connect SoCal, in April 2024. Connect SoCal is a long-term plan for Southern California region that details the development, integrated management and operation of transportation systems and facilities that will function as an intermodal transportation network for the SCAG metropolitan planning area (SCAG 2024). This plan outlines a forecasted development pattern that demonstrates how the region can sustainably accommodate needed housing and job centers with multimodal mobility options. The overarching vision is to expand alternatives to driving, advance the transition to clean-transportation technologies, promote integrated and safe transit networks, and foster transit-oriented development in compact and mixed-use developments (SCAG 2024). In addition, Connect SoCal is supported by a combination of transportation and land use strategies that outline how the region can achieve California’s GHG-emission-reduction goals and federal Clean Air Act requirements. The projected regional development, when integrated with the proposed regional transportation network in Connect SoCal, would reduce per-capita GHG emissions related to vehicular travel and achieve the GHG reduction per capita targets for the SCAG region.

The Connect SoCal Plan does not require that local general plans, specific plans, or zoning be consistent with the SCS, but provides incentives for consistency to governments and developers. The proposed project would involve installation and operation of field lighting at Paakuma Park and would generate a minimal increase in vehicle trips during the evening from activities at the athletic fields. The proposed project would not change the underlying zoning or uses on the project site and would continue to serve the local student population and neighboring communities. Therefore, the proposed project would not interfere with SCAG’s ability to implement the regional strategies in Connect SoCal, and impacts would be less than significant.

Issues	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
<b>IX. HAZARDS AND HAZARDOUS MATERIALS. Would the project:</b>				
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?			<b>X</b>	
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?			<b>X</b>	
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?			<b>X</b>	
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?			<b>X</b>	

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Issues	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
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?				<b>X</b>
f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?			<b>X</b>	
g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?			<b>X</b>	

### 3.9 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?**

**Less-Than-Significant Impact.** Construction of the proposed project would require small amounts of hazardous materials such as vehicle fuels, lubricants, grease and transmission fluids, paints, and coatings. The handling, use, transport, and disposal of hazardous materials during the construction phase of the proposed project would comply with existing regulations of several agencies—the Environmental Protection Agency (EPA), California Division of Occupational Safety and Health (Cal/OSHA), United States Occupational Safety and Health Administration (OSHA), and United States Department of Transportation (USDOT).

Operation of the proposed project would transport, use, store, and dispose of small amounts of hazardous materials typical of school facilities such as cleaning and maintenance supplies (e.g., cleaners, gasoline, paint, pesticides). The proposed project includes various athletic field improvements that would use cleaners and other chemicals in relatively small quantities, which are not typically considered hazardous materials that could result in a significant hazard to the public or the environment. No manufacturing, industrial, or other uses using large amounts of hazardous materials would occur within the Park. Compliance with applicable federal and state laws and regulations governing the use, storage, transport, and disposal of hazardous materials would ensure that all potentially hazardous materials are used and handled in an appropriate manner and would minimize the potential for safety impacts to occur. Therefore, the proposed project would not create substantial hazards to the public or the environment. Impacts would be less than significant.

- 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?**

**Less-Than-Significant Impact.** As discussed previously in Section 3.9(a), construction activities would require small amounts of hazardous materials, including vehicle fuels, lubricants, grease and transmission fluids as well as paints and coatings. The use, transportation, and disposal of hazardous materials would be in

### 3. Environmental Analysis

accordance with regulatory standards and manufacturers' specifications. Hazardous materials would be used in small quantities and stored so they do not pose significant safety hazards. Operation of the proposed project would transport, use, store, and dispose of small amounts of hazardous materials typical of school facilities such as cleaning and maintenance supplies (e.g., cleaners, gasoline, paint, pesticides). Operation of the proposed project would use cleaners and other chemicals in relatively small quantities, which is not typically considered hazardous materials that could result in a significant hazard to the public or the environment. Compliance with applicable federal and state laws and regulations governing the use, storage, transport, and disposal of hazardous materials would ensure impacts would be less than significant.

**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.** The proposed project would develop outside lighting fixtures through the use of trenching on the Park site.

As discussed in Section 3.9(a), construction and operation of the proposed project would handle small amounts of hazardous materials typical of construction activities and used in the operation of school facilities. The use, transportation, and storage of hazardous materials would be required to comply with all applicable state and federal regulations, which would ensure the proper handling of such materials. As discussed in Section 3.9(b), no active hazardous material facilities were located within a quarter-mile radius of the project site. No significant hazards from hazardous materials is expected at the project site. 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?**

**Less-Than-Significant Impact.** California Government Code Section 65962.5 requires referencing a list of hazardous materials sites, hazardous waste discharges for which the State Water Control Board has issued certain types of orders, public drinking water wells collecting detectable levels of organic contaminants, underground storage tanks with reported unauthorized releases, and solid waste disposal facilities from which hazardous waste has migrated.

Seven environmental lists were searched for hazardous materials on the project site:

- **GeoTracker.** State Water Resources Control Board (SWRCB 2024)
- **EnviroStor.** Department of Toxic Substances Control (DTSC 2024a)
- **EJ Screen.** United States Environmental Protection Agency (USEPA 2024a)
- **EnvironMapper.** United States Environmental Protection Agency (USEPA 2024b)
- **Solid Waste Information System (SWIS).** California Department of Resources Recovery and Recycling (Cal Recycle 2024)

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- **Cortese List.** Department of Toxic Substances Control (DTSC 2024b)
- **CalEPA.** California EPA (CalEPA 2024)

As discussed in Section 3.9(b), no active facilities were identified within a quarter-mile radius of the project site on any database or list searched. The Paakuma K–8 School is listed on the Envirostor and CalEPA databases as a School Evaluation Site for evaluations in 2008 and 2013 (Table 9, Hazardous Waste Sites within 0.25 Mile). The school site is listed as “No Action Required” from the 2008 evaluations where a Phase I Report was completed resulting in a “No Action” determination, and then in 2013, an evaluation of import soil was conducted that resulted in approval of the import to the school by the Department of Toxic Substances Control (DTSC) (DTSC 2024c; CalEPA 2024). The Paakuma K–8 School is not an active facility that could pose harm to the proposed project site. Therefore, the proposed project would not create a significant hazard to the public or the environment, thus impacts would be less than significant.

**Table 9 Hazardous Waste Sites within 0.25 Mile**

Site Address	Database	Identifier	Cleanup Status	Proximity to Site
Paakuma K–8 School None La Media Road, San Bernardino County, CA APN: 111601213	CalEPA	EnvironStor Cleanup (60000971)	No Action Required (November 2013)	160 feet west

Source: CalEPA 2024.  
 Notes: APN = Assessor’s Parcel Number.

- e) **For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles or a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?**

**No Impact.** The closest public airport to the project site is the San Bernardino International Airport approximately 11.3 miles southeast of the project site. The project site is not within two miles of a public airport or public use airport. 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 Park/school boundaries, and operation of the lighted sports facilities would not impair or interfere with any existing vehicular or pedestrian emergency response plan or evacuation plan. All construction staging would be within the Park/school boundaries, and no off-site roadway or lane closures are anticipated. Therefore, impacts would be less than significant.



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**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.** As discussed further in Section 3.20, Wildfire, project site is within a state responsibility area (SRA) as a Very High Fire Hazard Severity Zone (VHFHSZ) (CalFire 2023). The project site is not in local responsibility area (LRA). The project site is within the Wildlife Urban Interface (USFS 2020; CalFire 2023). As discussed in Section 3.20(b), the project site is generally flat, with a gradual downward slope from the west to the east. The project site and the surrounding area is developed with the Paakuma Park, the Paakuma K–8 School site, and residential uses and is relatively flat, sloping down west to east. The proposed project would be designed in accordance with the California Building Code and California Fire Code. Project design plans would be reviewed by the DSA. Fire suppression equipment specific to construction would be maintained on site. Additionally, project construction would comply with applicable existing codes and ordinances related to the maintenance of mechanical equipment, handling and storage of flammable materials, and cleanup of spills of flammable materials. The proposed project includes the installation of sports field lighting at the Park and would not change the uses or boundaries of the facilities to place sports facilities, students, or members of the public closer to wildland fires. Therefore, the proposed project would not expose people or structures to a significant risk due to wildfires. Impacts would be less than significant.

Issues	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
<b>X. HYDROLOGY AND WATER QUALITY. Would the project:</b>				
a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?			<b>X</b>	
b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?			<b>X</b>	
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:			<b>X</b>	
i) result in a substantial erosion or siltation on- or off-site;			<b>X</b>	
ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;			<b>X</b>	
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			<b>X</b>	
iv) impede or redirect flood flows?			<b>X</b>	
d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?				<b>X</b>
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?				<b>X</b>

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#### 3.10 HYDROLOGY AND WATER QUALITY

Would the project:

- a) **Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater 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 about 99 square feet (9 square feet x 11 poles), the NPDES program would not be applicable, and a significant construction water quality impact is not anticipated. Also, after the holes for the light poles are drilled, they would be cured with concrete, so soil erosion and sediment impacts would be minimized. 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 Park 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, 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 park, and the impervious surfaces created by the proposed project would be negligible (up to 99 square feet). Impacts would be less than significant.

- b) **Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?**

**Less-Than-Significant Impact.** The project site is generally flat, with a gradual downward slope from the west to the east. The project site is in a developed area of unincorporated San Bernardino County and is served by existing utility infrastructure. The proposed project would be designed and constructed in accordance with the California Building Code, and the proposed project would not create additional demand for groundwater because it would accommodate the existing community sports leagues and other uses. The footprint of the proposed stadium lights would be negligible and would not substantially interfere with groundwater recharge. Additionally, no walkways or hard surfaces would be expanded. 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, and impacts would be less than significant.

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c) **Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:**

i) **Result in a substantial erosion or siltation on- or off-site?**

**Less-Than-Significant Impact.** Erosion is a normal and inevitable geologic process whereby earthen materials are loosened, worn away, decomposed or dissolved, and moved from one place to another. Precipitation, running water, waves, and wind are all agents of erosion. Ordinarily, erosion proceeds imperceptibly, but when the natural equilibrium of the environment is changed, the rate of erosion can greatly accelerate. This can create aesthetic as well as engineering problems on undeveloped sites. Accelerated erosion in an urban area can cause damage by undermining structures; blocking storm drains; and depositing silt, sand, or mud on roads and in tunnels. Eroded materials can eventually be deposited in local waters, where the carried silt remains suspended in the water for some time, constituting a pollutant and altering the normal balance of plant and animal life.

The project site is already developed with park facilities that are subject to imperceptible erosion and siltation. The areas disturbed by the proposed project would be limited to the number of poles to be installed and temporary utility trenching. 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. Utility trenches would be backfilled and returned to pre-project conditions, either covered by concrete walkways or with sod to match the conditions of the surrounding fields. 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 off-site?**

**Less-Than-Significant Impact.** Stormwater runoff on the project site currently flows into existing city streets and drains. According to the Federal Emergency Management Agency (FEMA), the project site is within Zone X, an area with reduced flood risk due to levees, and is outside of the 100-year and 500-year floodplain (FEMA 2024). The areas permanently impacted by the proposed project would be limited to the number of stadium light poles being installed. Considering that each pole with concrete base would impact approximately 9 square feet, the proposed project would result in an additional 99 square feet (9 square feet x 11 poles) of new impervious areas. Therefore, considering the total acreage of the Park, 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-site or off-site flooding. Therefore, 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 area of the Park. The areas impacted by the proposed project would consist of approximately 99 square feet (9 square feet x 11) of impervious areas. Therefore, implementation of the

### 3. Environmental Analysis

proposed project would not substantially increase runoff water to existing drainage systems compared to existing conditions. Project-related changes to the existing park facilities would not create additional sources of polluted runoff. Impacts would be less than significant.

**iv) Impede or redirect flood flows?**

**Less-Than-Significant Impact.** According to the FEMA map, the project site is not within a flood zone and is within a residentially developed portion of the unincorporated area of San Bernardino County. The project site is in Flood Zone X, which is an area determined to be outside the 0.2-percent annual chance floodplain. Therefore, the project would not result in impeding or redirecting flood flows, and impacts would be less than significant.

**d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?**

**No Impact.** A seiche is a surface wave created when a body of water is shaken, usually by earthquake activity. Seiches are of concern relative to water storage facilities because inundation from a seiche can occur if the wave overflows a containment wall such as the wall of a reservoir, water storage tank, dam, or other artificial body of water. There are no large water tanks or dams in the area that could directly impact the proposed project site in the event of failure (NID 2024). The nearest dam is the San Sevaine Basin No. 5, 5.7 miles southwest of the proposed project site.

The project site is not within a flood zone (FEMA 2024). The proposed project is in Flood Zone X, which is an area determined to be outside the 0.2-percent annual chance floodplain. Therefore, flood hazards are low. Additionally, the project site is approximately 50 miles from the Pacific Ocean and is not within a tsunami zone. No impact would occur since the proposed project site is outside of flood hazard, tsunamis, or seiche zones.

**e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?**

**No Impact.** As previously mentioned in Section 3.10(b), the proposed project would not affect groundwater and therefore would not obstruct implementation of a sustainable groundwater management plan. The proposed project would comply with existing local, regional, and state regulations and would not obstruct implementation of a water quality control plan. Therefore, no impact would occur.

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

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#### 3.11 LAND USE AND PLANNING

Would the project:

**a) Physically divide an established community?**

**No Impact.** The proposed project site and surrounding area are fully developed with, mostly, residential land uses. The proposed project would occur within Paakuma Park and a portion of the Paakuma K–8 School site. The proposed project would include installation of stadium lighting on athletic fields. The proposed project improvements would be limited to the project site. The proposed project would not create any new land use barriers, divide, or disrupt the physical arrangement of any surrounding communities. Therefore, 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.** According to the San Bernardino County Land Use and Zoning map the Park and the Paakuma K–8 School have a land use designation of Public Facility (PF) which is the designation for the use and development of public facilities, including, but not limited to, federal agencies, special districts, public schools and associated administrative offices, and public and private utilities (San Bernardino County 2020a). The Park and Paakuma K–8 School are zoned as SD-RES (Special Development - Residential), which is intended for developments intermixing residential, commercial, and industrial uses. The proposed project would be consistent with the land use and zoning designation. The proposed project would not alter or modify the project site’s current land use and zoning designations. Development of the proposed project would not conflict with any applicable land use plans, policies, or regulations. Therefore, there would be no impact.

Issues	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
<b>XII. MINERAL RESOURCES. Would the project:</b>				
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?				<b>X</b>
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?				<b>X</b>

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#### 3.12 MINERAL RESOURCES

Would the project:

- a) **Result in the loss of availability of a known mineral resource that would be a value to the region and the residents of the state?**

**No Impact.** In 1975, the state legislature adopted the Surface Mining and Reclamation Act (SMARA). This designated mineral resources zones (MRZs) that were of statewide or regional importance. The classifications used to define MRZs are:

- **MRZ-1:** Areas where the available geologic information indicates no significant mineral deposits or a minimal likelihood of significant mineral deposits.
- **MRZ-2:** Areas where the available geologic information indicates that there are significant mineral deposits or that there is a likelihood of significant mineral deposits.
- **MRZ-3:** Areas where the available geologic information indicates that mineral deposits are likely to exist, however, the significance of the deposit is undetermined.
- **MRZ-4:** Areas where there is not enough information available to determine the presence or absence of mineral deposits.

The location of the Park and Paakuma K–8 School is within a region classified as MRZ-2 (Shumway and Silva 1995). Although the project site is within the MRZ-2 classification indicating there could be mineral resources, the proposed project site is developed with a park within an established residential neighborhood. As such, no minerals are being extracted from the proposed project, and given the residential uses in the surrounding area, no minerals would be extracted in the immediate future. Therefore, no impact 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.** The project site is in a region classified as MRZ-2. Although the project site is within this region, the site is in a developed area and not a locally important mineral resource recovery site, as designated by the State Mining and Geology Board in 2013 (San Bernardino 2018b). Implementation of the proposed project would not result in the loss of a locally important mineral resource recovery site. Additionally, these areas are not delineated on the San Bernardino County's General Plan as mineral resource recovery sites (San Bernardino 2018b). No impact would occur.

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Issues	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
<b>XIII. NOISE. Would the project result in:</b>				
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?			<b>X</b>	
b) Generation of excessive groundborne vibration or groundborne noise levels?			<b>X</b>	
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?				<b>X</b>

### 3.13 NOISE

#### Environmental Setting

Noise is defined as unwanted sound. It 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 government, State of California, and City of San Bernardino have established criteria to protect public health and safety and to prevent disruption of certain human activities. Noise monitoring and modeling was prepared by PlaceWorks in May 2024 and is summarized herein and included as Appendix B, which provides additional information on noise and vibration fundamentals and applicable regulations.

#### 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 single-family residential uses to the north, east, and south of the project site.

#### Existing Conditions

The project site is in a predominantly residential neighborhood. The existing noise environment is characterized primarily by traffic noise on Sycamore Creek Loop Parkway. Noise from children yelling and playing on school and park grounds, dogs barking, typical residential activities, birds, and wind noise also contribute to the ambient noise environment.

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#### Ambient Noise Monitoring

Three short-term (15-minute) measurement locations were selected and conducted around the Park baseball/softball fields (project site). All measurements were conducted Thursday, May 2, 2024, in the evening after school hours.

The short-term sound level meter used (Larson Davis LxT) for noise monitoring satisfies the American National Standards Institute (ANSI) standard for Type 1 instrumentation. The short-term sound level meter was set to “slow” response and “A” weighting (A-weighted decibel [dBA]). The meter was calibrated prior to and after each monitoring period. All measurements were at least 5 feet above the ground and away from reflective surfaces. Short-term measurement locations are described below and shown in Figure 9, Approximate Short-Term Noise Monitoring Locations, and results are summarized in Table 10, Short-Term Noise Measurements Summary in A-Weighted Sound Levels.

- **Short-Term Location 1 (ST-1)** was conducted on Sycamore Creek Loop Parkway next to the backyard of the residence on 4072 Grand Fir Lane. The measurement was taken approximately 150 feet north of the baseball fields. A 15-minute noise measurement began at 6:28 pm on Thursday, May 2, 2024. The noise environment is characterized by traffic noise on Sycamore Creek Loop Parkway and recreational activity at Paakuma Park. Noise levels measured 60.1 dBA  $L_{eq}$  and 73.1 dBA  $L_{max}$  during the measurement period at ST-1.
- **Short-Term Location 2 (ST-2)** was conducted on Clove Way next to the backyard of 4051 Quartzine Lane, approximately 85 east of the project site. A 15-minute noise measurement began at 6:08 pm on Thursday, May 2, 2024. The noise environment is characterized primarily by residential traffic on Clove Way and activity from Paakuma Park. Noise levels measured 56.0 dBA  $L_{eq}$  and 70.4 dBA  $L_{max}$  during the measurement period at ST-2.
- **Short-Term Location 3 (ST-3)** was conducted on a path between the southern-most baseball/softball field and eastern-most soccer field near the backyard of the residence on 3824 Blackberry Drive. A 15-minute noise measurement began at 6:49 pm on Thursday, May 2, 2024. The noise environment is characterized primarily by activity at Paakuma Park, including soccer games on the soccer and baseball fields, a birthday party near the playground area, and use of basketball courts. Approximately 70 people were identified at the park facilities while ST-3 was conducted. Noise levels measured 57.5 dBA  $L_{eq}$  and 72.9 dBA  $L_{max}$  during the measurement period at ST-3.



### 3. Environmental Analysis

**Table 10 Short-Term Noise Measurements Summary in A-Weighted Sound Levels**

Monitoring Location	Description	15-minute Noise Level, dBA						
		L <sub>eq</sub>	L <sub>max</sub>	L <sub>min</sub>	L50	L25	L8	L2
ST-1	Sycamore Creek Loop Parkway north of Paakuma Park 5/2/24, 6:28 PM	60.1	73.1	51.2	57.5	60.2	63.9	67.6
ST-2	Clove Way adjacent to 4051 Quartzine Lane 5/2/24, 6:08 PM	56.0	70.4	48.7	53.4	55.9	59.6	62.8
ST-3	Between soccer and baseball fields next to 3824 Blackberry Drive 5/2/24, 6:49 PM	57.5	72.9	50.1	55.6	57.5	60.7	64.2

Source: PlaceWorks 2024.

#### Applicable Standards

##### *County of San Bernardino*

The County of San Bernardino Municipal Code Chapter Section 83.01.080, Noise, provides community-wide noise standards. This section sets forth exterior noise standards for stationary sources for residential uses. Exterior noise from stationary sources shall not exceed 55 dBA L<sub>eq</sub> during the hours of 7:00 am and 10:00 pm and shall not exceed 45 dBA L<sub>eq</sub> during the hours of 10:00 pm and 7:00 am at residential properties. Section 83.01.080 (3) exempts temporary construction, maintenance, repair, or demolition activities between 7:00 am and 7:00 pm, except Sundays and federal holidays.

Section 93.01.090 (a) for vibration states that no ground vibration shall be allowed that can be felt without the aid of instruments at or beyond the lot line, nor shall any vibration be allowed that produces a particle velocity greater than or equal to two-tenths inches per second measured at or beyond the lot line. Additionally, 93.01.090 (2) exempts construction, maintenance, repair, or demolition activities between the hours of 7:00 am to 7:00 pm, except Sundays and holidays for vibration.

#### Would the project:

- a) **Generate 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, noise ordinance, or applicable standards of other agencies?**

#### Less-Than-Significant Impact.

#### Construction Noise

Noise generated by on-site construction equipment is based on the type of equipment used, its location relative to sensitive receptors, and the timing and duration of noise-generating activities. Each phase of construction involves different types of equipment and has distinct noise characteristics. Noise levels from construction activities are typically dominated by the loudest three pieces of equipment. The dominant equipment noise source is typically the engine, although work-piece noise (e.g., dropping materials) can also be noticeable.

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The noise produced at each construction phase is determined by combining the  $L_{eq}$  contributions from the three loudest pieces of equipment used at a given time, while accounting for the ongoing time-variations of noise emissions (commonly referred to as the usage factor). Heavy equipment, such as a dozer or a loader, can have maximum, short-duration noise levels of up to 85 dBA at 50 feet. However, overall noise emissions vary considerably, depending on what specific activity is being performed at any given moment.

Noise attenuation due to distance, the number and type of equipment, and the load and power requirements to accomplish tasks at each construction phase would result in different noise levels from construction activities at a given receptor. Since noise from construction equipment is intermittent and diminishes at a rate of at least 6 dBA per doubling of distance (conservatively disregarding other attenuation effects from air absorption, ground effects, and shielding effects provided by intervening structures or existing solid walls), the average noise levels at noise-sensitive receptors could vary considerably, because mobile construction equipment would move around the site (site of each development phase) with different equipment mixes, loads, and power requirements.

The expected construction equipment mix was estimated and categorized by construction activity using the Federal Highway Administration Roadway Construction Noise Model (RCNM). Construction equipment is modeled at spatially averaged distances (i.e., from the acoustical center of the general construction site to the property line of the nearest receptors) because the area around the center of construction activities best represents the potential average construction-related noise levels at the various sensitive receptors for mobile equipment. Results are summarized in Table 11, Project-Related Construction Noise Levels (dBA  $L_{eq}$ ), at the nearest receptors.

**Table 11 Project-Related Construction Noise Levels (dBA  $L_{eq}$ )**

Construction Activity Phase	RCNM Reference Noise Level	Residences to the North along Sycamore Creek Loop Parkway	Residences to the East along Clove Way	Residences to the South along Blackberry Drive
<i>Distance in feet</i>	50	380	290	260
Demolition	85	68	70	71
Field Installation Lighting	84	66	69	70
Site Preparation	81	63	65	66
<b>Maximum dBA <math>L_{eq}</math></b>		<b>68</b>	<b>70</b>	<b>71</b>
<b>Exceed 80 <math>L_{eq}</math> dBA Threshold?</b>		<b>No</b>	<b>No</b>	<b>No</b>

Notes: dBA = A-weighted decibel;  $L_{eq}$  = equivalent continuous sound level; RCNM = Roadway Construction Noise Model; Calculations performed with the Federal Highway Administration Roadway Construction Noise Model software are included in Appendix B.

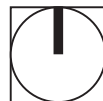


Figure 9 - Approximate Short-Term Noise Monitoring Locations



- School Boundary
- Project Boundary
- Project Impact Area (PIA)
- ST-X Short-Term Noise Measurement Locations (3)

0 325  
 Scale (Feet)



Source: Nearmap 2024.

### 3. Environmental Analysis

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### 3. Environmental Analysis

Assuming the nearest sensitive receptor to the center of construction activities, construction-related noise levels would be less than 71 dBA  $L_{eq}$  at the closest residential receptors to the north, east, and south of the site. Construction noise levels at receptors further away are estimated to be even less. The table shows the maximum noise level of 71 dBA  $L_{eq}$  during demolition at the residences south along Blackberry Drive. Construction noise levels would not exceed the FTA threshold of 80 dBA  $L_{eq}$  for residential uses, and project construction noise would not create a substantial increase in ambient noise levels in the vicinity of the project site. Additionally, construction of the proposed project would occur during the exempt hours per County's Municipal Code Section 83.01.080 (3). Therefore, construction noise impacts would be less than significant.

#### *On-Site Receptors*

Construction is anticipated to occur for three months from March 2025 to June 2025, during school sessions for the months of March through May. Construction activities could occur within 240 feet of existing classroom buildings. As shown in Table 11, construction noise levels would range between 81 and 85 dBA  $L_{eq}$  at 50 feet per the RCNM Reference Noise Level. Construction noise levels would attenuate to between 59 and 72 dBA  $L_{eq}$  at a distance of 240 feet. Typical exterior-to-interior noise attenuation with windows and doors closed is 25 dBA. This would result in interior construction noise levels ranging between 34 to 47 dBA  $L_{eq}$ . Speech interference is considered intolerable when background noise levels exceed 60 dBA. Therefore, average construction noise levels are not expected to exceed 60 dBA  $L_{eq}$  within adjacent classrooms based on typical exterior-to-interior noise attenuation. Construction would occur throughout the project site and thereby would be further than 240 feet at times which would reduce interior noise levels. In addition, to avoiding classroom disruption, some work would be done during instructional breaks when students are off campus. Additionally, construction of the proposed project would occur during the exempt hours per San Bernardino County's Municipal Code Section 83.01.080(g)(3). Therefore, on-campus construction noise impacts would be less than significant.

#### **Operational Noise**

The proposed project's primary on-site operational noise sources would include practice and sporting events for soccer, flag football, cheer, baseball, and softball. Noise from non-sporting events such as movies nights and other events hosted by the Rosena Ranch HOA are also anticipated. As described in the project description, the District events occur from 8:00 am to 6:00 pm on Saturdays, movie nights occur from 3:00 pm to 10:00 pm on Fridays, and other events hosted by the Rosena Ranch HOA would occur on Sundays from 7:00 am to 5:00 pm. Practices and games for the spring sports season currently occur from 4:00 pm to 9:00 pm, Monday through Friday, and 6:00 am to 10:00 pm, Saturdays and Sundays. The proposed project would not change the schedule for practice and sporting events, or non-sporting events.

The 11 proposed stadium lights would be placed throughout the fields of the project site. The proposed project is not anticipated to host any other programming or large-scale events that could potentially disrupt nearby residential areas. Project noise estimates are based on previously measured noise levels of a middle school track and field meet. During the meet, noise levels measured 66 dBA  $L_{eq}$  at 40 feet of approximately 150 people engaging in the activity. This analysis assumes 150 children are playing on the project site at 260 feet from the nearest noise sensitive receptor (i.e., residences to the south). Accounting for distances from field events, noise would be 50 dBA  $L_{eq}$  at the nearest residential property line to the west of the project site. Therefore, project



### 3. Environmental Analysis

operational noise would not exceed daytime noise standards of 55 dBA  $L_{eq}$  (per Section 83.01.080, Noise, of the San Bernardino Municipal Code), and impacts would be less than significant (San Bernardino County 2024c).

#### *Operational Off-Site Traffic Noise*

A project will normally have a significant effect on the environment related to traffic noise if it substantially increases the ambient noise levels for adjoining areas. Most people can detect changes in sound levels of approximately 3 dBA under normal, quiet conditions, and changes of 1 to 3 dBA under quiet, controlled conditions. Changes of less than 1 dBA are usually indiscernible. A change of 5 dBA is readily discernible to most people in an outdoor environment. Noise levels above 65 dBA Community Noise Equivalent Level (CNEL) are normally unacceptable at sensitive receptor locations such as residences, and noise environments in these areas would be considered degraded. Based on this, there would be a significant impact if the following traffic noise increases occur relative to the existing noise environment:

- 1.5 dBA in ambient noise environments of 65 dBA CNEL and higher
- 3 dBA in ambient noise environments of 60 to 64 dBA CNEL
- 5 dBA in ambient noise environments of less than 60 dBA CNEL

For this analysis, a significant traffic noise impact occurs when the thresholds above are exceeded under cumulative conditions (with project) and the contribution of the project to future traffic is calculated to be greater than 1.5 dBA CNEL (Sycamore Creek Loop Parkway) and 3 dBA CNEL (Clearwater Parkway), based on existing modeled traffic noise levels.

Traffic volume data for the new trips associated with the project are provided by DJ&A (Appendix C). The proposed project is expected to generate a net increase of up to 143 daily trips to existing average daily trips (ADT). The data provided by the traffic engineer presents the street and locations with scenarios for existing, existing with project conditions, opening year (2025) with no project, and opening year (2025) with project conditions. Table 12, Project-Related Increases in Traffic Noise (dBA CNEL at 50 Feet), shows that with the addition of project trips due to the project would result in an increase of 1 dBA or less over existing conditions. Therefore, the project would not result in a 1.5 dBA increase along Sycamore Creek Loop Parkway or a 3 dBA increase along Clearwater Parkway, and impacts would be less than significant.

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**Table 12 Project-Related Increases in Traffic Noise (dBA CNEL at 50 Feet)**

Roadway	Segment		Traffic Noise Increase					Cumulative Increase
	From	To	Existing No Project	Existing with Proposed Project	Existing Increase	Opening Year (2025) No Project	Opening Year (2025) With Project	
Sycamore Creek Loop Pkwy	Clearwater Pkwy	Clove Way	66	67	1	67	67	1
Clearwater Pkwy	Sycamore Creek Loop Pkwy	to the North	64	64	<1	64	64	<1

Source: Traffic data provided by DJ&A 2024. See Appendix C.  
 Notes: dBA = A-weighted decibel; CNEL = Community Noise Equivalent Level.

**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 phase 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.

**Architectural Damage**

For reference, a peak particle velocity (PPV) of 0.20 inch per second (in/sec) is used as the limit for nonengineered timber and masonry buildings (which would apply to the off-site surrounding residential structures) (FTA 2018). Table 13, Vibration Impact Levels for Typical Construction Equipment, shows typical construction equipment vibration levels and reference vibration levels at a distance of 25 feet. Available site plans show where the proposed trenches and light poles would be installed. The nearest construction activity associated with trenching activities and light pole installation would occur closest to the residences south of the project site along Blackberry Drive. The closest proposed light poles at the baseball/softball and soccer fields are approximately 50 feet north of the residential building. At 50 feet, as shown in Table 13, construction vibration levels would be up to 0.031 inch/second (in/sec) PPV or less.

### 3. Environmental Analysis

**Table 13 Vibration Impact Levels for Typical Construction Equipment**

Equipment	in/sec PPV	
	Reference Levels at 25 Feet <sup>1</sup>	Residences 50 Feet South <sup>1</sup>
Large Bulldozer	0.089	0.031
Caisson Drilling	0.089	0.031
Loaded Trucks	0.076	0.027
Small Bulldozer	0.003	0.001

Source: FTA 2018.

Notes: in/sec = inch per second; PPV = peak particle velocity.

<sup>1</sup> As measured from the edge of construction site using Google Earth Pro.

The County of San Bernardino has established a threshold for assessing construction vibration impacts. Section 83.01.090 (a) states a maximum acceptable vibration standard of 0.2 in/sec PPV for at or beyond the property line, which is applied for assessing vibration impacts from project construction-related activities. The nearest structure to the site's construction activities, the residential use to the south, is approximately 50 feet away from the proposed light poles. At this distance, construction vibration from a large bulldozer would attenuate to 0.031 in/sec PPV or less. Proposed construction activities would not exceed the San Bernardino County vibration standard of 0.2 in/sec PPV at or beyond the property line. Therefore, impacts from construction vibration would be less than significant.

#### 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 project site is approximately 11 miles northwest of the San Bernardino (SBD) International Airport in San Bernardino. Therefore, the proposed project would not expose people residing or working in the project area to excessive noise levels, and no impact would occur.



### 3. Environmental Analysis

Issues	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
<b>XIV. POPULATION AND HOUSING. Would the project:</b>				
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)?				<b>X</b>
b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?				<b>X</b>

#### 3.14 POPULATION AND HOUSING

**Would the project:**

- a) Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?**

**No Impact.** The proposed project would be constructed within the Park and on the eastern side of the Paakuma K–8 School site, in areas currently developed with baseball/softball fields, walkways, and through a portion of the soccer fields and Paakuma K–8 School site.

The proposed project would serve the existing needs of the campus and public. The project site would not construct any housing, nor would the construction of the proposed project generate a significant number of employment opportunities that could generate demand for local housing, as the proposed events already occur at Paakuma Park. The proposed project would not increase student enrollment or capacity at Paakuma K–8 School. Additionally, the proposed project would continue to use the existing roads and infrastructure, and no new roads, expanded utility lines, or housing are being proposed. Therefore, project development would not induce substantial population growth in the area, either directly or indirectly. Thus, no impact would occur.

- b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?**

**No Impact.** The proposed project would be constructed within Paakuma Park and on the eastern side of the Paakuma K–8 School site. No housing exists within Paakuma Park or the Paakuma K–8 School site. As such, there would be no relocation or construction of replacement housing. Therefore, no impact would occur.

### 3. Environmental Analysis

Issues	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
<b>XV. PUBLIC SERVICES. Would the project:</b>				
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:			<b>X</b>	
Fire protection?			<b>X</b>	
Police protection?			<b>X</b>	
Schools?			<b>X</b>	
Parks?				<b>X</b>
Other public facilities?				<b>X</b>

#### 3.15 PUBLIC SERVICES

Would the project 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, to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:

**a) Fire protection?**

**Less-Than-Significant Impact.** Fire protection and emergency medical services in San Bernardino County are provided by the San Bernardino County Fire Protection District. Services included fire suppression, emergency medical, rescue and fire prevention, and hazardous materials coordination services. The nearest fire station is Devore Station No. 2, at 1511 Devore Road in San Bernardino County approximately 2.77 miles north of the project site (San Bernardino County FPD 2024). Demand for fire protection services is generally tied to population growth. The proposed project would consist of installing new stadium lights for the baseball/softball fields and would not increase the population of the project area. Therefore, the project would not substantially increase the need for fire protection services, and impacts would be less than significant.

**b) Police protection?**

**Less-Than-Significant Impact.** The San Bernardino County Sheriff’s Department (San Bernardino County SD) provides law enforcement protection to the project site. The San Bernardino County SD is responsible for campus safety and creating safe school passages for students, staff, and the school community. The nearest county station is the Fontan Patrol Station, at 17780 Arrow Boulevard in Fontana approximately six miles south of the project site (San Bernardino County SD 2024). The project may cause a very slight increase in demands for police services during construction from possible trespass, theft, and/or vandalism. The perimeter of

### 3. Environmental Analysis

Paakuma Park is fenced, and access is only allowed at certain times during the day and night. Any increase in police demands would be temporary and would not require construction of new or expanded police facilities. The demand for law enforcement protection services generally corresponds to population. Since the project would not increase the area population, project implementation would not increase the demand for law enforcement services or generate a need for additional law enforcement facilities. The project would not increase the area population or demand and would not result in new adverse impacts on existing law enforcement service. Impacts would be less than significant.

#### c) Schools?

**Less-Than-Significant Impact.** The proposed project includes installing stadium lighting for evening use of the baseball/softball fields at the Park. The proposed project would not involve construction of any dwelling units or an increase in population that would require the construction of new school facilities. Development of the project would not result in the need for construction associated with an expansion of existing or development of new schools such that environmental impacts would result. Therefore, project-related impacts to school facilities would be less than significant.

#### d) Parks?

**No Impact.** Increases in demand for park facilities generally result from population increases, which in turn generally result from residential development and development of new job-generating land uses. The proposed project would consist of installing stadium lighting for evening use of the Park baseball/softball fields and would not induce population growth. Use of Paakuma Park would remain similar to existing conditions and would not require the expansion of Paakuma Park or the need for new park facilities. Therefore, no impact 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, senior centers). The project would not induce population growth. No impacts to other public facilities would occur.

### 3. Environmental Analysis

Issues	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
<b>XVI. RECREATION.</b>				
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?			<b>X</b>	
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?			<b>X</b>	

#### 3.16 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?**

**Less-Than-Significant Impact.** The proposed project is within unincorporated San Bernadino County and is operated and maintained by the District. Glen Helen Regional Park is the closest regional park to the project site, approximately 1.25 miles north, and is operated by San Bernardino County (San Bernardino County 2024a). Typically, the demand for parks is created by the development of new housing and/or actions that generate additional population.

The proposed project would install stadium lighting at the Park to serve the current operations and uses at the park. The proposed stadium lighting would allow for better use of the baseball/softball fields during the evening hours serving events, sports practices, and games already in operation. Therefore, the proposed project would not generate an increased demand for existing neighborhood, regional facilities, or other recreational facilities and would not result in substantial physical deterioration of such facilities nor cause deterioration to accelerate. The proposed project would have less-than-significant impact on recreation.

- 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.** The proposed project is a stadium lighting project within the Park. The proposed project would continue to serve the operations and uses at the park, which include school and public uses. The proposed project would be in a fully developed park. The installation of the proposed stadium lights would include a marginal permanent physical footprint while the other project components would be temporary. Therefore, the proposed project would not include the development of recreational facilities or require the expansion of existing recreational facilities that would have an adverse physical effect on the environment. Therefore, impacts would be less than significant.

### 3. Environmental Analysis

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

#### 3.17 TRANSPORTATION

- This section is based in part on the Paakuma K–8 School Field Lighting Project: Traffic Impact Study (Appendix C) and addresses any potential direct and indirect environmental impacts associated with traffic and transportation as a result of the proposed project. This section also summarizes the results of a traffic/transportation analysis conducted for the proposed project.

**Would the project:**

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

**Less-Than-Significant Impact.** The proposed project would provide the opportunity for the Park to extend baseball/softball-related activities into the evening hours. Practices and games for the spring sports season would continue to occur from 4:00 pm to 9:00 pm, Monday through Friday, and 6:00 am to 10:00 pm, Saturdays and Sundays. The installation of stadium lights would not result in an increase of events, additional school sports programs, or participants.

The trip generation for the Paakuma K–8 School Field Lighting Study has been estimated using rates published in the ITE Trip Generation Manual 11th Edition. The forecast was calculated using the ITE Trip Generation Manual values for a soccer field, which forecast that 16.4 trips would be generated during the PM peak hour per field, with 66 percent of trips entering and 34 percent exiting the site. While the fields to be lit at the school are baseball fields, this trip generation rate is appropriate given the similar use, team sizes, and duration of use. Table 14, Estimated Trip Generation, shows the estimated number of a vehicle entering and exiting trips from the local roadways during PM peak hours (outside of regular school hours) due to the addition of the stadium lighting at the baseball/softball fields. The proposed project is expected to generate a net increase of 33 trips during the PM peak hour. Of these trips, 22 would be inbound/entering trips, and 11 trips would be outbound/exiting trips. The traffic volumes shown in Table 14 are based on the worst-case scenario at peak PM times. There is a high potential for many of the student participants would already be at the school and

### 3. Environmental Analysis

could walk across campus to the park, which may reduce the number of arrivals shown in the table. Therefore, the traffic volumes shown in the table represent a conservative (high-end) worst-case scenario.

**Table 14 Estimated Trip Generation**

Origin	Entering		Exiting		Trips
	Distribution (%)	Trips	Distribution (%)	Trips	
Sycamore Loop Parkway West	29.8	3	30.1	7	10
Clearwater Parkway	23.3	3	27.8	6	9
Flowering Plum Way	0.4	0	0.2	0	0
Sycamore Loop Parkway East	35.4	4	28.4	6	10
Clove Way	8.1	1	13.5	3	4
Main School Entrance	3.0	0	3.0	0	0
<b>Total</b>	<b>100</b>	<b>11</b>	<b>100</b>	<b>22</b>	<b>33</b>

Note: These estimated additional vehicle trips would occur during PM peak hours.

The new stadium lighting is not expected to increase the overall number of participants, practices, or games at the Park; however, in the event additional participants want to utilize the Park due to stadium lighting, an estimated total of 33 trips shall be generated. The proposed project may also generate additional trips at other times of the day and days of the week, but such traffic increases would be minor compared to the peak PM event as shown by Table 14. The existing parking lot that is accessed from Sycamore Creek Loop Parkway and Flowering Plum Way would continue to be used by participants of the existing Park athletic uses. This would not result in a substantial change in traffic patterns as discussed in Section 3.17(b).

As shown in Table 14, the proposed project may increase vehicle trips compared to existing conditions. However, the proposed project's increase in vehicle trips would not conflict with the County of San Bernardino goals and policies related to transportation and mobility, as the proposed project would not alter the existing circulation and parking network at the Park.

The games and practices at the Park may generate a demand for non-motorized travel, because some event patrons would travel to and from the park as pedestrians or on bicycles. The streets adjacent to the park have sidewalks on both sides of the street, and there is a school area (yellow) crosswalk and residential crosswalk (white) in the area. Sycamore Creek Drive, which bounds the park to the north, contains a bike lane on both sides of the street. The proposed project would not alter the existing bicycle and pedestrian network. Thus, the proposed project would be consistent with General Plan Policy, TM-4.8 Local Bicycle and Pedestrian Networks, which supports bike and pedestrian facilities especially those that provide safe access to mobility focus areas, schools, parks, and major transit stops (San Bernardino County 2020b). Although the proposed project would result in a negligible increase in the level of pedestrian activity, there are numerous pedestrian amenities in the area that would accommodate pedestrian travel to and from the project site.

The proposed project would not conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, bicycle, and pedestrian facilities. Therefore, a less-than-significant impact would occur.

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#### b) Conflict or be inconsistent with CEQA Guidelines Section 15064.3 (b)?

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

As stated in the Technical Advisory on Evaluating Transportation Impacts in CEQA and the Vehicle Miles Traveled – Focused Transportation Impact Study Guide, projects that generate or attract fewer than 110 trips per day generally may be assumed to cause a less-than-significant transportation impact and can be screened from a CEQA VMT analysis because they fall into the small project category (OPR 2018; Caltrans 2020). The proposed project would result in an increase of 33 trips which is below the CEQA VMT threshold of 110 trips per day (Table 14). As such, no further CEQA VMT analysis is necessary and project impacts related to VMT would be less than significant.

In addition to the State of California screening methodology previously outlined, the San Bernardino County Transportation Authority Recommended Traffic Impact Analysis Guidelines, a local park is “presumed to have a less than significant impact ... as their uses are local serving in nature” (Fehr & Peers 2020). While the lighting project would increase the hours of use of the baseball/softball fields, the project would not change the nature of the existing use, which is to serve local sports and athletic activities. Therefore, impacts would be considered 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)?

**No Impact.** The proposed project would not add or alter any on-site or off-site access or circulation features that would create or increase any design hazards or incompatible uses. Vehicular, bicyclist, and pedestrian access to the Park and project site would continue to occur via properly designed driveways, sidewalks, cross walks, and bike lanes. The proposed project will reconstruct on-site pedestrian walkways.

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Appropriate pathways, signs, and gates would be provided from the parking lots to the field for convenient access by the public. The streets, intersections, driveways, and on-site circulation system are designed to accommodate the anticipated levels of vehicular and pedestrian activity and have historically been accommodating park-related and school-related daily traffic as well as traffic generated by the baseball/softball fields and other park uses. These facilities would continue to be compatible with the design and operation of a park and its athletics fields.

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

**d) Result in inadequate emergency access?**

**No Impact.** The existing and proposed access and circulation features at the Park and the Paakuma K–8 School site, including the driveways, on-site circulation roads, parking lots, and fire lanes, would continue to accommodate emergency ingress and egress by fire trucks, police units, and ambulance/paramedic vehicles. The proposed stadium lighting would not alter any emergency access features at the park or school. Emergency vehicles could easily access the baseball/softball field and all other areas of the park via on-site travel corridors. The proposed project would not result in inadequate emergency access. Therefore, no impacts would occur.

Issues	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
<b>XVIII. TRIBAL CULTURAL RESOURCES.</b>				
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:			<b>X</b>	
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			<b>X</b>	
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.			<b>X</b>	



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### 3.18 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 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**

**Less-Than-Significant Impact.** As discussed in Section 3.5(a), the project site is not listed or eligible for listing in the California Register of Historical Resources, National Register of Historic Places, California State Historical Landmarks, or Points of Historical Interest or in a local register of historical resources (OHP 2024; NAHC 2024; NPS 2024). The project site does not meet any of the historic resource criteria and does not meet the definition of a historic resource pursuant to CEQA. The project would not impact any tribal cultural resources listed on any of the registers of historic resources. Therefore, impacts would be less than significant.

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.** AB 52 requires meaningful consultation with California Native American tribes on potential impacts to tribal cultural resources, as defined in Public Resources Code Section 21074. Tribal cultural resources are sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe that are either eligible or listed in the California Register of Historical Resources or local register of historical resources.

As part of the AB 52 process, Native American tribes must have submitted a written request to the District (lead agency) to be notified of projects within their traditionally and culturally affiliated area. The 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 proposed project, and the District must begin the consultation process within 30 days of receiving the tribe's request. Consultation concludes when either 1) the parties agree to mitigation measures to avoid a significant effect on a tribal cultural resource or 2) a party, acting in good faith and after reasonable effort, concludes mutual agreement cannot be reached.

The District notified the Gabrieleño Band of Mission Indians - Kizh Nation of the proposed project in a written letter dated June 6, 2024, via email. The District also notified the YSMN (formerly San Manuel Band of Mission Indians) of the proposed project in a written letter dated June 6, 2024, via certified mail. Confirmation of the certified letter was received on June 14, 2024. No response was received from the

### 3. Environmental Analysis

Gabrieleño Band of Mission Indians - Kizh Nation during the AB52 consultation period (30 days). One response was received from the YSMN on June 28, 2024, via email.

The response letter from the YSMN was received by the YSMN on June 24, 2024. The YSMN acknowledged that the project site is within Serrano ancestral territory and is of interest to the YSMN, but given the nature of the project, the YSMN has no concerns. The YSMN also requested that certain mitigation measures be implemented and that a final copy of the IS/MND be sent to them.

The requested mitigation measures have been included as TCR-1 and TCR-2 below.

Additionally, the project site is not listed as a historical resource in the National Register of Historic Places, California Historical Landmarks, or California Historical Resources (NPS 2024; OHP 2024a; OHP 2024b), and the project site does not contain any known tribal resources pursuant to Public Resources Code Section 5024.1. However, the proposed project would include ground-disturbing activities that could discover tribal cultural resources. Mitigation Measures TCR-1, TCR-2, and TCR-3 would be implemented to reduce potentially significant impacts to less than significant. Therefore, impacts would be less than significant.

- TCR-1      The Yuhaaviatam of San Manuel Nation Cultural Resources Management Department (YSMN) shall be contacted, as detailed in CUL-1, of any pre-contact cultural resources discovered during project implementation, and be provided information regarding the nature of the find, so as to provide Tribal input with regards to significance and treatment. Should the find be deemed significant, as defined by CEQA (as amended, 2015), a Cultural Resources Monitoring and Treatment Plan shall be created by the archaeologist, in coordination with YSMN, and all subsequent finds shall be subject to the Plan. This Plan shall allow for a monitor to be present that represents YSMN for the remainder of the project, should YSMN elect to place a monitor on-site.
- TCR-2      Any and all archaeological/cultural documents created as a part of the project (isolate records, site records, survey reports, testing reports, etc.) shall be supplied to the applicant and Lead Agency for dissemination to YSMN. The Lead Agency and/or applicant shall, in good faith, consult with YSMN throughout the life of the project.
- TCR-3      If tribal cultural resources are inadvertently discovered during ground disturbing activities for this project, the following procedures will be carried out for treatment and disposition of the discoveries:
- Upon discovery of any Tribal Cultural Resources, construction activities shall cease in the immediate vicinity of the find (not less than the surrounding 60 feet) until the find can be assessed.
  - All Tribal Cultural Resources unearthed by project activities shall be evaluated by qualified archaeologists.
  - If human remains and/or grave goods are discovered or recognized at the project site, all ground disturbance shall immediately cease, and the county coroner shall be notified per

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Public Resources Code Section 5097.98. Human remains and grave/burial goods shall be treated alike per California Public Resources Code section 5097.98(d)(1) and (2).

- Work may continue on other parts of the project site while evaluation and, if necessary, mitigation takes place (CEQA Guidelines Section 15064.5[f]). If a non-Native American resource is determined by the qualified archaeologist to constitute a “historical resource” or “unique archaeological resource,” time allotment 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 PRC Sections 21083.2(b) for unique archaeological resources.
- Preservation in place (i.e., avoidance) is the preferred manner of treatment. 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. Any historic archaeological material that is not Native American in origin shall be curated at a public, non-profit institution with a research interest in the, if such an institution agrees to accept the material. If no institution accepts the archaeological material, it shall be offered to a local school or historical society in the area for educational purposes.

Issues	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
<b>XIX. UTILITIES AND SERVICE SYSTEMS. Would the project:</b>				
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?			<b>X</b>	
b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years?			<b>X</b>	
c) Result in a determination by the wastewater treatment provider, which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?			<b>X</b>	
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?			<b>X</b>	
e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?			<b>X</b>	

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#### 3.19 UTILITIES AND SERVICE SYSTEMS

Would the project:

- a) **Require or result in the relocation or construction of new or expanded water, wastewater treatment or stormwater drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?**

**Less-Than-Significant Impact.** The proposed project would connect electrical power to existing infrastructure.

##### Water Supply Facilities

The West Valley Water District (WVWD) provides water to the project site. WVWD currently helps to maintain and operate 25 reservoirs, 17 groundwater wells and 12 booster pump stations, including a fleet of emergency standby power generators for continuous service during power outages (WVWD 2024). The project site is currently served by the West Valley Water District and is within their meter route 12, within their North Service area (WVWD 2020a). The project does not propose any waterline connection to existing lines operated and maintained by the West Valley Water District; however, if future connection is needed, there is a 20-inch watermain on Sycamore Canyon Loop (WVWD 2020b). The proposed project would not significantly increase the existing park use 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 Facilities

The West Valley Water Department also provides wastewater collection and treatment services to the project site. The project site is currently developed and served by existing wastewater facilities. Installation of stadium lighting to existing athletic facilities would not increase wastewater demands. The proposed project would not significantly increase the Park use. The project would not require the relocation or construction of new or expanded wastewater treatment facilities. Impacts would be less than significant.

##### Stormwater Drainage Facilities

The project site is developed with existing athletic fields and structures. Installation of stadium lighting to existing athletic facilities at the existing park, adjacent the Paakuma K–8 School, would not result in substantial increase of impervious surfaces at the project site. The increase in impervious surfaces due to installation of light poles would be negligible and would not change the stormwater volume, rate, or pattern. The proposed project would not result in the relocation or construction of stormwater drainage. Impacts would be less than significant.

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#### Electricity Facilities

SCE provides electricity to the project site. The proposed project would connect to existing facilities. The proposed project would not require new or expanded electric power facilities other than connections to the existing electricity grid. The proposed project would result in a less-than-significant impact.

#### Natural Gas Facilities

Southern California Gas Company (SoCalGas) provides natural gas service to Paakuma Park. As a public utility, SoCalGas is under the auspices of the California Public Utilities Commission and federal regulatory agencies. Development of the proposed project would comply with regulations and standards pertaining to natural gas. 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 sites are already developed. The project would not require the construction of new or expanded facilities. Therefore, the proposed project would result in a less-than-significant impact.

#### Telecommunication Facilities

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.

**b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years?**

**Less-Than-Significant Impact.** WVWD supplies water to the project site. WVWD uses groundwater from the Lytle Creek Basin, a subbasin for the Bunker Hill groundwater Basin, and part of the larger Santa Ana Valley Groundwater Basin (WVWD 2020b). The Lytle Creek basin is highly porous and easily replenished during heavy precipitation years. The District currently uses a combination of groundwater wells, State Water Project (SWP) water, and treated surface water from Lytle Creek to meet the varying demand conditions of the existing customers. The minimum reliable supply to the surface water treatment facility is estimated to be approximately 4,000 afy, or 3.6 mgd. For supply planning purposes, it is assumed that the total required groundwater supply shall be adequate to supply peak day demands less 4,000 afy (WVWD 2020b). WVWD utilizes several sources of supply, including groundwater and treated surface water. The Oliver P. Roemer Water Filtration Facility (Roemer WFF) treats raw water from Lytle Creek and is supplemented with SWP water from Silverwood Lake (WVWD 2020b). The proposed project would not significantly increase the Park use and would not require an increase in water use. Therefore, a less-than-significant impact would occur.

**c) Result in a determination by the wastewater treatment provider, which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?**

**Less-Than-Significant Impact.** The proposed project involves installation of sports lighting to athletic facilities on the project site. No restrooms or other facilities generating wastewater would be developed as part

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of the proposed project. As such, the proposed project would not significantly increase the Park use and would not require an increase in wastewater demand. Therefore, a less-than-significant impacts 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 stadium lighting to existing athletic facilities within the Park. During construction, the proposed project would generate some demolition debris from construction and trenching. 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, Construction Waste Management Plan, requires that at least 65 percent of the nonhazardous construction and demolition waste from nonresidential construction operations be recycled and/or salvaged for reuse (ICC 2022). 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 significantly increase the Park use and would not generate a significant increase in 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 5.408.1.1 requires that at least 65 percent of the nonhazardous construction and demolition waste from nonresidential construction operation be recycled and/or salvaged for reuse. Project development would not conflict with laws governing solid waste disposal, and impacts would be less than significant.

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Issues	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
<b>XX. WILDFIRE.</b> 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?			<b>X</b>	
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?			<b>X</b>	
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?			<b>X</b>	
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?			<b>X</b>	

### 3.20 WILDFIRE

If located in or near state responsibility areas (SRAs) or lands classified as VHFHSZs, would the project:

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

**Less-Than-Significant Impact.** The project site is within an SRA as a Very High Fire Hazard Severity Zone (VHFHSZ) (CalFire 2023). The project site is not in an LRA. The project site and surrounding area are within a VHFHSZ. The project site is also within the Wildlife Urban Interface (USFS 2020).

Though the Park is in a VHFHSZ, installation of the proposed stadium lighting would not increase park capacity 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, would the project 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.** The project site is within an SRA as a VHFHSZ (CalFire 2023). Though the project site is in a VHFHSZ, the installation of the proposed stadium lights 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.** The project site is in a developed area of unincorporated San Bernardino County, is within an SRA as a VHFHSZ, and is served by existing utility infrastructure. Installation of stadium 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.** The project site is within an SRA as a VHFHSZ (CalFire 2023). Though Paakuma Park is in a VHFHSZ, installation of stadium lighting and necessary utility lines would have minimal impact on the existing drainage and runoff. The stadium lighting would be installed on flat surfaces of existing park 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.

Issues	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
<b>XXI. MANDATORY FINDINGS OF SIGNIFICANCE.</b>				
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?		<b>X</b>		
b) 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.)			<b>X</b>	
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?			<b>X</b>	



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#### 3.21 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?**

**Less-Than-Significant Impact with Mitigation Incorporated.** As discussed in Section 3.4, Biological Resources, there are no federally designated critical habitats that exist on site or in the vicinity of the project site. The project site is developed and disturbed, which does not support ecosystems that may support critical species. The project's proposed construction schedule would occur between the months of March and June, which would be during the bird nesting season. Although no trees will be disturbed, removed, or transplanted, incorporation of Mitigation Measure BIO-1, would require a qualified biologist to conduct a nesting bird survey prior to the start of construction to ensure there are no active nesting birds on site. With incorporation of Mitigation Measure BIO-1, impacts to biological resources would be less than significant.

As discussed in Section 3.5, Cultural Resources, and Section 3.18, Tribal Cultural Resources, it is unlikely that archaeological resources would be found during construction of the proposed project. Nevertheless, development of the proposed project would involve utility trenching and earthwork activities on the project site; thus, the potential exists to unearth previously undiscovered archaeological and paleontological resources. Incorporation of Mitigation Measures CUL-1, GEO-1, and TCR-1 would ensure that impacts to archaeological resources would be less than significant.

- b) **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.** The potential for cumulative impacts occurs when the independent impacts of a given project are combined with the impacts of related projects in proximity to the project site that would create impacts that are greater than those of the project alone. As discussed previously in this IS/MND, the proposed project would have no impact, a less-than-significant impact, or a less-than-significant impact with mitigation measures to aesthetics, agriculture and forestry resources, air quality, biological resources, cultural resources, energy, geology and soils, GHG emissions, hazards and hazardous materials, hydrology and water quality, land use and planning, mineral resources, noise, population and housing, public services, recreation, transportation, tribal cultural resources, utilities and service systems, and wildfire. Because the proposed project would accommodate existing sports programs within the boundaries of the existing park, the impacts would be limited to short-term construction, and would not be cumulatively considerable. Impacts would be less than significant. Therefore, all impacts are individually limited and would not result in any cumulatively significant impact. Impacts would be less than significant, and no mitigation measures are required.

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- c) **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 IS/MND would reduce impacts to less than significant. The proposed project would not, directly nor indirectly, result in environmental effects that could cause substantial adverse effects on human beings. Therefore, a less-than-significant impact would occur.

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## 5. List of Preparers

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### **LEAD AGENCY**

#### **San Bernardino City Unified School District**

Thomas Pace, Director

#### **Architects Mosher Drew**

Alahe Aldo, Principal Architect

#### **PlaceWorks**

Dwayne Mears, Principal

Malia Durand, Associate Principal

Jared Bradford, Associate

Isabel Vega, Planner

Angel Castro, Planner

Cary Nakama, Graphic Artist

Kathy Swigart, Proposal Coordinator

## 5. List of Preparers

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# Appendix A    Air Quality and Greenhouse Gas Background and Modeling Data

## Appendix

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# **Air Quality and Greenhouse Gas Appendix**

# Air Quality and Greenhouse Gas Background and Modeling Data

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## AIR QUALITY

### Air Quality Regulatory Setting

The proposed project has the potential to release gaseous emissions of criteria pollutants and dust into the ambient air; therefore, it falls under the ambient air quality standards promulgated at the local, state, and federal levels. The project site is in the SoCAB and is subject to the rules and regulations imposed by the South Coast Air Quality Management District (South Coast AQMD). However, South Coast AQMD reports to California Air Resources board (CARB), and all criteria emissions are also governed by the California and national Ambient Air Quality Standards (AAQS). Federal, state, regional, and local laws, regulations, plans, or guidelines that are potentially applicable to the proposed project are summarized below.

### AMBIENT AIR QUALITY STANDARDS

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

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

Both California and the federal government have established health-based AAQS for seven air pollutants. As shown in Table 1, *Ambient Air Quality Standards for Criteria Pollutants*, these pollutants include ozone (O<sub>3</sub>), nitrogen dioxide (NO<sub>2</sub>), carbon monoxide (CO), sulfur dioxide (SO<sub>2</sub>), coarse inhalable particulate matter (PM<sub>10</sub>), fine inhalable particulate matter (PM<sub>2.5</sub>), and lead (Pb). In addition, the state has set standards for

sulfates, hydrogen sulfide, vinyl chloride, and visibility-reducing particles. These standards are designed to protect the health and welfare of the populace with a reasonable margin of safety.

**Table 1 Ambient Air Quality Standards for Criteria Pollutants**

Pollutant	Averaging Time	California Standard <sup>1</sup>	Federal Primary Standard <sup>2</sup>	Major Pollutant Sources
Ozone (O <sub>3</sub> ) <sup>3</sup>	1 hour	0.09 ppm	*	Motor vehicles, paints, coatings, and solvents.
	8 hours	0.070 ppm	0.070 ppm	
Carbon Monoxide (CO)	1 hour	20 ppm	35 ppm	Internal combustion engines, primarily gasoline-powered motor vehicles.
	8 hours	9.0 ppm	9 ppm	
Nitrogen Dioxide (NO <sub>2</sub> )	Annual Arithmetic Mean	0.030 ppm	0.053 ppm	Motor vehicles, petroleum-refining operations, industrial sources, aircraft, ships, and railroads.
	1 hour	0.18 ppm	0.100 ppm	
Sulfur Dioxide (SO <sub>2</sub> )	Annual Arithmetic Mean	*	0.030 ppm	Fuel combustion, chemical plants, sulfur recovery plants, and metal processing.
	1 hour	0.25 ppm	0.075 ppm	
	24 hours	0.04 ppm	0.14 ppm	
Respirable Coarse Particulate Matter (PM <sub>10</sub> )	Annual Arithmetic Mean	20 µg/m <sup>3</sup>	*	Dust and fume-producing construction, industrial, and agricultural operations, combustion, atmospheric photochemical reactions, and natural activities (e.g., wind-raised dust and ocean sprays).
	24 hours	50 µg/m <sup>3</sup>	150 µg/m <sup>3</sup>	
Respirable Fine Particulate Matter (PM <sub>2.5</sub> ) <sup>4,6</sup>	Annual Arithmetic Mean	12 µg/m <sup>3</sup>	9 µg/m <sup>3</sup>	Dust and fume-producing construction, industrial, and agricultural operations, combustion, atmospheric photochemical reactions, and natural activities (e.g., wind-raised dust and ocean sprays).
	24 hours	*	35 µg/m <sup>3</sup>	
Lead (Pb)	30-Day Average	1.5 µg/m <sup>3</sup>	*	Present source: lead smelters, battery manufacturing & recycling facilities. Past source: combustion of leaded gasoline.
	Calendar Quarter	*	1.5 µg/m <sup>3</sup>	
	Rolling 3-Month Average	*	0.15 µg/m <sup>3</sup>	
Sulfates (SO <sub>4</sub> ) <sup>5</sup>	24 hours	25 µg/m <sup>3</sup>	*	Industrial processes.
Visibility Reducing Particles	8 hours	ExCo =0.23/km visibility of 10≥ miles	No Federal Standard	Visibility-reducing particles consist of suspended particulate matter, which is a complex mixture of tiny particles that consists of dry solid fragments, solid cores with liquid coatings, and small droplets of liquid. These particles vary greatly in shape, size and chemical composition, and can be made up of many different materials such as metals, soot, soil, dust, and salt.

**Table 1 Ambient Air Quality Standards for Criteria Pollutants**

Pollutant	Averaging Time	California Standard <sup>1</sup>	Federal Primary Standard <sup>2</sup>	Major Pollutant Sources
Hydrogen Sulfide	1 hour	0.03 ppm	No Federal Standard	Hydrogen sulfide (H <sub>2</sub> S) is a colorless gas with the odor of rotten eggs. It is formed during bacterial decomposition of sulfur-containing organic substances. Also, it can be present in sewer gas and some natural gas and can be emitted as the result of geothermal energy exploitation.
Vinyl Chloride	24 hours	0.01 ppm	No Federal Standard	Vinyl chloride (chloroethene), a chlorinated hydrocarbon, is a colorless gas with a mild, sweet odor. Most vinyl chloride is used to make polyvinyl chloride (PVC) plastic and vinyl products. Vinyl chloride has been detected near landfills, sewage plants, and hazardous waste sites, due to microbial breakdown of chlorinated solvents.

Source: CARB 2016.

Notes: ppm: parts per million; µg/m<sup>3</sup>: micrograms per cubic meter

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

- California standards for O<sub>3</sub>, CO (except 8-hour Lake Tahoe), SO<sub>2</sub> (1 and 24 hour), NO<sub>2</sub>, and particulate matter (PM<sub>10</sub>, PM<sub>2.5</sub>, and visibility reducing particles), are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.
- National standards (other than O<sub>3</sub>, PM, and those based on annual arithmetic mean) are not to be exceeded more than once a year. The O<sub>3</sub> standard is attained when the fourth highest 8-hour concentration measured at each site in a year, averaged over three years, is equal to or less than the standard. For PM<sub>10</sub>, the 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 µg/m<sup>3</sup> is equal to or less than one. For PM<sub>2.5</sub>, the 24-hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard.
- On October 1, 2015, the national 8-hour ozone primary and secondary standards were lowered from 0.075 to 0.070 ppm.
- On December 14, 2012, the national annual PM<sub>2.5</sub> primary standard was lowered from 15 µg/m<sup>3</sup> to 12.0 µg/m<sup>3</sup>. The existing national 24-hour PM<sub>2.5</sub> standards (primary and secondary) were retained at 35 µg/m<sup>3</sup>, as was the annual secondary standard of 15 µg/m<sup>3</sup>. The existing 24-hour PM<sub>10</sub> standards (primary and secondary) of 150 µg/m<sup>3</sup> also were retained. The form of the annual primary and secondary standards is the annual mean, averaged over 3 years.
- On June 2, 2010, a new 1-hour SO<sub>2</sub> standard was established and the existing 24-hour and annual primary standards were revoked. The 1-hour national standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the 1-hour national standard to the California standard the units can be converted to ppm. In this case, the national standard of 75 ppb is identical to 0.075 ppm.
- On February 7, 2024, the national annual PM<sub>2.5</sub> standard was lowered from 12 µg/m<sup>3</sup> to 9 µg/m<sup>3</sup>. The existing national 24-hour PM<sub>2.5</sub> standards (primary and secondary), secondary annual PM<sub>2.5</sub> standard, and PM<sub>10</sub> standards (primary and secondary) were retained.

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

- AB 1493: Pavley Fuel Efficiency Standards
- Title 20 California Code of Regulations (CCR): Appliance Energy Efficiency Standards
- Title 24, Part 6, CCR: Building and Energy Efficiency Standards
- Title 24, Part 11, CCR: Green Building Standards Code

## AIR POLLUTANTS OF CONCERN

### Criteria Air Pollutants

The air pollutants emitted into the ambient air by stationary and mobile sources are regulated by federal and state law. Air pollutants are categorized as primary or secondary pollutants. Primary air pollutants are those that are emitted directly from sources and include CO, VOC, NO<sub>2</sub>, SO<sub>x</sub>, PM<sub>10</sub>, PM<sub>2.5</sub>, and Pb. Of these, CO, SO<sub>2</sub>, NO<sub>2</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub> are “criteria air pollutants,” which means that ambient air quality standards (AAQS) have been established for them. VOC and oxides of nitrogen (NO<sub>x</sub>) are air pollutant precursors that form secondary criteria pollutants through chemical and photochemical reactions in the atmosphere. Ozone



(O<sub>3</sub>) and NO<sub>2</sub> are the principal secondary pollutants. A description of each of the primary and secondary criteria air pollutants and their known health effects is presented below.

**Carbon Monoxide (CO)** is a colorless, odorless, toxic gas produced by incomplete combustion of carbon substances, such as gasoline or diesel fuel. CO is a primary criteria air pollutant. CO concentrations tend to be the highest during winter mornings with little to no wind, when surface-based inversions trap the pollutant at ground levels. Because CO is emitted directly from internal combustion, engines and motor vehicles operating at slow speeds are the primary source of CO in the SoCAB. The highest ambient CO concentrations are generally found near traffic-congested corridors and intersections. The primary adverse health effect associated with CO is interference with normal oxygen transfer to the blood, which may result in tissue oxygen deprivation (South Coast AQMD 2005; US EPA 2024a). The SoCAB is designated as being in attainment under the California AAQS and attainment (serious maintenance) under the National AAQS (CARB 2024a).

**Volatile Organic Compounds (VOC)** are composed primarily of hydrogen and carbon atoms. Internal combustion associated with motor vehicle usage is the major source of VOCs. Other sources include evaporative emissions from paints and solvents, asphalt paving, and household consumer products such as aerosols (South Coast AQMD 2005). There are no AAQS for VOCs. However, because they contribute to the formation of O<sub>3</sub>, South Coast AQMD has established a significance threshold (South Coast AQMD 2023a). The health effects for ozone are described later in this section.

**Nitrogen Oxides (NO<sub>x</sub>)** are a by-product of fuel combustion and contribute to the formation of ground-level O<sub>3</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub>. The two major forms of NO<sub>x</sub> are nitric oxide (NO) and nitrogen dioxide (NO<sub>2</sub>). NO is a colorless, odorless gas formed from atmospheric nitrogen and oxygen when combustion takes place under high temperature and/or high pressure. The principal form of NO<sub>x</sub> produced by combustion is NO, but NO reacts quickly with oxygen to form NO<sub>2</sub>, creating the mixture of NO and NO<sub>2</sub> commonly called NO<sub>x</sub>. NO<sub>2</sub> is an acute irritant and more injurious than NO in equal concentrations. At atmospheric concentrations, however, NO<sub>2</sub> is only potentially irritating. NO<sub>2</sub> absorbs blue light; the result is a brownish-red cast to the atmosphere and reduced visibility. NO<sub>2</sub> exposure concentrations near roadways are of particular concern for susceptible individuals, including asthmatics, children, and the elderly. Current scientific evidence links short-term NO<sub>2</sub> exposures, ranging from 30 minutes to 24 hours, with adverse respiratory effects, including airway inflammation in healthy people and increased respiratory symptoms in people with asthma. Also, studies show a connection between elevated short-term NO<sub>2</sub> concentrations and increased visits to emergency departments and hospital admissions for respiratory issues, especially asthma (South Coast AQMD 2005; USEPA 2024a). On February 21, 2019, CARB's Board approved the separation of the area that runs along the State Route 60 corridor through portions of Riverside, San Bernardino, and Los Angeles counties from the remainder of the SoCAB for state nonattainment designation purposes. The Board designated this corridor as nonattainment.<sup>1</sup> The remainder of the SoCAB is designated in attainment (maintenance) under the National AAQS and attainment under the California AAQS (CARB 2024a).

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<sup>1</sup> CARB is proposing to redesignate SR-60 Near-Road Portion of San Bernardino, Riverside, and Los Angeles Counties in the SoCAB as attainment for NO<sub>2</sub> at the February 24, 2022 Board Hearing (CARB 2024d).

**Sulfur Dioxide (SO<sub>2</sub>)** is a colorless, pungent, irritating gas formed by the combustion of sulfurous fossil fuels. It enters the atmosphere as a result of burning high-sulfur-content fuel oils and coal and chemical processes at plants and refineries. Gasoline and natural gas have very low sulfur content and do not release significant quantities of SO<sub>2</sub>. When sulfur dioxide forms sulfates (SO<sub>4</sub>) in the atmosphere, together these pollutants are referred to as sulfur oxides (SO<sub>x</sub>). Thus, SO<sub>2</sub> is both a primary and secondary criteria air pollutant. At sufficiently high concentrations, SO<sub>2</sub> may irritate the upper respiratory tract. Current scientific evidence links short-term exposures to SO<sub>2</sub>, ranging from 5 minutes to 24 hours, with an array of adverse respiratory effects, including bronchoconstriction and increased asthma symptoms. These effects are particularly adverse for asthmatics at elevated ventilation rates (e.g., while exercising or playing) at lower concentrations and when combined with particulates, SO<sub>2</sub> may do greater harm by injuring lung tissue. Studies also show a connection between short-term exposure and increased visits to emergency facilities and hospital admissions for respiratory illnesses, particularly in at-risk populations such as children, the elderly, and asthmatics (South Coast AQMD 2005; USEPA 2024a). The SoCAB is designated as attainment under the California and National AAQS (CARB 2024a).

**Suspended Particulate Matter (PM<sub>10</sub> and PM<sub>2.5</sub>)** consists of finely divided solids or liquids such as soot, dust, aerosols, fumes, and mists. Two forms of fine particulates are now recognized and regulated. Inhalable coarse particles, or PM<sub>10</sub>, include particulate matter with an aerodynamic diameter of 10 microns or less (i.e., ≤0.01 millimeter). Inhalable fine particles, or PM<sub>2.5</sub>, have an aerodynamic diameter of 2.5 microns or less (i.e., ≤0.0025 millimeter). Particulate discharge into the atmosphere results primarily from industrial, agricultural, construction, and transportation activities. Both PM<sub>10</sub> and PM<sub>2.5</sub> may adversely affect the human respiratory system, especially in people who are naturally sensitive or susceptible to breathing problems. The EPA's scientific review concluded that PM<sub>2.5</sub>, which penetrates deeply into the lungs, is more likely than PM<sub>10</sub> to contribute to health effects and at far lower concentrations. These health effects include premature death in people with heart or lung disease, nonfatal heart attacks, irregular heartbeat, aggravated asthma, decreased lung function, and increased respiratory symptoms (e.g., irritation of the airways, coughing, or difficulty breathing) (South Coast AQMD 2005). There has been emerging evidence that ultrafine particulates, which are even smaller particulates with an aerodynamic diameter of <0.1 microns or less (i.e., ≤0.0001 millimeter) have human health implications because their toxic components may initiate or facilitate biological processes that may lead to adverse effects to the heart, lungs, and other organs (South Coast AQMD 2013). However, the EPA and the California Air Resources Board (CARB) have not adopted AAQS to regulate these particulates. Diesel particulate matter is classified by CARB as a carcinogen (CARB 2024e). Particulate matter can also cause environmental effects such as visibility impairment,<sup>2</sup> environmental damage,<sup>3</sup> and aesthetic damage<sup>4</sup> (South Coast AQMD 2005; USEPA 2024a). The SoCAB is a nonattainment area for PM<sub>2.5</sub> under

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<sup>2</sup> PM<sub>2.5</sub> is the main cause of reduced visibility (haze) in parts of the United States.

<sup>3</sup> Particulate matter can be carried over long distances by wind and then settle on ground or water, making lakes and streams acidic; changing the nutrient balance in coastal waters and large river basins; depleting the nutrients in soil; damaging sensitive forests and farm crops; and affecting the diversity of ecosystems.

<sup>4</sup> Particulate matter can stain and damage stone and other materials, including culturally important objects such as statues and monuments.

California and National AAQS and a nonattainment area for PM<sub>10</sub> under the California AAQS (CARB 2024a).<sup>5</sup>

**Ozone (O<sub>3</sub>)** is a key ingredient of “smog” and is a gas that is formed when VOCs and NO<sub>x</sub>, both by-products of internal combustion engine exhaust, undergo photochemical reactions in sunlight. O<sub>3</sub> is a secondary criteria air pollutant. O<sub>3</sub> concentrations are generally highest during the summer months when direct sunlight, light winds, and warm temperatures create favorable conditions for its formation. O<sub>3</sub> poses a health threat to those who already suffer from respiratory diseases as well as to healthy people. Breathing O<sub>3</sub> can trigger a variety of health problems, including chest pain, coughing, throat irritation, and congestion. It can worsen bronchitis, emphysema, and asthma. Ground-level O<sub>3</sub> also can reduce lung function and inflame the linings of the lungs. Repeated exposure may permanently scar lung tissue. O<sub>3</sub> also affects sensitive vegetation and ecosystems, including forests, parks, wildlife refuges, and wilderness areas. In particular, O<sub>3</sub> harms sensitive vegetation during the growing season (South Coast AQMD 2005; USEPA 2024a). The SoCAB is designated extreme nonattainment under the California AAQS (1-hour and 8-hour) and National AAQS (8-hour) (CARB 2024a).

**Lead (Pb)** is a metal found naturally in the environment as well as in manufactured products. Once taken into the body, lead distributes throughout the body in the blood and accumulates in the bones. Depending on the level of exposure, lead can adversely affect the nervous system, kidney function, immune system, reproductive and developmental systems, and the cardiovascular system. Lead exposure also affects the oxygen-carrying capacity of the blood. The effects of lead most commonly encountered in current populations are neurological effects in children and cardiovascular effects in adults (e.g., high blood pressure and heart disease). Infants and young children are especially sensitive to even low levels of lead, which may contribute to behavioral problems, learning deficits, and lowered IQ (South Coast AQMD 2005; USEPA 2018). The major sources of lead emissions have historically been mobile and industrial sources. As a result of the EPA’s regulatory efforts to remove lead from gasoline, emissions of lead from the transportation sector dramatically declined by 95 percent between 1980 and 1999, and levels of lead in the air decreased by 94 percent between 1980 and 1999. Today, the highest levels of lead in air are usually found near lead smelters. The major sources of lead emissions today are ore and metals processing and piston-engine aircraft operating on leaded aviation gasoline. However, in 2008 the EPA and CARB adopted more strict lead standards, and special monitoring sites immediately downwind of lead sources recorded very localized violations of the new state and federal standards.<sup>6</sup> As a result of these violations, the Los Angeles County portion of the SoCAB is designated as nonattainment under the National AAQS for lead (South Coast AQMD 2012; CARB 2024a). However, lead concentrations in this nonattainment area have been below the level of the federal standard since December 2011 (South Coast AQMD 2012). CARB’s State

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<sup>5</sup> CARB approved the South Coast AQMD’s request to redesignate the SoCAB from serious nonattainment for PM<sub>10</sub> to attainment for PM<sub>10</sub> under the National AAQS on March 25, 2010, because the SoCAB did not violate federal 24-hour PM<sub>10</sub> standards from 2004 to 2007. The EPA approved the State of California’s request to redesignate the South Coast PM<sub>10</sub> nonattainment area to attainment of the PM<sub>10</sub> National AAQS, effective on July 26, 2013.

<sup>6</sup> Source-oriented monitors record concentrations of lead at lead-related industrial facilities in the SoCAB, which include Exide Technologies in the City of Commerce; Quemetco, Inc., in the City of Industry; Trojan Battery Company in Santa Fe Springs; and Exide Technologies in Vernon. Monitoring conducted between 2004 through 2007 showed that the Trojan Battery Company and Exide Technologies exceed the federal standards (South Coast AQMD 2012).

Implementation Plan (SIP) revision was submitted to the EPA for approval. Because emissions of lead are found only in projects that are permitted by South Coast AQMD, lead is not a pollutant of concern for the proposed project.

Table 2, *Criteria Air Pollutant Health Effects Summary*, summarizes the potential health effects associated with the criteria air pollutants.

**Table 2 Criteria Air Pollutant Health Effects Summary**

Pollutant	Health Effects	Examples of Sources
Carbon Monoxide (CO)	<ul style="list-style-type: none"> <li>• Chest pain in heart patients</li> <li>• Headaches, nausea</li> <li>• Reduced mental alertness</li> <li>• Death at very high levels</li> </ul>	Any source that burns fuel such as cars, trucks, construction and farming equipment, and residential heaters and stoves
Ozone (O <sub>3</sub> )	<ul style="list-style-type: none"> <li>• Cough, chest tightness</li> <li>• Difficulty taking a deep breath</li> <li>• Worsened asthma symptoms</li> <li>• Lung inflammation</li> </ul>	Atmospheric reaction of organic gases with nitrogen oxides in sunlight
Nitrogen Dioxide (NO <sub>2</sub> )	<ul style="list-style-type: none"> <li>• Increased response to allergens</li> <li>• Aggravation of respiratory illness</li> </ul>	Same as carbon monoxide sources
Particulate Matter (PM <sub>10</sub> and PM <sub>2.5</sub> )	<ul style="list-style-type: none"> <li>• Hospitalizations for worsened heart diseases</li> <li>• Emergency room visits for asthma</li> <li>• Premature death</li> </ul>	Cars and trucks (particularly diesels) Fireplaces and woodstoves Windblown dust from overlays, agriculture, and construction
Sulfur Dioxide (SO <sub>2</sub> )	<ul style="list-style-type: none"> <li>• Aggravation of respiratory disease (e.g., asthma and emphysema)</li> <li>• Reduced lung function</li> </ul>	Combustion of sulfur-containing fossil fuels, smelting of sulfur-bearing metal ores, and industrial processes
Lead (Pb)	<ul style="list-style-type: none"> <li>• Behavioral and learning disabilities in children</li> <li>• Nervous system impairment</li> </ul>	Contaminated soil

Source: CARB 2024b.

## Toxic Air Contaminants

The public’s exposure to air pollutants classified as toxic air contaminants (TACs) is a significant environmental health issue in California. In 1983, the California Legislature enacted a program to identify the health effects of TACs and to reduce exposure to these contaminants to protect the public health. The California Health and Safety Code defines a TAC as “an air pollutant which may cause or contribute to an increase in mortality or in serious illness, or which may pose a present or potential hazard to human health.” A substance that is listed as a hazardous air pollutant (HAP) pursuant to Section 112(b) of the federal Clean Air Act (42 United States Code §7412[b]) is a toxic air contaminant. Under state law, the California Environmental Protection Agency (Cal/EPA), acting through CARB, is authorized to identify a substance as a TAC if it determines that the substance is an air pollutant that may cause or contribute to an increase in mortality or to an increase in serious illness, or may pose a present or potential hazard to human health.

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

Air toxics from stationary sources are also regulated in California under the Air Toxics “Hot Spot” Information and Assessment Act of 1987. Under AB 2588, toxic air contaminant emissions from individual facilities are quantified and prioritized by the air quality management district or air pollution control district. High priority facilities are required to perform a health risk assessment and, if specific thresholds are exceeded, are required to communicate the results to the public in the form of notices and public meetings.

By the last update to the TAC list in December 1999, CARB had designated 244 compounds as TACs (CARB 1999). Additionally, CARB has implemented control measures for a number of compounds that pose high risks and show potential for effective control. The majority of the estimated health risks from TACs can be attributed to relatively few compounds, the most important being particulate matter from diesel-fueled engines.

### *Diesel Particulate Matter*

In 1998, CARB identified particulate emissions from diesel-fueled engines (diesel PM) as a TAC. Previously, the individual chemical compounds in diesel exhaust were considered TACs. Almost all diesel exhaust particle mass is 10 microns or less in diameter. Because of their extremely small size, these particles can be inhaled and eventually trapped in the bronchial and alveolar regions of the lung.

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

- 13 CCR Chapter 10, Section 2485, Airborne Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling
- 13 CCR Chapter 10, Section 2480, Airborne Toxic Control Measure to Limit School Bus Idling and Idling at Schools
- 13 CCR Section 2477 and Article 8, Airborne Toxic Control Measure for In-Use Diesel-Fueled Transport Refrigeration Units (TRU) and TRU Generator Sets and Facilities Where TRUs Operate

### *Community Risk*

In addition, to reduce exposure to TACs, CARB developed and approved the *Air Quality and Land Use Handbook: A Community Health Perspective* (2005) to provide guidance regarding the siting of sensitive land uses in the vicinity of freeways, distribution centers, rail yards, ports, refineries, chrome-plating facilities, dry

cleaners, and gasoline-dispensing facilities. This guidance document was developed to assess compatibility and associated health risks when placing sensitive receptors near existing pollution sources. CARB's recommendations on the siting of new sensitive land uses were based on a compilation of recent studies that evaluated data on the adverse health effects from proximity to air pollution sources. The key observation in these studies is that proximity to air pollution sources substantially increases exposure and the potential for adverse health effects. There are three carcinogenic toxic air contaminants that constitute the majority of the known health risks from motor vehicle traffic, DPM from trucks, and benzene and 1,3-butadiene from passenger vehicles. CARB recommendations are based on data that show that localized air pollution exposures can be reduced by as much as 80 percent by following CARB minimum distance separations.

## **AIR QUALITY MANAGEMENT PLANNING**

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

### **2022 AQMP**

South Coast AQMD adopted the 2022 AQMP on December 2, 2022, which serves as an update to the 2017 AQMP. On October 1, 2015, the EPA strengthened the National AAQS for ground-level ozone, lowering the primary and secondary ozone standard levels to 70 parts per billion (ppb) (2015 Ozone National AAQS). The SoCAB is currently classified as an “extreme” nonattainment for the 2015 Ozone National AAQS. Meeting the 2015 federal ozone standard requires reducing NO<sub>x</sub> emissions, the key pollutant that creates ozone, by 67 percent more than is required by adopted rules and regulations in 2037. The only way to achieve the required NO<sub>x</sub> reductions is through extensive use of zero emission (ZE) technologies across all stationary and mobile sources. South Coast AQMD's primary authority is over stationary sources which account for approximately 20 percent of NO<sub>x</sub> emissions. The overwhelming majority of NO<sub>x</sub> emissions are from heavy-duty trucks, ships and other State and federally regulated mobile sources that are mostly beyond the South Coast AQMD's control. The region will not meet the standard absent significant federal action. In addition to federal action, the 2022 AQMP requires substantial reliance on future deployment of advanced technologies to meet the standard. The control strategy for the 2022 AQMP includes aggressive new regulations and the development of incentive programs to support early deployment of advanced technologies. The two key areas for incentive programs are (1) promoting widespread deployment of available ZE and low-NO<sub>x</sub> technologies and (2) developing new ZE and ultra-low NO<sub>x</sub> technologies for use in cases where the technology is not currently available. South Coast AQMD is prioritizing distribution of incentive funding in Environmental Justice areas and seeking opportunities to focus benefits on the most disadvantaged communities (South Coast AQMD 2022).

### **Lead State Implementation Plan**

In 2008, EPA designated the Los Angeles County portion of the SoCAB nonattainment under the federal lead (Pb) classification due to the addition of source-specific monitoring under the new federal regulation. This designation was based on two source-specific monitors in Vernon and the City of Industry exceeding

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

### **South Coast AQMD PM<sub>2.5</sub> Redesignation Request and Maintenance Plan**

In 1997, the EPA adopted the 24-hour fine PM<sub>2.5</sub> standard of 65 micrograms per cubic meter ( $\mu\text{g}/\text{m}^3$ ). In 2006, this standard was lowered to a more health-protective level of 35  $\mu\text{g}/\text{m}^3$ . The SoCAB is designated nonattainment for both the 65 and 35  $\mu\text{g}/\text{m}^3$  24-hour PM<sub>2.5</sub> standards (24-hour PM<sub>2.5</sub> standards). In 2020, monitored data demonstrated that the SoCAB attained both 24-hour PM<sub>2.5</sub> standards. The South Coast AQMD has developed the 2021 Redesignation Request and Maintenance Plan for the 1997 and 2006 24-hour PM<sub>2.5</sub> Standards demonstrating that the SoCAB has met the requirements to be redesignated to attainment for the 24-hour PM<sub>2.5</sub> standards (South Coast AQMD 2021a).

### **AB 617, Community Air Protection Program**

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

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

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

## **Existing Conditions**

### **CLIMATE/METEOROLOGY**

#### **South Coast Air Basin**

The project site lies in the South Coast Air Basin (SoCAB), which includes all of Orange County and the non-desert portions of Los Angeles, Riverside, and San Bernardino Counties. The SoCAB is in a coastal plain with connecting broad valleys and low hills and is bounded by the Pacific Ocean in the southwest quadrant, with high mountains forming the remainder of the perimeter. The general region lies in the semi-permanent

high-pressure zone of the eastern Pacific. As a result, the climate is mild, tempered by cool sea breezes. This usually mild weather pattern is interrupted infrequently by periods of extremely hot weather, winter storms, and Santa Ana winds (South Coast AQMD 2005).

### *Temperature and Precipitation*

The annual average temperature varies little throughout the SoCAB, ranging from the low to middle 60s, measured in degrees Fahrenheit (°F). With a more pronounced oceanic influence, coastal areas show less variability in annual minimum and maximum temperatures than inland areas. The climatological station nearest to the project site with temperature data is the San Bernardino Fire Station 226, California Monitoring Station (ID No. 047723). The lowest average temperature is reported at 38.5°F in January, and the highest average temperature is 96.2°F in August (WRCC 2024).

In contrast to a very steady pattern of temperature, rainfall is seasonally and annually highly variable. Almost all rain falls from October through April. Summer rainfall is normally restricted to widely scattered thundershowers near the coast, with slightly heavier shower activity in the east and over the mountains. Rainfall averages 16.12 inches per year in the vicinity of the area (WRCC 2024).

### *Humidity*

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

### *Wind*

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

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

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



### Inversions

In conjunction with the two characteristic wind patterns that affect the rate and orientation of horizontal pollutant transport, there are two similarly distinct types of temperature inversions that control the vertical depth through which pollutants are mixed. These are the marine/subsidence inversion and the radiation inversion. The combination of winds and inversions are critical determinants in leading to the highly degraded air quality in summer and the generally good air quality in the winter in the project area (South Coast AQMD 2005).

### AREA DESIGNATIONS

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

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

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

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

Pollutant	State	Federal
Ozone – 1-hour	Extreme Nonattainment	No Federal Standard
Ozone – 8-hour	Extreme Nonattainment	Extreme Nonattainment
PM <sub>10</sub>	Serious Nonattainment	Attainment
PM <sub>2.5</sub>	Nonattainment	Nonattainment <sup>1</sup>
CO	Attainment	Attainment
NO <sub>2</sub>	Attainment	Attainment/Maintenance
SO <sub>2</sub>	Attainment	Attainment
Lead	Attainment	Nonattainment (Los Angeles County only) <sup>2</sup>
All others	Attainment/Unclassified	Attainment/Unclassified

Source: CARB 2024a.

<sup>1</sup> The SoCAB is pending a resignation request from nonattainment to attainment for the 24-hour federal PM<sub>2.5</sub> standards. The 2021 PM<sub>2.5</sub> Redesignation Request

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

Pollutant	State	Federal
and Maintenance Plan demonstrates that the South Coast meets the requirements of the CAA to allow US EPA to redesignate the SoCAB to attainment for the 65 µg/m <sup>3</sup> and 35 µg/m <sup>3</sup> 24-hour PM <sub>2.5</sub> standards. CARB will submit the 2021 PM <sub>2.5</sub> Redesignation Request to the US EPA as a revision to the California SIP (CARB 2021).		
<sup>2</sup> In 2010, the Los Angeles portion of the SoCAB was designated nonattainment for lead under the new 2008 federal AAQS as a result of large industrial emitters. Remaining areas for lead in the SoCAB are unclassified. However, lead concentrations in this nonattainment area have been below the level of the federal standard since December 2011 (South Coast AQMD 2012). CARB's SIP revision was submitted to the EPA for approval.		

**EXISTING AMBIENT AIR QUALITY**

Existing levels of ambient air quality and historical trends and projections in the vicinity of the project site are best documented by measurements taken by the South Coast AQMD. The project site is located within Source Receptor Area (SRA) 34: Central San Bernardino Valley. The air quality monitoring station closest to the proposed project is the San Bernardino-4th Street Monitoring Station, which is one of 31 monitoring stations South Coast AQMD operates and maintains within the SoCAB.<sup>7</sup> Data from this station includes O<sub>3</sub>, NO<sub>2</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub>. Table 4, *Ambient Air Quality Monitoring Summary*, shows regular violations of the state and federal O<sub>3</sub>, state PM<sub>10</sub> standards in the last five years.

**Table 4 Ambient Air Quality Monitoring Summary**

Pollutant/Standard	Number of Days Threshold Were Exceeded and Maximum Levels during Such Violations <sup>1,2</sup>				
	2018	2019	2020	2021	2022
<b>Ozone (O<sub>3</sub>)</b>					
State 1-Hour ≥ 0.09 ppm (days exceed threshold)	63	63	89	66	60
State & Federal 8-hour ≥ 0.070 ppm (days exceed threshold)	102	96	130	98	96
Max. 1-Hour Conc. (ppm)	0.138	0.127	0.162	0.142	0.128
Max. 8-Hour Conc. (ppm)	0.116	0.114	0.128	0.112	0.105
<b>Nitrogen Dioxide (NO<sub>2</sub>)</b>					
State 1-Hour ≥ 0.18 ppm (days exceed threshold)	0	0	0	0	0
Max. 1-Hour Conc. (ppb)	0.0573	0.0593	0.0540	0.0563	0.0526
<b>Coarse Particulates (PM<sub>10</sub>)</b>					
State 24-Hour > 50 µg/m <sup>3</sup> (days exceed threshold)	5	4	8	4	*
Federal 24-Hour > 150 µg/m <sup>3</sup> (days exceed threshold)	0	0	1	1	1
Max. 24-Hour Conc. (µg/m <sup>3</sup> )	130.2	112.7	174.8	182.4	177.8
<b>Fine Particulates (PM<sub>2.5</sub>)</b>					
Federal 24-Hour > 35 µg/m <sup>3</sup> (days exceed threshold)	0	1	2	1	2
Max. 24-Hour Conc. (µg/m <sup>3</sup> )	30.1	60.5	56.9	57.9	40.1

Source: CARB 2024c.

Notes: ppm = parts per million; ppb = parts per billion; µg/m<sup>3</sup> = micrograms per cubic meter; \* = Data not available

<sup>1</sup> Data for O<sub>3</sub>, NO<sub>2</sub>, PM<sub>2.5</sub>, and PM<sub>10</sub> from San Bernardino-4th Street Monitoring Station.

<sup>2</sup> Most recent data available as of April 2024.

<sup>7</sup> Locations of the SRAs and monitoring stations are shown here: <http://www.aqmd.gov/docs/default-source/default-document-library/map-of-monitoring-areas.pdf>.

## MULTIPLE AIR TOXICS EXPOSURE STUDY V

The Multiple Air Toxics Exposure Study (MATES) is a monitoring and evaluation study on existing ambient concentrations of TACs and the potential health risks from air toxics in the SoCAB. In April 2021, South Coast AQMD released the latest update to the MATES study, MATES V. The first MATES analysis, MATES I, began in 1986 but was limited because of the technology available at the time. Conducted in 1998, MATES II was the first MATES iteration to include a comprehensive monitoring program, an air toxics emissions inventory, and a modeling component. MATES III was conducted in 2004 to 2006, with MATES IV following in 2012 to 2013.

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

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

## SENSITIVE RECEPTORS

Some land uses are considered more sensitive to air pollution than others due to the types of population groups or activities involved. Sensitive population groups include children, the elderly, the acutely ill, and the chronically ill, especially those with cardio-respiratory diseases.

Residential areas are also considered to be sensitive receptors to air pollution because residents (including children and the elderly) tend to be at home for extended periods of time, resulting in sustained exposure to any pollutants present. Schools are also considered sensitive receptors, as children are present for extended durations and engage in regular outdoor activities. Recreational land uses are considered moderately sensitive to air pollution. Although exposure periods are generally short, exercise places a high demand on respiratory functions, which can be impaired by air pollution. In addition, noticeable air pollution can detract from the enjoyment of recreation. Industrial and commercial areas are considered the least sensitive to air pollution. Exposure periods are relatively short and intermittent, as the majority of the workers tend to stay indoors most of the time. In addition, the working population is generally the healthiest segment of the public. The nearest offsite sensitive receptors are the single-family residences along Blackberry Drive to the south, Clove

Way to the east, Sycamore Creek Loop Parkway to the north, and students of the Paakuma K-8 school to the west.

## Thresholds of Significance

The analysis of the proposed project’s air quality impacts follows the guidance and methodologies recommended in South Coast AQMD’s *CEQA Air Quality Handbook* and the significance thresholds on South Coast AQMD’s website (South Coast AQMD 1993). CEQA allows the significance criteria established by the applicable air quality management or air pollution control district to be used to assess impacts of a project on air quality. South Coast AQMD has established thresholds of significance for regional air quality emissions for construction activities and project operation. In addition to the daily thresholds listed above, projects are also subject to the AAQS. These are addressed through an analysis of localized CO impacts and localized significance thresholds (LSTs).

### REGIONAL SIGNIFICANCE THRESHOLDS

The South Coast AQMD has adopted regional construction and operational emissions thresholds to determine a project’s cumulative impact on air quality in the SoCAB. Table 5, *South Coast AQMD Significance Thresholds*, lists South Coast AQMD’s regional significance thresholds that are applicable for all projects uniformly regardless of size or scope. There is growing evidence that although ultrafine particulates contribute a very small portion of the overall atmospheric mass concentration, they represent a greater proportion of the health risk from PM. However, the EPA or CARB have not yet adopted AAQS to regulate ultrafine particulates; therefore, South Coast AQMD has not developed thresholds for them.

**Table 5 South Coast AQMD Significance Thresholds**

Air Pollutant	Construction Phase	Operational Phase
Reactive Organic Gases (ROGs)/ Volatile Organic Compounds (VOCs)	75 lbs/day	55 lbs/day
Nitrogen Oxides (NO <sub>x</sub> )	100 lbs/day	55 lbs/day
Carbon Monoxide (CO)	550 lbs/day	550 lbs/day
Sulfur Oxides (SO <sub>x</sub> )	150 lbs/day	150 lbs/day
Particulates (PM <sub>10</sub> )	150 lbs/day	150 lbs/day
Particulates (PM <sub>2.5</sub> )	55 lbs/day	55 lbs/day

Source: South Coast AQMD 2023a.

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

- Linked to increased cancer risk (PM<sub>2.5</sub>, TACs)
- Aggravates respiratory disease (O<sub>3</sub>, PM<sub>2.5</sub>)
- Increases bronchitis (O<sub>3</sub>, PM<sub>2.5</sub>)

- Causes chest discomfort, throat irritation, and increased effort to take a deep breath (O<sub>3</sub>)
- Reduces resistance to infections and increases fatigue (O<sub>3</sub>)
- Reduces lung growth in children (PM<sub>2.5</sub>)
- Contributes to heart disease and heart attacks (PM<sub>2.5</sub>)
- Contributes to premature death (O<sub>3</sub>, PM<sub>2.5</sub>)
- Linked to lower birth weight in newborns (PM<sub>2.5</sub>) (South Coast AQMD 2015a)

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

South Coast AQMD is the primary agency responsible for ensuring the health and welfare of sensitive individuals exposed to elevated concentrations of air pollutants in the SoCAB and has established thresholds that would be protective of these individuals. To achieve the health-based standards established by the EPA, South Coast AQMD prepares an AQMP that details regional programs to attain the AAQS. Mass emissions thresholds shown in Table 4 are not correlated with concentrations of air pollutants but contribute to the cumulative air quality impacts in the SoCAB. These thresholds are based on the trigger levels for the federal New Source Review Program, which was created to ensure projects are consistent with attainment of health-based federal AAQS. Regional emissions from a single project do not trigger a regional health impact, and it is speculative to identify how many more individuals in the air basin would be affected by the health effects listed previously. Projects that do not exceed the South Coast AQMD regional significance thresholds in Table 4 would not violate any air quality standards or contribute substantially to an existing or projected air quality violation.

If projects exceed the emissions levels presented in Table 4, then those emissions would cumulatively contribute to the nonattainment status of the air basin and would contribute to elevating health effects associated with these criteria air pollutants. Known health effects related to ozone include worsening of bronchitis, asthma, and emphysema and a decrease in lung function. Health effects associated with particulate matter include premature death of people with heart or lung disease, nonfatal heart attacks, irregular heartbeat, decreased lung function, and increased respiratory symptoms. Reducing emissions would contribute to reducing possible health effects related to criteria air pollutants. However, for projects that exceed the emissions in Table 4, it is speculative to determine how exceeding the regional thresholds would affect the number of days the region is in nonattainment, because mass emissions are not correlated with concentrations of emissions or how many additional individuals in the air basin would be affected by the health effects cited previously.

South Coast AQMD has not provided methodology to assess the specific correlation between mass emissions generated and the effect on health to address the issue raised in *Sierra Club v. County of Fresno* (Friant Ranch, L.P.) (2018) 6 Cal.5th 502, Case No. S21978. South Coast AQMD currently does not have methodologies that would provide the City with a consistent, reliable, and meaningful analysis to correlate specific health

impacts that may result from a proposed project's mass emissions.<sup>8</sup> Ozone concentrations are dependent on a variety of complex factors, including the presence of sunlight and precursor pollutants, natural topography, nearby structures that cause building downwash, atmospheric stability, and wind patterns. Because of the complexities of predicting ground-level ozone concentrations in relation to the National and California AAQS, and the absence of modeling tools that could provide statistically valid data and meaningful additional information regarding health effects from criteria air pollutants generated by individual projects, it is not possible to link specific health risks to the magnitude of emissions exceeding the significance thresholds. However, if a project in the SoCAB exceeds the regional significance thresholds, the project could contribute to an increase in health effects in the basin until the attainment standards are met in the SoCAB.

## CO HOTSPOTS

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

In 2007, the SoCAB was designated in attainment for CO under both the California AAQS and National AAQS. The CO hotspot analysis conducted for the attainment by the South Coast AQMD for busiest intersections in Los Angeles during the peak morning and afternoon periods plan did not predict a violation of CO standards.<sup>9</sup> As identified in the South Coast AQMD's 2003 AQMP and the 1992 Federal Attainment Plan for Carbon Monoxide (1992 CO Plan), peak carbon monoxide concentrations in the SoCAB in previous years, prior to redesignation, were a result of unusual meteorological and topographical conditions and not a result of congestion at a particular intersection. Under existing and future vehicle emission rates, a project would have to increase traffic volumes at a single intersection to more than 44,000 vehicles per hour—or 24,000 vehicles per hour where vertical and/or horizontal air does not mix—in order to generate a significant CO impact (BAAQMD 2023).

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<sup>8</sup> In April 2019, the Sacramento Metropolitan Air Quality Management District (SMAQMD) published an Interim Recommendation on implementing *Sierra Club v. County of Fresno* (2018) 6 Cal.5th 502 ("Friant Ranch") in the review and analysis of the proposed project under CEQA in Sacramento County. Consistent with the expert opinions submitted to the court in Friant Ranch by the San Joaquin Valley Air Pollution Control District (SJVAPCD) and South Coast AQMD, the SMAQMD guidance confirms the absence of an acceptable or reliable quantitative methodology that would correlate the expected criteria air pollutant emissions of projects to likely health consequences for people from project-generated criteria air pollutant emissions. The SMAQMD guidance explains that while it is in the process of developing a methodology to assess these impacts, lead agencies should follow the Friant Court's advice to explain in meaningful detail why this analysis is not yet feasible. Since this interim memorandum SMAQMD has provided methodology to address health impacts. However, a similar analysis is not available for projects within the South Coast AQMD region.

<sup>9</sup> The four intersections were: Long Beach Boulevard and Imperial Highway; Wilshire Boulevard and Veteran Avenue; Sunset Boulevard and Highland Avenue; and La Cienega Boulevard and Century Boulevard. The busiest intersection evaluated (Wilshire and Veteran) had a daily traffic volume of approximately 100,000 vehicles per day with LOS E in the morning peak hour and LOS F in the evening peak hour.

## LOCALIZED SIGNIFICANCE THRESHOLDS

The South Coast AQMD developed LSTs for emissions of NO<sub>2</sub>, CO, PM<sub>10</sub>, and PM<sub>2.5</sub> generated at the project site (offsite mobile-source emissions are not included in the LST analysis). LSTs represent the maximum emissions at a project site that are not expected to cause or contribute to an exceedance of the most stringent federal or state AAQS and are shown in Table 6, *South Coast AQMD Localized Significance Thresholds*.

**Table 6 South Coast AQMD Localized Significance Thresholds**

Air Pollutant (Relevant AAQS)	Concentration
1-Hour CO Standard (CAAQS)	20 ppm
8-Hour CO Standard (CAAQS)	9.0 ppm
1-Hour NO <sub>2</sub> Standard (CAAQS)	0.18 ppm
Annual NO <sub>2</sub> Standard (CAAQS)	0.03 ppm
24-Hour PM <sub>10</sub> Standard – Construction (South Coast AQMD) <sup>1</sup>	10.4 µg/m <sup>3</sup>
24-Hour PM <sub>2.5</sub> Standard – Construction (South Coast AQMD) <sup>1</sup>	10.4 µg/m <sup>3</sup>
24-Hour PM <sub>10</sub> Standard – Operation (South Coast AQMD) <sup>1</sup>	2.5 µg/m <sup>3</sup>
24-Hour PM <sub>2.5</sub> Standard – Operation (South Coast AQMD) <sup>1</sup>	2.5 µg/m <sup>3</sup>

Source: South Coast AQMD 2023a.

ppm – parts per million; µg/m<sup>3</sup> – micrograms per cubic meter

<sup>1</sup> Threshold is based on South Coast AQMD Rule 403. Since the SoCAB is in nonattainment for PM<sub>10</sub> and PM<sub>2.5</sub>, the threshold is established as an allowable change in concentration. Therefore, background concentration is irrelevant.

To assist lead agencies, South Coast AQMD developed screening-level LSTs to back-calculate the mass amount (lbs. per day) of emissions generated onsite that would trigger the levels shown in Table 5 for projects under 5-acres. These “screening-level” LSTs tables are the localized significance thresholds for all projects of five acres and less; however, it can be used as screening criteria for larger projects to determine whether or not dispersion modeling may be required to compare concentrations of air pollutants generated by the project to the localized concentrations shown in Table 5.

In accordance with South Coast AQMD’s LST methodology, the screening-level construction LSTs are based on the acreage disturbed per day based on equipment use. The screening-level construction LSTs for the project site in SRA 34 are shown in Table 7, *South Coast AQMD Screening-Level Localized Significance Thresholds*, for sensitive receptors within 82 feet (25 meters).

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

Acreage Disturbed	Threshold (lbs/day) <sup>1</sup>			
	Nitrogen Oxides (NO <sub>x</sub> )	Carbon Monoxide (CO)	Coarse Particulates (PM <sub>10</sub> )	Fine Particulates (PM <sub>2.5</sub> )
≤1.00 Acre Disturbed Per Day	118	667	4.00	3.00

Source: South Coast AQMD 2008, 2011, and 2023a.

<sup>1</sup> LSTs are based on sensitive receptors within 82 feet (25 meters).

## HEALTH RISK

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

**Table 8 South Coast AQMD Toxic Air Contaminants Incremental Risk Thresholds**

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

Source: South Coast AQMD 2023a.

### *Draft Operational Cumulative Health Risk Thresholds*

South Coast AQMD initiated a Working Group to identify cumulative health risk thresholds for development projects in order to address community concerns of health risk impacts of new projects being developed in areas where there is a higher pollution burden. The cumulative health risk threshold methodology first utilizes a screening approach to identify whether projects can qualitatively address cumulative health risk or quantitatively address health risk:

- **Low Cancer Risk Project Types:** Residential, commercial, recreational, educational, and retail.
- **Medium Cancer Risk Project Types:** Truck yards, gas stations, small industrial projects, and linear projects.
- **High Cancer Risk Project Types.** Industrial, major transportation projects (airports, port, railyard, bus/train station), and major planning projects.

For projects with low and medium cancer risks, like the proposed project, a quantitative analysis is not warranted. On the other hand, for projects that result in potentially high cancer risk impacts, a quantitative is recommended. Additionally, the project-level health risk threshold of 10 in a million is adjusted based on the underlying health risk of the zip code the project is within based on South Coast AQMD’s MATES V mapping. MATES V is utilized. MATES V identifies a gradient of the effects of air pollution on cancer risk



in the South Coast AQMD Region, which is then used to adjust the project-level cancer risk levels as shown in Table 9, *MATES V Adjusted Cumulative Significant Cancer Risk Thresholds*.

**Table 9 MATES V Adjusted Cumulative Significant Cancer Risk Thresholds**

Threshold Increment	MATES V Cancer Risk	Adjusted Cumulative Cancer Risk Threshold
A	Most Stringent	≥ 1 in 1 million
B	>90th Percentile	≥ 3 in 1 million
C	90th Percentile to 50th Percentile	≥ 5 in 1 million
D	50th Percentile to 30th Percentile	≥ 7 in 1 million
E	< 30th Percentile	≥ 10 in 1 million

Source: South Coast AQMD 2023b.

South Coast AQMD has also identified that the thresholds in Table 9 should be adjusted if any of the following criteria apply:

- **Criteria #1 – Post-2018 High Volume Diesel-Fueled Mobile Sources.** If there are post-2018 high volume highways or railroad mainlines, then increase the threshold increment by 1 (e.g., from step “D” to “C”).
- **Criteria #2 – Post-2018 Projects with High Volume Diesel Fueled Trucks.** Post-2018 projects are not accounted for in MATES V. Therefore, if new warehousing projects along the truck route have been constructed, then increase the threshold increment by 1 (e.g., from D to C).
- **Criteria #3 – Sensitive Receptor Population.** If the project site is within an AB 617 community or within the 80<sup>th</sup> percentile of CES 4.0, then increase the threshold increment by 1(e.g., from D to C).

As mentioned previously, this type of project would be considered low to medium cancer risks; thus, an operational cancer risk analysis for the proposed project would not be warranted.

## GREENHOUSE GAS EMISSIONS

Scientists have concluded that human activities are contributing to global climate change by adding large amounts of heat-trapping gases, known as GHG, to the atmosphere. Climate change is the variation of Earth’s climate over time, whether due to natural variability or as a result of human activities. The primary source of these GHG is fossil fuel use. The Intergovernmental Panel on Climate Change (IPCC) has identified four major GHG—water vapor,<sup>10</sup> carbon (CO<sub>2</sub>), methane (CH<sub>4</sub>), and ozone (O<sub>3</sub>)—that are the likely cause of an increase in global average temperatures observed within the 20th and 21st centuries. Other

<sup>10</sup> Water vapor (H<sub>2</sub>O) 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.

GHG identified by the IPCC that contribute to global warming to a lesser extent include nitrous oxide (N<sub>2</sub>O), sulfur hexafluoride (SF<sub>6</sub>), hydrofluorocarbons, perfluorocarbons, and chlorofluorocarbons (IPCC 2001).<sup>11</sup> The major GHG are briefly described below.

- **Carbon dioxide (CO<sub>2</sub>)** enters the atmosphere through the burning of fossil fuels (oil, natural gas, and coal), solid waste, trees and wood products, and respiration, and also as a result of other chemical reactions (e.g. manufacture of cement). Carbon dioxide is removed from the atmosphere (sequestered) when it is absorbed by plants as part of the biological carbon cycle.
- **Methane (CH<sub>4</sub>)** is emitted during the production and transport of coal, natural gas, and oil. Methane emissions also result from livestock and other agricultural practices and from the decay of organic waste in municipal landfills and water treatment facilities.
- **Nitrous oxide (N<sub>2</sub>O)** is emitted during agricultural and industrial activities as well as during combustion of fossil fuels and solid waste.
- **Fluorinated gases** are synthetic, strong GHGs that are emitted from a variety of industrial processes. Fluorinated gases are sometimes used as substitutes for ozone-depleting substances. These gases are typically emitted in smaller quantities, but because they are potent GHGs, they are sometimes referred to as high global-warming-potential (GWP) gases.
  - **Chlorofluorocarbons (CFCs)** are GHGs covered under the 1987 Montreal Protocol and used for refrigeration, air conditioning, packaging, insulation, solvents, or aerosol propellants. Since they are not destroyed in the lower atmosphere (troposphere, stratosphere), CFCs drift into the upper atmosphere where, given suitable conditions, they break down ozone. These gases are also ozone-depleting gases and are therefore being replaced by other compounds that are GHGs covered under the Kyoto Protocol.
  - **Perfluorocarbons (PFCs)** are a group of human-made chemicals composed of carbon and fluorine only. These chemicals (predominantly perfluoromethane [CF<sub>4</sub>] and perfluoroethane [C<sub>2</sub>F<sub>6</sub>]) were introduced as alternatives, along with HFCs, to the ozone-depleting substances. In addition, PFCs are emitted as by-products of industrial processes and are used in manufacturing. PFCs do not harm the stratospheric ozone layer, but they have a high global warming potential.
  - **Sulfur Hexafluoride (SF<sub>6</sub>)** is a colorless gas soluble in alcohol and ether, slightly soluble in water. SF<sub>6</sub> is a strong GHG used primarily in electrical transmission and distribution systems as an insulator.

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<sup>11</sup> Black carbon contributes to climate change both directly, by absorbing sunlight, and indirectly, by depositing on snow (making it melt faster) and by interacting with clouds and affecting cloud formation. Black carbon is the most strongly light-absorbing component of particulate matter (PM) emitted from burning fuels such as coal, diesel, and biomass. Reducing black carbon emissions globally can have immediate economic, climate, and public health benefits. California has been an international leader in reducing emissions of black carbon, with close to 95 percent control expected by 2020 due to existing programs that target reducing PM from diesel engines and burning activities (CARB 2017). However, state and national GHG inventories do not yet include black carbon due to ongoing work resolving the precise global warming potential of black carbon. Guidance for CEQA documents does not yet include black carbon.

- **Hydrochlorofluorocarbons (HCFCs)** contain hydrogen, fluorine, chlorine, and carbon atoms. Although ozone-depleting substances, they are less potent at destroying stratospheric ozone than CFCs. They have been introduced as temporary replacements for CFCs and are also GHGs.
- **Hydrofluorocarbons (HFCs)** contain only hydrogen, fluorine, and carbon atoms. They were introduced as alternatives to ozone-depleting substances to serve many industrial, commercial, and personal needs. HFCs are emitted as by-products of industrial processes and are also used in manufacturing. They do not significantly deplete the stratospheric ozone layer, but they are strong GHGs (IPCC 2001; USEPA 2024b).

GHGs are dependent on the lifetime or persistence of the gas molecule in the atmosphere. Some GHGs have stronger greenhouse effects than others. These are referred to as high GWP gases. The GWP of GHG emissions are shown in Table 10, *GHG Emissions and Their Relative Global Warming Potential Compared to CO<sub>2</sub>*. The GWP is used to convert GHGs to CO<sub>2</sub>-equivalence (CO<sub>2</sub>e) to show the relative potential that different GHGs have to retain infrared radiation in the atmosphere and contribute to the greenhouse effect. For example, under IPCC’s Fifth Assessment Report (AR5) GWP values for CH<sub>4</sub>, a project that generates 10 MT of CH<sub>4</sub> would be equivalent to 280 MT of CO<sub>2</sub>.<sup>12</sup>

**Table 10 GHG Emissions and Their Relative Global Warming Potential Compared to CO<sub>2</sub>**

GHGs	Fourth Assessment Report (AR4) Global Warming Potential Relative to CO <sub>2</sub> <sup>1</sup>	Fifth Assessment Report (AR5) Global Warming Potential Relative to CO <sub>2</sub> <sup>1</sup>	Sixth Assessment Report (AR6) Global Warming Potential Relative to CO <sub>2</sub> <sup>1</sup>
Carbon Dioxide (CO <sub>2</sub> )	1	1	1
Methane <sup>2</sup> (CH <sub>4</sub> )	25	28	30
Nitrous Oxide (N <sub>2</sub> O)	298	265	273

Source: IPCC 2007, 2013, and 2023.

Notes: The IPCC published updated GWP values in its Sixth Assessment Report (AR6) that reflect latest information on atmospheric lifetimes of GHGs and an improved calculation of the radiative forcing of CO<sub>2</sub>. However, GWP values identified in AR5 are used by the 2022 Scoping Plan for long-term emissions forecasting.

<sup>1</sup> Based on 100-year time horizon of the GWP of the air pollutant compared to CO<sub>2</sub>.

<sup>2</sup> The methane GWP includes direct effects and indirect effects due to the production of tropospheric ozone and stratospheric water vapor. The indirect effect due to the production of CO<sub>2</sub> is not included.

## GHG Regulatory Setting

### REGULATION OF GHG EMISSIONS ON A NATIONAL LEVEL

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

<sup>12</sup> The global warming potential of a GHG is dependent on the lifetime, or persistence, of the gas molecule in the atmosphere.

To regulate GHGs from passenger vehicles, EPA was required to issue an endangerment finding. The finding identifies emissions of six key GHGs—CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O, hydrofluorocarbons, perfluorocarbons, and SF<sub>6</sub>—that have been the subject of scrutiny and intense analysis for decades by scientists in the United States and around the world. The first three are applicable to the project's GHG emissions inventory because they constitute the majority of GHG emissions and, per South Coast AQMD guidance, are the GHG emissions that should be evaluated as part of a project's GHG emissions inventory.

### **US Mandatory Report Rule for GHGs (2009)**

In response to the endangerment finding, the EPA issued the Mandatory Reporting of GHG Rule that requires substantial emitters of GHG emissions (large stationary sources, etc.) to report GHG emissions data. Facilities that emit 25,000 MT or more of CO<sub>2</sub> per year are required to submit an annual report.

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

The federal government issued new Corporate Average Fuel Economy (CAFE) standards in 2012 for model years 2017 to 2025, which required a fleet average of 54.5 miles per gallon in 2025. On March 30, 2020, the EPA finalized an updated CAFE and GHG emissions standards for passenger cars and light trucks and established new standards covering model years 2021 through 2026, known as the Safer Affordable Fuel Efficient (SAFE) Vehicles Final Rule for Model Years 2021 to 2026. In response to Executive Order (EO) 13990, the National Highway Traffic Safety Administration (NHTSA) announced new proposed fuel standards on August 5, 2021 (NHTSA 2021).

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

On July 28, 2023, NHTSA proposed new CAFE standards for passenger cars and light trucks built in model years 2027-2032, and new fuel efficiency standards for heavy-duty pickup trucks and vans built in model years 2027-2035. If finalized, the proposal would require an industry fleet-wide average of approximately 58 mpg for passenger cars and light trucks in model year 2032, by increasing fuel economy by 2 percent year over year for passenger cars and by 4 percent year over year for light trucks. For heavy-duty pickup trucks and vans, the proposal would increase fuel efficiency by 10 percent year over year (NHTSA 2023).

### **EPA Regulation of Stationary Sources under the Clean Air Act (Ongoing)**

Pursuant to its authority under the Clean Air Act, the EPA has developed regulations for new, large, stationary sources of emissions, such as power plants and refineries. Under former President Obama's 2013 Climate Action Plan, the EPA was directed to develop regulations for existing stationary sources as well. On June 19, 2019, the EPA issued the final Affordable Clean Energy (ACE) rule, which became effective on

August 19, 2019. The ACE rule was crafted under the direction of President Trump's Energy Independence EO. It officially rescinded the Clean Power Plan rule issued during the Obama Administration and set emissions guidelines for states in developing plans to limit CO<sub>2</sub> emissions from coal-fired power plants. The Affordable Clean Energy rule was vacated by the United States Court of Appeals for the District of Columbia Circuit on January 19, 2021. The Biden Administration is assessing options on potential future regulations.

## **REGULATION OF GHG EMISSIONS ON A STATE LEVEL**

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

### **Executive Order S-3-05**

Executive Order S-3-05, signed June 1, 2005. Executive Order S-3-05 set the following GHG reduction targets for the State:

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

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

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

### **Executive Order B-30-15**

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

### **Senate Bill 32 and Assembly Bill 197**

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

**Executive Order B-55-18**

Executive Order B-55-18, signed September 10, 2018, set a goal “to achieve carbon neutrality as soon as possible, and no later than 2045, and achieve and maintain net negative emissions thereafter.” Executive Order B-55-18 directs CARB to work with relevant state agencies to ensure that future Scoping Plans identify and recommend measures to achieve the carbon neutrality goal. The goal of carbon neutrality by 2045 is in addition to other statewide goals, meaning that not only should emissions be reduced to 80 percent below 1990 levels by 2050, but that, by no later than 2045, the remaining emissions should be offset by equivalent net removals of CO<sub>2</sub>e from the atmosphere, including through sequestration in forests, soils, and other natural landscapes.

**Assembly Bill 1279**

AB 1279, signed by Governor Newsom in September 2022, codified the carbon neutrality targets of EO B-55-18 for year 2045 and sets a new legislative target for year 2045 of 85 percent below 1990 levels for anthropogenic GHG emissions. SB 1279 also requires CARB to update the Scoping Plan to address these new targets.

***2022 Climate Change Scoping Plan***

CARB adopted the *2022 Scoping Plan for Achieving Carbon Neutrality* (2022 Scoping Plan) on December 15, 2022, which lays out a path to achieve carbon neutrality by 2045 or earlier and to reduce the State’s anthropogenic GHG emissions (CARB 2022). The Scoping Plan provides updates to the previously adopted 2017 Scoping Plan and addresses the carbon neutrality goals of EO B-55-18 (discussed below) and the ambitious GHG reduction target as directed by AB 1279. Previous Scoping Plans focused on specific GHG reduction targets for our industrial, energy, and transportation sectors—to meet 1990 levels by 2020, and then the more aggressive 40 percent below that for the 2030 target. The 2022 Scoping Plan updates the target of reducing anthropogenic emissions to 85 percent below 1990 levels by 2045. Carbon neutrality takes it one step further by expanding actions to capture and store carbon including through natural and working lands and mechanical technologies, while drastically reducing anthropogenic sources of carbon pollution at the same time.

The path forward was informed by the recent Sixth Assessment Report (AR6) of the IPCC and the measures would achieve 85 percent below 1990 levels by 2045 in accordance AB 1279. CARB’s 2022 Scoping Plan identifies strategies as shown in Table 11, *Priority Strategies for Local Government Climate Action Plans*, that would be most impactful at the local level for ensuring substantial progress towards the State’s carbon neutrality goals.

**Table 11 Priority Strategies for Local Government Climate Action Plans**

Priority Area	Priority Strategies
Transportation Electrification	Convert local government fleets to zero-emission vehicles (ZEV) and provide EV charging at public sites.
	Create a jurisdiction-specific ZEV ecosystem to support deployment of ZEVs statewide (such as building standards that exceed state building codes, permit streamlining, infrastructure siting, consumer education, preferential parking policies, and ZEV readiness plans).
VMT Reduction	Reduce or eliminate minimum parking standards.

**Table 11 Priority Strategies for Local Government Climate Action Plans**

Priority Area	Priority Strategies
	Implement Complete Streets policies and investments, consistent with general plan circulation element requirements. Increase access to public transit by increasing density of development near transit, improving transit service by increasing service frequency, creating bus priority lanes, reducing or eliminating fares, microtransit, etc. Increase public access to clean mobility options by planning for and investing in electric shuttles, bike share, car share, and walking Implement parking pricing or transportation demand management pricing strategies. Amend zoning or development codes to enable mixed-use, walkable, transit-oriented, and compact infill development (such as increasing allowable density of the neighborhood). Preserve natural and working lands by implementing land use policies that guide development toward infill areas and do not convert "greenfield" land to urban uses (e.g., green belts, strategic conservation easements)
Building Decarbonization	Adopt all-electric new construction reach codes for residential and commercial uses. Adopt policies and incentive programs to implement energy efficiency retrofits for existing buildings, such as weatherization, lighting upgrades, and replacing energy-intensive appliances and equipment with more efficient systems (such as Energy Star-rated equipment and equipment controllers). Adopt policies and incentive programs to electrify all appliances and equipment in existing buildings such as appliance rebates, existing building reach codes, or time of sale electrification ordinances. Facilitate deployment of renewable energy production and distribution and energy storage on privately owned land uses (e.g., permit streamlining, information sharing)¶. Deploy renewable energy production and energy storage directly in new public projects and on existing public facilities (e.g., solar photovoltaic systems on rooftops of municipal buildings and on canopies in public parking lots, battery storage systems in municipal buildings)¶.

Source: CARB 2022.

Based on Appendix D of the 2022 CARB Climate Change Scoping Plan, for residential and mixed-use development projects, CARB recommends first demonstrating that these land use development projects are aligned with State climate goals based on the attributes of land use development that reduce operational GHG emissions while simultaneously advancing fair housing. Attributes that accommodate growth in a manner consistent with the GHG and equity goals of SB 32 have all the following attributes:

- Transportation Electrification
  - Provide EV charging infrastructure that, at a minimum, meets the most ambitious voluntary standards in the California Green Building Standards Code at the time of project approval.
  
- VMT Reduction
  - Is located on infill sites that are surrounded by existing urban uses and reuses or redevelops previously undeveloped or underutilized land that is presently served by existing utilities and essential public services (e.g., transit, streets, water, sewer).
  
  - Does not result in the loss or conversion of the State’s natural and working lands;

- Consists of transit-supportive densities (minimum of 20 residential dwelling units/acre), or is in proximity to existing transit stops (within a half mile), or satisfies more detailed and stringent criteria specified in the region's Sustainable Communities Strategy (SCS);
  - Reduces parking requirements by:
    - Eliminating parking requirements or including maximum allowable parking ratios (i.e., the ratio of parking spaces to residential units or square feet); or
    - Providing residential parking supply at a ratio of <1 parking space per dwelling unit; or
    - For multifamily residential development, requiring parking costs to be unbundled from costs to rent or own a residential unit.
  - At least 20 percent of the units are affordable to lower-income residents;
  - Result in no net loss of existing affordable units.
- **Building Decarbonization**
- Use all electric appliances without any natural gas connections and does not use propane or other fossil fuels for space heating, water heating, or indoor cooking (CARB 2022).

If the first approach to demonstrating consistency is not applicable (such as in the case of this school modernization project), the second approach to project-level alignment with state climate goals is to achieve net zero GHG emissions. The third approach to demonstrating project-level alignment with state climate goals is to align with GHG thresholds of significance, which many local air quality management (AQMDs) and air pollution control districts (APCDs) have developed or adopted (CARB 2022).

### Senate Bill 375

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

Pursuant to the recommendations of the Regional Transportation Advisory Committee, CARB adopted per capita reduction targets for each of the MPOs rather than a total magnitude reduction target. SCAG's targets are an 8 percent per capita reduction from 2005 GHG emission levels by 2020 and a 13 percent per capita reduction from 2005 GHG emission levels by 2035 (CARB 2010). The 2020 targets are smaller than the 2035 targets because a significant portion of the built environment in 2020 is defined by decisions that have already



been made. In general, the 2020 scenarios reflect that more time is needed for large land use and transportation infrastructure changes. Most of the reductions in the interim are anticipated to come from improving the efficiency of the region's transportation network. The targets would result in 3 MMTCO<sub>2e</sub> of reductions by 2020 and 15 MMTCO<sub>2e</sub> of reductions by 2035. Based on these reductions, the passenger vehicle target in CARB's Scoping Plan (for AB 32) would be met (CARB 2010).

### *2017 Update to the SB 375 Targets*

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

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

### *SCAG's Regional Transportation Plan / Sustainable Communities Strategy*

SB 375 requires each MPO to prepare a sustainable communities strategy in its regional transportation plan (RTP/SCS). For the SCAG region, the 2024-2050 RTP/SCS, Connect SoCal, was adopted on April 4, 2024, and is an update to the 2020-2045 RTP/SCS. In general, the RTP/SCS outlines a development pattern for the region that, when integrated with the transportation network and other transportation measures and policies, would reduce VMT from automobiles and light duty trucks and thereby reduce GHG emissions from these sources.

Connect SoCal focuses on the continued efforts of the previous RTP/SCSs to integrate transportation and land use strategies in development of the SCAG region through the horizon year 2050 (SCAG 2024). Connect SoCal forecasts that the SCAG region will meet its GHG per capita reduction targets of 8 percent by 2020 and 19 percent by 2035. It also forecasts that implementation of the plan will reduce VMT per capita in year 2050 by 6.3 percent compared to baseline conditions for that year. Connect SoCal includes a "Core Vision" that centers on maintaining and better managing the transportation network for moving people and goods, while expanding mobility choices by locating housing, jobs, and transit closer together; and increasing investments in transit and complete streets (SCAG 2024).

## Transportation Sector Specific Regulations

### *Assembly Bill 1493*

California vehicle GHG emission standards were enacted under AB 1493 (Pavley I). Pavley I is a clean-car standard that reduces GHG emissions from new passenger vehicles (light-duty auto to medium-duty vehicles) from 2009 through 2016 and is anticipated to reduce GHG emissions from new passenger vehicles by 30 percent in 2016. California implements the Pavley I standards through a waiver granted to California by the EPA. In 2012, the EPA issued a Final Rulemaking that sets even more stringent fuel economy and GHG emissions standards for model years 2017 through 2025 light-duty vehicles. (See also the discussion on the update to the Corporate Average Fuel Economy standards at the beginning of this Section 5.5.2 under “Federal.”) In January 2012, CARB approved the Advanced Clean Cars program (formerly known as Pavley II) for model years 2017 through 2025. The program combines the control of smog, soot, and GHGs with requirements for greater numbers of ZE vehicles into a single package of standards. Under California’s Advanced Clean Car program, by 2025 new automobiles will emit 34 percent less GHG emissions and 75 percent less smog-forming emissions.

### *Executive Order S-01-07*

On January 18, 2007, the state set a new LCFS for transportation fuels sold in the state. Executive Order S-01-07 sets a declining standard for GHG emissions measured in CO<sub>2e</sub> gram per unit of fuel energy sold in California. The LCFS required a reduction of 2.5 percent in the carbon intensity of California’s transportation fuels by 2015 and a reduction of at least 10 percent by 2020. The standard applies to refiners, blenders, producers, and importers of transportation fuels, and uses market-based mechanisms to allow these providers to choose how they reduce emissions during the “fuel cycle” using the most economically feasible methods.

### *Executive Order B-16-2012*

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

### *Executive Order N-79-20*

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

## Renewables Portfolio: Carbon Neutrality Regulations

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

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

### *Senate Bill 350*

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

### *Senate Bill 100*

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

## Energy Efficiency Regulations

### *California Building Code: Building Energy Efficiency Standards*

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

On August 11, 2021, the CEC adopted the 2022 Building Energy Efficiency Standards, which were subsequently approved by the California Building Standards Commission in December 2021. The 2022 standards went into effect on January 1, 2023, replacing the existing 2019 standards. The 2022 standards would require mixed-fuel single-family homes to be electric-ready to accommodate replacement of gas appliances with electric appliances. In addition, the new standards also include prescriptive photovoltaic system and battery requirements for high-rise, multifamily buildings (i.e., more than three stories) and

noncommercial buildings such as hotels, offices, medical offices, restaurants, retail stores, schools, warehouses, theaters, and convention centers (CEC 2021).

### *California Building Code: CALGreen*

On July 17, 2008, the California Building Standards Commission adopted the nation's first green building standards. The California Green Building Standards Code (24 CCR, Part 11, known as "CALGreen") was adopted as part of the California Building Standards Code. CALGreen established planning and design standards for sustainable site development, energy efficiency (in excess of the California Energy Code requirements), water conservation, material conservation, and internal air contaminants.<sup>13</sup> The mandatory provisions of CALGreen became effective January 1, 2011. In 2021, the CEC approved the 2022 CALGreen, which went into effect on January 1, 2023, replacing the existing 2019 standards.

### *2006 Appliance Efficiency Regulations*

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

### *Solid Waste Diversion Regulations*

#### ***AB 939: Integrated Waste Management Act of 1989***

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

#### ***AB 341***

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

#### ***AB 1327***

The California Solid Waste Reuse and Recycling Access Act (AB 1327, Public Resources Code §§ 42900 et seq.) requires areas to be set aside for collecting and loading recyclable materials in development projects. The act required the California Integrated Waste Management Board to develop a model ordinance for adoption

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<sup>13</sup> The green building standards became mandatory in the 2010 edition of the code.

by any local agency requiring adequate areas for collection and loading of recyclable materials as part of development projects. Local agencies are required to adopt the model or an ordinance of their own.

### ***AB 1826***

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

### ***Water Efficiency Regulations***

#### ***SBX7-7***

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

#### ***AB 1881: Water Conservation in Landscaping Act***

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

### ***Short-Lived Climate Pollutant Reduction Strategy***

#### ***Senate Bill 1383***

On September 19, 2016, the Governor signed SB 1383 to supplement the GHG reduction strategies in the Scoping Plan to consider short-lived climate pollutants, including black carbon and CH<sub>4</sub>. Black carbon is the light-absorbing component of fine particulate matter produced during the incomplete combustion of fuels. SB 1383 required the state board, no later than January 1, 2018, to approve and begin implementing a comprehensive strategy to reduce emissions of short-lived climate pollutants to achieve a reduction in methane by 40 percent, hydrofluorocarbon gases by 40 percent, and anthropogenic black carbon by 50 percent below 2013 levels by 2030. The bill also established targets for reducing organic waste in landfills. On March 14, 2017, CARB adopted the Short-Lived Climate Pollutant Reduction Strategy, which identifies the state’s approach to reducing anthropogenic and biogenic sources of short-lived climate pollutants.

Anthropogenic sources of black carbon include on- and off-road transportation, residential wood burning, fuel combustion (charbroiling), and industrial processes. According to CARB, ambient levels of black carbon in California are 90 percent lower than in the early 1960s, despite the tripling of diesel fuel use (CARB 2017). In-use on-road rules were expected to reduce black carbon emissions from on-road sources by 80 percent between 2000 and 2020. South Coast AQMD is one of the air districts that requires air pollution control technologies for chain-driven broilers, which reduces particulate emissions from these charbroilers by over 80 percent (CARB 2017). Additionally, South Coast AQMD Rule 445 limits installation of new fireplaces in the South Coast Air Basin.

## CALIFORNIA'S GREENHOUSE GAS SOURCES AND RELATIVE CONTRIBUTION

In 2023, the statewide GHG emissions inventory was updated for 2000 to 2021 emissions using the GWPs in IPCC's AR4 and reported that California produced 381.3 MMTCO<sub>2e</sub> GHG emissions in 2021 (49.7 MMTCO<sub>2e</sub> below the 2020 GHG Limit of 431 MMTCO<sub>2e</sub>). The growth in statewide emissions from 2020 to 2021 was likely due in large part to the increase of transportation and other economic activity that occurred in 2021 relative to 2020 as the California emerged from the COVID-19 pandemic (CARB 2023).

California's transportation sector was the single-largest generator of GHG emissions, producing 38.2 percent of the state's total emissions. Industrial sector emissions made up 19.4 percent, and electric power generation made up 16.4 percent of the state's emissions inventory. Other major sectors of GHG emissions include residential and commercial (10.2 percent), agriculture and forestry (8.1 percent), high GWP (5.6 percent), and recycling and waste (2.2 percent). Since the peak level in 2004, California's GHG emissions have generally followed a decreasing trend. In 2014, statewide GHG emissions dropped below the 2020 GHG Limit (AB 32 target for year 2020) and have remained below the Limit since that time. Additionally, per capita GHG emissions have dropped from a 2001 peak of 13.8 MTCO<sub>2e</sub> per person to 9.7 MTCO<sub>2e</sub> per person in 2021, a 30 percent decrease (CARB 2023).

Transportation emissions increased from 2020, likely from passenger vehicles whose emissions rebounded after COVID-19 shelter-in-place orders were lifted. Electricity emissions also increased compared to 2020; however, there has been continued growth of in-state solar generation and imported renewable electricity. High-GWP emissions have continued to increase as high-GWP gases replace ozone-depleting substances being phased out under the 1987 Montreal Protocol. Overall trends in the inventory also continue to demonstrate that the carbon intensity of California's economy (i.e., the amount of carbon pollution per million dollars of gross domestic product) is declining. From 2000 to 2021, the carbon intensity of California's economy decreased by 50.8 percent while the gross domestic product increased by 67.9 percent (CARB 2023).

## Thresholds of Significance

The CEQA Guidelines recommend that a lead agency consider the following when assessing the significance of impacts from GHG emissions on the environment:

1. The extent to which the project may increase (or reduce) GHG emissions as compared to the existing environmental setting;

2. Whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project;
3. The extent to which the project complies with regulations or requirements adopted to implement an adopted statewide, regional, or local plan for the reduction or mitigation of GHG emissions.<sup>14</sup>

## SOUTH COAST AQMD WORKING GROUP

To provide guidance to local lead agencies on determining significance for GHG emissions in their CEQA documents, South Coast AQMD convened a GHG CEQA Significance Threshold Working Group (Working Group). The South Coast AQMD Working Group (Meeting No. 15) identified a tiered approach for evaluating GHG emissions for development projects where South Coast AQMD is not the lead agency (South Coast AQMD 2010):

- **Tier 1.** If a project is exempt from CEQA, project-level and cumulative GHG emissions are less than significant.
- **Tier 2.** If the project complies with a GHG emissions reduction plan or mitigation program that avoids or substantially reduces GHG emissions in the project's geographic area (i.e., city or county), project-level and cumulative GHG emissions are less than significant.
- **Tier 3.** If GHG emissions are less than the screening-level threshold, project-level and cumulative GHG emissions are less than significant.

For projects that are not exempt or where no qualifying GHG reduction plans are directly applicable, South Coast AQMD requires an assessment of GHG emissions. The South Coast AQMD Working Group identified a screening-level threshold of 3,000 MTCO<sub>2e</sub> annually for all land use types or the following land-use-specific thresholds: 1,400 MTCO<sub>2e</sub> for commercial projects, 3,500 MTCO<sub>2e</sub> for residential projects, or 3,000 MTCO<sub>2e</sub> for mixed-use projects. These bright-line thresholds are based on a review of the Governor's Office of Planning and Research database of CEQA projects. Based on their review of 711 CEQA projects, 90 percent of CEQA projects would exceed the bright-line thresholds identified above. Therefore, projects that do not exceed the bright-line threshold would have a nominal, and therefore, less than cumulatively considerable impact on GHG emissions:

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

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<sup>14</sup> The Governor's Office of Planning and Research recommendations include a requirement that such a plan must be adopted through a public review process and include specific requirements that reduce or mitigate the project's incremental contribution of GHG emissions. If there is substantial evidence that the possible effects of a particular project are still cumulatively considerable, notwithstanding compliance with the adopted regulations or requirements, an EIR must be prepared for the project.

The South Coast AQMD Working Group has identified an efficiency target for projects that exceed the screening threshold of 4.8 MTCO<sub>2</sub>e per year per service population (MTCO<sub>2</sub>e/year/SP) for project-level analyses and 6.6 MTCO<sub>2</sub>e/year/SP for plan level projects (e.g., program-level projects such as general plans) for the year 2020.<sup>15</sup> The per capita efficiency targets are based on the AB 32 GHG reduction target and 2020 GHG emissions inventory prepared for CARB's 2008 Scoping Plan.

The bright-line screening-level criterion of 3,000 MTCO<sub>2</sub>e/yr is used as the significance threshold for this project. Therefore, if the project operation-phase emissions exceed the 3,000 MTCO<sub>2</sub>e/yr threshold, GHG emissions would be considered potentially significant in the absence of mitigation measures.

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<sup>15</sup> It should be noted that the Working Group also considered efficiency targets for 2035 for the first time in this Working Group meeting.



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# **Assumptions Worksheet**

## CalEEMod Inputs- Paakuma Park Sports Lighting Project, Construction

**Name:** Paakuma Park Sports Lighting Project, Construction  
**Project Number:** SBCU-08.6  
**Project Location:** 17825 Sycamore Creek Loop Parkway, San Bernardino, CA 92405  
**County:** San Bernardino  
**Climate Zone:** 10  
**Land Use Setting:** Urban  
**Operational Year:** 2025  
**Utility Company:** Southern California Edison  
**Air Basin:** South Coast Air Basin  
**Air District:** South Coast AQMD  
**SRA:** 34 - Central San Bernardino Valley

**Project Site Acreage** 8.24  
**Disturbed Site Acreage** 0.31

<b>Demolition</b>	<b>SQFT</b>	<b>Amount of Debris</b>
Asphalt Demolition (Tons)	7,000	104
<b>Project Components</b>	<b>SQFT</b>	<b>Acres</b>
<b>Construction</b>		
Number of Light Poles	11	0.0003
Area Disturbed per Light Pole	9	0.0002
<b>Area Disturbed (Light Poles)</b>	<b>99</b>	<b>0.002</b>
Utilities Trenching Area	2,340	0.05
Hardscape	6,000	0.14
Remaining Area	5,065	0.12
<b>TOTAL ACREAGE</b>		<b>0.31</b>

### CalEEMod Land Use Inputs

<b>Land Use Type</b>	<b>Land Use Subtype</b>	<b>Unit Amount</b>	<b>Size Metric</b>	<b>Lot Acreage</b>	<b>Land Use Square Feet</b>	<b>Landscaped Area</b>
Parking	Other Non-Asphalt Surfaces	0.31	Acre	0.31	NA	0
				<b>0.31</b>		

### Demolition

<b>Component</b>	<b>Amount to be Demolished</b>	<b>Haul Truck Capacity</b>	<b>Haul Distance (miles)</b>	<b>Total Trip Ends</b>	<b>Duration (days)</b>	<b>Trip Ends Per Day</b>
Asphalt (tons)	104	20	20	11	2	6

### Soil Haul

<b>Construction Activities</b>	<b>Volume (CY)</b>	<b>Haul Truck Capacity (cy)</b>	<b>Haul Distance (miles)</b>	<b>Total Trip Ends</b>	<b>Duration (days)</b>	<b>Trip Ends per Day</b>
Site Preparation Import	20	16	20	3	1	3

### Construction Mitigation

#### SCAQMD Rule 403

Water Unpaved Roads	Frequency:	2	per day
	PM10:	55	% Reduction
	PM25:	55	% Reduction

Water Exposed Area	Frequency:	2	per day
	PM10:	61	% Reduction
	PM25:	61	% Reduction

Unpaved Roads	Vehicle Speed:	25	mph
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#### SCAQMD Rule 1186

Clean Paved Road		9	% PM Reduction
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### Southern California Edison Carbon Intensity Factors

Forecasted Year	2025	
CO <sub>2</sub> : <sup>1,2</sup>	348.64	pounds per megawatt hour
CH <sub>4</sub> : <sup>3</sup>	0.033	pound per megawatt hour
N <sub>2</sub> O: <sup>3</sup>	0.004	pound per megawatt hour

## Pavement Volume to Weight Conversion

<b>Component</b>	<b>Total SF of Area<sup>1</sup></b>	<b>Assumed Thickness (foot)<sup>2</sup></b>	<b>Debris Volume (cu. ft)</b>	<b>Weight of Crushed Asphalt (lbs/cf)<sup>3</sup></b>	<b>AC Mass (lbs)</b>	<b>AC Mass (tons)</b>
Asphalt Demolition	7,000	0.333	2,333	89	207,407	103.70
<b>Total</b>	7,000					104

<sup>1</sup> Based on aerial image of existing project site.

<sup>2</sup> Gibbons, Jim. 1999. Pavements and Surface Materials. Nonpoint Education for Municipal Officials, Technical Paper Number 8. University of Connecticut Cooperative Extension System. [https://www.uni-groupusa.org/PDF/NEMO\\_tech\\_8.pdf](https://www.uni-groupusa.org/PDF/NEMO_tech_8.pdf)

<sup>3</sup> CalRecycle. 2019. Solid Waste Cleanup Program Weights and Volumes for Project Estimates. <https://www.delmar.ca.us/DocumentCenter/View/5668/CalRecycle-Conversion-Table>

## Construction Activities and Schedule Assumptions

\* based on schedule provided by District

### Construction Schedule (CaEEMod)

Construction Activities	Start Date	End Date	CaEEMod Duration (Workday)
Asphalt Demolition	3/10/2025	3/12/2025	3
Asphalt Demolition Debris Haul	3/12/2025	3/13/2025	2
Site Preparation	3/14/2025	3/20/2025	5
Site Preparation Soil Haul	3/21/2025	3/21/2025	1
Field Lighting Installation	3/24/2025	6/12/2025	59

### Overlapping Construction Schedule (CaEEMod)

Construction Activities	Start Date	End Date	CaEEMod Duration (Workday)
Asphalt Demolition	3/10/2025	3/11/2025	2
Asphalt Demolition & Debris Haul	3/12/2025	3/12/2025	1
Asphalt Demolition Debris Haul	3/13/2025	3/13/2025	1
Site Preparation	3/14/2025	3/20/2025	5
Site Preparation Soil Haul	3/21/2025	3/21/2025	1
Field Lighting Installation	3/24/2025	6/12/2025	59



## CalEEMod Construction Off-Road Equipment Inputs

Source: CalEEMod defaults (except where noted).

Construction Equipment Details			
Equipment	# of Equipment	hr/day	total trips per day
<b>Asphalt Demolition</b>			
Concrete/Industrial Saws	1	8	
Rubber Tired Dozers	1	1	
Tractors/Loaders/Backhoes	2	6	
Worker Trips			10
Vendor Trips			2
Hauling Trips			0
Water Trucks	Acres Disturbed:	0.875	4
	Onsite Travel (mi/day)	0.36	
<b>Asphalt Demolition Debris Haul</b>			
No equipment required for debris haul			
Worker Trips			0
Vendor Trips			0
Hauling Trips			6
<b>Site Preparation<sup>1</sup></b>			
Tractors/Loaders/Backhoes	1	8	
Bore/Drill Rig	1	8	
Worker Trips			5
Vendor Trips			1
Hauling Trips			0
Water Trucks	Acres Disturbed:	0.5	4
	Onsite Travel (mi/day)	0.21	
<b>Site Preparation Soil Haul</b>			
No equipment required for soil haul			
Worker Trips			0
Vendor Trips			0
Hauling Trips			3

## Field Lighting Installation<sup>1</sup>

Cranes	1	4	
Worker Trips			3
Vendor Trips			0
Hauling Trips			0

Notes:

<sup>1</sup> Based on equipment provided from previous field lighting projects.

## Water Truck Vendor Trip Calculation

Amount of Water (gal/acre/day) <sup>1</sup>	Water Truck Capacity (gallons) <sup>2</sup>
10,000	4,000

Notes:

<sup>1</sup> Based on data provided in Guidance for Application for Dust Control Permit  
Maricopa County Air Quality Department. 2005, June. Guidance for Application of Dust Control Permit.  
[https://www.epa.gov/sites/default/files/2019-04/documents/mr\\_guidanceforapplicationfordustcontrolpermit.pdf](https://www.epa.gov/sites/default/files/2019-04/documents/mr_guidanceforapplicationfordustcontrolpermit.pdf)

<sup>2</sup> Based on standard water truck capacity:  
McLellan Industries. 2022, January (access). Water Trucks.  
<https://www.mclellanindustries.com/trucks/water-trucks/>

<sup>3</sup> Assumes that dozers, tractors/loaders/backhoes, and graders can disturb 0.50 acres per day and scrapers can disturb 1 acre per day.

Phase Name	Worker Trip Ends	Vendor Trip Ends	Haul Truck Trip	Total Trip Ends	Start Date	End Date	Workdays
	Per Day	Per Day	Ends Per Day	Per Day			
Asphalt Demolition	10	6	0	16	3/10/2025	3/12/2025	3
Asphalt Demolition Debris Haul	0	0	6	6	3/12/2025	3/13/2025	2
Site Preparation	5	5	0	10	3/14/2025	3/20/2025	5
Site Preparation Soil Haul	0	0	3	3	3/21/2025	3/21/2025	1
Field Lighting Installation	3	0	0	3	3/24/2025	6/12/2025	59

Construction Activity (Overlapping)	Worker Trip Ends	Vendor Trip Ends	Haul Truck Trip	Total Trip Ends	Start Date	End Date	Workdays
	Per Day	Per Day	Ends Per Day	Per Day			
Asphalt Demolition	10	6	0	16	3/10/2025	3/11/2025	2
Asphalt Demolition & Debris Haul	10	6	6	22	3/12/2025	3/12/2025	1
Asphalt Demolition Debris Haul	0	0	6	6	3/13/2025	3/13/2025	1
Site Preparation	5	5	0	10	3/14/2025	3/20/2025	5
Site Preparation Soil Haul	0	0	3	3	3/21/2025	3/21/2025	1
Field Lighting Installation	3	0	0	3	3/24/2025	6/12/2025	59
	<b>10</b>	<b>6</b>	<b>6</b>	<b>22</b>			

## CalEEMod Inputs- Paakuma Park Sports Lighting Project, Operation

**Name:** Paakuma Park Sports Lighting Project, Operation  
**Project Number:** SBCU-08.6  
**Project Location:** 17825 Sycamore Creek Loop Parkway, San Bernardino, CA 92405  
**County:** San Bernardino  
**Climate Zone:** 10  
**Land Use Setting:** Urban  
**Operational Year:** 2025  
**Utility Company:** Southern California Edison  
**Air Basin:** South Coast Air Basin  
**Air District:** South Coast AQMD  
**SRA:** 34 - Central San Bernardino Valley

**Project Site Acreage** 8.24  
**Disturbed Site Acreage** 0.31

### CalEEMod Land Use Inputs

Land Use Type	Land Use Subtype	Unit Amount	Size Metric	Lot Acreage	Land Use Square Feet	Landscaped Area
Parking	Other Non-Asphalt Surfaces	0.31	Acre	0.31	NA	0
				<b>0.31</b>		

Trips

Land Use Type	Average Daily Trips	CalEEMod Trip Rate	Saturday Trips	CalEEMod Trip Rate	Sunday Trips	CalEEMod Trip Rate
Elementary School	33	<b>106.45</b>	33	<b>106.45</b>	33	<b>106.45</b>

Source: DJ&A. May 14, 2024. Paakuma K-8 School Field Lighting Project Traffic Impact Study.

### Water Use

Student capacity is not anticipated to change from existing school capacity. Therefore, water use would be similar to existing conditions and was not added to the model.

### Solid Waste

Student capacity is not anticipated to change from existing school capacity. Therefore, solid waste generation would be similar to existing conditions and was not added to the model.

**Lighting Electricity (Use)**

**Electricity:**

	Total kW <sup>1</sup>	Estimated Hours of Operation per day <sup>2</sup>	Days per week <sup>3</sup>	KWh (Annual)
Practices/Games	38.02	4	7	49,426
<b>Total Annual kWh</b>				<b>49,426</b>

**Calculation of GHGs from Field Lighting**

CO <sub>2</sub> <sup>4</sup>	CH <sub>4</sub> <sup>4</sup>	N <sub>2</sub> O <sup>4</sup>	CO <sub>2</sub> e	CO <sub>2</sub> e
lbs/Mwh	lbs/MWh	lbs/MWh	lbs/MWh	MT/KWh
348.64	0.033	0.004	348.67	0.0002
<b>CO<sub>2</sub>e from Lighting (MT/Year)</b>				<b>7.82</b>

**Notes**

- <sup>1</sup> Based on Musco Lighting Plan for the proposed lighting as provided by the District.
- <sup>2</sup> Based on the practice schedule from District.
- <sup>3</sup> Based on average hours of lighting per event assuming start time of 6:00 pm.

**Southern California Edison Carbon Intensity Factors**

Forecasted Year	2025	
CO <sub>2</sub> : <sup>1,2</sup>	348.64	pounds per megawatt hour
CH <sub>4</sub> : <sup>3</sup>	0.033	pound per megawatt hour
N <sub>2</sub> O: <sup>3</sup>	0.004	pound per megawatt hour

# Changes to the CalEEMod Defaults - Fleet Mix 2025

Trips 33

Default	HHD	LDA	LDT1	LDT2	LHD1	LHD2	MCY	MDV	MH	MHD	OBUS	SBUS	UBUS	
FleetMix (Model Default)	1.759970374	50.15186071	4.056407139	20.44174969	2.889458835	0.785400625	2.110531926	15.40546715	0.461773016	1.734530181	0.061879301	0.109493604	0.031474201	100.00
Percentage														
FleetMix (Converted)	0.017599704	0.501518607	0.040564071	0.204417497	0.028894588	0.007854006	0.021105319	0.154054672	0.00461773	0.017345302	0.000618793	0.001094936	0.000314742	100%
Trips	1	17	1	7	1	0	1	5	0	1	0	0	0	33
Percent		77%			8%			15%						100%
<b>without buses/MH</b>	0.017600	0.501519	0.040564	0.204417	0.028895	0.007854	0.021105	0.154055	0.000000	0.017345	0	0.000000	0	99%
Percent		77%			7%			15%						99%
Adjusted without buses/MH	0.019231	0.501519	0.040564	0.204417	0.031573	0.008582	0.023062	0.154055	0.000000	0.018953	0.000000	0.000000	0.000000	100%
Percent adjusted		77%			8%			15%						100%
<b>Assumed Mix</b>		97.0%			1.00%			2.00%						100%
Adjusted with Assumed Mix														100%
Percentage	0.002455	0.632143	0.051129	0.257660	0.004030	0.001095	0.029068	0.020000	0.000000	0.002419	0.000000	0.000000	0.000000	100%
Adjusted CalEEMod Input	0.245485	63.214275	5.112928	25.765951	0.403029	0.109550	2.906847	2.000000	0.000000	0.241937	0.000000	0.000000	0.000000	
Percent Check:		97%			1%			2%						
Trips	0	21	2	9	0	0	1	1	0	0	0	0	0	33
		32			2			1						

Fleet mix for the project is modified to reflect a higher proportion of passenger vehicles than the regional VMT. Assumes a mix of approximately 97% passenger vehicles, 2% medium duty trucks, and 1% heavy duty trucks and buses.

# Emissions Worksheet

## Regional Construction Emissions Worksheet:

### 3.1. Asphalt Demolition (2025) - Unmitigated

		ROG	NOx	CO	SO	PM10 Total	PM2.5Total
		2					
Onsite		<b>Winter</b>					
	Off-Road Equipment	0.47	4.33	5.65	0.01	0.16	0.14
	Demolition	0.00	0.00	0.00	0.00	0.00	0.00
	Onsite truck	0.01	0.02	0.01	0.01	0.13	0.01
	<b>Total</b>	<b>0.48</b>	<b>4.35</b>	<b>5.66</b>	<b>0.02</b>	<b>0.29</b>	<b>0.15</b>
Offsite							
	Worker	0.04	0.04	0.45	0.00	0.09	0.02
	Vendor	0.01	0.19	0.10	0.01	0.04	0.01
	Hauling	0.00	0.00	0.00	0.00	0.00	0.00
	<b>Total</b>	<b>0.05</b>	<b>0.23</b>	<b>0.55</b>	<b>0.01</b>	<b>0.13</b>	<b>0.03</b>
<b>TOTAL</b>		<b>0.52</b>	<b>4.58</b>	<b>6.21</b>	<b>0.02</b>	<b>0.42</b>	<b>0.18</b>

### 3.3. Asphalt Demolition Debris Haul (2025) - Unmitigated

		ROG	NOx	CO	SO	PM10 Total	PM2.5Total
		2					
Onsite		<b>Winter</b>					
	Demolition	0.00	0.00	0.00	0.00	0.73	0.11
	Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00
	<b>Total</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.73</b>	<b>0.11</b>
Offsite							
	Worker	0.00	0.00	0.00	0.00	0.00	0.00
	Vendor	0.00	0.00	0.00	0.00	0.00	0.00
	Hauling	0.01	0.52	0.28	0.01	0.12	0.04
	<b>Total</b>	<b>0.01</b>	<b>0.52</b>	<b>0.28</b>	<b>0.01</b>	<b>0.12</b>	<b>0.04</b>
<b>TOTAL</b>		<b>0.01</b>	<b>0.52</b>	<b>0.28</b>	<b>0.01</b>	<b>0.85</b>	<b>0.15</b>

### 3.5. Site Preparation (2025) - Unmitigated

		ROG	NOx	CO	SO	PM10 Total	PM2.5Total
		2					
Onsite		<b>Winter</b>					
	Off-Road Equipment	0.21	2.38	4.29	0.01	0.08	0.07
	Dust From Material Movement	0.00	0.00	0.00	0.00	0.00	0.00
	Onsite truck	0.01	0.02	0.01	0.01	0.08	0.01
	<b>Total</b>	<b>0.22</b>	<b>2.40</b>	<b>4.30</b>	<b>0.02</b>	<b>0.16</b>	<b>0.08</b>
Offsite							
	Worker	0.02	0.02	0.23	0.00	0.05	0.01
	Vendor	0.01	0.16	0.08	0.01	0.04	0.01
	Hauling	0.00	0.00	0.00	0.00	0.00	0.00
	<b>Total</b>	<b>0.03</b>	<b>0.18</b>	<b>0.31</b>	<b>0.01</b>	<b>0.09</b>	<b>0.02</b>
<b>TOTAL</b>		<b>0.24</b>	<b>2.58</b>	<b>4.61</b>	<b>0.02</b>	<b>0.25</b>	<b>0.10</b>

### 3.7. Site Preparation Soil Haul (2025) - Unmitigated

		ROG	NOx	CO	SO	PM10 Total	PM2.5Total
		2					
Onsite		<b>Winter</b>					
	Dust From Material Movement	0.00	0.00	0.00	0.00	0.01	0.01
	Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00
	<b>Total</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.01</b>	<b>0.01</b>
Offsite							
	Worker	0.00	0.00	0.00	0.00	0.00	0.00
	Vendor	0.00	0.00	0.00	0.00	0.00	0.00
	Hauling	0.01	0.26	0.14	0.01	0.06	0.02
	<b>Total</b>	<b>0.01</b>	<b>0.26</b>	<b>0.14</b>	<b>0.01</b>	<b>0.06</b>	<b>0.02</b>
<b>TOTAL</b>		<b>0.01</b>	<b>0.26</b>	<b>0.14</b>	<b>0.01</b>	<b>0.07</b>	<b>0.03</b>

### 3.9. Field Lighting Installation (2025) - Unmitigated

		ROG	NOx	CO	SO2	PM10 Total	PM2.5 Total
		2					
Onsite		<b>Summer</b>					
	Off-Road Equipment	0.19	1.83	1.56	0.01	0.07	0.07
	Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00
	<b>Total</b>	<b>0.19</b>	<b>1.83</b>	<b>1.56</b>	<b>0.01</b>	<b>0.07</b>	<b>0.07</b>
Offsite							
	Worker	0.01	0.01	0.18	0.00	0.03	0.01
	Vendor	0.00	0.00	0.00	0.00	0.00	0.00
	Hauling	0.00	0.00	0.00	0.00	0.00	0.00
	<b>Total</b>	<b>0.01</b>	<b>0.01</b>	<b>0.18</b>	<b>0.00</b>	<b>0.03</b>	<b>0.01</b>
<b>TOTAL</b>		<b>0.20</b>	<b>1.84</b>	<b>1.74</b>	<b>0.01</b>	<b>0.10</b>	<b>0.08</b>



	ROG	NOx	CO	SO2	PM10 Total	PM2.5 Total
<i>Asphalt Demolition</i>	1	5	6	0	0	0
<i>Asphalt Demolition &amp; Debris Haul</i>	1	5	6	0	1	0
<i>Asphalt Demolition Debris Haul</i>	0	1	0	0	1	0
<i>Site Preparation</i>	0	3	5	0	0	0
<i>Site Preparation Soil Haul</i>	0	0	0	0	0	0
<i>Field Lighting Installation</i>	0	2	2	0	0	0
<b>MAX DAILY</b>	<b>1</b>	<b>5</b>	<b>6</b>	<b>0</b>	<b>1</b>	<b>0</b>
<b>Regional Thresholds</b>	<b>75</b>	<b>100</b>	<b>550</b>	<b>150</b>	<b>150</b>	<b>55</b>
Exceeds Thresholds?	No	No	No	No	No	No

## Construction LST Worksheet:

### 3.1. Asphalt Demolition (2025) - Unmitigated

		NOx	CO	PM10 Total	PM2.5Total
Onsite					
	Off-Road Equipment	4.33	5.65	0.16	0.14
	Demolition	0.00	0.00	0.00	0.00
	Onsite truck	0.02	0.01	0.13	0.01
	<b>Total</b>	<b>4.35</b>	<b>5.66</b>	<b>0.29</b>	<b>0.15</b>

### 3.3. Asphalt Demolition Debris Haul (2025) - Unmitigated

		NOx	CO	PM10 Total	PM2.5Total
Onsite					
	Demolition	0.00	0.00	0.73	0.11
	Onsite truck	0.00	0.00	0.00	0.00
	<b>Total</b>	<b>0.00</b>	<b>0.00</b>	<b>0.73</b>	<b>0.11</b>

### 3.5. Site Preparation (2025) - Unmitigated

		NOx	CO	PM10 Total	PM2.5Total
Onsite					
	Off-Road Equipment	2.38	4.29	0.08	0.07
	Dust From Material Movement	0.00	0.00	0.00	0.00
	Onsite truck	0.02	0.01	0.08	0.01
	<b>Total</b>	<b>2.40</b>	<b>4.30</b>	<b>0.16</b>	<b>0.08</b>

### 3.7. Site Preparation Soil Haul (2025) - Unmitigated

		NOx	CO	PM10 Total	PM2.5Total
Onsite					
	Dust From Material Movement	0.00	0.00	0.01	0.01
	Onsite truck	0.00	0.00	0.00	0.00
	<b>Total</b>	<b>0.00</b>	<b>0.00</b>	<b>0.01</b>	<b>0.01</b>

### 3.9. Field Lighting Installation (2025) - Unmitigated

		NOx	CO	PM10 Total	PM2.5 Total
Onsite					
	Off-Road Equipment	1.83	1.56	0.07	0.07
	Onsite truck	0.00	0.00	0.00	0.00
	<b>Total</b>	<b>1.83</b>	<b>1.56</b>	<b>0.07</b>	<b>0.07</b>

	NOx	CO	PM10 Total	PM2.5 Total
<b>Asphalt Demolition</b>	<b>4</b>	<b>6</b>	<b>0.29</b>	<b>0.15</b>
<b>≤ 1.00 Acre LST</b>	<b>118</b>	<b>667</b>	<b>4.00</b>	<b>3.00</b>
<b>Exceeds LST?</b>	<b>no</b>	<b>no</b>	<b>no</b>	<b>no</b>
<b>Asphalt Demolition &amp; Debris Haul</b>	<b>4</b>	<b>6</b>	<b>1.02</b>	<b>0.26</b>
<b>≤ 1.00 Acre LST</b>	<b>118</b>	<b>667</b>	<b>4.00</b>	<b>3.00</b>
<b>Exceeds LST?</b>	<b>no</b>	<b>no</b>	<b>no</b>	<b>no</b>
<b>Asphalt Demolition Debris Haul</b>	<b>0</b>	<b>0</b>	<b>0.73</b>	<b>0.11</b>
<b>≤ 1.00 Acre LST</b>	<b>118</b>	<b>667</b>	<b>4.00</b>	<b>3.00</b>
<b>Exceeds LST?</b>	<b>no</b>	<b>no</b>	<b>no</b>	<b>no</b>
<b>Site Preparation</b>	<b>2</b>	<b>4</b>	<b>0.16</b>	<b>0.08</b>
<b>≤ 1.00 Acre LST</b>	<b>118</b>	<b>667</b>	<b>4.00</b>	<b>3.00</b>
<b>Exceeds LST?</b>	<b>no</b>	<b>no</b>	<b>no</b>	<b>no</b>
<b>Site Preparation Soil Haul</b>	<b>0</b>	<b>0</b>	<b>0.01</b>	<b>0.01</b>
<b>≤ 1.00 Acre LST</b>	<b>118</b>	<b>667</b>	<b>4.00</b>	<b>3.00</b>
<b>Exceeds LST?</b>	<b>no</b>	<b>no</b>	<b>no</b>	<b>no</b>
<b>Field Lighting Installation</b>	<b>2</b>	<b>2</b>	<b>0.07</b>	<b>0.07</b>
<b>≤ 1.00 Acre LST</b>	<b>118</b>	<b>667</b>	<b>4.00</b>	<b>3.00</b>
<b>Exceeds LST?</b>	<b>no</b>	<b>no</b>	<b>no</b>	<b>no</b>

# Regional Operation Emissions Worksheet

<sup>1</sup> CalEEMod, Version 2022.1.

## Proposed Project

### Summer

	ROG	NOx	CO	SO2	PM10 Total	PM2.5 Total
Mobile	0.01	0.01	0.04	0.01	0.01	0.01
Area	0.01	0.00	0.00	0.00	0.00	0.00
Energy	0.00	0.00	0.00	0.00	0.00	0.00
<b>Total</b>	<b>0.01</b>	<b>0.01</b>	<b>0.04</b>	<b>0.01</b>	<b>0.01</b>	<b>0.01</b>

### Winter

	ROG	NOx	CO	SO2	PM10 Total	PM2.5 Total
Mobile	0.01	0.01	0.03	0.01	0.01	0.01
Area	0.01	0.00	0.00	0.00	0.00	0.00
Energy	0.00	0.00	0.00	0.00	0.00	0.00
<b>Total</b>	<b>0.01</b>	<b>0.01</b>	<b>0.03</b>	<b>0.01</b>	<b>0.01</b>	<b>0.01</b>

### Max Daily

	ROG	NOx	CO	SO2	PM10 Total	PM2.5 Total
Mobile	0.01	0.01	0.04	0.01	0.01	0.01
Area	0.01	0.00	0.00	0.00	0.00	0.00
Energy	0.00	0.00	0.00	0.00	0.00	0.00
<b>Total</b>	<b>0.01</b>	<b>0.01</b>	<b>0.04</b>	<b>0.01</b>	<b>0.01</b>	<b>0.01</b>

<b>Regional Thresholds (lb/day)</b>	<b>55</b>	<b>55</b>	<b>550</b>	<b>150</b>	<b>150</b>	<b>55</b>
Exceeds Thresholds?	No	No	No	No	No	No

# GHG Emissions Inventory

## Proposed Project Buildout

### Construction<sup>1</sup>

	MTCO <sub>2</sub> e
2025	18
<b>Total Construction</b>	<b>18</b>
<b>30-Year Amortization</b> <sup>2</sup>	<b>1</b>

<sup>1</sup> CalEEMod, Version 2022.1.

<sup>2</sup> Total construction emissions are amortized over 30 years per SCAQMD methodology; SCAQMD. 2009, November 19. Greenhouse Gases (GHG) CEQA Significance Thresholds Working Group Meeting 14. [http://www.aqmd.gov/docs/default-source/ceqa/handbook/greenhouse-gases-\(ghg\)-ceqa-significance-thresholds/year-2008-2009/ghg-meeting-14/ghg-meeting-14-main-presentation.pdf?sfvrsn=2](http://www.aqmd.gov/docs/default-source/ceqa/handbook/greenhouse-gases-(ghg)-ceqa-significance-thresholds/year-2008-2009/ghg-meeting-14/ghg-meeting-14-main-presentation.pdf?sfvrsn=2).

### Operation<sup>1</sup>

	MTCO <sub>2</sub> e/Year <sup>2</sup>	
	Operations	%
Mobile	1	13%
Area	0	0%
Energy	0	0%
Water	0	0%
Solid Waste	0	0%
Field Lighting <sup>3</sup>	8	81%
30-Year Construction Amortization	1	6%
	<b>10</b>	<b>100%</b>

South Coast AQMD Bright-Line Screening Threshold **3,000**  
**Exceed Threshold? No**

<sup>1</sup> CalEEMod, Version 2022.1.

<sup>2</sup> MTCO<sub>2</sub>e=metric tons of carbon dioxide equivalent.

<sup>3</sup> Calculated field lighting off-model based on average hours of lighting per event.

# **LST Worksheets**

**Construction Localized Significance Thresholds: ≤1 Acre**

SRA No.	Acres	NOx & CO		PM10 & PM2.5		Construction / Project Site Size (Acres)
		Source Receptor Distance (meters)	Source Receptor Distance (Feet)	Source Receptor Distance (meters)	Source Receptor Distance (Feet)	
34	0.00	25	82	25	82	0.31
<b>Source Receptor Distance (meters)</b>	<b>Central San Bernardino Valley</b>	<b>Equipment</b>	<b>Acres/8-hr Day</b>	<b>Daily hours</b>	<b>Equipment Used</b>	<b>Acres</b>
25		Tractors	0.5	0.0625		0
<b>NOx</b>	<b>118</b>	Tractors	0.5	0.0625		0
<b>CO</b>	<b>667</b>	Graders	0.5	0.0625		0
<b>PM10</b>	<b>4.00</b>	Dozers	0.5	0.0625		0
<b>PM2.5</b>	<b>3.00</b>	Scrapers	1	0.125		0
					<b>Acres</b>	0.00
	<b>Acres</b>	<b>25</b>	<b>50</b>	<b>100</b>	<b>200</b>	<b>500</b>
NOx	1	118	148	211	334	652
	1	118	148	211	334	652
		118	148	211	334	652
CO	1	667	1059	2141	5356	21708
	1	667	1059	2141	5356	21708
		667	1059	2141	5356	21708
PM10	1	4	13	33	74	196
	1	4	13	33	74	196
		4	13	33	74	196
PM2.5	1	3	5	9	23	98
	1	3	5	9	23	98
		3	5	9	23	98
Central San Bernardino Valley						
<b>0.00 Acres</b>						
	<b>25</b>	<b>50</b>	<b>100</b>	<b>200</b>	<b>500</b>	
NOx	118	148	211	334	652	
CO	667	1059	2141	5356	21708	
PM10	4	13	33	74	196	
PM2.5	3	5	9	23	98	

Acre Below		Acre Above	
SRA No.	Acres	SRA No.	Acres
34	1	34	1
<b>Distance Increment Below</b>			
25			
<b>Distance Increment Above</b>			
25			

Updated: 10/21/2009 - Table C-1. 2006 – 2008

# **CalEEMod Construction Model**



# SBCU-08.6 Custom Report

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# 1. Basic Project Information

## 1.1. Basic Project Information

Data Field	Value
Project Name	SBCU-08.6
Construction Start Date	3/10/2025
Operational Year	2025
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	2.80
Precipitation (days)	6.80
Location	34.188017678403114, -117.41450608463128
County	San Bernardino-South Coast
City	Unincorporated
Air District	South Coast AQMD
Air Basin	South Coast
TAZ	5317
EDFZ	10
Electric Utility	Southern California Edison
Gas Utility	Southern California Gas
App Version	2022.1.1.23

## 1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
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Other Non-Asphalt Surfaces	0.31	Acre	0.31	0.00	0.00	—	—	—
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### 1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

## 2. Emissions Summary

### 2.1. Construction Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.24	0.20	1.84	1.74	< 0.005	0.07	0.03	0.10	0.07	0.01	0.07	—	526	526	0.02	0.01	0.11	528
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.68	0.52	5.09	6.49	0.01	0.16	1.11	1.27	0.15	0.19	0.34	—	1,517	1,517	0.10	0.10	0.04	1,550
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.05	0.04	0.37	0.39	< 0.005	0.01	0.01	0.03	0.01	< 0.005	0.02	—	108	108	< 0.005	< 0.005	0.02	109
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.01	0.01	0.07	0.07	< 0.005	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	—	17.9	17.9	< 0.005	< 0.005	< 0.005	18.0

### 2.2. Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
------	-----	-----	-----	----	-----	-------	-------	-------	--------	--------	--------	------	-------	------	-----	-----	---	------

Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	0.24	0.20	1.84	1.74	< 0.005	0.07	0.03	0.10	0.07	0.01	0.07	—	526	526	0.02	0.01	0.11	528
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	0.68	0.52	5.09	6.49	0.01	0.16	1.11	1.27	0.15	0.19	0.34	—	1,517	1,517	0.10	0.10	0.04	1,550
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	0.05	0.04	0.37	0.39	< 0.005	0.01	0.01	0.03	0.01	< 0.005	0.02	—	108	108	< 0.005	< 0.005	0.02	109
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	0.01	0.01	0.07	0.07	< 0.005	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	—	17.9	17.9	< 0.005	< 0.005	< 0.005	18.0

### 3. Construction Emissions Details

#### 3.1. Asphalt Demolition (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.56	0.47	4.33	5.65	0.01	0.16	—	0.16	0.14	—	0.14	—	852	852	0.03	0.01	—	855
Demolition	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.13	0.13	< 0.005	0.01	0.01	—	2.99	2.99	< 0.005	< 0.005	< 0.005	3.18

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.04	0.05	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	7.00	7.00	< 0.005	< 0.005	—	7.03
Demolition	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.02	0.02	< 0.005	< 0.005	< 0.005	0.03
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.16	1.16	< 0.005	< 0.005	—	1.16
Demolition	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.04	0.45	0.00	0.00	0.09	0.09	0.00	0.02	0.02	—	93.9	93.9	< 0.005	< 0.005	0.01	95.2
Vendor	0.02	< 0.005	0.19	0.10	< 0.005	< 0.005	0.04	0.04	< 0.005	0.01	0.01	—	152	152	0.01	0.02	0.01	160
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.78	0.78	< 0.005	< 0.005	< 0.005	0.79
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.25	1.25	< 0.005	< 0.005	< 0.005	1.31
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.13	0.13	< 0.005	< 0.005	< 0.005	0.13

Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.21	0.21	< 0.005	< 0.005	< 0.005	0.22
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

### 3.3. Asphalt Demolition Debris Haul (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Demolition	—	—	—	—	—	—	0.73	0.73	—	0.11	0.11	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Demolition	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Demolition	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.05	0.01	0.52	0.28	< 0.005	0.01	0.11	0.12	0.01	0.03	0.04	—	415	415	0.04	0.07	0.02	436
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	2.27	2.27	< 0.005	< 0.005	< 0.005	2.39
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.38	0.38	< 0.005	< 0.005	< 0.005	0.40

### 3.5. Site Preparation (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.25	0.21	2.38	4.29	0.01	0.08	—	0.08	0.07	—	0.07	—	673	673	0.03	0.01	—	675



Dust From Material Movement:	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.08	0.08	< 0.005	0.01	0.01	—	2.49	2.49	< 0.005	< 0.005	< 0.005	2.64
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Off-Road Equipment	< 0.005	< 0.005	0.03	0.06	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	9.22	9.22	< 0.005	< 0.005	—	9.25
Dust From Material Movement:	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.03	0.03	< 0.005	< 0.005	< 0.005	0.04
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Off-Road Equipment	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.53	1.53	< 0.005	< 0.005	—	1.53
Dust From Material Movement:	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.01	0.01	< 0.005	< 0.005	< 0.005	0.01
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Worker	0.02	0.02	0.02	0.23	0.00	0.00	0.05	0.05	0.00	0.01	0.01	—	47.0	47.0	< 0.005	< 0.005	< 0.005	47.6
Vendor	0.01	< 0.005	0.16	0.08	< 0.005	< 0.005	0.03	0.04	< 0.005	0.01	0.01	—	127	127	0.01	0.02	0.01	133
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.65	0.65	< 0.005	< 0.005	< 0.005	0.66
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.74	1.74	< 0.005	< 0.005	< 0.005	1.82
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.11	0.11	< 0.005	< 0.005	< 0.005	0.11
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.29	0.29	< 0.005	< 0.005	< 0.005	0.30
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

### 3.7. Site Preparation Soil Haul (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.03	< 0.005	0.26	0.14	< 0.005	< 0.005	0.06	0.06	< 0.005	0.02	0.02	—	208	208	0.02	0.03	0.01	218	
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.57	0.57	< 0.005	< 0.005	< 0.005	0.60	
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.09	0.09	< 0.005	< 0.005	< 0.005	0.10	

### 3.9. Field Lighting Installation (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.22	0.19	1.83	1.56	< 0.005	0.07	—	0.07	0.07	—	0.07	—	495	495	0.02	< 0.005	—	497
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.22	0.19	1.83	1.56	< 0.005	0.07	—	0.07	0.07	—	0.07	—	495	495	0.02	< 0.005	—	497
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.04	0.03	0.30	0.25	< 0.005	0.01	—	0.01	0.01	—	0.01	—	80.0	80.0	< 0.005	< 0.005	—	80.3
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.05	0.05	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	13.3	13.3	< 0.005	< 0.005	—	13.3
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.18	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	30.7	30.7	< 0.005	< 0.005	0.11	31.2
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.14	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	28.2	28.2	< 0.005	< 0.005	< 0.005	28.6	
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	4.62	4.62	< 0.005	< 0.005	0.01	4.69	
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.76	0.76	< 0.005	< 0.005	< 0.005	0.78	
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	

## 5. Activity Data

### 5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Asphalt Demolition	Demolition	3/10/2025	3/12/2025	5.00	3.00	—
Asphalt Demolition Debris Haul	Demolition	3/12/2025	3/13/2025	5.00	2.00	—
Site Preparation	Site Preparation	3/14/2025	3/20/2025	5.00	5.00	—
Site Preparation Soil Haul	Site Preparation	3/21/2025	3/21/2025	5.00	1.00	—
Field Lighting Installation	Building Construction	3/24/2025	6/12/2025	5.00	59.0	—

## 5.2. Off-Road Equipment

### 5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Asphalt Demolition	Concrete/Industrial Saws	Diesel	Average	1.00	8.00	33.0	0.73
Asphalt Demolition	Rubber Tired Dozers	Diesel	Average	1.00	1.00	367	0.40
Asphalt Demolition	Tractors/Loaders/Backhoes	Diesel	Average	2.00	6.00	84.0	0.37
Site Preparation	Tractors/Loaders/Backhoes	Diesel	Average	1.00	8.00	84.0	0.37
Site Preparation	Bore/Drill Rigs	Diesel	Average	1.00	8.00	83.0	0.50
Field Lighting Installation	Cranes	Diesel	Average	1.00	4.00	367	0.29

## 5.3. Construction Vehicles

### 5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Asphalt Demolition	—	—	—	—
Asphalt Demolition	Worker	10.0	13.4	LDA,LDT1,LDT2
Asphalt Demolition	Vendor	6.00	8.33	HHDT,MHDT
Asphalt Demolition	Hauling	0.00	20.0	HHDT
Asphalt Demolition	Onsite truck	1.00	0.36	HHDT
Site Preparation	—	—	—	—
Site Preparation	Worker	5.00	13.4	LDA,LDT1,LDT2
Site Preparation	Vendor	5.00	8.33	HHDT,MHDT
Site Preparation	Hauling	0.00	20.0	HHDT

Site Preparation	Onsite truck	1.00	0.21	HHDT
Field Lighting Installation	—	—	—	—
Field Lighting Installation	Worker	3.00	13.4	LDA,LDT1,LDT2
Field Lighting Installation	Vendor	0.00	8.33	HHDT,MHDT
Field Lighting Installation	Hauling	0.00	20.0	HHDT
Field Lighting Installation	Onsite truck	—	—	HHDT
Asphalt Demolition Debris Haul	—	—	—	—
Asphalt Demolition Debris Haul	Worker	0.00	13.4	LDA,LDT1,LDT2
Asphalt Demolition Debris Haul	Vendor	0.00	8.33	HHDT,MHDT
Asphalt Demolition Debris Haul	Hauling	6.00	20.0	HHDT
Asphalt Demolition Debris Haul	Onsite truck	—	—	HHDT
Site Preparation Soil Haul	—	—	—	—
Site Preparation Soil Haul	Worker	0.00	13.4	LDA,LDT1,LDT2
Site Preparation Soil Haul	Vendor	0.00	8.33	HHDT,MHDT
Site Preparation Soil Haul	Hauling	3.00	20.0	HHDT
Site Preparation Soil Haul	Onsite truck	—	—	HHDT

## 5.4. Vehicles

### 5.4.1. Construction Vehicle Control Strategies

Control Strategies Applied	PM10 Reduction	PM2.5 Reduction
Water unpaved roads twice daily	55%	55%
Limit vehicle speeds on unpaved roads to 25 mph	44%	44%
Sweep paved roads once per month	9%	9%

## 5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
------------	--	--	--	--	-----------------------------

## 5.6. Dust Mitigation

### 5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (Cubic Yards)	Material Exported (Cubic Yards)	Acres Graded (acres)	Material Demolished (Ton of Debris)	Acres Paved (acres)
Asphalt Demolition	0.00	0.00	0.00	0.00	—
Asphalt Demolition Debris Haul	0.00	0.00	0.00	104	—
Site Preparation	0.00	0.00	0.00	0.00	—
Site Preparation Soil Haul	20.0	0.00	0.00	0.00	—

### 5.6.2. Construction Earthmoving Control Strategies

Control Strategies Applied	Frequency (per day)	PM10 Reduction	PM2.5 Reduction
Water Exposed Area	2	61%	61%
Water Demolished Area	2	36%	36%

## 5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
Other Non-Asphalt Surfaces	0.31	0%

## 5.8. Construction Electricity Consumption and Emissions Factors

### kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2025	0.00	349	0.03	< 0.005



## 8. User Changes to Default Data

Screen	Justification
Construction: Construction Phases	Based on District info., see assumptions file
Construction: Off-Road Equipment	See assumptions file
Construction: Trips and VMT	Included water truck trips as vendor trips and calculated onsite truck trip length, see assumptions file
Operations: Fleet Mix	See fleet adjustment in assumptions file
Operations: Vehicle Data	Based on KJ&A traffic study, see assumptions file

# **CalEEMod Operations Model**

# SBCU-08.6 Custom Report

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8. User Changes to Default Data

# 1. Basic Project Information

## 1.1. Basic Project Information

Data Field	Value
Project Name	SBCU-08.6
Construction Start Date	3/10/2025
Operational Year	2025
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	2.80
Precipitation (days)	6.80
Location	34.188017678403114, -117.41450608463128
County	San Bernardino-South Coast
City	Unincorporated
Air District	South Coast AQMD
Air Basin	South Coast
TAZ	5317
EDFZ	10
Electric Utility	Southern California Edison
Gas Utility	Southern California Gas
App Version	2022.1.1.23

## 1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
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Other Non-Asphalt Surfaces	0.31	Acre	0.31	0.00	0.00	—	—	—
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### 1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

## 2. Emissions Summary

### 2.4. Operations Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	< 0.005	0.01	< 0.005	0.04	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	0.00	7.75	7.75	< 0.005	< 0.005	0.03	7.85
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	< 0.005	0.01	< 0.005	0.03	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	0.00	7.13	7.13	< 0.005	< 0.005	< 0.005	7.20
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	< 0.005	0.01	< 0.005	0.03	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	0.00	7.23	7.23	< 0.005	< 0.005	0.01	7.31
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	< 0.005	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.00	1.20	1.20	< 0.005	< 0.005	< 0.005	1.21

### 2.5. Operations Emissions by Sector, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
--------	-----	-----	-----	----	-----	-------	-------	-------	--------	--------	--------	------	-------	------	-----	-----	---	------

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	< 0.005	< 0.005	< 0.005	0.04	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	7.75	7.75	< 0.005	< 0.005	0.03	7.85
Area	0.00	< 0.005	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Energy	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Water	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Waste	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	< 0.005	0.01	< 0.005	0.04	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	0.00	7.75	7.75	< 0.005	< 0.005	0.03	7.85
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	< 0.005	< 0.005	< 0.005	0.03	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	7.13	7.13	< 0.005	< 0.005	< 0.005	7.20
Area	—	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Water	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Waste	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	< 0.005	0.01	< 0.005	0.03	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	0.00	7.13	7.13	< 0.005	< 0.005	< 0.005	7.20
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	< 0.005	< 0.005	< 0.005	0.03	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	7.23	7.23	< 0.005	< 0.005	0.01	7.31
Area	0.00	< 0.005	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Energy	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Water	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Waste	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	< 0.005	0.01	< 0.005	0.03	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	0.00	7.23	7.23	< 0.005	< 0.005	0.01	7.31
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	< 0.005	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.20	1.20	< 0.005	< 0.005	< 0.005	1.21
Area	0.00	< 0.005	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00



Energy	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Water	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Waste	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	< 0.005	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.00	1.20	1.20	< 0.005	< 0.005	< 0.005	1.21

## 4. Operations Emissions Details

### 4.1. Mobile Emissions by Land Use

#### 4.1.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	< 0.005	< 0.005	< 0.005	0.04	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	7.75	7.75	< 0.005	< 0.005	0.03	7.85
Total	< 0.005	< 0.005	< 0.005	0.04	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	7.75	7.75	< 0.005	< 0.005	0.03	7.85
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	< 0.005	< 0.005	< 0.005	0.03	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	7.13	7.13	< 0.005	< 0.005	< 0.005	7.20
Total	< 0.005	< 0.005	< 0.005	0.03	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	7.13	7.13	< 0.005	< 0.005	< 0.005	7.20
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	< 0.005	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.20	1.20	< 0.005	< 0.005	< 0.005	1.21
Total	< 0.005	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.20	1.20	< 0.005	< 0.005	< 0.005	1.21

## 4.2. Energy

### 4.2.1. Electricity Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00

### 4.2.3. Natural Gas Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
----------	-----	-----	-----	----	-----	-------	-------	-------	--------	--------	--------	------	-------	------	-----	-----	---	------

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00

### 4.3. Area Emissions by Source

#### 4.3.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	—	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Architectural Coatings	—	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.00	< 0.005	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	—	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	—	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.00	< 0.005	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00

#### 4.4. Water Emissions by Land Use

##### 4.4.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00

### 4.5. Waste Emissions by Land Use

#### 4.5.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00

### 4.7. Offroad Emissions By Equipment Type

#### 4.7.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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### 4.8. Stationary Emissions By Equipment Type

#### 4.8.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

## 5. Activity Data

### 5.9. Operational Mobile Sources

#### 5.9.1. Unmitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
Other Non-Asphalt Surfaces	0.76	0.76	0.76	276	11.0	11.0	11.0	4,029

## 5.11. Operational Energy Consumption

### 5.11.1. Unmitigated

#### Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
Other Non-Asphalt Surfaces	0.00	349	0.0330	0.0040	0.00

## 5.12. Operational Water and Wastewater Consumption

### 5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
Other Non-Asphalt Surfaces	0.00	0.00

## 5.13. Operational Waste Generation

### 5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
Other Non-Asphalt Surfaces	0.00	—

## 5.15. Operational Off-Road Equipment

### 5.15.1. Unmitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
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### 5.17. User Defined

Equipment Type	Fuel Type
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## 8. User Changes to Default Data

Screen	Justification
Construction: Construction Phases	Based on District info., see assumptions file
Construction: Off-Road Equipment	See assumptions file
Construction: Trips and VMT	Included water truck trips as vendor trips and calculated onsite truck trip length, see assumptions file
Operations: Fleet Mix	See fleet adjustment in assumptions file
Operations: Vehicle Data	Based on KJ&A traffic study, see assumptions file



## Appendix B Noise Modeling

## Appendix

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# Fundamentals of Noise

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## NOISE

Noise is most often defined as unwanted sound; whether it is loud, unpleasant, unexpected, or otherwise undesirable. Although sound can be easily measured, the perception of noise and the physical response to sound complicate the analysis of its impact on people. People judge the relative magnitude of sound sensation in subjective terms such as “noisiness” or “loudness.”

### Noise Descriptors

The following are brief definitions of terminology used in this chapter:

- **Sound.** A disturbance created by a vibrating object, which, when transmitted by pressure waves through a medium such as air, is capable of being detected by a receiving mechanism, such as the human ear or a microphone.
- **Noise.** Sound that is loud, unpleasant, unexpected, or otherwise undesirable.
- **Decibel (dB).** A unitless measure of sound, expressed on a logarithmic scale and with respect to a defined reference sound pressure. The standard reference pressure is 20 micropascals (20  $\mu\text{Pa}$ ).
- **A-Weighted Decibel (dBA).** An overall frequency-weighted sound level in decibels that approximates the frequency response of the human ear.
- **Equivalent Continuous Noise Level ( $L_{eq}$ ); also called the Energy-Equivalent Noise Level.** The value of an equivalent, steady sound level which, in a stated time period (often over an hour) and at a stated location, has the same A-weighted sound energy as the time-varying sound. Thus, the  $L_{eq}$  metric is a single numerical value that represents the equivalent amount of variable sound energy received by a receptor over the specified duration.
- **Statistical Sound Level ( $L_n$ ).** The sound level that is exceeded “n” percent of time during a given sample period. For example, the  $L_{50}$  level is the statistical indicator of the time-varying noise signal that is exceeded 50 percent of the time (during each sampling period); that is, half of the sampling time, the changing noise levels are above this value and half of the time they are below it. This is called the “median sound level.” The  $L_{10}$  level, likewise, is the value that is exceeded 10 percent of the time (i.e., near the maximum) and this is often known as the “intrusive sound level.” The  $L_{90}$  is the sound level exceeded 90 percent of the time and is often considered the “effective background level” or “residual noise level.”
- **Maximum Sound Level ( $L_{max}$ ).** The highest RMS sound level measured during the measurement period.
- **Root Mean Square Sound Level (RMS).** The square root of the average of the square of the sound pressure over the measurement period.

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

## Characteristics of Sound

When an object vibrates, it radiates part of its energy in the form of a pressure wave. Sound is that pressure wave transmitted through the air. Technically, airborne sound is a rapid fluctuation or oscillation of air pressure above and below atmospheric pressure that creates sound waves.

Sound can be described in terms of amplitude (loudness), frequency (pitch), or duration (time). Loudness or amplitude is measured in dB, frequency or pitch is measured in Hertz [Hz] or cycles per second, and duration or time variations is measured in seconds or minutes.

### *Amplitude*

Unlike linear units such as inches or pounds, decibels are measured on a logarithmic scale. Because of the physical characteristics of noise transmission and perception, the relative loudness of sound does not closely match the actual amounts of sound energy. Table 1 presents the subjective effect of changes in sound pressure levels. Ambient sounds generally range from 30 dBA (very quiet) to 100 dBA (very loud). Changes of 1 to 3 dB are detectable under quiet, controlled conditions, and changes of less than 1 dB are usually not discernible (even under ideal conditions). A 3 dB change in noise levels is considered the minimum change that is detectable with human hearing in outside environments. A change of 5 dB is readily discernible to most people in an exterior environment, and a 10 dB change is perceived as a doubling (or halving) of the sound.

**Table 1**      **Noise Perceptibility**

Change in dB	Noise Level
± 3 dB	Barely perceptible increase
± 5 dB	Readily perceptible increase
± 10 dB	Twice or half as loud
± 20 dB	Four times or one-quarter as loud

Source: California Department of Transportation (Caltrans). 2013, September. Technical Noise Supplement ("TeNS").

### *Frequency*

The human ear is not equally sensitive to all frequencies. Sound waves below 16 Hz are not heard at all, but are “felt” more as a vibration. Similarly, though people with extremely sensitive hearing can hear sounds as high as 20,000 Hz, most people cannot hear above 15,000 Hz. In all cases, hearing acuity falls off rapidly above about 10,000 Hz and below about 200 Hz.

When describing sound and its effect on a human population, A-weighted (dBA) sound levels are typically used to approximate the response of the human ear. The A-weighted noise level has been found to correlate well with people’s judgments of the “noisiness” of different sounds and has been used for many years as a measure of community and industrial noise. Although the A-weighted scale and the energy-equivalent metric are commonly used to quantify the range of human response to individual events or general community sound levels, the degree of annoyance or other response also depends on several other perceptibility factors, including:

- Ambient (background) sound level
- General nature of the existing conditions (e.g., quiet rural or busy urban)
- Difference between the magnitude of the sound event level and the ambient condition
- Duration of the sound event
- Number of event occurrences and their repetitiveness
- Time of day that the event occurs

### *Duration*

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

Because community receptors are more sensitive to unwanted noise intrusion during the evening and at night, state law and many local jurisdictions use an adjusted 24-hour noise descriptor called the Community Noise Equivalent Level (CNEL) or Day-Night Noise Level ( $L_{dn}$ ). The CNEL descriptor requires that an artificial increment (or “penalty”) of 5 dBA be added to the actual noise level for the hours from 7:00 PM to 10:00

PM and 10 dBA for the hours from 10:00 PM to 7:00 AM. The  $L_{dn}$  descriptor uses the same methodology except that there is no artificial increment added to the hours between 7:00 PM and 10:00 PM. Both descriptors give roughly the same 24-hour level, with the CNEL being only slightly more restrictive (i.e., higher). The CNEL or  $L_{dn}$  metrics are commonly applied to the assessment of roadway and airport-related noise sources.

## Sound Propagation

Sound dissipates exponentially with distance from the noise source. This phenomenon is known as “spreading loss.” For a single-point source, sound levels decrease by approximately 6 dB for each doubling of distance from the source (conservatively neglecting ground attenuation effects, air absorption factors, and barrier shielding). For example, if a backhoe at 50 feet generates 84 dBA, at 100 feet the noise level would be 79 dBA, and at 200 feet it would be 73 dBA. This drop-off rate is appropriate for noise generated by on-site operations from stationary equipment or activity at a project site. If noise is produced by a line source, such as highway traffic, the sound decreases by 3 dB for each doubling of distance over a reflective (“hard site”) surface such as concrete or asphalt. Line source noise in a relatively flat environment with ground-level absorptive vegetation decreases by an additional 1.5 dB for each doubling of distance.

## Psychological and Physiological Effects of Noise

Physical damage to human hearing begins at prolonged exposure to noise levels higher than 85 dBA. Exposure to high noise levels affects the entire system, with prolonged noise exposure in excess of 75 dBA increasing body tensions, thereby affecting blood pressure and functions of the heart and the nervous system. Extended periods of noise exposure above 90 dBA results in permanent cell damage, which is the main driver for employee hearing protection regulations in the workplace. For community environments, the ambient or background noise problem is widespread, though generally worse in urban areas than in outlying, less-developed areas. Elevated ambient noise levels can result in noise interference (e.g., speech interruption/masking, sleep disturbance, disturbance of concentration) and cause annoyance. Since most people do not routinely work with decibels or A-weighted sound levels, it is often difficult to appreciate what a given sound pressure level number means. To help relate noise level values to common experience, Table 2 shows typical noise levels from familiar sources.



**Table 2 Typical Noise Levels**

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

Source: California Department of Transportation (Caltrans). 2013, September. Technical Noise Supplement ("TeNS").

## Vibration Fundamentals

Vibration is an oscillatory motion through a solid medium in which the motion's amplitude can be described in terms of displacement, velocity, or acceleration. Vibration is normally associated with activities stemming from operations of railroads or vibration-intensive stationary sources, but can also be associated with construction equipment such as jackhammers, pile drivers, and hydraulic hammers. As with noise, vibration can be described by both its amplitude and frequency. Vibration displacement is the distance that a point on a surface moves away from its original static position; velocity is the instantaneous speed that a point on a surface moves; and acceleration is the rate of change of the speed. Each of these descriptors can be used to correlate vibration to human response, building damage, and acceptable equipment vibration levels. During construction, the operation of construction equipment can cause groundborne vibration. During the operational phase of a project, receptors may be subject to levels of vibration that can cause annoyance due to noise generated from vibration of a structure or items within a structure.

Vibration amplitudes are usually described in terms of either the peak particle velocity (PPV) or the root mean square (RMS) velocity. PPV is the maximum instantaneous peak of the vibration signal and RMS is the

square root of the average of the squared amplitude of the signal. PPV is more appropriate for evaluating potential building damage and RMS is typically more suitable for evaluating human response.

As with airborne sound, annoyance with vibrational energy is a subjective measure, depending on the level of activity and the sensitivity of the individual. To sensitive individuals, vibrations approaching the threshold of perception can be annoying. Persons accustomed to elevated ambient vibration levels, such as in an urban environment, may tolerate higher vibration levels. Table 3 displays the human response and the effects on buildings resulting from continuous vibration (in terms of various levels of PPV).

**Table 3 Human Reaction to Typical Vibration Levels**

Vibration Level, PPV (in/sec)	Human Reaction	Effect on Buildings
0.006–0.019	Threshold of perception, possibility of intrusion	Vibrations unlikely to cause damage of any type
0.08	Vibrations readily perceptible	Recommended upper level of vibration to which ruins and ancient monuments should be subjected
0.10	Level at which continuous vibration begins to annoy people	Virtually no risk of “architectural” (i.e. not structural) damage to normal buildings
0.20	Vibrations annoying to people in buildings	Threshold at which there is a risk to “architectural” damage to normal dwelling – houses with plastered walls and ceilings
0.4–0.6	Vibrations considered unpleasant by people subjected to continuous vibrations and unacceptable to some people walking on bridges	Vibrations at a greater level than normally expected from traffic, but would cause “architectural” damage and possibly minor structural damage

Source: California Department of Transportation (Caltrans). 2020, April. *Transportation and Construction Vibration Guidance Manual*. Prepared by ICF International.

# DIVISION 3: COUNTYWIDE DEVELOPMENT STANDARDS

## CHAPTER 83.01: GENERAL PERFORMANCE STANDARDS

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### Section

- 83.01.010 Purpose.
- 83.01.020 Applicability.
- 83.01.030 Modification of Standards.
- 83.01.040 Air Quality.
- 83.01.050 Electrical Disturbances.
- 83.01.060 Fire Hazards.
- 83.01.070 Heat.
- 83.01.080 Noise.
- 83.01.090 Vibration.
- 83.01.100 Waste Disposal.
- 83.01.110 External Commercial or Industrial Activity on Private Property.

### **§ 83.01.010 Purpose.**

The purpose of this Chapter is to establish uniform performance standards for development within the County that promotes compatibility with surrounding areas and land uses.

Performance standards are designed to mitigate the environmental impacts of existing and proposed land uses within a community. Environmental impacts include air quality, glare, heat, noise, runoff control, and waste disposal. These general performance standards are intended to protect the health and safety of businesses, nearby residents, and workers and to prevent damaging effects to surrounding properties.

(Ord. 4011, passed - -2007)

### **§ 83.01.020 Applicability.**

(a) *New and Existing Uses in All Land Use Zoning Districts.* The provisions of this Chapter apply to all new and existing uses in all land use zoning districts. The standards of this Chapter elaborate upon and otherwise augment the development standards specified for individual land use zoning districts in Division 2 (Land Use Zoning Districts and Allowed Land Uses) and in Division 4 (Standards for Specific Land Uses and Activities).

(b) *Compliance of Alterations or Modifications.* Uses of the land that existed on the effective date of this Division shall not be altered or modified so as to conflict with, or further conflict with, these standards.

(c) *Evidence of Compliance with Standards.* If requested by the Director or the Review Authority, applicants shall provide evidence to the Director that the proposed development is in compliance with

the standards in this Division and other applicable standards in this Development Code before the issuance of a Building Permit or business license.

(Ord. 4011, passed - -2007)

### **§ 83.01.030 Modification of Standards.**

(a) *Modification by Specific Reference.* The provisions of this Division shall prevail should they conflict with the provisions of a land use zoning district or specific plan, unless the land use zoning district or plan standard specifically overrides or modifies the provisions of this Division by specific reference.

(b) *Modification by Establishment of Overlay or Approval of Planned Development or Variance.* An overlay, approved Planned Development, or approved Variance may modify the provisions of this Division.

(Ord. 4011, passed - -2007)

### **§ 83.01.040 Air Quality.**

(a) *Equipment Permit and Inspection Requirements.* Required permits shall be obtained from either the Mojave Air Pollution Management District or the South Coast Air Quality Management District depending on the location of the subject property and equipment for equipment that may cause air pollution. Before the equipment may be constructed, plans and specifications shall be submitted to the appropriate District for approval

(b) *Permits from Air Quality Management Districts.* Permits shall be obtained from either the Mojave Air Pollution Management District or the South Coast Air Quality Management District depending on the location of the subject property and equipment. If requested by the Director, uses, activities, or processes that require Air Quality Management District approval to operate shall file a copy of the permit with the Department within 30 days of its approval.

(c) *Diesel Exhaust Emissions Control Measures.* The following emissions control measures shall apply to all discretionary land use projects approved by the County on or after January 15, 2009:

(1) *On-Road Diesel Vehicles.* On-road diesel vehicles are regulated by the State of California Air Resources Board.

(2) *Off-Road Diesel Vehicle/Equipment Operations.* All business establishments and contractors that use off-road diesel vehicle/equipment as part of their normal business operations shall adhere to the following measures during their operations in order to reduce diesel particulate matter emissions from diesel-fueled engines:

(A) Off-road vehicles/equipment shall not be left idling on site for periods in excess of five minutes. The idling limit does not apply to:

(I) Idling when queuing;

(II) Idling to verify that the vehicle is in safe operating condition;

(III) Idling for testing, servicing, repairing or diagnostic purposes;

(IV) Idling necessary to accomplish work for which the vehicle was designed (such as operating a crane);

(V) Idling required to bring the machine system to operating temperature; and

(VI) Idling necessary to ensure safe operation of the vehicle.

(B) Use reformulated ultra low-sulfur diesel fuel in equipment and use equipment certified by the U.S. Environmental Protection Agency (EPA) or that pre-dates EPA regulations.

(C) Maintain engines in good working order to reduce emissions.

(D) Signs shall be posted requiring vehicle drivers to turn off engines when parked.

(E) Any requirements or standards subsequently adopted by the South Coast Air Quality Management District, the Mojave Desert Air Quality Management District or the California Air Resources Board.

(F) Provide temporary traffic control during all phases of construction.

(G) On-site electrical power connections shall be provided for electric construction tools to eliminate the need for diesel-powered electric generators, where feasible.

(H) Maintain construction equipment engines in good working order to reduce emissions. The developer shall have each contractor certify that all construction equipment is properly serviced and maintained in good operating condition.

(I) Contractors shall use ultra low sulfur diesel fuel for stationary construction equipment as required by Air Quality Management District (AQMD) Rules 431.1 and 431.2 to reduce the release of undesirable emissions.

(J) Substitute electric and gasoline-powered equipment for diesel-powered equipment, where feasible.

(3) *Project Design.* Distribution centers, warehouses, truck stops and other facilities with loading docks where diesel trucks may reside overnight or for periods in excess of three hours shall be designed to enable any vehicle using these facilities to utilize on-site electrical connections to power the heating and air conditioning of the cabs of such trucks, and any refrigeration unit(s) of any trailer being pulled by the trucks, instead of operating the diesel engines and diesel refrigeration units of such trucks and trailers for these purposes. This requirement shall also apply to Recreational Vehicle Parks (as defined in § 810.01.200(k) of this title) and other development projects where diesel engines may reasonably be expected to operate on other than an occasional basis.

(Ord. 4011, passed - -2007; Am. Ord. 4065, passed - -2008)

### **§ 83.01.050 Electrical Disturbances.**

No activity, land use, or process shall cause electrical disturbance that adversely affects persons or the operation of equipment across lot lines and that does not conform to the regulations of the Federal Communications Commission. Existing or proposed uses that generate electrical disturbances that are be considered hazardous or a public nuisance shall be contained, modified, or shielded to prevent disturbances.

(Ord. 4011, passed - -2007)

### **§ 83.01.060 Fire Hazards.**

This Section establishes standards for storage of solid materials susceptible to fire hazards and flammable liquids and gases where allowed in compliance with Division 2 (Land Use Zoning Districts and Allowed Land Uses).

(a) *Combustible Solids.* Land uses that include the storage of solid materials susceptible to fire hazards shall be subject to the following storage standards in the indicated land use zoning districts.

(1) *Regional Industrial (IR) Land Use Zoning District.*

(A) *Inside Storage.* A structure utilized for the storage, manufacture, or use of flammable solid materials shall be located no less than 40 feet from any lot line and any other on-site structures or shall adhere to standards specified in Subdivision (2) below.

(B) *Outdoor Storage.* Outdoor storage of flammable solid materials shall be no less than 50 feet from any lot line and any other on-site structures.

(2) *All Other Manufacturing or Industrial Uses Legally Established Within Any Other Land Use Zoning District.* The storage, manufacture, or use of highly flammable solid materials shall take place in enclosed spaces having fire resistance of no less than two hours and protected with an automatic fire extinguishing system.

(b) *Flammable Liquids and Gases.* Land uses that involve the storage of flammable liquids and gases shall be subject to the following standards when established within the land use zoning districts indicated.

(1) *Setbacks.* County Code Title 2, Division 3 (Fire Protection and Explosives and Hazardous Materials) shall establish setback requirements for flammable liquids and gases.

(2) *Storage capacity.* The total storage capacity of flammable liquids and gases on a parcel shall not exceed the quantities indicated in Table 83-1 (Storage Standards for Flammable Liquids and Gases).

<b>Table 83-1</b>		
<b>Storage Standards for Flammable Liquids and Gases</b>		
<b>Stored Substance</b>	<b>Land Use Zoning District</b>	<b>Maximum Capacity</b>
<b>Table 83-1</b>		
<b>Storage Standards for Flammable Liquids and Gases</b>		
<b>Stored Substance</b>	<b>Land Use Zoning District</b>	<b>Maximum Capacity</b>
<i>SCF = Standard cubic feet at 60°F and 29.92" Hg (i.e., mercury)</i>		
Liquids	Regional Industrial District (IR)	120,000 gallons
	All other manufacturing or industrial uses legally established within any other land use zoning district	60,000 gallons
Liquefied Petroleum Gas (LPG)	All manufacturing or industrial uses established in any land zoning use district	Per County Code Title 2, Division 3 (Fire Protection and Explosives and Hazardous Materials)
	All commercial uses legally established in any land use zoning district	15,000 gal./tank 20,000 gallons maximum aggregate total
	All agricultural uses legally established in any land use zoning district and aggregate total	15,000 gal./tank and aggregate total
Gases other than liquefied petroleum gas	Regional Industrial District (IR)	300,000 SCF above ground 600,000 SCF below ground
	All other manufacturing or industrial uses legally	150,000 SCF above ground

(c) *Liquefied Petroleum Gas (LPG).*

(1) *General Requirements.*

(A) *Agricultural, Commercial, Industrial, or Manufacturing Uses and Land Use Zoning Districts.* Liquefied petroleum gas (LPG) storage and distribution facilities for agricultural, commercial, industrial, or manufacturing uses shall be allowed subject to a Use Permit in compliance with Division 2 (Land Use Zoning Districts and Allowed Land Uses). The location, installation, operation, and maintenance of LPG storage and distribution facilities shall be subject to:

(I) The standards in this Subdivision.

(II) The conditions, requirements, and standards imposed by the Review Authority in compliance with this Chapter.

(B) *Residential Uses and Land Use Zoning Districts.* County Code Title 2, Division 3 (Fire Protection and Explosives and Hazardous Materials) shall establish standards for residential uses and residential land use zoning districts for LPG storage.

(C) *Conflict Between Land Use District and Use Permit Requirements.* In the event of a conflict between the provisions of this § 83.01.060(c) (Liquefied Petroleum Gas [LPG]) and the provisions of a land use zoning district, including the requirement for Use Permit, the provisions of this Section shall prevail and control.

(2) *Fire Protection Requirements for All Parcels.*

(A) Setbacks for LPG storage and distribution facilities from structures and property lines shall be those specified by County Code Title 2, Division 3 (Fire Protection and Explosives and Hazardous Materials).

(B) LPG storage tanks shall be centrally located on the parcel to the satisfaction of the Fire Department.

(3) *Additional Fire Protection Requirements for Specific Types of Parcels.* For parcels that have no more than one occupied structure less than 5,000 square feet in size and where the water system provides substandard flows per International Standards Organization (ISO) standards for structure protection, additional fire protection requirements shall be as follows:

(A) *Where Parcel Size Is Ten Acres or More.* Fire flow shall be calculated for exposures only in compliance with County Code Title 2, Division 3 (Fire Protection and Explosives and Hazardous Materials).

(B) *Where Parcel Size Is at Least Five Acres but less than Ten Acres.*

(I) A one hour approved protective coating shall be applied to the LPG storage tank.

(II) Fire flow shall be calculated for exposures only, in compliance with County Code Title 2, Division 3 (Fire Protection and Explosives and Hazardous Materials).

(C) *Where Parcel Size Is at Least Two and One-half Acres, but less than Five Acres.*

(I) A two hour approved protective coating shall be applied to the tank.

(II) Fire flow shall be calculated for exposures only, in compliance with County Code Title 2, Division 3 (Fire Protection and Explosives and Hazardous Materials).

(4) *Additional Fire Protection Requirements for Any Parcel with Adequate Fire Flow Available per ISO Standards.*

(A) Fire hydrant(s) shall serve the parcel in compliance with County Code Title 2, Division 3 (Fire Protection and Explosives and Hazardous Materials).

(B) Fire flow shall provide for exposure protection (ISO Calculation) and LPG storage tank protection/suppression.

(I) Sprinklers shall use calculations, as adopted by County Code Title 2, Division 3 (Fire Protection and Explosives and Hazardous Materials).

(II) Hose lines shall use the formula:  $GPM = \text{five times the square root of the tank capacity}$ .

(C) Additional protection.

(I) Where the Fire Chief determines that water can be applied to the tank or exposures by the Fire Department in required amounts in eight minutes or less, no additional protection shall be required.

(II) Where the Fire Chief determines that water cannot be applied to the tank or exposures by the Fire Department in required amounts in eight minutes or less, one of the following protection measures shall be required:

(i) One hour approved protective coating shall be applied to the LPG storage tank; or

(ii) A fixed spray water system shall be installed as approved by the Fire Department.

(5) Additional fire protection requirements for any parcel not included in either Subdivisions (C)(III) or (C)(IV), above:

(A) Either a one-hour or more protective coating shall be applied to the LPG storage tank, as required by the Fire Department, or a fixed spray water system shall be installed instead of coating the tank.

(B) Fire flow shall be calculated for exposure only, in compliance with the San Bernardino Code Title 2, Division 3 (Fire Protection and Explosives and Hazardous Materials).

(Ord. 4011, passed - -2007)

#### **§ 83.01.070 Heat.**

Land uses in industrial districts shall not emit heat that would cause a temperature increase on any adjacent property in excess of ten degrees Fahrenheit, whether the change is in the air, on the ground, or in a structure.

(Ord. 4011, passed - -2007)

#### **§ 83.01.080 Noise.**

This Section establishes standards concerning acceptable noise levels for both noise-sensitive land uses and for noise-generating land uses.

(a) *Noise Measurement.* Noise shall be measured:

(1) At the property line of the nearest site that is occupied by, and/or zoned or designated to allow the development of noise-sensitive land uses;

(2) With a sound level meter that meets the standards of the American National Standards Institute (ANSI § SI4 1979, Type 1 or Type 2);



(3) Using the “A” weighted sound pressure level scale in decibels (ref. pressure = 20 microwatts per meter squared). The unit of measure shall be designated as dB(A).

(b) *Noise Impacted Areas.* Areas within the County shall be designated as “noise-impacted” if exposed to existing or projected future exterior noise levels from mobile or stationary sources exceeding the standards listed in Subdivision (d) (Noise Standards for Stationary Noise Sources) and Subdivision (e) (Noise Standards for Adjacent Mobile Noise Sources), below. New development of residential or other noise-sensitive land uses shall not be allowed in noise-impacted areas unless effective mitigation measures are incorporated into the project design to reduce noise levels to these standards. Noise-sensitive land uses shall include residential uses, schools, hospitals, nursing homes, religious institutions, libraries, and similar uses.

(c) *Noise Standards for Stationary Noise Sources.*

(1) *Noise Standards.* Table 83-2 (Noise Standards for Stationary Noise Sources) describes the noise standard for emanations from a stationary noise source, as it affects adjacent properties:

<b>Table 83-2</b>		
<b>Noise Standards for Stationary Noise Sources</b>		
<b>Affected Land Uses (Receiving Noise)</b>	<b>7:00 a.m. - 10:00 p.m. Leq</b>	<b>10:00 p.m. - 7:00 a.m. Leq</b>
<b>Table 83-2</b>		
<b>Noise Standards for Stationary Noise Sources</b>		
<b>Affected Land Uses (Receiving Noise)</b>	<b>7:00 a.m. - 10:00 p.m. Leq</b>	<b>10:00 p.m. - 7:00 a.m. Leq</b>
Residential	55 dB(A)	45 dB(A)
Professional Services	55 dB(A)	55 dB(A)
Other Commercial	60 dB(A)	60 dB(A)
Industrial	70 dB(A)	70 dB(A)
Leq = (Equivalent Energy Level). The sound level corresponding to a steady-state sound level containing the same total energy as a time-varying signal over a given sample period, typically one, eight or 24 hours.		
dB(A) = (A-weighted Sound Pressure Level). The sound pressure level, in decibels, as measured on a sound level meter using the A-weighting filter network. The A-weighting filter de-emphasizes the very low and very high frequency components of the sound, placing greater emphasis on those frequencies within the sensitivity range of the human ear.		
Ldn = (Day-Night Noise Level). The average equivalent A-weighted sound level during a 24-hour day obtained by adding 10 decibels to the hourly noise levels measured during the night (from 10:00 p.m. to 7:00 a.m.). In this way Ldn takes into account the lower tolerance of people for noise during nighttime periods.		

(2) *Noise Limit Categories.* No person shall operate or cause to be operated a source of sound at a location or allow the creation of noise on property owned, leased, occupied, or otherwise controlled by the person, which causes the noise level, when measured on another property, either incorporated or unincorporated, to exceed any one of the following:

(A) The noise standard for the receiving land use as specified in Subdivision (b) (Noise-Impacted Areas), above, for a cumulative period of more than 30 minutes in any hour.

(B) The noise standard plus five dB(A) for a cumulative period of more than 15 minutes in any hour.

(C) The noise standard plus ten dB(A) for a cumulative period of more than five minutes in any hour.

(D) The noise standard plus 15 dB(A) for a cumulative period of more than one minute in any hour.

(E) The noise standard plus 20 dB(A) for any period of time.

(d) *Noise Standards for Adjacent Mobile Noise Sources.* Noise from mobile sources may affect adjacent properties adversely. When it does, the noise shall be mitigated for any new development to a level that shall not exceed the standards described in the following Table 83-3 (Noise Standards for Adjacent Mobile Noise Sources).

<b>Table 83-3</b>			
<b>Noise Standards for Adjacent Mobile Noise Sources</b>			
<b>Land Use</b>		<b>Ldn (or CNEL) dB(A)</b>	
<b>Categories</b>	<b>Uses</b>	<b>Interior <sup>(1)</sup></b>	<b>Exterior <sup>(2)</sup></b>
<b>Table 83-3</b>			
<b>Noise Standards for Adjacent Mobile Noise Sources</b>			
<b>Land Use</b>		<b>Ldn (or CNEL) dB(A)</b>	
<b>Categories</b>	<b>Uses</b>	<b>Interior <sup>(1)</sup></b>	<b>Exterior <sup>(2)</sup></b>
Residential	Single and multi-family, duplex, mobile homes	45	60 <sup>(3)</sup>
Commercial	Hotel, motel, transient housing	45	60 <sup>(3)</sup>
	Commercial retail, bank, restaurant	50	N/A
	Office building, research and development, professional offices	45	65
	Amphitheater, concert hall, auditorium, movie theater	45	N/A
Institutional/Public	Hospital, nursing home, school classroom, religious institution, library	45	65
Open Space	Park	N/A	65
<b>Notes:</b>			
(1) The indoor environment shall exclude bathrooms, kitchens, toilets, closets and corridors.			
(2) The outdoor environment shall be limited to:			
<ul style="list-style-type: none"> <li>· Hospital/office building patios</li> <li>· Hotel and motel recreation areas</li> <li>· Mobile home parks</li> </ul>			

- Multi-family private patios or balconies
- Park picnic areas
- Private yard of single-family dwellings
- School playgrounds

(3) An exterior noise level of up to 65 dB(A) (or CNEL) shall be allowed provided exterior noise levels have been substantially mitigated through a reasonable application of the best available noise reduction technology, and interior noise exposure does not exceed 45 dB(A) (or CNEL) with windows and doors closed. Requiring that windows and doors remain closed to achieve an acceptable interior noise level shall necessitate the use of air conditioning or mechanical ventilation.

CNEL = (Community Noise Equivalent Level). The average equivalent A-weighted sound level during a 24-hour day, obtained after addition of approximately five decibels to sound levels in the evening from 7:00 p.m. to 10:00 p.m. and ten decibels to sound levels in the night from 10:00 p.m. to 7:00 a.m.

(e) *Increases in Allowable Noise Levels.* If the measured ambient level exceeds any of the first four noise limit categories in Subdivision (d)(2), above, the allowable noise exposure standard shall be increased to reflect the ambient noise level. If the ambient noise level exceeds the fifth noise limit category in Subdivision (d)(2), above, the maximum allowable noise level under this category shall be increased to reflect the maximum ambient noise level.

(f) *Reductions in Allowable Noise Levels.* If the alleged offense consists entirely of impact noise or simple tone noise, each of the noise levels in Table 83-2 (Noise Standards for Stationary Noise Sources) shall be reduced by five dB(A).

(g) *Exempt Noise.* The following sources of noise shall be exempt from the regulations of this Section:

- (1) Motor vehicles not under the control of the commercial or industrial use.
- (2) Emergency equipment, vehicles, and devices.

(3) Temporary construction, maintenance, repair, or demolition activities between 7:00 a.m. and 7:00 p.m., except Sundays and Federal holidays.

(h) *Noise Standards for Other Structures.* All other structures shall be sound attenuated against the combined input of all present and projected exterior noise to not exceed the criteria.

<b>Table 83-4</b>	
<b>Noise Standards for Other Structures</b>	
<b>Typical Uses</b>	<b>12-Hour Equivalent Sound Level (Interior) in dBA Ldn</b>
Educational, institutions, libraries, meeting facilities, etc.	45
General office, reception, etc.	50
Retail stores, restaurants, etc.	55
Other areas for manufacturing, assembly, testing, warehousing, etc.	65

In addition, the average of the maximum levels on the loudest of intrusive sounds occurring during a 24-hour period shall not exceed 65 dBA interior.

(Ord. 4011, passed - -2007; Am. Ord. 4245, passed - -2014)

### **§ 83.01.090 Vibration.**

(a) *Vibration Standard.* No ground vibration shall be allowed that can be felt without the aid of instruments at or beyond the lot line, nor shall any vibration be allowed which produces a particle velocity greater than or equal to two-tenths inches per second measured at or beyond the lot line.

(b) *Vibration Measurement.* Vibration velocity shall be measured with a seismograph or other instrument capable of measuring and recording displacement and frequency, particle velocity, or acceleration. Readings shall be made at points of maximum vibration along any lot line next to a parcel within a residential, commercial and industrial land use zoning district.

(c) *Exempt Vibrations.* The following sources of vibration shall be exempt from the regulations of this Section.

(1) Motor vehicles not under the control of the subject use.

(2) Temporary construction, maintenance, repair, or demolition activities between 7:00 a.m. and 7:00 p.m., except Sundays and Federal holidays.

(Ord. 4011, passed - -2007)

### **§ 83.01.100 Waste Disposal.**

(a) *Liquid Waste Disposal and Runoff Control.* No liquids of any kind shall be discharged into a public or private sewage or drainage system, watercourse, body of water, or into the ground, except in compliance with applicable regulations of the County Code, Title 23 (Waters) of the California Code of Regulations, the California Water Code, and related Federal regulations.

(b) *Hazardous Waste.* Refer to Chapter 84.11 (Hazardous Waste Facilities) for regulations relative to hazardous waste facilities.

(c) *Solid Waste Disposal.* Refer to Chapter 84.24 (Solid Waste/Recyclable Materials Storage) for regulations relative to solid waste disposal.

(Ord. 4011, passed - -2007)

### **§ 83.01.110 External Commercial or Industrial Activity on Private Property.**

There shall be no unpermitted external or industrial activity on properties subject to the County's jurisdiction between the hours of 9:00 p.m. and 7:00 a.m. that shall at any time impair the quiet enjoyment of neighboring property owners or residents or in any manner disturb the public peace.

(Ord. 4245, passed - -2014)

Roadway Construction Noise Model (RCNM), Version 1.1

Report date: 06/04/2024  
 Case Description: SBCU -08.6 Paakuma Sports Lighting Project - Asphalt Demolition

\*\*\*\* Receptor #1 \*\*\*\*

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
Residential Uses	Residential	65.0	55.0	50.0

Description	Impact Device	Usage (%)	Equipment		Receptor Distance (feet)	Estimated Shielding (dBA)
			Spec Lmax (dBA)	Actual Lmax (dBA)		
Concrete Saw	No	20		89.6	50.0	0.0
Dozer	No	40		81.7	50.0	0.0
Tractor	No	40	84.0		50.0	0.0

Results

Noise Limit Exceedance (dBA)							Noise Limits (dBA)		
Night	Day	Calculated (dBA)		Day Night		Evening		Lmax	
		Day	Evening	Day	Night	Lmax	Leq		
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax
Concrete Saw			89.6	82.6	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer			81.7	77.7	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor			84.0	80.0	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Total	89.6	85.3	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM), Version 1.1

Report date: 06/07/2024  
 Case Description: SBCU -08.6 Paakuma Sports Lighting Project - Field  
 Installation Lighting

\*\*\*\* Receptor #1 \*\*\*\*

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
Residential Uses	Residential	65.0	55.0	50.0

Description	Impact Device	Usage (%)	Equipment			
			Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Crane	No	16		80.6	50.0	0.0
Backhoe	No	40		77.6	50.0	0.0
Concrete Saw	No	20		89.6	50.0	0.0

Results

		Noise Limit Exceedance (dBA)					Noise Limits (dBA)				
		Day		Calculated (dBA)			Day Night		Evening		
				Evening						Lmax	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	
Crane	N/A	N/A	80.6	72.6	N/A	N/A	N/A	N/A	N/A	N/A	
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Backhoe	N/A	N/A	77.6	73.6	N/A	N/A	N/A	N/A	N/A	N/A	
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Concrete Saw	N/A	N/A	89.6	82.6	N/A	N/A	N/A	N/A	N/A	N/A	
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
		Total	89.6	83.5	N/A	N/A	N/A	N/A	N/A	N/A	
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	

Roadway Construction Noise Model (RCNM), Version 1.1

Report date: 06/04/2024  
 Case Description: SBCU -08.6 Paakuma Sports Lighting Project - Site Preparation

\*\*\*\* Receptor #1 \*\*\*\*

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
Residential Uses	Residential	65.0	55.0	50.0

Description	Impact Device	Usage (%)	Equipment			
			Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Tractor	No	40	84.0		50.0	0.0
Drill Rig Truck	No	20		79.1	50.0	0.0

Results

		Noise Limit Exceedance (dBA)				Noise Limits (dBA)			
Night	Equipment	Calculated (dBA)		Day		Evening			
		Day	Evening	Day	Night	Lmax	Leq	Lmax	Leq
	Tractor		84.0	80.0	N/A	N/A	N/A	N/A	N/A
	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Drill Rig Truck		79.1	72.2	N/A	N/A	N/A	N/A	N/A
	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Total		84.0	80.7	N/A	N/A	N/A	N/A	N/A
	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A





# Appendix C Paakuma K-8 School Field Lighting Project: Traffic Impact Study

## Appendix

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PAAKUMÁ K-8  
SCHOOL  
FIELD LIGHTING  
PROJECT  
TRAFFIC IMPACT STUDY

**Prepared for:**  
Placeworks

**Prepared by:**  
DJ&A, P.C.



May 14, 2024

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- Appendix A—Turning Movement & Roadway Segment Counts
- Appendix B—Synchro Reports

## 1. Project Description

The San Bernardino City Unified School District (District) is proposing field improvements to the Paakumá K-8 School at 17825 Sycamore Creek Loop Parkway in San Bernardino, California. The project would include lighting two existing fields that would allow for late afternoon and evening use throughout the year.

Paakumá K-8 School is located to the south of Sycamore Creek Loop Parkway, and across from Clearwater Parkway, which connects the school and the surrounding residential subdivision to I-15 about a mile away to the west. The area surrounding the school is comprised entirely of residential uses. The main entrance to the school is at the intersection of Clearwater Parkway and Sycamore Creek Loop Parkway. The school entrance is separate from the athletic field and park entrance, which is located to the south of Sycamore Creek Loop Parkway across from Flowering Plum Way.

## 2. Methodology

### 2.1 Intersection Analysis

The performance criteria used for evaluating traffic volumes and capacities within the study area are based on peak hour intersection volumes. Using peak hour intersection turning movement volumes and the intersection lane geometry, control delay is calculated as seconds per vehicle. Control delays are separated into ranges of Levels of Service (LOS), as shown in Table 1. The traffic analysis examines the PM peak hour only since increased or new vehicle trips resulting from the proposed project are anticipated to occur only in the afternoon or evening time period. The analysis methodology detailed in the 6<sup>th</sup> edition of the Highway Capacity Manual (HCM) is applied to all scenarios.

### 2.2 Intersection Level of Service Analysis

Traffic levels of service (LOS) are designated A through F, with LOS A representing free flow conditions and LOS F representing severe traffic congestion. Table 1 summarizes the criteria for the intersection LOS calculations and the relationship between control delay and LOS, as defined by the HCM 6<sup>th</sup> Edition.

Each intersection's LOS was determined by the calculated control delay. All project intersections with an LOS rating of C or above have an acceptable LOS for that given scenario. All intersections and approaches with ratings A, B, or C will be considered 'acceptable'. Intersections and approaches with ratings D, E, and F are considered 'unacceptable' as defined by the HCM.

Table 1 Level of Service Rating

UN SIGNALIZED INTERSECTIONS	
Control Delay (sec/veh)	LOS
≤ 10	A
> 10 to ≤ 15	B
> 15 to ≤ 25	C
> 25 to ≤ 35	D
> 35 to ≤ 50	E
> 50	F

### 2.3 Average Daily Traffic Analysis

Average daily traffic (ADT) data was collected as a part of this study in two locations. Roadway segment volumes are used to analyze noise and air quality impacts resulting from the proposed project. Existing roadway segment volumes are summarized from 24-hour counts which can be found in Appendix A. The growth rate was assumed to be 1 percent per year, and project generation was calculated using the Institute of Transportation Engineers (ITE) Trip Generation Manual (11<sup>th</sup> Edition) for the land use of soccer fields.

### 3. Study Area Intersections and Roadway Segments

The three roadways adjacent to Paakumá K-8 School were selected for analysis. The following intersections and roadway segments were analyzed:

#### 3.1 Study Intersections

1. Sycamore Creek Loop Parkway and Clearwater Parkway
2. Sycamore Creek Loop Parkway and Clove Way
3. Sycamore Creek Loop Parkway and Flowering Plum Way

#### 3.2 Roadway Segments

1. Sycamore Creek Loop Parkway between Clearwater Parkway and Clove Way
2. Clearwater Parkway between Sycamore Creek Loop Parkway and Rosena Ranch Road

The data for each study intersection and roadway segment was collected on a date when school was in session on Tuesday, April 2, 2024.

### 4. Traffic Study Periods and Scenarios

This study analyzes typical weekday daily and PM peak hour conditions. Daily traffic conditions were analyzed for a 24-hour period at the study area roadway segment. For intersections, the PM peak hour is defined as the highest one hour of traffic occurring during the PM peak period. Traffic operations for the study area intersections and roadway segment were evaluated for each of the following scenarios:

- Existing Conditions (2024)
- Existing Conditions (2024) with Project
- Opening Year (2025) without Project
- Opening Year (2025) with Project

For the purpose of this analysis, the project opening year for background traffic conditions is 2025. An ambient growth rate of 1% per year was used to forecast the future volumes. Based on the typical after school use of athletic fields from 4:00 pm to 6:00 pm, analysis at the study area intersections focuses on the PM peak hour trips.

## 5. Existing Conditions

This section presents the Existing Conditions (2024) of the project study area. This scenario serves as the base for which all subsequent scenarios are assessed. Description of the existing roadway network and intersection level of service analysis results for the Existing Year (2024) No Project scenario is included in this section.

### 5.1 Existing Roadway Network

Items of note for study area roadways include existing geometry, pedestrian, and bicycle facilities, posted speed limit, parking facilities, and adjacent land uses. The selected roadways are as follows:

#### 5.1.1 Sycamore Creek Drive / Sycamore Creek Loop Parkway

Sycamore Creek is a 5-lane local collector that loops around the subdivision. Paakumá K-8 School is located just to the south of where Sycamore Creek Drive transitions to Sycamore Creek Loop Parkway. The posted speed limit is 40 miles per hour, with a school speed limit of 25 mph when children are present. Sidewalks are located on both sides of Sycamore Creek along its entire length. There are striped Class II on-street bike lanes in both directions, with signs indicating the bike lane and no parking at any time.

#### 5.1.2 Clearwater Parkway

Clearwater Parkway is a 4-lane, divided roadway that runs north and south to the northwest of the project site. The posted speed limit is 35 miles per hour, with a school speed limit of 25 mph when children are present. Sidewalks are located on both the east and west sides of Clearwater Parkway. There are striped Class II on-street bike lanes in both directions, with signs indicating the bike lane and no parking at any time. The surrounding land use is primarily low density residential, along with access to the Rosena Ranch Recreation Center and a connection to I-15.

#### 5.1.3 Flowering Plum Way

Flowering Plum Way is a 2-lane, undivided local street that runs north and south to the north of the project site. The speed limit is not posted. Sidewalks are located on the east and west sides of Flowering Plum Way, with street parking adjacent to the sidewalks. There are no dedicated cycling facilities. The surrounding land use is exclusively low density residential.

#### 5.1.4 Clove Way

Clove Way is a 2-lane, undivided local street that runs north and south to the east of the project site. The speed limit is not posted. Sidewalks are located on the east and west sides of Clove Way, with street parking adjacent to the sidewalks. There are no dedicated cycling facilities. The surrounding land use is low density residential, with the athletic fields adjacent to the west.



## 5.2 Existing Site Circulation and Queuing

Paakumá K-8 School has parking and queuing facilities designed for the school day in addition to the parking that is located adjacent to the sports fields. Additionally, Clove Way has ample curb space that can be used for parallel on-street parking. The assumed curb space for a single parked car is 22 feet. The total parking availability for Paakumá K-8 School is summarized in Table 2 below.

Table 2 Parking Availability

Parking Location	Parking Spaces	ADA Parking Spaces
School Lot	100	7
Park Lot	37	2
Clove Way Street Parking	45	-
<b>TOTAL</b>	<b>182</b>	<b>9</b>

The existing site map, with access and circulation details, is shown in Figure 1 on the next page.

## 5.3 Average Daily Traffic

Table 3 summarizes the average daily traffic (ADT) volumes for the study area roadway segments. Existing roadway segment volumes are summarized from 24-hour counts which can be found in Appendix A.

Table 3 Roadway Average Daily Traffic (ADT)

Roadway	Source	Count Date	Existing ADT
Sycamore Creek Loop Pkwy between Clearwater Pkwy and Clove Way	AimTD LLC	4/2/2024	7,799
Clearwater Pkwy between Sycamore Creek Loop Pkwy and Rosena Ranch Rd	AimTD LLC	4/2/2024	6,357

## 5.4 Intersection Level of Service

Intersection performance was determined using the methods outlined in Section 2.1. Table 4 summarizes the existing levels of service at the study intersections. Existing study intersection geometries are shown in Figure 2. Additionally, Existing Year (2024) No Project PM peak hour turning movement volumes are shown in Figure 3. All three study intersections currently operate at an acceptable level of service during the PM peak hour.

Table 4 Existing Intersection Levels of Service

Sycamore Creek Loop Parkway & Clearwater Parkway	2024 Existing Condition (PM Peak Hour)	
	HCM Control Delay (sec)	HCM LOS
Clearwater Parkway	12.5	B
Flowering Plum Way	9.1	A
Clove Way	8.3	A

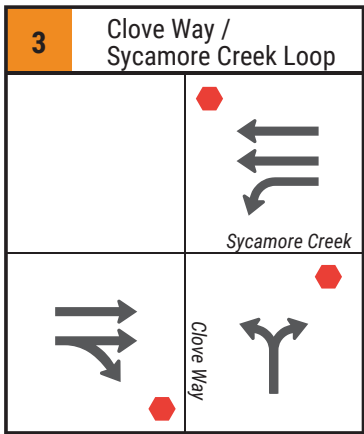
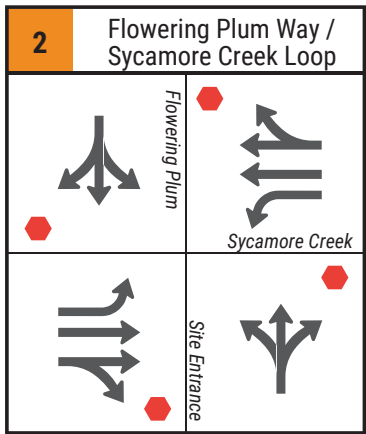
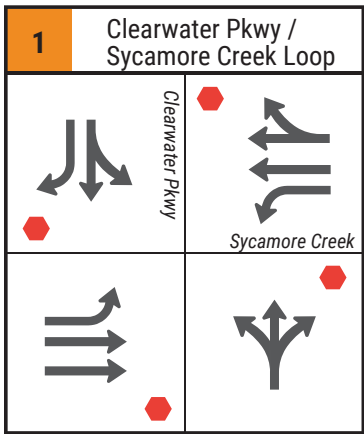
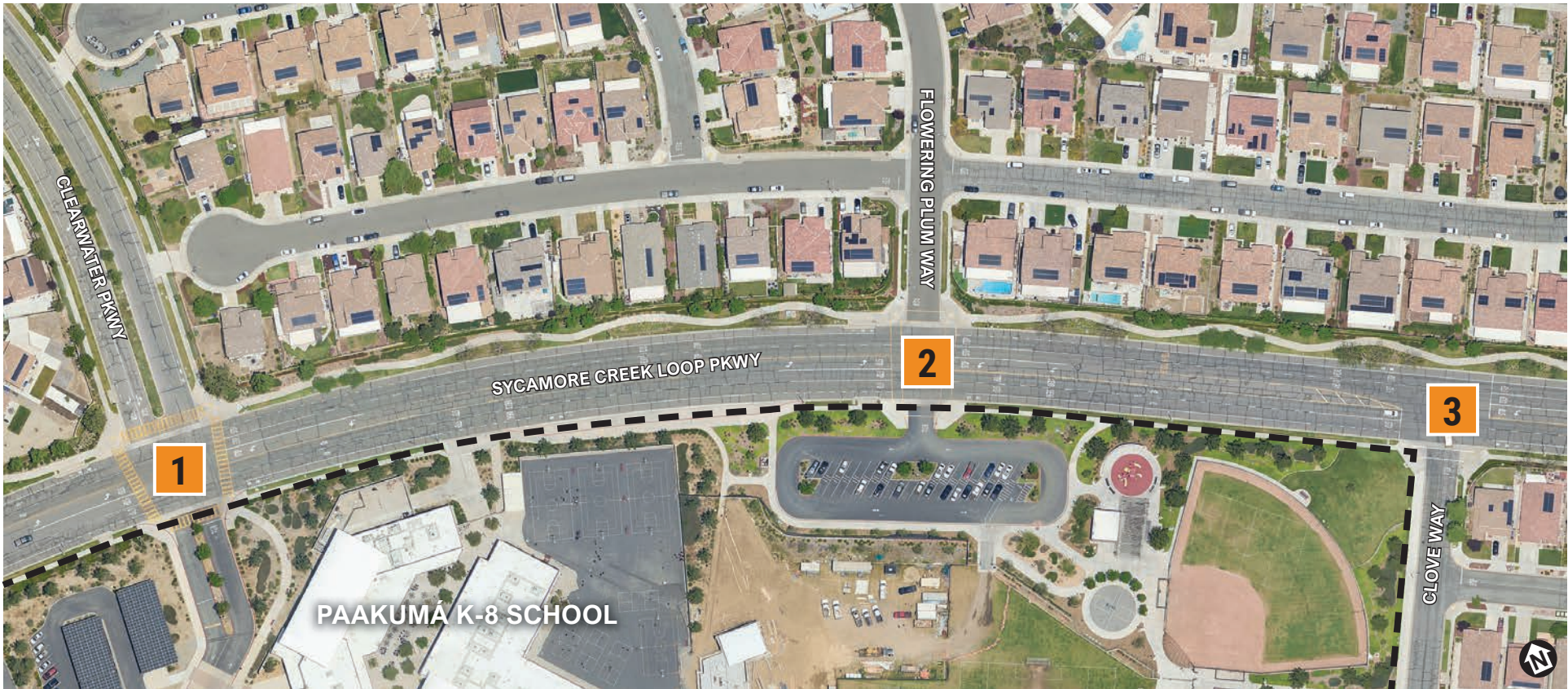
The intersection geometry is shown in Figure 2 and the Existing Year (2024) No Project Volumes are shown in Figure 3 on pages 8 and 9 respectively.





**FIGURE 1: EXISTING ACCESS & CIRCULATION**

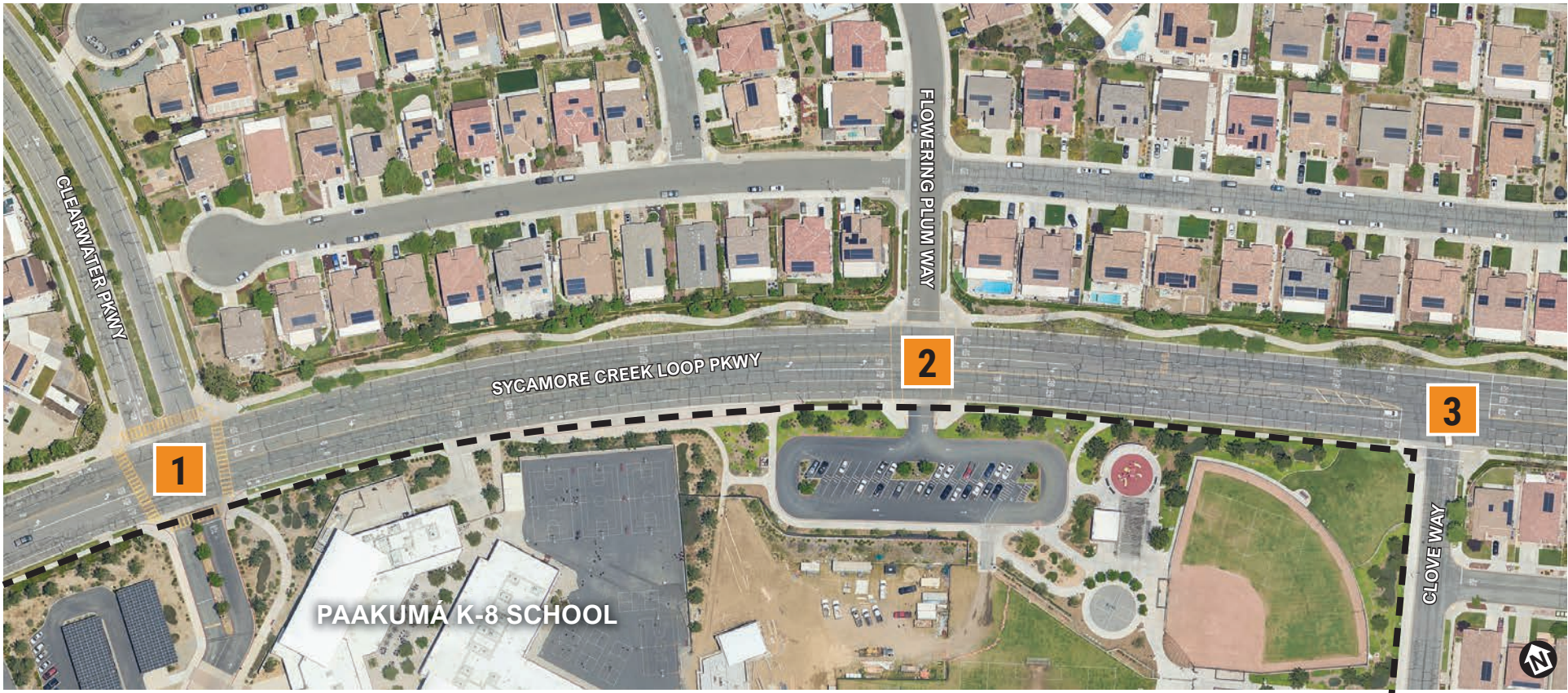




- LEGEND**
- X Study Intersection
  - Project Site
  - ◆ Stop Sign

**FIGURE 2: EXISTING INTERSECTION GEOMETRY**





1 Clearwater Pkwy / Sycamore Creek Loop	
<p>Clearwater Pkwy</p> <p>116 ← 0 ↓ 135 →</p>	<p>Sycamore Creek</p> <p>134 ↖ 145 ← 0 ↙</p>
<p>65 ↗ 148 →</p>	<p>Site Entrance</p> <p>33 ← 34 ↑ 15 →</p>

2 Flowering Plum Way / Sycamore Creek Loop	
<p>Flowering Plum</p> <p>47 ↖ 2 ↓ 1 ↘</p>	<p>Sycamore Creek</p> <p>2 ↖ 203 ← 8 ↙</p>
<p>77 ↗ 197 → 22 ↘</p>	<p>Site Entrance</p> <p>16 ← 1 ↑ 4 →</p>

3 Clove Way / Sycamore Creek Loop	
	<p>Sycamore Creek</p> <p>176 ← 3 ↙</p>
<p>137 → 65 ↘</p>	<p>Clove Way</p> <p>40 ↖ 2 ↘</p>

- LEGEND**
- X Study Intersection
  - Project Site
  - XX ↘ Peak Hour Traffic Volume

**FIGURE 3: EXISTING YEAR NO PROJECT VOLUMES**

## 6. Opening Year (2025) No Project

This section presents the ADT and intersection level of service analysis for the Opening Year (2025) No Project scenario. No Project traffic volumes were developed by applying a 1 percent annual growth rate to Existing Year (2024) counts. Results for the average daily traffic and intersection level of service for the Opening Year (2025) No Project scenario are presented in this section.

### 6.1 Average Daily Traffic

The average daily traffic for the study area roadway segment in the Opening Year (2025) No Project scenario is presented in Table 5.

Table 5 Forecast ADT Opening Year with No Project

Roadway	Existing ADT	2025 No Project ADT
Sycamore Creek Loop Pkwy between Clearwater Pkwy and Clove Way	7,799	7,877
Clearwater Pkwy between Sycamore Creek Loop Pkwy and Rosena Ranch Rd	6,357	6,421

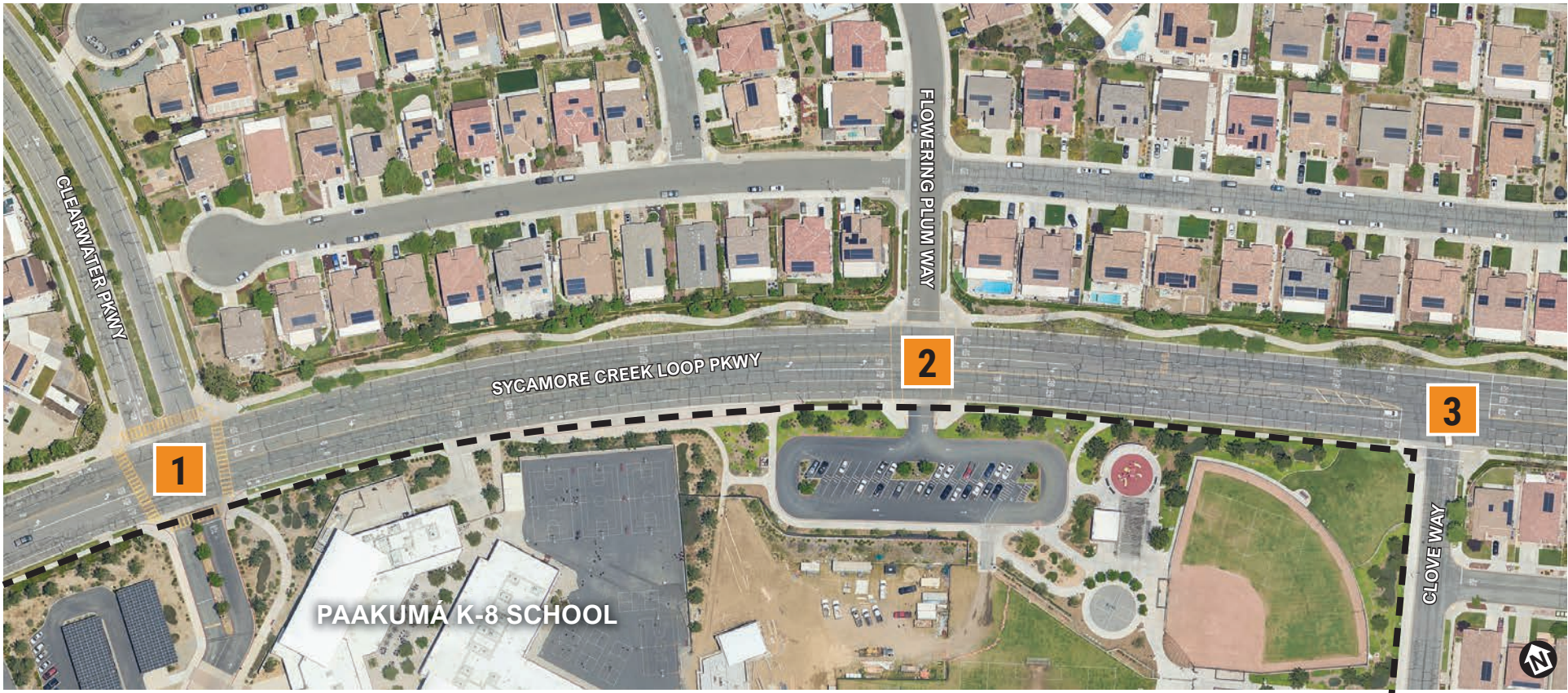
### 6.2 Intersection Level of Service

A summary of the PM peak hour intersection level of service analysis results for the Opening Year (2025) No Project scenario is presented in Table 6. Opening Year (2025) No Project PM peak hour turning movement volumes are shown in Figure 4. All three intersections are forecasted to operate at acceptable levels of service during the Opening Year No Project conditions.

Table 6 Opening Year (2025) No Project Intersection LOS

Sycamore Creek Loop Parkway &	2024 Existing		2025 No Project	
	HCM Control Delay (sec)	HCM LOS	HCM Control Delay (sec)	HCM LOS
Clearwater Parkway	12.5	B	12.6	B
Flowering Plum Way	9.1	A	9.2	A
Clove Way	8.3	A	8.3	A





1 Clearwater Pkwy / Sycamore Creek Loop	
<p>Clearwater Pkwy</p>	<p>Sycamore Creek</p>

2 Flowering Plum Way / Sycamore Creek Loop	
<p>Flowering Plum</p>	<p>Sycamore Creek</p>
	<p>Site Entrance</p>

3 Clove Way / Sycamore Creek Loop	
	<p>Sycamore Creek</p>
	<p>Clove Way</p>

**LEGEND**

- X Study Intersection
- Project Site
- XX Peak Hour Traffic Volume

**FIGURE 4: OPENING YEAR NO PROJECT VOLUMES**

## 7. Project Trip Generation and Vehicle Miles Traveled

### 7.1 Trip Generation and Distribution

The trip generation for the Paakumá K-8 School Field Lighting Study has been estimated using rates published in the ITE Trip Generation Manual 11<sup>th</sup> Edition. The proposed project would create additional after-school activity opportunities for students and vehicle trips with the addition of lighted athletic fields. These activities would take place outside of regular school hours but would generate additional vehicle trips during the PM peak hour.

The project is expected to generate a net increase of 33 trips during the PM peak hour. This forecast was calculated using the ITE Trip Generation Manual values for a soccer field, which forecast that 16.4 trips would be generated during the PM peak hour per field, with 66% of trips entering and 34% exiting the site. While the fields to be lit at the school are baseball fields, this trip generation rate is appropriate given the similar use, team sizes, and duration of use. With two fields proposed to be part of this project, the resulting total number of forecast trips generated is 33 trips during the PM peak hour. Of these trips, 22 would be inbound/ entering trips, and 11 trips would be outbound/ exiting trips.

Table 7 Estimated Trip Distribution

Origin	Entering		Exiting	
	Distribution %	Trips	Distribution %	Trips
Sycamore Loop Parkway West	29.8%	3	30.1%	7
Clearwater Parkway	23.3%	3	27.8%	6
Flowering Plum Way	0.4%	0	0.2%	0
Sycamore Loop Parkway East	35.4%	4	28.4%	6
Clove Way	8.1%	1	13.5%	3
Main School Entrance	3.0%	0	0.0%	0
<b>TOTAL</b>	<b>100%</b>	<b>11</b>	<b>100%</b>	<b>22</b>

### 7.2 Vehicle Miles Traveled (VMT) Analysis

Per the San Bernardino County Transportation Authority Recommended Traffic Impact Analysis Guidelines, a local park is “presumed to have a less than significant impact ... as their uses are local serving in nature” (Fehr & Peers, 2020). While the lighting project would increase the hours of operation for the facility, the project would not change the nature of the existing use, which is to serve local sports and athletic activities. Therefore, no impacts to VMT are anticipated.

### 7.3 On-Site Circulation and Queuing

The current on-site circulation for the school is designed for pick up and drop off activities associated with the K-8 school. This design maximizes on-site circulation and queuing in an efficient manner. The access to the fields is a one-way loop, with a fire lane with no parking permitted along the perimeter and internal angled parking. The demand for on-site circulation and queuing regarding athletic field activities is anticipated to be adequately served by existing project site conditions.





**LEGEND**

- X Study Intersection
- X.X% Outbound Volumes
- Project Site
- X.X% Inbound Volumes

**FIGURE 5: ESTIMATED TRIP DISTRIBUTION**



## 8. Existing Year (2024) with Project Conditions

This section presents the ADT and intersection analysis for the Existing Year (2024) With Project scenario. With Project traffic volumes were developed by adding project generated trips as shown in Section 7.0 to the Existing Year (2024) traffic counts. Results for the ADT and intersection level of service analyses for the Existing Year (2024) With Project scenario are presented in this section.

### 8.1 Average Daily Traffic

The average daily traffic (ADT) volumes for the study area roadway segments under Existing Year (2024) With Project conditions are summarized in Table 9. Roadway segment volumes have been included for noise and air quality analysis purposes.

Table 8 Estimated ADT Existing Year with Project

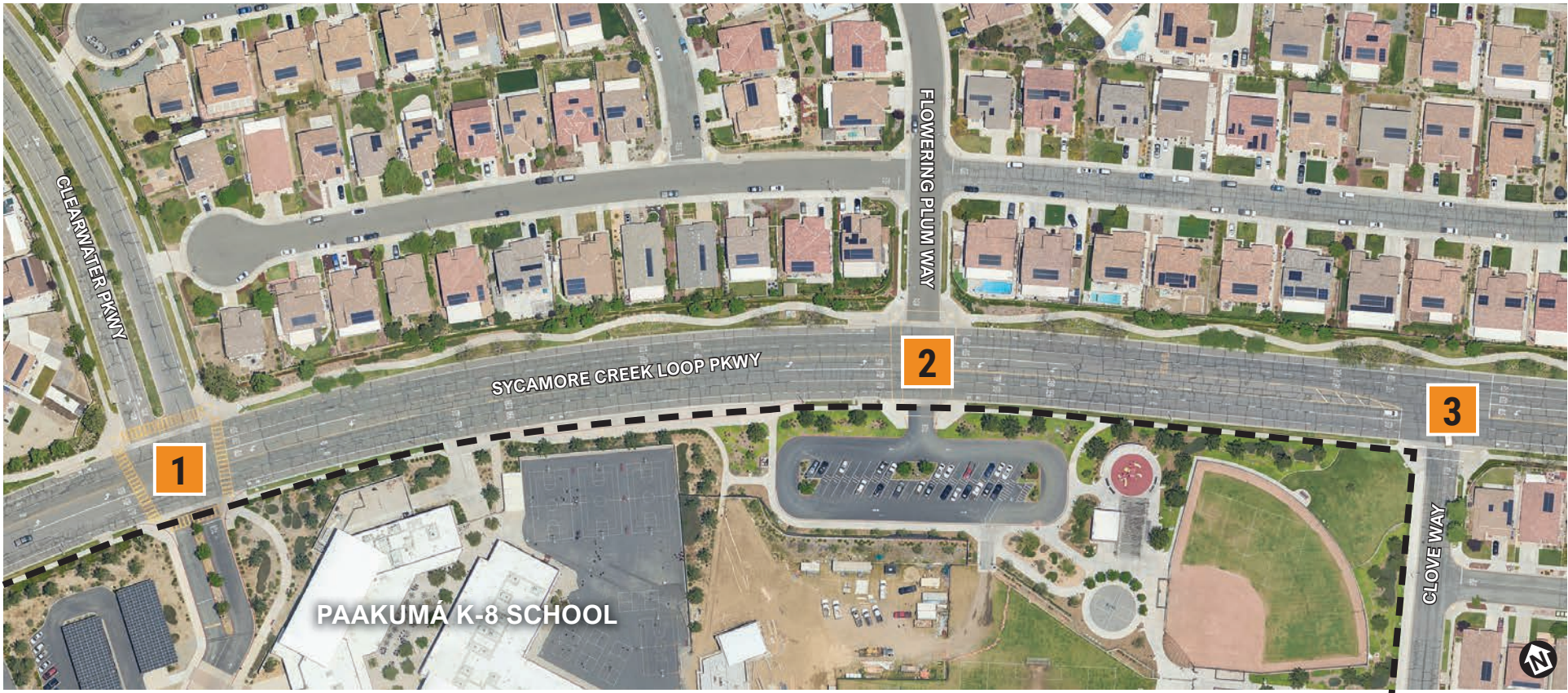
Roadway	2024 Existing ADT	2024 With Project ADT
Sycamore Creek Loop Parkway between Clearwater Pkwy and Clove Way	7,799	7,942
Clearwater Parkway between Sycamore Creek Loop Parkway and Rosena Ranch Road	6,357	6,394

### 8.2 Intersection Level of Service

A summary of the PM peak hour intersection level of service analysis results for the Existing Year (2024) with Project scenario is presented in Table 10. Existing Year (2024) with Project PM peak hour turning movement volumes are shown in Figure 6. All three intersections are forecasted to operate at acceptable levels of service during the Existing Year With Project conditions.

Table 9 Existing Year (2024) With Project Intersection LOS

Sycamore Creek Loop Parkway &	2024 Existing		2024 With Project	
	HCM Control Delay (sec)	HCM LOS	HCM Control Delay (sec)	HCM LOS
Clearwater Parkway	12.5	B	12.8	B
Flowering Plum Way	9.1	A	9.4	A
Clove Way	8.3	A	8.3	A



1 Clearwater Pkwy / Sycamore Creek Loop	
<p>Clearwater Pkwy</p>	<p>Sycamore Creek</p>
	<p>Site Entrance</p>

2 Flowering Plum Way / Sycamore Creek Loop	
<p>Flowering Plum</p>	<p>Sycamore Creek</p>
	<p>Site Entrance</p>

3 Clove Way / Sycamore Creek Loop	
	<p>Sycamore Creek</p>
	<p>Clove Way</p>

**LEGEND**

- X Study Intersection
- Project Site
- XX Peak Hour Traffic Volume

**FIGURE 6: EXISTING YEAR WITH PROJECT VOLUMES**

## 9. Opening Year (2025) with Project Conditions

This section presents the ADT and intersection level of service analysis of the Opening Year (2025) With Project scenario. Project traffic volumes were developed by applying a 1 percent annual growth rate to Existing Year (2024) counts and adding the anticipated trip generation. Results for the average daily traffic and intersection level of service for the Opening Year (2025) No Project scenario are presented in this section.

### 9.1 Average Daily Traffic

Average daily traffic (ADT) volumes for the study area roadway segments in the Opening Year (2025) With Project conditions are summarized in Table 11.

Table 10 Forecast ADT Opening Year with Project

Roadway	2024 Existing	2025 No Project	2025 With Project
Sycamore Creek Loop Pkwy between Clearwater Pkwy and Clove Way	7,799	7,877	8,020
Clearwater Pkwy between Sycamore Creek Loop Pkwy and Rosena Ranch Rd	6,357	6,421	6,458

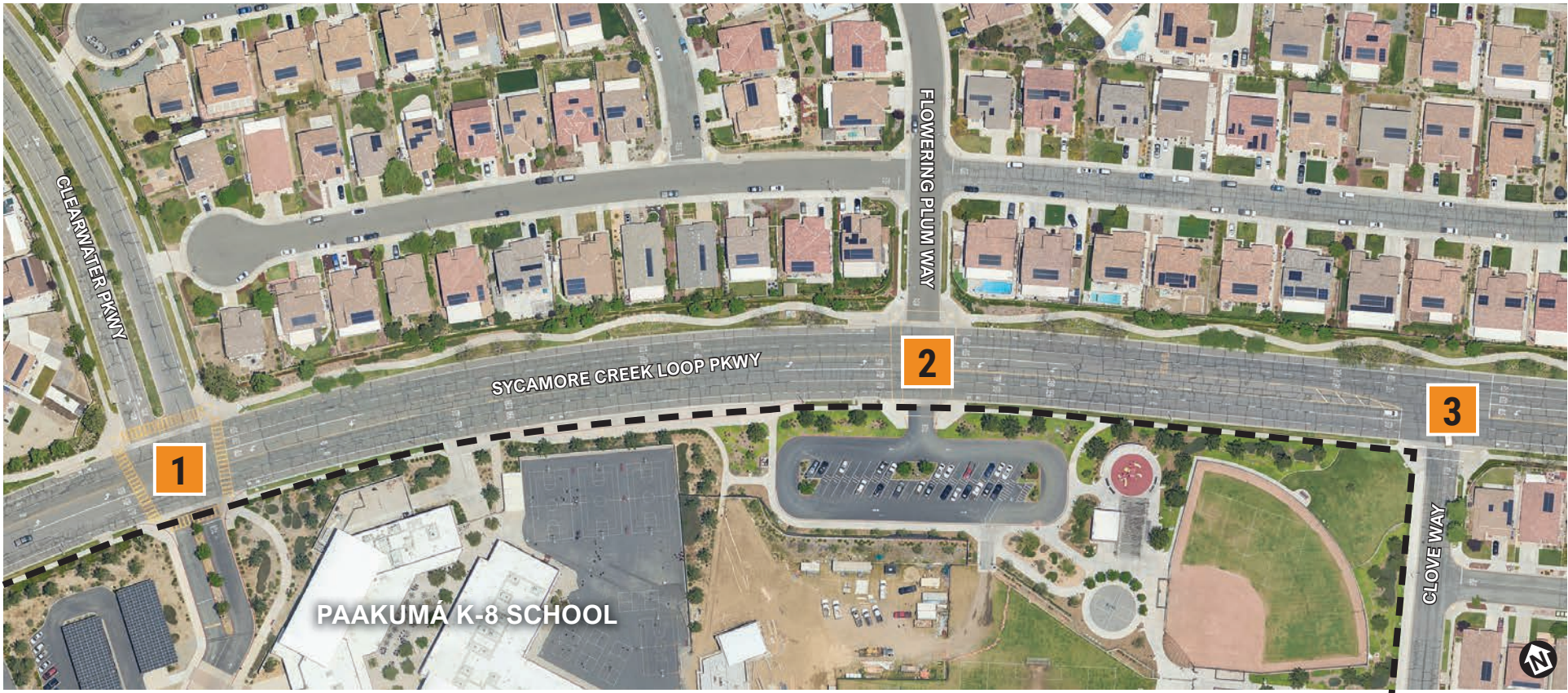
### 9.2 Intersection Levels of Service

A summary of the PM peak hour intersection level of service analysis results for the Opening Year (2025) with Project scenario is presented in Table 12. Opening Year (2025) with Project PM peak hour turning movement volumes are shown in Figure 7. All three intersections are forecasted to operate at acceptable levels of service during the Opening Year with Project condition.

Table 11 Opening Year (2025) With Project Intersection LOS

Sycamore Creek Loop Parkway &	2025 No Project Level of Service		2025 With Project Level of Service	
	HCM Control Delay (sec)	HCM LOS	HCM Control Delay (sec)	HCM LOS
Clearwater Parkway	12.6	B	12.9	B
Flowering Plum Way	9.2	A	9.4	A
Clove Way	8.3	A	8.4	A





1 Clearwater Pkwy / Sycamore Creek Loop	
<p>Clearwater Pkwy</p> <p>136 0 120</p>	<p>Sycamore Creek</p> <p>141 154 0</p>
<p>66 153</p>	<p>33 34 15</p>

2 Flowering Plum Way / Sycamore Creek Loop	
<p>Flowering Plum</p> <p>47 2 1</p>	<p>Sycamore Creek</p> <p>2 205 13</p>
<p>78 199 28</p>	<p>Site Entrance</p> <p>29 1 13</p>

3 Clove Way / Sycamore Creek Loop	
	<p>Sycamore Creek</p> <p>182 3</p>
<p>144 69</p>	<p>Clove Way</p> <p>41 2</p>

**LEGEND**

- X Study Intersection
- Project Site
- XX ↘ Peak Hour Traffic Volume

**FIGURE 7: OPENING YEAR WITH PROJECT VOLUMES**

## 10. Conclusions

Based on the results of this analysis, the proposed athletic field lighting project at Paakumá K-8 School would not significantly impact any of the study intersections or roadway segments. The LOS rating did not vary for any of the locations across all scenarios. All three study intersections operate at an acceptable level of service under both Existing Year (2024) and Opening Year (2025) with Project scenarios. Mitigation measures are not necessary based on the results of this analysis.

Below are the summary tables for the HCM Control Delay and corresponding level of service.

Table 12 Intersection Analysis Summary

HCM Results	2024 Existing	2025 No Project	2024 With Project	2025 With Project
<b>Sycamore Creek Loop Parkway &amp; Clearwater Parkway</b>				
HCM Control Delay (sec)	12.5	12.6	12.8	12.9
<b>HCM LOS</b>	<b>B</b>	<b>B</b>	<b>B</b>	<b>B</b>
<b>Sycamore Creek Loop Parkway &amp; Flowering Plum Way</b>				
HCM Control Delay (sec)	9.1	9.2	9.4	9.4
<b>HCM LOS</b>	<b>A</b>	<b>A</b>	<b>A</b>	<b>A</b>
<b>Sycamore Creek Loop Parkway &amp; Clove Way</b>				
HCM Control Delay (sec)	8.3	8.3	8.3	8.4
<b>HCM LOS</b>	<b>A</b>	<b>A</b>	<b>A</b>	<b>A</b>

## References

- Fehr & Peers. (2020, February). *Recommended Traffic Impact Analysis Guidelines for Vehicle Miles Traveled and Level of Service Assessment*. Retrieved from <https://www.gosbcta.com/wp-content/uploads/2021/12/Sample-TIA-Guidelines.pdf>
- State of California Governor's Office of Planning and Research. (2018, December). *Technical Advisory On Evaluating Transportation Impacts In CEQA*. Retrieved 2023, from opr.ca.gov: [https://opr.ca.gov/docs/20190122-743\\_Technical\\_Advisory.pdf](https://opr.ca.gov/docs/20190122-743_Technical_Advisory.pdf)

## Appendix A—Turning Movement & Roadway Segment Counts

**ADT6 Sycamore Creek Loop Pkwy between Clearwater Pkwy and Clove Way.**

**Prepared by AimTD LLC tel. 714 253 7888**

AM Period	EB		WB		PM Period		EB		WB		
0:00	11		3		12:00		55		65		
0:15	2		2		12:15		57		34		
0:30	5		3		12:30		49		52		
0:45	6	24	1	9	33	12:45	46	207	49	200	407
1:00	3		1		13:00		57		60		
1:15	1		2		13:15		52		58		
1:30	5		0		13:30		43		54		
1:45	2	11	2	5	16	13:45	38	190	54	226	416
2:00	0		1		14:00		49		51		
2:15	2		0		14:15		42		69		
2:30	1		2		14:30		65		71		
2:45	7	10	5	8	18	14:45	101	257	126	317	574
3:00	4		2		15:00		56		68		
3:15	3		8		15:15		60		75		
3:30	4		9		15:30		63		92		
3:45	5	16	11	30	46	15:45	100	279	44	279	558
4:00	2		11		16:00		76		58		
4:15	7		9		16:15		68		56		
4:30	11		21		16:30		72		48		
4:45	11	31	30	71	102	16:45	78	294	55	217	511
5:00	10		30		17:00		97		53		
5:15	27		25		17:15		76		35		
5:30	52		29		17:30		97		44		
5:45	80	169	40	124	293	17:45	114	384	38	170	554
6:00	65		38		18:00		90		71		
6:15	59		32		18:15		69		48		
6:30	84		53		18:30		54		26		
6:45	87	295	57	180	475	18:45	74	287	35	180	467
7:00	48		87		19:00		54		77		
7:15	36		90		19:15		65		47		
7:30	64		113		19:30		60		36		
7:45	98	246	102	392	638	19:45	50	229	24	184	413
8:00	72		94		20:00		49		34		
8:15	48		70		20:15		41		34		
8:30	58		70		20:30		50		21		
8:45	49	227	52	286	513	20:45	33	173	12	101	274
9:00	59		51		21:00		40		21		
9:15	44		45		21:15		27		10		
9:30	51		51		21:30		36		14		
9:45	40	194	54	201	395	21:45	29	132	10	55	187
10:00	43		35		22:00		23		8		
10:15	37		44		22:15		18		9		
10:30	43		62		22:30		20		4		
10:45	35	158	61	202	360	22:45	15	76	8	29	105
11:00	43		43		23:00		16		5		
11:15	53		42		23:15		18		11		
11:30	35		39		23:30		14		5		
11:45	53	184	55	179	363	23:45	10	58	2	23	81

**Total Vol.** 1565 1687 **3252** 2566 1981 **4547**

Daily Totals		
EB	WB	Combined
4131	3668	<b>7799</b>

AM	PM	
Split %	48.1%	51.9% <b>41.7%</b>
	56.4%	43.6% <b>58.3%</b>

<b>Peak Hour</b>	6:00	7:15	<b>7:15</b>	17:00	14:45	<b>14:45</b>
<b>Volume</b>	295	399	<b>669</b>	384	361	<b>641</b>
<b>P.H.F.</b>	0.85	0.88	<b>0.84</b>	0.84	0.72	<b>0.71</b>



**ADT7 Clearwater Pkwy between Sycamore Creek Loop Pkwy and Rosena Ranch Rd.**

Prepared by AimTD LLC tel. 714 253 7888

AM Period	NB		SB		PM Period	NB		SB			
0:00	1		9		12:00	44		37			
0:15	3		5		12:15	24		40			
0:30	5		6		12:30	38		36			
0:45	1	10	5	25	35	12:45	34	140	36	149	289
1:00	0		2		13:00	59		53			
1:15	1		0		13:15	38		36			
1:30	0		3		13:30	49		32			
1:45	2	3	3	8	11	13:45	27	173	38	159	332
2:00	0		0		14:00	38		48			
2:15	1		0		14:15	50		52			
2:30	1		1		14:30	44		67			
2:45	2	4	2	3	7	14:45	115	247	67	234	481
3:00	3		4		15:00	83		56			
3:15	4		3		15:15	61		54			
3:30	7		4		15:30	57		55			
3:45	10	24	3	14	38	15:45	35	236	89	254	490
4:00	7		2		16:00	42		52			
4:15	8		7		16:15	55		39			
4:30	15		11		16:30	43		44			
4:45	25	55	9	29	84	16:45	42	182	47	182	364
5:00	23		10		17:00	47		70			
5:15	20		25		17:15	31		45			
5:30	36		45		17:30	44		62			
5:45	34	113	72	152	265	17:45	41	163	73	250	413
6:00	36		65		18:00	78		60			
6:15	42		54		18:15	37		56			
6:30	55		84		18:30	20		41			
6:45	47	180	97	300	480	18:45	28	163	43	200	363
7:00	88		62		19:00	39		38			
7:15	95		52		19:15	32		32			
7:30	102		86		19:30	28		39			
7:45	101	386	66	266	652	19:45	16	115	30	139	254
8:00	97		43		20:00	24		41			
8:15	70		44		20:15	23		32			
8:30	58		45		20:30	17		34			
8:45	39	264	46	178	442	20:45	13	77	24	131	208
9:00	39		54		21:00	15		25			
9:15	32		35		21:15	11		21			
9:30	46		45		21:30	10		25			
9:45	35	152	34	168	320	21:45	10	46	21	92	138
10:00	31		45		22:00	6		19			
10:15	30		32		22:15	8		14			
10:30	42		39		22:30	7		9			
10:45	41	144	26	142	286	22:45	3	24	14	56	80
11:00	23		34		23:00	1		10			
11:15	34		39		23:15	10		14			
11:30	30		29		23:30	6		7			
11:45	37	124	40	142	266	23:45	2	19	9	40	59

<b>Total Vol.</b>	1459	1427	<b>2886</b>		1585	1886		<b>3471</b>
					<b>Daily Totals</b>			
					NB	SB		<b>Combined</b>
					3044	3313		<b>6357</b>

	<b>AM</b>			<b>PM</b>		
<b>Split %</b>	50.6%	49.4%	<b>45.4%</b>	45.7%	54.3%	<b>54.6%</b>
<b>Peak Hour</b>	7:15	6:00	<b>7:00</b>	14:45	15:00	<b>14:45</b>
<b>Volume</b>	395	300	<b>652</b>	316	254	<b>548</b>
<b>P.H.F.</b>	0.97	0.77	<b>0.87</b>	0.69	0.71	<b>0.75</b>

## INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AlimTD LLC. tel: 714 253 7888 cs@alimtd.com

LOCATION:  
NORTH & SOUTH:  
EAST & WEST:

Beaumont  
Clearwater Pkwy  
Sycamore Creek Loop Pkwy

PROJECT #:  
LOCATION #:  
CONTROL:

SC4513  
11  
STOP ALL

DATE:  
Tue, Apr 2, 24

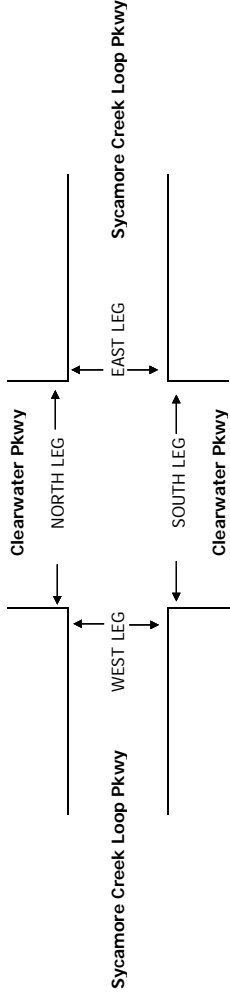
NOTES:



U-TURNS						
NB	SB	EB	WB	TTL		
0	0	0	0	0		
0	0	0	0	0		
0	1	0	0	1		
0	1	0	0	1		
0	1	0	0	1		
0	1	0	0	1		
0	1	0	0	1		
0	1	0	0	1		
0	0	0	0	0		
0	6	0	0	6		

	NORTHBOUND Clearwater Pkwy			SOUTHBOUND Clearwater Pkwy			EASTBOUND Sycamore Creek Loop Pkwy			WESTBOUND Sycamore Creek Loop Pkwy			TOTAL
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
LAINES:	0	1	0	0.5	0.5	1	1	2	0	1	2	0	
3:00 PM	10	14	2	17	0	39	33	37	0	0	32	36	220
3:15 PM	9	9	4	19	0	34	20	37	0	0	44	31	207
3:30 PM	5	6	7	28	0	26	5	28	0	0	47	45	197
3:45 PM	9	5	2	52	0	36	7	46	0	0	22	22	201
4:00 PM	4	9	8	27	0	24	11	41	0	0	37	21	182
4:15 PM	7	2	3	29	0	9	20	37	0	0	24	32	162
4:30 PM	2	2	3	27	0	16	18	42	0	0	26	22	158
4:45 PM	5	3	3	31	0	16	12	44	0	0	28	27	169
VOLUMES	51	50	31	230	0	200	126	312	0	0	260	236	1,502
APPROACH %	39%	38%	23%	53%	0%	46%	29%	71%	0%	0%	52%	48%	
APP/DEPART	132	/	418	436	/	0	438	/	573	496	/	511	0
BEGIN PEAK HR	33	34	15	116	0	135	65	148	0	0	145	134	828
VOLUMES	40%	41%	18%	46%	0%	53%	31%	69%	0%	0%	52%	48%	
APPROACH %	0.788	/	0.713	0.713	/	0	0.761	/	0.758	0.758	/	0.758	0.941
PEAK HR FACTOR	82	/	236	254	/	0	213	/	279	279	/	313	0
APP/DEPART													

0	3	0	0
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ALL PED + BIKE & SCOOTER			
N LEG	S LEG	E LEG	W LEG
4	10	6	1
2	2	2	0
2	8	1	1
0	3	0	0
1	0	0	0
2	9	0	0
2	3	0	0
4	7	1	3
17	42	10	5
3:00 PM			
TOTAL			

PEDESTRIAN CROSSINGS			
N LEG	S LEG	E LEG	W LEG
4	10	6	1
2	1	2	0
2	6	0	0
0	2	0	0
1	0	0	0
2	4	0	0
2	3	0	0
4	7	1	3
17	31	8	3
3:00 PM			
TOTAL			

BICYCLE & SCOOTER CROSSINGS			
NL	SL	EL	WL
0	0	0	0
0	1	0	0
0	2	1	1
0	1	0	0
0	0	0	0
0	5	0	0
0	0	0	0
0	2	1	1
0	11	2	2
TOTAL			

## INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AlimTD LLC. tel: 714 253 7888 cs@alimtd.com

LOCATION:  
NORTH & SOUTH:  
EAST & WEST:

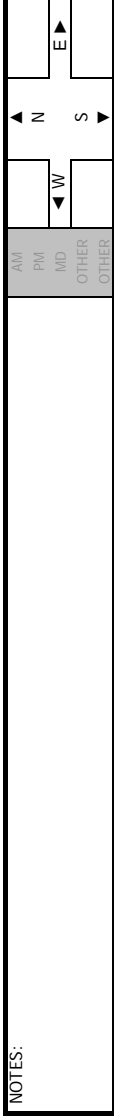
Beaumont  
Clove Way  
Sycamore Creek Loop Pkwy

PROJECT #:  
LOCATION #:  
CONTROL:

SC4513  
12  
STOP ALL

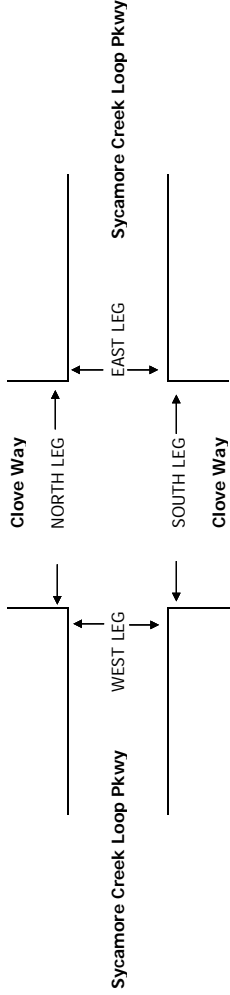
DATE:  
Tue, Apr 2, 24

NOTES:



	NORTHBOUND <small>Clove Way</small>				SOUTHBOUND <small>Clove Way</small>				EASTBOUND <small>Sycamore Creek Loop Pkwy</small>				WESTBOUND <small>Sycamore Creek Loop Pkwy</small>				U-TURNS				
	NL	NT	NR	SR	SL	ST	SR	SR	EL	ET	ER	ER	WL	WT	WR	WR	NB	SB	EB	WB	TTL
	0	X	0	X	X	X	X	X	X	X	0	0	1	2	0	X	0	0	0	0	
3:00 PM	7	0	1	0	0	0	0	0	0	29	16	0	0	41	0	0	0	0	0	0	0
3:15 PM	8	0	0	0	0	0	0	0	0	30	10	1	62	0	0	0	0	0	0	0	0
3:30 PM	10	0	0	0	0	0	0	0	0	29	13	0	58	0	0	0	0	0	0	1	1
3:45 PM	8	0	2	0	0	0	0	0	0	46	22	1	25	0	0	0	0	0	0	0	0
4:00 PM	14	0	0	0	0	0	0	0	0	32	20	1	31	0	0	0	0	0	0	1	1
4:15 PM	18	0	0	0	0	0	0	0	0	26	17	0	28	0	0	0	0	0	1	0	1
4:30 PM	9	0	0	0	0	0	0	0	0	38	25	1	27	0	0	0	0	0	0	0	0
4:45 PM	9	0	0	0	0	0	0	0	0	35	13	2	33	0	0	0	0	0	0	0	0
VOLUMES	83	0	3	0	0	0	0	0	0	265	136	6	305	0	0	0	0	0	1	2	3
APPROACH %	97%	0%	3%	0%	0%	0%	0%	0%	0%	66%	34%	2%	97%	0%	0%	0%	0%	0%	0%	0%	0%
APP/DEPART	86	/	0	0	/	142	/	270	402	/	270	313	/	389							
BEGIN PEAK HR	40	0	2	0	0	0	0	0	0	137	65	3	176	0	0	0	0	0	0	0	0
VOLUMES	95%	0%	5%	0%	0%	0%	0%	0%	0%	68%	32%	2%	97%	0%	0%	0%	0%	0%	0%	0%	0%
APPROACH %	0.750			0.000				0.743						0.718							
PEAK HR FACTOR	42	/	0	0	0	0	68	202	/	141	/	181	/	216							
APP/DEPART																					

0 0 0 0 2



	ALL PED + BIKE & SCOOTER				
	N LEG	S LEG	E LEG	W LEG	TOTAL
3:00 PM	0	6	0	0	6
3:15 PM	0	1	0	0	1
3:30 PM	0	6	0	0	6
3:45 PM	0	5	0	1	6
4:00 PM	0	0	0	0	0
4:15 PM	0	7	0	0	7
4:30 PM	0	3	0	0	3
4:45 PM	0	4	0	0	4
TOTAL	0	32	0	1	33

	PEDESTRIAN CROSSINGS				
	N LEG	S LEG	E LEG	W LEG	TOTAL
3:00 PM	0	6	0	0	6
3:15 PM	0	0	0	0	0
3:30 PM	0	3	0	0	3
3:45 PM	0	2	0	1	3
4:00 PM	0	0	0	0	0
4:15 PM	0	3	0	0	3
4:30 PM	0	4	0	0	4
4:45 PM	0	21	0	1	22
TOTAL	0	5	0	1	6

	BICYCLE & SCOOTER CROSSINGS				
	NL	SL	EL	WL	TOTAL
3:00 PM	0	0	0	0	0
3:15 PM	0	1	0	0	1
3:30 PM	0	3	0	0	3
3:45 PM	0	3	0	0	3
4:00 PM	0	0	0	0	0
4:15 PM	0	4	0	0	4
4:30 PM	0	0	0	0	0
4:45 PM	0	0	0	0	0
TOTAL	0	11	0	0	11

## INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

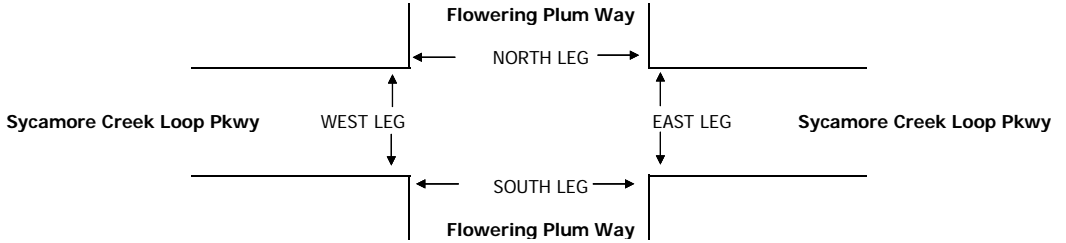
<b>DATE:</b> Tue, Apr 2, 24	LOCATION: <b>Beaumont</b> NORTH & SOUTH: <b>Flowering Plum Way</b> EAST & WEST: <b>Sycamore Creek Loop Pkwy</b>	PROJECT #: <b>SC4513</b> LOCATION #: <b>13</b> CONTROL: <b>STOP ALL</b>
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NOTES:	AM PM MD OTHER OTHER	◀ W E ▶	▲ N S ▼
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	NORTHBOUND Flowering Plum Way			SOUTHBOUND Flowering Plum Way			EASTBOUND Sycamore Creek Loop Pkwy			WESTBOUND Sycamore Creek Loop Pkwy			TOTAL
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
LANES:	0	1	0	0	1	0	1	2	0	1	2	0	
3:00 PM	3	1	5	0	0	14	14	40	3	1	45	2	128
3:15 PM	6	0	1	0	0	10	18	40	1	2	68	0	146
3:30 PM	2	0	0	0	0	12	22	42	2	0	68	0	148
3:45 PM	3	0	1	0	1	14	20	66	10	2	28	0	145
4:00 PM	5	1	2	1	1	11	17	49	9	4	39	2	141
4:15 PM	6	0	2	1	1	10	19	41	7	3	42	2	134
4:30 PM	1	1	5	1	1	14	13	57	3	3	33	0	132
4:45 PM	3	1	2	1	0	14	17	45	16	2	39	1	141
VOLUMES	29	4	18	4	4	99	140	380	51	17	362	7	1,117
APPROACH %	57%	8%	35%	4%	4%	93%	24%	66%	9%	4%	94%	2%	
APP/DEPART	51	/	151	107	/	72	572	/	403	387	/	491	0
BEGIN PEAK HR	3:15 PM												
VOLUMES	16	1	4	1	2	47	77	197	22	8	203	2	582
APPROACH %	76%	5%	19%	2%	4%	94%	26%	66%	7%	4%	95%	1%	
PEAK HR FACTOR	0.656			0.833			0.765			0.764			0.983
APP/DEPART	21	/	80	50	/	32	297	/	203	214	/	267	0

U-TURNS				
NB	SB	EB	WB	TTL
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	1	1	2
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	1	1	2

0	0	1	1
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PM	3:00 PM
	3:15 PM
	3:30 PM
	3:45 PM
	4:00 PM
	4:15 PM
	4:30 PM
	4:45 PM
TOTAL	
BEGIN PEAK HR	

ALL PED + BIKE & SCOOTER				
N LEG	S LEG	E LEG	W LEG	TOTAL
2	7	6	6	21
2	4	0	0	6
0	11	0	2	13
2	3	0	0	5
1	0	0	3	4
6	9	0	0	15
2	0	1	0	3
5	3	1	1	10
20	37	8	12	77
3:15 PM				

PEDESTRIAN CROSSINGS				
N LEG	S LEG	E LEG	W LEG	TOTAL
2	7	6	6	21
2	3	0	0	5
0	6	0	0	6
2	2	0	0	4
1	0	0	1	2
4	3	0	0	7
0	0	0	0	0
4	3	1	1	9
15	24	7	8	54
5	11	0	1	17

BICYCLE & SCOOTER CROSSINGS				
NL	SL	EL	WL	TOTAL
0	0	0	0	0
0	1	0	0	1
0	5	0	2	7
0	1	0	0	1
0	0	0	2	2
2	6	0	0	8
2	0	1	0	3
1	0	0	0	1
5	13	1	4	23



## Appendix B—Synchro Reports

HCM 6th AWSC  
 7: Sycamore Creek Loop Pkwy & Clearwater Pkwy

04/24/2024

Intersection	
Intersection Delay, s/veh	12.5
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑		↘	↑↑			↕			↙	↗
Traffic Vol, veh/h	65	148	0	0	145	134	33	34	15	116	0	135
Future Vol, veh/h	65	148	0	0	145	134	33	34	15	116	0	135
Peak Hour Factor	0.76	0.76	0.76	0.76	0.76	0.76	0.79	0.79	0.79	0.71	0.71	0.71
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	86	195	0	0	191	176	42	43	19	163	0	190
Number of Lanes	1	2	0	1	2	0	0	1	0	0	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	2	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	1	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	2	3	3
HCM Control Delay	10.9	13.3	12.6	13
HCM LOS	B	B	B	B

Lane	NBLn1	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1	SBLn2
Vol Left, %	40%	100%	0%	0%	0%	0%	0%	100%	0%
Vol Thru, %	41%	0%	100%	100%	100%	100%	27%	0%	0%
Vol Right, %	18%	0%	0%	0%	0%	0%	73%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	82	65	74	74	0	97	182	116	135
LT Vol	33	65	0	0	0	0	0	116	0
Through Vol	34	0	74	74	0	97	48	0	0
RT Vol	15	0	0	0	0	0	134	0	135
Lane Flow Rate	104	86	97	97	0	127	240	163	190
Geometry Grp	8	8	8	8	8	8	8	8	8
Degree of Util (X)	0.222	0.183	0.195	0.147	0	0.247	0.43	0.34	0.331
Departure Headway (Hd)	7.7	7.706	7.195	5.425	6.984	6.984	6.458	7.488	6.275
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	466	466	499	660	0	515	559	480	574
Service Time	5.444	5.444	4.933	3.162	4.721	4.721	4.195	5.225	4.01
HCM Lane V/C Ratio	0.223	0.185	0.194	0.147	0	0.247	0.429	0.34	0.331
HCM Control Delay	12.6	12.2	11.7	9.1	9.7	12	14	14.1	12.1
HCM Lane LOS	B	B	B	A	N	B	B	B	B
HCM 95th-tile Q	0.8	0.7	0.7	0.5	0	1	2.1	1.5	1.4

HCM 6th AWSC  
10: Flowering Plum Way

04/24/2024

Intersection	
Intersection Delay, s/veh	9.1
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↵	↕		↵	↕			↕			↕	
Traffic Vol, veh/h	77	197	22	8	203	2	16	1	4	1	2	47
Future Vol, veh/h	77	197	22	8	203	2	16	1	4	1	2	47
Peak Hour Factor	0.77	0.77	0.77	0.76	0.76	0.76	0.66	0.66	0.66	0.83	0.83	0.83
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	100	256	29	11	267	3	24	2	6	1	2	57
Number of Lanes	1	2	0	1	2	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	3	3
HCM Control Delay	9.1	9.3	9.4	8.6
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1
Vol Left, %	76%	100%	0%	0%	100%	0%	0%	2%
Vol Thru, %	5%	0%	100%	75%	0%	100%	97%	4%
Vol Right, %	19%	0%	0%	25%	0%	0%	3%	94%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	21	77	131	88	8	135	70	50
LT Vol	16	77	0	0	8	0	0	1
Through Vol	1	0	131	66	0	135	68	2
RT Vol	4	0	0	22	0	0	2	47
Lane Flow Rate	32	100	171	114	11	178	92	60
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.056	0.154	0.239	0.154	0.017	0.255	0.131	0.09
Departure Headway (Hd)	6.287	5.546	5.044	4.868	5.652	5.149	5.129	5.356
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	567	646	710	734	632	696	698	666
Service Time	4.051	3.289	2.787	2.61	3.396	2.893	2.873	3.115
HCM Lane V/C Ratio	0.056	0.155	0.241	0.155	0.017	0.256	0.132	0.09
HCM Control Delay	9.4	9.3	9.4	8.5	8.5	9.7	8.7	8.6
HCM Lane LOS	A	A	A	A	A	A	A	A
HCM 95th-tile Q	0.2	0.5	0.9	0.5	0.1	1	0.4	0.3

Intersection	
Intersection Delay, s/veh	8.3
Intersection LOS	A

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↘	↑↑	↘	
Traffic Vol, veh/h	137	65	3	176	40	2
Future Vol, veh/h	137	65	3	176	40	2
Peak Hour Factor	0.74	0.74	0.72	0.72	0.75	0.75
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	185	88	4	244	53	3
Number of Lanes	2	0	1	2	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	3	2	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	1	2
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	1	0	3
HCM Control Delay	8.8	7.5	9.4
HCM LOS	A	A	A

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	WBLn3
Vol Left, %	95%	0%	0%	100%	0%	0%
Vol Thru, %	0%	100%	41%	0%	100%	100%
Vol Right, %	5%	0%	59%	0%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	42	91	111	3	88	88
LT Vol	40	0	0	3	0	0
Through Vol	0	91	46	0	88	88
RT Vol	2	0	65	0	0	0
Lane Flow Rate	56	123	150	4	122	122
Geometry Grp	7	8	8	7	7	7
Degree of Util (X)	0.094	0.176	0.196	0.006	0.168	0.109
Departure Headway (Hd)	6.04	5.127	4.715	5.445	4.943	3.201
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	593	701	761	659	727	1121
Service Time	3.778	2.853	2.44	3.163	2.66	0.919
HCM Lane V/C Ratio	0.094	0.175	0.197	0.006	0.168	0.109
HCM Control Delay	9.4	9	8.6	8.2	8.7	6.3
HCM Lane LOS	A	A	A	A	A	A
HCM 95th-tile Q	0.3	0.6	0.7	0	0.6	0.4



HCM 6th AWSC  
 7: Sycamore Creek Loop Pkwy & Clearwater Pkwy

04/24/2024

Intersection	
Intersection Delay, s/veh	12.6
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑		↘	↑↑			↕			↖	↗
Traffic Vol, veh/h	65	148	0	0	145	134	33	34	15	116	0	135
Future Vol, veh/h	66	149	0	0	146	135	33	34	15	117	0	136
Peak Hour Factor	0.76	0.76	0.76	0.76	0.76	0.76	0.79	0.79	0.79	0.71	0.71	0.71
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	87	196	0	0	192	178	42	43	19	165	0	192
Number of Lanes	1	2	0	1	2	0	0	1	0	0	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	2	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	1	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	2	3	3
HCM Control Delay	11	13.4	12.7	13.1
HCM LOS	B	B	B	B

Lane	NBLn1	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1	SBLn2
Vol Left, %	40%	100%	0%	0%	0%	0%	0%	100%	0%
Vol Thru, %	41%	0%	100%	100%	100%	100%	26%	0%	0%
Vol Right, %	18%	0%	0%	0%	0%	0%	74%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	82	66	75	75	0	97	184	117	136
LT Vol	33	66	0	0	0	0	0	117	0
Through Vol	34	0	75	75	0	97	49	0	0
RT Vol	15	0	0	0	0	0	135	0	136
Lane Flow Rate	104	87	98	98	0	128	242	165	192
Geometry Grp	8	8	8	8	8	8	8	8	8
Degree of Util (X)	0.223	0.186	0.197	0.148	0	0.249	0.435	0.344	0.335
Departure Headway (Hd)	7.732	7.73	7.22	5.449	7.007	7.007	6.481	7.51	6.296
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	465	465	497	658	0	514	556	480	571
Service Time	5.476	5.469	4.958	3.186	4.744	4.744	4.218	5.246	4.032
HCM Lane V/C Ratio	0.224	0.187	0.197	0.149	0	0.249	0.435	0.344	0.336
HCM Control Delay	12.7	12.2	11.7	9.1	9.7	12.1	14.1	14.2	12.2
HCM Lane LOS	B	B	B	A	N	B	B	B	B
HCM 95th-tile Q	0.8	0.7	0.7	0.5	0	1	2.2	1.5	1.5

HCM 6th AWSC  
10: Flowering Plum Way

04/24/2024

Intersection	
Intersection Delay, s/veh	9.2
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↵	↕		↵	↕			↕			↕	
Traffic Vol, veh/h	77	197	22	8	203	2	16	1	4	1	2	47
Future Vol, veh/h	78	199	22	8	205	2	16	1	4	1	2	47
Peak Hour Factor	0.77	0.77	0.77	0.76	0.76	0.76	0.66	0.66	0.66	0.83	0.83	0.83
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	101	258	29	11	270	3	24	2	6	1	2	57
Number of Lanes	1	2	0	1	2	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	3	3
HCM Control Delay	9.1	9.3	9.4	8.7
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1
Vol Left, %	76%	100%	0%	0%	100%	0%	0%	2%
Vol Thru, %	5%	0%	100%	75%	0%	100%	97%	4%
Vol Right, %	19%	0%	0%	25%	0%	0%	3%	94%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	21	78	133	88	8	137	70	50
LT Vol	16	78	0	0	8	0	0	1
Through Vol	1	0	133	66	0	137	68	2
RT Vol	4	0	0	22	0	0	2	47
Lane Flow Rate	32	101	172	115	11	180	93	60
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.056	0.156	0.242	0.155	0.017	0.257	0.132	0.09
Departure Headway (Hd)	6.298	5.549	5.047	4.872	5.654	5.152	5.132	5.367
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	566	645	710	734	632	696	697	664
Service Time	4.063	3.291	2.789	2.614	3.4	2.898	2.878	3.127
HCM Lane V/C Ratio	0.057	0.157	0.242	0.157	0.017	0.259	0.133	0.09
HCM Control Delay	9.4	9.3	9.4	8.5	8.5	9.7	8.7	8.7
HCM Lane LOS	A	A	A	A	A	A	A	A
HCM 95th-tile Q	0.2	0.6	0.9	0.5	0.1	1	0.5	0.3

Intersection	
Intersection Delay, s/veh	8.3
Intersection LOS	A

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↘	↑↑	↘	
Traffic Vol, veh/h	137	65	3	176	40	2
Future Vol, veh/h	138	66	3	178	40	2
Peak Hour Factor	0.74	0.74	0.72	0.72	0.75	0.75
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	186	89	4	247	53	3
Number of Lanes	2	0	1	2	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	3	2	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	1	2
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	1	0	3
HCM Control Delay	8.8	7.5	9.4
HCM LOS	A	A	A

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	WBLn3
Vol Left, %	95%	0%	0%	100%	0%	0%
Vol Thru, %	0%	100%	41%	0%	100%	100%
Vol Right, %	5%	0%	59%	0%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	42	92	112	3	89	89
LT Vol	40	0	0	3	0	0
Through Vol	0	92	46	0	89	89
RT Vol	2	0	66	0	0	0
Lane Flow Rate	56	124	151	4	124	124
Geometry Grp	7	8	8	7	7	7
Degree of Util (X)	0.094	0.177	0.198	0.006	0.17	0.11
Departure Headway (Hd)	6.052	5.131	4.717	5.448	4.946	3.205
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	592	700	761	659	727	1120
Service Time	3.787	2.857	2.443	3.165	2.662	0.921
HCM Lane V/C Ratio	0.095	0.177	0.198	0.006	0.171	0.111
HCM Control Delay	9.4	9	8.6	8.2	8.7	6.3
HCM Lane LOS	A	A	A	A	A	A
HCM 95th-tile Q	0.3	0.6	0.7	0	0.6	0.4

HCM 6th AWSC  
7: Sycamore Creek Loop Pkwy & Clearwater Pkwy

05/14/2024

Intersection	
Intersection Delay, s/veh	12.8
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑		↘	↑↑			↕			↙	↗
Traffic Vol, veh/h	65	148	0	0	145	134	33	34	15	116	0	135
Future Vol, veh/h	65	151	0	0	152	140	33	34	15	119	0	135
Peak Hour Factor	0.76	0.76	0.76	0.76	0.76	0.76	0.79	0.79	0.79	0.71	0.71	0.71
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	86	199	0	0	200	184	42	43	19	168	0	190
Number of Lanes	1	2	0	1	2	0	0	1	0	0	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	2	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	1	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	2	3	3
HCM Control Delay	11	13.8	12.8	13.3
HCM LOS	B	B	B	B

Lane	NBLn1	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1	SBLn2
Vol Left, %	40%	100%	0%	0%	0%	0%	0%	100%	0%
Vol Thru, %	41%	0%	100%	100%	100%	100%	27%	0%	0%
Vol Right, %	18%	0%	0%	0%	0%	0%	73%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	82	65	76	76	0	101	191	119	135
LT Vol	33	65	0	0	0	0	0	119	0
Through Vol	34	0	76	76	0	101	51	0	0
RT Vol	15	0	0	0	0	0	140	0	135
Lane Flow Rate	104	86	99	99	0	133	251	168	190
Geometry Grp	8	8	8	8	8	8	8	8	8
Degree of Util (X)	0.225	0.185	0.201	0.152	0	0.26	0.453	0.352	0.335
Departure Headway (Hd)	7.797	7.785	7.275	5.503	7.033	7.033	6.507	7.566	6.351
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	461	461	494	651	0	511	554	476	567
Service Time	5.545	5.525	5.014	3.242	4.771	4.771	4.245	5.305	4.09
HCM Lane V/C Ratio	0.226	0.187	0.2	0.152	0	0.26	0.453	0.353	0.335
HCM Control Delay	12.8	12.3	11.8	9.2	9.8	12.2	14.6	14.4	12.3
HCM Lane LOS	B	B	B	A	N	B	B	B	B
HCM 95th-tile Q	0.9	0.7	0.7	0.5	0	1	2.3	1.6	1.5

HCM 6th AWSC  
10: Flowering Plum Way

05/14/2024

Intersection	
Intersection Delay, s/veh	9.4
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↵	↕↔		↵	↕↔			↕↔			↕↔	
Traffic Vol, veh/h	77	197	22	8	203	2	16	1	4	1	2	47
Future Vol, veh/h	77	197	28	13	203	2	29	1	13	1	2	47
Peak Hour Factor	0.77	0.77	0.77	0.76	0.76	0.76	0.66	0.66	0.66	0.83	0.83	0.83
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	100	256	36	17	267	3	44	2	20	1	2	57
Number of Lanes	1	2	0	1	2	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	3	3
HCM Control Delay	9.3	9.5	9.8	8.8
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1
Vol Left, %	67%	100%	0%	0%	100%	0%	0%	2%
Vol Thru, %	2%	0%	100%	70%	0%	100%	97%	4%
Vol Right, %	30%	0%	0%	30%	0%	0%	3%	94%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	43	77	131	94	13	135	70	50
LT Vol	29	77	0	0	13	0	0	1
Through Vol	1	0	131	66	0	135	68	2
RT Vol	13	0	0	28	0	0	2	47
Lane Flow Rate	65	100	171	122	17	178	92	60
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.112	0.158	0.245	0.168	0.027	0.261	0.134	0.091
Departure Headway (Hd)	6.204	5.673	5.17	4.96	5.781	5.277	5.257	5.454
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	574	630	691	719	616	677	678	651
Service Time	3.986	3.43	2.927	2.716	3.543	3.039	3.019	3.236
HCM Lane V/C Ratio	0.113	0.159	0.247	0.17	0.028	0.263	0.136	0.092
HCM Control Delay	9.8	9.5	9.6	8.7	8.7	9.9	8.8	8.8
HCM Lane LOS	A	A	A	A	A	A	A	A
HCM 95th-tile Q	0.4	0.6	1	0.6	0.1	1	0.5	0.3

Intersection	
Intersection Delay, s/veh	8.3
Intersection LOS	A

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↘	↑↑	↘	
Traffic Vol, veh/h	137	65	3	176	40	2
Future Vol, veh/h	143	68	3	180	41	2
Peak Hour Factor	0.74	0.74	0.72	0.72	0.75	0.75
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	193	92	4	250	55	3
Number of Lanes	2	0	1	2	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	3	2	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	1	2
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	1	0	3
HCM Control Delay	8.8	7.5	9.5
HCM LOS	A	A	A

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	WBLn3
Vol Left, %	95%	0%	0%	100%	0%	0%
Vol Thru, %	0%	100%	41%	0%	100%	100%
Vol Right, %	5%	0%	59%	0%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	43	95	116	3	90	90
LT Vol	41	0	0	3	0	0
Through Vol	0	95	48	0	90	90
RT Vol	2	0	68	0	0	0
Lane Flow Rate	57	129	156	4	125	125
Geometry Grp	7	8	8	7	7	7
Degree of Util (X)	0.097	0.184	0.205	0.006	0.172	0.112
Departure Headway (Hd)	6.078	5.141	4.728	5.461	4.959	3.217
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	589	698	760	657	725	1114
Service Time	3.816	2.869	2.456	3.181	2.679	0.937
HCM Lane V/C Ratio	0.097	0.185	0.205	0.006	0.172	0.112
HCM Control Delay	9.5	9	8.7	8.2	8.7	6.3
HCM Lane LOS	A	A	A	A	A	A
HCM 95th-tile Q	0.3	0.7	0.8	0	0.6	0.4

HCM 6th AWSC  
 7: Sycamore Creek Loop Pkwy & Clearwater Pkwy

05/14/2024

Intersection	
Intersection Delay, s/veh	12.9
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑		↘	↑↑			↕			↖	↗
Traffic Vol, veh/h	65	148	0	0	145	134	33	34	15	116	0	135
Future Vol, veh/h	66	153	0	0	154	141	33	34	15	120	0	136
Peak Hour Factor	0.76	0.76	0.76	0.76	0.76	0.76	0.79	0.79	0.79	0.71	0.71	0.71
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	87	201	0	0	203	186	42	43	19	169	0	192
Number of Lanes	1	2	0	1	2	0	0	1	0	0	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	2	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	1	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	2	3	3
HCM Control Delay	11.1	13.9	12.9	13.4
HCM LOS	B	B	B	B

Lane	NBLn1	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1	SBLn2
Vol Left, %	40%	100%	0%	0%	0%	0%	0%	100%	0%
Vol Thru, %	41%	0%	100%	100%	100%	100%	27%	0%	0%
Vol Right, %	18%	0%	0%	0%	0%	0%	73%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	82	66	77	77	0	103	192	120	136
LT Vol	33	66	0	0	0	0	0	120	0
Through Vol	34	0	77	77	0	103	51	0	0
RT Vol	15	0	0	0	0	0	141	0	136
Lane Flow Rate	104	87	101	101	0	135	253	169	192
Geometry Grp	8	8	8	8	8	8	8	8	8
Degree of Util (X)	0.226	0.189	0.204	0.155	0	0.265	0.46	0.357	0.34
Departure Headway (Hd)	7.843	7.817	7.306	5.534	7.063	7.063	6.538	7.6	6.385
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	458	459	491	647	0	509	552	473	563
Service Time	5.593	5.559	5.048	3.275	4.802	4.802	4.277	5.34	4.125
HCM Lane V/C Ratio	0.227	0.19	0.206	0.156	0	0.265	0.458	0.357	0.341
HCM Control Delay	12.9	12.4	11.9	9.3	9.8	12.3	14.8	14.5	12.4
HCM Lane LOS	B	B	B	A	N	B	B	B	B
HCM 95th-tile Q	0.9	0.7	0.8	0.5	0	1.1	2.4	1.6	1.5

HCM 6th AWSC  
10: Flowering Plum Way

05/14/2024

Intersection	
Intersection Delay, s/veh	9.4
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↵	↕↗		↵	↕↗			↕↗			↕↗	
Traffic Vol, veh/h	77	197	22	8	203	2	16	1	4	1	2	47
Future Vol, veh/h	78	199	28	13	205	2	29	1	13	1	2	47
Peak Hour Factor	0.77	0.77	0.77	0.76	0.76	0.76	0.66	0.66	0.66	0.83	0.83	0.83
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	101	258	36	17	270	3	44	2	20	1	2	57
Number of Lanes	1	2	0	1	2	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	3	3
HCM Control Delay	9.3	9.6	9.8	8.8
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1
Vol Left, %	67%	100%	0%	0%	100%	0%	0%	2%
Vol Thru, %	2%	0%	100%	70%	0%	100%	97%	4%
Vol Right, %	30%	0%	0%	30%	0%	0%	3%	94%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	43	78	133	94	13	137	70	50
LT Vol	29	78	0	0	13	0	0	1
Through Vol	1	0	133	66	0	137	68	2
RT Vol	13	0	0	28	0	0	2	47
Lane Flow Rate	65	101	172	123	17	180	93	60
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.113	0.16	0.248	0.169	0.027	0.264	0.135	0.091
Departure Headway (Hd)	6.219	5.679	5.176	4.967	5.787	5.283	5.263	5.467
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	573	629	691	719	616	676	677	649
Service Time	3.999	3.436	2.932	2.723	3.55	3.046	3.026	3.25
HCM Lane V/C Ratio	0.113	0.161	0.249	0.171	0.028	0.266	0.137	0.092
HCM Control Delay	9.8	9.5	9.6	8.7	8.7	10	8.9	8.8
HCM Lane LOS	A	A	A	A	A	A	A	A
HCM 95th-tile Q	0.4	0.6	1	0.6	0.1	1.1	0.5	0.3



Intersection	
Intersection Delay, s/veh	8.4
Intersection LOS	A

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↘	↑↑	↘	
Traffic Vol, veh/h	137	65	3	176	40	2
Future Vol, veh/h	144	69	3	182	41	2
Peak Hour Factor	0.74	0.74	0.72	0.72	0.75	0.75
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	195	93	4	253	55	3
Number of Lanes	2	0	1	2	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	3	2	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	1	2
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	1	0	3
HCM Control Delay	8.9	7.6	9.5
HCM LOS	A	A	A

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	WBLn3
Vol Left, %	95%	0%	0%	100%	0%	0%
Vol Thru, %	0%	100%	41%	0%	100%	100%
Vol Right, %	5%	0%	59%	0%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	43	96	117	3	91	91
LT Vol	41	0	0	3	0	0
Through Vol	0	96	48	0	91	91
RT Vol	2	0	69	0	0	0
Lane Flow Rate	57	130	158	4	126	126
Geometry Grp	7	8	8	7	7	7
Degree of Util (X)	0.097	0.186	0.208	0.006	0.174	0.113
Departure Headway (Hd)	6.087	5.148	4.734	5.465	4.963	3.221
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	588	698	759	656	724	1113
Service Time	3.828	2.873	2.459	3.184	2.682	0.94
HCM Lane V/C Ratio	0.097	0.186	0.208	0.006	0.174	0.113
HCM Control Delay	9.5	9.1	8.7	8.2	8.7	6.4
HCM Lane LOS	A	A	A	A	A	A
HCM 95th-tile Q	0.3	0.7	0.8	0	0.6	0.4

